Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

INTRODUCTION

How to Use This Manual

This manual is divided into multiple sections. The first page of each section is marked with a black tab that lines up with its corresponding thumb index tab on this page and the back cover. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of each page can also be used as a quick reference.
Each section includes:

1. A table of contents, or an exploded view index showing:
   - Parts disassembly sequence.
   - Bolt torques and thread sizes.
   - Page references to descriptions in text.
2. Disassembly/assembly procedures and tools.
3. Inspection.
4. Testing/troubleshooting.
5. Repair.
6. Adjustments.

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions we have provided safety messages and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.
You will find important safety information in a variety of forms including:

- **Safety Labels** — on the vehicle.
- **Safety Messages** — preceded by a safety alert symbol ⚠ and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:

⚠ DANGER	You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
⚠ WARNING	You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
⚠ CAUTION	You CAN be HURT if you don't follow instructions.

- **Instructions** — how to service this vehicle correctly and safely.

As you read this manual, you will find information that is preceded by a NOTICE symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

First Edition 9/2007 1,968 pages
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Specifications apply to USA and Canada

HONDA MOTOR CO., LTD.
Service Publication Office

As sections with * include SRS components; special precautions are required when servicing.

2000-08 S-2000

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The S2000 SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, and seat belt tensioners in the seat belt retractors. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional activation of the airbags and seat belt tensioners.
- Do not bump or impact the SRS unit, or front impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, console, dashboard, dashboard lower panel, in the dashboard above the glove box. Do not use electrical test equipment on these circuits.

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

General Information

General Information

Chassis and Paint Codes

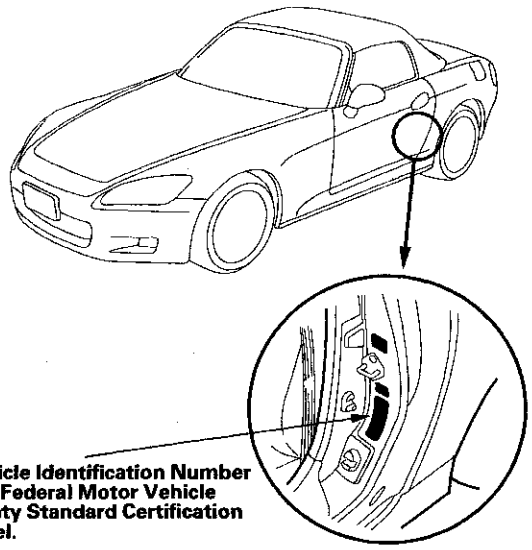
'00 Model

Vehicle Identification Number

JHM AP1 1 4 * Y T 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP1: S2000/F20C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
4: S2000
e. Check Digit
f. Model Year
Y: '00
g. Factory Code
T: Tochigi Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F20C1 - 1000001

a b

a. Engine Type
F20C1: 2.0 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1000001—: USA models
1100001—: Canada models

Transmission Number

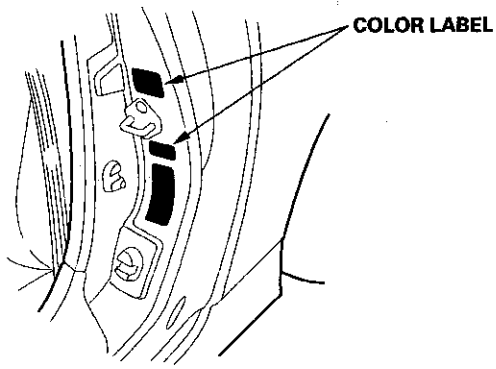
SCYM - 1000001

a b

a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

Paint Code

Code	Color
NH-547	Berlina Black
NH-565	Grand Prix White
NH-630M	Silverstone Metallic
R-510	New Formula Red



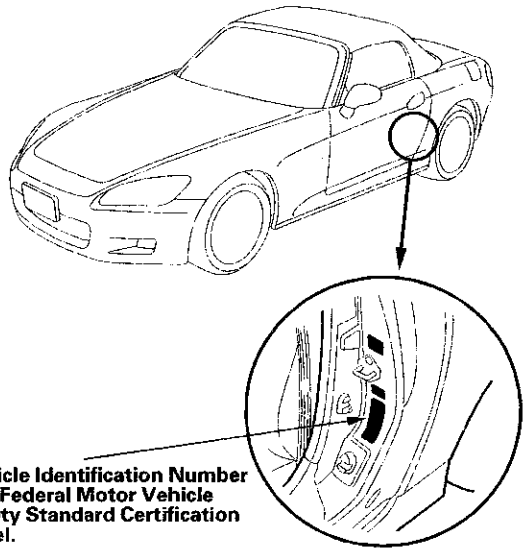
'01 Model

Vehicle Identification Number

JHM AP1 1 4 * 1 T 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP1: S2000/F20C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
4: S2000
e. Check Digit
f. Model Year
1: '01
g. Factory Code
T: Tochigi Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F20C1 - 1010001

a b

a. Engine Type
F20C1: 2.0 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1010001—: USA models
1110001—: Canada models

Transmission Number

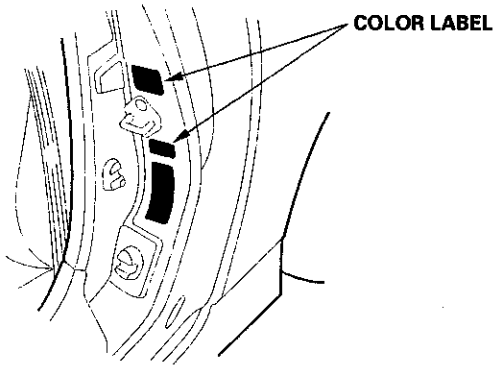
SCYM - 1000001

a b

a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-66P	Montecarlo Blue Pearl		○
NH-547	Berlina Black	○	○
NH-565	Grand Prix White	○	
NH-630M	Silverstone Metallic	○	○
R-510	New Formula Red	○	○
Y-52P	Spa Yellow Pearl	○	○



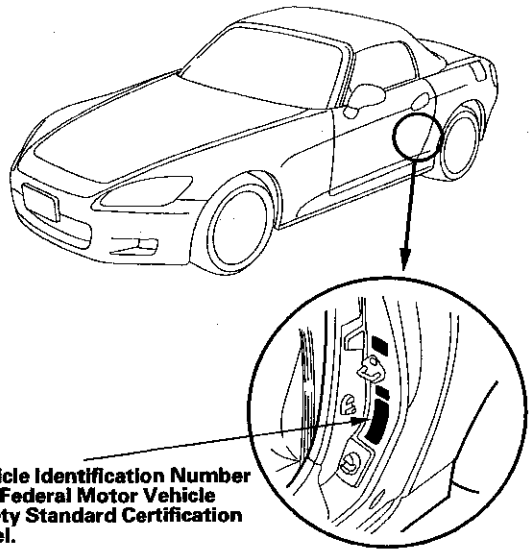
Chassis and Paint Codes (cont'd)

'02 Model

Vehicle Identification Number

JHM AP1 1 4 * 2 T 000001
a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP1: S2000/F20C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
4: S2000
e. Check Digit
f. Model Year
2: '02
g. Factory Code
T: Tochigi Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F20C1 - 1020001
a b

a. Engine Type
F20C1: 2.0 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1020001—: USA models
1120001—: Canada models

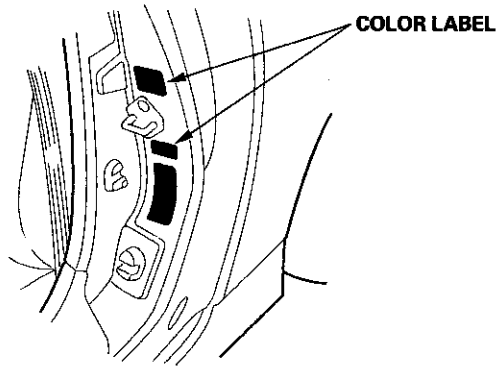
Transmission Number

SCYM - 2000001
a b

a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-513M	Suzuka Blue Metallic	○	○
NH-547	Berlina Black	○	○
NH-552M	Sebring Silver Metallic	○	○
NH-565	Grand Prix White	○	○
R-510	New Formula Red	○	○
Y-52P	Spa Yellow Pearl	○	



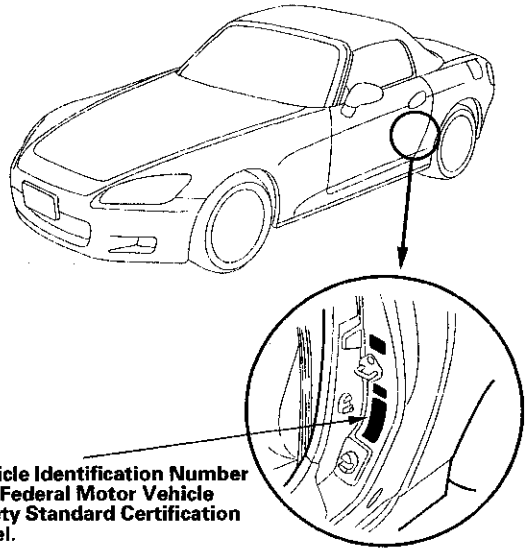
'03 Model

Vehicle Identification Number

JHM AP1 1 4 * 3 T 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP1: S2000/F20C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
4: S2000
e. Check Digit
f. Model Year
3: '03
g. Factory Code
T: Tochigi Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F20C1 - 1040001

a b

a. Engine Type
F20C1: 2.0 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1040001—: USA models
1130001—: Canada models

Transmission Number

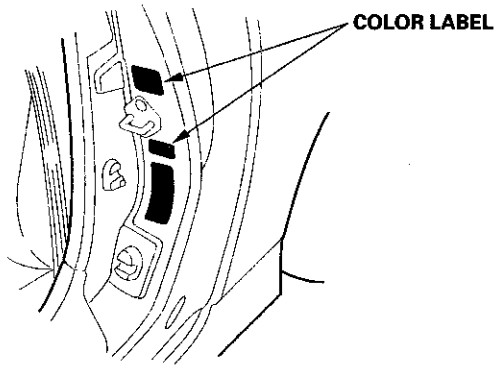
SCYM - 2000001

a b

a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-513M	Suzuka Blue Metallic	○	
NH-547	Berlina Black	○	○
NH-552M	Sebring Silver Metallic	○	○
NH-565	Grand Prix White	○	○
R-510	New Formula Red	○	○
Y-52P	Spa Yellow Pearl	○	
NH-630M	Silverstone Metallic	○	



Chassis and Paint Codes (cont'd)

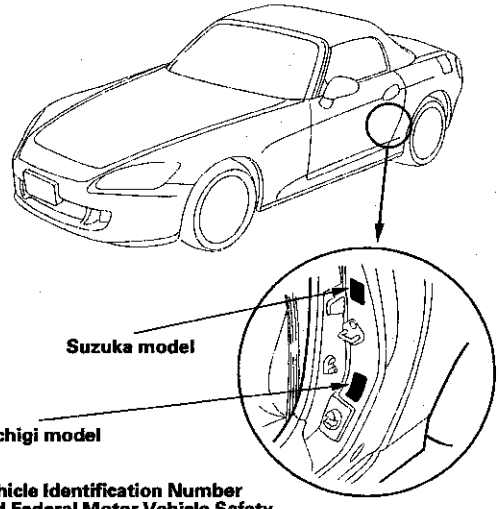
'04 Model

Vehicle Identification Number

JHM AP2 1 4 * 4 T 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP2: S2000/F22C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
4: S2000
e. Check Digit
f. Model Year
4: '04
g. Factory Code
S: Suzuka Factory in Japan
T: Tochigi Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F22C1 - 1000001

a b

a. Engine Type
F22C1: 2.2 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1000001—: USA models produced in Tochigi Factory
1100001—: Canada models produced in Tochigi Factory
1007001—: USA models produced in Suzuka Factory
1101001—: Canada models produced in Suzuka Factory

Transmission Number

SCYM - 3000001

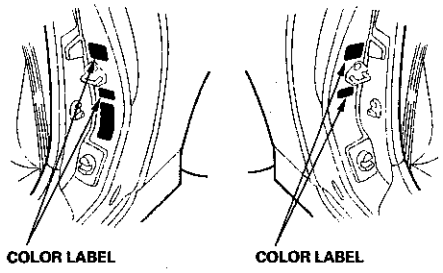
a b

a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-513MY	Suzuka Blue Metallic	○	
NH-547	Berlina Black	○	○
NH-552M	Sebring Silver Metallic	○	○
NH-565	Grand Prix White	○	○
R-510	New Formula Red	○	
Y-65P	Rio Yellow Pearl	○	○
NH-630MX	Silverstone Metallic	○	

Tochigi model: Suzuka model:



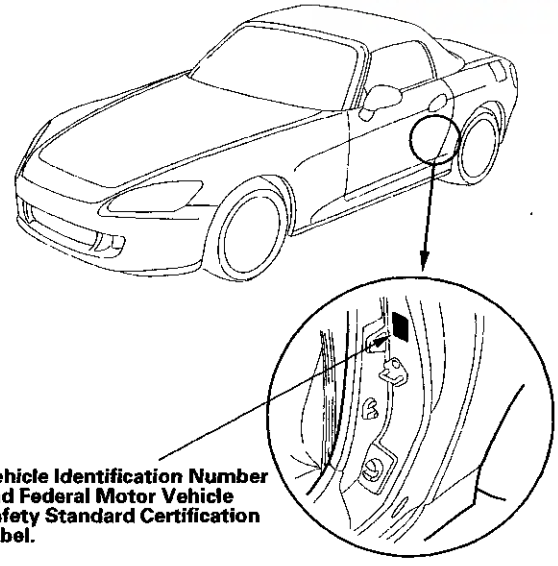
'05 Model

Vehicle Identification Number

JHM AP2 1 4 * 5 S 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP2: S2000/F22C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
4: S2000
e. Check Digit
f. Model Year
5: '05
g. Factory Code
S: Suzuka Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F22C1 - 1007001

a b

a. Engine Type
F22C1: 2.2 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1002001—: USA models
1110001—: Canada models

Transmission Number

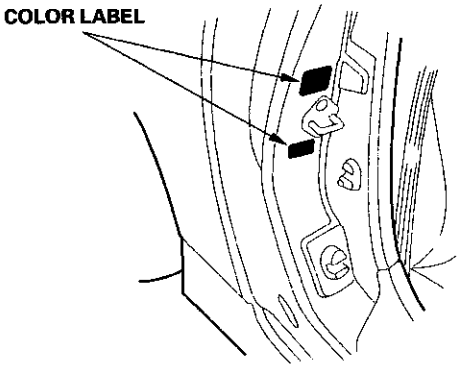
SCYM - 3000001

a b

a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-513MY	Suzuka Blue Metallic	○	
NH-547	Berlina Black	○	○
NH-552M	Sebring Silver Metallic	○	○
NH-565	Grand Prix White	○	○
R-510	New Formula Red	○	
Y-65P	Rio Yellow Pearl	○	○
NH-630M	Silverstone Metallic	○	○



Chassis and Paint Codes (cont'd)

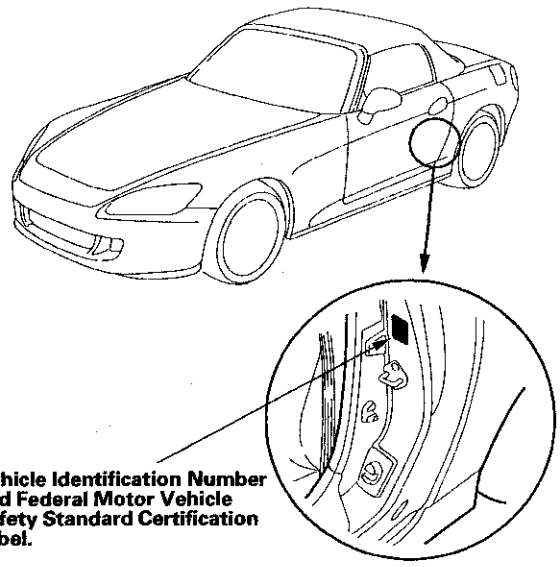
'06 Model

Vehicle Identification Number

JHM AP2 1 4 * 6 S 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP2: S2000/F22C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
4: S2000
e. Check Digit
f. Model Year
6: '06
g. Factory Code
S: Suzuka Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F22C1 - 1040001

a b

a. Engine Type
F22C1: 2.2 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1040001—: USA models
1120001—: Canada models

Transmission Number

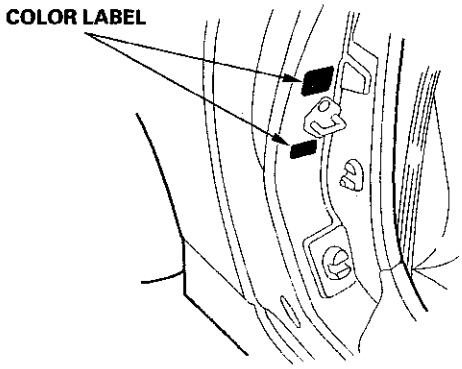
SCYM - 4000001

a b

a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-513MY	Suzuka Blue Metallic	○	
B-545P	Bermuda Blue Pearl	○	
NH-547	Berlina Black	○	○
NH-552M	Sebring Silver Metallic	○	○
NH-565	Grand Prix White	○	○
NH-676M	Moon Rock Metallic		○
R-510	New Formula Red	○	
Y-65P	Rio Yellow Pearl	○	○
NH-630M	Silverstone Metallic	○	○



'07 Model

Vehicle Identification Number

JHM AP2 1 4 * 7 S 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle

b. Line, Body and Engine Type
AP2: S2000/F22C1

c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual

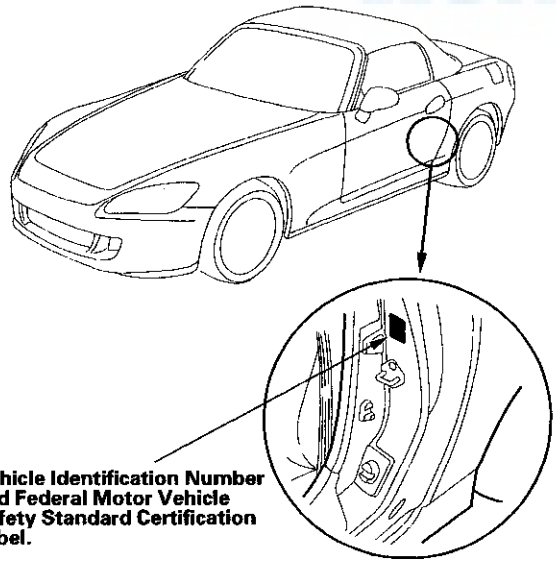
d. Vehicle Grade (Series)
4: S2000

e. Check Digit

f. Model Year
7: '07

g. Factory Code
S: Suzuka Factory in Japan

h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

Engine Number

F22C1 - 1050001

a b

a. Engine Type
F22C1: 2.2 L DOHC VTEC Sequential Multiport Fuel-injected engine

b. Serial Number
1050001—: USA models
1130001—: Canada models

Transmission Number

SCYM - 4000001

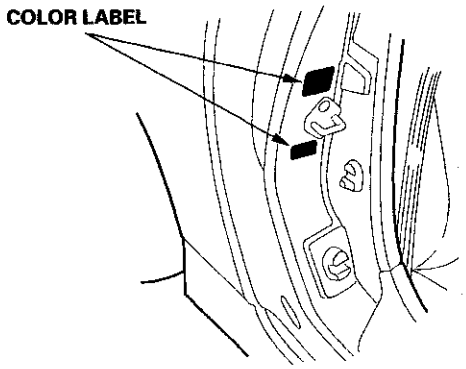
a b

a. Transmission Type
SCYM: 6-speed Manual

b. Serial Number

Paint Code

Code	Color	USA models	Canada models
B-545P	Bermuda Blue Pearl	○	
NH-547	Berlina Black	○	○
NH-552M	Sebring Silver Metallic		○
NH-565	Grand Prix White	○	○
R-510	New Formula Red	○	
Y-65P	Rio Yellow Pearl	○	
NH-630M	Silverstone Metallic	○	○
YR-536P	New Imola Orange Pearl		○



Chassis and Paint Codes (cont'd)

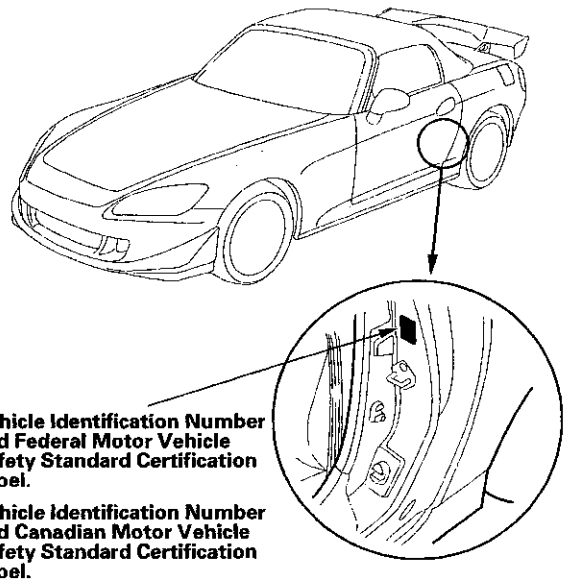
'08 Model

Vehicle Identification Number

JHM AP2 1 2 * 8 S 000001

a b c d e f g h

a. Manufacturer, Make and Type of Vehicle
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
b. Line, Body and Engine Type
AP2: S2000/F22C1
c. Body Type and Transmission Type
1: 2-door Convertible/6-speed Manual
d. Vehicle Grade (Series)
2: CR
4: S2000
e. Check Digit
f. Model Year
8: '08
g. Factory Code
S: Suzuka Factory in Japan
h. Serial Number
000001—: USA models
800001—: Canada models



Vehicle Identification Number and Federal Motor Vehicle Safety Standard Certification Label.

Vehicle Identification Number and Canadian Motor Vehicle Safety Standard Certification Label.

CR model is shown.

Engine Number

F22C1 - 1060001

a b

a. Engine Type
F22C1: 2.2 L DOHC VTEC Sequential Multiport Fuel-injected engine
b. Serial Number
1060001—: USA models
1140001—: Canada models

Transmission Number

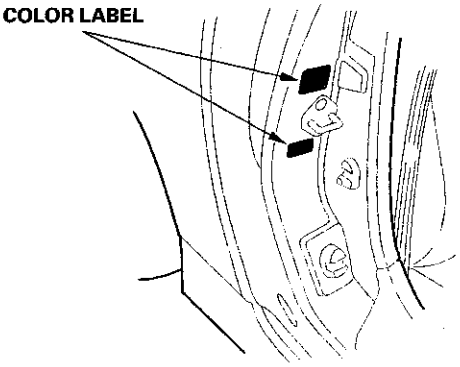
SCYM - 5000001

a b

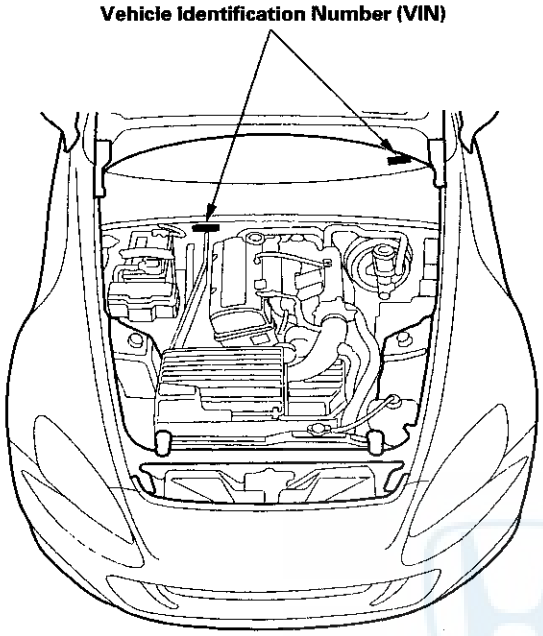
a. Transmission Type
SCYM: 6-speed Manual
b. Serial Number

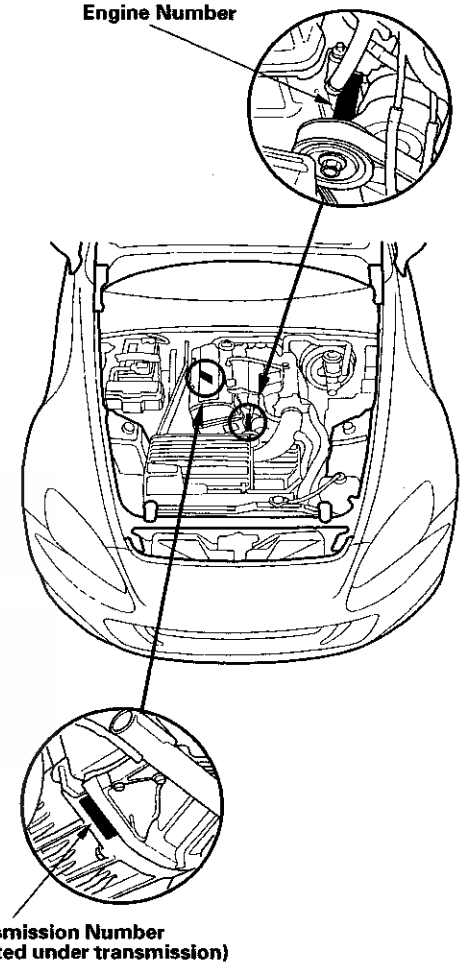
Paint Code

Code	Color	USA models		Canada models
		S2000	CR	
NH-547	Berlina Black	○	○	○
NH-565	Grand Prix White	○	○	○
NH-745M	Chicane Silver Metallic	○		○
B-554P	Apex Blue Pearl		○	○
R-510	New Formula Red	○		○
Y-65P	Rio Yellow Pearl	○	○	○
B-545P	Laguna Blue Pearl	○		



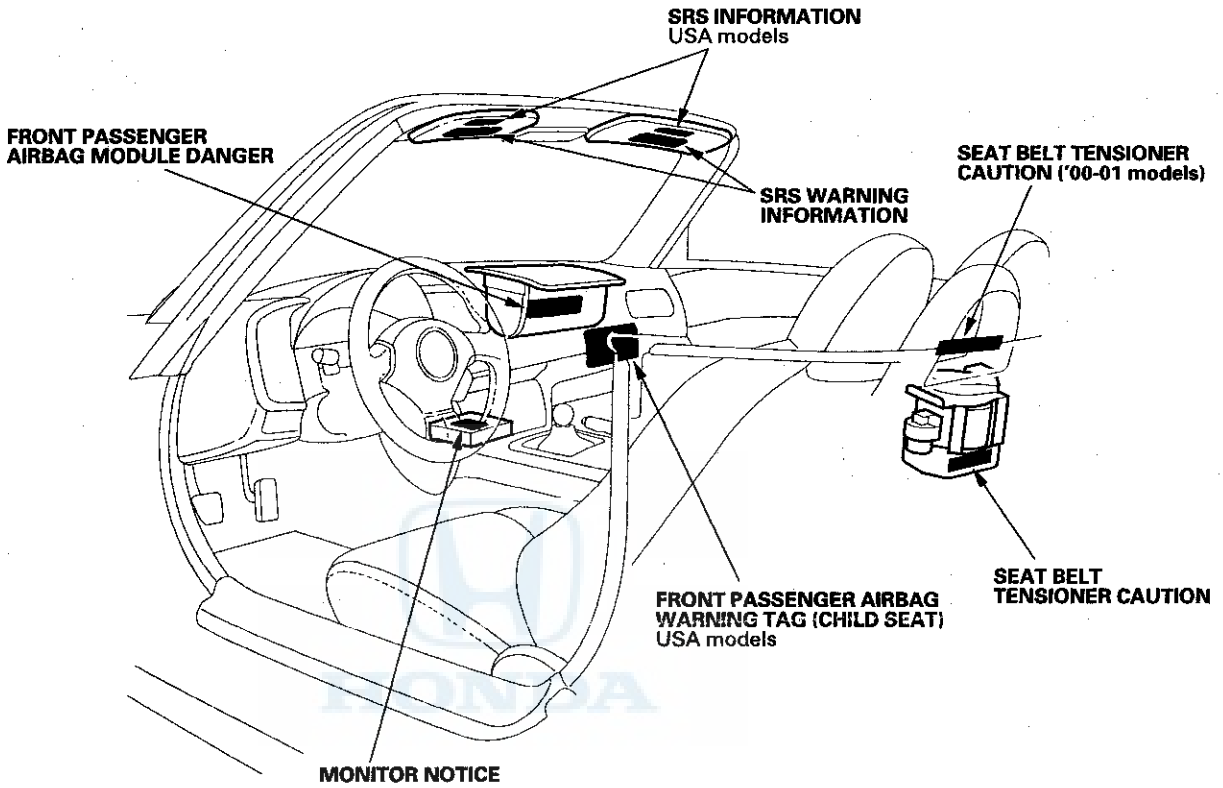
Identification Number Locations



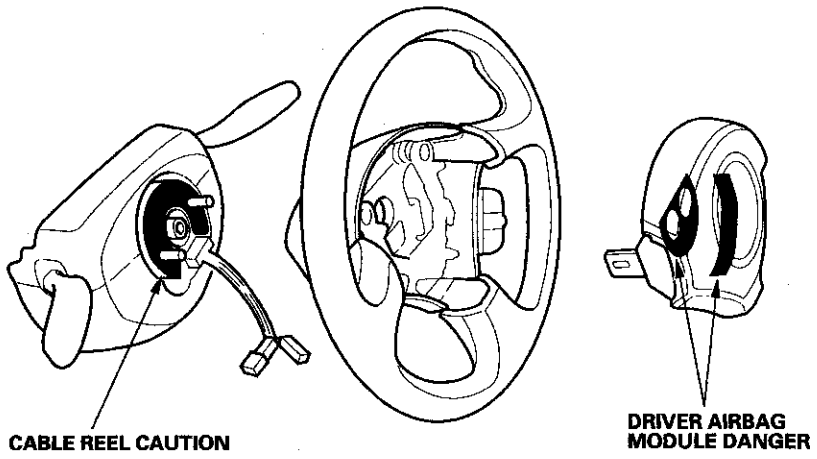


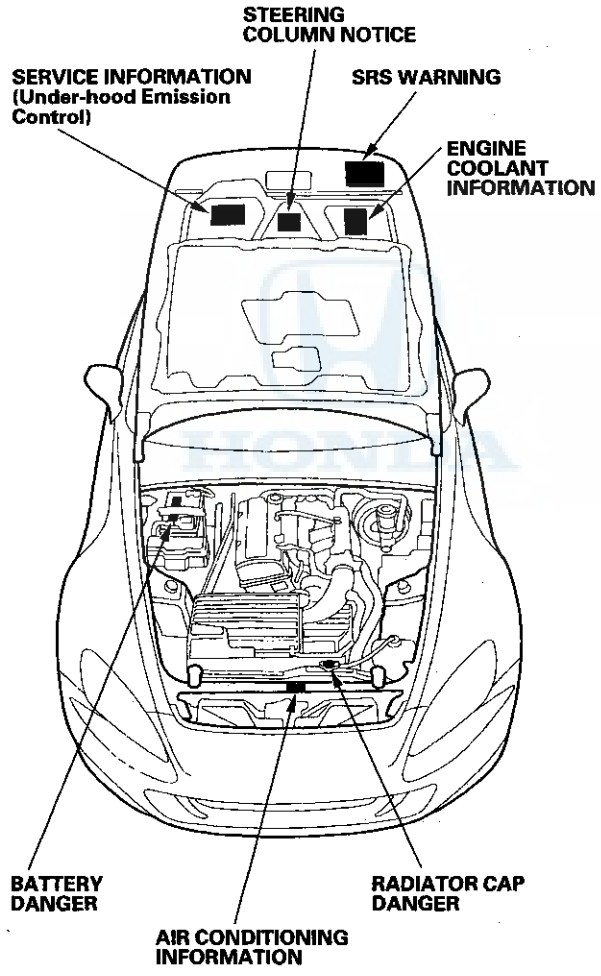
Danger/Warning/Caution Label Locations

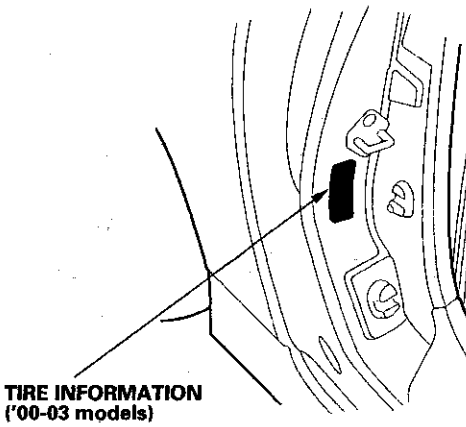
Passenger's Compartment:

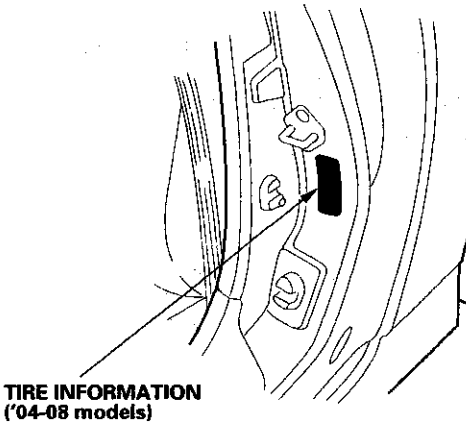


Steering Wheel:




STEERING
COLUMN NOTICE
SERVICE INFORMATION
(Under-hood Emission
Control)
SRS WARNING
ENGINE
COOLANT
INFORMATION
BATTERY
DANGER
RADIATOR CAP
DANGER
AIR CONDITIONING
INFORMATION


TIRE INFORMATION
('00-03 models)

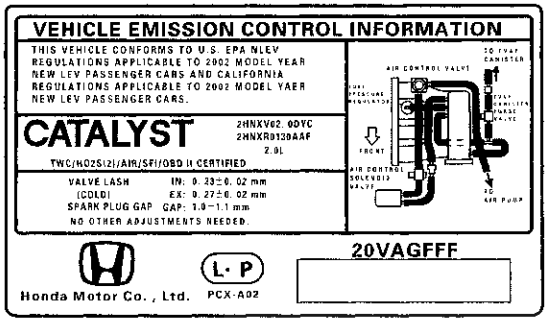

TIRE INFORMATION
('04-08 models)

Under-hood Emission Control Label

'00-02 Models

Emission Group Identification

Example:



'00 Model
THIS VEHICLE CONFORMS TO U.S. EPA NLEV REGULATIONS APPLICABLE TO 2000 MODEL YEAR NEW LEV PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2000 MODEL YEAR NEW LEV PASSENGER CARS.

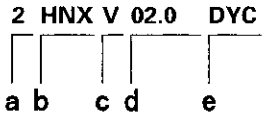
'01 Model
THIS VEHICLE CONFORMS TO U.S. EPA NLEV REGULATIONS APPLICABLE TO 2001 MODEL YEAR NEW LEV PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2001 MODEL YEAR NEW LEV PASSENGER CARS.

CANADIAN TIER 1
THIS VEHICLE CONFORMS TO CANADIAN TIER 1 STANDARDS FOR 2001 MODEL YEAR NEW PASSENGER CARS.

'02 Model
THIS VEHICLE CONFORMS TO U.S. EPA NLEV REGULATIONS APPLICABLE TO 2002 MODEL YEAR NEW LEV PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2002 MODEL YEAR NEW LEV PASSENGER CARS.

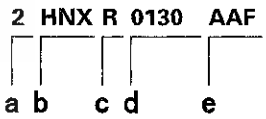
Test Group and Evaporative Family

Test Group:



a. **Model Year**
   Y: '00
   1: '01
   2: '02
b. **Manufacturer Subcode**
   HNX: HONDA
c. **Family Type**
   V: LDV
d. **Displacement Group**
e. **Sequence Characters**

Evaporative Family:

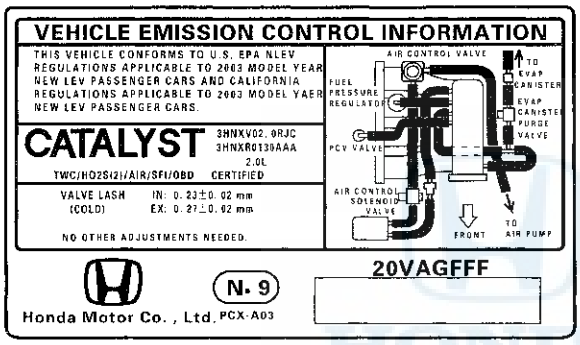


a. **Model Year**
   Y: '00
   1: '01
   2: '02
b. **Manufacturer Subcode**
   HNX: HONDA
c. **Family Type**
   R: EVAP/ORVR
d. **Canister Working Capacity Group**
e. **Sequence Characters**

'03 Model

Emission Group Identification

Example:



THIS VEHICLE CONFORMS TO U.S. EPA NLEV REGULATIONS APPLICABLE TO 2003 MODEL YEAR NEW LEV PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2003 MODEL YEAR NEW LEV PASSENGER CARS.

Test Group and Evaporative Family

Test Group:

3 HNX V 02.0 RJC

a b c d e

- a. **Model Year**
  3: '03
- b. **Manufacturer Subcode**
  HNX: HONDA
- c. **Family Type**
  V: LDV
- d. **Displacement Group**
- e. **Sequence Characters**

Evaporative Family:

3 HNX R 0130 AAA

a b c d e

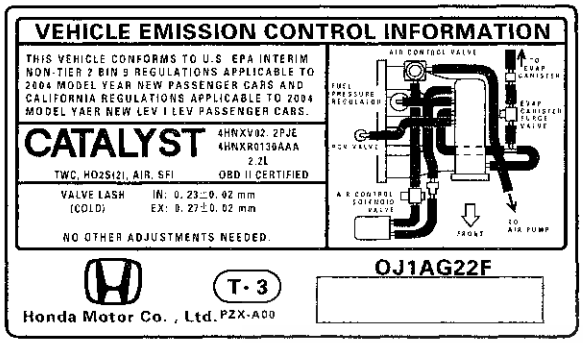
- a. **Model Year**
  3: '03
- b. **Manufacturer Subcode**
  HNX: HONDA
- c. **Family Type**
  R: EVAP/ORVR
- d. **Canister Working Capacity Group**
- e. **Sequence Characters**

Under-hood Emission Control Label (cont'd)

'04-05 Models

Emission Group Identification

Example:



'04 Model
THIS VEHICLE CONFORMS TO U.S. EPA INTERIM NON-TIER 2 BIN 9 REGULATIONS APPLICABLE TO 2004 MODEL YEAR NEW PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2004 MODEL YEAR NEW LEV I LEV PASSENGER CARS.

'05 Model
THIS VEHICLE CONFORMS TO U.S. EPA INTERIM NON-TIER 2 BIN 9 REGULATIONS APPLICABLE TO 2005 MODEL YEAR NEW PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2005 MODEL YEAR NEW LEV I LEV PASSENGER CARS.

Test Group and Evaporative Family

Test Group:

5 HNX V 02.2 DJE
a b c d e

a. **Model Year**
   4: '04
   5: '05
b. **Manufacturer Subcode**
   HNX: HONDA
c. **Family Type**
   V: LDV
d. **Displacement Group**
e. **Sequence Characters**
   PJE: '04 model
   DJE: '05 model

Evaporative Family:

5 HNX R 0130 AAA
a b c d e

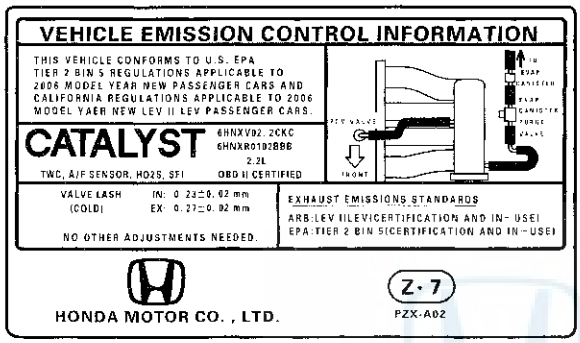
a. **Model Year**
   4: '04
   5: '05
b. **Manufacturer Subcode**
   HNX: HONDA
c. **Family Type**
   R: EVAP/ORVR
d. **Canister Working Capacity Group**
e. **Sequence Characters**

'06-08 Models

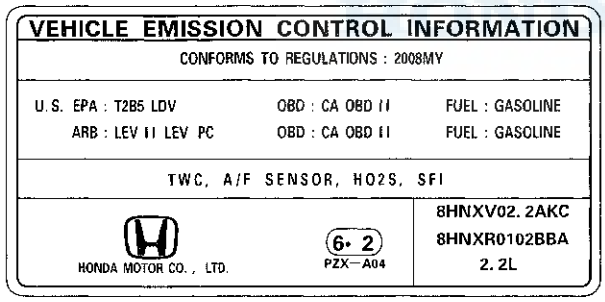
Emission Group Identification

Example:

'06-07 Models



'08 Model

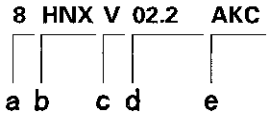


'06 Model
THIS VEHICLE CONFORMS TO U.S. EPA TIER 2 BIN 5 REGULATIONS APPLICABLE TO 2006 MODEL YEAR NEW PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2006 MODEL YEAR NEW LEV II LEV PASSENGER CARS.

'07 Model
THIS VEHICLE CONFORMS TO U.S. EPA TIER 2 BIN 5 REGULATIONS APPLICABLE TO 2007 MODEL YEAR NEW PASSENGER CARS AND CALIFORNIA REGULATIONS APPLICABLE TO 2007 MODEL YEAR NEW LEV II LEV PASSENGER CARS.

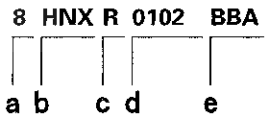
Test Group and Evaporative Family

Test Group:



- **a. Model Year**
  6: '06
  7: '07
  8: '08
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  V: LDV
- **d. Displacement Group**
- **e. Sequence Characters**

Evaporative Family:



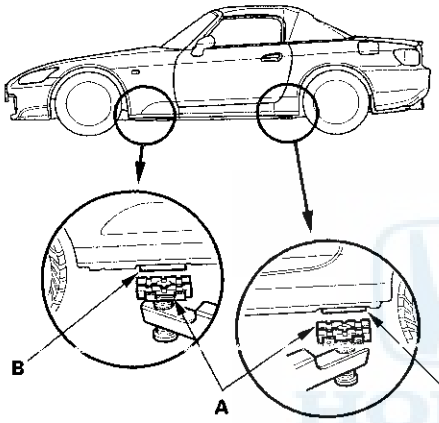
- **a. Model Year**
  6: '06
  7: '07
  8: '08
- **b. Manufacturer Subcode**
  HNX: HONDA
- **c. Family Type**
  R: EVAP/ORVR
- **d. Canister Working Capacity Group**
- **e. Sequence Characters**
  BBB: '06 model
  BBY: '07 model
  BBA: '08 model

Lift and Support Points

NOTE: If you are going to remove heavy components such as suspension or the fuel tank from the rear of the vehicle, first support the front of the vehicle with tall safety stands. When substantial weight is removed from the rear of the vehicle, the center of gravity can change, causing the vehicle to tip forward on the lift.

Vehicle Lift

1. Position the lift blocks (A) under the vehicle's front support points (B) and rear support points (C).



2. Raise the lift a few inches, and rock the vehicle gently to be sure it is firmly supported.

3. Raise the lift to its full height, and inspect the vehicle support points (B and C) for solid contact with the lift blocks.

Safety Stands

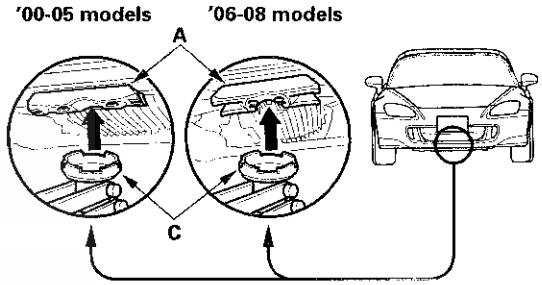
To support the vehicle on safety stands, use the same support points (B and C) as for a vehicle lift. Always use safety stands when working on or under any vehicle that is supported only by a jack.

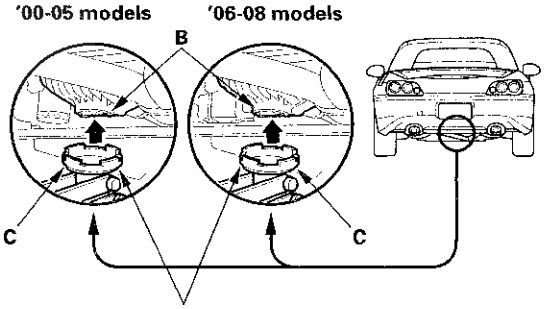
Floor Jack

1. When lifting the front of the vehicle, set the parking brake. When lifting the rear of the vehicle, put the shift lever in reverse.

2. Block the wheels that are not being lifted.

3. Position the floor jack under the front jacking bracket (A) or the rear differential carrier (B). Center the jacking bracket on the jack lift platform (C), and jack up the vehicle high enough to fit the safety stands under it.





With a rubber pad or shop towel.

4. Position the safety stands under the support points, and adjust them so the vehicle is level.

5. Lower the vehicle onto the stands.

Towing

If the vehicle needs to be towed, call a professional towing service. Never tow the vehicle behind another vehicle with a rope or chain. It is very dangerous.

NOTICE

- This vehicle can only be transported on a flat-bed.
- Trying to lift or tow the vehicle by the bumpers will cause serious damage. The bumpers are not designed to support the vehicle's weight.

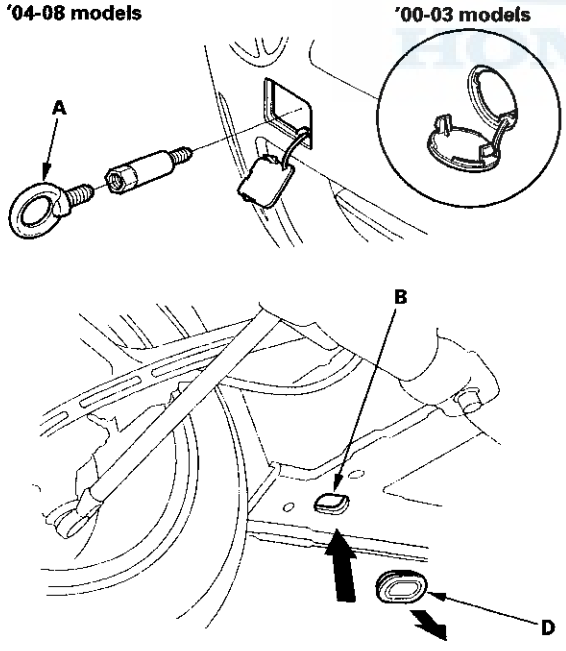
Flat-bed Equipment — The operator loads the vehicle on the back of a truck. **This is the only recommended way of transporting the vehicle.**

To accommodate flat-bed equipment, the vehicle is equipped with towing hook (A), front tie down slots (B), and rear tie down hook slots (C).

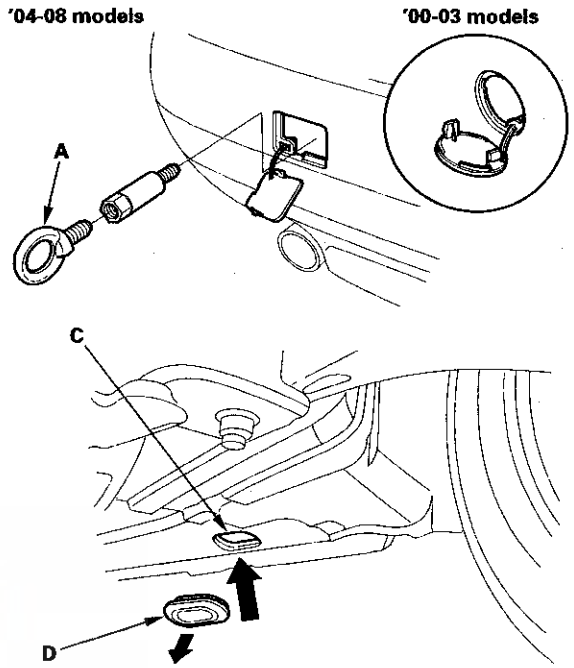
The towing hook can be used with a winch to pull the vehicle onto the truck, and the tie down hook slots can be used to secure the vehicle to the truck.

NOTE: The tie down hook slots use rubber plugs (D) to cover the openings.

Front:



Rear:



(cont'd)

Towing (cont'd)

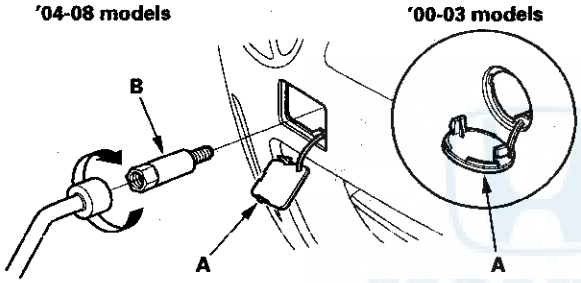
Towing Hook Installation

The detachable towing hook is only for towing a very short distance, such as freeing the car. The hook mounts to the anchor in the front and rear bumper.

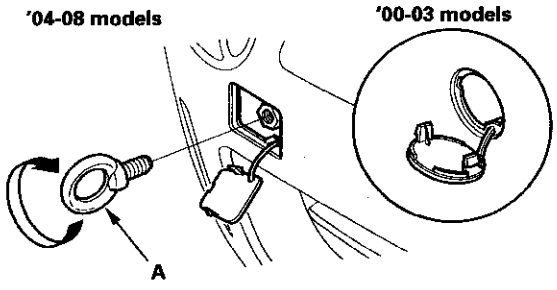
NOTICE

- To avoid damage to the vehicle, use the towing hook for straight flat ground towing only. Do not tow on an angle.
- The tow hook should not be used to tow the vehicle onto a flat-bed. Do not use it as a tie down.

1. Remove the cover (A) from the bumper.



2. Remove the towing hook, hook extension, and wheel wrench from the tool case in the trunk.
3. Using the wheel wrench, fasten the extension (B) into the bolt hole in the bumper.
4. Screw the towing hook (A) into the extension, and tighten it securely by hand.



Wheel Lift Equipment — The tow truck uses two pivoting arms that go under the tires (front or rear) and lift them off the ground. The other two wheels remain on the ground. **Never tow the vehicle with wheel lift equipment.**

Sling-type Equipment — The tow truck uses metal cables with hooks on the ends. These hooks go around parts of the frame or suspension, and the cables lift that end of the vehicle off the ground. The vehicle's suspension and body can be seriously damaged if this method of towing is attempted. **This method of towing the vehicle is unacceptable.**

The only recommended way of towing the vehicle is on a flat-bed truck.

NOTICE

To avoid damage to the vehicle, use the towing hook for straight flat ground towing only. Do not tow at an angle. The towing hook should not be used to tow the vehicle onto a flat-bed. Do not use it as a tie down.

Parts Marking

To deter vehicle theft, certain major components are marked with the vehicle identification number (VIN). Original parts have self-adhesive labels. Replacement body parts have generic self-adhesive labels. These labels should not be removed. The original engine or transmission VIN plates are not transferable to the replacement engine or transmission.

NOTE: Be careful not to damage the parts marking labels during body repair. Mask the labels before repairing the part.

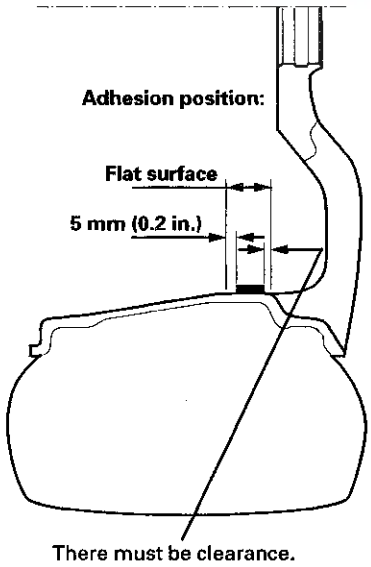
Service Precaution

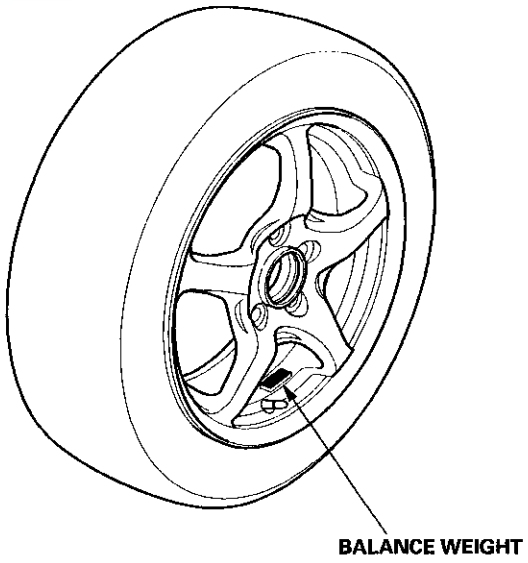
Adhesive Wheel Balance Weight

The wheels on this model are not designed to mount the balance weight on the outer side of the wheel. Instead, mount the self-adhesive balance weight on the inner side of the wheels. Note the following service tips and install the weights securely.

- Use only self-adhesive wheel balance weights to balance the wheels on the car.
- The wheels and weight must be 41 °F (5 °C) or above during installation.
- Do not damage the wheel when removing the balance weight.
- After removing the balance weight, remove the adhesive residue from the wheel using a degreasing cleaning agent.
- Remove any dust and foreign material from the inside surface of the wheel.
- Clean the inside surface of the wheel with IPA (isopropyl alcohol) or brake cleaner. Let the surface dry thoroughly before applying the new balance weight.
- Peel off the backing from the balance weight with care; do not touch the adhesive surface. Place the balance weight on the wheel lengthwise to the wheel.
- Press the entire surface of the balance weight with 11.0 to 15.4 lbf (5 to 7 kg) of force so the balance weight's tape adheres to the wheel securely.
- Rock the balance weight lightly and make sure that it is properly secured to the wheel.
- Do not place one balance weight on top of another.
- If you cannot measure the amount of weight at the adhesion position with the wheel balance machine, take the amount of unbalance at the outer rim and calculate the amount of weight using the conversion factor below. Select the balance weight that is the closest to the calculation.
  Conversion factor for the adhesion position: Front wheel: 2.9
  Rear wheel: 2.5

Example:
If the unbalance at the front rim is 15 g, it is calculated as 15 x 2.9 = 43.5 g.
Therefore, the unbalance is 43.5 g.





Revised Component Terms

Beginning with '01 model, the following component terms have been changed to conform with the standards in SAE document J1930. If you find a term or abbreviation in an '01 or later manual that is unfamiliar to you, check this list. If a term is not listed below, it did not change.

'00 and Earlier Models		'01 or Later Models	
Description	**Honda Abbreviations**	**Description**	**New Abbreviations SAE recommendation**
Brake Switch		Brake Pedal Position Switch	BPP Switch
Clutch Switch		Clutch Pedal Position Switch	
Distributor Ignition Rotor	DI Rotor	Distributor Rotor	
Function Sensor		Engine Speed Fluctuation Sensor	CKP Sensor
Evaporative Emission Control Canister	EVAP Control Canister	Evaporative Emission Canister	EVAP Canister
Evaporative Emission Control Canister Vent Shut Valve	EVAP Control Canister Vent Shut Valve	Evaporative Emission Canister Vent Shut Valve	EVAP Canister Vent Shut Valve
Evaporative Emission Purge Control Solenoid Valve	EVAP Purge Control Solenoid Valve	Evaporative Emission Canister Purge Valve	EVAP Canister Purge Valve
Exhaust Gas Recirculation Valve Lift Sensor	EGR Valve Lift Sensor	Exhaust Gas Recirculation Valve Position Sensor	EGR Valve Position Sensor
Exhaust Gas Recirculation Control Solenoid Valve	EGR Control Solenoid Valve	Exhaust Gas Recirculation Valve Vacuum Control Solenoid Valve	EGR Valve Vacuum Control Solenoid Valve
Exhaust Gas Recirculation Vacuum Control Valve	EGR Vacuum Control Valve	Exhaust Gas Recirculation Valve Vacuum Control Solenoid Valve	EGR Valve Vacuum Control Solenoid Valve
Radiator Fan Control Module		Fan Control Module	
Fuel Tank Evaporative Emission Valve		Fuel Tank Vapor/Liquid Separation Valve	
ORVR Vent Shut Valve		Fuel Tank Vapor Control Valve	
ORVR Vapor Recirculation Tube		Fuel Tank Vapor Recirculation Tube	
First Idle Thermo Valve		Idle Air Control Thermal Valve	IAC Thermal Valve
Fuel Injector		Injector	
Fuel Injection Air Control Valve	FIA Control Valve	Intake Air Bypass Control Valve	
Fuel Injection Air Control Solenoid Valve	FIA Control Solenoid Valve	Intake Air Bypass Control Thermal Valve	
Intake Air Bypass Check Valve	IAB Check Valve	Intake Manifold Runner Control Vacuum Check Valve	IMRC Vacuum Check Valve
		Intake Manifold Runner Control Actuator	IMRC Actuator
		Intake Manifold Runner Control Actuator Wire	IMRC Actuator Wire
Intake Air Bypass Control Diaphragm	IAB Control Diaphragm	Intake Manifold Runner Control Actuator Diaphragm	IMRC Diaphragm
		Intake Manifold Runner Control Module	IMRC Module

(cont'd)

Revised Component Terms (cont'd)

'00 and Earlier Models		'01 or Later Models	
Description	**Honda Abbreviations**	**Description**	**New Abbreviations SAE recommendation**
Intake Air Bypass Control Solenoid Valve	IAB Control Solenoid Valve	Intake Manifold Runner Control Solenoid Valve	IMRC Solenoid Valve
Intake Air Bypass Vacuum Tank	IAB Vacuum Tank	Intake Manifold Runner Control Vacuum	IMRC Vacuum Reservoir
Intake Air Bypass Valve Body Assembly	IAB Valve Body Assembly	Intake Manifold Runner Control Valve	IMRC Valve
Breather Chamber		Oil/Air Separator	
Fuel Pressure Regulator Control Solenoid Valve		Pressure Regulator Vacuum Control Solenoid Valve	
Air Control Valve Check Valve		Secondary Air Injection Control Vacuum Check Valve	Air Control Vacuum Check Valve
Air Control Valve Vacuum Tank		Secondary Air Injection Control Vacuum Reservoir	Air Control Vacuum Reservoir
Air Control Solenoid Valve		Secondary Air Injection Control Vacuum Control Solenoid Valve	Air Control Valve Vacuum Control Solenoid Valve
Air Pump		Secondary Air Injection Pump	Air Pump
Air Control Valve		Secondary Air Injection Pump Control Valve	Air Control Valve
Air Pump Electrical Current Sensor		Secondary Air Injection Pump Electrical Current Sensor	Air Pump Electrical Current Sensor
Shift/Clutch Pressure Control Solenoid Valve Set		Shift Solenoid and Automatic Transaxle Clutch Pressure Control Solenoid Valve Set	SS and A/T Clutch Pressure Control Solenoid Valve Set
Shift Control Solenoid Valve Set		Shift Solenoid and Torque Converter Clutch Solenoid Valve Set	SS and TCC Solenoid Valve Set
Shift/Lock-up Clutch Control Solenoid Valve Assy		Shift Solenoid and Torque Converter Clutch Solenoid Valve	SS and TCC Solenoid Valve
Shift Control Solenoid Valve A		Shift Solenoid Valve A	SS Valve A
Shift Control Solenoid Valve B		Shift Solenoid Valve B	SS Valve B
Throttle Valve Control Module		Throttle Actuator	
Lock-up Clutch Control Solenoid Valve Set		Torque Converter Clutch Solenoid and Automatic Transaxle Clutch Pressure Control Solenoid Valve Set	TCC Solenoid and A/T Clutch Pressure Control Solenoid Valve Set
Lock-up Clutch Control Solenoid Valve		Torque Converter Clutch Solenoid Valve	TCC Solenoid Valve
Automatic Transaxle Position Switch	A/T Gear Position Switch	Transmission Range Switch	TR Switch
Variable Valve Timing and Valve Lift Electronic Control Pressure Switch	VTEC Pressure Switch	Variable Valve Timing and Valve Lift Electronic Control Pressure Switch	VTEC Oil Pressure Switch

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

specs

Specifications

Standards and Service Limits

Design Specifications

Standards and Service Limits

Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1—3—4—2	
Spark plug	Type		NGK: PFR7G-11S DENSO: PK22PR-L11S	
	Gap		1.0—1.1 mm (0.039—0.043 in.)	——
Ignition timing	At idle check the *red* mark	In neutral	5±2 °BTDC	
Drive belt	Tension		Auto-tensioner	
Alternator	Output	At 13.5 V and normal engine temperature	105 A	
	Brush length		10.5 mm (0.41 in.)	1.5 mm (0.06 in.)
Starter	Output	'00-03 models	1.0 kW	
		'04-08 models	1.1 kW	
	Commutator mica depth		0.4—0.5 mm (0.016—0.020 in.)	0.15 mm (0.006 in.)
	Commutator runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
	Commutator O.D.		28.0—28.1 mm (1.102—1.106 in.)	27.5 mm (1.083 in.)
	Brush length		15.8—16.2 mm (0.62—0.64 in.)	11.0 mm (0.43 in.)
	Brush spring tension (new)		15.7—17.7 N (1.60—1.80 kgf, 3.53—3.97 lbf)	

Engine Assembly

Item	Measurement	Qualification	Standard or New
Compression	Pressure Check the engine with the starter cranking	Nominal	1,570 kPa (16.0 kgf/cm², 228 psi)
		Minimum	930 kPa (9.5 kgf/cm², 135 psi)
		Maximum variation	200 kPa (2.0 kgf/cm², 28 psi)

Cylinder Head

Item	Measurement	Qualification	Standard or New	Service Limit
Head	Warpage		———	0.05 mm (0.002 in.)
	Height		104.95—105.05 mm (4.132—4.136 in.)	———
Camshaft	End play		0.05—0.15 mm (0.002—0.006 in.)	0.30 mm (0.012 in.)
	Camshaft-to-holder oil clearance		0.060—0.099 mm (0.002—0.004 in.)	0.15 mm (0.006 in.)
	Total runout		0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)
	Cam lobe height ('00-03 models)	Intake, primary	33.677 mm (1.326 in.)	———
		Intake, mid	36.533 mm (1.438 in.)	———
		Intake, secondary	33.961 mm (1.337 in.)	———
		Exhaust, primary	33.716 mm (1.327 in.)	———
		Exhaust, mid	35.928 mm (1.414 in.)	———
		Exhaust, secondary	33.994 mm (1.338 in.)	———
	Cam lobe height ('04-08 models)	Intake, primary	33.961 mm (1.337 in.)	———
		Intake, mid	36.421 mm (1.434 in.)	———
		Intake, secondary	33.961 mm (1.337 in.)	———
		Exhaust, primary	33.716 mm (1.327 in.)	———
		Exhaust, mid	35.660 mm (1.404 in.)	———
		Exhaust, secondary	33.716 mm (1.327 in.)	———
Valve	Clearance (cold)	Intake	0.21—0.25 mm (0.008—0.010 in.)	———
		Exhaust	0.25—0.29 mm (0.010—0.011 in.)	———
	Stem O.D.	Intake	5.48—5.49 mm (0.2157—0.2162 in.)	5.45 mm (0.215 in.)
		Exhaust	5.45—5.46 mm (0.2146—0.2150 in.)	5.42 mm (0.213 in.)
	Stem-to-guide clearance	Intake	0.02—0.05 mm (0.001—0.002 in.)	0.08 mm (0.003 in.)
		Exhaust	0.05—0.08 mm (0.002—0.003 in.)	0.11 mm (0.004 in.)
Valve seat	Width	Intake	1.05—1.35 mm (0.041—0.053 in.)	1.80 mm (0.071 in.)
		Exhaust	1.25—1.55 mm (0.049—0.061 in.)	2.00 mm (0.079 in.)
	Stem installed height	Intake	44.1—44.4 mm (1.736—1.748 in.)	44.7 mm (1.760 in.)
		Exhaust	44.2—44.5 mm (1.740—1.752 in.)	44.8 mm (1.764 in.)
Valve spring	Free length	Intake ('00-03 models)	49.77 mm (1.959 in.)	———
		Intake ('04-08 models)	49.76 mm (1.959 in.)	———
		Exhaust	50.39 mm (1.984 in.)	———
Valve guide	I.D.	Intake	5.510—5.530 mm (0.2169—0.2177 in.)	5.55 mm (0.219 in.)
		Exhaust	5.510—5.530 mm (0.2169—0.2177 in.)	5.55 mm (0.219 in.)
	Installed height	Intake	15.2—16.2 mm (0.598—0.638 in.)	———
		Exhaust	16.0—17.0 mm (0.630—0.669 in.)	———
Rocker arm	Arm-to-shaft clearance	Intake	0.021—0.041 mm (0.0008—0.0016 in.)	0.07 mm (0.003 in.)
		Exhaust	0.021—0.041 mm (0.0008—0.0016 in.)	0.07 mm (0.003 in.)

Standards and Service Limits

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter	A or I	87.010—87.020 mm (3.4256—3.4260 in.)	87.070 mm (3.4279 in.)
		B or II	87.000—87.010 mm (3.4252—3.4256 in.)	87.070 mm (3.4279 in.)
	Bore taper		———	0.05 mm (0.002 in.)
	Reboring limit		———	0.25 mm (0.01 in.)
Piston	Skirt	No letter	86.993—87.006 mm (3.4249—3.4254 in.)	86.980 mm (3.4244 in.)
		Letter B	86.983—86.996 mm (3.4245—3.4250 in.)	86.970 mm (3.4240 in.)
	Clearance in cylinder		0.004—0.027 mm (0.0002—0.0011 in.)	0.04 mm (0.002 in.)
	Ring groove width	Top	1.235—1.265 mm (0.0486—0.0498 in.)	1.285 mm (0.0506 in.)
		Second	1.230—1.245 mm (0.0484—0.0490 in.)	1.265 mm (0.0498 in.)
		Oil	2.005—2.025 mm (0.0789—0.0797 in.)	2.05 mm (0.081 in.)
Piston ring	Ring-to-groove clearance	Top	0.045—0.090 mm (0.0018—0.0035 in.)	0.135 mm (0.005 in.)
		Second	0.040—0.070 mm (0.0016—0.0028 in.)	0.13 mm (0.005 in.)
	Ring end gap	Top	0.25—0.35 mm (0.010—0.014 in.)	0.60 mm (0.024 in.)
		Second	0.60—0.75 mm (0.024—0.030 in.)	0.90 mm (0.035 in.)
		Oil	0.20—0.70 mm (0.008—0.028 in.)	0.80 mm (0.031 in.)
Piston pin	O.D.		22.961—22.965 mm (0.9040—0.9041 in.)	22.953 mm (0.9037 in.)
	Pin-to-piston clearance		−0.0020 to +0.0050 mm (−0.00008 to +0.00020 in.)	0.010 mm (0.0004 in.)
Connecting rod	Pin-to-rod clearance		0.018—0.035 mm (0.0007—0.0014 in.)	0.04 mm (0.0016 in.)
	Small-end bore diameter		22.983—22.996 mm (0.9048—0.9053 in.)	———
	Large-end bore diameter (Normal)		51.0 mm (2.01 in.)	———
	End play installed on crankshaft		0.15—0.30 mm (0.006—0.012 in.)	0.40 mm (0.016 in.)
Crankshaft	Main journal diameter		54.976—55.000 mm (2.1644—2.1654 in.)	———
	Rod journal diameter		47.976—48.000 mm (1.8888—1.8898 in.)	———
	Rod/main journal taper		0.005 mm (0.0002 in.) max.	0.006 mm (0.0002 in.)
	Rod/main journal out-of-round		0.004 mm (0.0002 in.) max.	0.006 mm (0.0002 in.)
	End play		0.10—0.35 mm (0.004—0.014 in.)	0.45 mm (0.018 in.)
	Runout		0.02 mm (0.0008 in.) max.	0.04 mm (0.0016 in.)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.017—0.041 mm (0.0007—0.0016 in.)	0.050 mm (0.0020 in.)
	Rod bearing clearance		0.030—0.054 mm (0.0012—0.0021 in.)	0.060 mm (0.0024 in.)

Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	5.6 L (5.9 US qt)	
		Oil change including filter	4.8 L (5.1 US qt)	
		Oil change without filter	4.5 L (4.8 US qt)	
Oil pump	Inner-to-outer rotor clearance		0.02—0.14 mm (0.001—0.006 in.)	0.20 mm (0.008 in.)
	Pump housing-to-outer rotor clearance		0.15—0.21 mm (0.006—0.008 in.)	0.23 mm (0.009 in.)
	Pump housing-to-outer rotor axial clearance		0.02—0.07 mm (0.001—0.003 in.)	0.12 mm (0.005 in.)
	Oil pressure with oil temperature at 176 °F (80 °C)	At idle	250 kPa (2.5 kgf/cm², 36 psi)	
		At 3,000 rpm	590 kPa (6.0 kgf/cm², 85 psi)	

Cooling System

Item	Measurement	Qualification	Standard or New
Radiator	Coolant capacities (including engine, heater, hoses, and reservoir) Use Honda Long Life Antifreeze/ Coolant Type 2	Engine overhaul	7.6 L (2.01 US gal)
		Coolant change	6.5 L (1.72 US gal)
Coolant reservoir	Coolant capacity		0.6 L (0.16 US gal)
Radiator cap	Opening pressure		93—123 kPa (0.95—1.25 kgf/cm², 14—18 psi)
Thermostat	Opening temperature	Begins to open	169—176 °F (76—80 °C)
		Fully open	194 °F (90 °C)
	Valve lift at fully open		10.0 mm (0.39 in.) min.
Radiator fan switch ('00-05 models)	Switching temperature	Turns ON	196—203 °F (91—95 °C)
		Turns OFF	Subtract 5—15 °F (3—8 °C) from actual ON temperature

Fuel and Emissions

Item	Measurement	Qualification	Standard or New
Fuel pressure regulator	Pressure with regulator vacuum hose disconnected	'00-05 models	320—370 kPa (3.3—3.8 kgf/cm², 47—54 psi)
		'06-08 models	380—430 kPa (3.9—4.4 kgf/cm², 55—63 psi)
Fuel tank	Capacity		50 L (13.2 US gal)
Engine idle	Idle speed without load	In neutral ('00-05 models)	800±50 rpm
		In neutral ('06-08 models)	900±50 rpm
	Idle speed with high electrical load (A/C switch ON, temperature set to max cool, blower fan on High, rear window defogger ON (if applicable), and head lights on high beam)	In neutral	900±50 rpm

Clutch

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from the floor		189 mm (7.44 in.)	———
	Stroke		115—125 mm (4.53—4.92 in.)	———
	Play		9—17 mm (0.4—0.7 in.)	———
Flywheel	Runout on clutch mating surface		0.05 mm (0.002 in.) max.	0.15 mm (0.006 in.)
Clutch disc	Rivet head depth		1.2—1.7 mm (0.047—0.067 in.)	0.2 mm (0.008 in.)
	Thickness		8.2—8.9 mm (0.32—0.35 in.)	6.0 mm (0.24 in.)
Pressure plate	Warpage		0.03 mm (0.001 in.) max.	0.15 mm (0.006 in.)
	Height-variation of diaphragm spring fingers measured with dial indicator		0.4 mm (0.016 in.) max.	0.6 mm (0.024 in.)

Standards and Service Limits

Manual Transmission

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity Use Honda MTF	Fluid change	1.48 L (1.56 US qt)	
		Overhaul	1.62 L (1.71 US qt)	
Mainshaft	End play		0.14—0.21 mm (0.006—0.008 in.)	Adjust
	Diameter of transmission rear cover side ball bearing contact area		27.987—28.000 mm (1.1018—1.1024 in.)	27.94 mm (1.100 in.)
	Diameter of 4th/5th gears contact area		34.987—35.000 mm (1.3774—1.3780 in.)	34.94 mm (1.376 in.)
	Diameter of 6th gear contact area		38.984—39.000 mm (1.5348—1.5354 in.)	38.94 mm (1.533 in.)
	Diameter of clutch housing ball bearing contact area		28.002—28.015 mm (1.1024—1.1030 in.)	27.95 mm (1.100 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
Mainshaft 3rd gear	I.D.		40.009—40.025 mm (1.5752—1.5758 in.)	———
	Thickness		35.09—35.17 mm (1.381—1.385 in.)	34.97 mm (1.377 in.)
	End play		0.06—0.19 mm (0.002—0.007 in.)	0.3 mm (0.012 in.)
Mainshaft 3rd gear distance collar	I.D.		28.002—28.012 mm (1.1024—1.1028 in.)	———
	O.D.		34.989—35.000 mm (1.3775—1.3780 in.)	———
	Length		35.23—35.28 mm (1.387—1.389 in.)	———
Mainshaft 4th and 5th gear	I.D.		47.009—47.025 mm (1.8507—1.8514 in.)	———
	Thickness		31.89—31.97 mm (1.256—1.259 in.)	31.77 mm (1.251 in.)
	End play		0.06—0.19 mm (0.002—0.007 in.)	0.3 mm (0.012 in.)
Mainshaft 4th and 5th gear distance collar	I.D.		35.002—35.012 mm (1.3780—1.3784 in.)	———
	O.D.		41.989—42.000 mm (1.6531—1.6535 in.)	———
	Length		32.03—32.08 mm (1.261—1.263 in.)	———
Mainshaft 6th gear	I.D.		44.009—44.025 mm (1.7326—1.7333 in.)	———
	Thickness		28.89—28.97 mm (1.137—1.141 in.)	28.77 mm (1.133 in.)
	End play		0.06—0.19 mm (0.002—0.007 in.)	0.3 mm (0.012 in.)
Countershaft	Diameter of rear cover side needle bearing contact area		30.020—30.029 mm (1.1819—1.1822 in.)	29.97 mm (1.180 in.)
	Diameter of transmission housing side needle bearing contact area		34.002—34.018 mm (1.3387—1.3393 in.)	33.95 mm (1.337 in.)
	Diameter of 2nd gear contact area		43.984—44.000 mm (1.7317—1.7323 in.)	43.93 mm (1.730 in.)
	Diameter of clutch housing side ball bearing contact area		28.002—28.015 mm (1.1024—1.1030 in.)	27.95 mm (1.100 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
Countershaft 1st gear	I.D.		57.010—57.029 mm (2.2445—2.2452 in.)	———
	Thickness	'00-03 models	31.18—31.26 mm (1.228—1.231 in.)	31.06 mm (1.223 in.)
		'04-08 models	27.88—27.96 mm (1.098—1.101 in.)	27.76 mm (1.093 in.)
	End play	'00-03 models	0.04—0.22 mm (0.002—0.009 in.)	0.3 mm (0.012 in.)
		'04-08 models	0.04—0.17 mm (0.002—0.007 in.)	
Countershaft 1st gear distance collar	O.D.		50.987—51.000 mm (2.0074—2.0079 in.)	———
	Length		28.03—28.08 mm (1.104—1.106 in.)	———
Countershaft 2nd gear	I.D.		43.984—44.000 mm (1.7317—1.7323 in.)	———
	Thickness		32.88—32.96 mm (1.294—1.298 in.)	32.76 mm (1.290 in.)
	End play		0.04—0.17 mm (0.002—0.007 in.)	0.3 mm (0.012 in.)
Countershaft reverse gear	I.D.		50.009—50.025 mm (1.9689—1.9695 in.)	———
	Thickness		26.38—26.46 mm (1.039—1.042 in.)	26.26 mm (1.034 in.)
	End play		0.04—0.22 mm (0.002—0.009 in.)	0.3 mm (0.012 in.)
Countershaft reverse gear distance collar	O.D.		37.989—38.000 mm (1.4956—1.4961 in.)	———
	Length		25.53—25.58 mm (1.005—1.007 in.)	———

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft	Diameter of ball bearing contact area		31.002—31.013 mm (1.2206—1.2210 in.)	30.95 mm (1.219 in.)
	Diameter of propeller shaft side tapered roller bearing contact area		41.002—41.018 mm (1.6143—1.6149 in.)	40.95 mm (1.612 in.)
	Diameter of transmission housing side tapered roller bearing contact area		35.009—35.025 mm (1.3783—1.3790 in.)	38.94 mm (1.5333 in.)
	Runout		0.02 mm (0.001 in.) max.	0.05 mm (0.002 in.)
	Starting torque (preload)		1.86—2.84 N·m (19.0—29.0 kgf·cm, 16.5—25.2 lbf·in.)	Adjust
Shift fork	Finger thickness	1-2 shift fork	7.4—7.6 mm (0.29—0.30 in.)	———
		3-4 shift fork	6.2—6.4 mm (0.24—0.25 in.)	———
		5-6 shift fork	6.2—6.4 mm (0.24—0.25 in.)	———
		Reverse shift fork	6.2—6.4 mm (0.24—0.25 in.)	———
	Fork-to-synchro sleeve clearance		0.35—0.65 mm (0.014—0.026 in.)	1.00 mm (0.039 in.)
	Groove	To 1-2 shift lever	17.2—17.4 mm (0.677—0.685 in.)	17.1 mm (0.673 in.)
		To shift arm A	17.2—17.4 mm (0.677—0.685 in.)	17.1 mm (0.673 in.)
Shift arm A	I.D.		16.000—16.027 mm (0.6299—0.6310 in.)	———
	Finger width		16.8—17.0 mm (0.661—0.669 in.)	16.7 mm (0.657 in.)
	Shift arm A-to-shift forks		0.2—0.6 mm (0.008—0.024 in.)	0.7 mm (0.028 in.)
1-2 shift lever	Finger width		17.0—17.2 mm (0.669—0.677 in.)	16.9 mm (0.665 in.)
	Lever-to-shift forks and pieces clearance		0—0.4 mm (0—0.016 in.)	0.5 mm (0.020 in.)
1-2 shift piece	Groove	To shift arm A	17.2—17.4 mm (0.677—0.685 in.)	17.1 mm (0.673 in.)
3-4 shift piece	Groove	To shift arm A	17.2—17.4 mm (0.677—0.685 in.)	17.1 mm (0.673 in.)
Reverse shift piece	Groove	To 1-2 shift arm A	17.2—17.4 mm (0.677—0.685 in.)	17.1 mm (0.673 in.)
		To shift arm A	17.2—17.4 mm (0.677—0.685 in.)	17.1 mm (0.673 in.)
Synchro ring	Ring-to-gear clearance (ring pushed against gear)	5th, 6th gear ('00-03 models)	0.75—1.00 mm (0.030—0.039 in.)	0.4 mm (0.016 in.)
		3rd, 4th, 5th, 6th gear ('04-08 models)	0.85—1.10 mm (0.033—0.043 in.)	0.4 mm (0.016 in.)
		Reverse gear	0.85—1.10 mm (0.033—0.043 in.)	0.4 mm (0.016 in.)
Double cone synchro	Outer synchro ring-to-synchro cone clearance (ring pushed against gear)	1st, 2nd gear ('00-03 models)	0.70—1.09 mm (0.028—0.043 in.)	0.3 mm (0.012 in.)
		1st, 2nd gear ('04-08 models)	0.58—1.09 mm (0.023—0.043 in.)	0.3 mm (0.012 in.)
		3rd, 4th gear ('00-03 models)	0.90—1.39 mm (0.035—0.055 in.)	0.3 mm (0.012 in.)
	Synchro cone-to-gear clearance (ring pushed against gear)	1st, 3rd, 4th gear ('00-03 models)	0.50—1.04 mm (0.020—0.041 in.)	0.3 mm (0.012 in.)
		1st gear ('04-08 models)	0.33—1.04 mm (0.013—0.041 in.)	0.3 mm (0.012 in.)
		2nd gear ('00-03 models)	0.65—1.78 mm (0.026—0.070 in.)	0.3 mm (0.012 in.)
		2nd gear ('04-08 models)	0.33—1.04 mm (0.013—0.041 in.)	0.3 mm (0.012 in.)
	Outer synchro ring-to-gear clearance (ring pushed against gear)	1st, 3rd, 4th gear ('00-03 models)	0.95—1.68 mm (0.037—0.066 in.)	0.6 mm (0.024 in.)
		1st gear ('04-08 models)	0.95—1.35 mm (0.037—0.053 in.)	0.6 mm (0.024 in.)
		2nd gear ('00-03 models)	0.70—1.82 mm (0.028—0.072 in.)	0.6 mm (0.024 in.)
		2nd gear ('04-08 models)	0.95—1.35 mm (0.037—0.053 in.)	0.6 mm (0.024 in.)
Oil pump	Inner rotor-to-outer rotor radial clearance		0.14 mm (0.006 in.) max.	0.20 mm (0.008 in.)
	Rotor-to-transmission housing clearance	Radial clearance	0.1—0.2 mm (0.004—0.008 in.)	0.22 mm (0.009 in.)
		Axial clearance	0.03—0.07 mm (0.001—0.003 in.)	Adjust

Standards and Service Limits

Rear Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Rear differential fluid	Capacity Use Hypoid Gear Oil GL5 or GL6	Oil change Overhaul	0.74 L (0.78 US qt) 0.77 L (0.81 US qt)	
Drive pinion	Starting torque (preload) (Add additional value to actual starting torque measurement)	Additional value	0.88—1.37 N·m (9.0—14.0 kgf·cm, 7.81—12.15 lbf·in.)	Adjust
Ring gear	Backlash to drive pinion		0.09—0.11 mm (0.0035—0.0043 in.)	Adjust
Differential	Total starting torque	Measured with push/pull gauge	14—30 N (1.4—3.1 kgf, 3.1—6.8 lbf)	Adjust

Steering

Item	Measurement	Qualification	Standard or New
Steering wheel	Rotational play measured at outside edge with engine running		0—10 mm (0—0.39 in.)
	Initial turning load measured at outside edge with engine running		34 N (3.5 kgf, 7.7 lbf)
Gearbox	Angle of rack guide screw loosened from locked position		10 ° to 20 °

Suspension

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front at inspection	−0 °30 ′ ±30 ′	
		Front at adjustment	−0 °30 ′ ±10 ′	
		Rear at inspection	−1 °30 ′ ±30 ′	
		Rear at adjustment	−1 °30 ′ ±10 ′	
	Caster	Front at inspection	6 °00 ′ ±15 ′	
		Front at adjustment	6 °00 ′ ±15 ′	
	Total toe-in ('00-03 models)	Front	0±2 mm (0±0.08 in.)	
		Rear	6.0±2 mm (0.24±0.08 in.)	
	Total toe-in ('04-08 models)	Front	0±2 mm (0±0.08 in.)	
		Rear (except CR)	3.6±2 mm (0.14±0.08 in.)	
		Rear (CR)	5.5±2 mm (0.22±0.08 in.)	
	Front wheel turning angle	Inward	34 °00 ′ ±2 °	
		Outward (reference)	29 °00 ′	
Wheel	Runout	Axial	0—0.7 mm (0—0.03 in.)	2.0 mm (0.08 in.)
		Radial	0—0.7 mm (0—0.03 in.)	1.5 mm (0.06 in.)
Wheel bearing	End play	Front	0—0.05 mm (0—0.002 in.)	
		Rear	0—0.05 mm (0—0.002 in.)	

Brakes

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake	Distance traveled when lever pulled with 196 N (20 kgf, 44 lbf) of force		9 to 13 clicks	
Brake pedal	Pedal height (carpet move aside)		179 mm (7 1/16 in.)	
	Free play		1—5 mm (1/16—3/16 in.)	
Master cylinder	Piston-to-pushrod clearance		0—0.4 mm (0—0.02 in.)	
Brake disc	Thickness	Front	24.9—25.1 mm (0.98—0.99 in.)	23.0 mm (0.91 in.)
		Rear	11.9—12.1 mm (0.469—0.476 in.)	10.0 mm (0.39 in.)
	Runout	Front and rear	———	0.04 mm (0.0016 in.)
	Parallelism	Front and rear	———	0.015 mm (0.0006 in.) max.
Brake pad	Thickness	Front	9.5—10.5 mm (0.37—0.41 in.)	1.6 mm (0.06 in.)
		Rear	8.9—9.1 mm (0.35—0.36 in.)	1.6 mm (0.06 in.)

Air Conditioning

Item	Measurement	Qualification	Standard or New
Refrigerant	Type		HFC-134a (R-134a)
	Capacity of system		600—650 g (21.2—22.9 oz)
Refrigerant oil	Type		SP-10 (P/N 38897-P13-A01AH or 38899-P13-A01)
	Capacity of components	Condenser	25 mL (5/6 fl·oz)
		Evaporator	40 mL (1 1/3 fl·oz)
		Each line and hose	10 mL (1/3 fl·oz)
		Receiver	10 mL (1/3 fl·oz)
		Compressor	130—150 mL (4 1/3—5 fl·oz)
Compressor	Field coil resistance	At 68 °F (20 °C)	3.05 —3.35 Ω
	Pulley-to-pressure plate clearance		0.35—0.65 mm (0.014—0.026 in.)

Design Specifications

Item	Measurement	Qualification	Specification
DIMENSIONS	Overall length	'00-07 models	4,112 mm (162.2 in.)
		'08 model	4,135 mm (162.8 in.)
	Overall width		1,750 mm (68.9 in.)
	Overall height		1,270 mm (50.0 in.)
	Wheelbase		2,400 mm (94.5 in.)
	Track	Front	1,470 mm (57.9 in.)
		Rear ('00-07 models)	1,508 mm (59.4 in.)
		Rear ('08 model)	1,510 mm (59.4 in.)
	Ground clearance		130 mm (5.1 in.)
	Seating capacity		Two (2)
WEIGHT	Gross Vehicle Weight Rating (GVWR)	'00-03 models	1,535 kg (3,385 lbs)
		'04-08 models	1,550 kg (3,418 lbs)
ENGINE	Type		Water-cooled, 4-stroke DOHC VTEC gasoline engine
	Cylinder arrangement		Inline 4-cylinder, longitudinal
	Bore and stroke	'00-03 models	87.0 x 84.0 mm (3.43 x 3.31 in.)
		'04-08 models	87.0 x 90.7 mm (3.43 x 3.57 in.)
	Displacement	'00-03 models	1,997 cm^3 (121.9 cu in.)
		'04-08 models	2,157 cm^3 (131.6 cu in.)
	Compression ratio		11.1
	Valve train		Chain driven, DOHC VTEC 4 valves per cylinder
	Lubrication system		Forced, wet sump, with trochoid pump
	Oil pump displacement	At 6,000 rpm	58.4 L (61.7 US qt)/minute
	Water pump displacement	At 6,000 rpm	172 L (182 US qt)/minute
	Fuel required		Premium UNLEADED gasoline with 91 Pump Octane Number or higher
STARTER	Type		Gear reduction
	Normal output	'00-03 models	1.0 kW
		'04-08 models	1.1 kW
	Nominal voltage		12 V
	Hour rating		30 seconds
	Direction of rotation		Clockwise as viewed from drive end
CLUTCH	Type		Single plate dry, diaphragm spring
	Clutch friction material surface area		188 cm^2 (29 sq in.)
MANUAL TRANSMISSION	Type		Synchronized 6-speed forward, 1 reverse
	Primary reduction	'00-03 models	Direct 1:1
		'04-08 models	1.208
	Gear ratio	1st	3.133
		2nd	2.045
		3rd	1.481
		4th	1.161
		5th ('00-03 models)	0.979
		5th ('04-08 models)	0.943
		6th ('00-03 models)	0.810
		6th ('04-08 models)	0.763
		Reverse	2.800
	Secondary reduction gear	Type	Single helical gear
		Gear ratio ('00-03 models)	1.160
		Gear ratio ('04-08 models)	1.208
REAR DIFFERENTIAL	Final reduction gear	Type	Spiral bevel gear
		Gear ratio	4.100

Item	Measurement	Qualification	Specification
STEERING	Type		Rack and pinion with electrical power-assist
	Overall ratio		13.9
	Turns, lock-to-lock		2.4
	Steering wheel diameter		360 mm (14.1 in.)
SUSPENSION	Type	Front	Independent double wishbone, coil spring with stabilizer
		Rear	Independent double wishbone, coil spring with stabilizer
	Shock absorber	Front and rear	Telescopic, hydraulic, nitrogen gas-filled
TIRES	Size of front and rear tires ('00-03 models)	Front	205/55R16 89W
		Rear	225/50R16 92W
	Size of front and rear tires ('04-07 models)	Front	215/45R17 97W
		Rear	245/40R17 91W
	Size of front and rear tires ('08 models)	Front	215/45R17 97W
		Rear (except CR)	245/40R17 91W
		Rear (CR)	255/40R17 94W
	Size of spare tire	Except CR	T125/70D16 96W
WHEEL ALIGNMENT	Camber	Front	−0 °30 ′
		Rear	−1 °30 ′
	Caster	Front	6 °00 ′
	Total toe-in ('00-03 models)	Front	0 mm (0 in.)
		Rear	6.0 mm (0.24 in.)
	Total toe-in ('04-08 models)	Front	0 mm (0 in.)
		Rear (except CR)	3.6 mm (0.14 in.)
		Rear (CR)	5.5 mm (0.22 in.)
BRAKES	Type of service brake	Front	Power-assisted self-adjusting ventilated disc
		Rear	Power-assisted self-adjusting solid disc
	Type of parking brake		Mechanical actuating, rear wheels
	Pad friction surface area	Front	42.2 cm^2 (6.5 sq in.) x 2
		Rear	27.9 cm^2 (4.3 sq in.) x 2
AIR CONDITIONING	Compressor	Type/Manufacturer	Scroll
		Number of cylinders	——
		Capacity	85.7 mL (5.23 cu in.)/rev.
		Maximum speed	12,000 rpm
		Lubricant capacity	130 mL (4 1/3 fl·oz)
		Lubricant type	SP-10
	Condenser	Type	Corrugated fin
	Evaporator	Type	Corrugated fin
	Blower	Type	Sirocco fan
		Motor input	220 W/12 V
		Speed control	7-speed manual A/C
		Maximum capacity	430 m^3 (15,200 cu ft)/h
	Temperature control		Air-mix type
	Refrigerant	Type	HFC-134a (R-134a)
		Quantity	600—650 g (21.2—22.9 oz)

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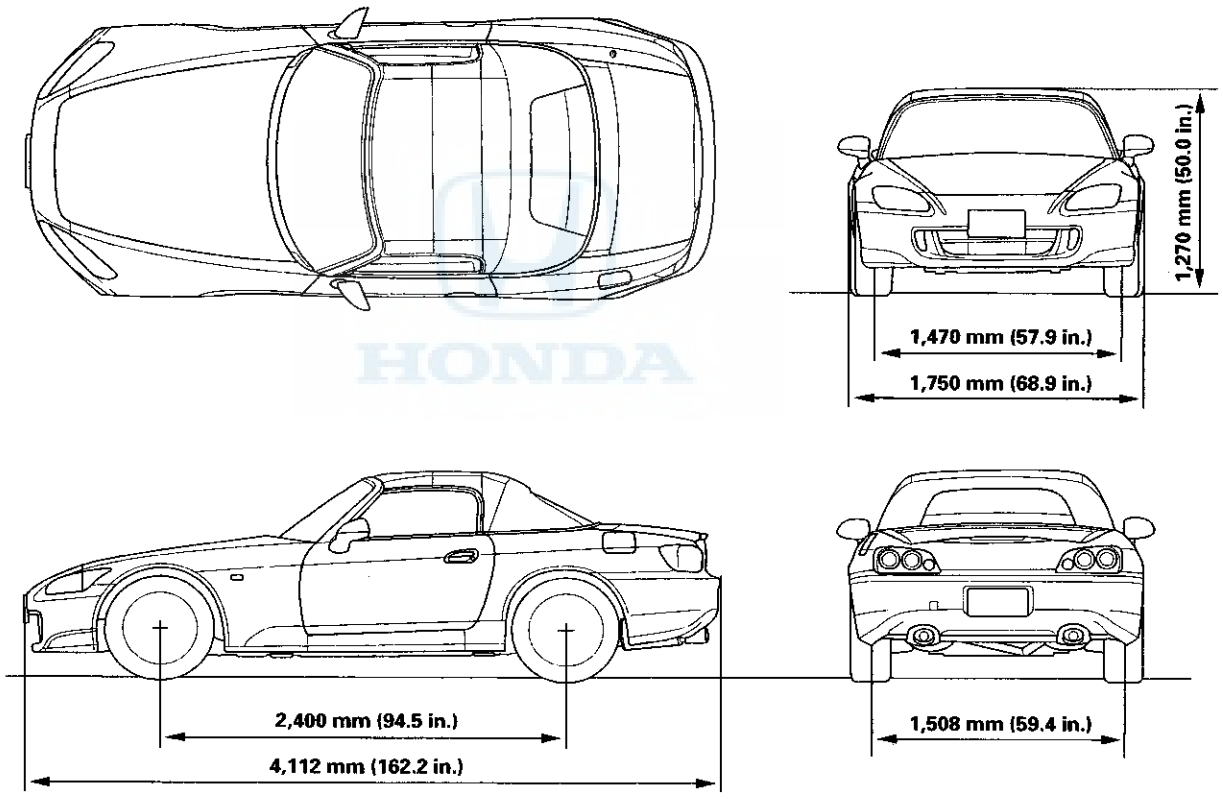
Design Specifications

Item	Measurement	Qualification	Specification
ELECTRICAL	Battery		12 V—45 Ah/20 HR (12 V—36 Ah/5 HR)
RATINGS	Fuses	Main under-hood fuse/relay box	100 A, 40 A, 30 A, 20 A, 15 A, 10 A
		Auxiliary under-hood fuse box	70 A, 60 A, 20 A
		Under-dash fuse/relay box	20 A, 15 A, 10 A, 7.5 A
	Light bulbs	Headlight high beam	12 V—55 W (H1)
		Headlight low beam (HID)	12 V—35 W (D2S)
		Front turn signal lights	12 V—21 W
		Front parking lights ('00-03 models)	12 V—5 W
		Front parking/side marker lights ('04-08 models)	12 V—5 W (Amber)
		Rear turn signal lights	12 V—21 W
		Rear side marker lights ('00-03 models)	12 V—5 W
		Rear side marker lights ('04-08 models)	LED
		Side turn signal lights	12 V—5 W
		Brake/taillights ('00-03 models)	12 V—21/5 W
		Brake/taillights ('04-08 models)	LED
		High mount brake light	LED
		Back-up lights	12 V—21 W
		License plate light	12 V—5 W
		Trunk light	12 V—5 W
		Ceiling light/Spotlights	12 V—5 W
		Gauge lights	12 V—3 W, 2 W
		Indicator lights	12 V — 1.12 W, 1.4 W
		Panel and pilot lights	12 V — 0.56 W, 0.84 W, 0.91 W, LED
	Washer reservoir	Capacity (USA models)	2.5 L (2.6 US qt)
		Capacity (Canada models)	6.0 L (6.3 US qt)

Body Specifications

'00-07 Models



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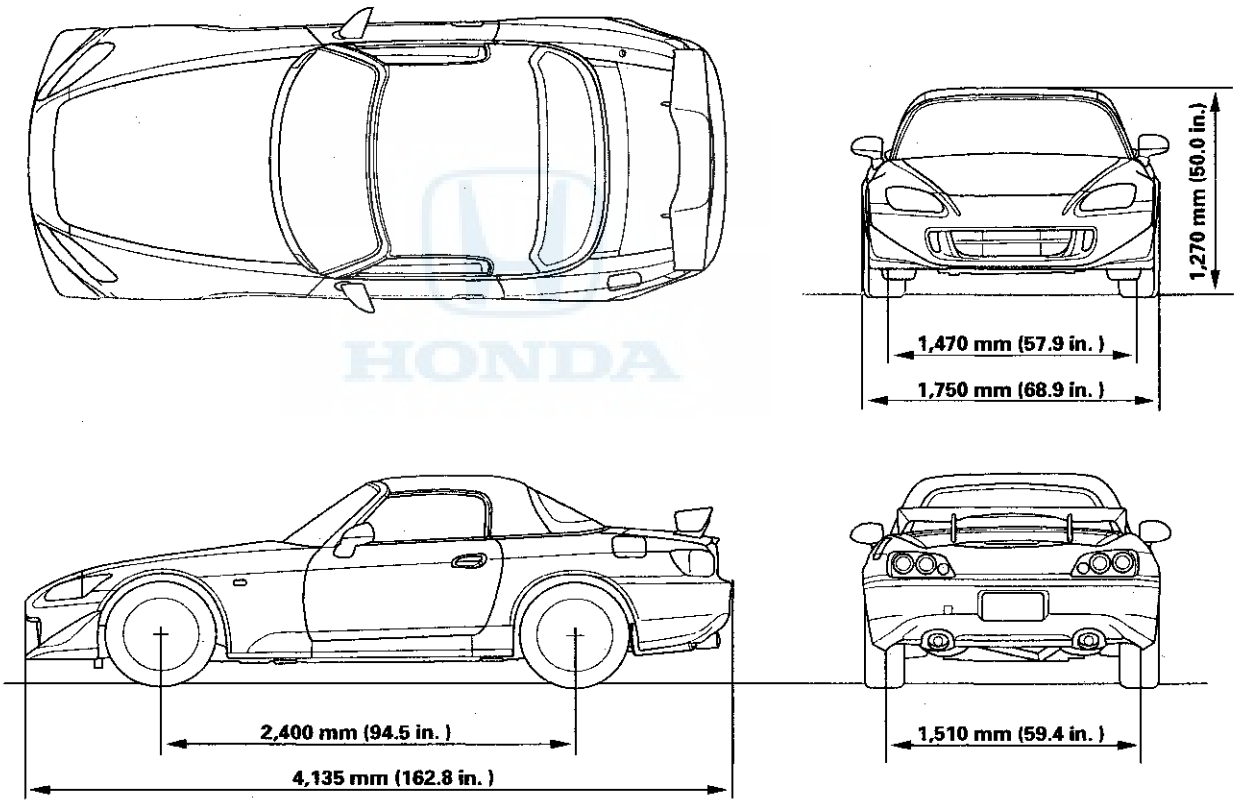
Design Specifications

Body Specifications (cont'd)

'08 Model



CR model is shown.

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Maintenance

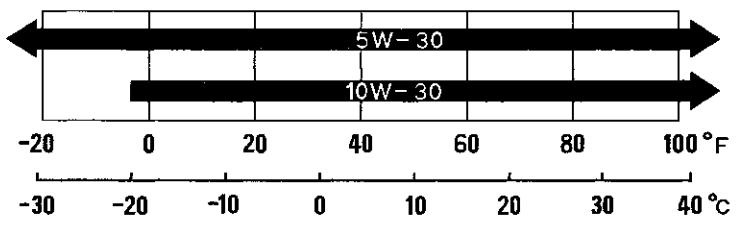
Lubricants and Fluids

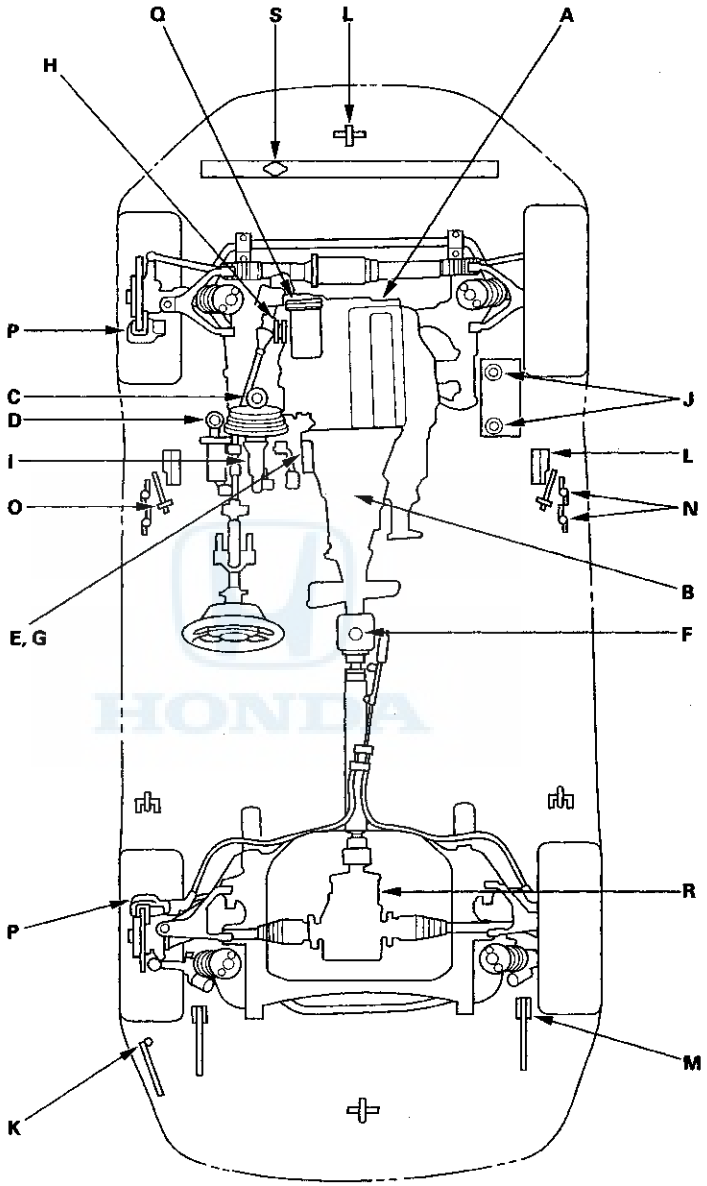
For the details of lubrication points and type of lubricants to be applied, refer to the illustrated index and various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

	Application	Lubricant or Fluid
A	Engine	Honda Motor Oil (American Honda P/N 08798-9015, Honda Canada P/N CA66806). 10W-30 is the preferred moter oil for optimum fuel economy and year round protection. Look for the API Certification seal. Make sure it says "For Gasoline Engines."
B	Manual transmission	Honda Manual Transmission Fluid (MTF): P/N 08798-9031 Always use Honda MTF. Using motor oil can cause stiffer shifting because it does not contain the proper additives.
C D	Brake line (includes ABS/VSA lines) Clutch system	Honda DOT 3 Brake Fluid: P/N 08798-9008 Always use Honda DOT 3 Brake Fluid. Using a non-Honda brake fluid can cause corrosion and decrease the life of the system.
E F G	Release fork Shift lever pivot Slave cylinder pushrod	Super High Temp Urea Grease : P/N 08798-9002
H I J K L M N O	Throttle cable end (Throttle link) ('00-05 models) Brake master cylinder clevis pin Battery terminals Fuel fill door Hood hinges and hood latch Trunk hinges Door hinges: upper and lower Door checker	Multipurpose grease
P	Caliper piston boot and seal, caliper pins and boots	Honda Silicone Grease: P/N 08C30-B0234M
Q	Air conditioning compressor	Compressor oil: SP-10 (P/N 38897-P13-A01AH or 38899-P13-A01) for refrigerant HFC-134a (R-134a)
R	Rear differential	Hypoid Gear Oil API classification: GL5 or GL6, Viscosity: SAE 90
S	Cooling system	Honda Long Life Antifreeze/Coolant Type 2: P/N OL999-9001

API CERTIFICATION SEAL

Recommended Engine Oil
Engine oil viscosity for ambient temperature ranges

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Maintenance Schedule

Listed by Distance/Time for Normal Conditions

'00 Model

Service at the indicated distance or time, whichever comes first. This Maintenance Schedule outlines the minimum required maintenance. If the vehicle is normally driven in Canada, use the Maintenance Schedule for Severe Conditions.

Distance		Time	Maintenance Items
7,500 miles	12,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A and B.
22,500 miles	36,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, and C.
37,500 miles	60,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and D.
———	———	3 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
52,500 miles	84,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, and C.
67,500 miles	108,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and D.
82,500 miles	132,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and E.
———	———	6 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
97,500 miles	156,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Inspect idle speed (see page 11-140). Idle speed: 800±50 rpm in neutral.
			Do items in A, B, D, and F.
112,500 miles	180,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, and C.
———	———	9 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-6) every 7,500 miles (12,000 km) or 1 year. Engine oil capacity without oil filter: 4.5 L (4.8 US qt)
	Check tire inflation and condition every 7,500 miles (12,000 km).
B	Replace engine oil filter (see page 8-7) every 15,000 miles (24,000 km) or 1 year. Engine oil capacity with oil filter: 4.8 L (5.1 US qt)
	Check front and rear brakes (see page 19-3) every 15,000 miles (24,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mounting bolts.
	Check parking brake adjustment (see page 19-7) every 15,000 miles (24,000 km) or 1 year. Check the number of clicks (9 to 13) when the parking lever is pulled up with 196 N (20 kgf, 44 lbf) of force.
	Inspect tie-rod ends, steering gearbox, and boots (see page 17-5) every 15,000 miles (24,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3) every 15,000 miles (24,000 km) or 1 year. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4) every 15,000 miles (24,000 km) or 1 year. Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS lines (see page 19-28) every 15,000 miles (24,000 km) or 1 year. Check the master cylinder, proportioning control valve, and ABS modulator-control unit for damage and leakage.
	Inspect all fluid levels, condition of fluids, and check for leaks every 15,000 miles (24,000 km) or 1 year. • Engine coolant (see page 10-9) • Manual transmission fluid (MTF) (see page 13-3) • Brake fluid (see page 19-9) • Clutch fluid (see step 1 on page 12-6) • Rear differential fluid (see page 15-7) • Windshield washer fluid (see page 22-184)
	Inspect cooling system hoses and connections (see page 10-2) every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system* (see page 9-5) every 15,000 miles (24,000 km) or 1 year. Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-148) and connections* (see page 11-150) every 15,000 miles (24,000 km) or 1 year. Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance service be done at the recommended intervals to ensure long-term reliability.

(cont'd)

Maintenance Schedule

Listed by Distance/Time for Normal Conditions (cont'd)

'00 Model

Service at the indicated distance or time, whichever comes first. This Maintenance Schedule outlines the minimum required maintenance. If the vehicle is normally driven in Canada, use the Maintenance Schedule for Severe Conditions.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
C	Replace air cleaner element (see page 11-169) every 30,000 miles (48,000 km).
	Inspect drive belt (see page 4-42) every 30,000 miles (48,000 km) or 2 years. Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
	Replace dust and pollen filter (see page 21-27) every 30,000 miles (48,000 km) or 2 years. • If the vehicle is primarily driven in areas that have high concentrations of dust, pollen, or soot in the air, replace twice as often (at the 15,000 miles (24,000 km) or 1 year interval). • Replace it whenever airflow from the heating and air conditioning system is less than normal.
	Replace rear differential fluid (see page 15-7) every 30,000 miles (48,000 km) or 2 years. Capacity: 0.74 L (0.78 US qt); use Hypoid Gear Oil GL5 or GL6.
D	Replace engine coolant (see page 10-9) at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. Capacity: 6.5 L (1.72 US gal); use Honda Long Life Antifreeze/Coolant Type 2.
E	Replace manual transmission fluid (see page 13-3) every 90,000 miles (144,000 km) or 6 years. Capacity: 1.48 L (1.56 US qt); use Honda MTF.
F	Replace spark plugs (see page 4-28) every 105,000 miles (168,000 km) or 7 years. Use PFR7G-11S (NGK) or PK22PR-L11S (DENSO).
	Inspect valve clearance (cold) (see page 6-10) every 105,000 miles (168,000 km) or 7 years. • Intake: 0.21—0.25 mm (0.008—0.010 in.) • Exhaust: 0.25—0.29 mm (0.010—0.011 in.)

Listed by Distance/Time for Severe Conditions

'00 Model

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 °F/32 °C)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Distance		Time	Maintenance Items
3,750 miles	6,000 km	———	Do item in A.
7,500 miles	12,000 km	———	Do items in A and B.
11,250 miles	18,000 km	———	Do item in A.
15,000 miles	24,000 km	1 year	Do items in A, B, and C.
18,750 miles	30,000 km	———	Do item in A.
22,500 miles	36,000 km	———	Do items in A and B.
26,250 miles	42,000 km	———	Do item in A.
30,000 miles	48,000 km	2 years	Do items in A, B, C, and D.
33,750 miles	54,000 km	———	Do item in A.
37,500 miles	60,000 km	———	Do items in A and B.
41,250 miles	66,000 km	———	Do item in A.
45,000 miles	72,000 km	3 years	Do items in A, B, C, and E.
———	———	3 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
48,750 miles	78,000 km	———	Do item in A.
52,500 miles	84,000 km	———	Do items in A and B.
56,250 miles	90,000 km	———	Do item in A.
60,000 miles	96,000 km	4 years	Do items in A, B, C, and D.

(cont'd)

Maintenance Schedule

Listed by Distance/Time for Severe Conditions (cont'd)

'00 Model

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 ℉/32 ℃)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Distance		Time	Maintenance Items
63,750 miles	102,000 km	———	Do item in A.
67,500 miles	108,000 km	———	Do items in A and B.
71,250 miles	114,000 km	———	Do item in A.
75,000 miles	120,000 km	5 years	Do items in A, B, C, and E.
78,750 miles	126,000 km	———	Do item in A.
82,500 miles	132,000 km	———	Do items in A and B.
86,250 miles	138,000 km	———	Do item in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and D.
———	———	6 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
93,750 miles	150,000 km	———	Do item in A.
97,500 miles	156,000 km	———	Do items in A and B.
101,250 miles	162,000 km	———	Do item in A.
105,000 miles	168,000 km	7 years	Do items in A, B, C, E, and F.
			Inspect idle speed (see page 11-140). Idle speed: 800±50 rpm in neutral.
108,750 miles	175,000 km	———	Do item in A.
112,500 miles	181,000 km	———	Do items in A and B.
116,250 miles	187,000 km	———	Do item in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, and D.
———	———	9 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-6) and oil filter (see page 8-7) every 3,750 miles (6,000 km) or 6 months. Engine oil capacity with oil filter: 4.8 L (5.1 US qt)
B	Check tire inflation and condition every 7,500 miles (12,000 km).
	Check front and rear brakes (see page 19-3) every 7,500 miles (12,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mounting bolts.
	Inspect tie-rod ends, steering gearbox, and boots (see page 17-5) every 7,500 miles (12,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3) every 7,500 miles (12,000 km) or 1 year. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4) every 7,500 miles (12,000 km) or 1 year. Check boots for cracks and boot bands for tightness.
C	Inspect brake hoses and lines including ABS lines (see page 19-28) every 15,000 miles (24,000 km) or 1 year. Check the master cylinder, proportioning control valve, and ABS modulator-control unit for damage and leakage.
	Check parking brake adjustment (see page 19-7) every 15,000 miles (24,000 km) or 1 year. Check the number of clicks (9 to 13) when the parking lever is pulled up with 196 N (20 kgf, 44 lbf) of force.
	Replace air cleaner element (see page 11-169) every 15,000 miles (24,000 km) or 1 year.
	Replace rear differential fluid (see page 15-7) every 15,000 miles (24,000 km) or 1 year. Capacity: 0.74 L (0.78 US qt); use Hypoid Gear Oil GL5 or GL6.
	Lubricate all hinges, locks, and latches with Multipurpose Grease.
	Check all lights (see page 22-110). Check function of all interior and exterior lights, and the position of the headlights.
	Inspect all fluid levels, condition of fluids, and check for leaks every 15,000 miles (24,000 km) or 1 year. • Engine coolant (see page 10-9) • Manual transmission fluid (MTF) (see page 13-3) • Brake fluid (see page 19-9) • Clutch fluid (see step 1 on page 12-6) • Rear differential fluid (see page 15-7) • Windshield washer fluid (see page 22-184)
	Inspect cooling system hoses and connections (see page 10-2) every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system* (see page 9-5) every 15,000 miles (24,000 km) or 1 year. Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-148) and connections* (see page 11-150). every 15,000 miles (24,000 km) or 1 year. Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Inspect vehicle underbody. Check the paint for damage, scratches, stone chipping, and dents.

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance service be done at the recommended intervals to ensure long-term reliability.

(cont'd)

Maintenance Schedule

Listed by Distance/Time for Severe Conditions (cont'd)

'00 Model

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 °F/32 °C)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
D	Inspect drive belt (see page 4-42) every 30,000 miles (48,000 km) or 2 years. Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
	Replace dust and pollen filter (see page 21-27) every 30,000 miles (48,000 km) or 2 years. • If the vehicle is primarily driven in urban areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 miles (24,000 km). • Replace it whenever airflow from the heating and air conditioning system is less than normal.
	Replace manual transmission fluid (see page 13-3) every 30,000 miles (48,000 km) or 2 years. Capacity: 1.48 L (1.56 US qt); use Honda MTF.
E	Replace engine coolant (see page 10-9) at 45,000 miles (72,000 km) or 3 years, then every 30,000 miles (48,000 km) or 2 years. Capacity: 6.5 L (1.72 US gal); use Honda Long Life Antifreeze/Coolant Type 2.
F	Replace spark plugs (see page 4-28) every 105,000 miles (168,000 km) or 7 years. Use PFR7G-11S (NGK) or PK22PR-L11S (DENSO).
	Inspect valve clearance (cold) (see page 6-10) every 105,000 miles (168,000 km) or 7 years. • Intake: 0.21—0.25 mm (0.008—0.010 in.) • Exhaust: 0.25—0.29 mm (0.010—0.011 in.)

Listed by Distance/Time for Normal Conditions

'01-03 Models

Service at the indicated distance or time, whichever comes first. This Maintenance Schedule outlines the minimum required maintenance. If the vehicle is normally driven in Canada, use the Maintenance Schedule for Severe Conditions.

Distance		Time	Maintenance Items
7,500 miles	12,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A and B.
22,500 miles	36,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, and C.
37,500 miles	60,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A and B.
———	———	3 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
52,500 miles	84,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, and C.
67,500 miles	108,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A and B.
82,500 miles	132,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, and C.
———	———	6 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
97,500 miles	156,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Inspect idle speed (see page 11-140). Idle speed: 800±50 rpm in neutral.
			Do items in A, B, and D.
112,500 miles	180,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, and E.
———	———	9 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
120,000 miles	192,000 km	10 years	Do item in F.

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Maintenance Schedule

Listed by Distance/Time for Normal Conditions (cont'd)

'01-03 Models

Service at the indicated distance or time, whichever comes first. This Maintenance Schedule outlines the minimum required maintenance. If the vehicle is normally driven in Canada, use the Maintenance Schedule for Severe Conditions.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-6) every 7,500 miles (12,000 km) or 1 year. Engine oil capacity without oil filter: 4.5 L (4.8 US qt)
	Check tire inflation and condition every 7,500 miles (12,000 km).
B	Replace engine oil filter (see page 8-7) every 15,000 miles (24,000 km) or 1 year. Engine oil capacity with oil filter: 4.8 L (5.1 US qt)
	Check front and rear brakes (see page 19-3) every 15,000 miles (24,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mounting bolts.
	Check parking brake adjustment (see page 19-7) every 15,000 miles (24,000 km) or 1 year. Check the number of clicks (9 to 13) when the parking lever is pulled up with 196 N (20 kgf, 44 lbf) of force.
	Inspect tie-rod ends, steering gearbox, and boots (see page 17-5) every 15,000 miles (24,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3) every 15,000 miles (24,000 km) or 1 year. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4) every 15,000 miles (24,000 km) or 1 year. Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS lines (see page 19-28) every 15,000 miles (24,000 km) or 1 year. Check the master cylinder, proportioning control valve, and ABS modulator-control unit for damage and leakage.
	Inspect all fluid levels, condition of fluids, and check for leaks every 15,000 miles (24,000 km) or 1 year. • Engine coolant (see page 10-9) • Manual transmission fluid (MTF) (see page 13-3) • Brake fluid (see page 19-9) • Clutch fluid (see step 1 on page 12-6) • Rear differential fluid (see page 15-7) • Windshield washer fluid (see page 22-184)
	Inspect cooling system hoses and connections (see page 10-2) every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system* (see page 9-5) every 15,000 miles (24,000 km) or 1 year. Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-148) and connections* (see page 11-150) every 15,000 miles (24,000 km) or 1 year. Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance service be done at the recommended intervals to ensure long-term reliability.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
C	Replace air cleaner element (see page 11-169) every 30,000 miles (48,000 km).
	Inspect drive belt (see page 4-42) every 30,000 miles (48,000 km) or 2 years. Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
	Replace dust and pollen filter (see page 21-27) every 30,000 miles (48,000 km) or 2 years. • If the vehicle is primarily driven in areas that have high concentrations of dust, pollen, or soot in the air, replace twice as often (at the 15,000 miles (24,000 km) or 1 year interval). • Replace it whenever airflow from the heating and air conditioning system is less than normal.
	Replace rear differential fluid (see page 15-7) every 30,000 miles (48,000 km) or 2 years. Capacity: 0.74 L (0.78 US qt); use Hypoid Gear Oil GL5 or GL6.
D	Replace spark plugs (see page 4-28) every 105,000 miles (168,000 km) or 7 years. Use PFR7G-11S (NGK) or PK22PR-L11S (DENSO).
	Inspect valve clearance (cold) (see page 6-10) every 105,000 miles (168,000 km) or 7 years. • Intake: 0.21—0.25 mm (0.008—0.010 in.) • Exhaust: 0.25—0.29 mm (0.010—0.011 in.)
E	Replace manual transmission fluid (see page 13-3) every 120,000 miles (192,000 km) or 8 years. Capacity: 1.48 L (1.56 US qt); use Honda MTF.
F	Replace engine coolant (see page 10-9) at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. Capacity: 6.5 L (1.72 US gal); use Honda Long Life Antifreeze/Coolant Type 2.

Maintenance Schedule

Listed by Distance/Time for Severe Conditions

'01-03 Models

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 °F/32 °C)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Distance		Time	Maintenance Items
3,750 miles	6,000 km	———	Do item in A.
7,500 miles	12,000 km	———	Do items in A and B.
11,250 miles	18,000 km	———	Do item in A.
15,000 miles	24,000 km	1 year	Do items in A, B, and C.
18,750 miles	30,000 km	———	Do item in A.
22,500 miles	36,000 km	———	Do items in A and B.
26,250 miles	42,000 km	———	Do item in A.
30,000 miles	48,000 km	2 years	Do items in A, B, C, and D.
33,750 miles	54,000 km	———	Do item in A.
37,500 miles	60,000 km	———	Do items in A and B.
41,250 miles	66,000 km	———	Do item in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and C.
———	———	3 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
48,750 miles	78,000 km	———	Do item in A.
52,500 miles	84,000 km	———	Do items in A and B.
56,250 miles	90,000 km	———	Do item in A.
60,000 miles	96,000 km	4 years	Do items in A, B, C, D, and E.

Distance		Time	Maintenance Items
63,750 miles	102,000 km	———	Do item in A.
67,500 miles	108,000 km	———	Do items in A and B.
71,250 miles	114,000 km	———	Do item in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and C.
78,750 miles	126,000 km	———	Do item in A.
82,500 miles	132,000 km	———	Do items in A and B.
86,250 miles	138,000 km	———	Do item in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and D.
———	———	6 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
93,750 miles	150,000 km	———	Do item in A.
97,500 miles	156,000 km	———	Do items in A and B.
101,250 miles	162,000 km	———	Do item in A.
105,000 miles	168,000 km	7 years	Do items in A, B, C, and F.
			Inspect idle speed (see page 11-140). Idle speed: 800±50 rpm in neutral.
108,750 miles	175,000 km	———	Do item in A.
112,500 miles	181,000 km	———	Do items in A and B.
116,250 miles	187,000 km	———	Do item in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, D, E, and G.
———	———	9 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.

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Maintenance Schedule

Listed by Distance/Time for Severe Conditions (cont'd)

'01-03 Models

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 °F/32 °C)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-6) and oil filter (see page 8-7) every 3,750 miles (6,000 km) or 6 months. Engine oil capacity with oil filter: 4.8 L (5.1 US qt)
B	Check tire inflation and condition every 7,500 miles (12,000 km).
	Check front and rear brakes (see page 19-3) every 7,500 miles (12,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mount bolts.
	Inspect tie-rod ends, steering gearbox, and boots (see page 17-5) every 7,500 miles (12,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3) every 7,500 miles (12,000 km) or 1 year. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4) every 7,500 miles (12,000 km) or 1 year. Check boots for cracks and boot bands for tightness.

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
C	Inspect brake hoses and lines including ABS lines (see page 19-28) every 15,000 miles (24,000 km) or 1 year. Check the master cylinder, proportioning control valve, and ABS modulator-control unit for damage and leakage.
	Check parking brake adjustment (see page 19-7) every 15,000 miles (24,000 km) or 1 year. Check the number of clicks (9 to 13) when the parking lever is pulled up with 196 N (20 kgf, 44 lbf) of force.
	Replace air cleaner element (see page 11-169) every 15,000 miles (24,000 km) or 1 year.
	Replace rear differential fluid (see page 15-7) every 15,000 miles (24,000 km) or 1 year. Capacity: 0.74 L (0.78 US qt); use Hypoid Gear Oil GL5 or GL6.
	Lubricate all hinges, locks, and latches with Multipurpose Grease.
	Check all lights (see page 22-110). Check function of all interior and exterior lights, and the position of the headlights.
	Inspect all fluid levels, condition of fluids, and check for leaks every 15,000 miles (24,000 km) or 1 year. • Engine coolant (see page 10-9) • Manual transmission fluid (MTF) (see page 13-3) • Brake fluid (see page 19-9) • Clutch fluid (see step 1 on page 12-6) • Rear differential fluid (see page 15-7) • Windshield washer fluid (see page 22-184)
	Inspect cooling system hoses and connections (see page 10-2) every 15,000 miles (24,000 km) or 1 year. • Check for damage, leaks, and deterioration. • Check for proper fan operation.
	Inspect exhaust system* (see page 9-5) every 15,000 miles (24,000 km) or 1 year. Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-148) and connections* (see page 11-150) every 15,000 miles (24,000 km) or 1 year. Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Inspect vehicle underbody. Check the paint for damage, scratches, stone chipping, and dents.
D	Inspect drive belt (see page 4-42) every 30,000 miles (48,000 km) or 2 years. Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
	Replace dust and pollen filter (see page 21-27) every 30,000 miles (48,000 km) or 2 years. • If the vehicle is primarily driven in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 miles (24,000 km). • Replace it whenever airflow from the heating and air conditioning system is less than normal.
E	Replace manual transmission fluid (see page 13-3) every 60,000 miles (96,000 km) or 4 years. Capacity: 1.48 L (1.56 US qt); use Honda MTF.
F	Replace spark plugs (see page 4-28) every 105,000 miles (168,000 km) or 7 years. Use PFR7G-11S (NGK) or PK22PR-L11S (DENSO).
	Inspect valve clearance (cold) (see page 6-10) every 105,000 miles (168,000 km) or 7 years. • Intake: 0.21—0.25 mm (0.008—0.010 in.) • Exhaust: 0.25—0.29 mm (0.010—0.011 in.)
G	Replace engine coolant (see page 10-9) at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. Capacity: 6.5 L (1.72 US gal); use Honda Long Life Antifreeze/Coolant Type 2.

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance service be done at the recommended intervals to ensure long-term reliability.

Maintenance Schedule

Listed by Distance/Time for Normal Conditions

'04-05 Models

Service at the indicated distance or time, whichever comes first. This Maintenance Schedule outlines the minimum required maintenance. If the vehicle is normally driven in Canada, use the Maintenance Schedule for Severe Conditions.

Distance		Time	Maintenance Items
7,500 miles	12,000 km	———	Do items in A.
15,000 miles	24,000 km	1 year	Do items in A and B.
22,500 miles	36,000 km	———	Do items in A.
30,000 miles	48,000 km	2 years	Do items in A, B, and C.
37,500 miles	60,000 km	———	Do items in A.
45,000 miles	72,000 km	3 years	Do items in A and B.
———	———	3 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
52,500 miles	84,000 km	———	Do items in A.
60,000 miles	96,000 km	4 years	Do items in A, B, and C.
67,500 miles	108,000 km	———	Do items in A.
75,000 miles	120,000 km	5 years	Do items in A and B.
82,500 miles	132,000 km	———	Do items in A.
90,000 miles	144,000 km	6 years	Do items in A, B, and C.
———	———	6 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
97,500 miles	156,000 km	———	Do items in A.
105,000 miles	168,000 km	7 years	Inspect idle speed (see page 11-140). Idle speed: 800±50 rpm in neutral.
			Do items in A, B, and D.
112,500 miles	180,000 km	———	Do items in A.
120,000 miles	192,000 km	8 years	Do item in E.
120,000 miles	192,000 km	8 years	Do items in A, B, C, and F.
———	———	9 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
127,500 miles	204,000 km	———	Do items in A.
135,000 miles	216,000 km	11 years	Do items in A and B.
142,500 miles	228,000 km	———	Do items in A.
150,000 miles	240,000 km	12 years	Do items in A, B, and C.
———	———	12 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-6) every 7,500 miles (12,000 km) or 1 year. Engine oil capacity without oil filter: 4.5 L (4.8 US qt)
	Check tire inflation and condition, every 7,500 miles (12,000 km).
B	Replace engine oil filter (see page 8-7) every 15,000 miles (24,000 km) or 1 year. Engine oil capacity with oil filter: 4.8 L (5.1 US qt)
	Check front and rear brakes (see page 19-3) every 15,000 miles (24,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mounting bolts.
	Check parking brake adjustment (see page 19-7) every 15,000 miles (24,000 km) or 1 year. Check the number of clicks (9 to 13) when the parking lever is pulled up with 196 N (20 kgf, 44 lbf) of force.
	Inspect tie-rod ends, steering gearbox, and boots (see page 17-5) every 15,000 miles (24,000 km) or 1 year. • Check rack grease and steering linkage. • Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3) every 15,000 miles (24,000 km) or 1 year. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4) every 15,000 miles (24,000 km) or 1 year. Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS lines (see page 19-28) every 15,000 miles (24,000 km) or 1 year. Check the master cylinder, proportioning control valve, and ABS modulator-control unit for damage and leakage.
	Inspect all fluid levels, condition of fluids, and check for leaks every 15,000 miles (24,000 km) or 1 year. • Engine coolant (see page 10-9) • Manual transmission fluid (MTF) (see page 13-3) • Brake fluid (see page 19-9) • Clutch fluid (see step 1 on page 12-6) • Rear differential fluid (see page 15-7) • Windshield washer fluid (see page 22-184)
	Inspect exhaust system* (see page 9-6) every 15,000 miles (24,000 km) or 1 year. Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-148) and connections* (see page 11-150) every 15,000 miles (24,000 km) or 1 year. Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance service be done at the recommended intervals to ensure long-term reliability.

(cont'd)

Maintenance Schedule

Listed by Distance/Time for Normal Conditions (cont'd)

'04-05 Models

Service at the indicated distance or time, whichever comes first. This Maintenance Schedule outlines the minimum required maintenance. If the vehicle is normally driven in Canada, use the Maintenance Schedule for Severe Conditions.

Do the items in parts A, B, C, D, E, and F as required for the mileage/time interval listed.

Part	Maintenance Items
C	Replace air cleaner element (see page 11-169) every 30,000 miles (48,000 km).
	Inspect drive belt (see page 4-42) every 30,000 miles (48,000 km) or 2 years. Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
	Replace dust and pollen filter (see page 21-27) every 30,000 miles (48,000 km) or 2 years. • If the vehicle is primarily driven in areas that have high concentrations of dust, pollen, or soot in the air, replace twice as often (at the 15,000 miles (24,000 km) or 1 year interval). • Replace it whenever airflow from the heating and air conditioning system is less than normal.
	Replace rear differential fluid (see page 15-7) every 30,000 miles (48,000 km) or 2 years. Capacity: 0.74 L (0.78 US qt); use Hypoid Gear Oil GL5 or GL6.
D	Replace spark plugs (see page 4-28) every 105,000 miles (168,000 km) or 7 years. Use PFR7G-11S (NGK) or PK22PR-L11S (DENSO).
	Inspect valve clearance (cold) (see page 6-10) every 105,000 miles (168,000 km) or 7 years. • Intake: 0.21—0.25 mm (0.008—0.010 in.) • Exhaust: 0.25—0.29 mm (0.010—0.011 in.)
E	Replace manual transmission fluid (see page 13-3) every 120,000 miles (192,000 km) or 6 years. Capacity: 1.48 L (1.56 US qt); use Honda MTF.
F	Replace engine coolant (see page 10-9) at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. Capacity: 6.5 L (1.72 US gal); use Honda Long Life Antifreeze/Coolant Type 2.

Listed by Distance/Time for Severe Conditions

'04-05 Models

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 °F/32 °C)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Distance		Time	Maintenance Items
3,750 miles	6,000 km	———	Do item in A.
7,500 miles	12,000 km	———	Do items in A and B.
11,250 miles	18,000 km	———	Do item in A.
15,000 miles	24,000 km	1 year	Do items in A, B, and C.
18,750 miles	30,000 km	———	Do item in A.
22,500 miles	36,000 km	———	Do items in A and B.
26,250 miles	42,000 km	———	Do item in A.
30,000 miles	48,000 km	2 years	Do items in A, B, C, and D.
33,750 miles	54,000 km	———	Do item in A.
37,500 miles	60,000 km	———	Do items in A and B.
41,250 miles	66,000 km	———	Do item in A.
45,000 miles	72,000 km	3 years	Do items in A, B, and C.
———	———	3 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
48,750 miles	78,000 km	———	Do item in A.
52,500 miles	84,000 km	———	Do items in A and B.
56,250 miles	90,000 km	———	Do item in A.
60,000 miles	96,000 km	4 years	Do items in A, B, C, D, and E.

(cont'd)

Maintenance Schedule

Listed by Distance/Time for Severe Conditions (cont'd)

'04-05 Models

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 °F/32 °C)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Distance		Time	Maintenance Items
63,750 miles	102,000 km	———	Do item in A.
67,500 miles	108,000 km	———	Do items in A and B.
71,250 miles	114,000 km	———	Do item in A.
75,000 miles	120,000 km	5 years	Do items in A, B, and C.
78,750 miles	126,000 km	———	Do item in A.
82,500 miles	132,000 km	———	Do items in A and B.
86,250 miles	138,000 km	———	Do item in A.
90,000 miles	144,000 km	6 years	Do items in A, B, C, and D.
———	———	6 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
93,750 miles	150,000 km	———	Do item in A.
97,500 miles	156,000 km	———	Do items in A and B.
101,250 miles	162,000 km	———	Do item in A.
105,000 miles	168,000 km	7 years	Do items in A, B, C, and F.
			Inspect idle speed (see page 11-140). Idle speed: 800±50 rpm in neutral.
108,750 miles	174,000 km	———	Do item in A.
112,500 miles	181,000 km	———	Do items in A and B.
116,250 miles	187,000 km	———	Do item in A.
120,000 miles	192,000 km	8 years	Do items in A, B, C, D, and E.
———	———	9 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.
120,000 miles	192,000 km	10 years	Do item in G.
123,750 miles	198,000 km	———	Do item in A.
127,500 miles	204,000 km	———	Do items in A and B.
131,250 miles	210,000 km	———	Do item in A.
135,000 miles	216,000 km	11 years	Do items in A, B, and C.
138,750 miles	222,000 km	———	Do item in A.
142,500 miles	228,000 km	———	Do items in A and B.
146,250 miles	234,000 km	———	Do item in A.
150,000 miles	240,000 km	12 years	Do items in A, B, C, and D.
———	———	12 years	Replace brake fluid (see page 19-9). Use Honda DOT 3 Brake Fluid.

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
A	Replace engine oil (see page 8-6) and oil filter (see page 8-7) every 3,750 miles (6,000 km) or 6 months. Engine oil capacity with oil filter: 4.8 L (5.1 US qt)
B	Check tire inflation and condition, every 7,500 miles (12,000 km).
	Check front and rear brakes (see page 19-3) every 7,500 miles (12,000 km) or 1 year. • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mounting bolts.
	Inspect tie-rod ends, steering gearbox, and boots (see page 17-5) every 7,500 miles (12,000 km) or 1 year. • Check rack grease and steering linkage. • Check fluid line for damage or leaks. • Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3) every 7,500 miles (12,000 km) or 1 year. • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4) every 7,500 miles (12,000 km) or 1 year. Check boots for cracks and boot bands for tightness.
C	Inspect brake hoses and lines including ABS lines (see page 19-28) every 15,000 miles (24,000 km) or 1 year. Check the master cylinder, proportioning control valve, and ABS modulator-control unit for damage and leakage.
	Check parking brake adjustment (see page 19-7) every 15,000 miles (24,000 km) or 1 year. Check the number of clicks (9 to 13) when the parking lever is pulled up with 196 N (20 kgf, 44 lbf) of force.
	Replace air cleaner element (see page 11-169) every 15,000 miles (24,000 km) or 1 year. Use normal schedule except in dusty condition.
	Replace rear differential fluid (see page 15-7) every 15,000 miles (24,000 km) or 1 year. Capacity: 0.74 L (0.78 US qt); use Hypoid Gear Oil GL5 or GL6.
	Lubricate all hinges, locks, and latches with Multipurpose Grease.
	Check all lights and controls (see page 22-110). Check function of all interior and exterior lights, and the position of the headlights.
	Inspect all fluid levels, condition of fluids, and check for leaks every 15,000 miles (24,000 km) or 1 year. • Engine coolant (see page 10-9) • Manual transmission fluid (MTF) (see page 13-3) • Brake fluid (see page 19-9) • Clutch fluid (see step 1 on page 12-6) • Windshield washer fluid (see page 22-184)
	Inspect exhaust system* (see page 9-6) every 15,000 miles (24,000 km) or 1 year. Check catalytic converter heat shield, exhaust pipe, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-148) and connections* (see page 11-150) every 15,000 miles (24,000 km) or 1 year. Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Inspect vehicle underbody. Check the paint for damage, scratches, stone chipping, and dents.

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance service be done at the recommended intervals to ensure long-term reliability.

(cont'd)

Maintenance Schedule

Listed by Distance/Time for Severe Conditions (cont'd)

'04-05 Models

Service at the indicated distance or time, whichever comes first. Use this schedule if the vehicle is driven MAINLY in Canada or in any of the following conditions. If only OCCASIONALLY driven in these conditions, use the Normal Conditions schedule.

Severe Driving Conditions

- Less than 5 miles (8 km) per trip or, in freezing temperatures, less than 10 miles (16 km) per trip
- In extremely hot weather (over 90 °F/32 °C)
- Extensive idling or long periods of stop-and-go driving, such as a taxi or a commercial delivery vehicle
- Driving on mountainous roads
- On muddy, dusty, or de-iced roads

Do the items in parts A, B, C, D, E, F, and G as required for the mileage/time interval listed.

Part	Maintenance Items
D	Inspect drive belt (see page 4-42) every 30,000 miles (48,000 km) or 2 years. Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
	Replace dust and pollen filter (see page 21-27) every 30,000 miles (48,000 km) or 2 years. • If the vehicle is primarily driven in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 miles (24,000 km). • Replace it whenever airflow from the heating and air conditioning system is less than normal.
E	Replace manual transmission fluid (see page 13-3) every 60,000 miles (96,000 km) or 4 years. Capacity: 1.48 L (1.56 US qt); use Honda MTF.
F	Replace spark plugs (see page 4-28) every 105,000 miles (168,000 km) or 7 years. Use PFR7G-11S (NGK) or PK22PR-L11S (DENSO).
	Inspect valve clearance (cold) (see page 6-10) every 105,000 miles (168,000 km) or 7 years. • Intake: 0.21—0.25 mm (0.008—0.010 in.) • Exhaust: 0.25—0.29 mm (0.010—0.011 in.)
G	Replace engine coolant (see page 10-9) at 120,000 miles (192,000 km) or 10 years, then every 60,000 miles (96,000 km) or 5 years. Capacity: 6.5 L (1.72 US gal); use Honda Long Life Antifreeze/Coolant Type 2.

Maintenance Minder

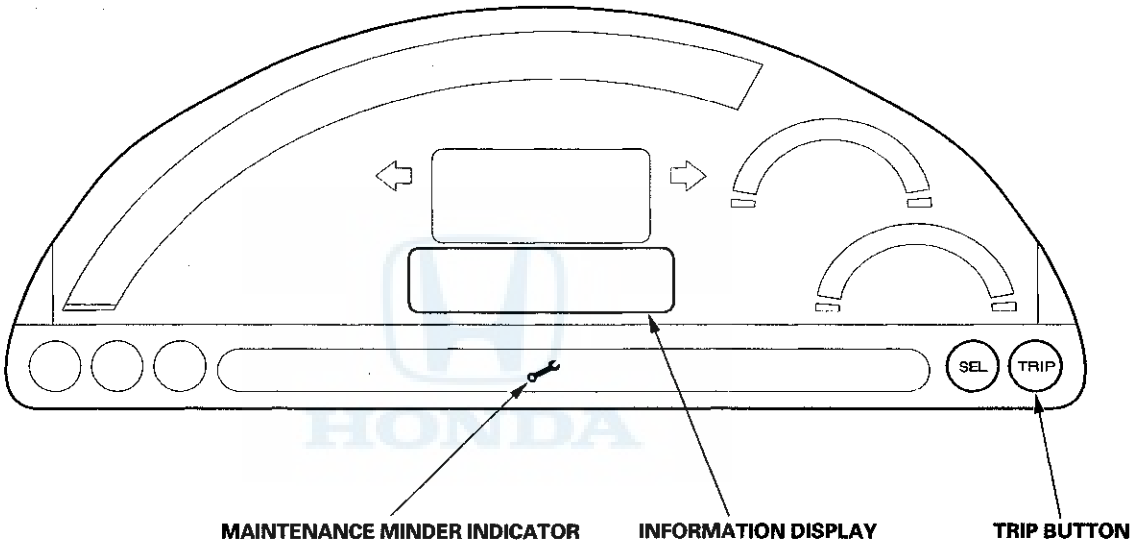
General Information

Maintenance Display

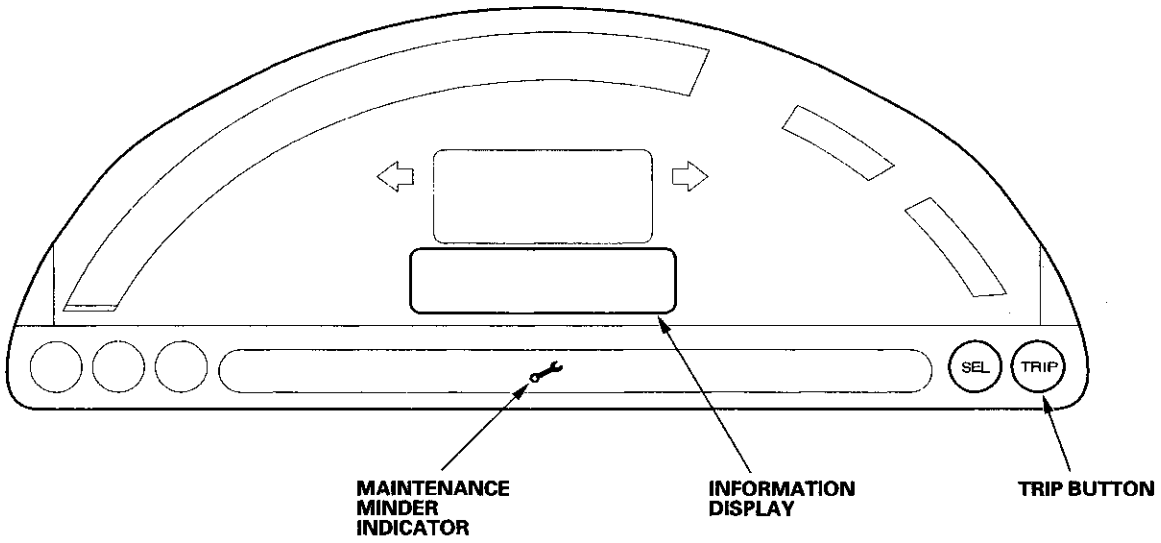
'06-08 Models

The maintenance minder is an important feature of the information display. Based on engine and transmission operating conditions, the S2000's onboard computer (ECM) calculates the remaining engine oil and manual transmission fluid life. The system also displays the remaining engine oil life along with the code for other scheduled maintenance items needing service.

'06-07 Models:



'08 Model:

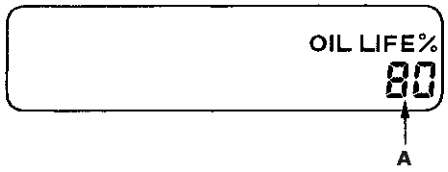


(cont'd)

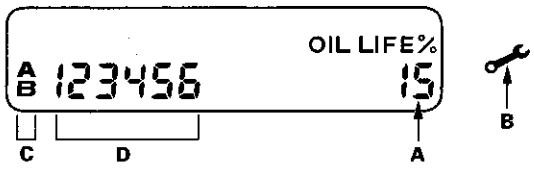
General Information (cont'd)

Service information

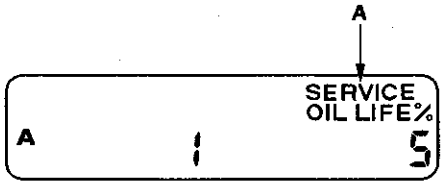
1. The remaining engine oil life (A) is shown as a percentage on the information display.
   To see the current engine oil life, turn the ignition switch to the ON (II) position, then push and release the trip button repeatedly until the engine oil life displays.



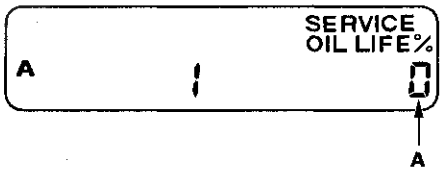
2. When the ignition switch is in the ON (II) position, and the remaining engine oil life is 6 % to 15 %, the remaining engine oil life (A) and other scheduled maintenance item(s) needing service are displayed. The maintenance minder indicator (B) also comes on when the engine oil life is 15 % or less.
   To cancel the display and the indicator, press the trip button.
   - Complete list of maintenance main items (C) (see page 3-28).
   - Complete list of maintenance sub items (D) (see page 3-29).



3. When the ignition switch is in the ON (II) position, and the remaining engine oil life is 1 % to 5 %, the message "SERVICE" (A) is displayed along with engine oil life and the same maintenance item code(s).



4. When the ignition switch is in the ON (II) position, and the remaining engine oil life is 0 %, the engine oil life indicator (A) blinks.
   Pressing the trip button cancels the display, but the maintenance minder indicator stays on.



5. If the indicated maintenance is not done, the engine oil life indicator shows a negative mileage, for example "—10," on the display.
   If the negative mileage is between 0 and —9, the indicator is displayed for only a few seconds when the ignition switch is turned to the ON (II) position. The negative mileage remains displayed after the vehicle is driven more than 10 miles (for USA models) or 10 km (for Canada models) after 0 % oil life is reached.
   This means the indicated maintenance item(s) should have been done more than 10 miles (or 10 km) ago.

Resetting the Maintenance Information Display

NOTE:
- The vehicle must be stopped to reset the display.
- If a required service is done and the display is not reset, or if the maintenance display is reset without doing the service, the system will not show the proper maintenance timing. This can lead to serious mechanical problems because there will be no accurate record of when the required maintenance is needed.
- The engine oil life and maintenance item(s) can be reset independently only with the HDS.

1. Turn the ignition switch to the ON (II) position.
2. Press release the trip button repeatedly until the engine oil life indicator is displayed.
3. Press and hold the trip button for about 10 seconds. The engine oil life indicator and the maintenance item code(s) will blink.

   NOTE: If you are resetting the display when the engine oil life is more than 15 %, make sure any maintenance item(s) requiring service are done before resetting the display.
4. Press and hold the trip button for another 5 seconds. The maintenance item cods(s) will disappear, and the engine oil life will reset to "100".

Maintenance Minder

Maintenance Main Items

'06-08 Models

If message, "SERVICE" does not appear more than 12 months after the display is reset, change the engine oil every year.

NOTE:
- Replace the brake fluid every 3 years (independent of the maintenance messages in the information display).
- Inspect idle speed every 160,000 miles (256,000 km).
- Adjust the valves during services A, B, 1, 2 or 3 if only they are noisy.

Symbol	Maintenance Main Items
A	Replace engine oil (see page 8-6). Engine oil capacity without oil filter: 4.5 L (4.8 US qt)
B	Replace engine oil filter (see page 8-7). Engine oil capacity with oil filter: 4.8 L (5.1 US qt)
	Check front and rear brakes (see page 19-3). • Check pads and discs for wear (thickness), damage, and cracks. • Check calipers for damage, leaks, and tightness of mounting bolts.
	Check parking brake adjustment (see page 19-7). Check the number of clicks (9 to 13) when the parking brake lever is pulled with 196 N (20 kgf, 44 lbf) of force.
	Inspect tie-rod ends, steering gearbox, and gearbox boots (see page 17-5). • Check rack grease and steering linkage. • Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3). • Check bolts for tightness. • Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4). Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including VSA lines (see page 19-28). Check the master cylinder and VSA modulator-control unit for damage and leakage.
	Inspect all fluid levels, condition of fluids, and check for leaks. • Engine coolant (see page 10-9) • Manual transmission fluid (MTF) (see page 13-3) • Brake fluid (see page 19-9) • Clutch fluid (see step 1 on page 12-6) • Rear differential fluid (see page 15-7) • Windshield washer fluid (see page 22-184)
	Inspect exhaust system* (see page 9-6). Check catalytic converter heat shields, exhaust pipes, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-478) and connections* (see page 11-480). Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Check expiration date on the bottle for the temporary tire repair kit (CR model only).

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended interval, to ensure long-term reliability.

Maintenance Sub Items

'06-08 Models

Number	Maintenance Sub Items
1	Check tire inflation and condition.
2	Replace air cleaner element (see page 11-505). If the vehicle is primarily driven in dusty conditions, replace every 15,000 miles (24,000 km).
	Replace dust and pollen filter (see page 21-27). • If the vehicle is driven primarily in urban areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 miles (24,000 km). • Replace the filter whenever airflow from the heating and air conditioning system is less than normal.
	Inspect drive belt (see page 4-42). Look for cracks and damage, then check the position of the drive belt auto-tensioner indicator.
3	Replace manual transmission fluid (see page 13-3). Capacity: 1.48 L (1.56 US qt), use Honda MTF.
4	Replace spark plugs (see page 4-28). Use PFR7G-11S (NGK) or PK22PR-L11S (DENSO).
	Inspect valve clearance (cold) (see page 6-10). • Intake: 0.21—0.25 mm (0.008—0.010 in.) • Exhaust: 0.25—0.29 mm (0.010—0.011 in.)
5	Replace engine coolant (see page 10-9). Capacity: 6.5 L (1.72 US gal); use Honda Long Life Antifreeze/Coolant Type 2.
6	Replace rear differential fluid (see page 15-7). • Driving mountainous areas results in a higher level of mechanical (shear) stress to fluid. This requires differential fluid changes more frequently than recommended by the maintenance minder. If the vehicle is regularly driven under these conditions, have the differential fluid changed at every 15,000 miles (24,000 km). • Capacity: 0.74 L (0.78 US qt) use Hypoid Gear Oil GL5 or GL6.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If engine electrical maintenance is required)

The S2000 SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, and seat belt tensioners in the seat belt retractors. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

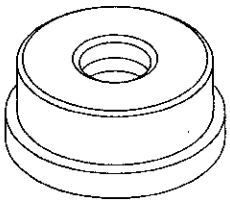
- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional activation of the airbags and seat belt tensioners.
- Do not bump or impact the SRS unit, or front impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, console, dashboard, dashboard lower panel, in the dashboard above the glove box. Do not use electrical test equipment on these circuits.

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Engine Electrical

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07746-0010300	Attachment, 42 x 47 mm	1
②	07749-0010000	Handle Driver	1



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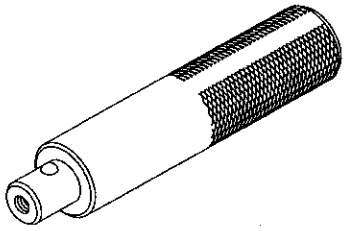
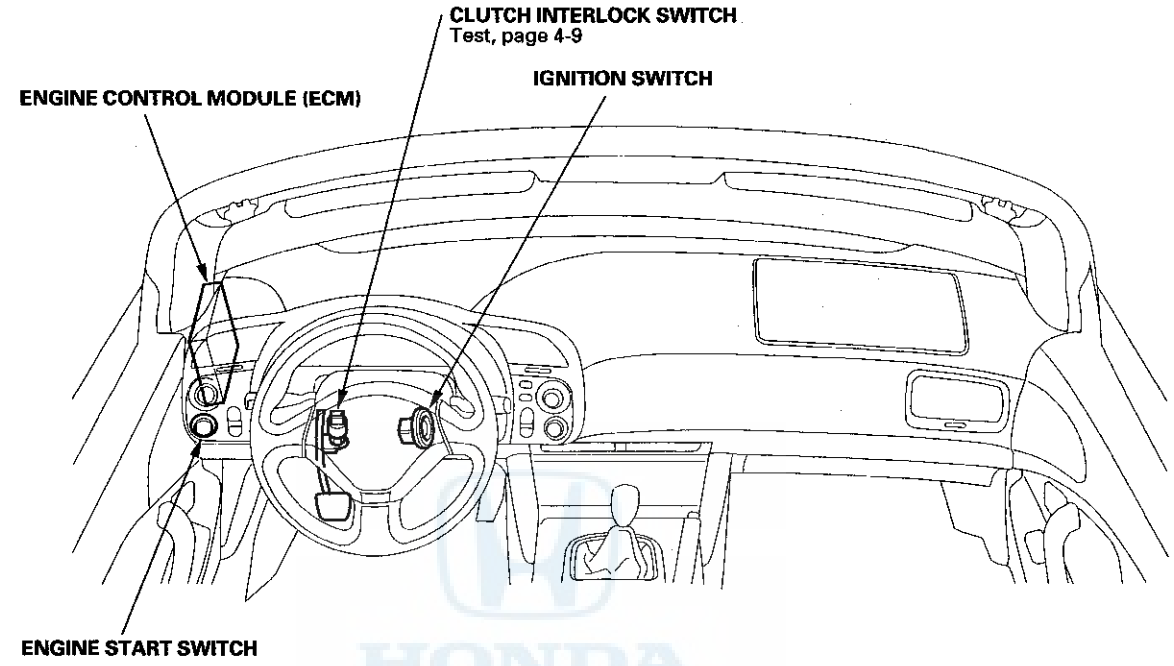
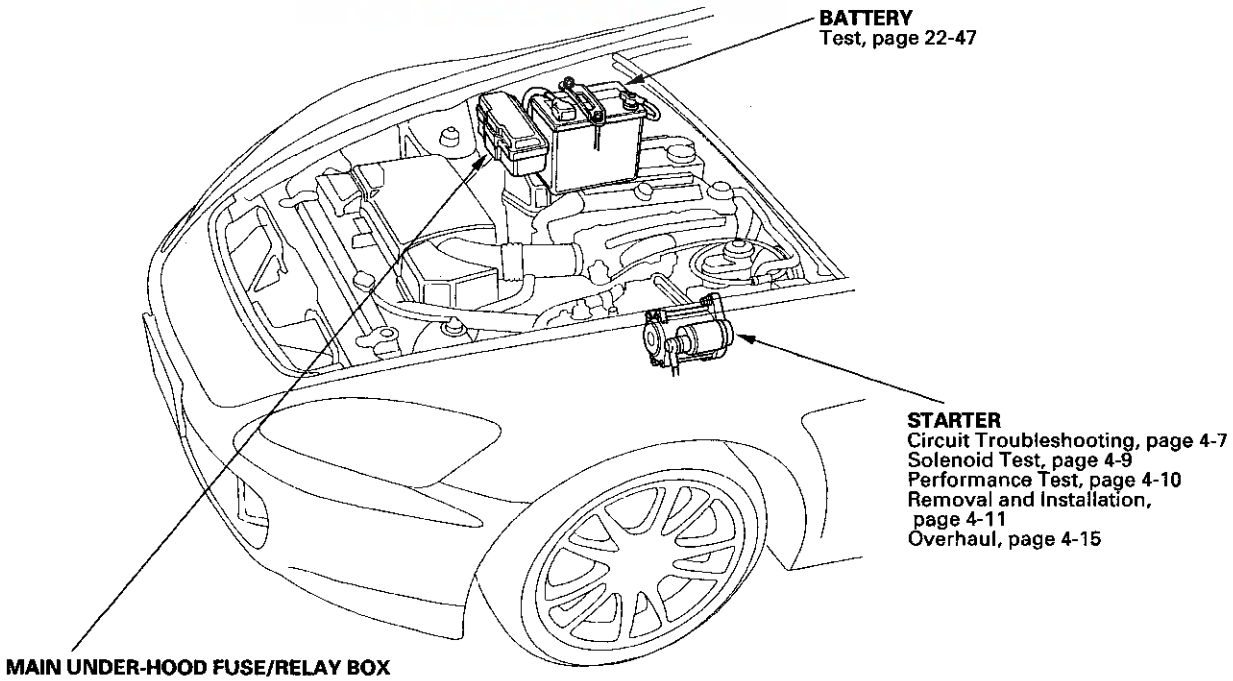


②

Starting System

Component Location Index





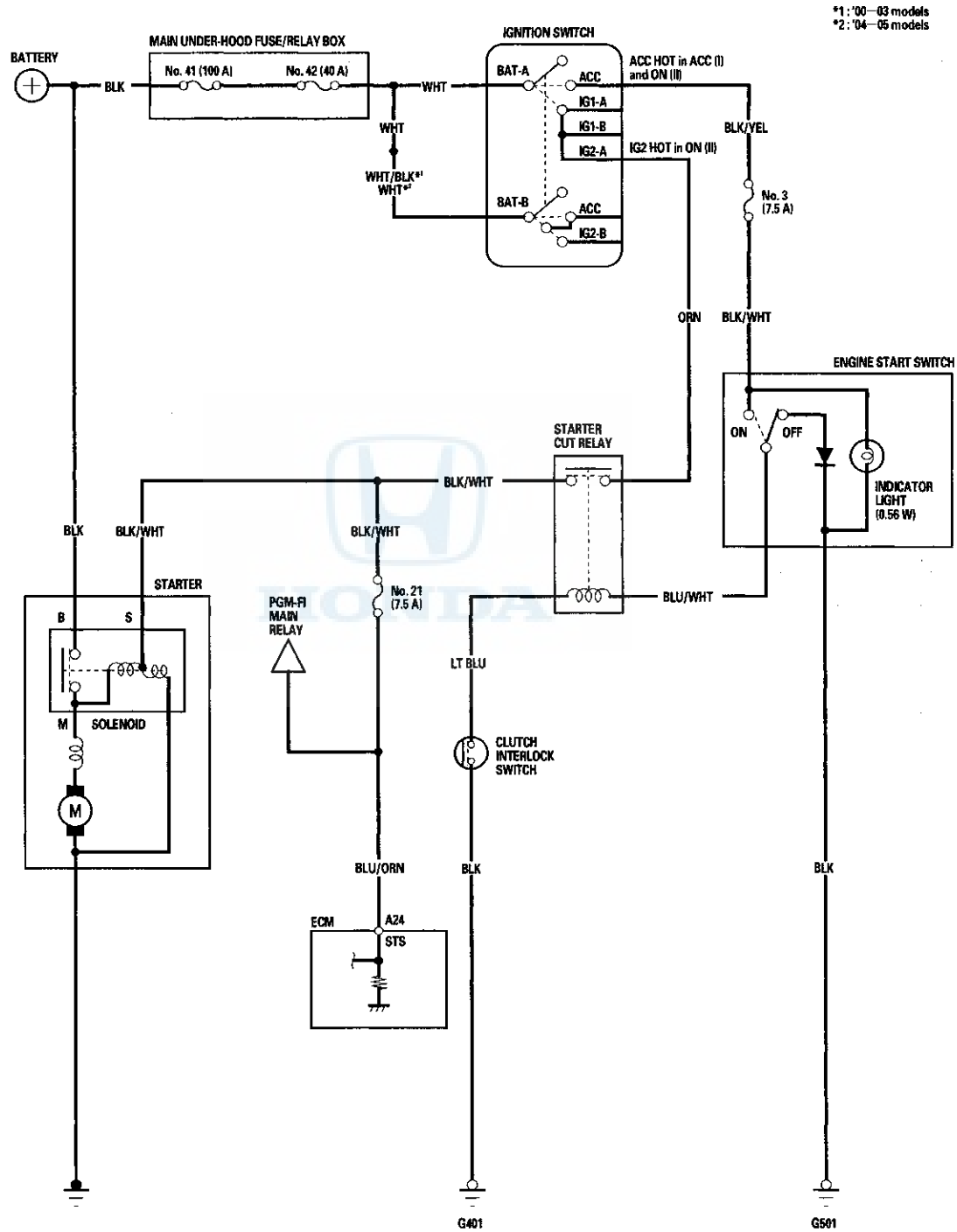
Starting System

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Engine does not start (does not crank)	1. Check for loose battery terminals or connections. 2. Test the battery for a low charge (see page 22-47). 3. Check the starter (see page 4-7). 4. Check the starter cut relay (see page 22-48). 5. Check the clutch interlock switch (see page 4-9). 6. Check the ignition switch or wire (see page 22-51). 7. Check the engine start switch.	Poor ground at G401
Engine cranks, but does not start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure: • '00-05 models (see page 11-145) • '06-08 models (see page 11-477) 3. Check for a plugged or damaged fuel line: • '00-05 models (see page 11-148) • '06-08 models (see page 11-478) 4. Check for a plugged fuel filter: • '00-05 models (see page 11-154) • '06-08 models (see page 11-486) 5. Check the throttle body: • '00-05 models (see page 11-163) • '06-08 models (see page 11-498) 6. Check for low engine compression (see page 6-7). 7. Check for a damaged or broken cam chain.	
Engine is hard to start	1. Check for PGM-FI DTCs. 2. Check the fuel pressure: • '00-05 models (see page 11-145) • '06-08 models (see page 11-477) 3. Check for a plugged or damaged fuel line: • '00-05 models (see page 11-148) • '06-08 models (see page 11-478) 4. Check for a plugged fuel filter: • '00-05 models (see page 11-154) • '06-08 models (see page 11-486)	
Engine cranks slowly	1. Check for loose battery terminals or connections. 2. Test the battery for a low charge (see page 22-47). 3. Check the starter for binding (see page 4-7). 4. Check for excessive drag in the engine.	

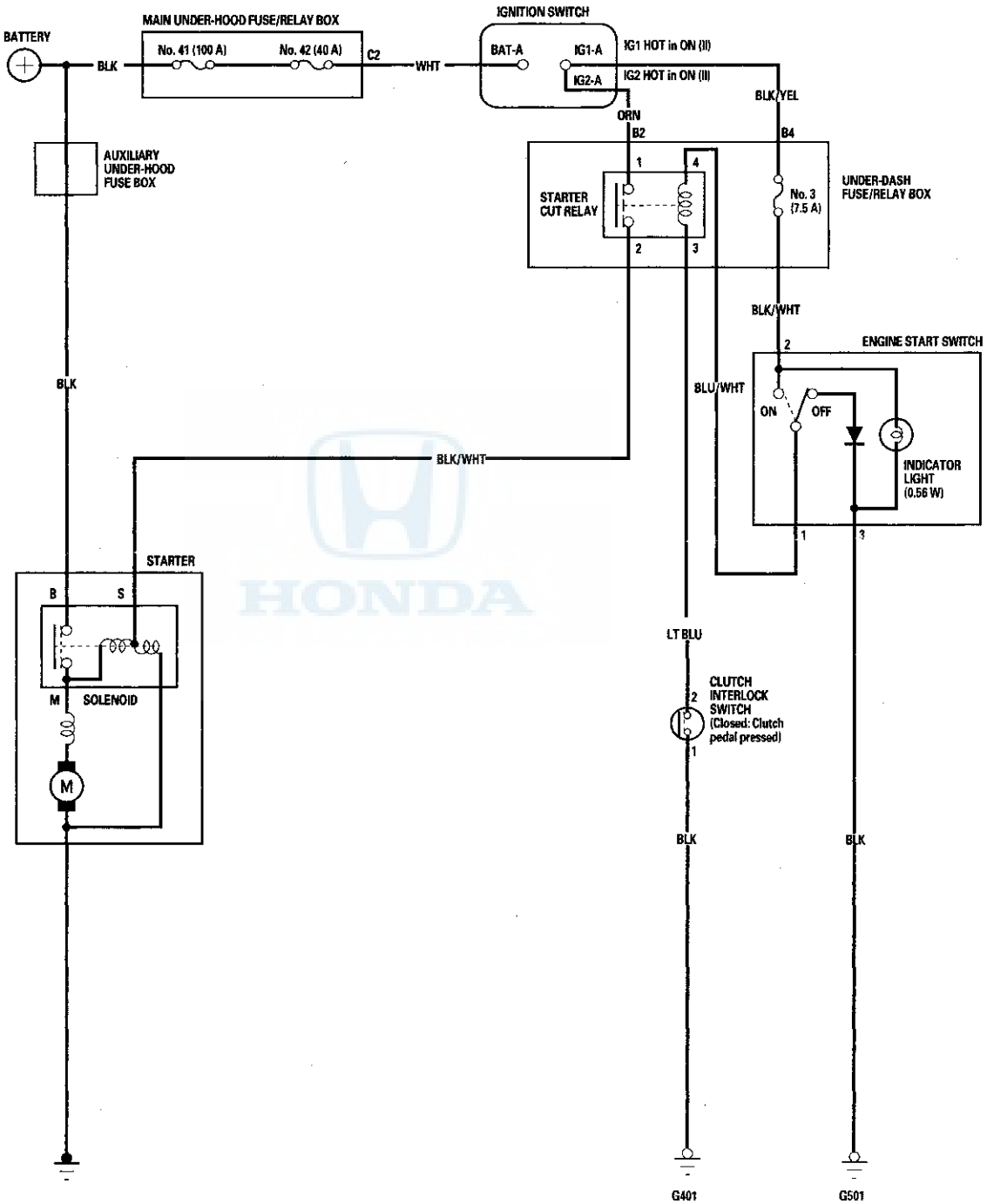
Circuit Diagram

'00-05 models



Circuit Diagram (cont'd)

'06-08 models



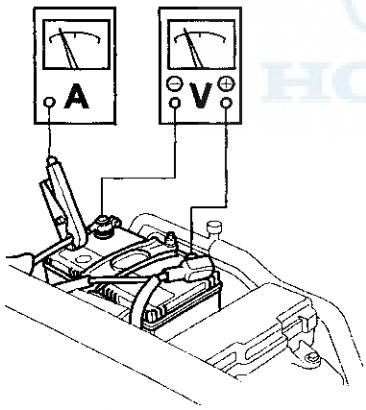
Starter System Circuit Troubleshooting

NOTE:
- Air temperature must be between 59 and 100 °F (15 and 38 °C) during this procedure.
- '00-05 models: After the inspection, you must reset the engine control module (ECM) using the Honda Diagnostic System (HDS) (see page 11-4), to clear any diagnostic trouble code (DTCs).
- '06-08 models: After the inspection, you must reset the ECM using the HDS (see page 11-214). Otherwise, the ECM continues to stop the fuel injectors.
- The battery must be in good condition and fully charged.

Recommended Procedure:

- Use a starter system tester.
- Connect and operate the equipment in accordance with the manufacturer's instructions.

1. Hook up the following equipment:
   - Ammeter, 0—400 A
   - Voltmeter, 0—20 V (accurate within 0.1 V)



2. '00-05 models: Remove the No. 2 (15 A) fuse from the under-dash fuse/relay box.

3. '06-08 models: Connect the HDS to the data link connector (DLC) (see step 2 on page 11-213).

4. Turn the ignition switch to ON (II).

5. '06-08 models: Make sure the HDS communicates with the vehicle and ECM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).

6. '06-08 models: Select PGM-FI, INSPECTION, then ALL INJECTORS OFF on the HDS.

7. With the clutch pedal pressed, press the engine start switch.

   Does the starter crank the engine normally?

   YES—The starting system is OK. ■

   NO—Go to step 8.

8. Check the battery condition. Check the electrical connections at the battery, the negative battery cable to the body, the engine ground cables, and the starter for looseness and corrosion. Then try cranking the engine again.

   Does the starter crank the engine?

   YES—Repairing the loose connection corrected the problem. The starting system is OK. Go to step 11.

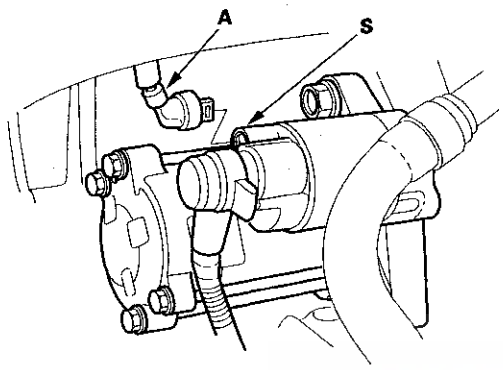
   NO—Based on the following symptoms, take the appropriate action:

   - If the starter will not crank the engine at all, go to step 9.
   - If the starter cranks the engine erratically or too slowly, go to step 10.
   - If the starter does not disengage from the flywheel ring gear when you release the engine start switch, check the following: ■
     – Solenoid plunger and switch malfunction
     – Dirty drive gear or damaged overrunning clutch

(cont'd)

Starter System Circuit Troubleshooting (cont'd)

9. Make sure the transmission is in neutral, then disconnect the BLK/WHT wire (A) from the starter solenoid S terminal. Connect a jumper wire from the battery positive terminal to the solenoid S terminal.



Does the starter crank the engine normally?

YES—Check the following items in the order listed until you find the open circuit:■

- The BLK/WHT wire and connectors between the starter cut relay and the starter.
- The ORN wire and connectors between the ignition switch and the starter cut relay.
- The LT BLU wire and connectors between the starter cut relay and the clutch interlock switch.
- The BLK/WHT wire between the under-dash fuse/relay box and the engine start switch.
- No. 3 fuse in the under-dash fuse/relay box.
- The ignition switch (see page 22-51).
- The engine start switch.
- The clutch interlock switch (see page 4-9).
- The starter cut relay (see page 22-48).

NO—Replace the starter (see page 4-11), or repair the starter (see page 4-15).

10. While cranking the engine, check the cranking voltage and current draw.

Is the cranking voltage greater than or equal to 8.7 V and the current draw less than or equal to 380 A ('00-05 models) or 230 A ('06-08 models)?

YES—Go to step 11.

NO—Replace the starter (see page 4-11), or remove and disassemble it, and check for these problems:■

- Open circuit in starter armature commutator segments
- Drag in the starter armature
- Shorted armature winding
- Excessive drag in the engine
- Excessively worn starter brushes
- Open circuit in the starter brushes
- Dirty or damaged helical spline or drive gear
- Faulty drive gear clutch

11. Remove the starter, and inspect its drive gear and the flywheel ring gear for damage. Replace any damaged parts.

12. '00-05 models: Reinstall the No. 2 (15 A) fuse in the under-dash fuse/relay box.

13. '00-05 models: Select ECM reset on the HDS (see page 11-4).

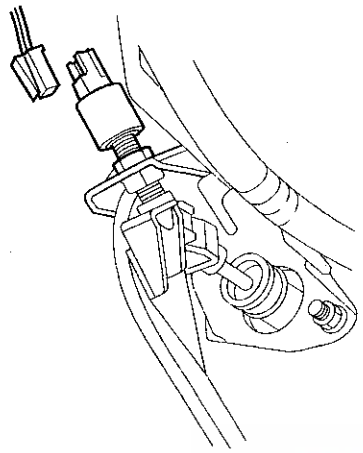
14. '06-08 models: Select ECM reset (see page 11-214) to cancel the ALL INJECTORS OFF on the HDS.

15. Do the ECM idle learn procedure:

- '00-05 models (see page 11-140)
- '06-08 models (see page 11-462)

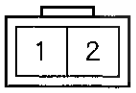
Clutch Interlock Switch Test

1. Disconnect the connector from the clutch interlock switch, then remove the clutch interlock switch.

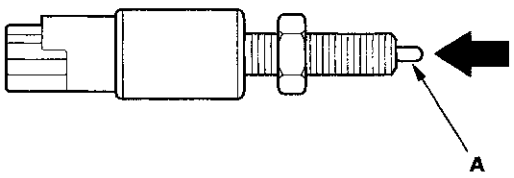


2. Check the clutch interlock switch connector terminals for continuity. There should be no continuity between the terminals with the button (A) released, and there should be continuity with the button pressed.

CLUTCH INTERLOCK SWITCH CONNECTOR



Terminal side of male terminals



3. If the clutch interlock switch is faulty, replace it.

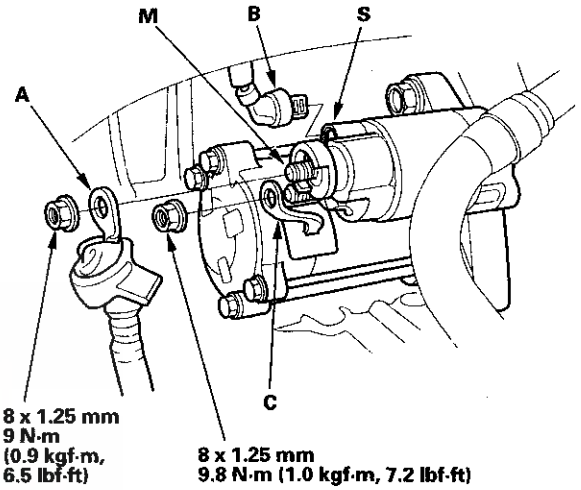
4. Install the clutch interlock switch, and adjust it (see page 12-7).

Starter Solenoid Test

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

2. Disconnect the negative cable from the battery.

3. Disconnect the starter cable (A), BLK/WHT wire (B), and motor cable (C).



4. Check the hold-in coil for continuity between the S terminal and the armature housing (ground). There should be continuity.

   - If there is continuity, go to step 5.
   - If there is no continuity, replace the solenoid.

5. Check the pull-in coil for continuity between the S terminal and the M terminal. There should be continuity.

   - If there is continuity, the solenoid is OK.
   - If there is no continuity, replace the solenoid.

6. Connect the starter cable, BLK/WHT wire, and motor cable.

7. Connect the negative cable to the battery.

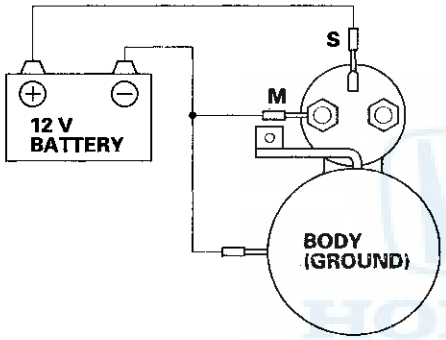
8. '00-05 models: Do the engine control module (ECM) idle learn procedure (see page 11-140).

9. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

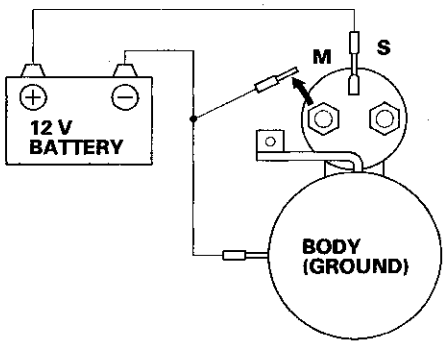
Starter Performance Test

1. Disconnect the wires from the S terminal and the M terminal.
2. Make a connection for this test using the thickest (gauge) wire possible (preferably the same gauge as used on the vehicle).

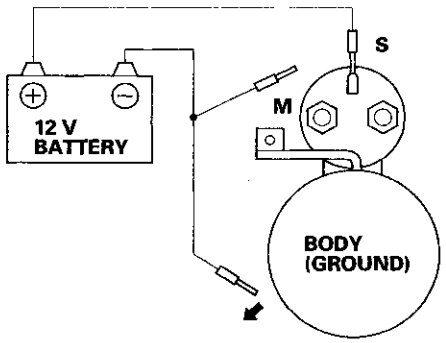
   NOTE: To avoid damaging the starter, never leave the battery connected for more than 10 seconds.
3. Connect the battery as shown. Make sure you disconnect the starter motor wire from the solenoid. If the starter pinion moves out, it is working properly.



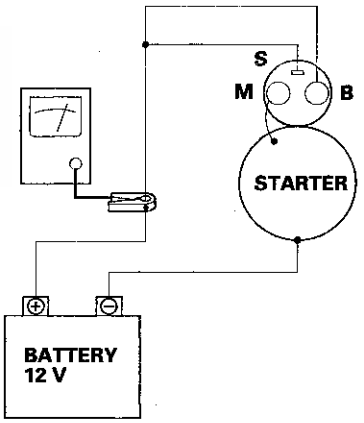
4. Disconnect the battery from the M terminal. If the pinion does not retract, the hold-in coil of the solenoid is working properly.



5. Disconnect the battery from the starter body. If the pinion retracts immediately, it is working properly.



6. Clamp the starter firmly in a vise.
7. Connect the starter to the battery as shown, and confirm that the motor starts rotating.



8. If the electric current meets the specification when the battery voltage is at 11.5 V, the starter is working properly.

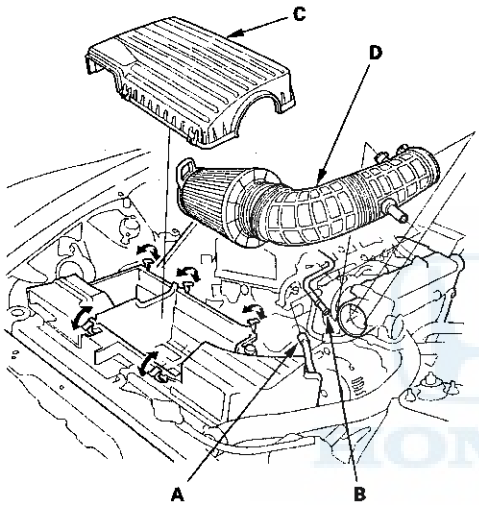
Specification

'00-03 models: 1.0 kW	**90 A or less**
'04-08 models: 1.1 kW	**(Electric current)**

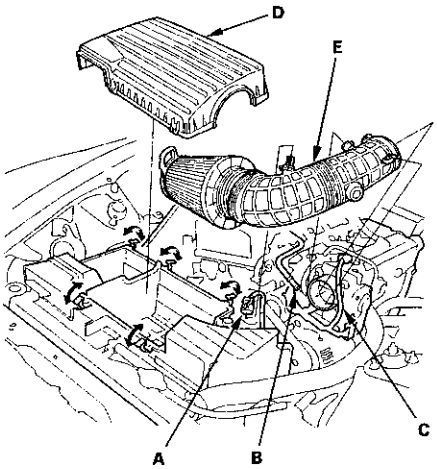
Starter Removal and Installation

Removal

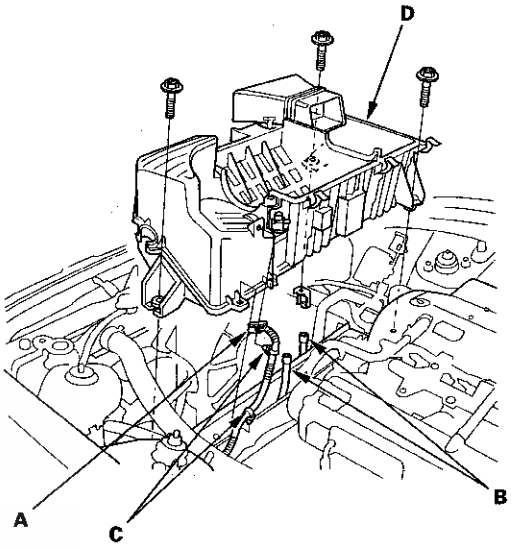
1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Disconnect the negative cable from the battery.
3. '00-05 models: Disconnect the air hose (A) and breather pipe (B), then remove the air cleaner housing cover (C) and air cleaner assembly (D).



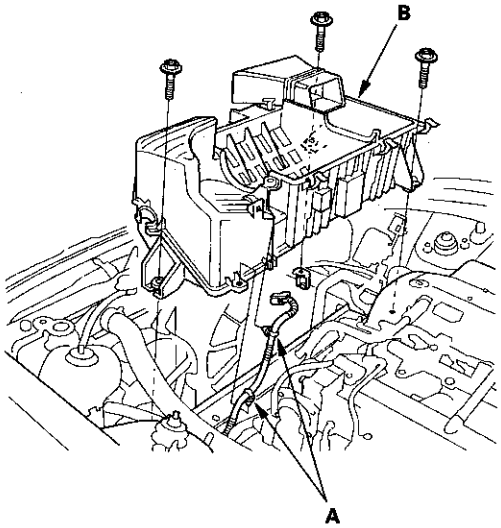
4. '06-08 models: Disconnect the intake air temperature (IAT) sensor connector (A) and breather pipe (B), remove the manifold absolute pressure (MAP) sensor harness (C) from the holder, then remove the air cleaner housing cover (D) and air cleaner assembly (E).



5. '00-05 models: Disconnect the air control solenoid valve connector (A) and vacuum hoses (B), remove the harness clamps (C), then remove the intake air cleaner housing (D).



6. '06-08 models: Remove the IAT sensor harness clamps (A), then remove the intake air cleaner housing (B).

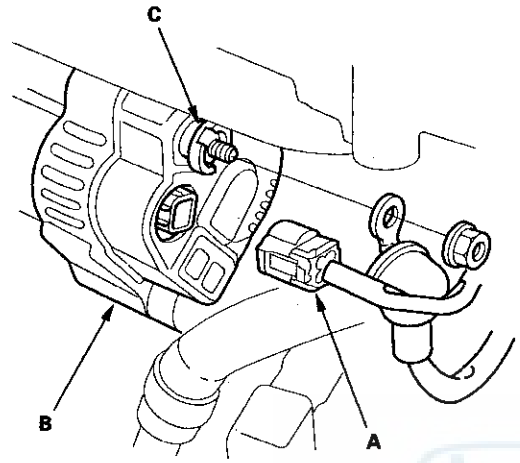


7. Remove the drive belt (see page 4-42).

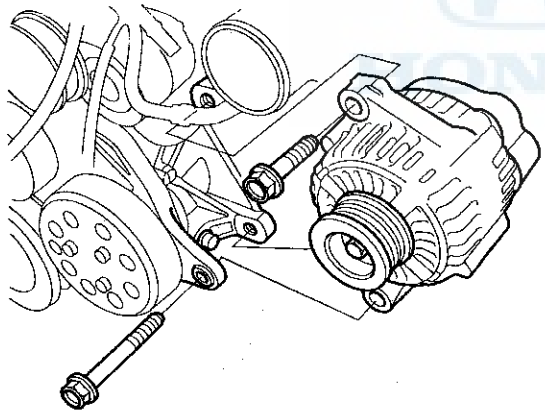
(cont'd)

Starter Removal and Installation (cont'd)

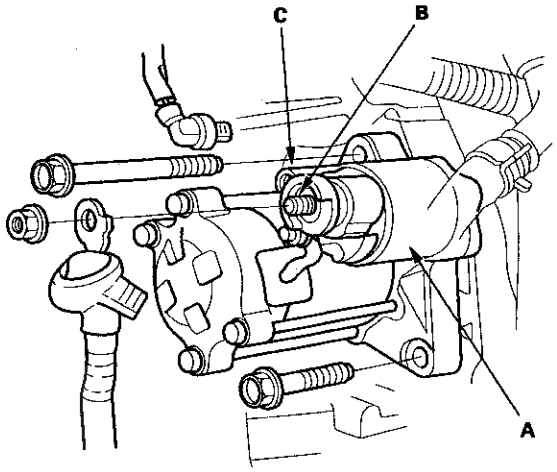
8. Disconnect the 4P connector (A) from the alternator (B), and disconnect the BLK wire from the alternator B terminal (C).



9. Remove the mounting bolts, then remove the alternator.



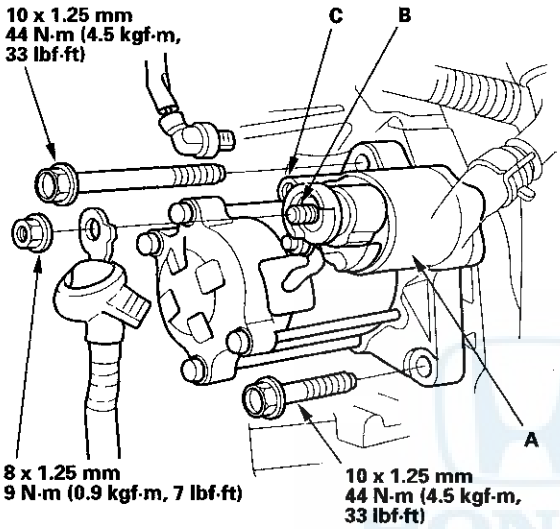
10. Disconnect the starter cable from the B terminal on the starter solenoid (A), then disconnect the BLK/WHT wire from the S terminal (C).



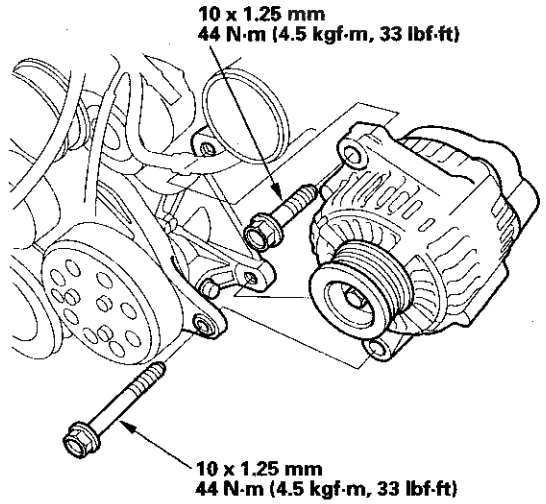
11. Remove the two bolts securing the starter, then remove the starter.

Installation

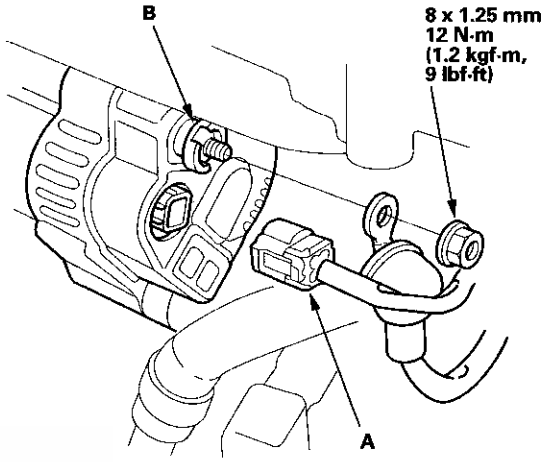
1. Install the starter, then connect the starter cable to the B terminal on the starter solenoid (A) and the BLK/WHT wire to S terminal (C). Make sure the crimped side of the starter cable ring terminal faces away from the starter when you connect it.



2. Install the alternator.

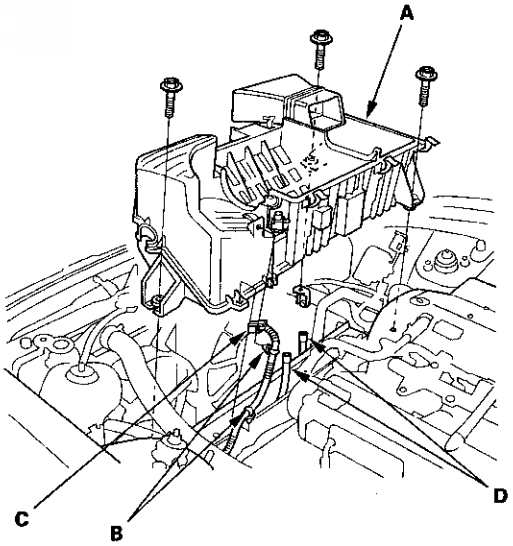


3. Connect the 4P connector (A) to the alternator and BLK wire to the alternator B terminal (B).



4. Install the drive belt (see page 4-42).

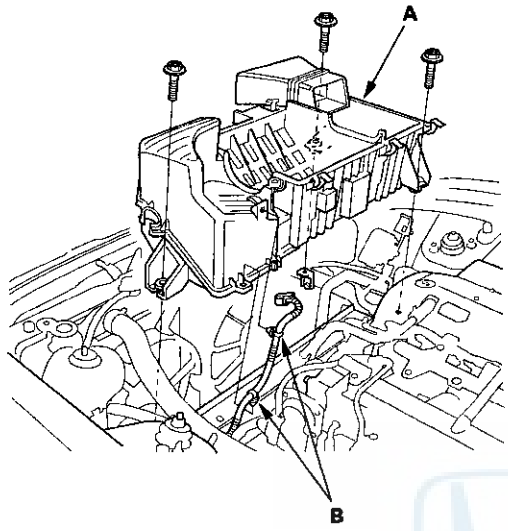
5. '00-05 models: Install the intake air cleaner housing (A), then install the harness clamps (B), connect air control solenoid valve connector (C) and vacuum hoses (D).



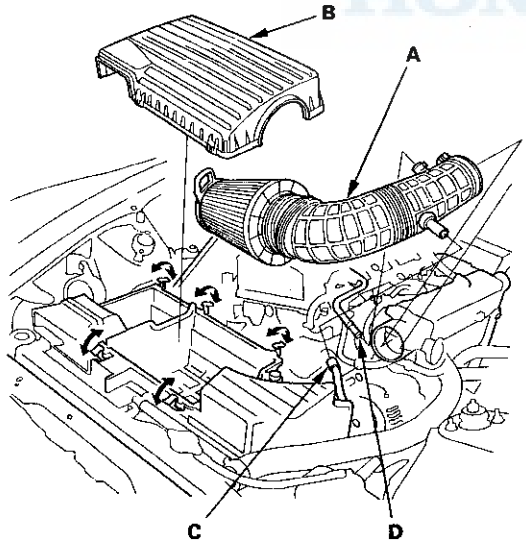
(cont'd)

Starter Removal and Installation (cont'd)

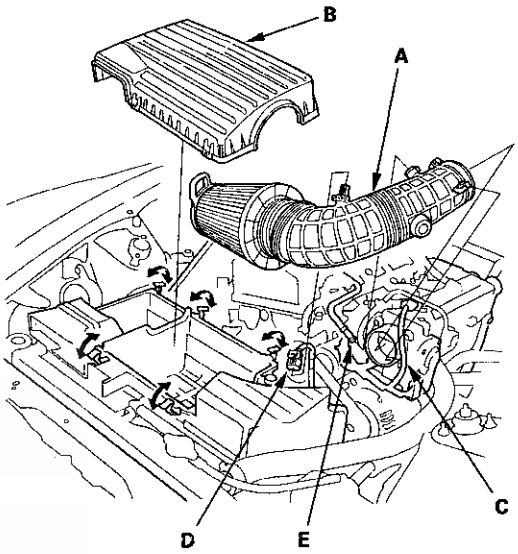
6. '06-08 models: Install the intake air cleaner housing (A), then install the IAT sensor harness clamps (B).



7. '00-05 models: Install the air cleaner assembly (A) and air cleaner housing cover (B), then connect the air hose (C) and breather pipe (D).



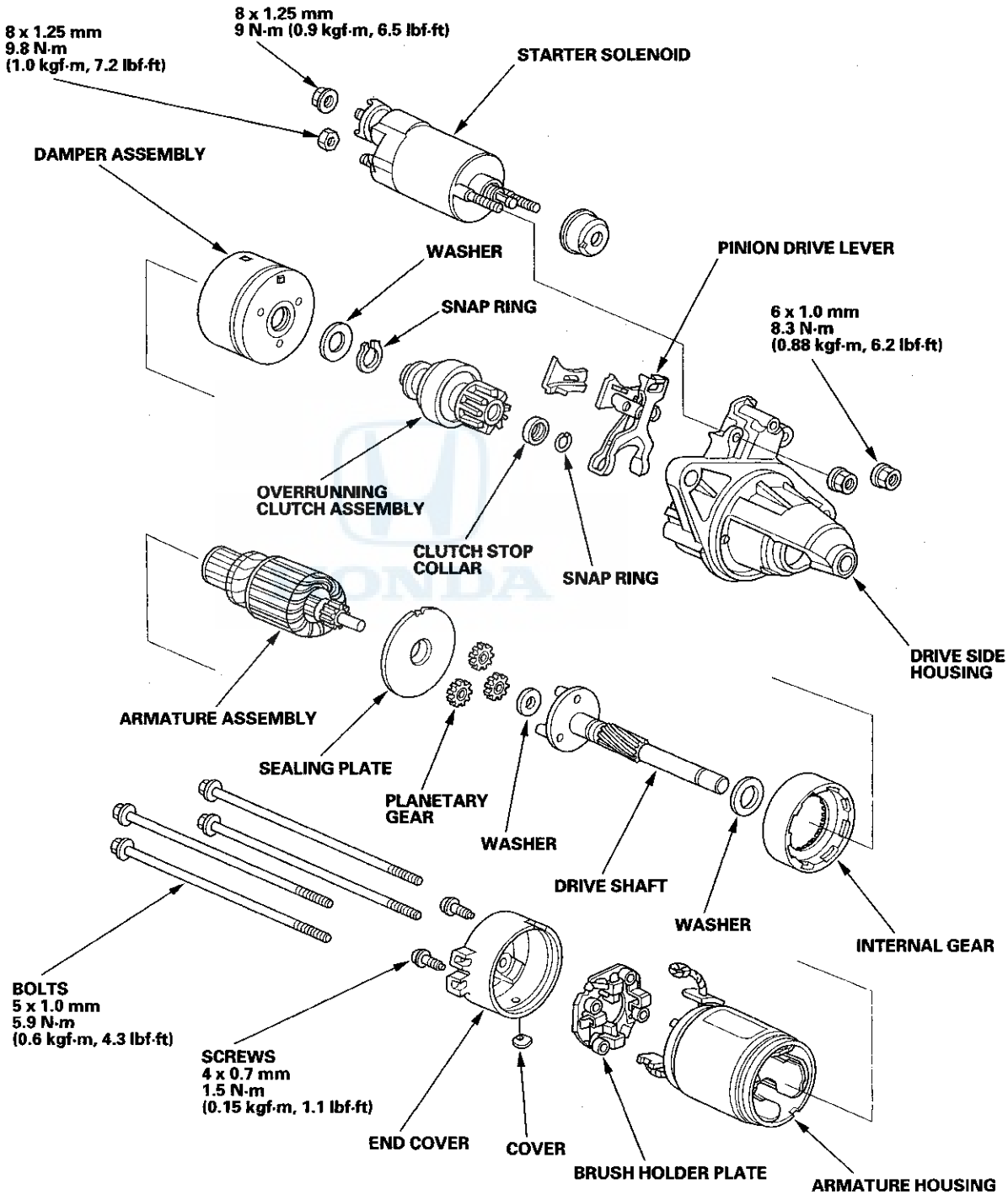
8. '06-08 models: Install the air cleaner assembly (A) and air cleaner housing cover (B), then install the MAP sensor harness (C) to the holder, connect the IAT sensor connector (D) and breather pipe (E).



9. Connect the negative cable to the battery.
10. Start the engine to make sure the starter works properly.
11. '00-05 models: Do the engine control module (ECM) idle learn procedure (see page 11-140).
12. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Starter Overhaul

Disassembly/Reassembly



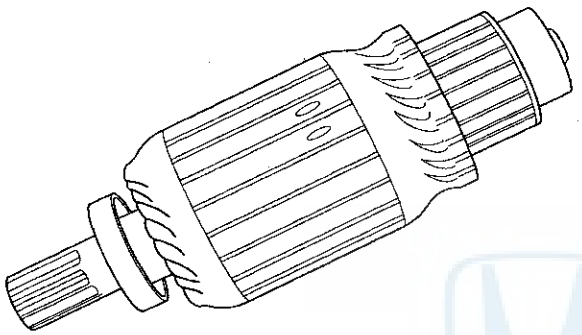
(cont'd)

Starter Overhaul (cont'd)

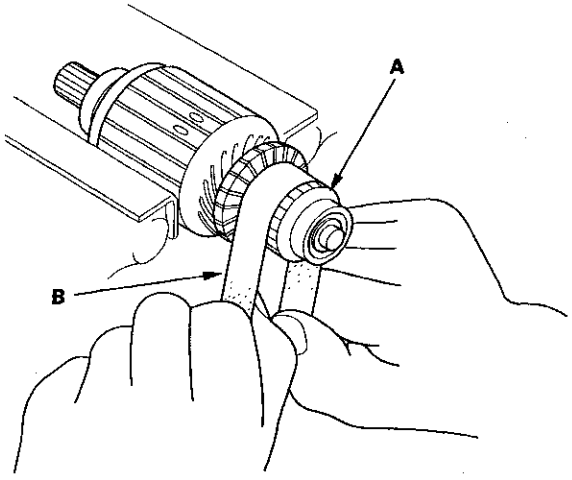
1. Remove the starter (see page 4-11).
2. Disassemble the starter.

Armature Inspection and Test

3. Inspect the armature for wear or damage due to contact with the permanent magnet. If there is wear or damage, replace the armature.

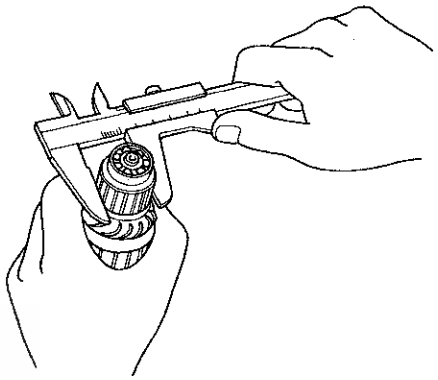


4. Check the commutator (A) surface. If the surface is dirty or burnt, resurface it with an emery cloth or a lathe to the specifications in step 5 or recondition it with #500 or #600 sandpaper (B).



5. Check the commutator diameter. If the diameter is below the service limit, replace the armature.

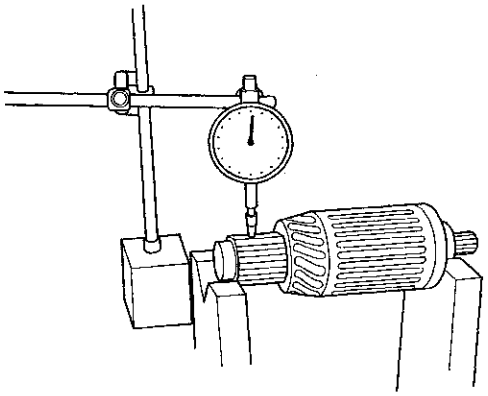
Commutator Diameter
Standard (New): 28.0—28.1 mm (1.102—1.106 in.)
Service Limit: 27.5 mm (1.083 in.)



6. Measure the commutator runout.

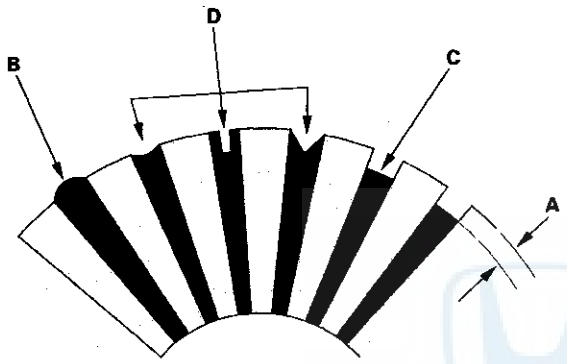
- If the commutator runout is within the service limit, check the commutator for carbon dust or brass chips between the segments.
- If the commutator runout is not within the service limit, replace the armature.

Commutator Runout
Standard (New): 0.02 mm (0.001 in.) max.
Service Limit: 0.05 mm (0.002 in.)

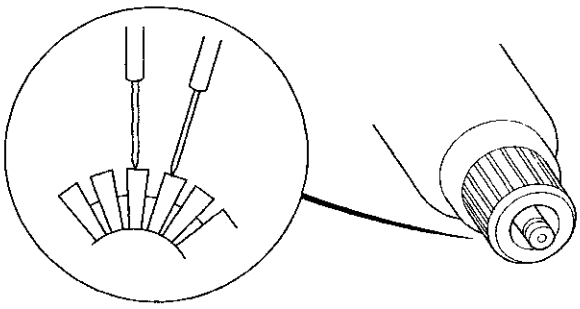


7. Check the mica depth (A). If the mica is too high (B), cut the mica with a hacksaw blade to the proper depth. Cut away all the mica (C) between the commutator segments. The undercut should not be too shallow, too narrow, or V-shaped (D).

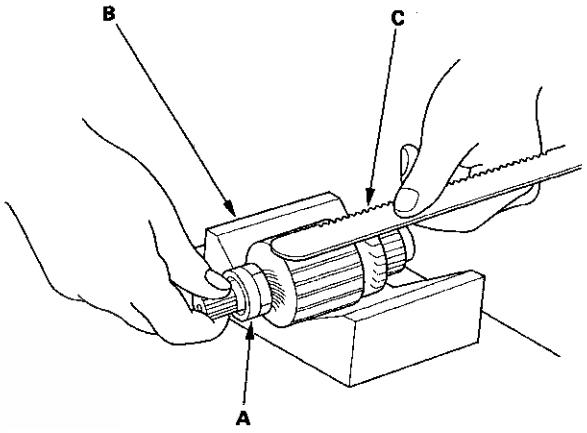
Commutator Mica Depth
Standard (New): 0.4—0.5 mm (0.016—0.020 in.)
Service Limit: 0.15 mm (0.006 in.)



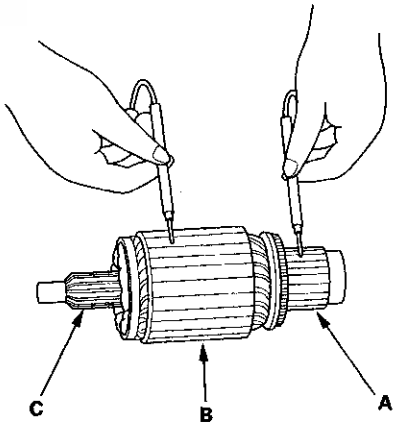
8. Check for continuity between the segments of the commutator. If there is an open circuit between any segments, replace the armature.



9. Place the armature (A) on an armature tester (B). Hold a hacksaw blade (C) on the armature core. If the blade is attracted to the core or vibrates while the core is turned, the armature is shorted. Replace the armature.



10. Use an ohmmeter to check for continuity between the commutator (A) and the armature coil core (B), and between the commutator and the armature shaft (C). If there is continuity, replace the armature.



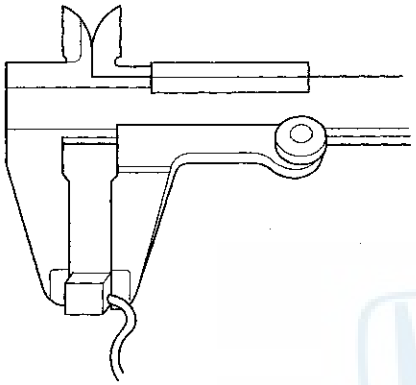
(cont'd)

Starter Overhaul (cont'd)

Starter Brush Inspection

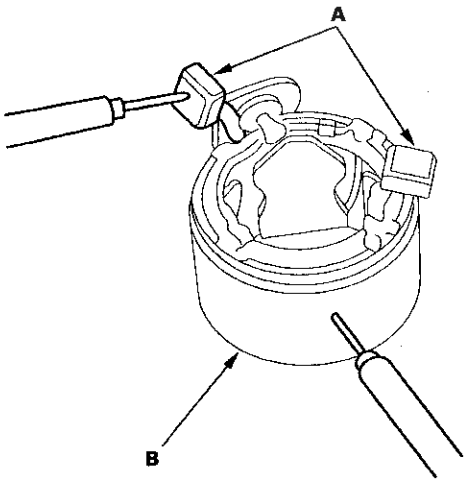
11. Measure the brush length. If it is not within the service limit, replace the brush holder assembly.

    Brush Length
    Standard (New): 15.8—16.2 mm (0.62—0.64 in.)
    Service Limit: 11.0 mm (0.43 in.)



Starter Field Winding Test

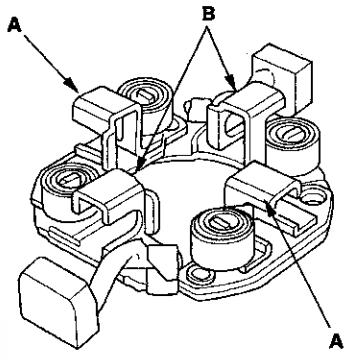
12. Check for continuity between the brushes (A). If there is no continuity, replace the armature housing (B).



13. Check for continuity between each brush (A) and the armature housing (B). If there is continuity, replace the armature housing.

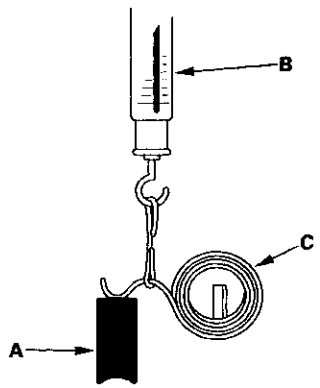
Starter Brush Holder Test

14. Check for continuity between the (+) brush holder (A) and (—) brush holder (B). If there is continuity, replace the brush holder assembly.

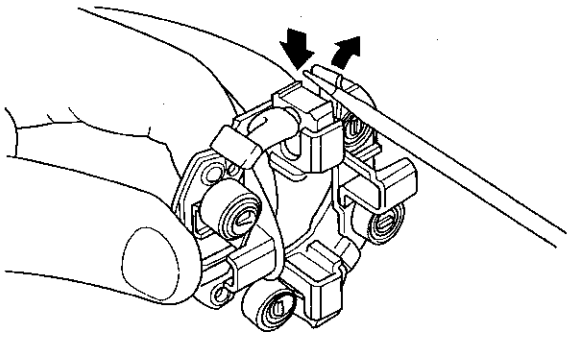


15. Insert the brush (A) into the brush holder, and bring the brush into contact with the commutator, then attach a spring scale (B) to the spring (C). Measure the spring tension at the moment the spring lifts off the brush. If the spring tension is not to specification, replace the spring.

    Spring Tension:
    15.7—17.7 N (1.6—1.8 kgf, 3.53—3.97 lbf)

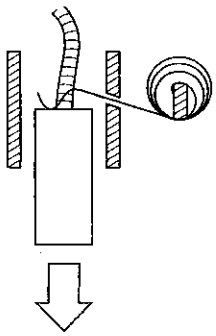


16. Pry back each brush spring with a screwdriver, then position the brush about halfway out of its holder, and release the spring to hold it there.

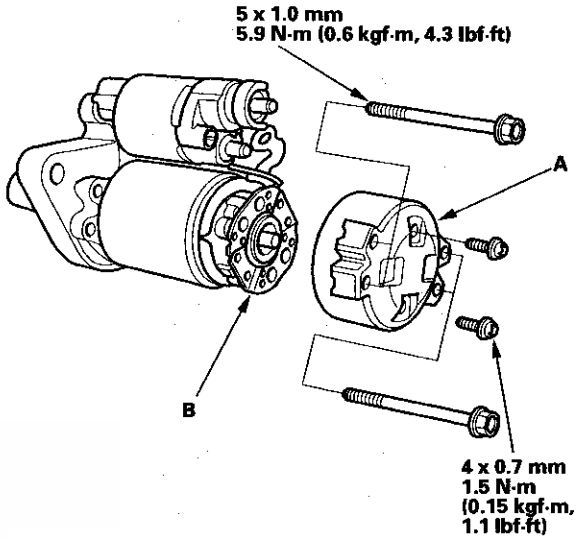


17. Install the armature in the housing, and install the brush holder. Next, pry back each brush spring again, and push the brush down until it seats against the commutator, then release the spring against the end of the brush.

    NOTE: To seat the new brushes, slip a strip of #500 or #600 sandpaper, with the grit side up, between the commutator and each brush, and smoothly rotate the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.



18. Install the starter end cover (A) to retain the brush holder (B).



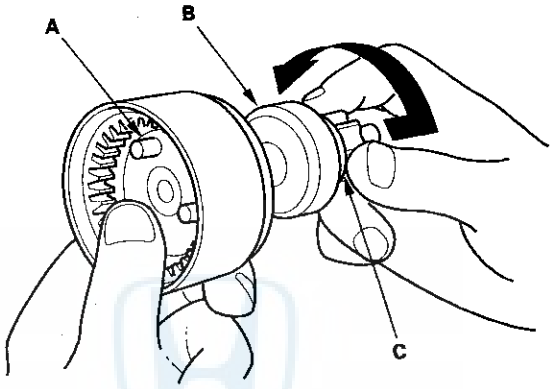
(cont'd)

Starter Overhaul (cont'd)

Overrunning Clutch Inspection

19. Slide the overrunning clutch along the shaft. Replace it if it does not slide smoothly.

20. Hold the planetary gear shaft (A), and turn the overrunning clutch assembly (B) both ways. If it does not lock in either direction or it locks in both directions, replace it.

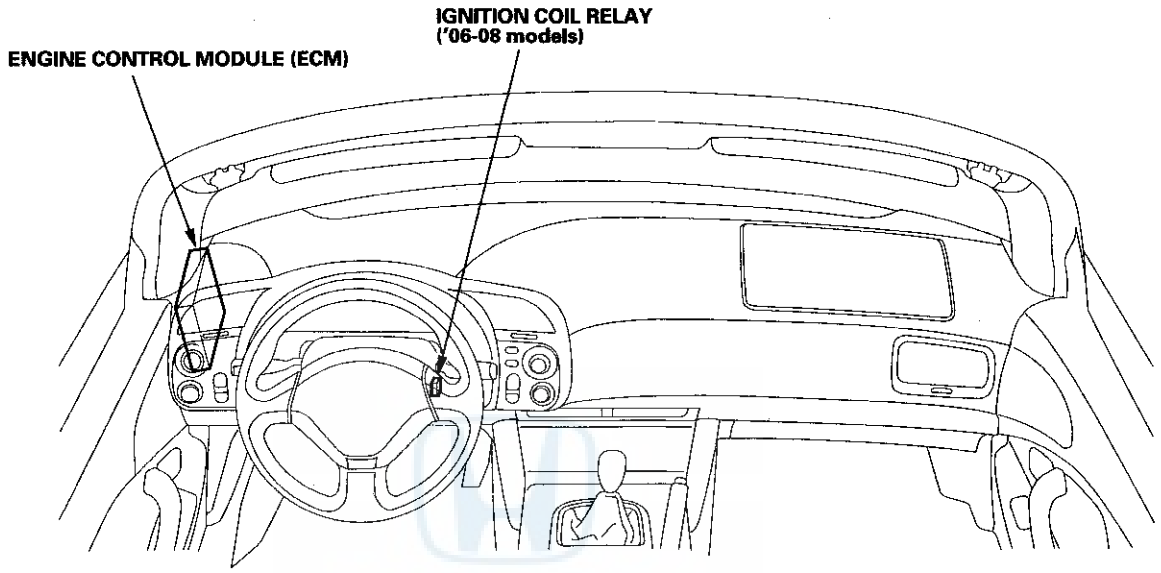


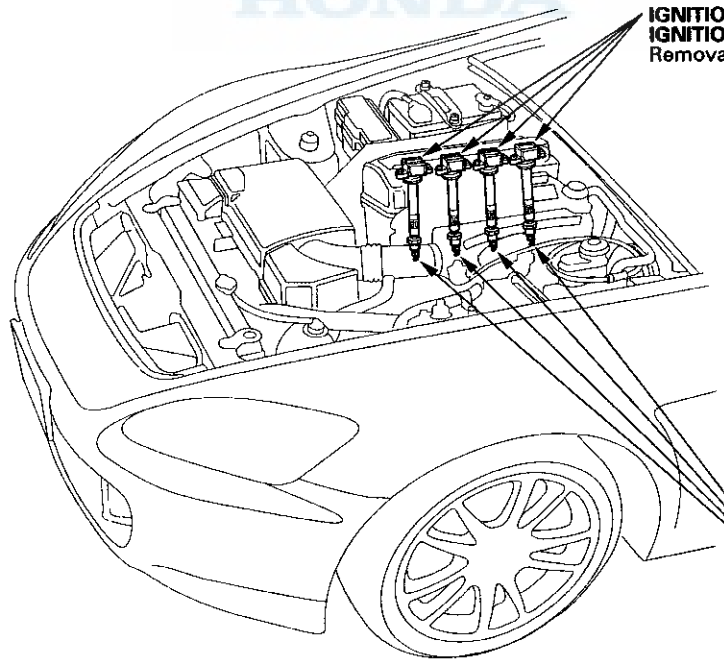
21. If the starter drive gear (C) is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately. Check the condition of the flywheel ring gear if the starter drive gear teeth are damaged.

22. Reassemble the starter in reverse order of disassembly.

Ignition System

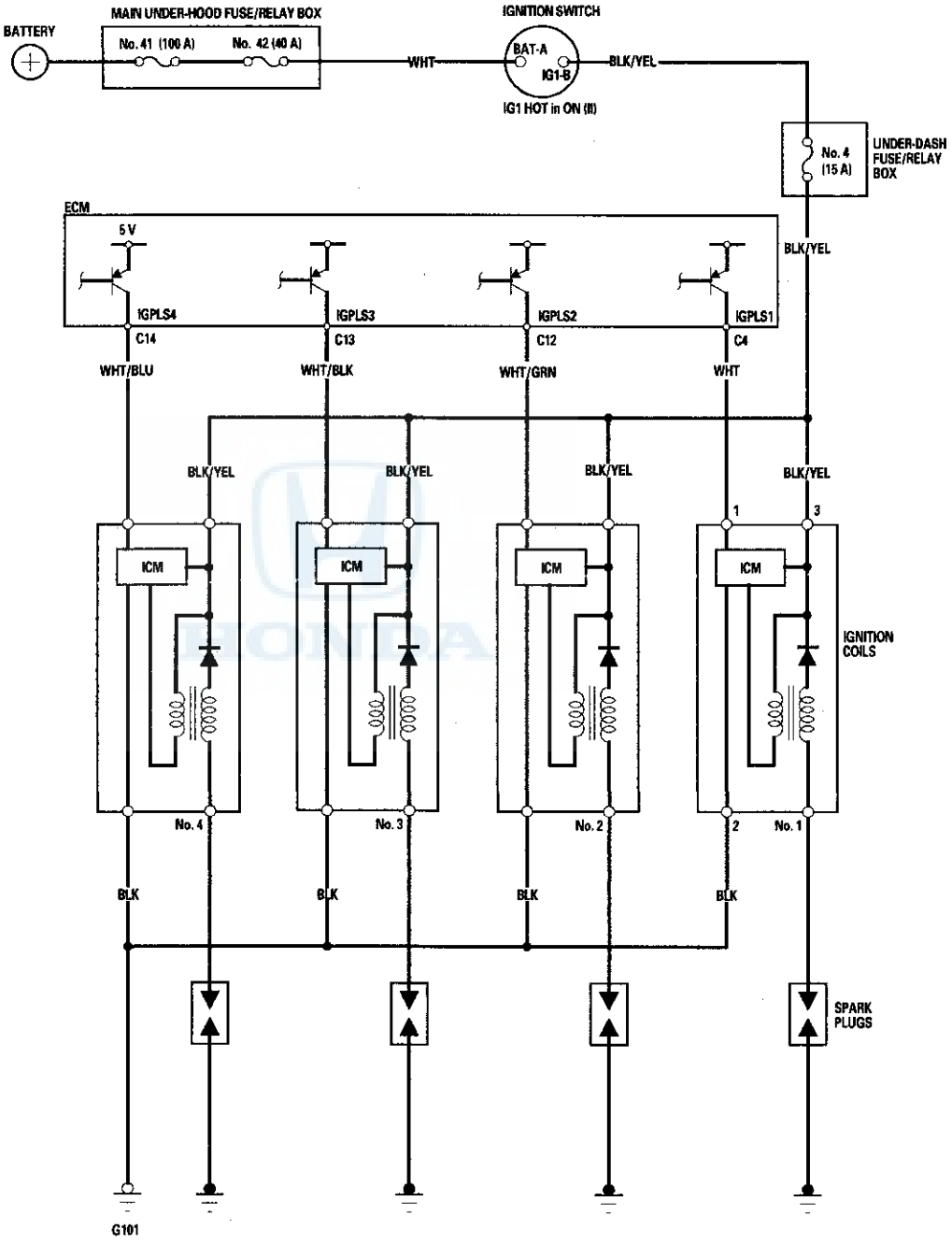
Component Location Index





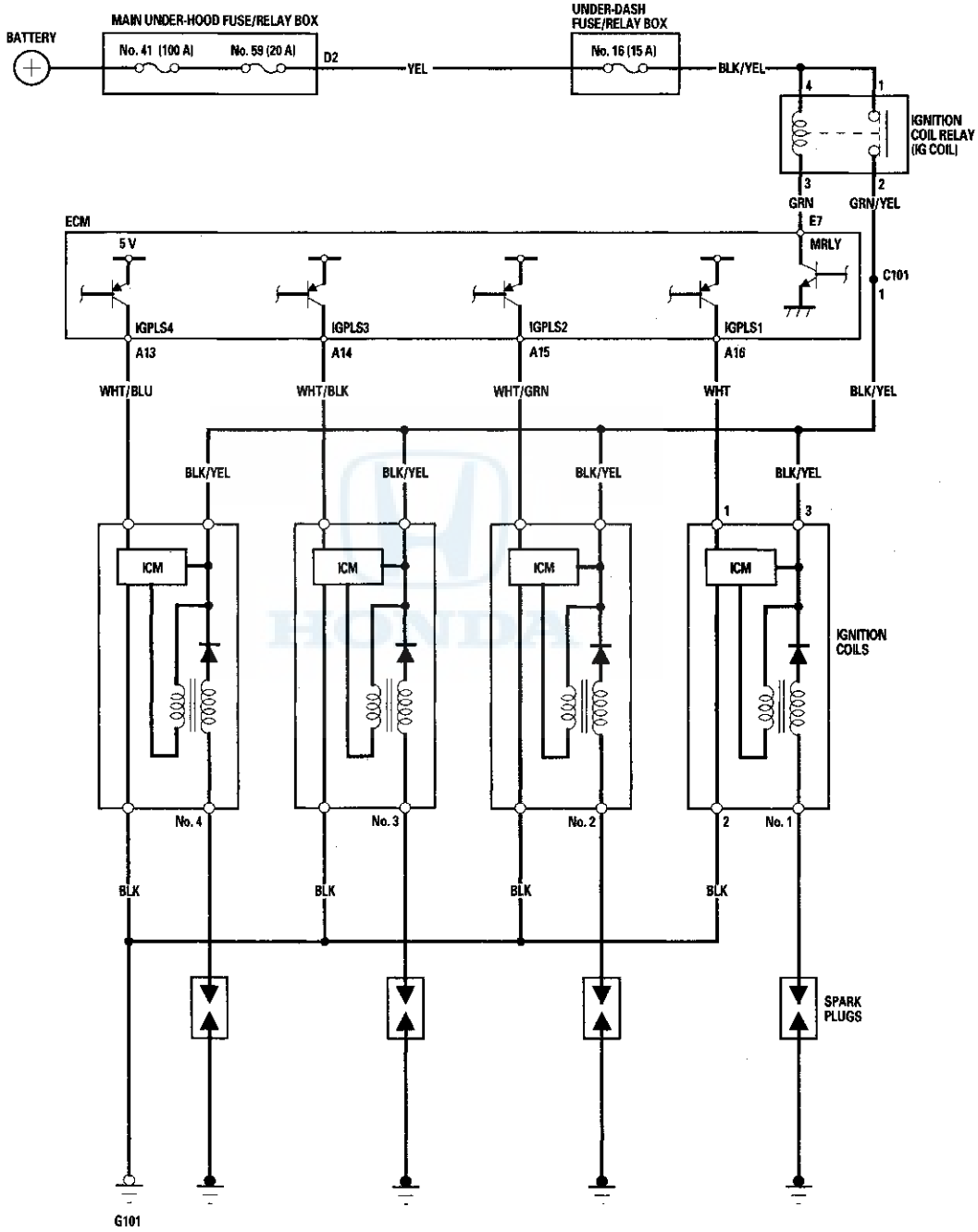
Circuit Diagram

'00-05 models



ICM: Ignition Control Module

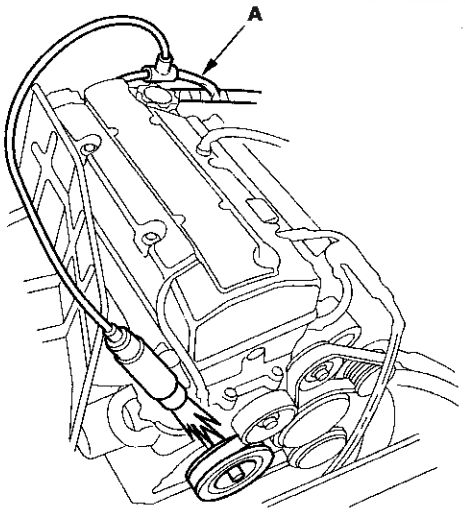
'06-08 models



ICM: Ignition Control Module

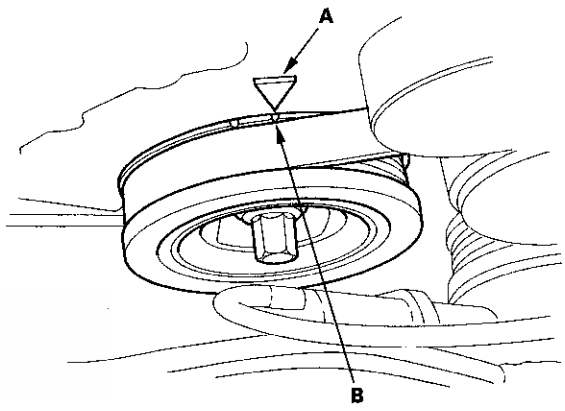
Ignition Timing Inspection

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC), '00-05 models (see step 2 on page 11-3), '06-08 models (see step 2 on page 11-213), and check for DTCs. If a DTC is present, diagnose and repair the cause before inspecting the ignition timing.
2. Turn the ignition switch to ON (II).
3. '06-08 models: Make sure the HDS communicates with the vehicle and the engine control module (ECM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).
4. Start the engine. Hold the engine speed at 3,000 rpm with no load (in neutral) until the radiator fan comes on, then let it idle.
5. Check the idle speed:
   - '00-05 models (see page 11-140)
   - '06-08 models (see page 11-461)
6. Jump the SCS line with the HDS.
7. Free the service loop (A) from the engine wire harness, then connect the timing light to the service loop.



8. Aim the light toward the pointer (A). Check the ignition timing under a no load condition (headlights, blower fan, and air conditioner are turned off).

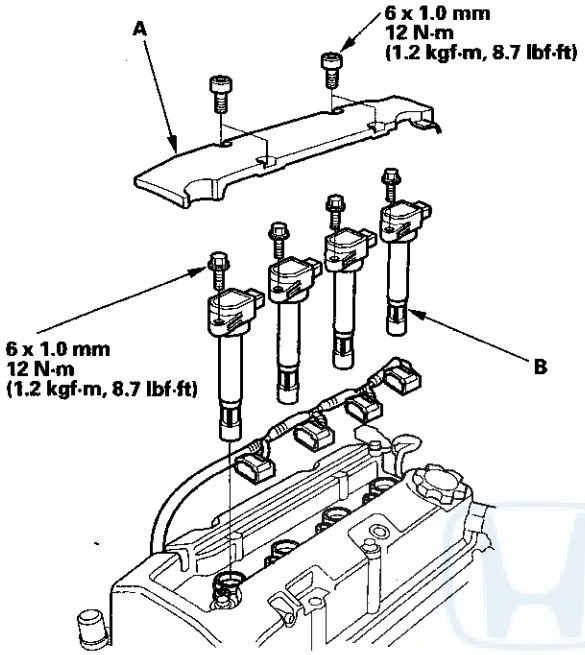
   Ignition Timing:
   5±2 °BTDC (RED mark (B)) at idle in neutral



9. If the ignition timing differs from the specification, check the cam timing. If the cam timing is OK, update the ECM if it does not have the latest software '06-08 models (see page 11-216), or substitute a known-good ECM, '00-05 models (see page 11-5), '06-08 models (see page 11-217), then recheck. If the system works properly, and the ECM was substituted, replace the original ECM, '00-05 models (see page 11-115), '06-08 models (see page 11-389).
10. Turn the ignition switch to LOCK (0).
11. Disconnect the HDS and the timing light.
12. Secure the service loop to the engine wire harness with wire ties.

Ignition Coil Removal/Installation

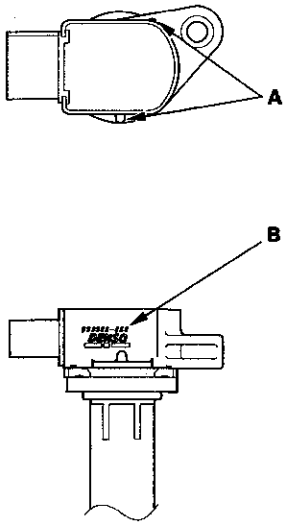
1. Remove the ignition coil cover (A).



2. Disconnect the ignition coil connectors, then remove the ignition coils (B).

3. Install the ignition coils in the reverse order of removal.

NOTE: The ignition coils for '06-08 models are different from former models. Do not install the ignition coils from other model years, because they may be damaged. To differentiate between the two types of ignition coils, the ignition coils for '06-08 models have the ribs (A) on the coil head and supplier's parts number (B).



Ignition Coil Relay Circuit Troubleshooting

'06-08 models

1. Check the No. 16 (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Reinstall the fuse, then go to step 2.

   NO—Replace the fuse. If the fuse continues to blow, locate and repair the short in the circuit between the under-dash fuse/relay box and ignition coils. ■

2. Remove the ignition coil relay, and test it (see page 22-48).

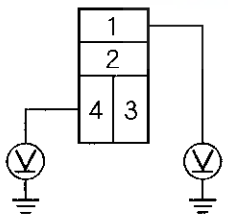
   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the ignition coil relay. ■

3. Measure the voltage between ignition coil relay 4P socket terminal No. 1 and body ground, then terminal No. 4 and body ground.

IGNITION COIL RELAY 4P SOCKET



Terminal side of female terminals

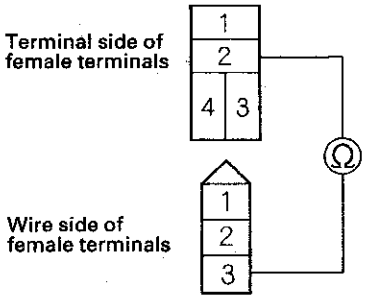
Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the wire between the under-dash fuse/relay box and the ignition coil relay 4P socket. ■

4. Check for continuity between each ignition coil relay 4P socket terminal No. 2 and ignition coil 3P connector terminal No. 3.

IGNITION COIL RELAY 4P SOCKET



IGNITION COIL 3P CONNECTOR

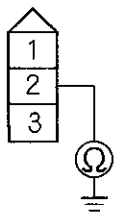
Is there continuity?

YES—Go to step 5.

NO—Repair open in the wire between ignition coil relay 4P socket terminal No. 2 and the ignition coil 3P connector terminal No. 3. ■

5. Check for continuity between each ignition coil 3P connector terminal No. 2 and the body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there continuity?

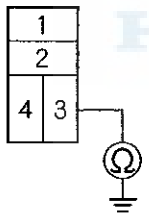
YES—Go to step 6.

NO—Repair open in the wire between ignition coil 3P connector terminal No. 2 and the body ground. ■

6. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-213).
7. Turn the ignition switch to ON (II).
8. Make sure the HDS communicates with the vehicle and the engine control module (ECM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).
9. Jump the SCS line with the HDS.

   NOTE: This step must be done to protect the ECM from damage.
10. Turn the ignition switch to LOCK (0).
11. Disconnect ECM connector E (31P).
12. Check for continuity between ignition coil relay 4P socket terminal No. 3 and body ground.

IGNITION COIL RELAY 4P SOCKET



Terminal side of female terminals

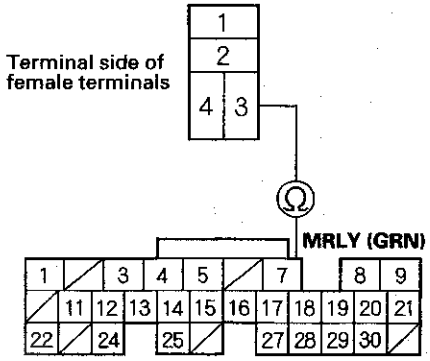
Is there continuity?

YES—Repair short to ground in the wire between the ignition coil relay 4P socket terminal No. 3 and the ECM (E7). ■

NO—Go to step 13.

13. Check for continuity between ignition coil relay 4P socket terminal No. 3 and ECM connector terminal E7.

IGNITION COIL RELAY 4P SOCKET



ECM CONNECTOR E (31P)

Wire side of female terminals

Is there continuity?

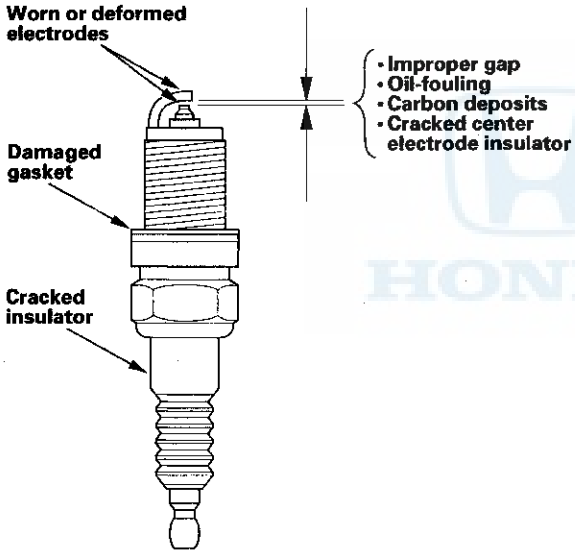
YES—The system is OK at this time. Check for loose or poor connections at the ignition coil relay and the ECM (E7). ■

NO—Repair open in the wire between ignition coil relay 4P socket terminal No. 3 and the ECM (E7). ■

Spark Plug Inspection

1. Remove the spark plugs and inspect the electrodes and ceramic insulator.

   - Burned or worn electrodes may be caused by:
     – Advanced ignition timing
     – Loose spark plug
     – Plug heat range too hot
     – Insufficient cooling
   - Fouled plugs may be caused by:
     – Retarded ignition timing
     – Oil in combustion chamber
     – Incorrect spark plug gap
     – Plug heat range too cold
     – Excessive idling/low speed running
     – Clogged air cleaner element
     – Deteriorated ignition coils

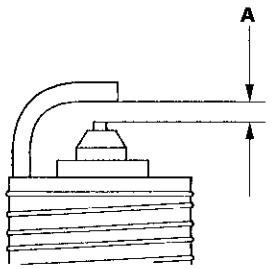


2. If the spark plug electrode is dirty or contaminated, clean the electrode with a plug cleaner.

   NOTE:
   - Do not use a wire brush or scrape the iridium electrode since this will damage the electrode.
   - When using a sand blaster spark plug cleaner, do not clean for more than 20 seconds to avoid damaging the electrode.

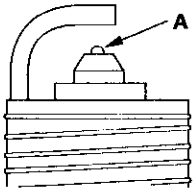
3. Do not adjust the gap of platinum tip plugs (A); replace the spark plug if the gap is out of specification.

   Electrode Gap
   Standard (New): 1.0—1.1 mm (0.039—0.043 in.)



4. Replace the plug at the specified interval, or if the center electrode is rounded (A). Use only the spark plugs listed.

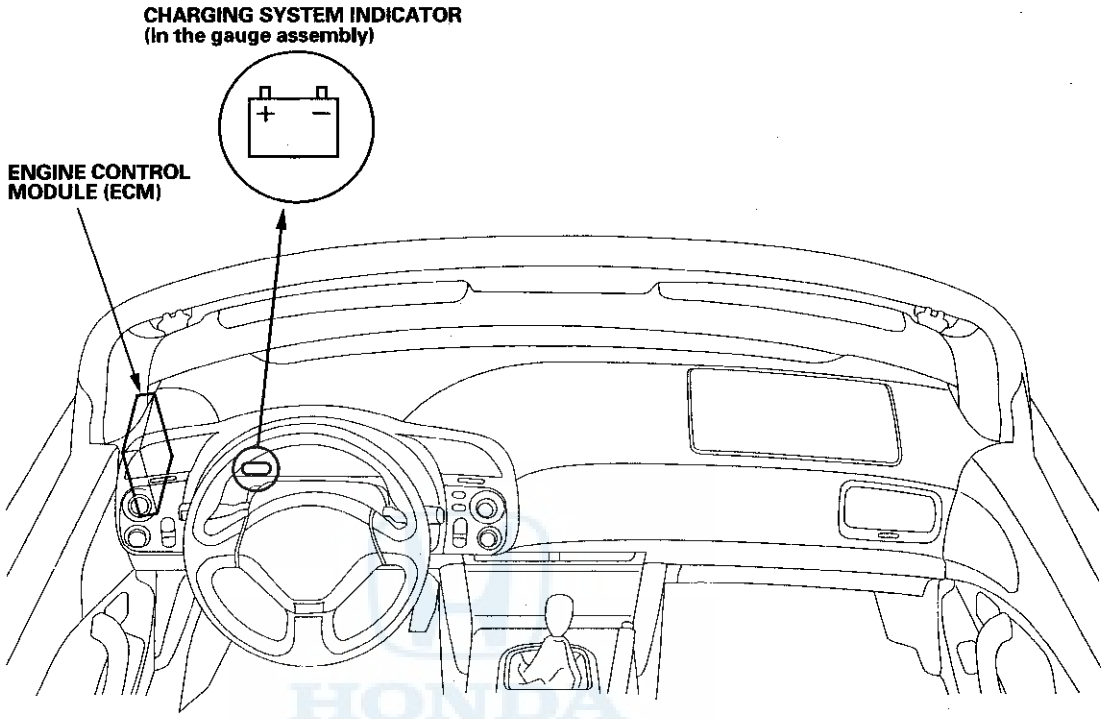
   Spark Plugs
   NGK: PFR7G-11S
   DENSO: PK22PR-L11S

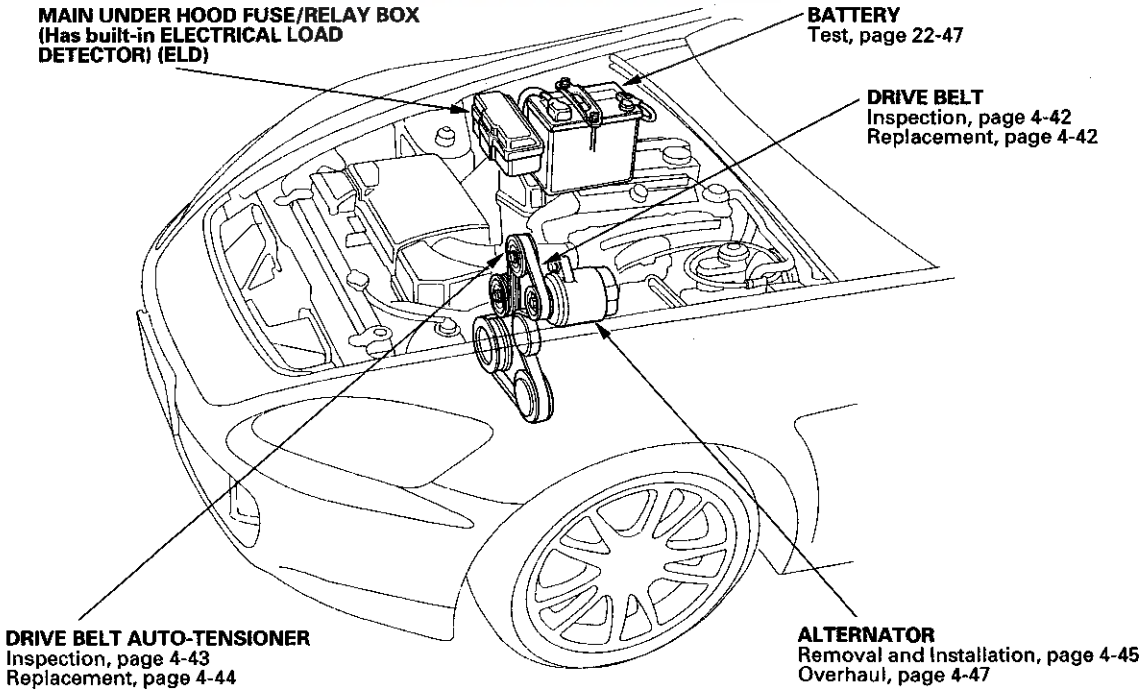


5. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger-tight. Torque them to 25 N·m (2.5 kgf·m, 18 lbf·ft).

Charging System

Component Location Index





Charging System

Symptom Troubleshooting Index

'00-05 models

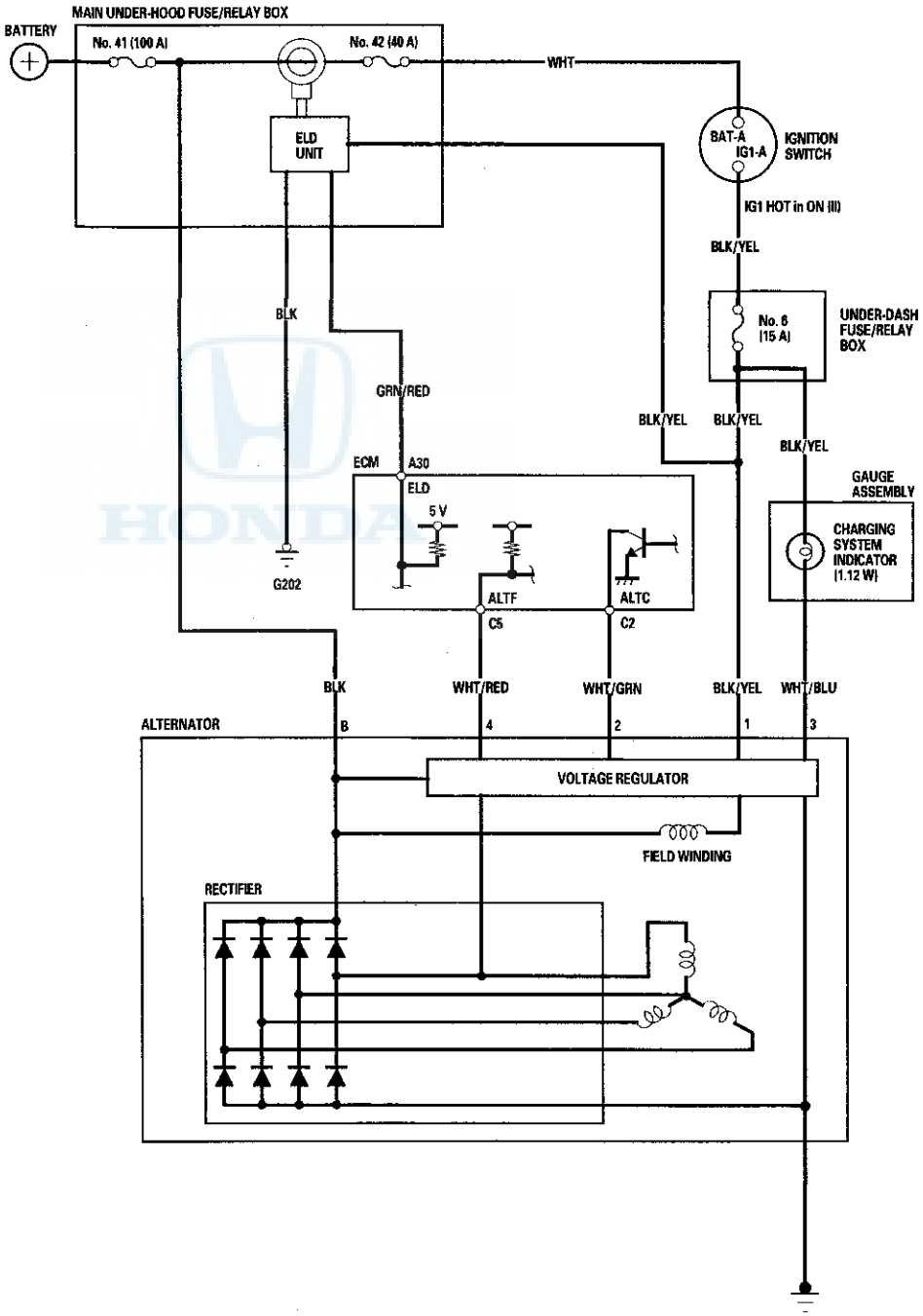
Symptom	Diagnostic procedure	Also check for
Charging system indicator does not come on with the ignition switch to ON (II)	Troubleshoot the charging system indicator circuit (see page 4-34).	
Charging system indicator stays on	1. Troubleshoot the charging system indicator circuit (see page 4-34). 2. Check for a broken drive belt (see page 4-42). 3. Check the drive belt auto-tensioner (see page 4-43).	
Battery discharged	1. Check for a poor connection and for open or shorted wire(s) in charging system. 2. Check for any electrical equipment (including OEM options) that use parasitic electrical current draw when the ignition switch is in LOCK (0). 3. Check for a broken drive belt (see page 4-42). 4. Check the drive belt auto-tensioner (see page 4-43). 5. Troubleshoot the alternator and regulator circuit (see page 4-38). 6. Check for a poor connection at the battery terminal. 7. Test the battery (see page 22-47).	
Battery overcharged	1. Troubleshoot the alternator and regulator circuit (see page 4-38). 2. Test the battery (see page 22-47).	

'06-08 models

Symptom	Diagnostic procedure	Also check for
Charging system indicator does not come on with the ignition switch to ON (II)	Troubleshoot the charging system indicator circuit (see page 4-36).	
Charging system indicator stays on	1. Check for PGM-FI DTCs (see page 11-213). 2. Troubleshoot the charging system indicator circuit (see page 4-36). 3. Check for a broken drive belt (see page 4-42). 4. Check the drive belt auto-tensioner (see page 4-43).	
Battery discharged	1. Check for any electrical equipment (including OEM options) that use parasitic electrical current draw when the ignition switch is in LOCK (0). 2. Check for a broken drive belt (see page 4-42). 3. Check the drive belt auto-tensioner (see page 4-43). 4. Troubleshoot the alternator and regulator circuit (see page 4-38). 5. Check for a poor connection at the battery terminal. 6. Test the battery (see page 22-47).	
Battery overcharged	1. Troubleshoot the alternator and regulator circuit (see page 4-38). 2. Test the battery (see page 22-47).	

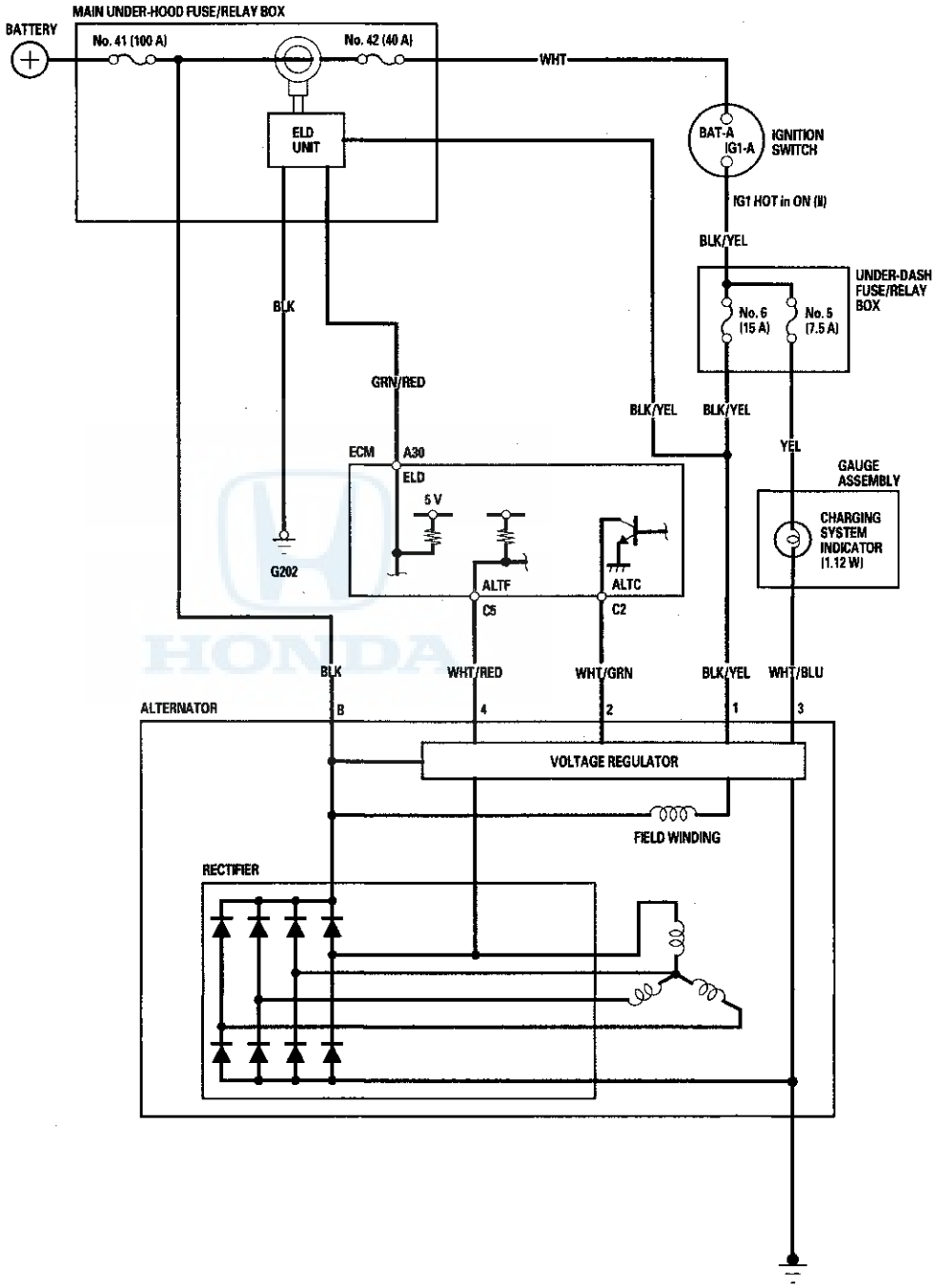
Circuit Diagram

'00-03 models

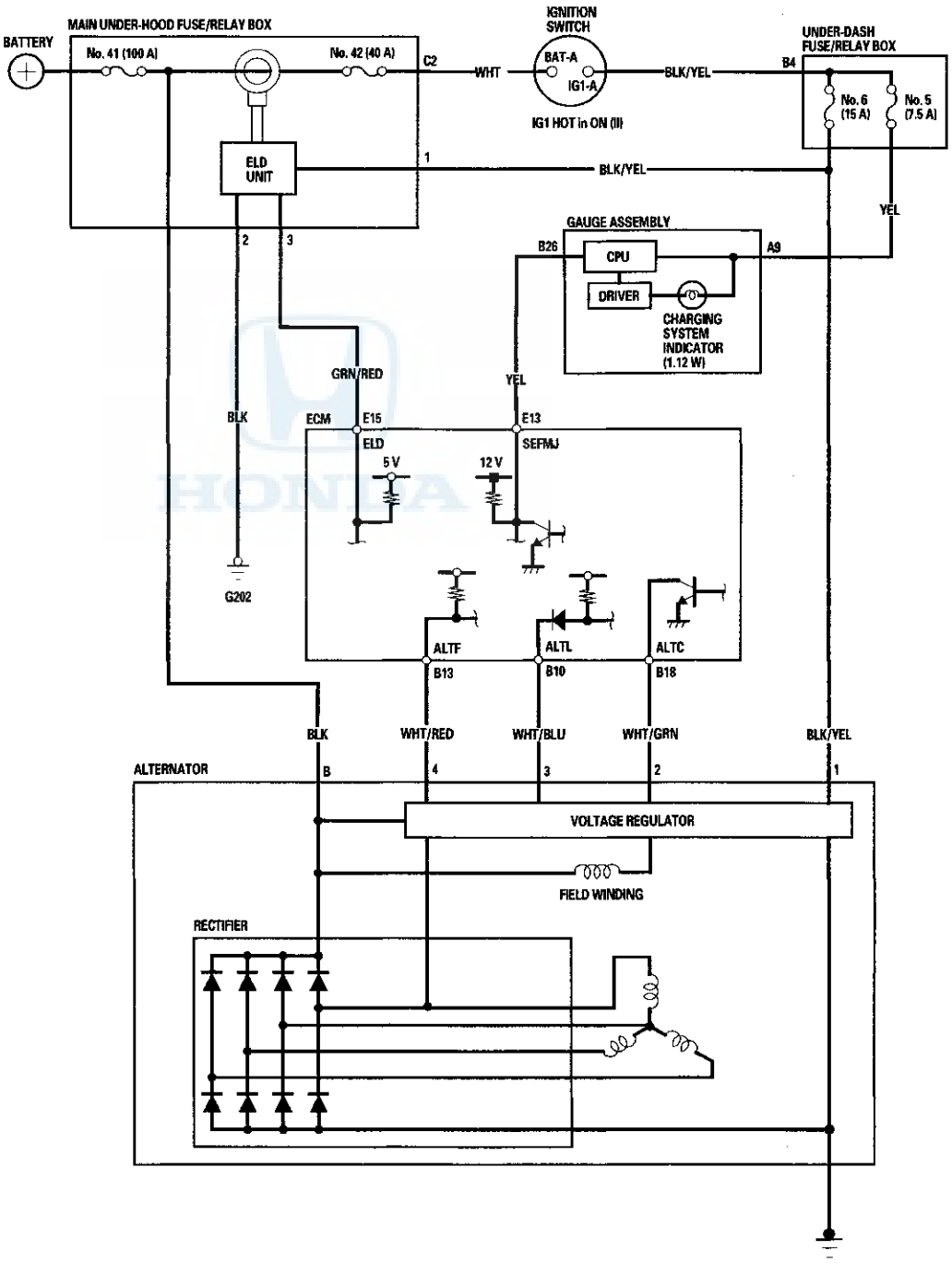


Circuit Diagram (cont'd)

'04-05 models



'06-08 models


MAIN UNDER-HOOD FUSE/RELAY BOX
BATTERY
No. 41 (100 A)
No. 42 (40 A)
C2
WHT
IGNITION SWITCH
BAT-A
IG1-A
IG1 HOT in ON (II)
BLK/YEL
B4
UNDER-DASH FUSE/RELAY BOX
No. 6 (15 A)
No. 5 (7.5 A)
ELD UNIT
1
BLK/YEL
YEL
2
3
GAUGE ASSEMBLY
B26
CPU
A9
DRIVER
CHARGING SYSTEM INDICATOR (1.12 W)
GRN/RED
YEL
BLK
ECM
E15
E13
ELD
SEFMJ
5 V
12 V
G202
ALTF
ALTL
ALTC
B13
B10
B18
BLK
WHT/RED
WHT/BLU
WHT/GRN
BLK/YEL
ALTERNATOR
B
4
3
2
1
VOLTAGE REGULATOR
FIELD WINDING
RECTIFIER

Charging System Indicator Circuit Troubleshooting

'00-05 models

1. Turn the ignition switch to ON (II).

   Does the charging system indicator come on?

   YES—Go to step 2.

   NO—Go to step 6.

2. Start the engine.

   Does the charging system indicator go off?

   YES—Charging system indicator circuit is OK. Go to the alternator and regulator circuit troubleshooting (see page 4-38). ■

   NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).

4. Disconnect the alternator 4P connector from the alternator.

5. Turn the ignition switch to ON (II).

   Does the charging system indicator come on?

   YES—Repair short to ground in the wire between the gauge assembly and alternator. ■

   NO—Go to step 11.

6. Turn the ignition switch to LOCK (0).

7. Check the No. 6 (15 A) fuse ('00-03 models) or No. 5 (7.5 A) fuse ('04-05 models) in the under-dash fuse/relay box.

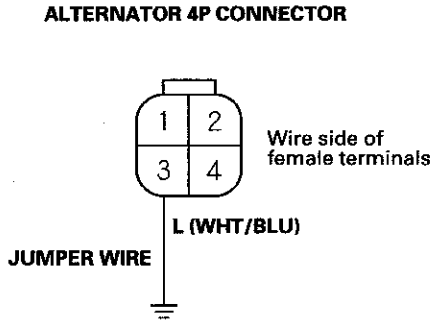
   Is the fuse OK?

   YES—Reinstall the fuse, then go to step 8.

   NO—Replace the fuse, then recheck. ■

8. Disconnect the alternator 4P connector from the alternator.

9. Connect the alternator 4P connector terminal No. 3 to body ground with a jumper wire. Turn the ignition switch to ON (II).



   Does the charging system indicator come on?

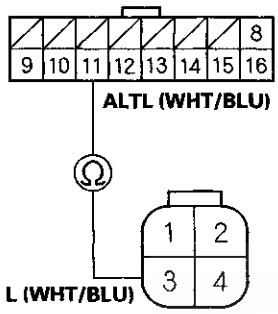
   YES—Go to step 11.

   NO—Go to step 10.

10. Check for continuity between the alternator 4P connector terminal No. 3 and gauge assembly connector terminal D11 ('00-03 models) or B26 ('04-05 models).

'00-03 models

GAUGE ASSEMBLY CONNECTOR D (16P)

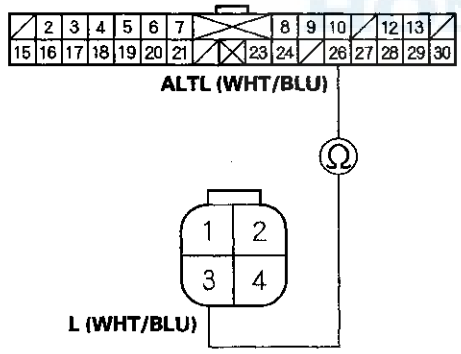


ALTERNATOR 4P CONNECTOR

Wire side of female terminals

'04-05 models

GAUGE ASSEMBLY CONNECTOR B (30P)



ALTERNATOR 4P CONNECTOR

Wire side of female terminals

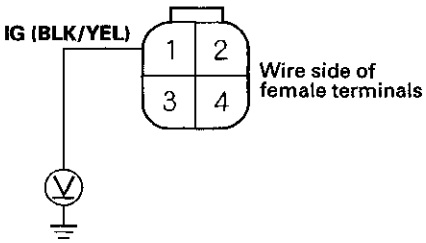
Is there continuity?

YES—Check for a blown charging system indicator bulb. If the bulb is OK, check the gauge assembly (charging system indicator) power supply circuit. ■

NO—Repair open in the wire between the alternator and gauge assembly. ■

11. Measure the voltage between the alternator 4P connector terminal No. 1 and body ground with the ignition switch to ON (II).

ALTERNATOR 4P CONNECTOR



Is there battery voltage?

YES—Charging system indicator circuit is OK. Go to alternator and regulator circuit troubleshooting. ■

NO—Repair open in the wire between the under-dash fuse/relay box and alternator. ■

Charging System Indicator Circuit Troubleshooting (cont'd)

'06-08 models

1. Turn the ignition switch to ON (II).

   Does the charging system indicator come on?

   YES—Go to step 2.

   NO—Go to step 15.

2. Shift to neutral, and start the engine. Hold the engine speed at 2,000 rpm for 1 minute.

   Does the charging system indicator go off?

   YES—Charging system indicator circuit is OK. Go to the alternator and regulator circuit troubleshooting (see page 4-38).■

   NO—Go to step 3.

3. Do the gauge assembly self-diagnostic function procedure (see page 22-60).

   Does the charging system indicator flash?

   YES—Go to step 4.

   NO—Replace the gauge assembly (see page 22-89).

4. Turn the ignition switch to LOCK (0).

5. Disconnect the alternator 4P connector.

6. Turn the ignition switch to ON (II).

   Does the charging system indicator go off?

   YES—Replace the alternator (see page 4-45) or repair the alternator (see page 4-47).■

   NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).

8. Connect the Honda Diagnostic System (HDS) to the data link connecter (DLC) (see step 2 on page 11-213).

9. Turn the ignition switch to ON (II).

10. Make sure the HDS communicates with the vehicle and the engine control module (ECM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).

11. Jump the SCS line with the HDS.

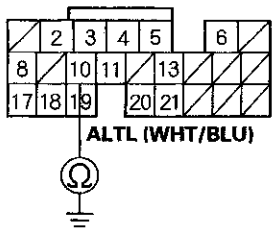
    NOTE: This step must be done to protect the ECM from damage.

12. Turn the ignition switch to LOCK (0).

13. Disconnect ECM connector B (24P).

14. Check for continuity between ECM connector terminal B10 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the alternator and the ECM (B10).■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389).■

15. Do the gauge assembly self-diagnostic function procedure (see page 22-60).

    Does the charging system indicator flash?

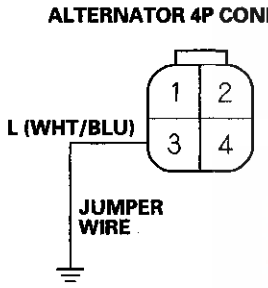
    YES—Go to step 16.

    NO—Replace the gauge assembly (see page 22-89). ■

16. Turn the ignition switch to LOCK (0).

17. Disconnect the alternator 4P connector.

18. Connect alternator 4P connector terminal No. 3 and body ground with a jumper wire.



19. Turn the ignition switch to ON (II).

    Does the charging system indicator come on?

    YES—Replace the alternator (see page 4-45) or repair the alternator (see page 4-47). ■

    NO—Remove the jumper wire, then go to step 20.

20. Turn the ignition switch to LOCK (0).

21. Connect the HDS to the DLC (see step 2 on page 11-213).

22. Turn the ignition switch to ON (II).

23. Make sure the HDS communicates with the vehicle and the ECM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).

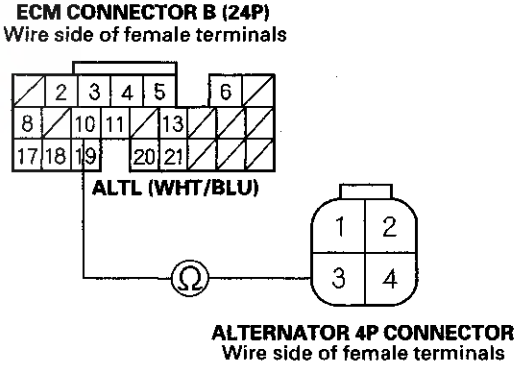
24. Jump the SCS line with the HDS.

    NOTE: This step must be done to protect the ECM from damage.

25. Turn the ignition switch to LOCK (0).

26. Disconnect ECM connector B (24P).

27. Check for continuity between ECM connector terminal B10 and alternator 4P connector terminal No. 3.



    Is there continuity?

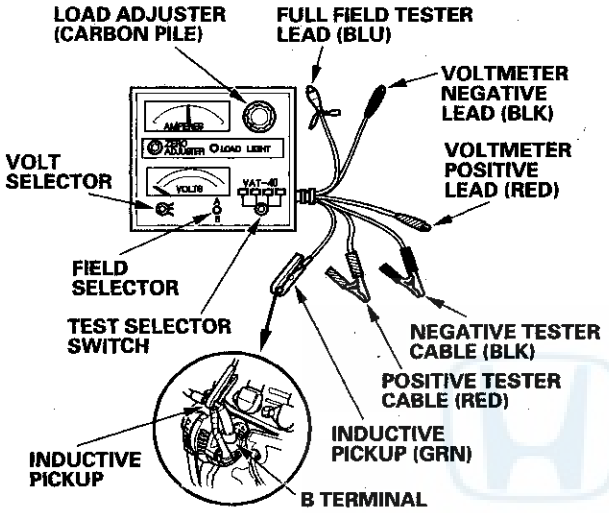
    YES—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

    NO—Repair open in the wire between the alternator and the ECM (B10). ■

Alternator and Regulator Circuit Troubleshooting

1. Make sure the battery connections are good, and that the battery is sufficiently charged (see page 22-47).

2. Connect a VAT-40 (or equivalent tester), and turn the selector switch to position 1 (starting).



3. Shift to neutral, and start the engine. Hold the engine speed at 3,000 rpm, with no load until the radiator fan comes on, then let it idle.

4. Raise the engine speed to 2,000 rpm, and hold it there.

   Is the voltage over 15.1 V?

   YES—Replace the alternator or the rear housing assembly.■

   NO—Go to step 5.

5. Release the accelerator pedal, and let the engine idle.

6. Turn off all the accessories. Select the charging test on the tester.

7. Remove the inductive pickup, and zero the ammeter.

8. Place the inductive pickup over the B terminal wire of the alternator so the arrow points away from the alternator.

9. Raise the engine speed to 2,000 rpm, and hold it there.

   Is the voltage less than 13.5 V?

   YES—Go to alternator control circuit troubleshooting.■

   NO—Go to step 10.

10. Apply a load with the VAT-40 until the battery voltage drops within 12—13.5 V.

    Is the amperage 87.5 A or more?

    YES—The charging system is OK.■

    NOTE: If the charging system indicator is still on, replace the alternator (see page 4-45).

    NO—Replace the alternator (see page 4-45) or repair the alternator (see page 4-47).■

Alternator Control Circuit Troubleshooting

'00-05 models

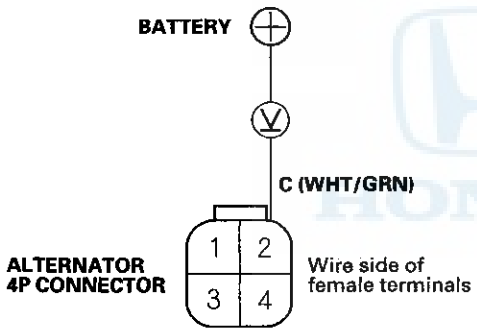
1. Check for proper operation of the electrical load detector (ELD) by checking for a DTC. If a DTC is present, diagnose and repair the cause before continuing with this test.

   NOTE: The ELD DTC does not turn on the MIL.

2. Disconnect the alternator 4P connector from the alternator.

3. Start the engine, and turn on the headlights to high beam.

4. Measure the voltage between the alternator 4P connector terminal No. 2 and the positive terminal of the battery.



Is there less than 1 V?

YES—Go to step 8.

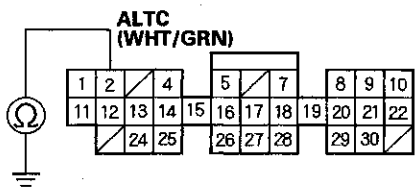
NO—Go to step 5.

5. Turn off the headlights, and turn the ignition switch to LOCK (0).

6. Disconnect engine control module (ECM) connector C (31P).

7. Check for continuity between the ECM connector terminal C2 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the alternator and the ECM (C2). ■

NO—Check for loose or poor connections at ECM connector C. If the connection is OK, substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-115). ■

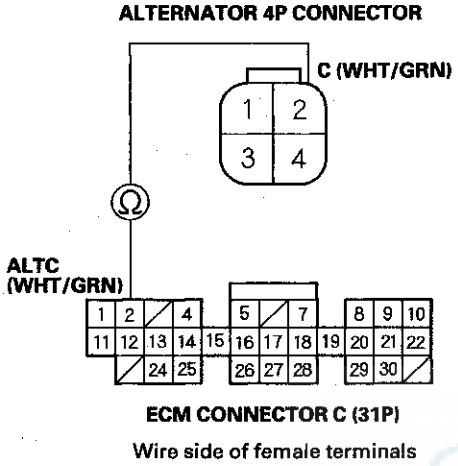
8. Turn off the headlights, and turn the ignition switch to LOCK (0).

9. Disconnect ECM connector C (31P).

(cont'd)

Alternator Control Circuit Troubleshooting (cont'd)

10. Check for continuity between the ECM connector terminal C2 and alternator 4P connector terminal No. 2.



Is there continuity?

YES—Replace the alternator (see page 4-45) or repair the alternator (see page 4-47). ■

NO—Repair open in the wire between the alternator and the ECM (C2). ■

'06-08 models

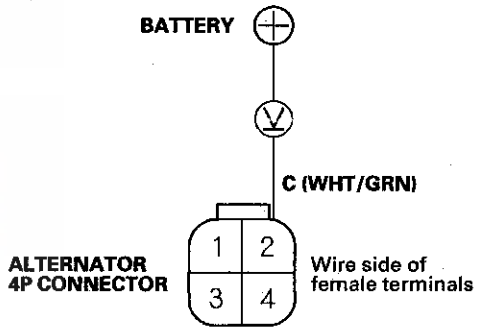
1. Check for proper operation of the electrical load detector (ELD) by checking for a DTC. If a DTC is present, diagnose and repair the cause before continuing with this test.

   NOTE: The ELD DTC does not turn on The MIL.

2. Disconnect the alternator 4P connector from the alternator.

3. Start the engine, and turn on the headlights to high beam.

4. Measure the voltage between the alternator 4P connector terminal No. 2 and the positive terminal of the battery.



Is there less than 1 V?

YES—Go to step 13.

NO—Go to step 5.

5. Turn off the headlights, and turn the ignition switch to LOCK (0).

6. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-213).

7. Turn the ignition switch to ON (II).

8. Make sure the HDS communicates with the vehicle and the engine control module (ECM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).

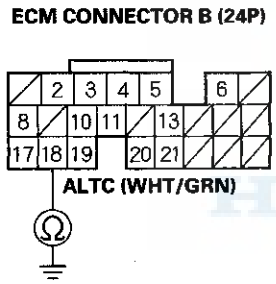
9. Jump the SCS line with the HDS.

   NOTE: This step must be done to protect the ECM from damage.

10. Turn the ignition switch to LOCK (0).

11. Disconnect the ECM connector B (24P).

12. Check for continuity between the ECM connector terminal B18 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the alternator and the ECM (B18).■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389).■

13. Turn off the headlights, and turn the ignition switch to LOCK (0).

14. Connect the HDS to the DLC (see step 2 on page 11-213).

15. Turn the ignition switch to ON (II).

16. Make sure the HDS communicates with the vehicle and the ECM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).

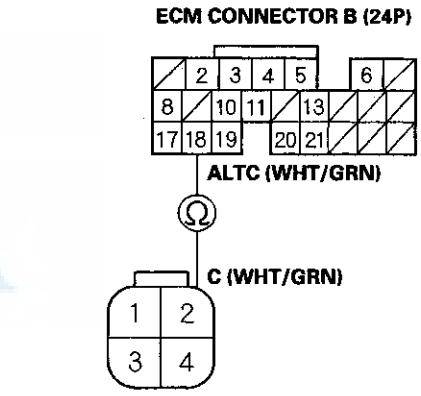
17. Jump the SCS line with the HDS.

    NOTE: This step must be done to protect the ECM from damage.

18. Turn the ignition switch to LOCK (0).

19. Disconnect the ECM connector B (24P).

20. Check for continuity between the ECM connector terminal B18 and alternator 4P connector terminal No. 2.



Wire side of female terminals

Is there continuity?

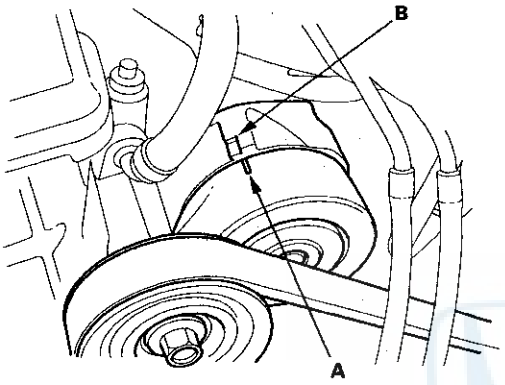
YES—Replace the alternator (see page 4-45) or repair the alternator (see page 4-47).■

NO—Repair open in the wire between the alternator and ECM (B18).■

Drive Belt Inspection

1. Inspect the belt for cracks or damage. If the belt is cracked or damaged, replace it.

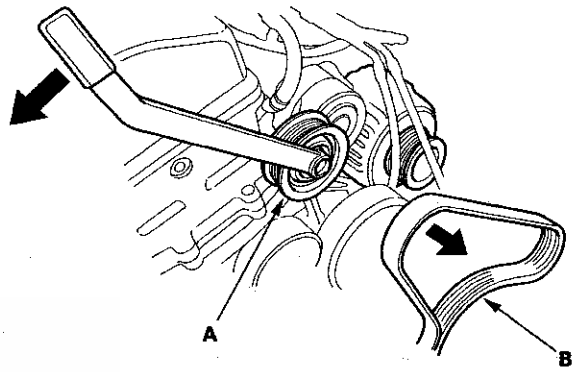
2. Check that the indicator (A) on the auto-tensioner housing is not beyond the edge of the indicator rib (B) on the tensioner base. If it is beyond the edge of the indicator rib, replace the drive belt (see page 4-42).



Drive Belt Replacement

Special Tools Required
Belt tension release tool Snap-on YA9317 or equivalent, commercially available

1. Move the auto-tensioner (A) to relieve tension from the drive belt (B), and remove the drive belt.



2. Install the new belt in the reverse order of removal.

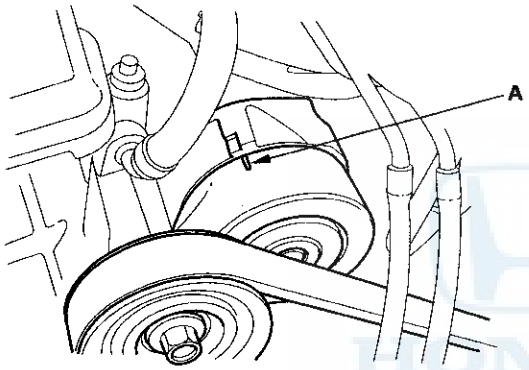
   NOTE: For belt routing, see the charging system component location index (see page 4-29).

Drive Belt Auto-tensioner Inspection

Special Tools Required
Belt tension release tool Snap-on YA9317 or equivalent, commercially available

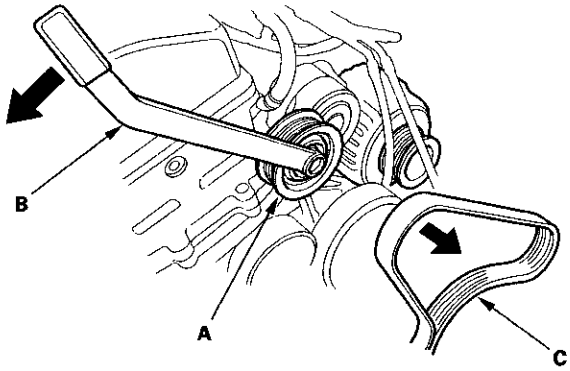
1. Turn the ignition switch to ON (II), and make sure the A/C switch is OFF. Turn the ignition switch to LOCK (0).

2. Check the position of the auto-tensioner indicator's pointer (A). Start the engine, then check the position again with the engine idling. If the position of the indicator moves or fluctuates very much, replace the auto-tensioner (see page 4-44).

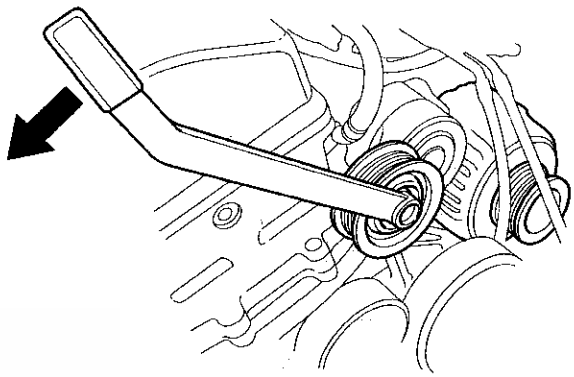


3. Check for abnormal noise from the tensioner pulley. If you hear abnormal noise, remove the auto-tensioner, and replace the tensioner pulley.

4. Turn off the engine. Move the auto-tensioner (A) in the direction shown with the belt tension release tool (B) to relieve tension from the drive belt (C), then remove the belt.

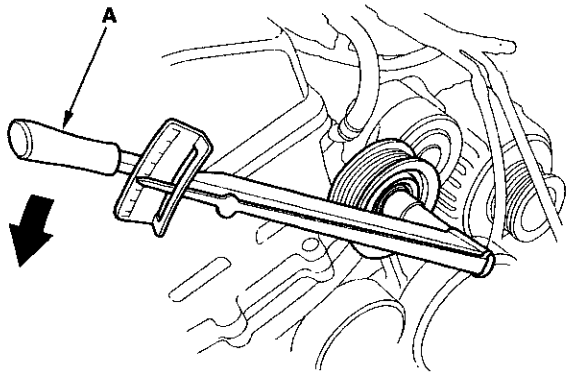


5. Move the auto-tensioner within its limit using the belt tension release tool in the direction shown, check that the tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly, or you hear abnormal noise, replace the auto-tensioner.



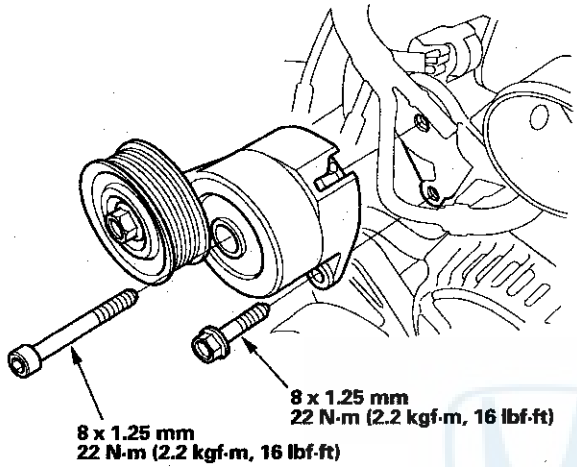
6. Attach a torque wrench (A) to the pulley bolt. Align the indicator on the auto-tensioner housing with the edge of the indicator rib on the tensioner base by using the torque wrench, and measure the torque. If the torque valve is out of specification, replace the auto-tensioner.

Auto-tensioner Spring Torque:
26.2 N·m (2.67 kgf·m, 19.3 lbf·ft)



Drive Belt Auto-tensioner Replacement

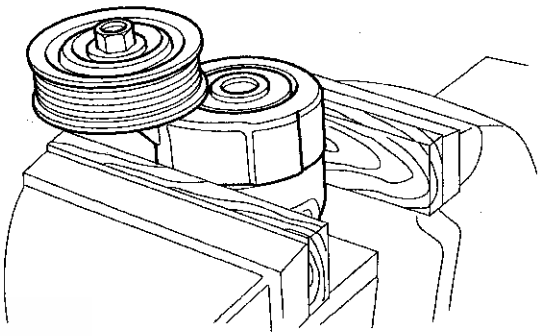
1. Remove the drive belt (see page 4-42).
2. Remove the auto-tensioner.



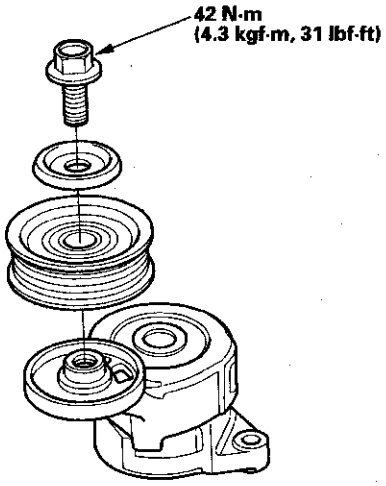
3. Install the parts in the reverse order of removal.

Tensioner Pulley Replacement

1. Remove the auto-tensioner (see page 4-44).
2. Secure the auto-tensioner in a bench vise with soft jaws. To prevent damage to the tensioner, always use soft jaws or equivalent materials between the tensioner and the vise.



3. Remove the pulley bolt (left-hand threads), and remove the tensioner pulley.

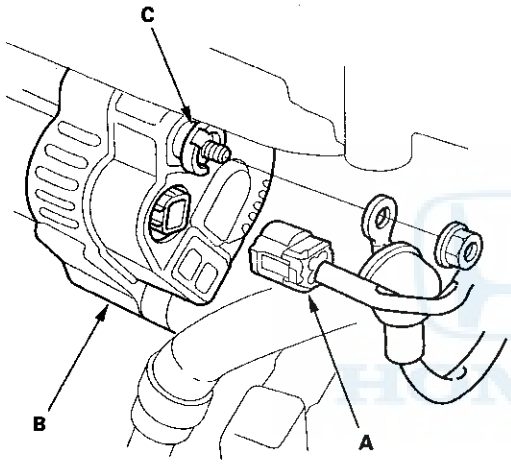


4. Install the parts in the reverse order of removal.

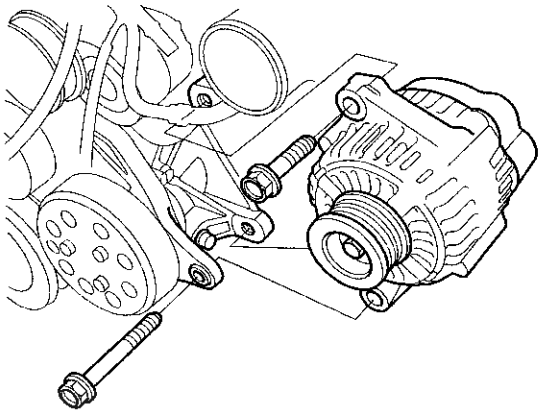
Alternator Removal and Installation

Removal

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Disconnect the negative cable from the battery.
3. Remove the drive belt (see page 4-42).
4. Disconnect the 4P connector (A) from the alternator (B) and the BLK wire from the alternator B terminal (C).



5. Remove the mounting bolts, then remove the alternator.

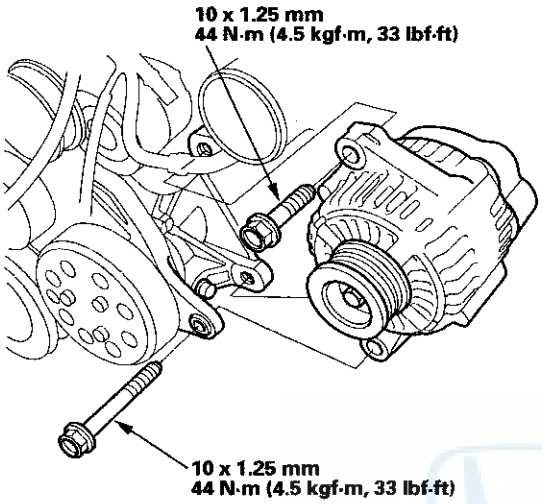


(cont'd)

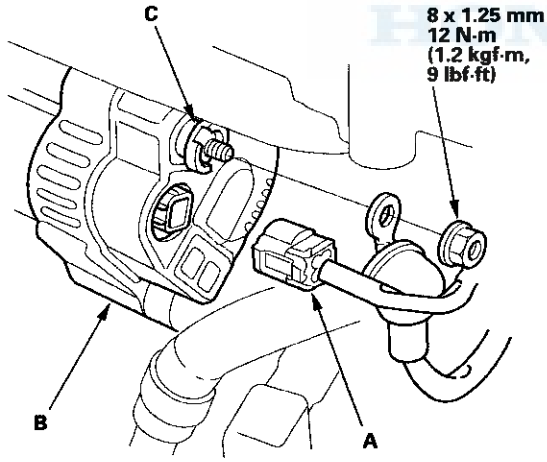
Alternator Removal and Installation (cont'd)

Installation

1. Install the alternator.



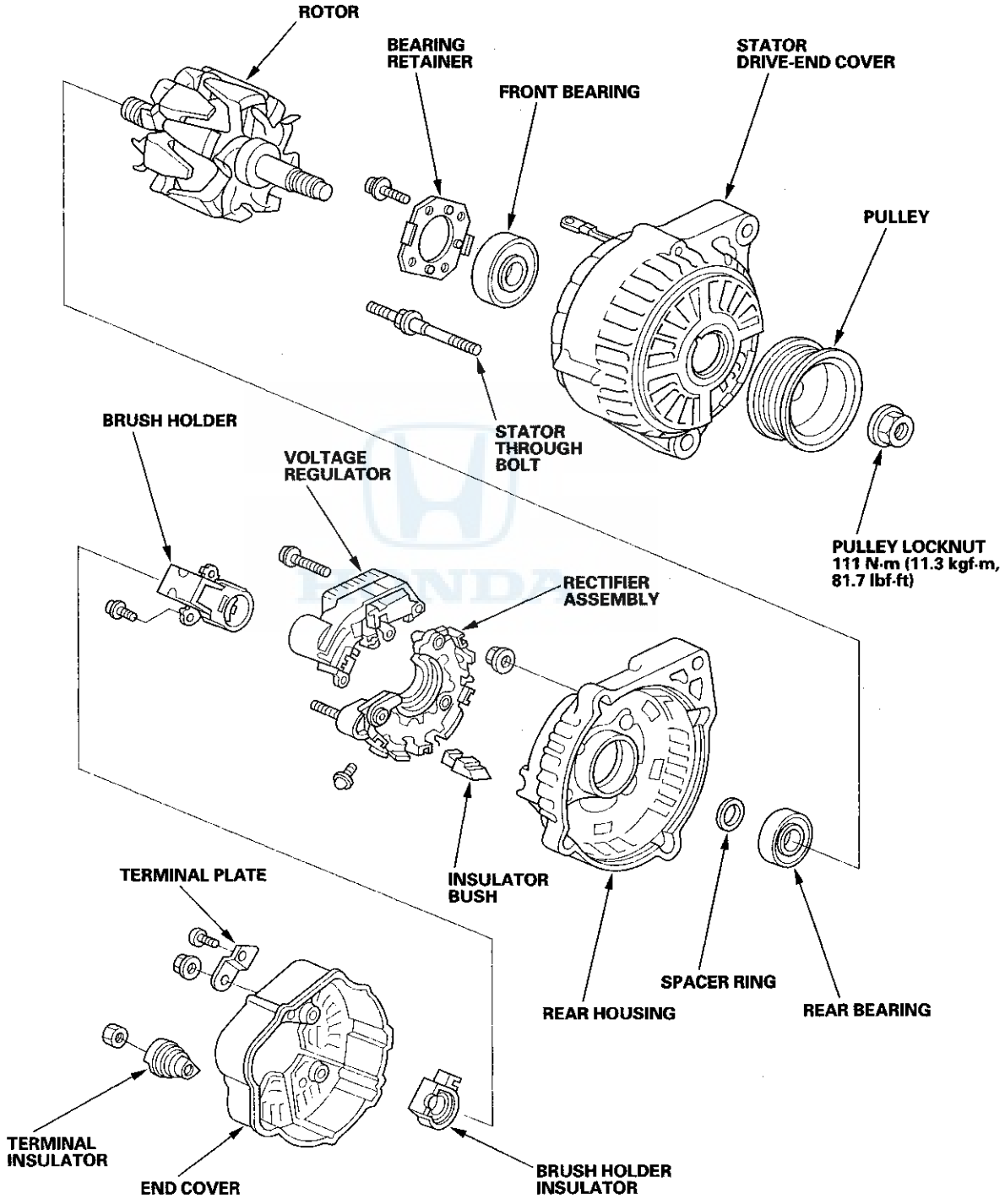
2. Connect the 4P connector (A) to the alternator (B) and the BLK wire to the alternator B terminal (C).



3. Install the drive belt (see page 4-42).
4. Connect the negative cable to the battery.
5. '00-05 models: Do the engine control module (ECM) idle learn procedure (see page 11-140).
6. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Alternator Overhaul

Exploded View



(cont'd)

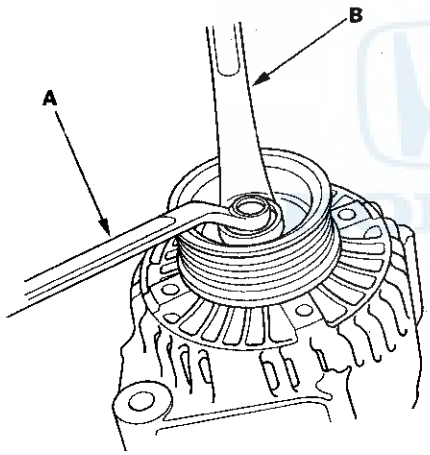
Alternator Overhaul (cont'd)

Special Tools Required
- Handle Driver 07749-0010000
- Attachment, 42 x 47 mm 07746-0010300

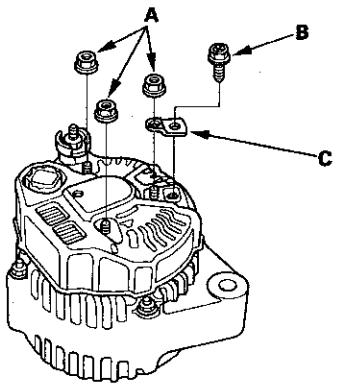
NOTE: Refer to the Exploded View as needed during this procedure.

Alternator Disassembly

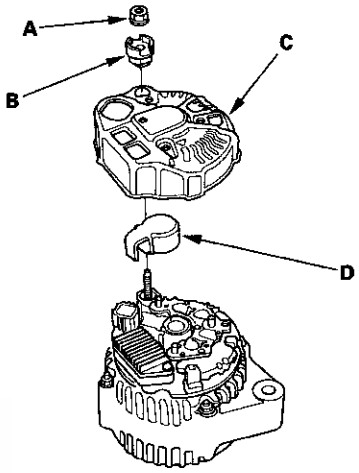
1. Test the alternator and regulator before you remove them (see page 4-38).
2. Remove the alternator (see page 4-45).
3. If the front bearing needs replacing, remove the pulley locknut with a 10 mm wrench (A) and a 22 mm wrench (B). If necessary, use an impact wrench.



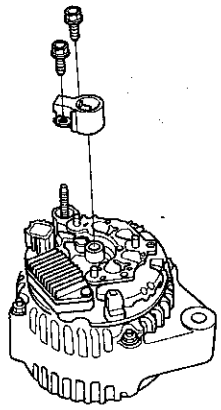
4. Remove the three flange nuts (A) and the screw (B) from the alternator, then remove the terminal plate (C).



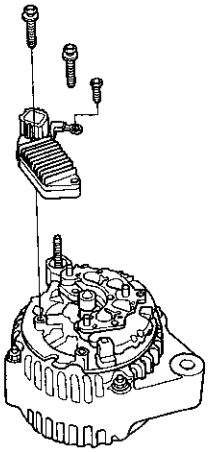
5. Remove the washer nut (A) and terminal insulator (B) from the B terminal, then remove the end cover (C) and brush holder insulator (D).



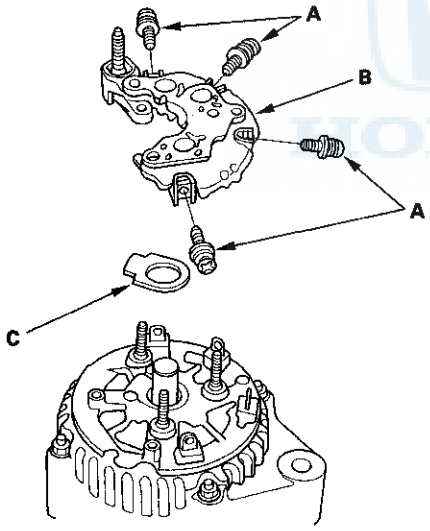
6. Remove the brush holder.



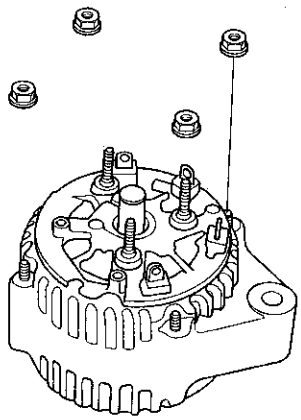
7. Remove the voltage regulator.



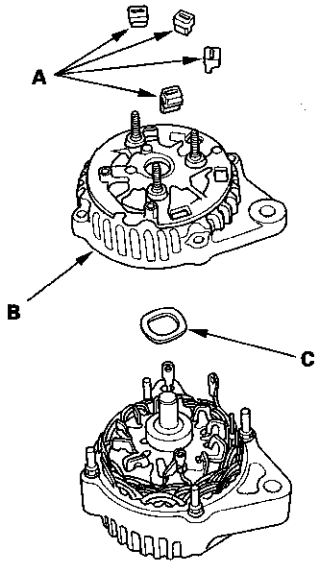
8. Remove the four screws (A), then remove the rectifier (B) and rubber seal (C).



9. Remove the four flange nuts.



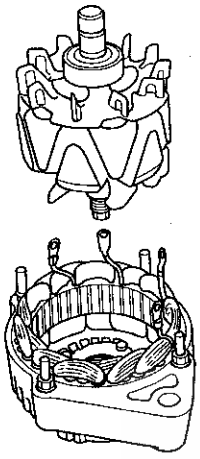
10. Remove the four insulators (A), rear housing (B), and washer (C).



(cont'd)

Alternator Overhaul (cont'd)

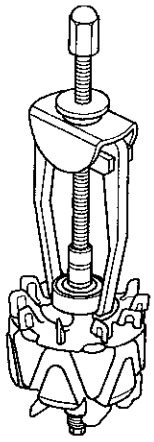
11. If you are not replacing the front bearing and/or the rear bearing, go to step 18. Remove the rotor from the stator drive-end housing.



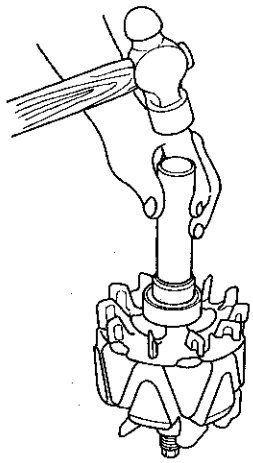
12. Inspect the rotor shaft for scoring, and inspect the bearing journal surface in the stator housing for seizure marks.

    - If either the rotor or stator housing is damaged, replace the alternator.
    - If both the rotor and the stator housing are OK, go to step 13.

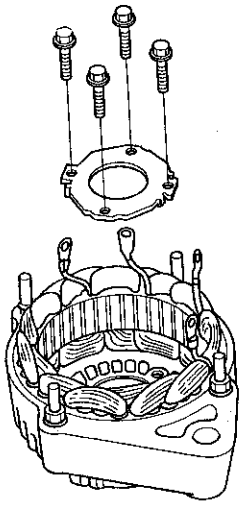
13. Remove the rear bearing using a puller as shown.



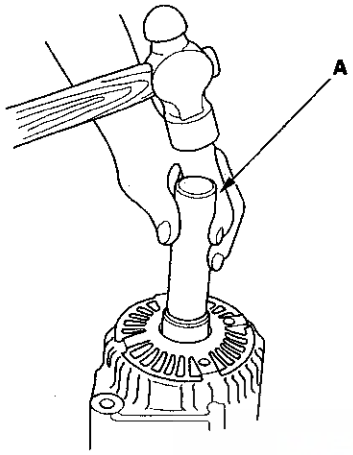
14. With a hammer and commercially available tools shown, install a new rear bearing on the rotor shaft.



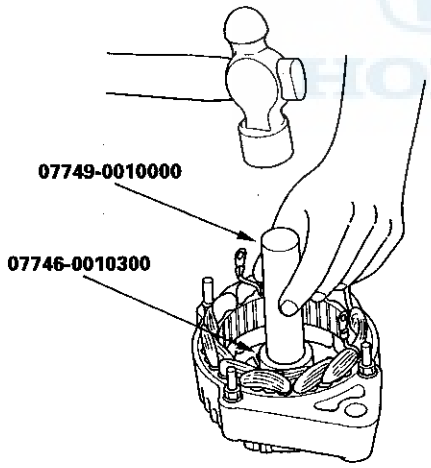
15. Remove the front bearing retainer plate.



16. Support the stator housing in a vise, and drive out the front bearing with a brass drift (A) and hammer.



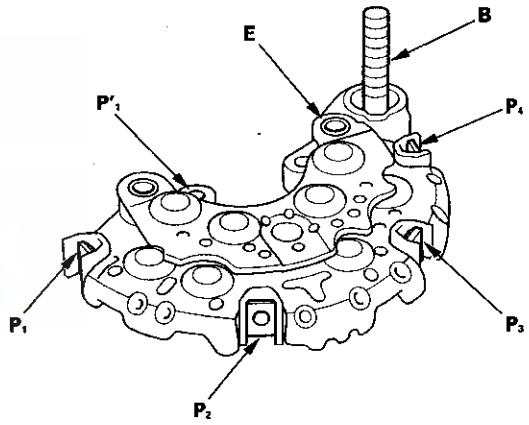
17. Install a new front bearing in the stator housing with a hammer, the handle driver, and attachment.

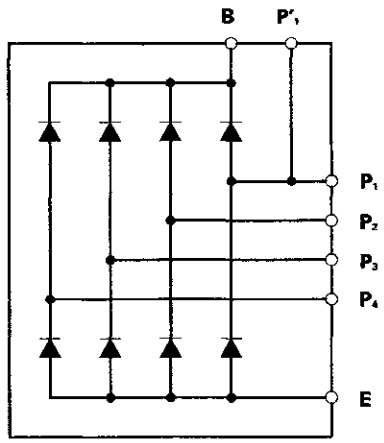


Rectifier Test

18. Check for continuity in each direction, between the B terminal and P terminals, and between the E terminal and P terminals of each diode pair. All diodes should have continuity in only one direction. Because the rectifier diodes are designed to allow current to pass in one direction, and the rectifier is made up of eight diodes (four pairs), you must test each diode in both directions for continuity with an ohmmeter that has diode checking capability: a total of 16 checks.

- If any diode is faulty, replace the rectifier assembly. (Diodes are not available separately.)
- If all the diodes are OK, go to step 19.





(cont'd)

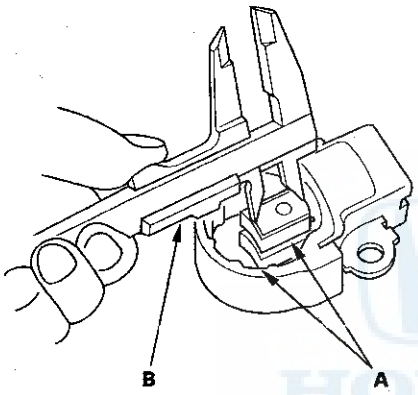
Alternator Overhaul (cont'd)

Alternator Brush Inspection

19. Measure the length of both brushes (A) with a vernier caliper (B).

    - If either brush is shorter than the service limit, replace the brush assembly.
    - If brush length is OK, go to step 20.

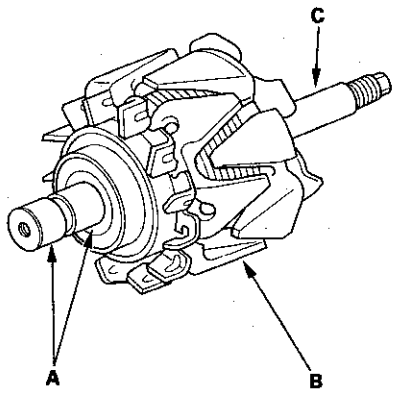
Alternator Brush Length:
Standard (New): 10.5 mm (0.41 in.)
Service Limit: 1.5 mm (0.06 in.)



Rotor Slip Ring Test

20. Check for continuity between the slip rings (A).

    - If there is continuity, go to step 21.
    - If there is no continuity, replace the alternator.



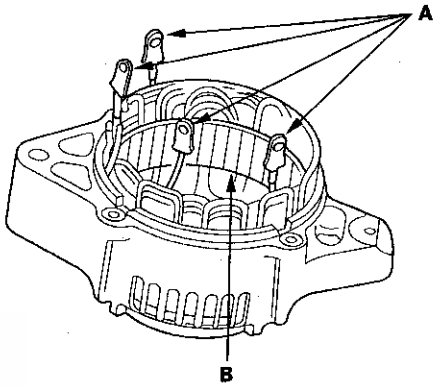
21. Then check for continuity between each slip ring and the rotor (B) and the rotor shaft (C).

    - If there is no continuity, go to step 22.
    - If there is continuity, replace the alternator.

Stator Test

22. Check for continuity between each pair of leads (A).

    - If there is no continuity, go to step 23.
    - If there is no continuity, replace the alternator.



23. Check for continuity between each lead and the coil core (B).

    - If there is no continuity, go to step 24.
    - If there is continuity, replace the alternator.

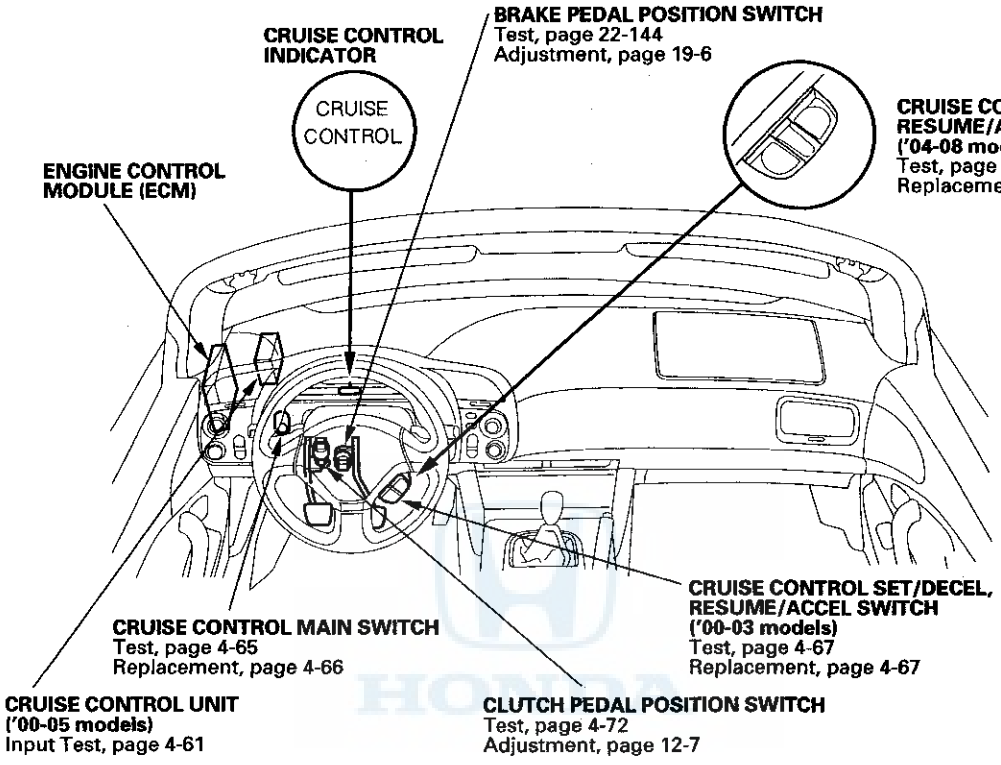
Alternator Reassembly

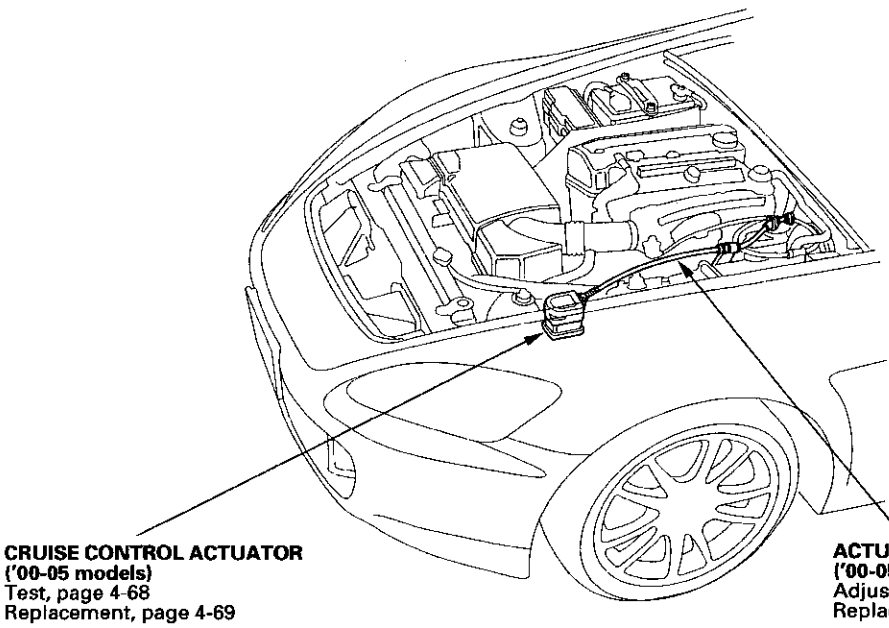
24. Reassemble the alternator in the reverse order of disassembly, and note these items:

    - Be careful not to get any grease or oil on the slip rings.
    - If you removed the pulley, tighten its locknut to 111 N·m (11.3 kgf·m, 81.7 lbf·ft) when you reinstall it.

Cruise Control

Component Location Index





Cruise Control

Symptom Troubleshooting Index

'00-05 models

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check horn operation. 2. '00-03 models: Check cruise control set/decel, resume/accel switch (see page 4-67). 3. '04-05 models: Check cruise control set/decel, resume/accel, cancel switch (see page 4-67). 4. Test the brake pedal position switch (see page 22-144) and check its adjustment (see page 19-6). 5. Test clutch pedal position switch (see page 4-72) and check its adjustment (see page 12-7). 6. Do the cruise control unit input test (see page 4-61).	• Blown No. 6 (15 A) fuse in the under-dash fuse/relay box • Blown No. 47 ('00-01 models: 10 A, '02-05 models: 15 A) fuse in the main under-hood fuse/relay box • Poor ground: G301, G401, G402 • Open circuit, loose or disconnected terminals: BLK/YEL, LT GRN, LT GRN/RED, GRY, ORN, WHT/BLK
Cruise control can be set, but the cruise control indicator does not come on	1. '00-03 models: Check dimming circuit in gauge assembly (see page 22-63). 2. '04-05 models: Check dimming circuit in gauge assembly (see page 22-68). 3. Do the cruise control unit input test (see page 4-61).	• Poor ground: G501 • Open circuit, loose or disconnected terminals: BLU/YEL
Cruise speed is noticeably higher or lower than what was set	1. Check vehicle speed sensor (VSS) (see page 22-94). 2. Check cruise control actuator (see page 4-68), and cable adjustment (see page 4-71). 3. Do the cruise control unit input test (see page 4-61).	
Excessive overshooting or undershooting when trying to set speed	1. Check vehicle speed sensor (VSS) (see page 22-94). 2. Check cruise control actuator (see page 4-68), and cable adjustment (see page 4-71). 3. Do the cruise control unit input test (see page 4-61).	
Speed fluctuates on a flat road with the cruise control set	1. Check vehicle speed sensor (VSS) (see page 22-94). 2. Check cruise control actuator and cable adjustment (see page 4-68). 3. Do the cruise control unit input test (see page 4-61).	
Vehicle does not decelerate or accelerate accordingly when the set/decel or resume/accel switch is pressed	1. '00-03 models: Check cruise control set/decel, resume/accel switch (see page 4-67). 2. '04-05 models: Check cruise control set/decel, resume/accel, cancel switch (see page 4-67). 3. Do the cruise control unit input test (see page 4-61).	Open circuit, loose or disconnected terminals: LT GRN/RED, LT GRN/BLK

Symptom	Diagnostic procedure	Also check for
Set speed does not cancel when the brake pedal is pressed	1. Test the brake pedal position switch (see page 22-144) and check its adjustment (see page 19-6). 2. Do the cruise control unit input test (see page 4-61).	Short to power in the GRY wire
Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed	1. Test clutch pedal position switch (see page 4-72) and check its adjustment (see page 12-7). 2. Do the cruise control unit input test (see page 4-61).	Short to ground in the PNK wire
Set speed does not cancel when the cruise control main switch is turned off	1. Check cruise control main switch (see page 4-65). 2. Do the cruise control unit input test (see page 4-61).	Short to power in the LT GRN wire
Set speed does not cancel when the cancel switch is pressed ('04-05 models)	1. Check cruise control set/decel, resume/accel, cancel switch (see page 4-67). 2. Do the cruise control unit input test (see page 4-61).	Open circuit, loose or disconnected terminals: LT GRN/RED, LT GRN/BLK
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)	1. Test the brake pedal position switch (see page 22-144) and check its adjustment. 2. '00-03 models: Check cruise control set/decel, resume/accel switch (see page 4-67). '04-05 models: Check cruise control set/decel, resume/accel, cancel switch (see page 4-67). 3. Do the cruise control unit input test (see page 4-61).	• Faulty brake pedal position switch • Open circuit, loose or disconnected terminals: LT GRN/BLK
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal)	1. Test clutch pedal position switch (see page 4-72) and check its adjustment (see page 12-7). 2. '00-03 models: Check cruise control set/decel, resume/accel switch (see page 4-67). '04-05 models: Check cruise control set/decel, resume/accel, cancel switch (see page 4-67). 3. Do the cruise control unit input test (see page 4-61).	• Faulty clutch pedal position switch • Open circuit, loose or disconnected terminals: LT GRN/BLK

Symptom Troubleshooting Index (cont'd)

'06-08 models

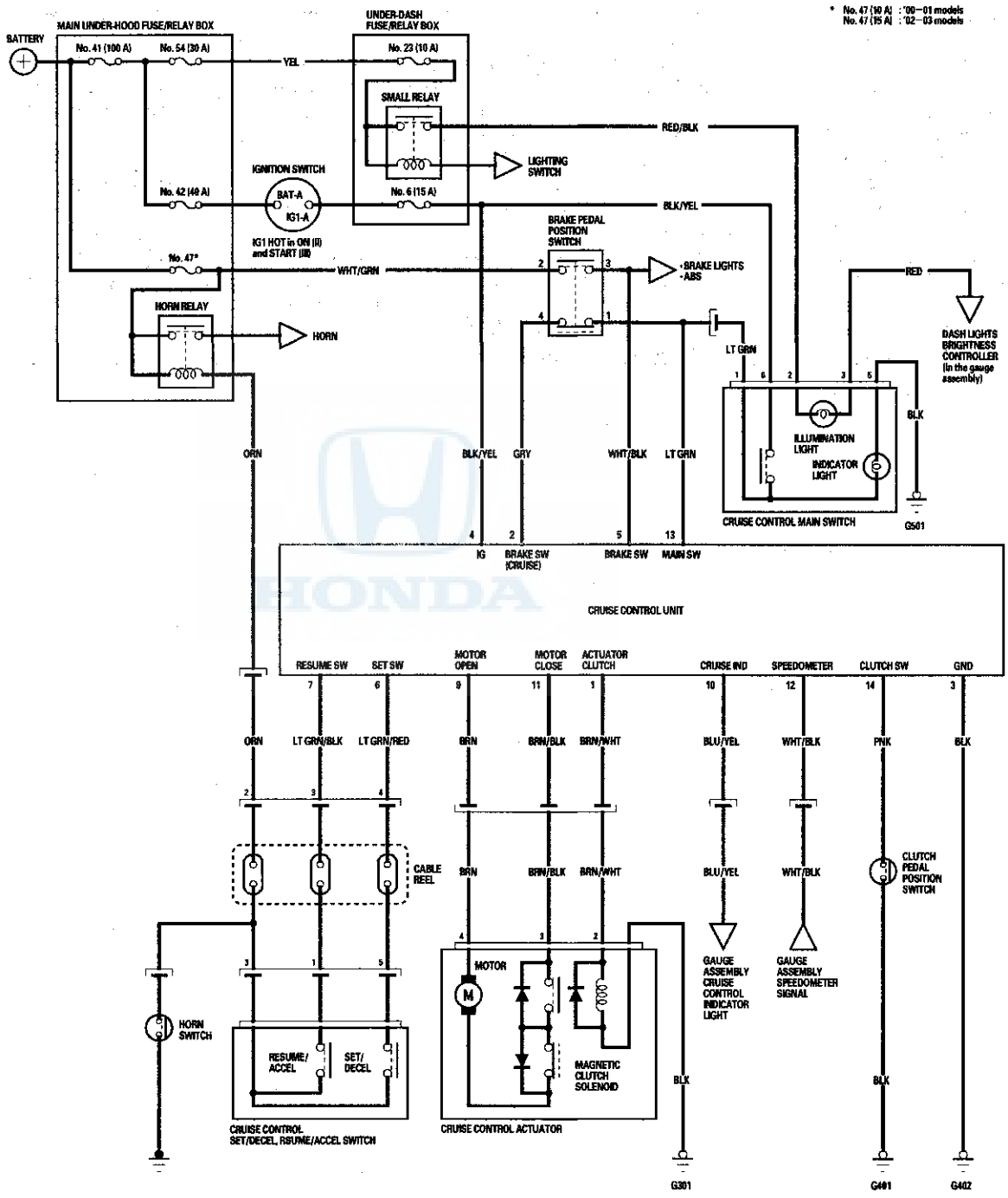
Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	1. Check for PGM-FI DTCs. 2. Do the cruise control input test (see page 4-63). 3. Do the cruise control set/decel, resume/accel, cancel switch test (see page 4-67).	Poor ground G501
Cruise control can be set, but the cruise control indicator does not come on	1. Check for PGM-FI DTCs. 2. Do the gauge assembly self-diagnostic function procedure (see page 22-60). 3. Do the cruise control input test (see page 4-63). Test the cruise control indicator signal input.	Faulty gauge assembly
Vehicle does not decelerate or accelerate accordingly when the set/decel or resume/accel switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control input test (see page 4-63). Test the cruise control set/decel and resume/accel switch signal inputs. 3. Do the cruise control set/decel, resume/accel, cancel switch test (see page 4-67).	Open circuit, loose or disconnected terminals: LT GRN/RED or LT GRN/BLK wire
Set speed does not cancel when the brake pedal is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control input test (see page 4-63). Test the brake pedal position switch signal input. 3. Do the brake pedal position switch test (see page 22-144).	• Short to power in the GRY wire • Faulty brake pedal position switch
Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control input test (see page 4-63). Test the clutch pedal position switch signal input. 3. Do the clutch pedal position switch test (see page 4-72).	• Short to ground in the PNK wire • Faulty clutch pedal position switch
Set speed does not cancel when the cruise control main switch is turned off	1. Check for PGM-FI DTCs. 2. Do the cruise control input test (see page 4-63). Test the cruise control main switch signal input. 3. Do the cruise control set/decel, resume/accel, cancel switch test (see page 4-67).	Short to power in the LT GRN wire
Set speed does not cancel when the cancel switch is pressed	1. Check for PGM-FI DTCs. 2. Do the cruise control input test (see page 4-63). Test the cruise control cancel switch signal input. 3. Do the cruise control set/decel, resume/accel, cancel switch test (see page 4-67).	Open circuit, loose or disconnected terminals: LT GRN/RED or LT GRN/BLK wire

Symptom	Diagnostic procedure	Also check for
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)	1. Check for PGM-FI DTCs. 2. Check the brake pedal position switch adjustment (see page 19-6). 3. Do the cruise control input test (see page 4-63). Test the cruise control resume/accel switch signal input. Test the brake pedal position switch signal input. 4. Do the cruise control set/decel, resume/accel, cancel switch test (see page 4-67).	• Open circuit, loose or disconnected terminals: LT GRN/BLK wire • Faulty brake pedal position switch
Set speed will not resume when the resume/accel switch is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal)	1. Check for PGM-FI DTCs. 2. Check the clutch pedal position switch adjustment (see page 12-7). 3. Do the cruise control input test (see page 4-63). Test the cruise control resume/accel switch signal input. Test the clutch pedal position switch signal input. 4. Do the cruise control set/decel, resume/accel, cancel switch test (see page 4-67).	• Open circuit, loose or disconnected terminals: LT GRN/BLK wire • Faulty clutch pedal position switch

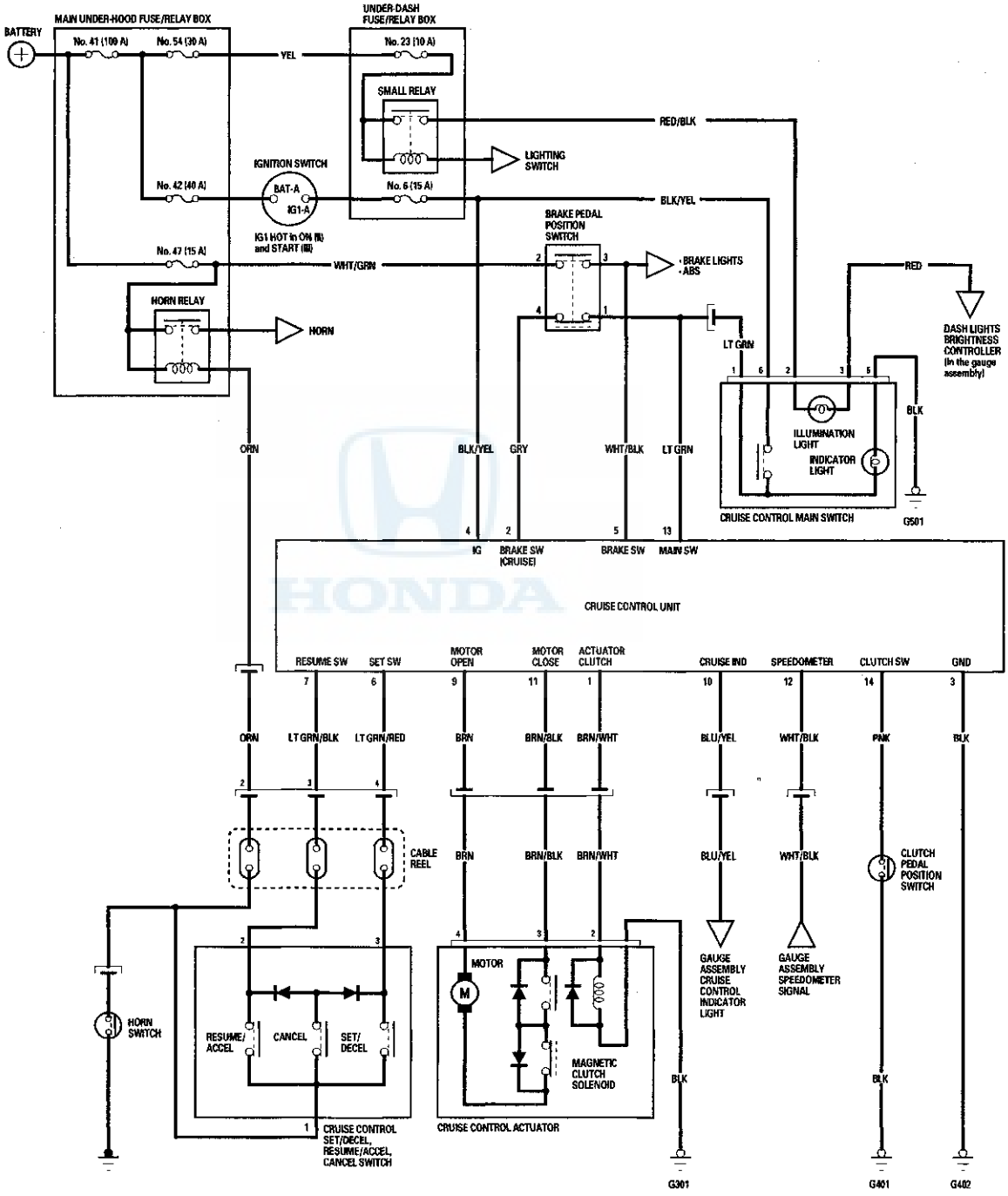
Cruise Control

Circuit Diagram

'00-03 models

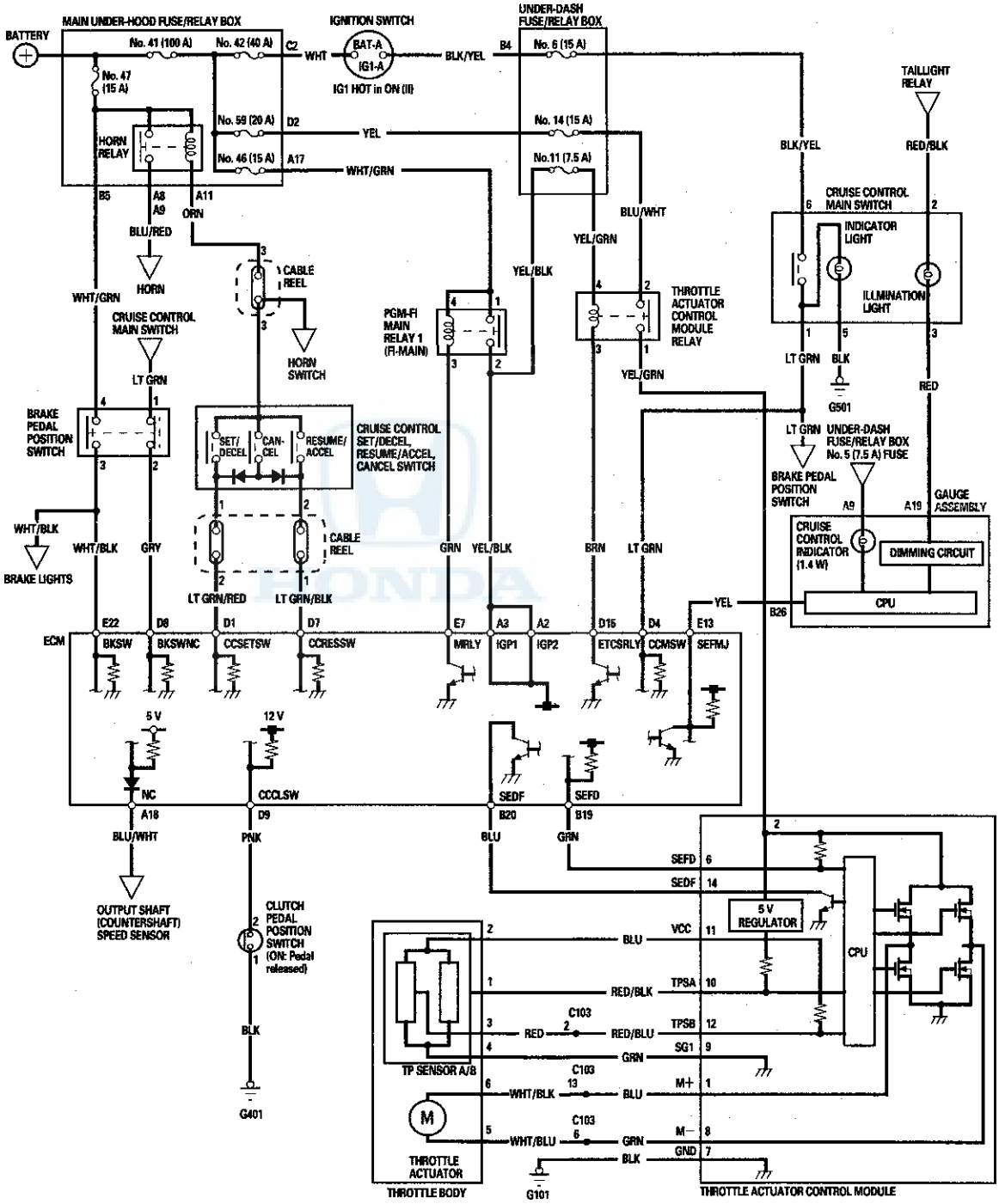


'04-05 models


BATTERY
MAIN UNDER-HOOD FUSE/RELAY BOX
No. 41 (100 A)
No. 54 (30 A)
No. 42 (40 A)
No. 47 (15 A)
YEL
UNDER-DASH FUSE/RELAY BOX
No. 23 (10 A)
SMALL RELAY
No. 6 (15 A)
RED/BLK
LIGHTING SWITCH
BLK/YEL
IGNITION SWITCH
BAT-A
IG1-A
IG1 HOT in ON (II) and START (III)
WHT/GRN
HORN RELAY
HORN
BRAKE PEDAL POSITION SWITCH
BRAKE LIGHTS
ABS
RED
DASH LIGHTS BRIGHTNESS CONTROLLER (In the gauge assembly)
LT GRN
BLK
ILLUMINATION LIGHT
INDICATOR LIGHT
CRUISE CONTROL MAIN SWITCH
G501
ORN
BLK/YEL
GRY
WHT/BLK
LT GRN
IG
BRAKE SW (CRUISE)
BRAKE SW
MAIN SW
CRUISE CONTROL UNIT
RESUME SW
SET SW
MOTOR OPEN
MOTOR CLOSE
ACTUATOR CLUTCH
CRUISE IND
SPEEDOMETER
CLUTCH SW
GND
LT GRN/BLK
LT GRN/RED
BRN
BRN/BLK
BRN/WHT
BLU/YEL
WHT/BLK
PNK
BLK
CABLE REEL
CLUTCH PEDAL POSITION SWITCH
HORN SWITCH
RESUME/ ACCEL
CANCEL
SET/ DECEL
CRUISE CONTROL SET/DECEL, RESUME/ACCEL, CANCEL SWITCH
MOTOR
MAGNETIC CLUTCH SOLENOID
CRUISE CONTROL ACTUATOR
GAUGE ASSEMBLY CRUISE CONTROL INDICATOR LIGHT
GAUGE ASSEMBLY SPEEDOMETER SIGNAL
G301
G401
G402

Circuit Diagram (cont'd)

'06-08 models



Cruise Control Unit Input Test

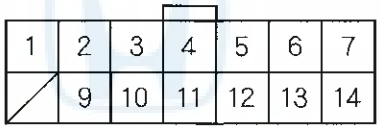
'00-05 models

SRS components are located in this area, review the SRS component locations, '00-05 models (see page 23-11), '06-08 models (see page 23-12), precautions, and procedures (see page 23-13), before performing repairs or service.

1. Remove the knee bolster under the steering column.
2. Disconnect the 14P connector from the cruise control unit.
3. Inspect the connector and connector terminals to be sure they are making good contact.
4. If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
5. Do the following input test, at the 14P connector.

   - If a test indicates a problem, find and correct the cause, then recheck the system.
   - If all the tests prove OK, check the cruise control actuator operation, and adjust the actuator cable.

CRUISE CONTROL UNIT CONNECTOR (14P)



Wire side of female terminals

Cavity	Wire color	Test condition	Test: Desired result	Possible cause if result is not obtained
1	BRN/WHT	Connect to terminal 4 (BLK/YEL) with a jumper wire, and turn ignition switch to ON (II)	The magnetic clutch should click and the output link should be locked.	• Faulty actuator • Poor ground (G301) • An open in the wire
2	GRY	Ignition switch to ON (II), cruise control main switch ON, and brake pedal pressed, then released	Check for voltage to ground: There should be 0 V with the brake pedal pressed, and there should be battery voltage with the brake pedal released.	• Faulty brake switch • Faulty cruise control main switch • An open in the wire • Blown No. 6 (15 A) fuse in the under-dash fuse/relay box
3	BLK	Under all conditions	Check for continuity to ground: There should be continuity.	• Poor ground (G402) • An open in the wire
4	BLK/YEL	Ignition switch to ON (II)	Check for voltage to ground: There should be battery voltage.	• Blown No. 6 (15 A) fuse in the under-dash fuse/relay box • An open in the wire
5	WHT/BLK	With brake pedal pressed and released	Check for voltage to ground: There should be battery voltage with the brake pedal pressed, and there should be 0 V with the brake pedal released.	• Blown No. 47 (10 A) [No. 47 (15 A)] fuse in the main under-hood fuse/relay box • Faulty brake switch • An open in the wire

[ ] : '02-05 models

(cont'd)

Cruise Control Unit Input Test (cont'd)

Cavity	Wire color	Test condition	Test: Desired result	Possible cause if result is not obtained
6	LT GRN/ RED	Ignition switch to ON (II), cruise control main switch turned on, and set/decel switch pushed	Check for voltage to ground: There should be battery voltage. When testing terminal No. 6, there should be no voltage on terminal No. 7. When testing terminal No. 7, there should be no voltage on terminal No. 6.	• Blown No. 47 (10 A) [No. 47 (15 A)] fuse in the main under-hood fuse/relay box • Faulty horn relay • Faulty '00-03 models: cruise control set/decel, resume/ accel switch, '04-05 models: cruise control set/decel, resume/accel, cancel switch • Faulty cable reel • An open in the wire
7	LT GRN/ BLK	Ignition switch to ON (II), cruise control main switch turned on, and resume/accel switch pushed		
9	BRN	Connect the BRN terminal to terminal 4 (BLK/YEL) with a jumper wire. Connect the BRN/ BLK terminal to body ground. Turn the ignition switch to ON (II)	Check the actuator motor: You should be able to hear it run.	• Faulty actuator • Poor ground (G402) • An open in the wire
11	BRN/BLK			
10	BLU/YEL	Ignition switch to ON (II), attach to ground	Cruise indicator light should come on.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • Blown cruise control indicator • Faulty cruise control indicator circuit in gauge assembly • An open in the wire
12	WHT/BLK	Raise the rear of vehicle, and shift to Neutral. Ignition switch to ON (II), cruise control main switch turned on, and rotate one rear wheel while holding the other	Check voltage between No. 12 (+) and No. 3 (−) terminals: There should be 0 V and about 5 V or battery voltage alternately.	• Faulty vehicle speed sensor • Faulty speedometer circuit in the gauge assembly • An open in the wire
13	LT GRN	Ignition switch to ON (II) and cruise control main switch turned on	Check for voltage to ground: There should be battery voltage.	• Blown No. 6 (15 A) fuse in the under-dash fuse/relay box • Faulty cruise control main switch • An open in the wire
14	PNK	Clutch pedal pressed and released	Check for continuity to ground: There should be no continuity with the clutch pedal pressed, and there should be continuity with the clutch pedal released.	• Faulty clutch switch • Misadjusted clutch pedal position switch installation • Poor ground (G401) • An open in the wire

[ ] : '02-05 models

6. If any test indicates a problem, find and correct the cause, then recheck the system. If all the input tests prove OK, the control unit may be faulty. Substitute a known-good cruise control unit, and reset. If the system works properly, replace the cruise control unit.

Cruise Control Input Test

'06-08 models

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communcates with the vehicle and the engine control module (ECM). If it doesn't, communicate troubleshoot the DLC circuit (see page 11-367).
4. Go to PGM-FI, and check for DTCs.
5. Do the following tests while monitoring parameters in the PGM-FI DATA LIST with the HDS.

   NOTE: Intermittent failures are often caused by loose circuit connections. While monitoring cruise control inputs, flex their circuits, and note if any of the test results change.

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Brake switch signal	Brake pedal pressed, then released with cruise control main switch turned on	CRUISE BRAKE SW should indicate OFF when the brake pedal is pressed and ON when the brake pedal is released.	• Faulty brake pedal position switch • Blown No. 6 (15 A) fuse in the under-dash fuse/relay box • An open in the wire between the ECM and the brake pedal position switch • A wire shorted to ground between the ECM and the brake pedal position switch
Clutch pedal position switch signal	Clutch pedal pressed, then released	SHIFT/CLUTCH SW should indicate OFF when the clutch pedal is pressed and ON when the clutch pedal is released.	• Faulty clutch pedal position switch • An open in the wire between the ECM and the clutch pedal position switch • A wire shorted to ground between the ECM and the clutch pedal position switch • Poor ground G401
Cruise control main switch signal	Cruise control main switch on and off	CRUISE MASTER (MAIN) SW should indicate ON when the cruise control main switch is turned on and OFF when the cruise control main switch is turned off.	• Faulty cruise control main switch • Blown No. 6 (15A) fuse in the under-dash fuse/relay box • An open in the wire between the ECM and the cruise control main switch • A wire shorted to ground between the ECM and the cruise control main switch
Set switch signal	Set/decel switch pressed and released	CRUISE SET SW should indicate ON when the set/decel switch is pressed and OFF when the set/decel switch is released.	• Faulty cruise control set/decel, resume/accel, cancel switch • An open in the wire between the ECM and the cruise control set/decel, resume/accel, cancel switch • A wire shorted to ground between the ECM and the cruise control set/decel, resume/accel, cancel switch

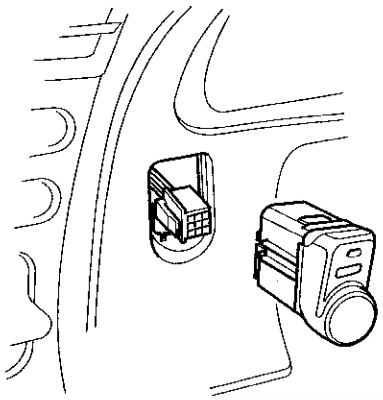
(cont'd)

Cruise Control Input Test (cont'd)

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Resume switch signal	Resume/accel switch pressed and released	CRUISE RESUME SW should indicate ON when the resume/accel switch is pressed and OFF when the resume/accel switch is released.	• Faulty cruise control set/decel, resume/accel, cancel switch • An open in the wire between the ECM and the cruise control set/decel, resume/accel, cancel switch • A wire shorted to ground between the ECM and the cruise control set/decel, resume/accel, cancel switch
Cancel switch signal	Cancel switch pressed and released	CRUISE CANCEL SW should indicate ON when the cancel switch is pressed and OFF when the cancel switch is released.	• Faulty cruise control set/decel, resume/accel, cancel switch

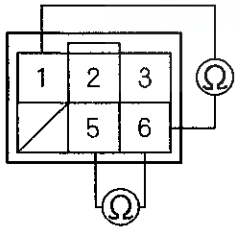
Cruise Control Main Switch Test

1. Carefully pry the cruise control main switch out of the instrument panel, then disconnect the connector from the switch.



2. Check for continuity between terminals No. 6 and No. 1, and between terminals No. 6 and No. 5 on the switch. There should be continuity when the switch is pressed, and no continuity when the switch is pressed again.

CRUISE CONTROL MAIN SWITCH CONNECTOR



Terminal side of male terminals

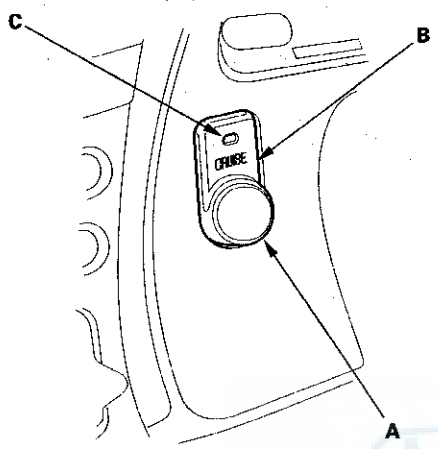
3. Check for continuity between the No. 2 and No. 3 terminals. There should be continuity.

4. If a failure occurs between terminals No. 6 and No. 1, replace the cruise control main switch.

5. If a failure occurs between terminals No. 6 and No. 5, and between the No. 2 and No. 3, check the cruise control main switch indicator and illumination (see page 4-66).

Cruise Control Main Switch/ Indicator/Illumination Test

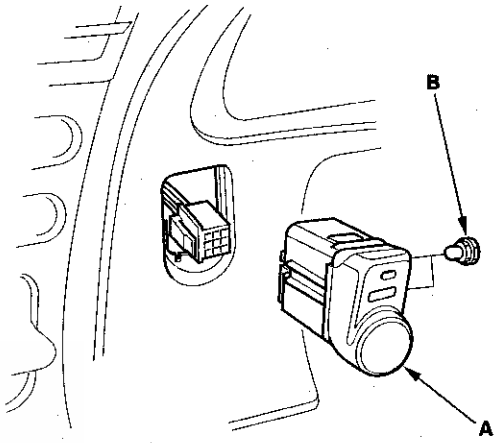
1. Turn the ignition switch to ON (II). Turn the lighting switch and the cruise control main switch (A) ON.



2. Check that the illumination indicator (B) and the indicator light (C) in the cruise control main switch come on.
3. If the indicator does not come on, remove the switch, and replace the bulb.
4. If the indicator does not come on after the bulb has been replaced, replace the cruise control main switch.

Cruise Control Main Switch/ Indicator Bulb Replacement

1. Carefully pry the cruise control main switch (A) out of the instrument panel, then disconnect the connector from the switch.

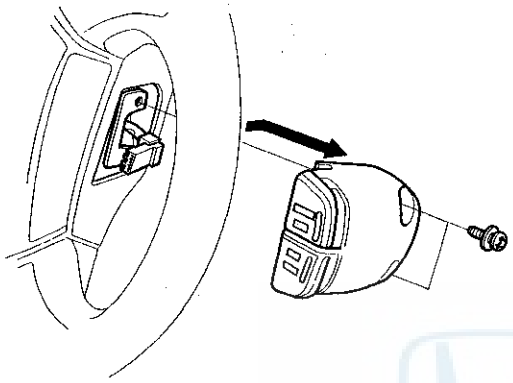


2. Replace the indicator bulb (B) or the switch, as needed.

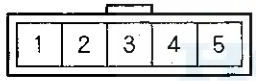
Cruise Control Set/decel, Resume/accel Switch Test/Replacement

'00-03 models

1. Remove the two screws securing the cruise control set/decel, resume/accel switch, then remove the switch.



CRUISE CONTROL SET/DECEL, RESUME/ACCEL SWITCH CONNECTOR



Terminal side of male terminals

2. Disconnect the connector from the switch.
3. Check for continuity between the terminals in the switch position according to the table. There should be continuity while pressing the switch down, and no continuity when the switch is released.

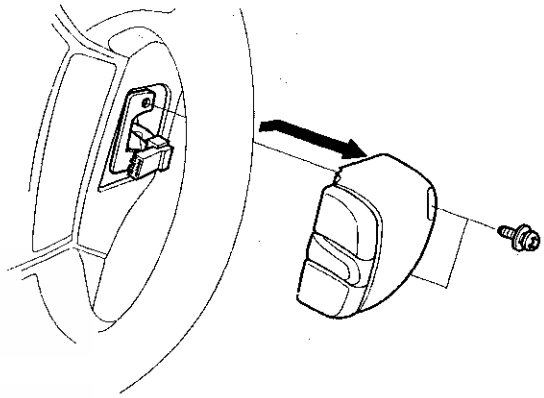
Position \ Terminal	1	3	5
Set/decel (PRESSED)		○	○
Resume/accel (PRESSED)	○	○	

4. If either switch is faulty, replace the switch assembly.
5. If the switch is OK, but switch failure has occurred on the cruise control unit input test, check and repair the wire harness on the switch circuit.

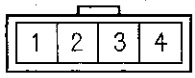
Cruise Control Set/decel, Resume/accel, Cancel Switch Test/Replacement

'04-08 models

1. Remove the two screws securing the cruise control set/decel, resume/accel, cancel switch, then remove the switch.



CRUISE CONTROL SET/DECEL, RESUME/ACCEL, CANCEL SWITCH CONNECTOR



Terminal side of male terminals

2. Disconnect the connector from the switch.
3. Check for continuity between the terminals in the switch position according to the table. There should be continuity while pressing the switch down, and no continuity when the switch is released.

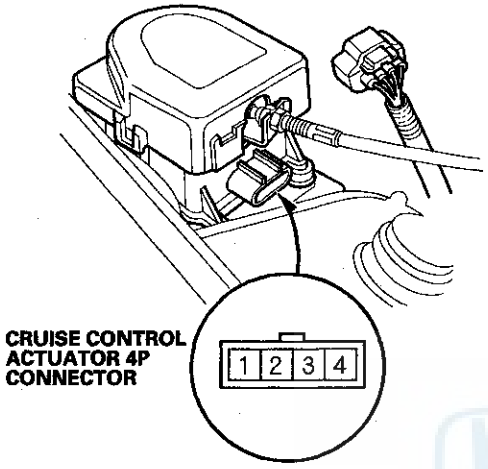
Position \ Terminal	1		2	3
Set/decel (PRESSED)	○			○
Resume/accel (PRESSED)	○		○	
Cancel (PRESSED)	○	⋈		○
		⋈	○	

4. If either switch is faulty, replace the switch assembly.
5. If the switch is OK, but switch failure has occurred on the cruise control unit input test ('04-05 models) or cruise control input test ('06-08 models), check and repair the wire harness on the switch circuit.

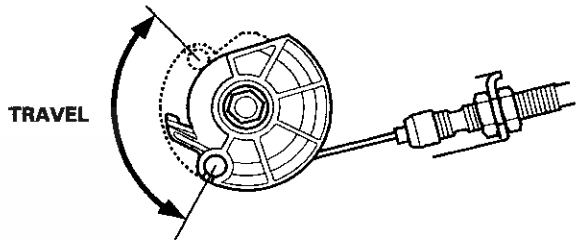
Cruise Control Actuator Test

'00-05 models

1. Disconnect the 4P connector from the cruise control actuator.



2. Remove the actuator cover.
3. Connect battery power to the No. 2 terminal of the 4P connector, and connect ground to the No. 1 terminal.
4. Check the magnetic clutch for proper engagement. You should hear a clicking sound and the output linkage should be locked.
5. If the output linkage is not locked, replace the cruise control actuator assembly.
6. With power and ground still connected as in step 3, connect battery power to the No. 4 terminal and ground to No. 3 terminal, and check that the output linkage starts to turn from the fully closed position and stops at the fully opened position by the motor in the actuator.
7. Reverse power and ground at connector terminals, No. 4 and No. 3, and check that the output linkage reverses and stops at the fully closed position.

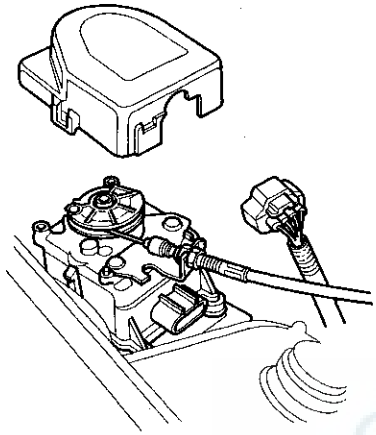


8. If the output linkage moves sluggishly, or the motor does not operate properly, replace the cruise control actuator assembly.

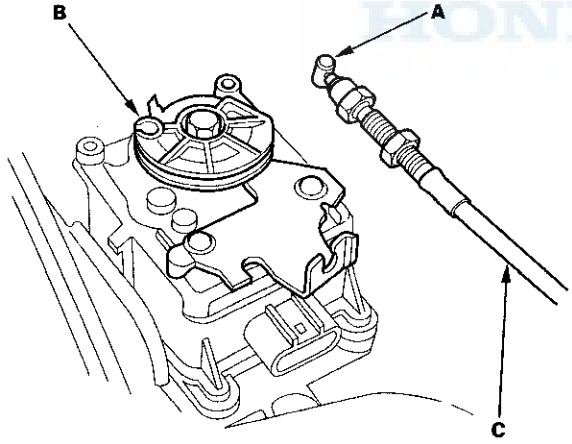
Cruise Control Actuator Replacement

'00-05 models

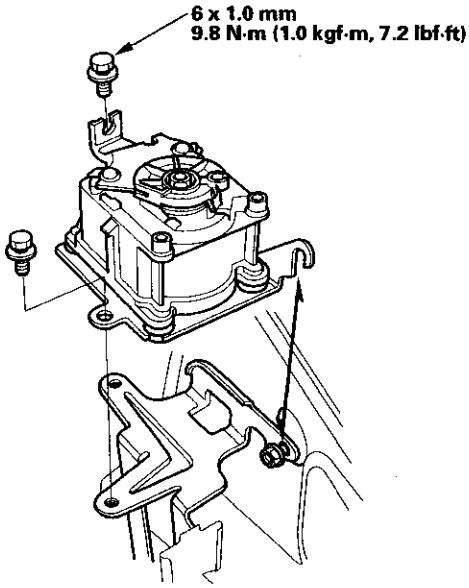
1. Remove the actuator cover, and disconnect the 4P connector from the cruise control actuator.



2. Disconnect the actuator cable end (A) from the output linkage (B), and remove the cable (C) from the cruise control actuator.



3. Remove the cruise control actuator assembly.



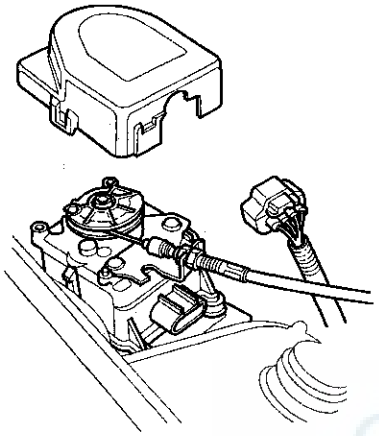
4. Replace the actuator, and install the new cruise control actuator in the reverse order of removal.

5. Adjust the actuator cable on the cruise control actuator side (see page 4-71).

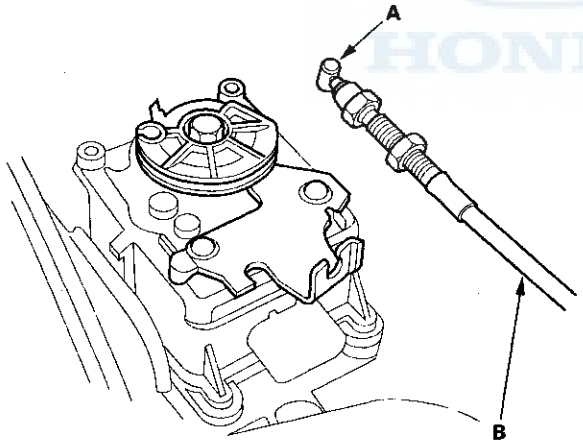
Cruise Control Actuator Cable Replacement

'00-05 models

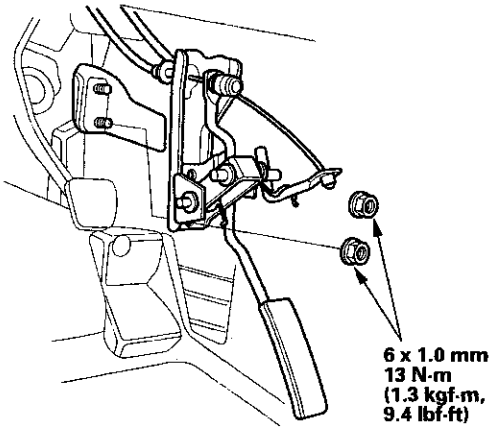
1. Remove the actuator cover, and disconnect the 4P connector from the cruise control actuator.



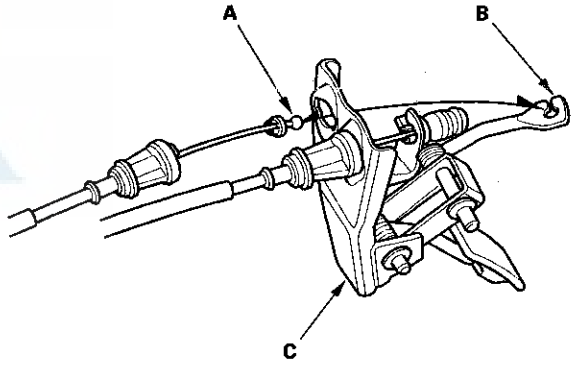
2. Disconnect the actuator cable end (A), and remove the cable (B) from the cruise control actuator.



3. Remove the accelerator pedal assembly.



4. Disconnect the actuator cable end (A) from the arm (B) on the accelerator pedal assembly (C).



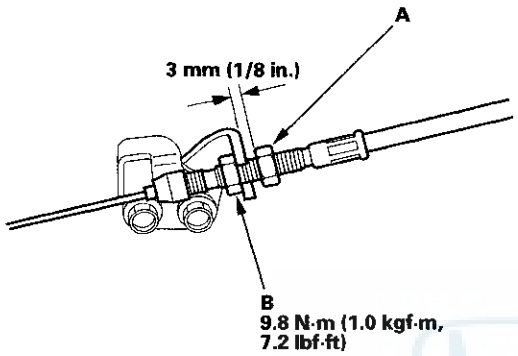
5. Replace the actuator cable, and install the new cable in the reverse order of removal.

6. Adjust the actuator cable on the cruise control actuator side (see page 4-71).

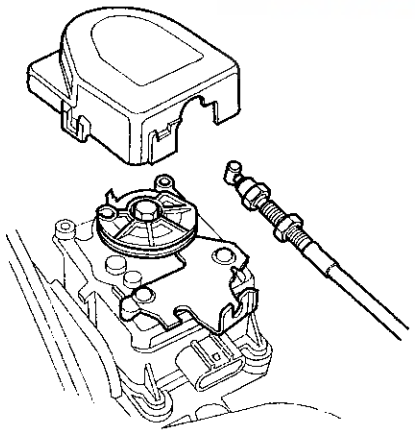
Cruise Control Actuator Cable Adjustment

'00-05 models

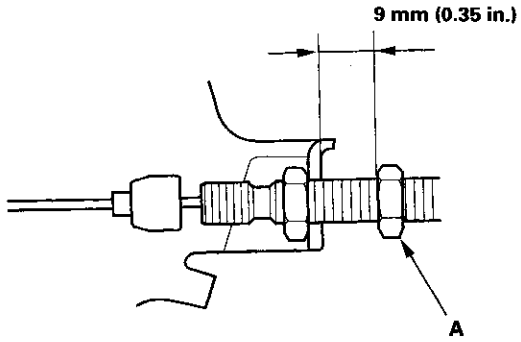
1. Hold the cable sheath, removing all slack from the throttle cable.
2. Turn the adjusting nut (A) until it is 3 mm (1/8 in.) away from the throttle cable bracket.



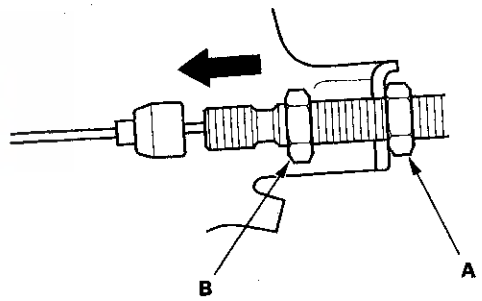
3. Tighten the locknut (B). The throttle cable deflection should now be 4—6 mm (0.16—0.24 in.).
4. Remove the actuator cover, then disconnect the actuator cable end from the cruise control actuator.



5. Turn the adjusting nut (A) until it is 9 mm (0.35 in.) away from the actuator cable bracket when the throttle linkage starts open.



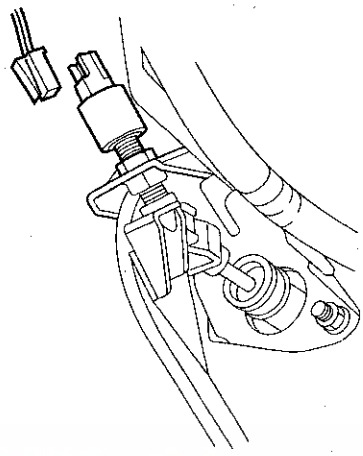
6. Pull the cable so the adjusting nut (A) touches the bracket, and tighten the locknut (B).



7. Make sure the throttle linkage starts to open when the actuator cable is pulled 9 mm (0.35 in.) from the starting point by rotating the actuator linkage.

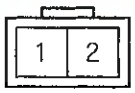
Clutch Pedal Position Switch Test

1. Disconnect the connector from the clutch pedal position switch, then remove the switch.

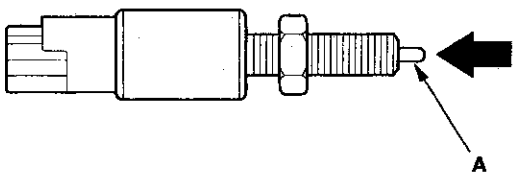


2. Check for continuity between the clutch pedal position switch connector terminals. There should be no continuity between the terminals with the button (A) released, and there should be continuity with the button pressed.

CLUTCH PEDAL POSITION SWITCH CONNECTOR



Terminal side of male terminals



3. If the clutch pedal position switch is faulty, replace it.

4. Install the clutch pedal position switch, and adjust it (see page 12-7).

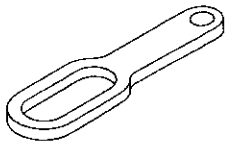
Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Engine Mechanical

Engine Assembly

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAK-SNAA120	Universal Eyelet	2



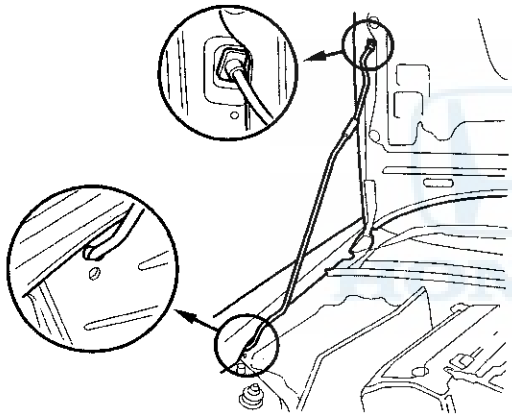
①

Engine Removal

Special Tools Required
Universal eyelet 07AAK-SNAA120

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wires and terminals, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Remove the hood support rod from the driver's side of the car, then use it as shown to fix the hood in a vertical position.



2. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

3. Relieve the fuel pressure:
   - '00-05 models (see page 11-145)
   - '06-08 models (see page 11-474)

4. Disconnect the negative cable from the battery, then disconnect the positive cable.

5. Remove the battery.

6. Raise the vehicle on the lift.

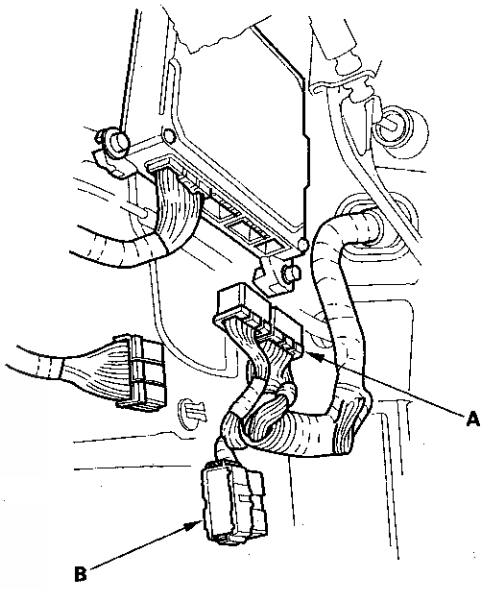
7. Drain the engine oil (see page 8-6).

8. Remove the transmission (see page 13-6).

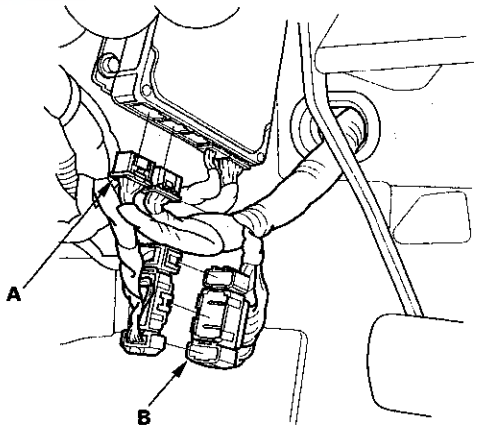
9. Lower the vehicle on the lift.

10. Disconnect the engine control module (ECM) connectors (A) from the ECM.

'00-05 models



'06-08 models

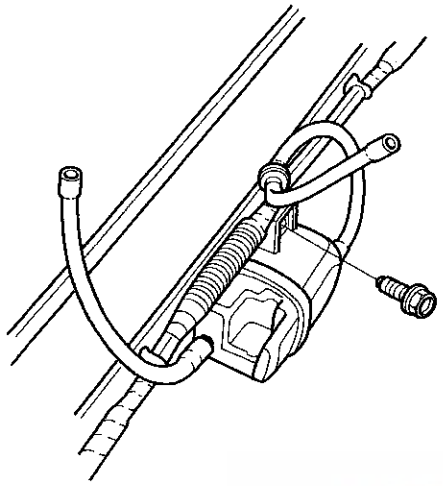


11. Disconnect the dashboard wire harness A connector(s) (B).

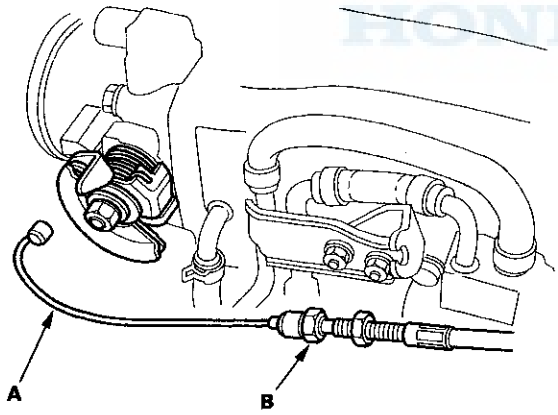
(cont'd)

Engine Removal (cont'd)

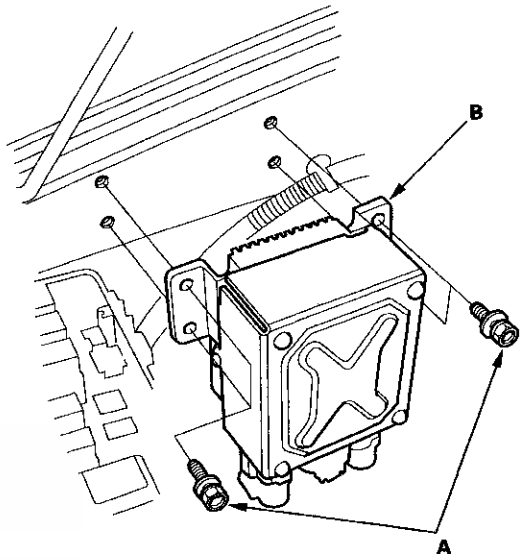
12. '00-05 models: Remove the vacuum tank.



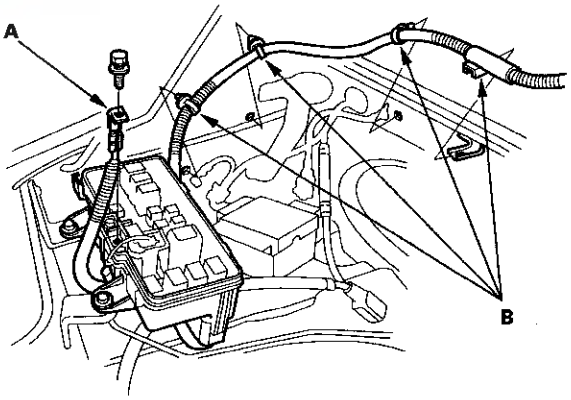
13. '00-05 models: Remove the throttle cable (A) by loosening the locknut (B), then slipping the cable end out of the accelerator linkage. Take care not to bend the cable when removing it. Always replace any kinked cable with a new one.



14. Remove the four bolts (A) securing the electrical power steering (EPS) control unit (B).

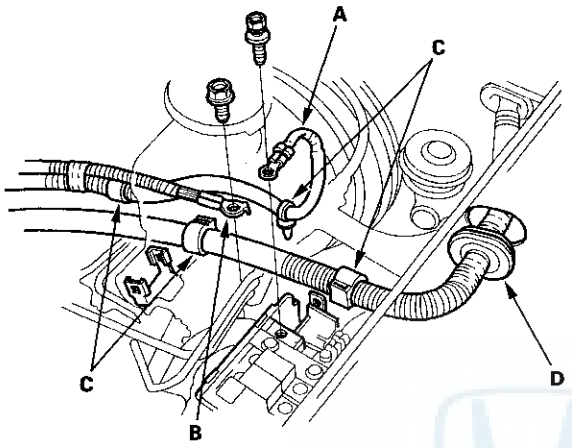


15. Remove the battery cable (A) from the main under-hood fuse/relay box, then remove the harness clamps (B).

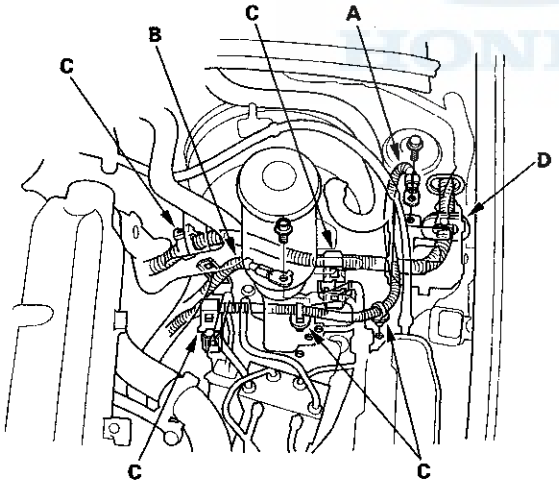


16. Remove the battery cable (A) from the auxiliary under-hood fuse box, and remove the ground cable (B) and harness clamps (C).

'00-05 models



'06-08 models



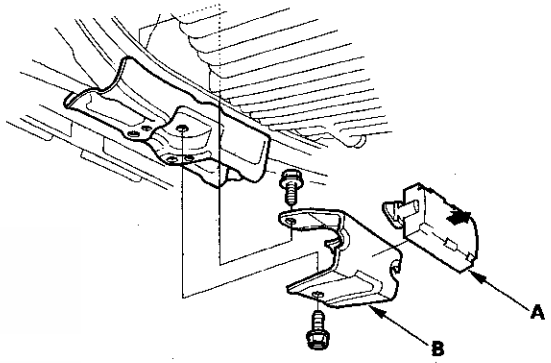
17. Remove the grommet (D) from the bulkhead, then pull out the ECM connectors.

18. Remove the radiator cap.

19. Raise the vehicle on the lift.

20. Loose the drain plug in the radiator, and drain the engine coolant (see page 10-9).

21. Remove the engine stop bracket cushion (A), then remove the engine stop bracket (B).

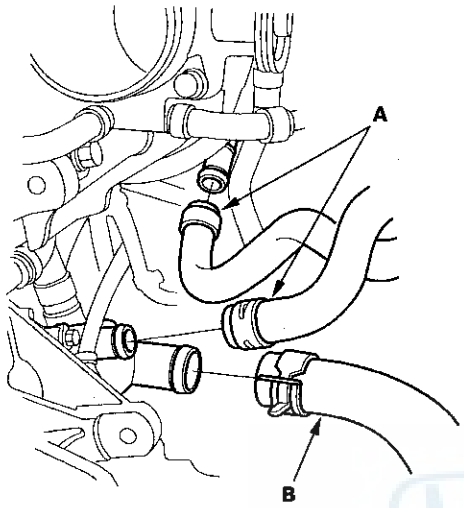


22. Lower the vehicle on the lift.

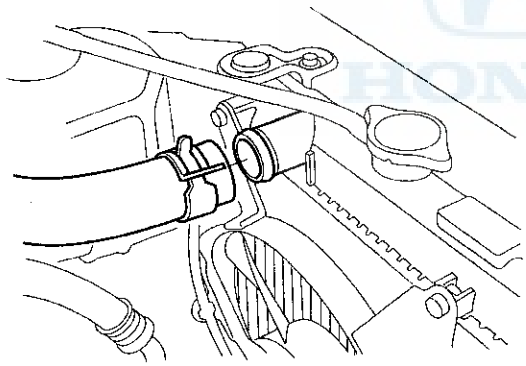
(cont'd)

Engine Removal (cont'd)

23. Remove the heater hoses (A) and the lower radiator hose (B).

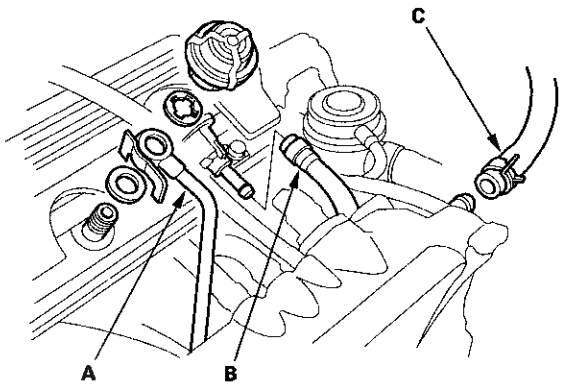


24. Remove the upper radiator hose.

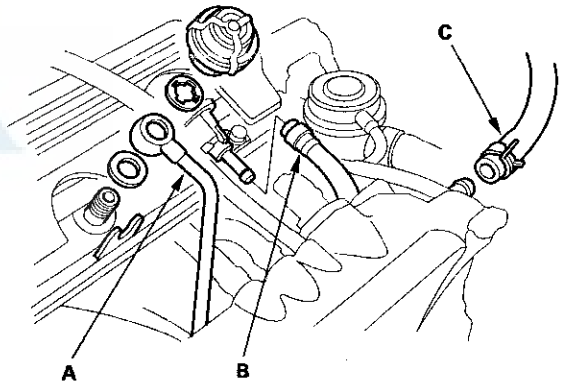


25. '00-05 models: Remove the fuel feed hose (A), fuel return hose (B) and brake booster vacuum hose (C).

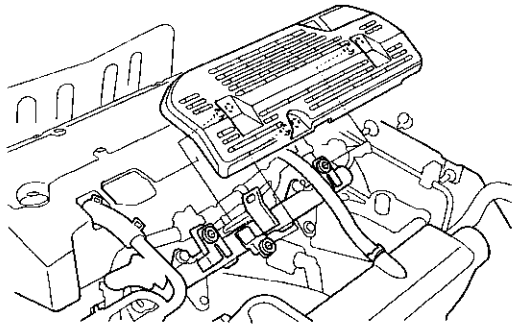
'00-03 models



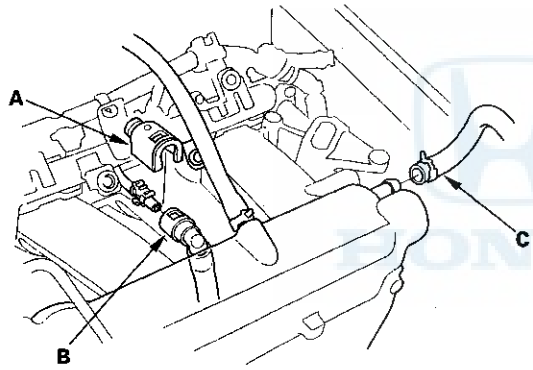
'04-05 models



26. '06-08 models: Remove the intake manifold cover.

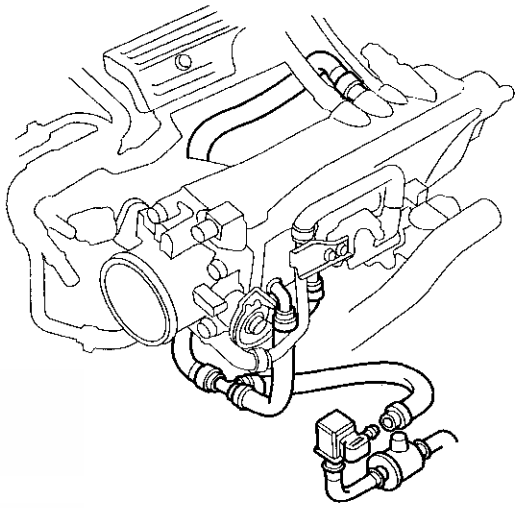


27. '06-08 models: Remove the quick-connect fitting cover (A), then disconnect the fuel feed hose (B) and brake booster vacuum hose (C).

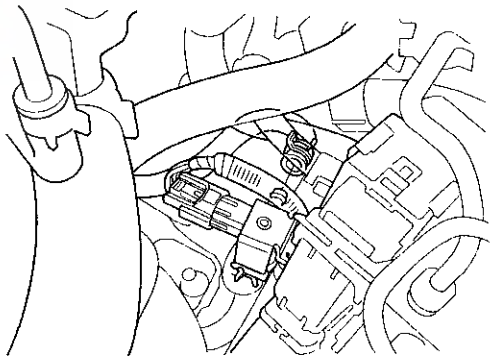


28. Disconnect the evaporative emission (EVAP) canister hose.

'00-05 models



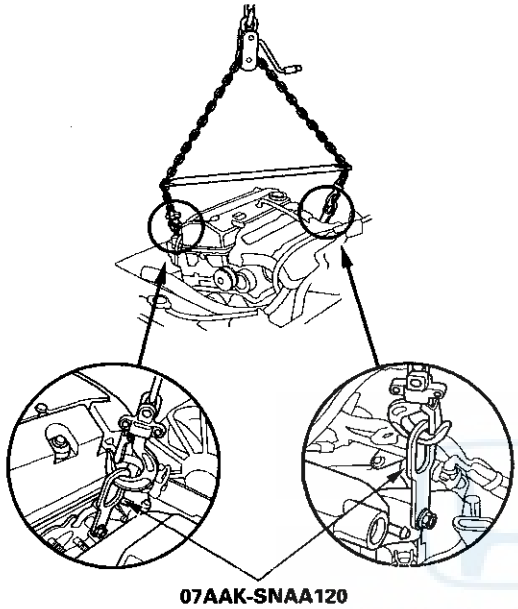
'06-08 models



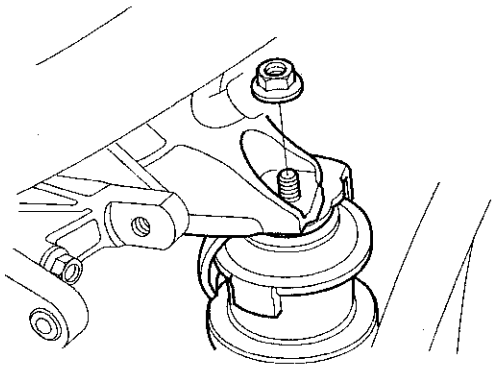
(cont'd)

Engine Removal (cont'd)

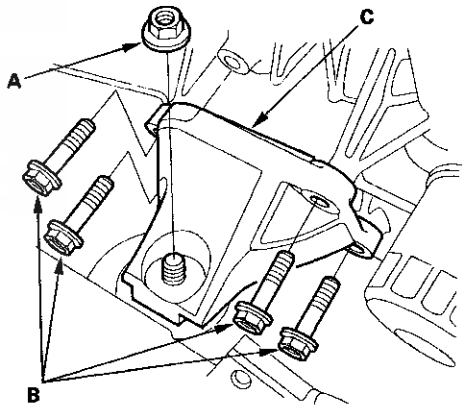
29. Attach the chain hoist to the engine as shown. Take care not to damage the rocker arm oil control solenoid (VTEC solenoid valve) and wire harness.



30. Remove the support nut from the left side engine mount bracket.



31. Remove the support nut (A) and four mounting bolts (B), then remove the right side engine mount bracket (C).



32. Check that the engine is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.

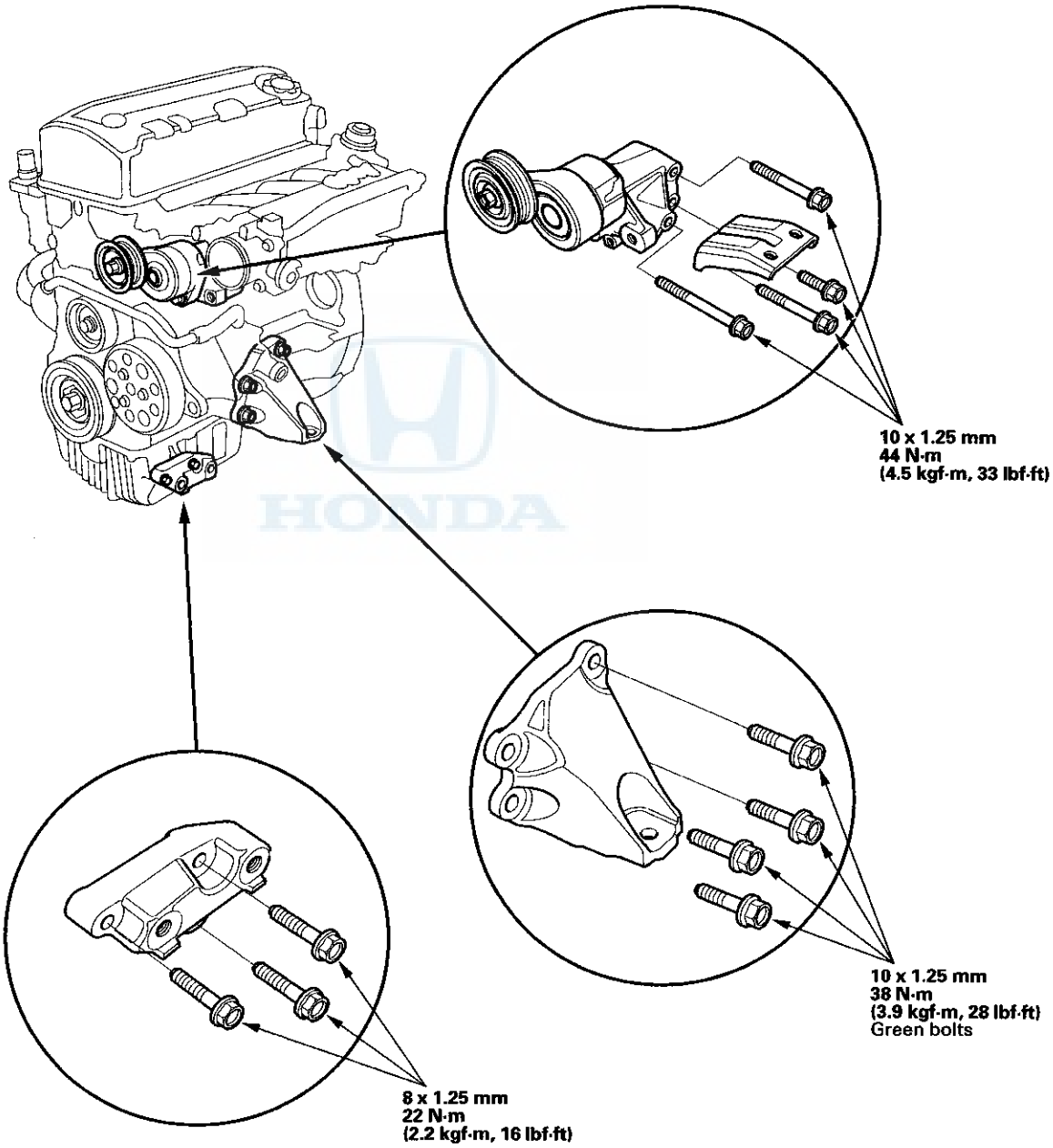
33. Slowly raise the engine about 150 mm (6 in.). Check once again that all hoses and wires are disconnected from the engine.

34. Raise the engine all the way, and remove it from the vehicle.

Engine Installation

Special Tools Required
Universal eyelet 07AAK-SNAA120

1. Install the accessory brackets, and tighten their bolts to the specified torque.



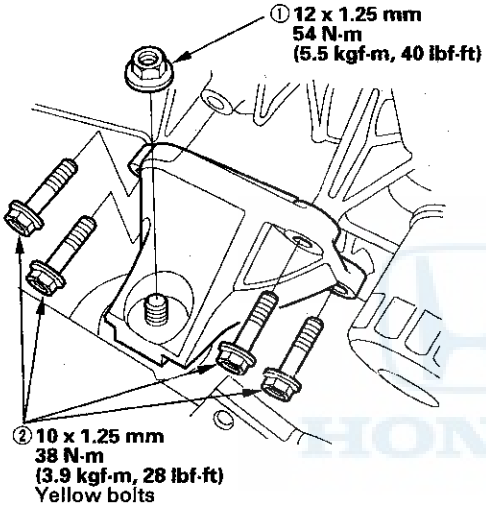
(cont'd)

Engine Installation (cont'd)

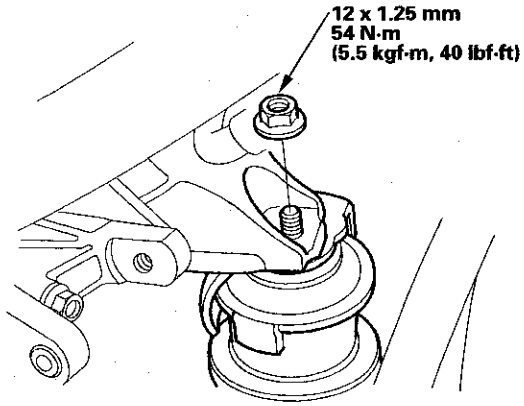
2. Install the engine into position in the vehicle.

   NOTE: Reinstall the mounting bolts and support nuts in the sequence given. Failure to follow this sequence may cause excessive noise and vibration, and reduce bushing life.

3. Install the right side engine mount bracket, then tighten the bolts and nut in the numbered sequence shown.

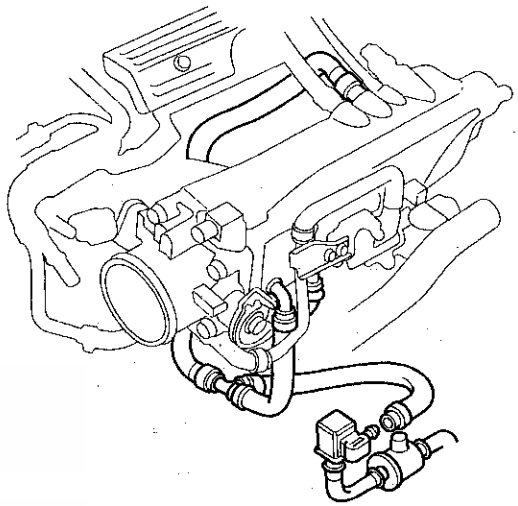


4. Tighten the support nut on the left side engine mount bracket.

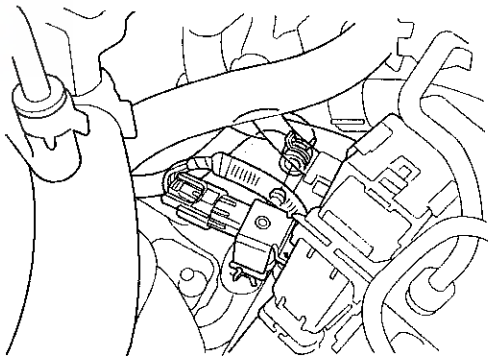


5. Connect the evaporative emission (EVAP) canister hose.

'00-05 models

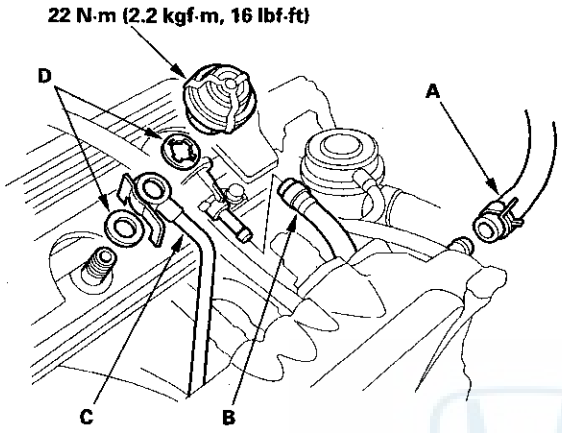


'06-08 models

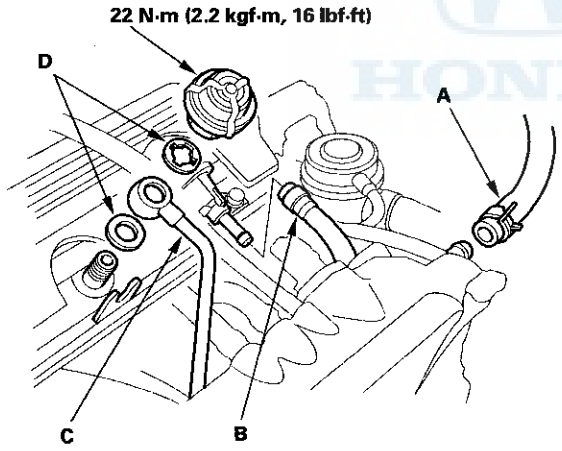


6. '00-05 models: Install the brake booster vacuum hose (A), fuel return hose (B) and fuel feed hose (C), using new washers (D).

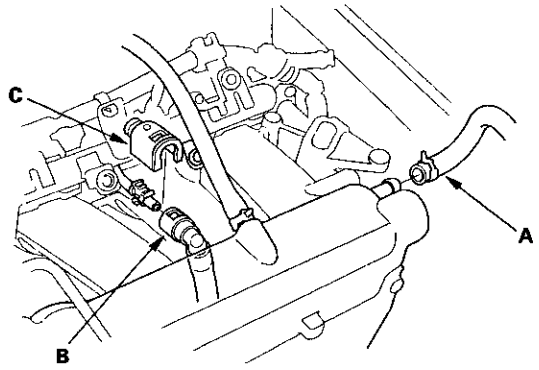
'00-03 models



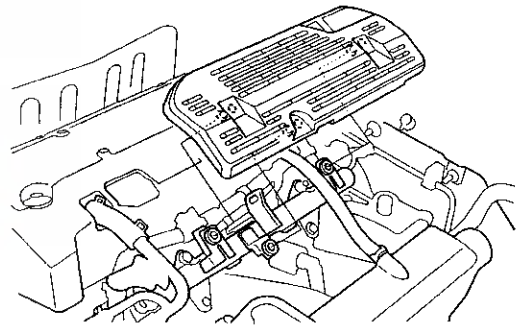
'04-05 models



7. '06-08 models: Connect the brake booster vacuum hose (A) and fuel feed hose (B), then install the quick-connect fitting cover (C).



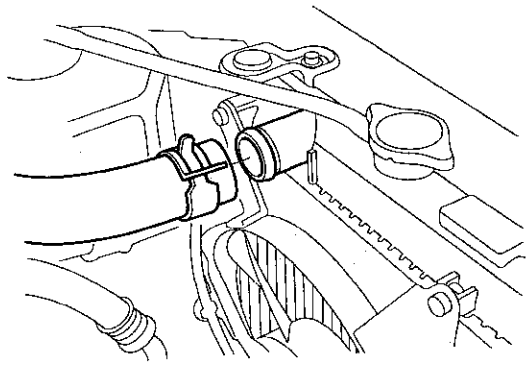
8. '06-08 models: Install the intake manifold cover.



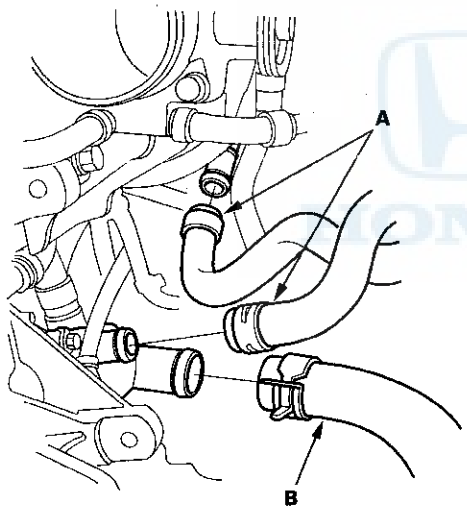
(cont'd)

Engine Installation (cont'd)

9. Install the upper radiator hose.

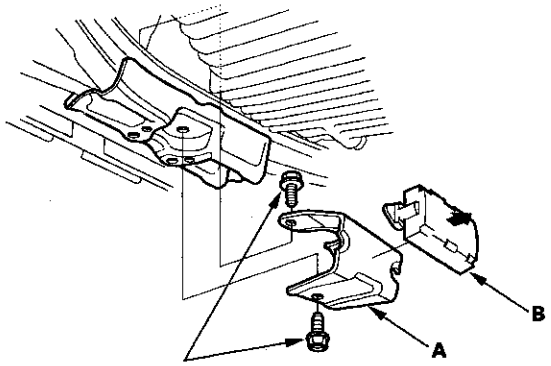


10. Install the heater hoses (A) and the lower radiator hose (B).



11. Raise the vehicle on the lift.

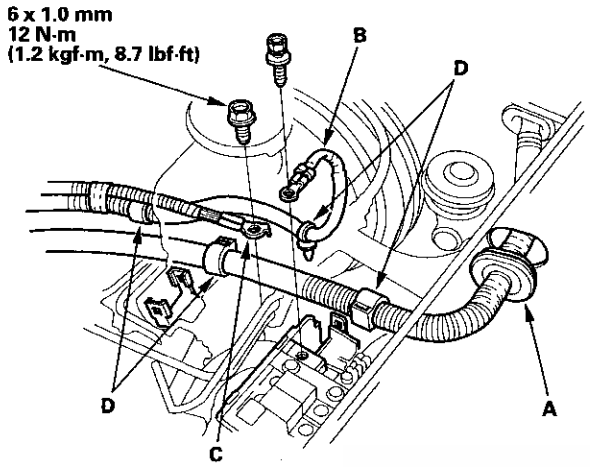
12. Install the engine stop bracket (A), then install the engine stop bracket cushion (B).



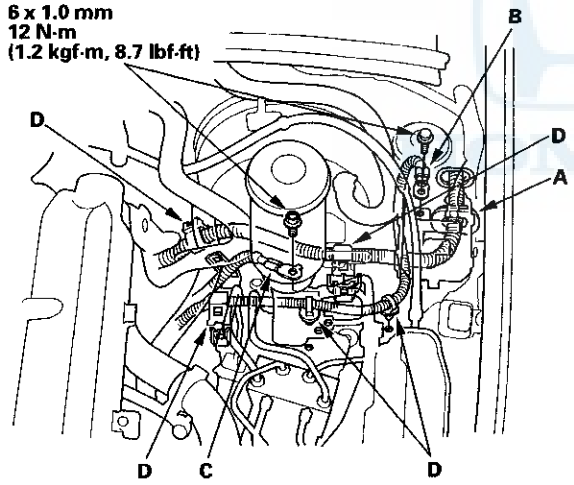
13. Lower the vehicle on the lift.

14. Push the engine control module (ECM) connectors through the bulkhead, then install the grommet (A).

'00-05 models

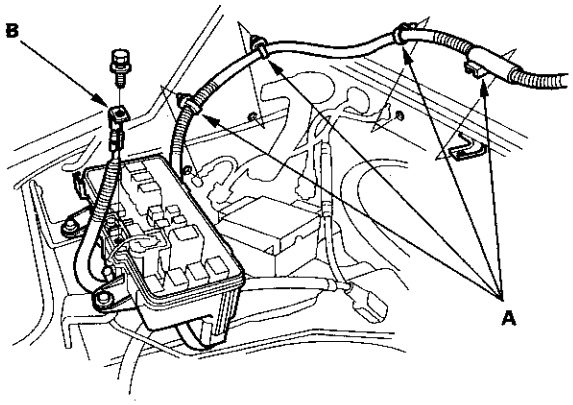


'06-08 models

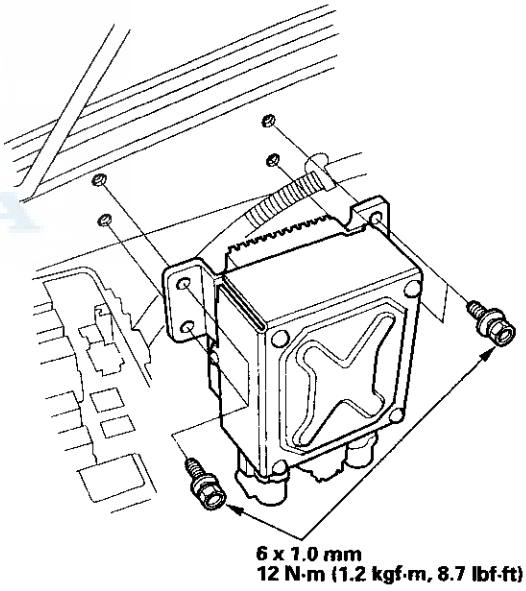


15. Install the battery cable (B) on the auxiliary under-hood fuse/relay box. Install the ground cable (C) and harness clamps (D).

16. Install the harness clamps (A), then install the battery cable (B) on the main under-hood fuse/relay box.



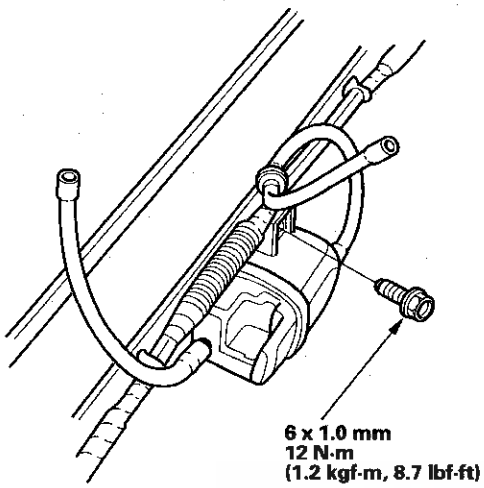
17. Install the electrical power steering (EPS) control unit.



(cont'd)

Engine Installation (cont'd)

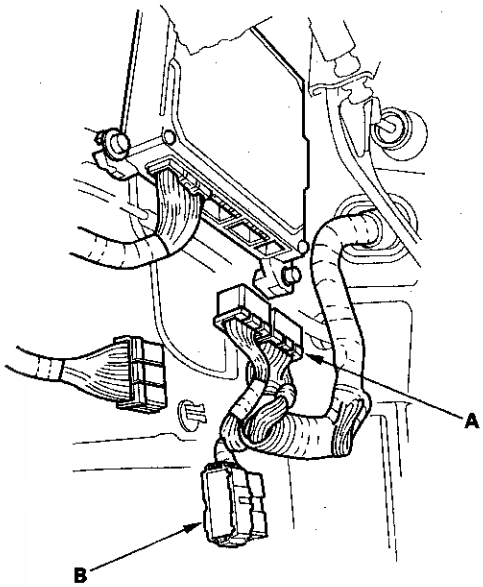
18. '00-05 models: Install the vacuum tank.



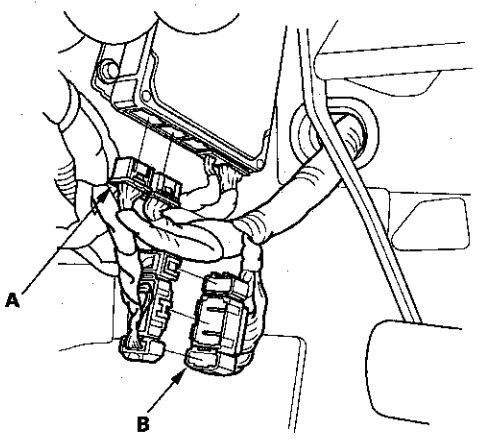
19. '00-05 models: Install the throttle cable (see page 11-167), then adjust the cable (see page 11-168).

20. Connect the ECM connectors (A) and dashboard wire harness A connectors (B).

'00-05 models



'06-08 models



21. Install the transmission (see page 13-67).

22. Install the battery.

23. Clean the battery posts and cable terminals, then assemble them and apply grease to prevent corrosion.

24. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so that the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.

25. Refill the engine with engine oil (see page 8-6).

26. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 8 on page 10-9).

27. Check that the transmission shifts into gear smoothly.

28. Do the ECM reset procedure:

    - '00-05 models (see page 11-4)
    - '06-08 models (see page 11-214)

29. Do the ECM idle learn procedure:

    - '00-05 models (see page 11-140)
    - '06-08 models (see page 11-462)

30. '06-08 models: Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see page 11-214).

31. Inspect the idle speed:

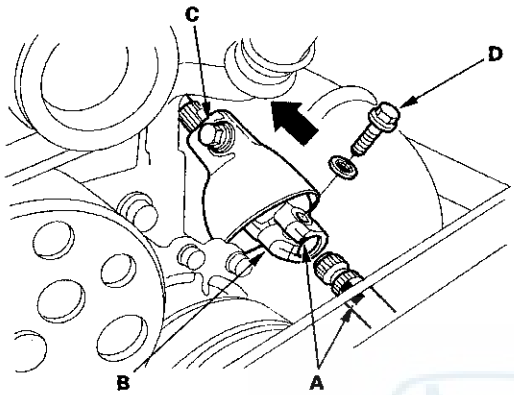
    - '00-05 models (see page 11-140)
    - '06-08 models (see page 11-461)

32. Inspect the ignition timing (see page 4-24).

33. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

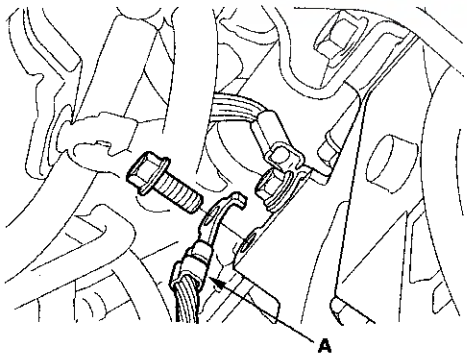
Engine Mount Replacement

1. Turn the steering wheel to the straight-ahead position, then remove the key from the ignition switch to lock the steering column. Make a reference mark (A) across the steering joint (B).

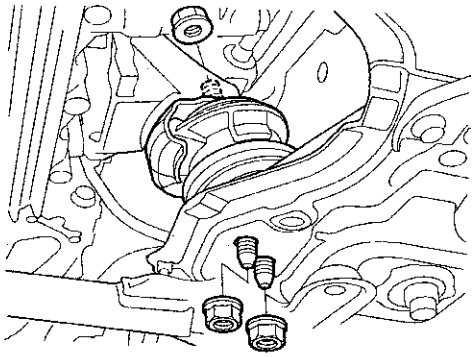


2. Loosen the upper steering joint bolt (C), and remove the lower steering joint bolt (D). Disconnect the steering joint from the gear box.

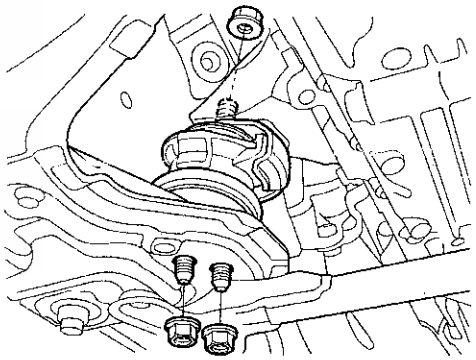
3. Remove the ground cable (A) on the rear end of the engine block.



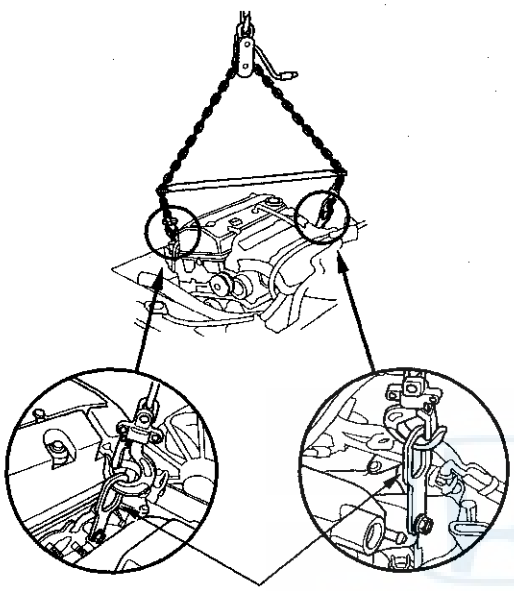
4. Loosen the left side engine mount support nuts.



5. Loosen the right side engine mount support nuts.

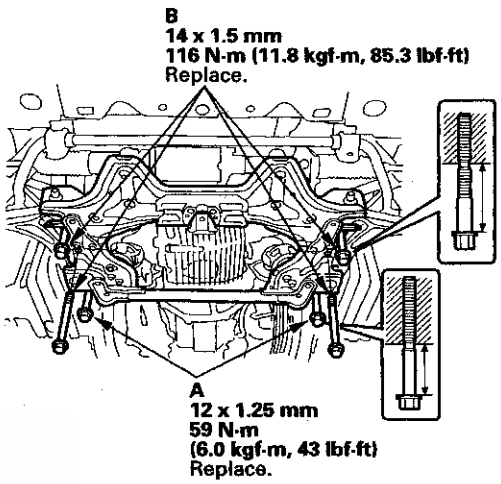


6. Attach the chain hoist to the engine as shown. Take care not to damage the rocker arm oil control solenoid (VTEC solenoid valve) and wire harness.



07AAK-SNAA120

7. Raise the vehicle on the lift.
8. Remove the six nuts from both side engine mounts.
9. Remove the two front subframe center mounting bolts (A).



10. Loosen the four front subframe mounting bolts (B) 75 mm (3.0 in.) as shown, and lower the front subframe.
11. Remove the engine mounts.
12. Put both side engine mounts into position.
13. Tighten the four front subframe mounting bolts.

    NOTE: Lift the front subframe a few inches at a time so that the upper bolt of the engine mount can be put in the bolt hole of the engine mount bracket.

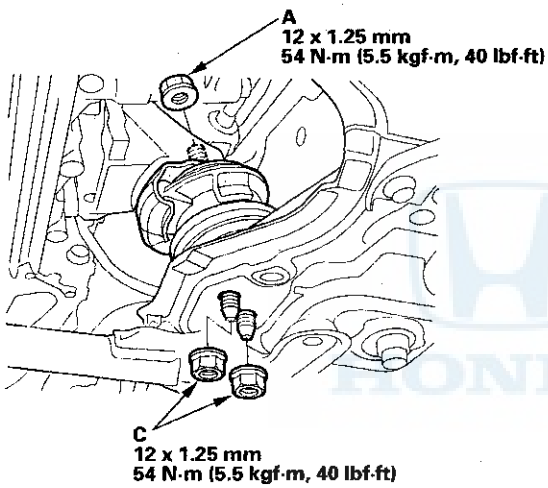
14. Install the two front subframe center mounting bolts.

(cont'd)

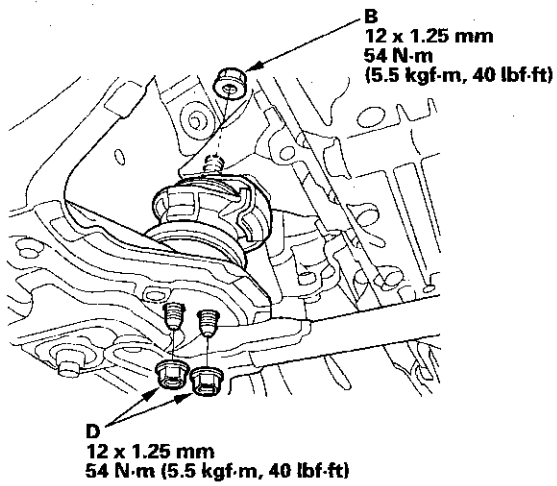
Engine Mount Replacement (cont'd)

15. Loosely tighten the left side engine mount support nuts.
16. Loosely tighten the right side engine mount support nuts.
17. Remove the chain hoist and universal eyelets.
18. Tighten the upper support nut (A) (B) to the specified torque.

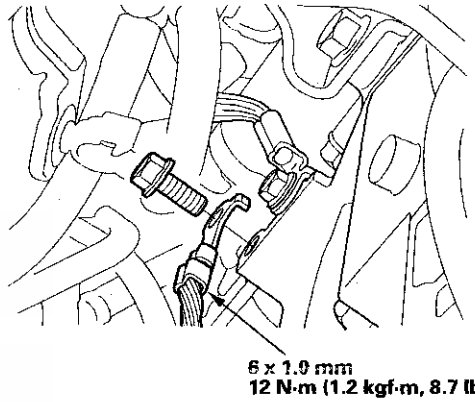
Left side



Right side



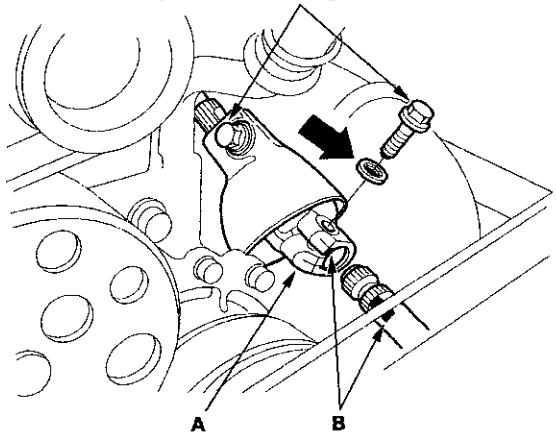
19. Loosen the lower support nuts (C) (D).
20. Tighten the left side lower support nuts to the specified torque.
21. Tighten the right side lower support nuts to the specified torque.
22. Install the ground cable.



23. Connect the steering joint (A) by aligning the reference marks (B) and tighten the bolt (C) to specified torque.

C
USA models thru VIN JHMAP114*YT008411
Canada models thru VIN JHMAP114*YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

USA models from VIN JHMAP114*YT008412
Canada models from VIN JHMAP114*YT800751
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)



24. Remove the steering wheel (see page 17-6).

25. Center the cable reel, and reinstall the steering wheel (see page 17-8).

26. Check the front wheel alignment (see page 18-7).


HONDA

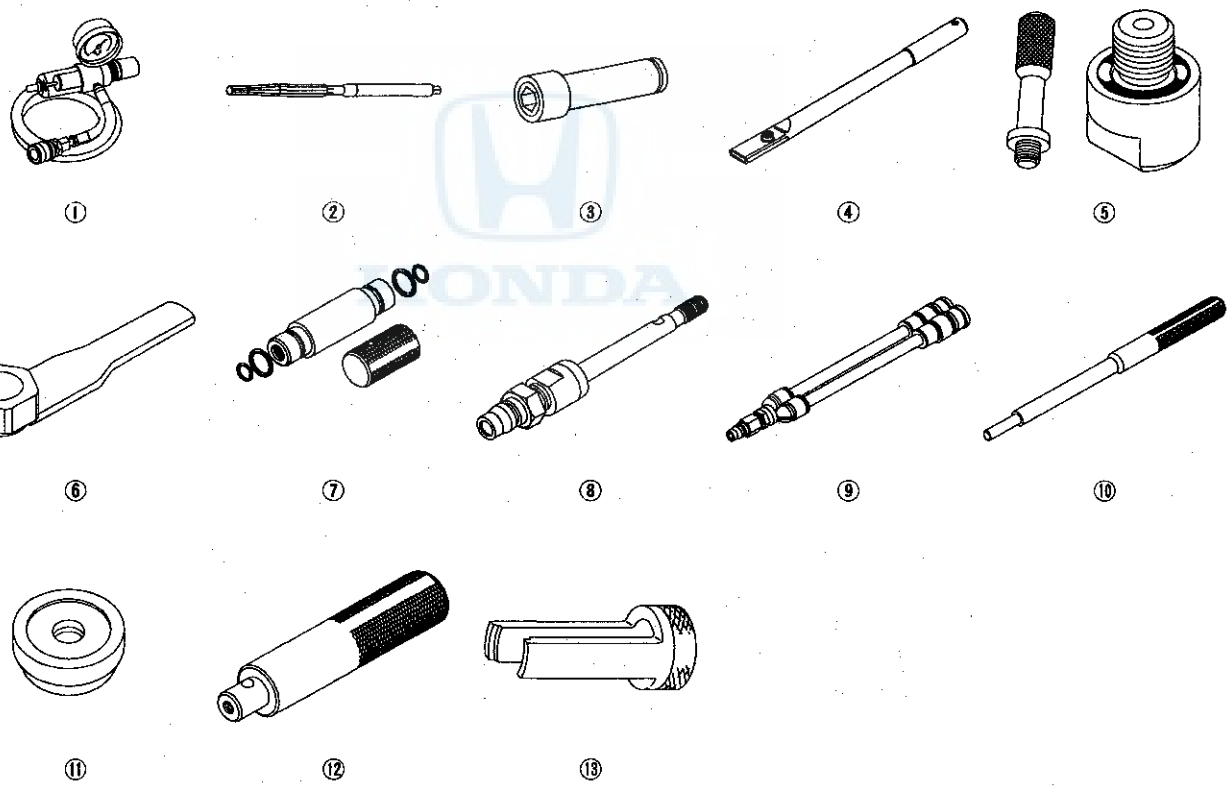
Engine Mechanical

Cylinder Head

Cylinder Head

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAJ-PNAA101	Air Pressure Regulator	1
②	07HAH-PJ7A100	Valve Guide Reamer, 5.5 mm	1
③	07JAA-001020A	Socket, 19 mm	1
④	07JAB-001020B	Holder Handle	1
⑤	07LAK-PR3A101	Gauge Joint Adapter	1
⑥	07NAB-001040A	Holder Attachment, 50 mm	1
⑦	07PAD-0010000	Stem Seal Driver	1
⑧	07ZAJ-PNAA101	VTEC Air Adapter	2
⑨	07ZAJ-PNAA300	Air Joint Adapter	1
⑩	07742-0010100	Valve Guide Driver, 5.5 mm	1
⑪	07746-0010400	Attachment, 52 x 55 mm	1
⑫	07749-0010000	Handle Driver	1
⑬	07757-PJ1010A	Valve Spring Compressor Attachment	1



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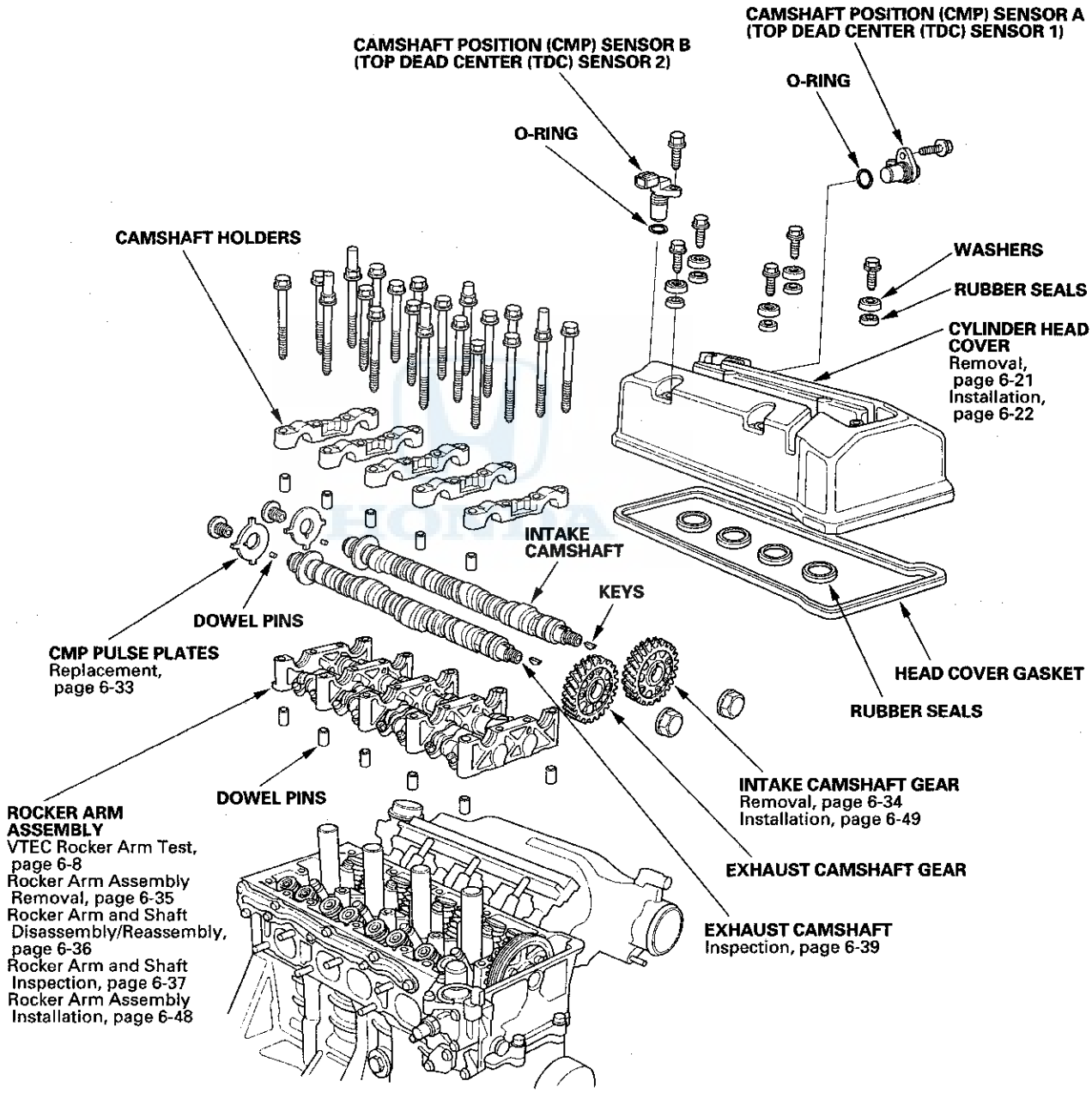
'00-05 models



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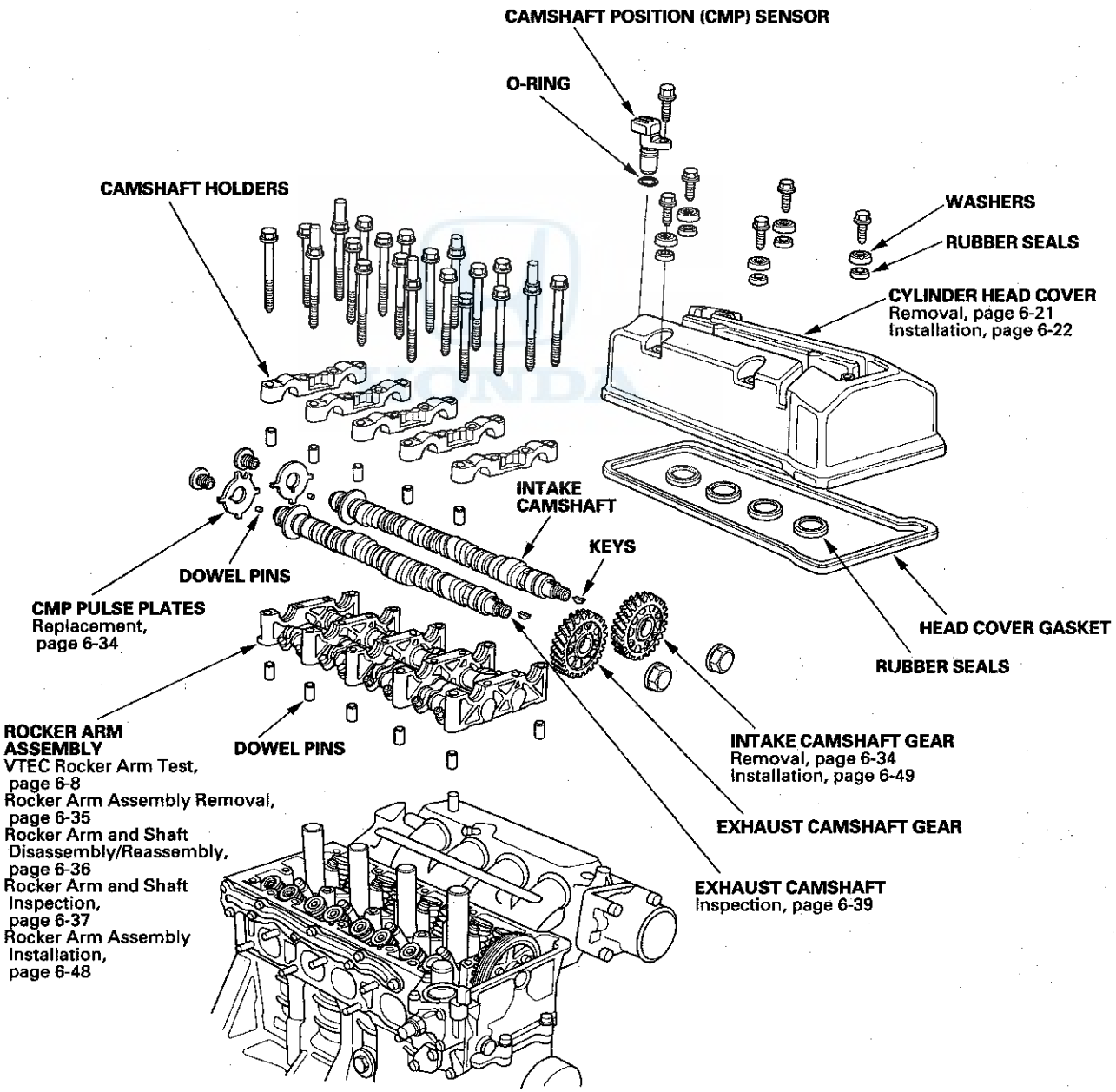
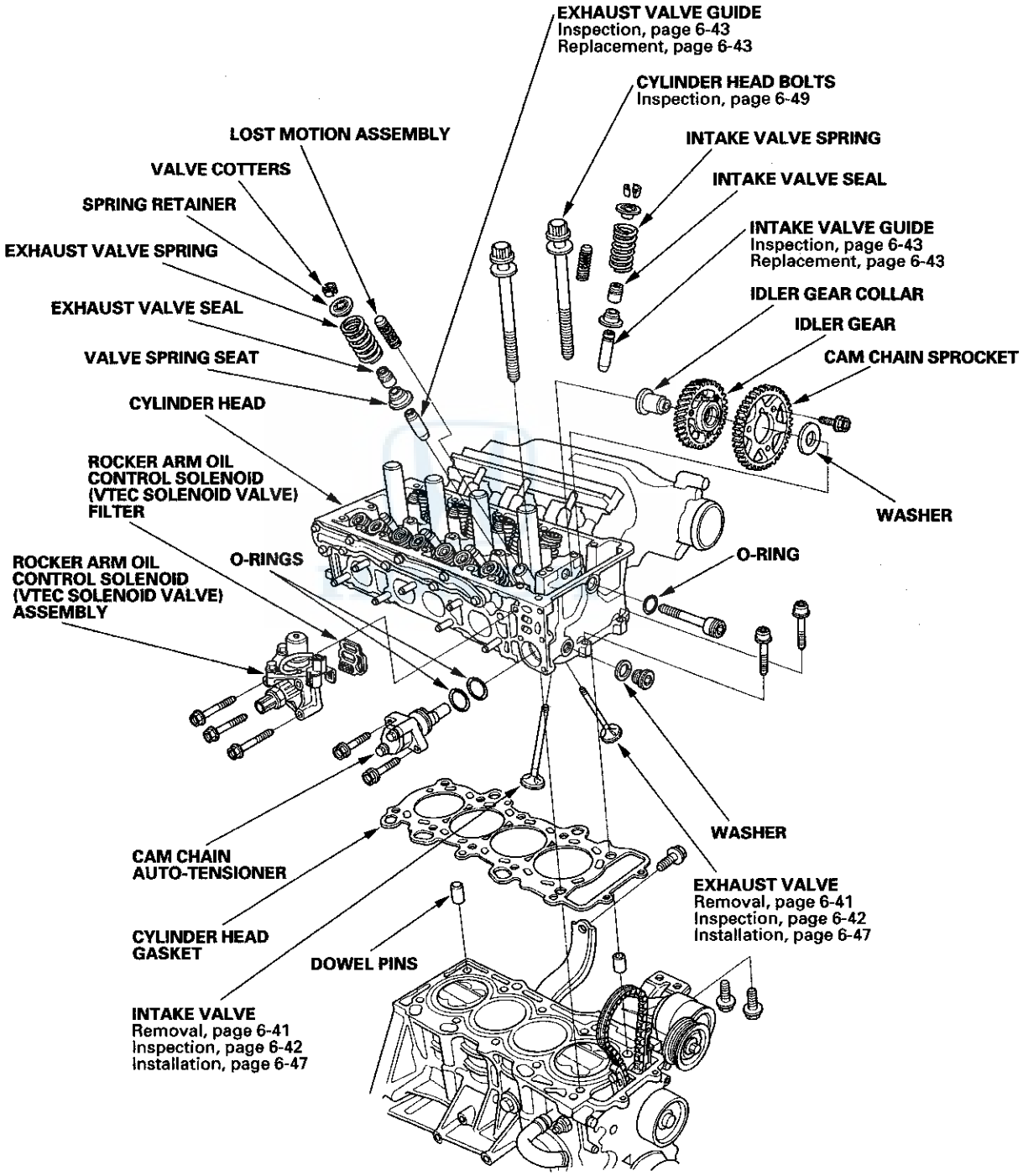
Cylinder Head

Component Location Index (cont'd)

'06-08 models

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EXHAUST VALVE SPRING
IDLER GEAR COLLAR
EXHAUST VALVE SEAL
IDLER GEAR
CAM CHAIN SPROCKET
VALVE SPRING SEAT
CYLINDER HEAD
WASHER
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) FILTER
O-RINGS
O-RING
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) ASSEMBLY
WASHER
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DOWEL PINS
INTAKE VALVE
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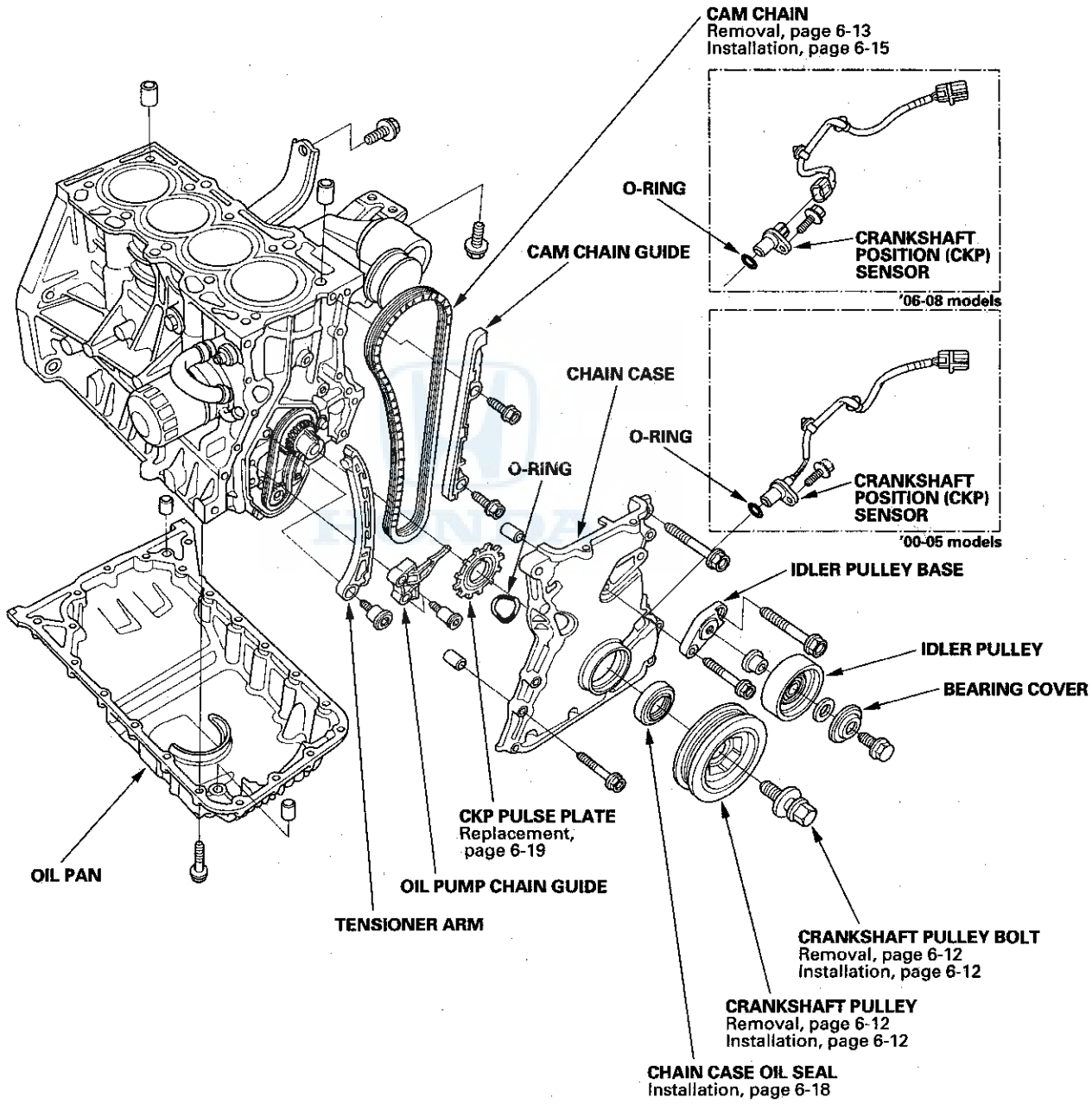
(cont'd)

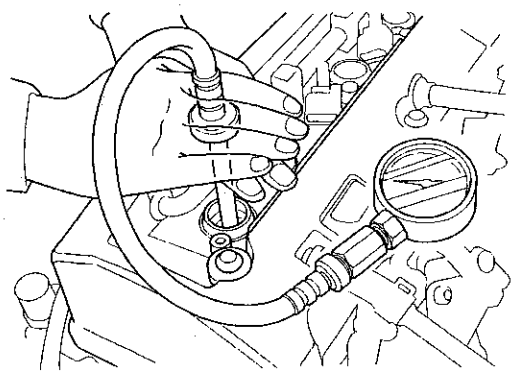
Component Location Index (cont'd)



Engine Compression Inspection

NOTE:
- '00-05 models: After the inspection, you must reset the engine control module (ECM) using the Honda Diagnostic System (HDS) (see page 11-3), to clear any diagnostic trouble codes (DTCs).
- '06-08 models: After the inspection, you must reset the ECM using the HDS (see page 11-214). Otherwise, the ECM continues to stop the fuel injectors.

1. Warm up the engine to normal operating temperature (cooling fan comes on).
2. '00-05 models: Remove the No. 2 (15 A) fuse from the under-dash fuse/relay box.
3. '06-08 models: Connect the HDS to the data link connector (DLC) (see step 2 on page 11-213).
4. Turn the ignition switch to ON (II).
5. '06-08 models: Make sure the HDS communicates with the vehicle and the ECM. If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).
6. '06-08 models: Select PGM-FI, INSPECTION, then ALL INJECTORS OFF on the HDS.
7. Turn the ignition switch to LOCK (0).
8. Remove the four ignition coils (see page 4-25).
9. Remove the four spark plugs.
10. Attach the compression gauge to the spark plug hole.



11. Open the throttle fully, then crank the engine with the starter motor and measure the compression.

    Compression Pressure:
    Above 930 kPa (9.5 kgf/cm, 135 psi)

12. Measure the compression on the remaining cylinders.

    Maximum Variation:
    Within 200 kPa (2.0 kgf/cm, 28 psi)

13. If the compression is not within specifications, check the following items, then remeasure the compression.

    - Damaged or worn valves and seats
    - Damaged cylinder head gasket
    - Damaged or worn piston rings
    - Damaged or worn piston and cylinder bore

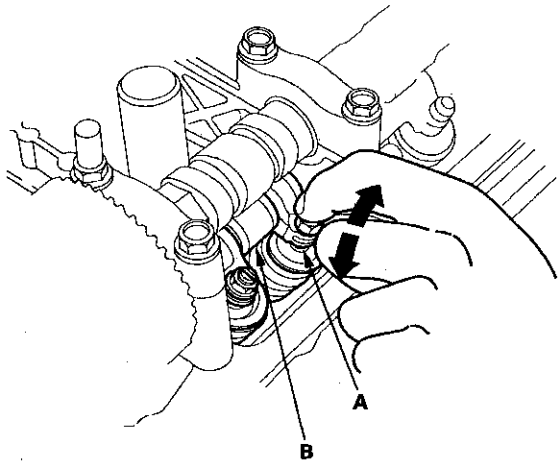
14. '00-05 models: Reinstall the No. 2 (15 A) fuse in the under-dash fuse/relay box.
15. '00-05 models: Select ECM reset on the HDS (see page 11-4).
16. '06-08 models: Select ECM reset (see page 11-214) to cancel the ALL INJECTOR OFF on the HDS.
17. Do the ECM idle learn procedure:

    - '00-05 models (see page 11-140)
    - '06-08 models (see page 11-462)

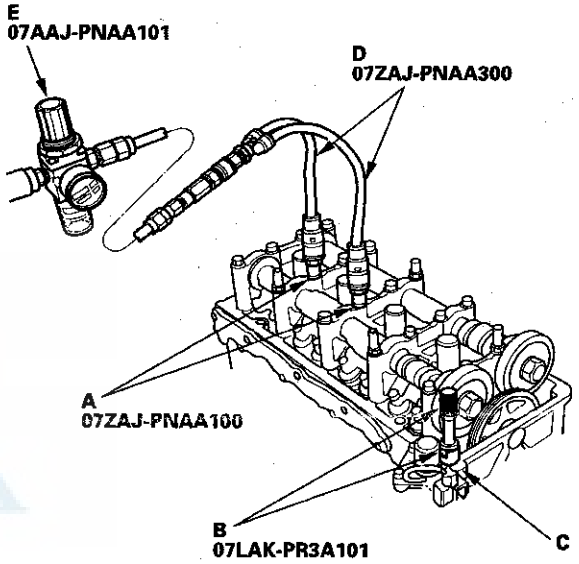
VTEC Rocker Arm Test

Special Tools Required
- Air pressure regulator 07AAJ-PNAA101
- Gauge joint adapter 07LAK-PR3A101
- VTEC air adapter (2) 07ZAJ-PNAA100
- Air joint adapter 07ZAJ-PNAA300

1. Start the engine and let it run for 5 minutes, then turn the ignition switch to LOCK (0).
2. Remove the cylinder head cover (see page 6-21).
3. Set the No. 1 piston at top dead center (TDC) (see step 2 on page 6-10).
4. Move the secondary rocker arm (A) for No. 1 cylinder. The secondary rocker arm should move independently of the mid rocker arm (B).
   - If the secondary rocker arm moves independently of the mid rocker arm, go to step 5.
   - If the secondary rocker arm does not move, remove the mid, primary, and secondary rocker arms as an assembly, and check that the pistons in the mid and primary rocker arms move smoothly. If any rocker arm needs replacing, replace the mid, primary, and secondary rocker arms as an assembly.



5. Repeat step 4 on the remaining rocker arms with each piston at TDC. When all the secondary rocker arms pass the test, go to step 6.
6. Check that the air pressure on the shop air compressor gauge indicator is over 400 kPa (4 kgf/cm², 57 psi).
7. Inspect the valve clearance (see page 6-10).
8. Remove the No. 3 and No. 4 camshaft holder bolts, and install the VTEC air adapters (A) finger-tight.



9. Install the gauge joint adapter (B) to the inspection hole (C).
10. Connect the air joint adapter (D) to the VTEC air adapters.
11. Connect the air pressure regulator (E) to the air joint adapter.

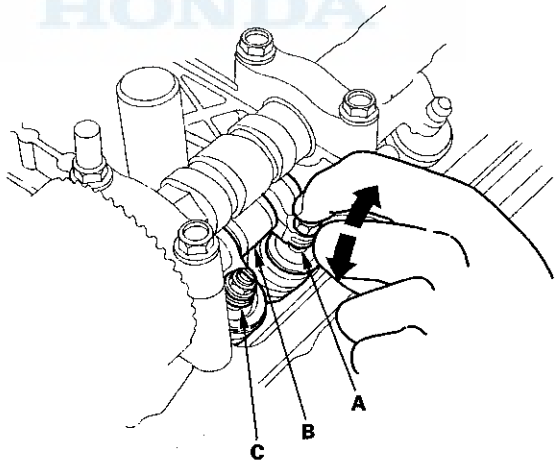
12. Loosen the valve on the regulator, then apply the specified air pressure.

    Specified Air Pressure:
    290 kPa (3.0 kgf/cm², 42 psi)

    NOTE: If the rocker arm piston does not move after applying air pressure, move the primary and secondary rocker arms up and down manually by rotating the crankshaft clockwise.

13. With the specified air pressure applied and the piston at TDC, move the secondary rocker arm (A). The mid rocker arm (B), the primary rocker arm (C), and secondary rocker arm should move together.

    - If the three rocker arms move together, go to step 14.
    - If the three rocker arms do not move together, remove the mid, primary, and secondary rocker arms an assembly, and check that the pistons in the mid and primary rocker arms move smoothly. If rocker arm needs replacing, replace the mid, primary, and secondary rocker arms as an assembly.



14. Repeat step 13 on the remaining rocker arms with each piston at TDC. When all the rocker arms pass the test, go to step 15.

15. Remove the special tools.

16. Tighten the camshaft holder bolts to 22 N·m (2.2 kgf·m, 16 lbf·ft).

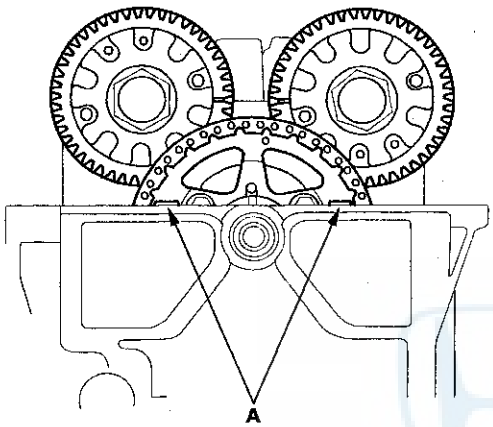
17. Install the cylinder head cover (see page 6-22).

Valve Clearance Adjustment

NOTE: Adjust the valves only when the cylinder head temperature is less than 100 °F (38 °C).

1. Remove the cylinder head cover (see page 6-21).

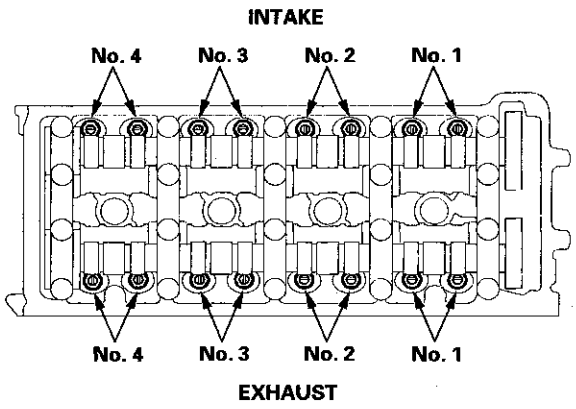
2. Set the No. 1 piston at top dead center (TDC). The TDC marks (A) on the cam chain sprocket should align with the cylinder head surface.



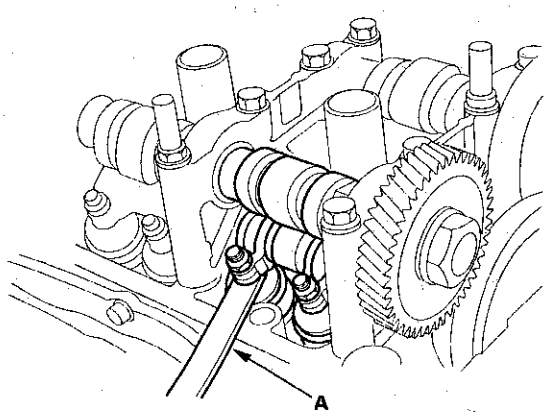
3. Select the correct thickness feeler gauge for the valves you're going to check.

Intake: 0.21—0.25 mm (0.008—0.010 in.)
Exhaust: 0.25—0.29 mm (0.010—0.011 in.)

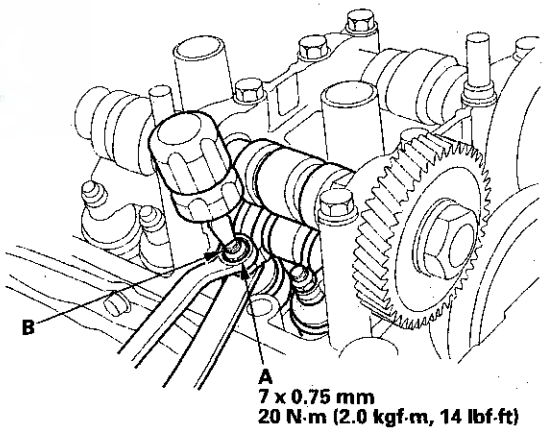
Adjusting Screw Location:



4. Insert the feeler gauge (A) between the adjusting screw and the end of the valve stem and slide it back and forth; you should feel a slight amount of drag.

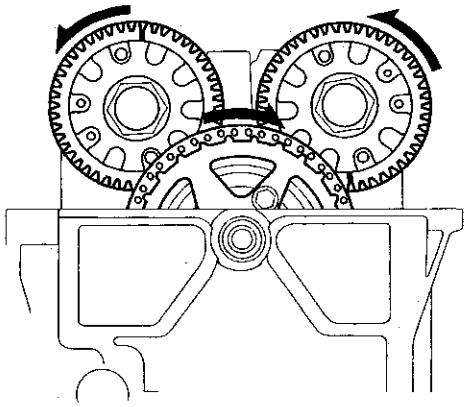


5. If you feel too much or too little drag, loosen the locknut (A), and turn the adjusting screw (B) until the drag on the feeler gauge is correct.



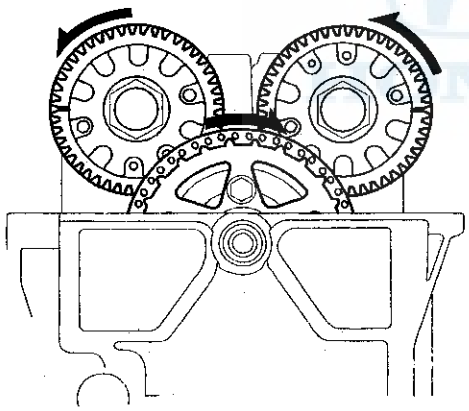
6. Tighten the locknut and recheck the clearance. Repeat the adjustment, if necessary.

7. Rotate the crankshaft 180 ° clockwise (camshaft gears turn 90 °).



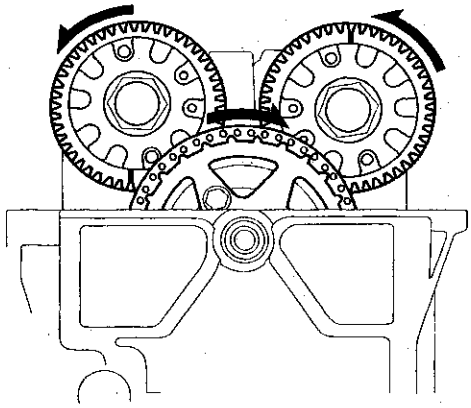
8. Check and, if necessary, adjust the valve clearance on No. 3 cylinder.

9. Rotate the crankshaft 180 ° clockwise (camshaft gears turn 90 °).



10. Check and, if necessary, adjust the valve clearance on No. 4 cylinder.

11. Rotate the crankshaft 180 ° clockwise (camshaft gears turn 90 °).



12. Check and, if necessary, adjust the valve clearance on No. 2 cylinder.

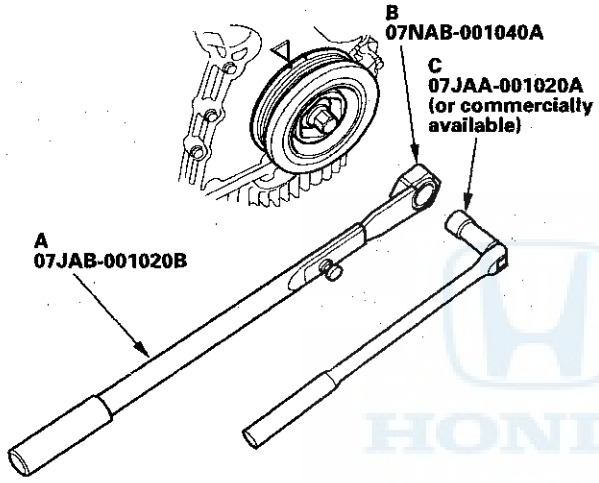
13. Install the cylinder head cover (see page 6-22).

Crankshaft Pulley Removal and Installation

Special Tools Required
- Socket, 19 mm 07JAA-001020A
  or a commercially available 19 mm socket
- Holder handle 07JAB-001020B
- Holder attachment, 50 mm 07NAB-001040A

Removal

1. Hold the pulley with holder handle (A) and holder attachment (B).

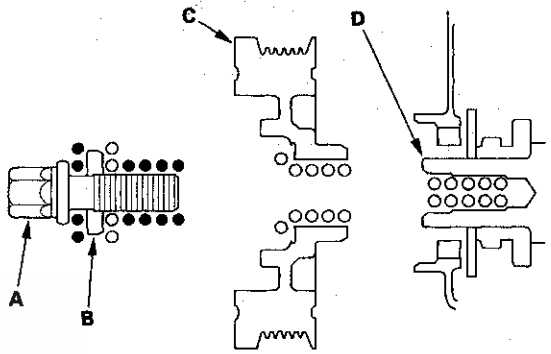


2. Remove the bolt with a heavy duty 19 mm socket (C) and breaker bar.

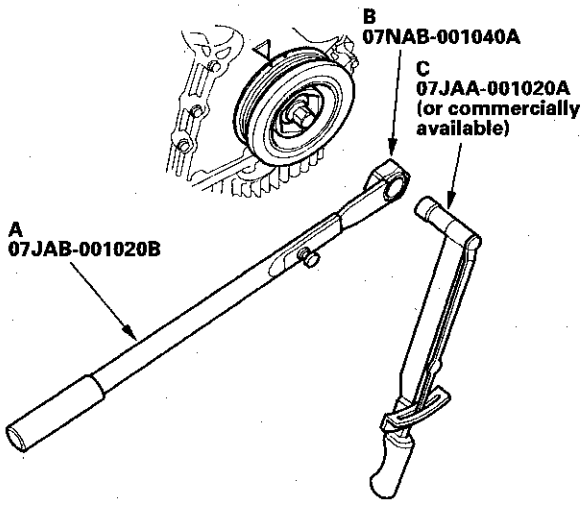
Installation

1. Clean the bolt (A), washer (B), pulley (C), and crankshaft (D). Lubricate with new engine oil as shown.

○: Clean
●: Lubricate with new engine oil



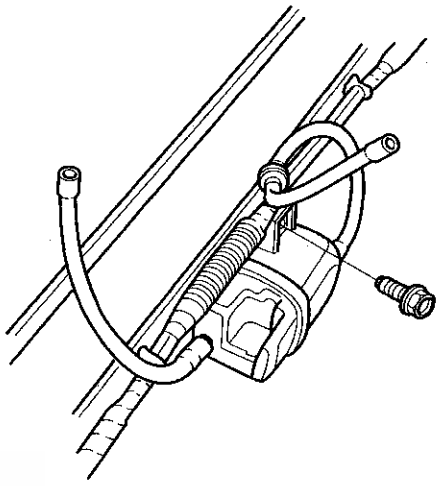
2. Install the crankshaft pulley, and tighten the bolt to 260 N·m (26.5 kgf·m, 192 lbf·ft). Do not use an impact wrench.
   1. Hold the pulley with the holder handle (A) and holder attachment (B).
   2. Tighten the bolt with a torque wrench and heavy duty 19 mm socket (C).



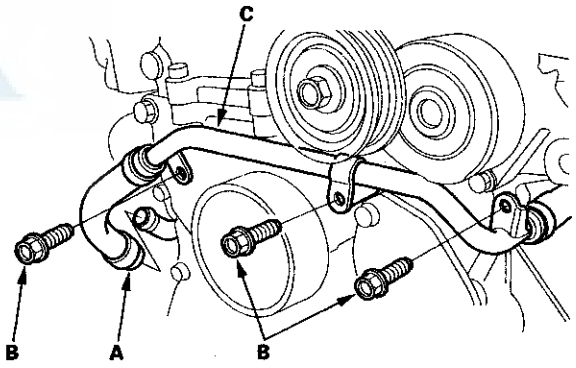
Cam Chain Removal

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wires and terminals, unplug the wiring connectors carefully while holding the connector portion.
- To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 100 °F (38 °C) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.
- Keep the cam chain away from magnetic field.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Relieve the fuel pressure:
   - '00-05 models (see page 11-145)
   - '06-08 models (see page 11-474)
3. Disconnect the negative cable from the battery.
4. Drain the engine coolant (see page 10-9).
5. Drain the engine oil (see page 8-6).
6. Loosen the water pump pulley bolts.
7. Remove the drive belt (see page 4-42).
8. Remove the cylinder head (see page 6-25).
9. '00-05 models: Remove the vacuum tank.



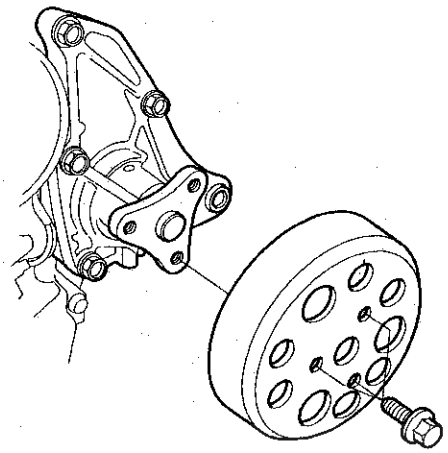
10. Remove the water bypass hose (A), then remove the three bolts (B) securing the water bypass tube (C).



(cont'd)

Cam Chain Removal (cont'd)

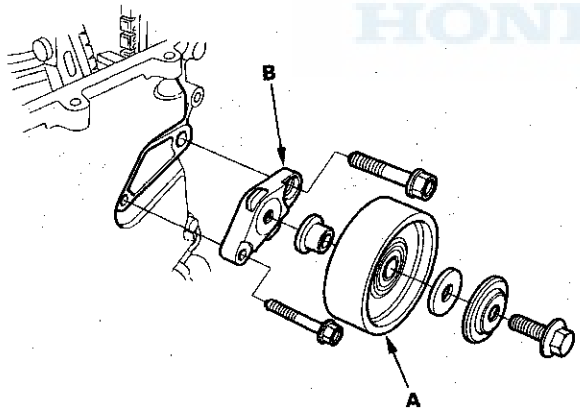
11. Remove the water pump pulley.



12. Remove the auto-tensioner (see page 4-44).

13. Remove the alternator (see page 4-45).

14. Remove the idler pulley (A), then remove the idler pulley base (B).

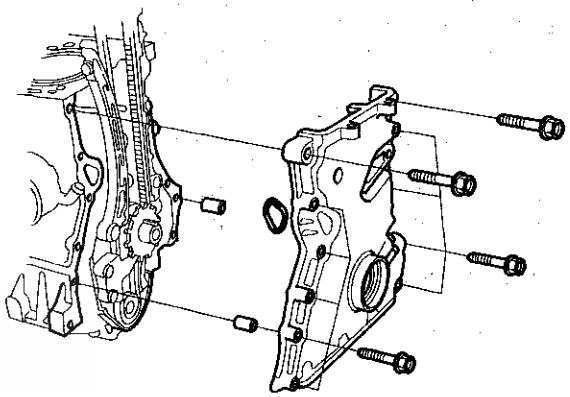


15. Remove the oil pan (see page 7-10).

16. Remove the crankshaft pulley (see page 6-12).

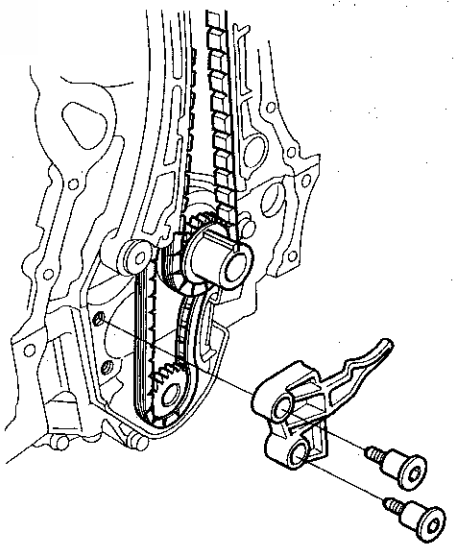
17. Remove the crankshaft position (CKP) sensor.

18. Remove the chain case.



19. Remove the CKP pulse plate (see page 6-19).

20. Remove the oil pump chain guide.

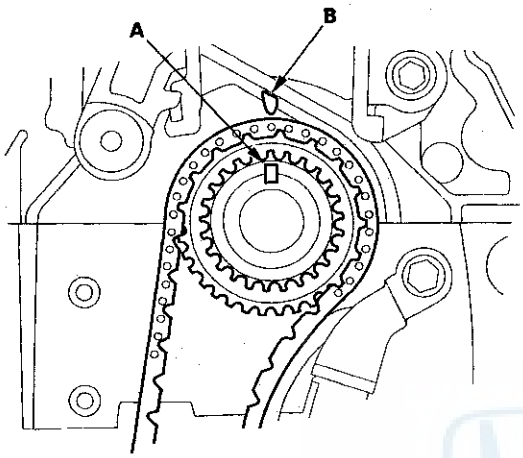


21. Remove the cam chain.

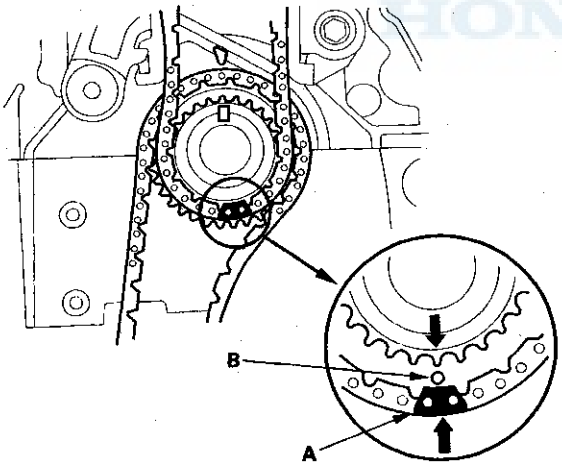
Cam Chain Installation

NOTE: Keep the cam chain away from magnetic field.

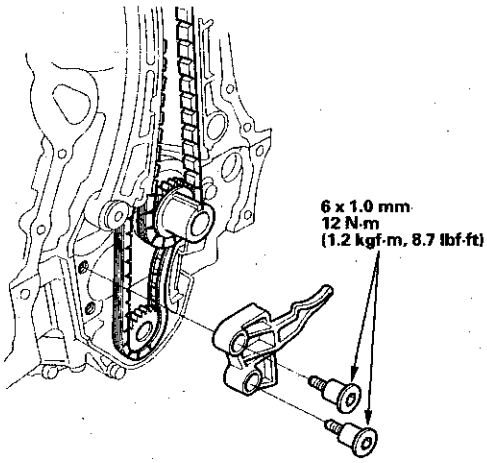
1. Set the crankshaft sprocket so that the No. 1 piston is at top dead center (TDC). Align the key (A) on the sprocket and crankshaft with the pointer (B) on the engine block.



2. Install the cam chain with the colored piece (A) aligned with the punch mark (B) on the crankshaft sprocket.



3. Install the oil pump chain guide.



4. Install the CKP pulse plate (see page 6-19).

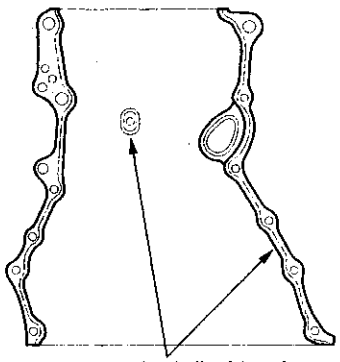
5. Check the chain case oil seal for damage. If the oil seal is damaged, replace the chain case oil seal (see page 6-18).

6. Remove any old liquid gasket from the chain case mating surfaces, bolts, and bolt holes.

7. Clean and dry the chain case mating surfaces.

8. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the chain case.

   NOTE: Do not install the parts if 5 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing the old residue.



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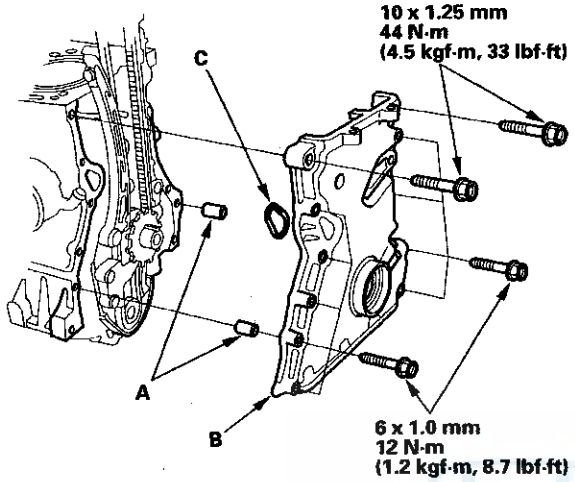
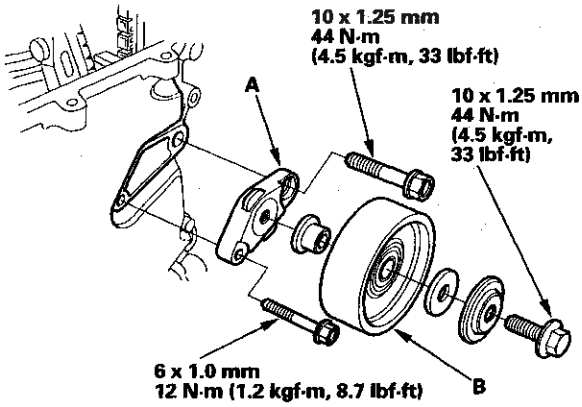
Cam Chain Installation (cont'd)

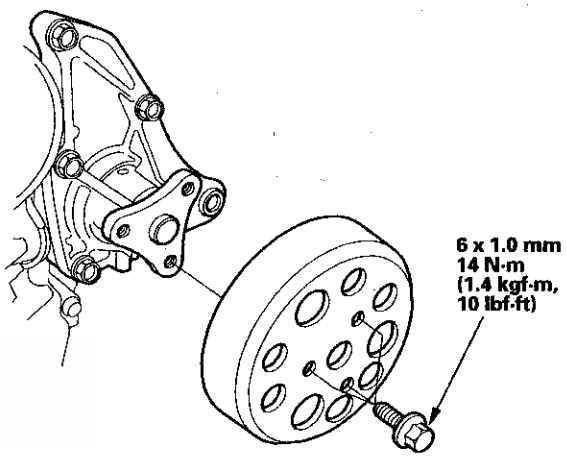
9. Install the dowel pins (A) and chain case (B) using a new O-ring (C).



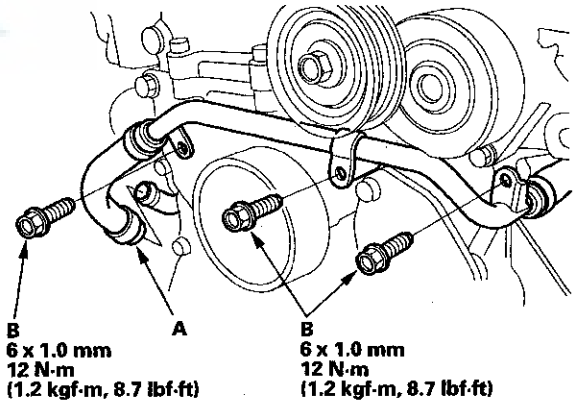
10. Install the crankshaft position (CKP) sensor.
11. Install the crankshaft pulley (see page 6-12).
12. Install the oil pan (see page 7-25).
13. Install the idler pulley base (A), then install the idler pulley (B).



14. Install the alternator (see page 4-46).
15. Install the auto-tensioner (see page 4-44).
16. Install the water pump pulley.

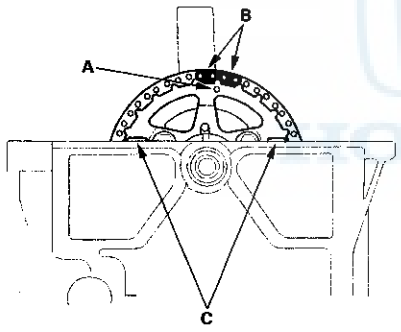


17. Install the water bypass hose (A), and tighten the three bolts (B) securing the water bypass tube.



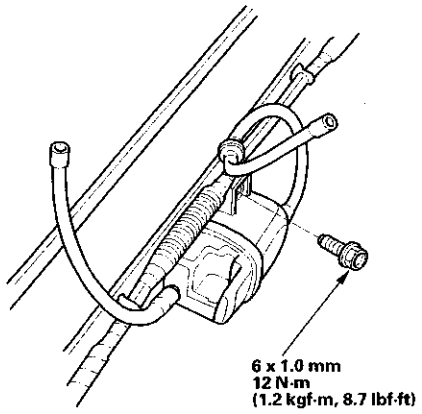
18. Install the cylinder head (see page 6-49) using the following process by installing the cam chain sprocket assembly.

    -1 Make sure the crankshaft pulley is at TDC.
    -2 Place the idler gear/cam chain sprocket assembly and idler gear collar into the cylinder head.
    -3 Install the cam chain on the sprocket with the one punch mark (A) aligned with the center of the two colored pieces (B).
    -4 Fit the cam chain sprocket assembly into the cylinder head.
    -5 Turn the cam chain sprocket assembly counterclockwise to relieve cam chain free play, and check the alignment of the TDC mark (C) on the cam chain sprocket with the cylinder head surface. If the cam chain sprocket is not positioned at TDC, remove the assembly from the cylinder head and reposition the cam chain to bring the cam chain sprocket to TDC.



19. Install the drive belt (see page 4-42).

20. Install the vacuum tank.



21. After installation, check that all tubes, hoses, and connectors are installed correctly.

22. After assembly, wait at least 30 minutes before filling the engine with oil.

23. Connect the negative cable to the battery.

24. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so that the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.

25. Refill the engine with engine oil (see page 8-6).

26. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 7 on page 10-9).

27. '00-05 models: Do the engine control module (ECM) idle learn procedure (see page 11-140).

28. '06-08 models: Do the CKP pattern clear/CKP pattern learn procedure (see page 11-214).

29. Inspect the idle speed:

    • '00-05 models (see page 11-140)
    • '06-08 models (see page 11-461)

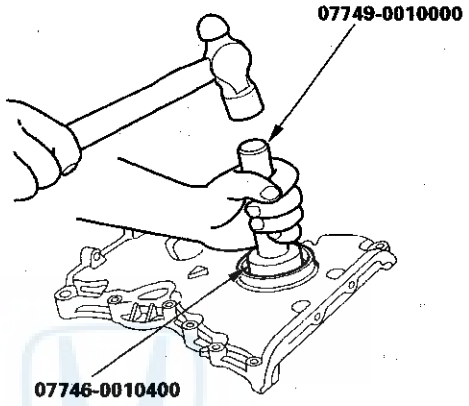
30. Inspect the ignition timing (see page 4-24).

31. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Chain Case Oil Seal Installation

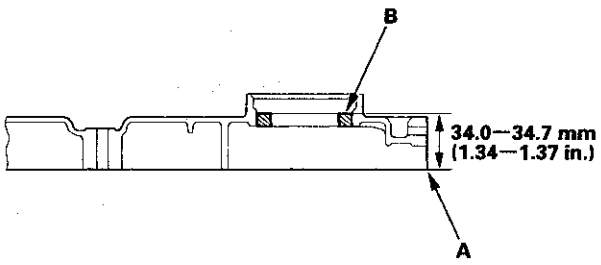
Special Tools Required
- Attachment, 52 x 55 mm 07746-0010400
- Handle driver 07749-0010000

1. Use the handle driver and attachment to drive a new oil seal squarely into the chain case to the specified installed height.



2. Measure the distance between the chain case surface (A) and the oil seal (B).

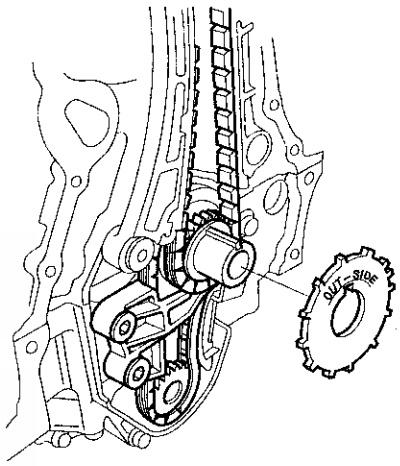
Oil Seal Installed Height:
34.0—34.7 mm (1.34—1.37 in.)



CKP Pulse Plate Replacement

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wires and terminals, unplug the wiring connectors carefully while holding the connector portion.
- To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 100 °F (38 °C) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.
- Keep the cam chain away from magnetic fields.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Relieve the fuel pressure:
   - '00-05 models (see page 11-145)
   - '06-08 models (see page 11-474)
3. Disconnect the negative cable from the battery.
4. Drain the engine coolant (see page 10-9).
5. Drain the engine oil (see page 8-6).
6. Loosen the water pump pulley bolts.
7. Remove the drive belt (see page 4-42).
8. Remove the cylinder head (see page 6-25).
9. '00-05 models: Remove the vacuum tank (see step 9 on page 6-13).
10. Remove the water bypass hose, then remove the three bolts securing the water bypass tube (see step 10 on page 6-13).
11. Remove the water pump pulley (see step 11 on page 6-14).
12. Remove the auto-tensioner (see page 4-44).
13. Remove the alternator (see page 4-45).
14. Remove the idler pulley, then remove the idler pulley base (see step 14 on page 6-14).
15. Remove the oil pan (see page 7-10).
16. Remove the crankshaft pulley (see page 6-12).
17. Remove the crankshaft position (CKP) sensor.
18. Remove the chain case.
19. Remove the CKP pulse plate.



20. Install the CKP pulse plate.
21. Check the chain case oil seal for damage. If the oil seal is damaged, replace the chain case oil seal (see page 6-18).
22. Remove any old liquid gasket from the chain case mating surfaces, bolt, and bolt holes.
23. Clean and dry the chain case mating surfaces.
24. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the cylinder block mating surface of the chain case (see page 6-15).

    NOTE: Do not install the parts if 5 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing the old residue.

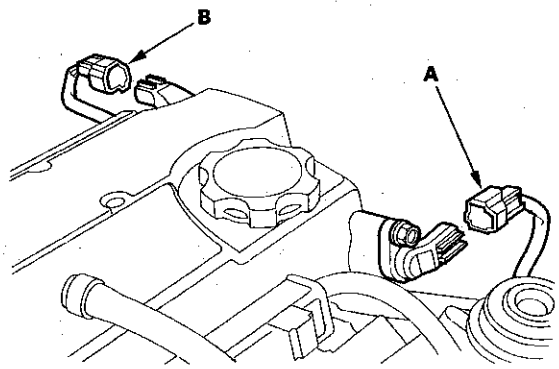
(cont'd)

CKP Pulse Plate Replacement (cont'd)

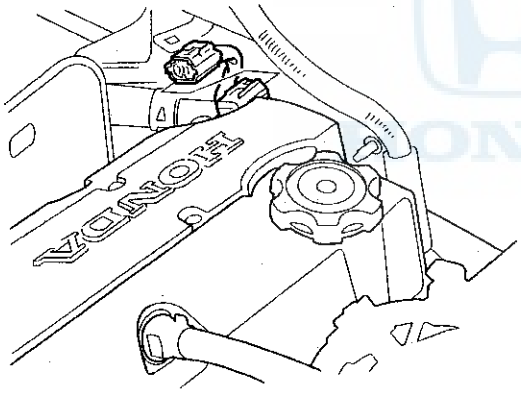
25. Install the dowel pins and chain case using a new O-ring (see step 9 on page 6-16).
26. Install the crankshaft pulley (see page 6-12).
27. Install the CKP sensor.
28. Install the oil pan (see page 7-25).
29. Install the idler pulley base, then install the idler pulley (see step 13 on page 6-16).
30. Install the alternator (see page 4-46).
31. Install the auto-tensioner (see page 4-44).
32. Install the water pump pulley (see step 16 on page 6-16).
33. Install the water bypass hose, and tighten the three bolts securing the water bypass tube (see step 17 on page 6-16).
34. Install the cylinder head (see page 6-49).
35. Install the drive belt (see page 4-42).
36. Install the vacuum tank (see step 20 on page 6-17).
37. After installation, check that all tubes, hose, and connectors are installed correctly.
38. After assembly, wait at least 30 minutes before filling the engine with oil (see page 8-6).
39. Connect the negative cable to the battery.
40. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so that the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
41. Refill the engine with engine oil (see page 8-6).
42. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 7 on page 10-9).
43. '00-05 models: Do the engine control module (ECM) idle learn procedure (see page 11-140).
44. '06-08 models: Do the CKP pattern clear/CKP pattern learn procedure (see page 11-214).
45. Inspect the idle speed:
    - '00-05 models (see page 11-140)
    - '06-08 models (see page 11-461)
46. Inspect the ignition timing (see page 4-24).
47. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Cylinder Head Cover Removal

1. '00-05 models: Disconnect the camshaft position (CMP) sensor A (top dead center (TDC) sensor 1) connector and CMP sensor B (TDC sensor 2) connector.

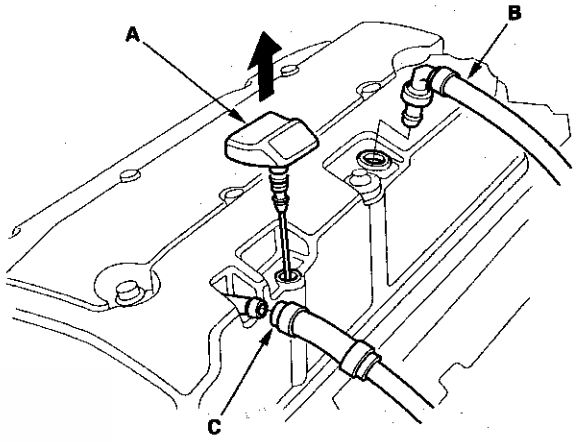


2. '06-08 models: Disconnect the camshaft position (CMP) sensor connector.

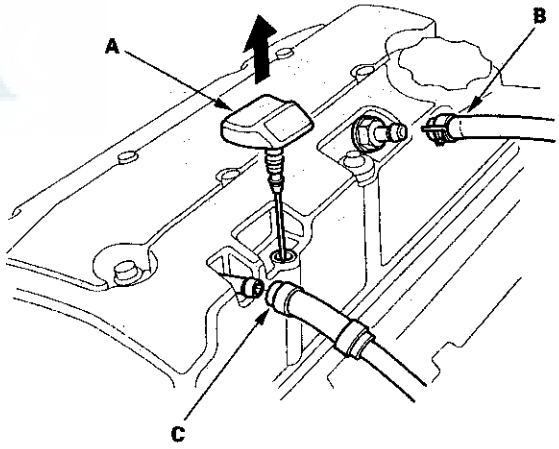


3. Remove the dipstick (A), positive crankcase ventilation (PCV) hose (B), and breather hose (C).

'00-03 models



'04-08 models



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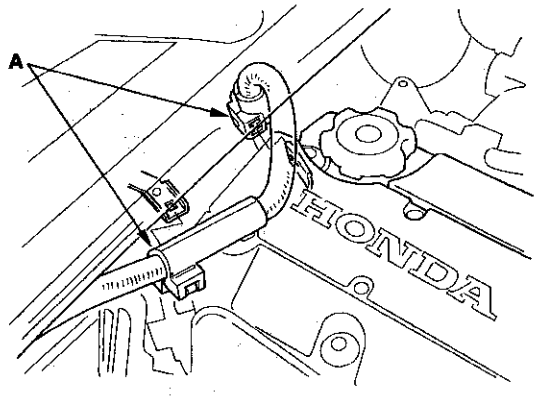
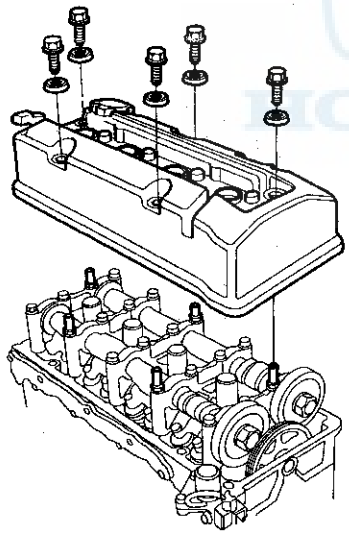
Cylinder Head Cover Removal (cont'd)

4. Remove the harness clamps (A).



5. Remove the ignition coil (see page 4-25).

6. Remove the cylinder head cover.



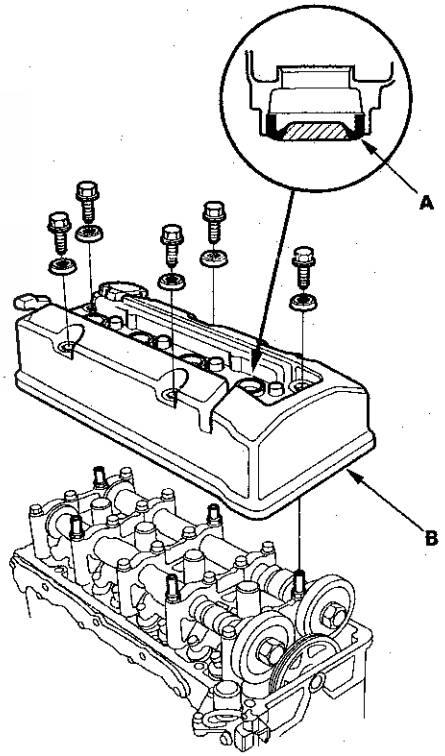
Cylinder Head Cover Installation

1. Thoroughly clean the head cover gasket and the groove.

2. Install the head cover gasket in the groove of the cylinder head cover.

3. Set the spark plug seal (A) on the spark plug tube. Install the cylinder head cover (B) on the cylinder head.

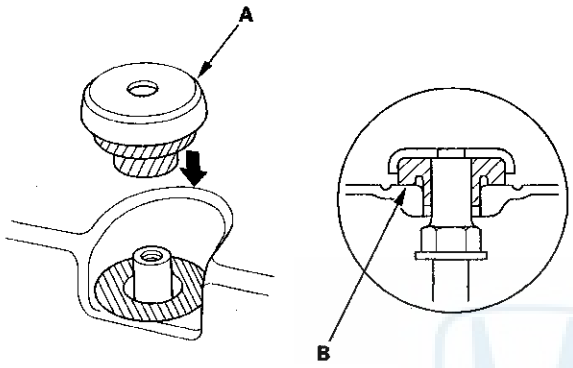
NOTE:
- Take care not to damage the spark plug seals when installing the cylinder head cover.
- Visually inspect the spark plug seals for damage.



4. Inspect the cylinder head cover washers. Replace any washers and rubber seals that are damaged or deteriorated.

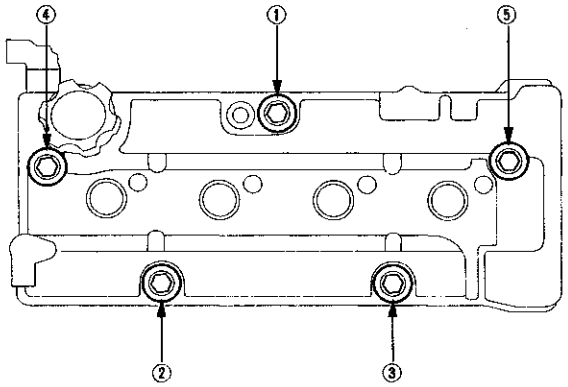
5. Clean the washer mating surfaces of the cylinder head cover.

6. Install the head cover washers (A).



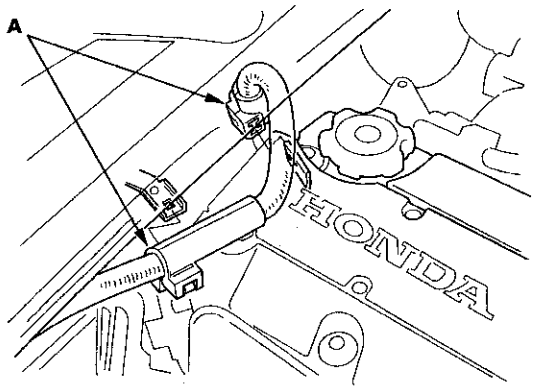
7. Make sure the rubber seals (B) are securely seated on the cylinder head cover.

8. Tighten the bolts in three steps. In the final step, tighten all bolts, in sequence, to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).



9. Install the ignition coil (see page 4-25).

10. Install the harness clamps (A).



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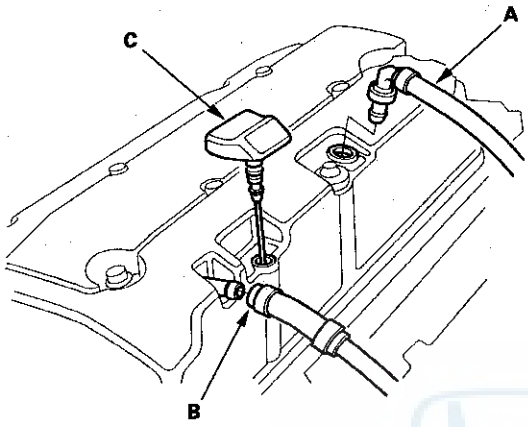
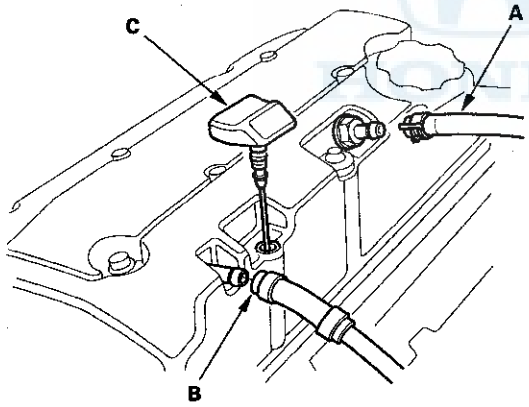
Cylinder Head Cover Installation (cont'd)

11. Install the positive crankcase ventilation (PCV) hose (A) and breather hose (B), then insert the dipstick (C).

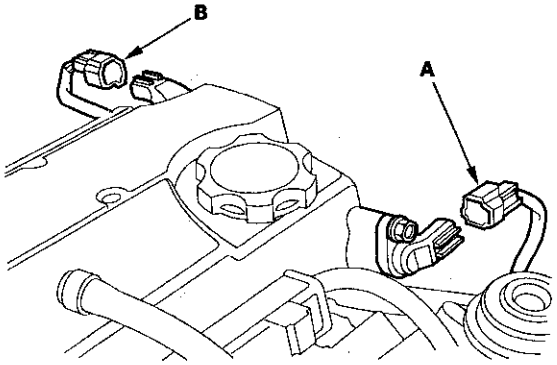
'00-03 models



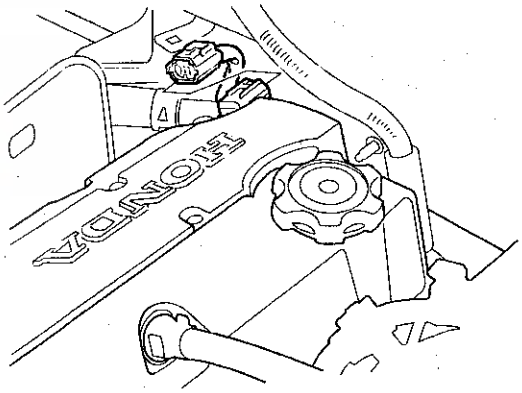
'04-08 models



12. '00-05 models: Connect the camshaft position (CMP) sensor A (top dead center (TDC) sensor 1) connector and CMP sensor B (TDC sensor 2) connector.



13. '06-08 models: Connect the camshaft position (CMP) sensor connector.



Cylinder Head Removal

NOTE:
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wires and terminals, unplug the wiring connectors carefully while holding the connector portion.
- To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 100 °F (38 °C) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

2. Relieve the fuel pressure:

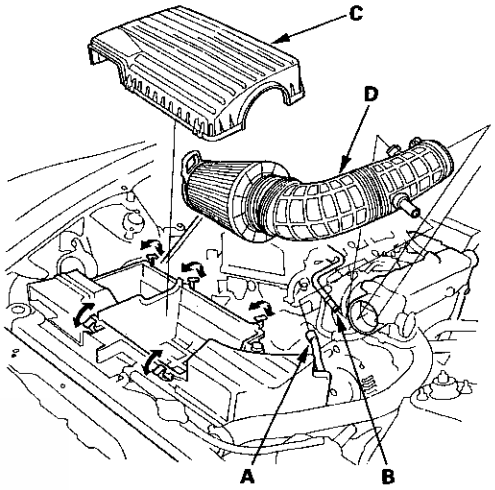
   - '00-05 models (see page 11-145)
   - '06-08 models (see page 11-474)

3. Disconnect the negative cable from the battery.

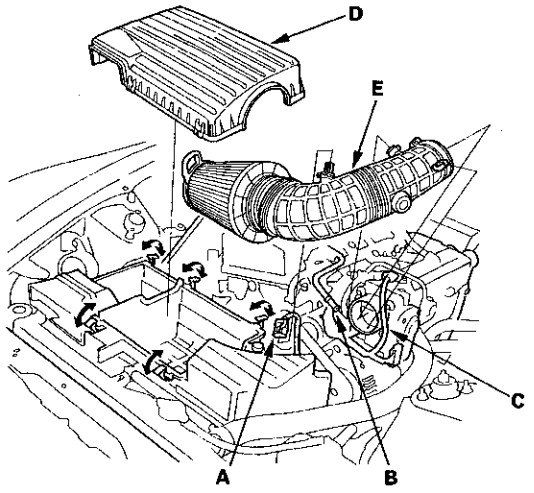
4. Drain the engine coolant (see page 10-9).

5. Drain the engine oil (see page 8-6).

6. '00-05 models: Disconnect the air hose (A) and breather pipe (B), then remove the air cleaner housing cover (C) and air cleaner assembly (D).



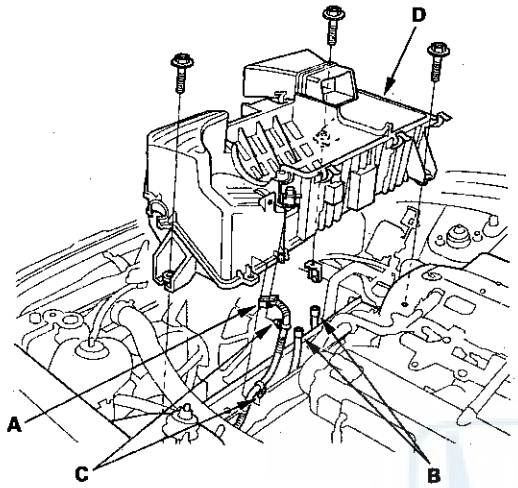
7. '06-08 models: Disconnect the intake air temperature (IAT) sensor connector (A) and breather pipe (B), remove the manifold absolute pressure (MAP) sensor harness (C) from the holder, then remove the air cleaner housing cover (D) and air cleaner assembly (E).



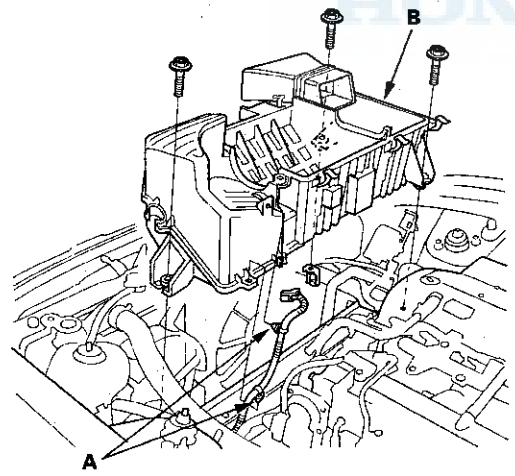
(cont'd)

Cylinder Head Removal (cont'd)

8. '00-05 models: Disconnect the air control solenoid valve connector (A) and vacuum hoses (B), remove the harness clamps (C), then remove the intake air cleaner housing (D).



9. '06-08 models: Remove the IAT sensor harness clamps (A), the remove the intake air cleaner housing (B).

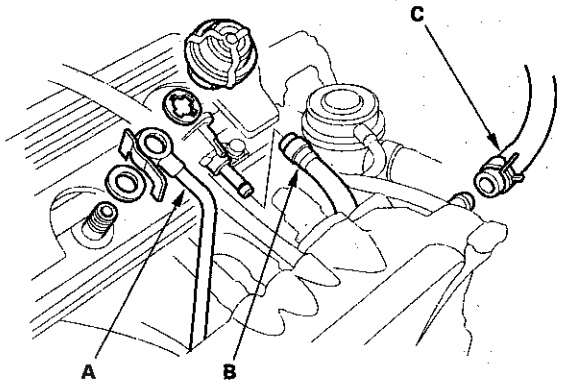


10. Remove the drive belt (see page 4-42).

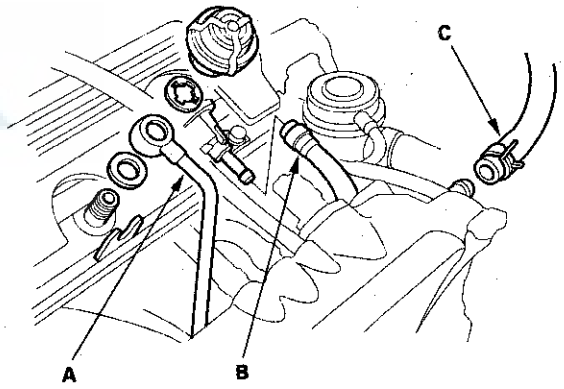
11. '00-05 models: Remove the throttle cable (see step 13 on page 5-4).

12. '00-05 models: Remove the fuel feed hose (A), fuel return hose (B), and brake booster vacuum hose (C).

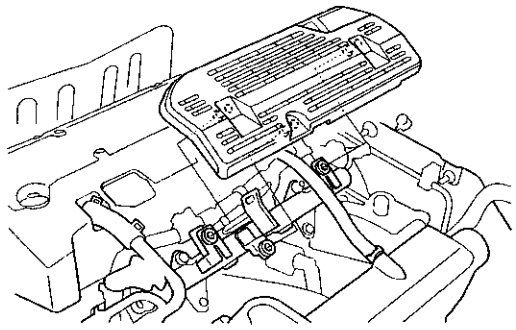
'00-03 models



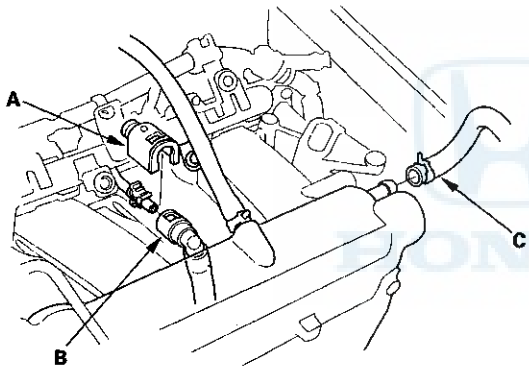
'04-05 models



13. '06-08 models: Remove the intake manifold cover.

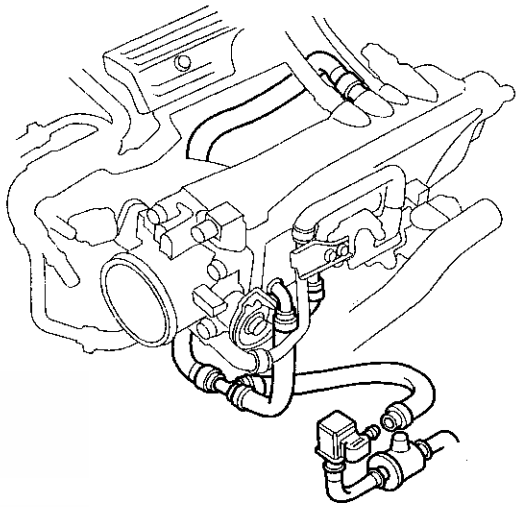


14. '06-08 models: Remove the quick-connect fitting cover (A), then disconnect the fuel feed hose (B) and brake booster vacuum hose (C).

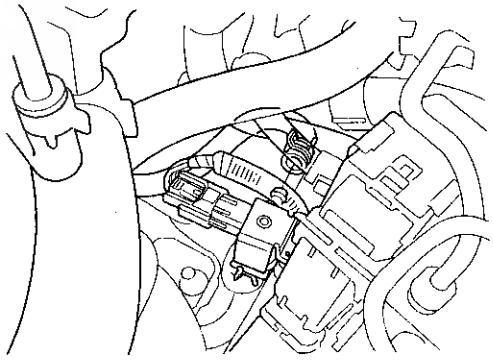


15. Disconnect the evaporative emission (EVAP) canister hose.

'00-05 models



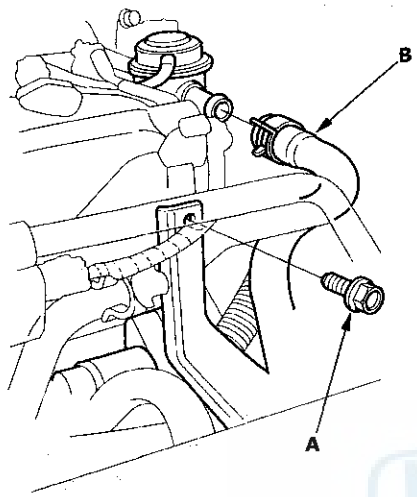
'06-08 models



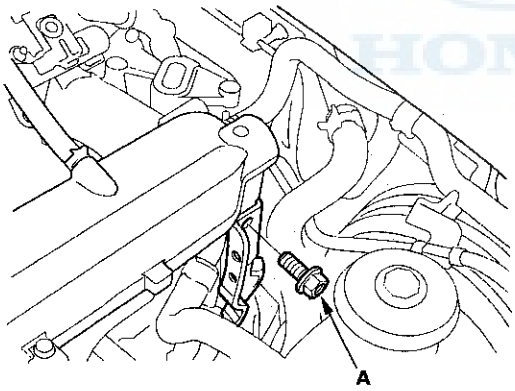
(cont'd)

Cylinder Head Removal (cont'd)

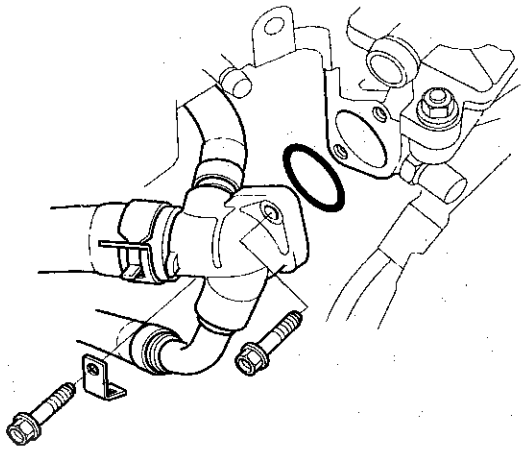
16. '00-05 models: Remove the bolt (A) securing the intake manifold bracket, and remove the air hose (B).



17. '06-08 models: Remove the bolt (A) securing the intake manifold bracket.



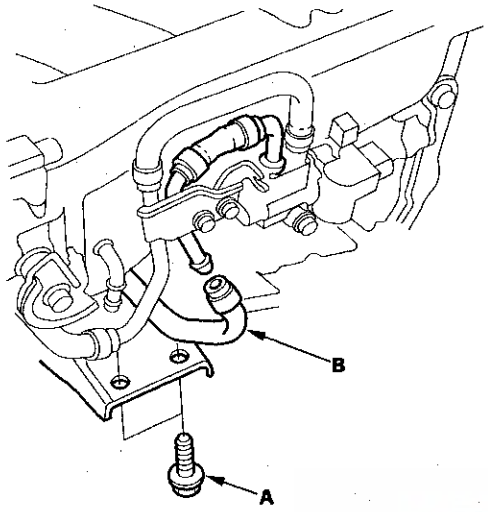
18. Remove the water outlet cover.



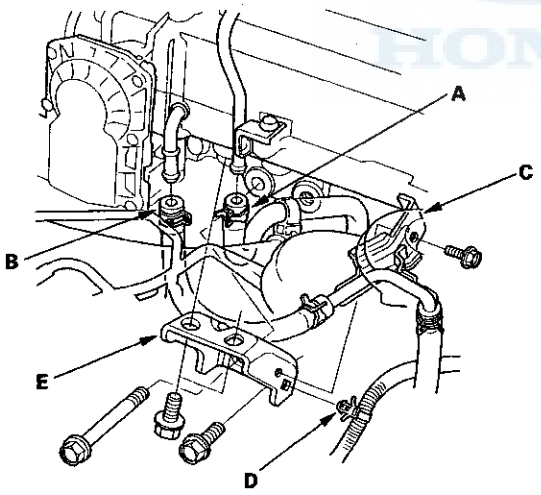
19. Remove the following engine wire harness connectors and wire harness clamps from the cylinder head and intake manifold:

- Four fuel injector connectors
- Intake air temperature (IAT) sensor connector ('00-05 models)
- Idle air control (IAC) valve connector ('00-05 models)
- Throttle position (TP) sensor connector ('00-05 models)
- Throttle body connector ('06-08 models)
- Manifold absolute pressure (MAP) sensor connector
- Primary heated oxygen sensor (primary HO2S) connector ('00-05 models)
- A/F sensor connector ('06-08 models)
- Engine coolant temperature (ECT) sensor connector ('00-05 models)
- Engine coolant temperature (ECT) sensor 1 connector ('06-08 models)
- Rocker arm oil control solenoid (VTEC solenoid valve) connector
- Rocker arm oil pressure switch (VTEC oil pressure switch) connector
- Crankshaft position (CKP) sensor connector

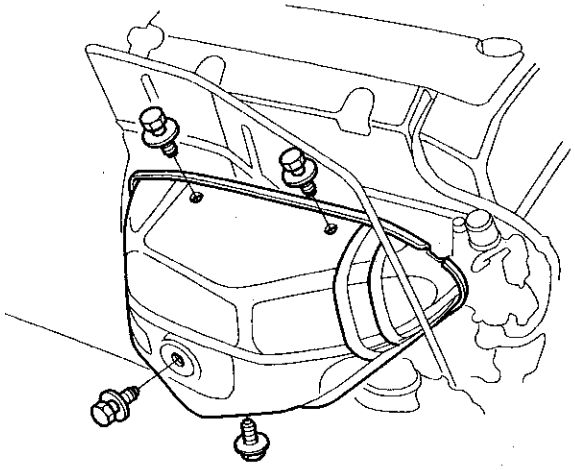
20. '00-05 models: Remove two bolts (A) securing the intake manifold bracket, and remove the water bypass hose (B).



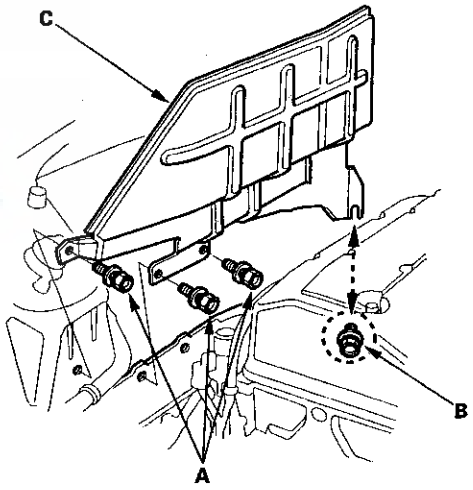
21. '06-08 models: Remove the water bypass hose (A), remove the EVAP hose (B) and its bracket (C), remove wire harness clamp (D), then remove the intake manifold bracket (E).



22. Remove the four bolts securing the exhaust manifold cover.



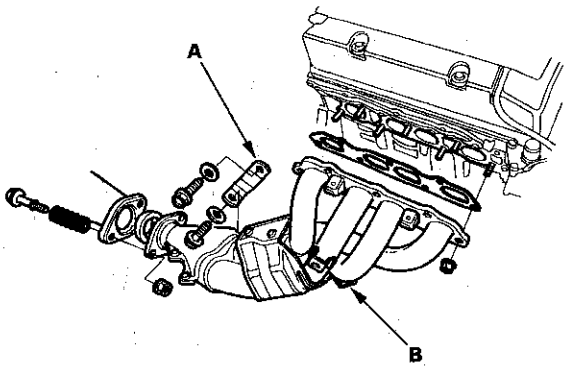
23. Remove the three bolts (A), and loosen the bolt (B), then remove the heat shield (C).



(cont'd)

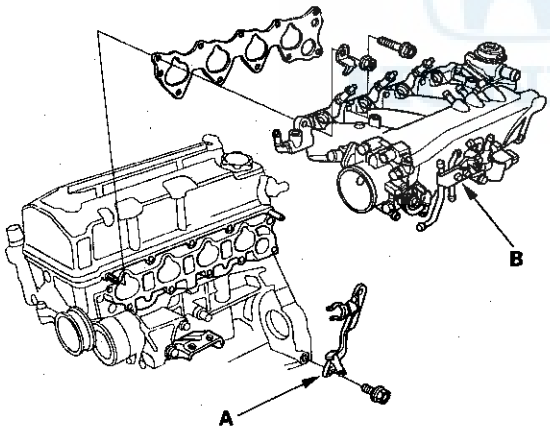
Cylinder Head Removal (cont'd)

24. Remove the exhaust manifold cover, then remove the exhaust manifold bracket (A) and the exhaust manifold (B).



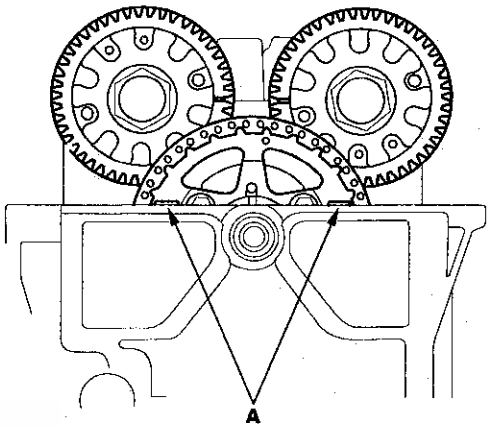
25. '00-05 models: Remove the injectors (see page 11-112).

26. Remove the intake manifold stay (A) and the intake manifold (B).

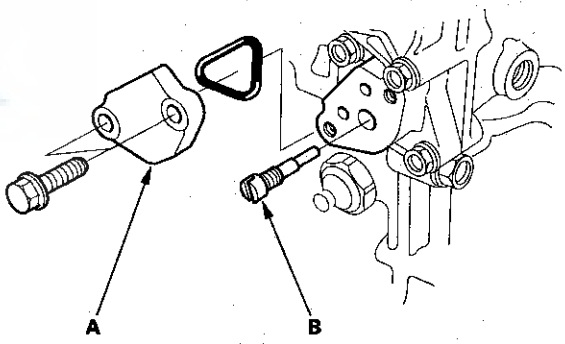


27. Remove the cylinder head cover (see page 6-21).

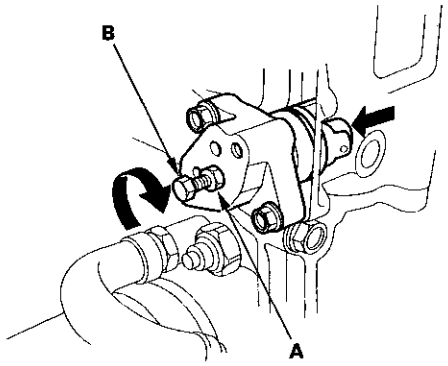
28. Set the No. 1 piston at top dead center (TDC). The TDC marks (A) on the cam chain sprocket should align with the cylinder head surface.



29. Remove the end cover (A) and nozzle (B) from the cam chain auto-tensioner.

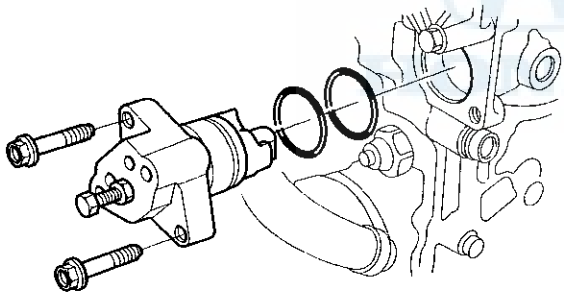


30. Thread a nut (A) onto a 5 x 0.8 mm bolt that is at least 40 mm long (B), then thread the bolt into the maintenance hole in the cam chain auto-tensioner.

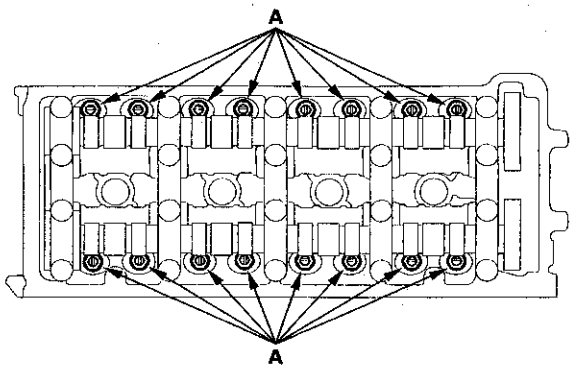


31. Turn the bolt clockwise to compress the cam chain auto-tensioner, and lock the bolt with the nut.

32. Remove the cam chain auto-tensioner.

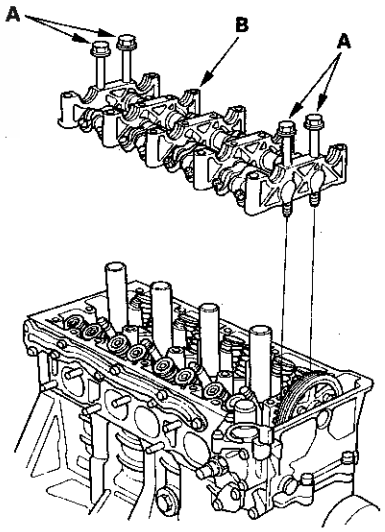


33. Loosen the rocker arm adjusting screws (A).



34. Remove the camshaft holders and camshafts. To prevent damaging the camshafts, loosen the camshaft holder bolts in sequence two turns at a time, in a crisscross pattern.

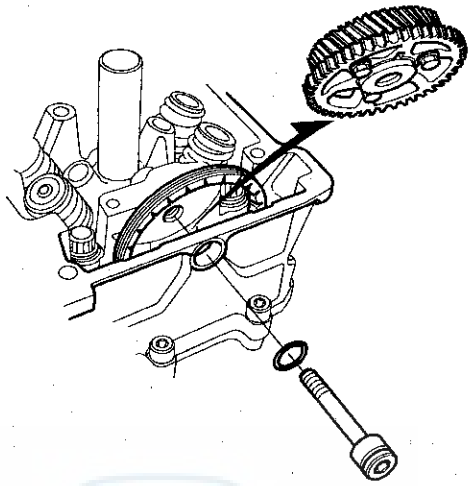
35. Insert the bolts (A) into the rocker shaft holder, then remove the rocker arm assembly (B).



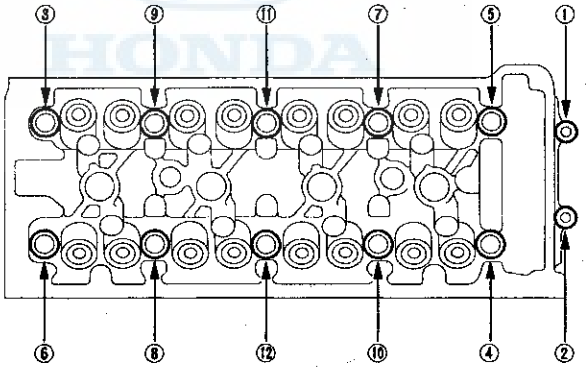
(cont'd)

Cylinder Head Removal (cont'd)

36. Remove the idler gear/cam chain sprocket assembly, idler gear collar, and washer.



37. Remove the cylinder head bolts. To prevent warpage, loosen the bolts in sequence 1/3 turn at a time; repeat the sequence until all the bolts are loose.



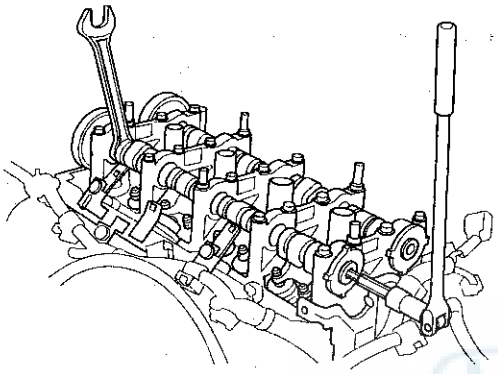
38. Remove the cylinder head.

CMP Pulse Plate A Replacement

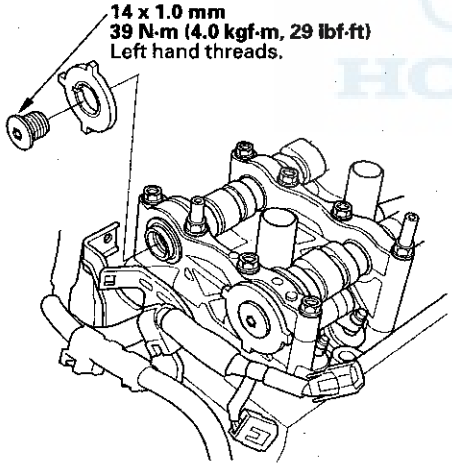
'00-05 models

1. Remove the cylinder head cover (see page 6-21).
2. Hold the intake camshaft with an open-end wrench, then loosen the bolt.

   NOTE: This bolt has left hand threads.



3. Remove the camshaft position (CMP) pulse plate A.



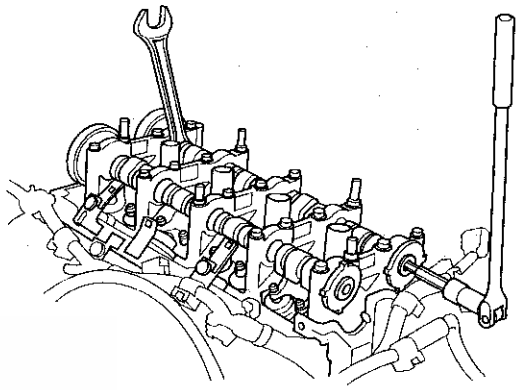
4. Clean the bolt, then apply new engine oil to the threads.
5. Align the CMP pulse plate A groove with the pin on the camshaft end, then install the CMP pulse plate A.
6. Install the cylinder head cover (see page 6-22).

CMP Pulse Plate B Replacement

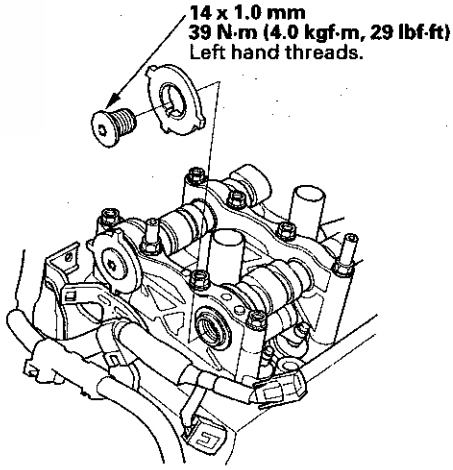
'00-05 models

1. Remove the cylinder head cover (see page 6-21).
2. Hold the exhaust camshaft with an open-end wrench, then loosen the bolt.

   NOTE: This bolt has left hand threads.



3. Remove the camshaft position (CMP) pulse plate B.



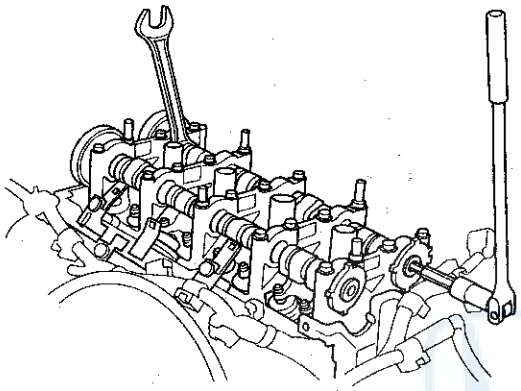
4. Clean the bolt, then apply new engine oil to the threads.
5. Align the CMP pulse plate B groove with the pin on the camshaft end, then install the CMP pulse plate B.
6. Install the cylinder head cover (see page 6-22).

CMP Pulse Plate Replacement

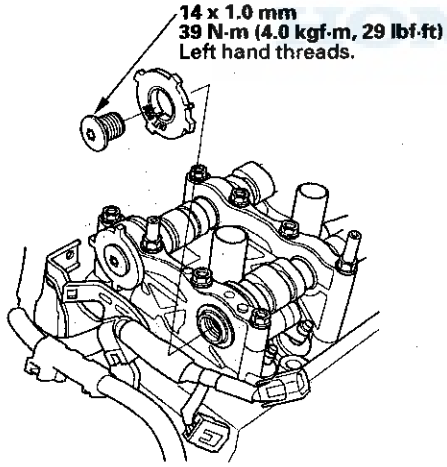
'06-08 models

1. Remove the cylinder head cover (see page 6-21).
2. Hold the camshaft with an open-end wrench, then loosen the bolt.

   NOTE: This bolt has left hand threads.



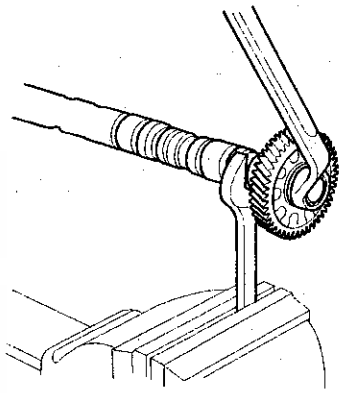
3. Remove the camshaft position (CMP) pulse plate.



4. Clean the bolt, then apply new engine oil to the threads.
5. Locate the position mark to the outside and align the CMP pulse plate groove with the pin on the camshaft end, then install the CMP pulse plate.
6. Install the cylinder head cover (see page 6-22).

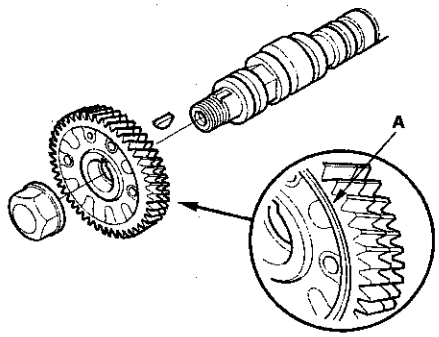
Camshaft Gear Removal

1. Remove the cylinder head cover (see page 6-21).
2. Loosen the rocker arm adjusting screws (see step 2 on page 6-35).
3. Remove the camshaft holders and camshafts. To prevent damaging the camshafts, loosen the camshaft holder bolts in sequence two turns at a time, in a crisscross pattern.
4. Hold the camshaft with an open-end wrench, then loosen the camshaft gear mounting nut.



5. Remove the camshaft gear.

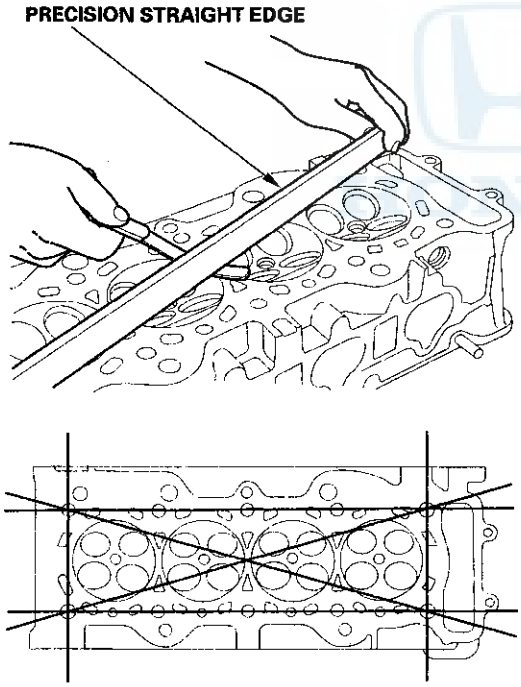
   NOTE: The exhaust camshaft gear has a groove (A) in the face. The intake camshaft gear does not have a groove.



Cylinder Head Inspection for Warpage

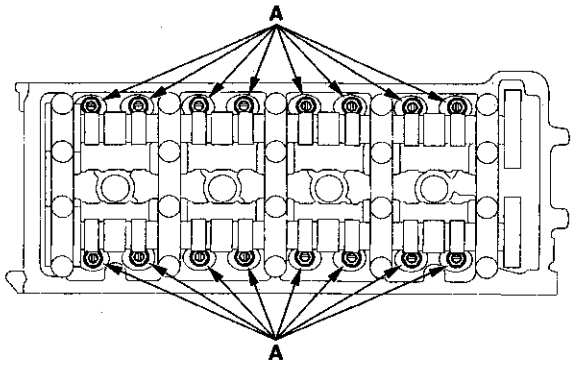
1. Remove the cylinder head (see page 6-25).
2. Inspect the camshaft (see page 6-39).
3. Check the cylinder head for warpage. Measure along the edges, and three ways across the center.
   - If warpage is less than 0.05 mm (0.002 in.) cylinder head resurfacing is not required.
   - If warpage is between 0.05 mm (0.002 in.) and 0.2 mm (0.008 in.), resurface the cylinder head.
   - Maximum resurface limit is 0.2 mm (0.008 in.) based on a height of 105 mm (4.13 in.).

Cylinder Head Height
Standard (New): 104.95—105.05 mm (4.132—4.136 in.)

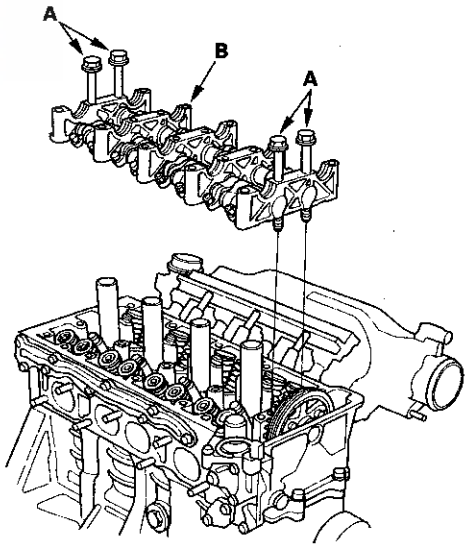


Rocker Arm Assembly Removal

1. Remove the cylinder head cover (see page 6-21).
2. Loosen the rocker arm adjusting screws (A).

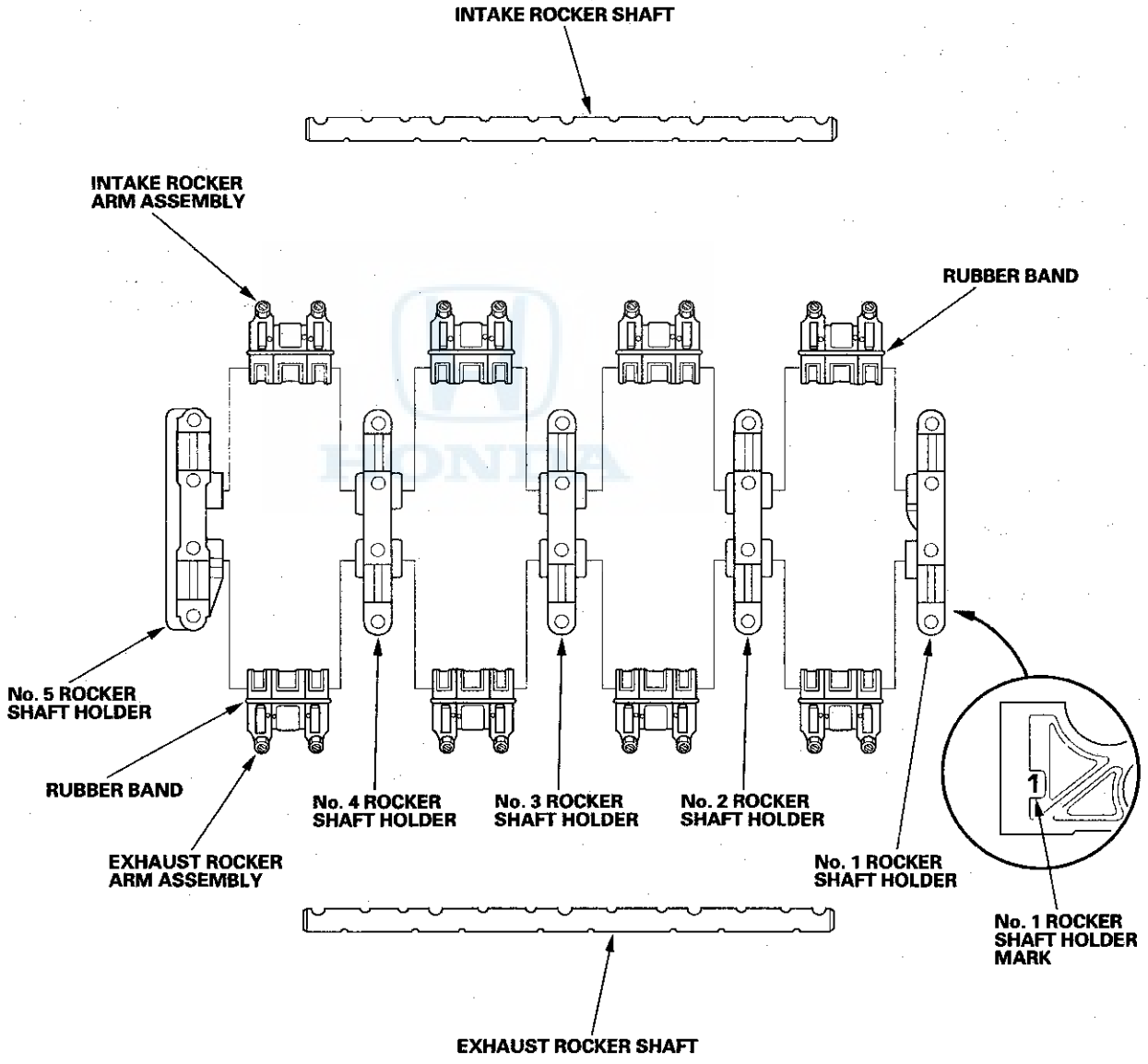


3. Remove the camshaft holders and camshafts. To prevent damaging the camshafts, loosen the camshaft holder bolts in sequence two turns at a time, in a crisscross pattern.
4. Insert the bolts (A) into the rocker shaft holder, then remove the rocker arm assembly (B).



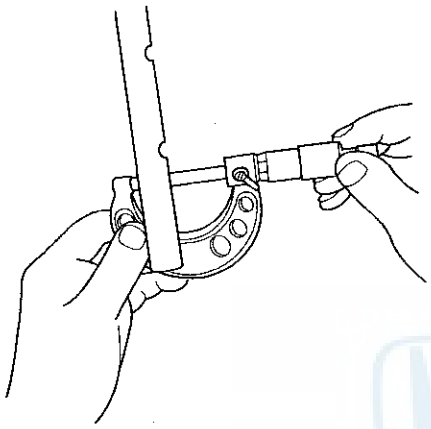
Rocker Arm and Shaft Disassembly/Reassembly

NOTE:
- Identify parts as they are removed to ensure reinstallation in their original locations.
- Inspect rocker shafts and rocker arms (see page 6-37).
- If reused, the rocker arms must be installed in the same position.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points.
- Bundle the rocker arms with rubber bands to keep them together as a set.
- When replacing the VTEC rocker arm assembly, remove the fastening hardware from the new VTEC rocker arm assembly.

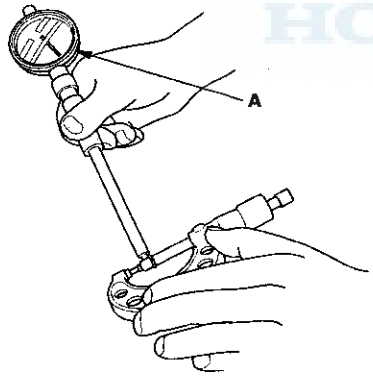


Rocker Arm and Shaft Inspection

1. Remove the rocker arm assembly (see page 6-35).
2. Disassemble the rocker arm assembly (see page 6-36).
3. Measure the diameter of the shaft at the first rocker location.

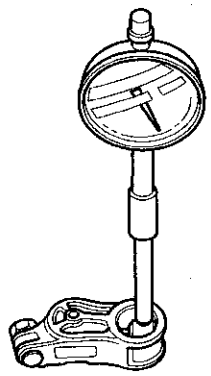


4. Zero the gauge (A) to the shaft diameter.



5. Measure the inside diameter of the rocker arm, and check it for an out-of-round condition.

Rocker Arm-to-Shaft Clearance:
Standard (New): 0.021—0.041 mm (0.0008—0.0016 in.)
Service Limit: 0.07 mm (0.003 in.)



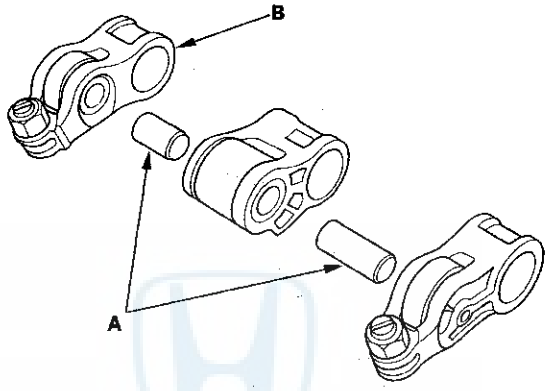
6. Repeat for all rocker arms and both shafts. If the clearance is over the limit, replace the rocker shaft and all over-tolerance rocker arms. If any rocker arm needs replacement, replace all three rocker arms in that set (primary, mid, and secondary).

(cont'd)

Rocker Arm and Shaft Inspection (cont'd)

7. Inspect the rocker arm pistons (A). Push each piston manually. If it does not move smoothly, replace the rocker arm assembly.

   NOTE:
   - When reassembling the primary rocker arm (B), carefully apply air pressure to its oil passage.
   - Apply new engine oil to the rocker arm pistons when reassembling.



8. Reassemble the rocker arm assembly (see page 6-36).

9. Install the rocker arm assembly (see page 6-48).

Camshaft Inspection

NOTE: Do not rotate the camshaft during inspection.

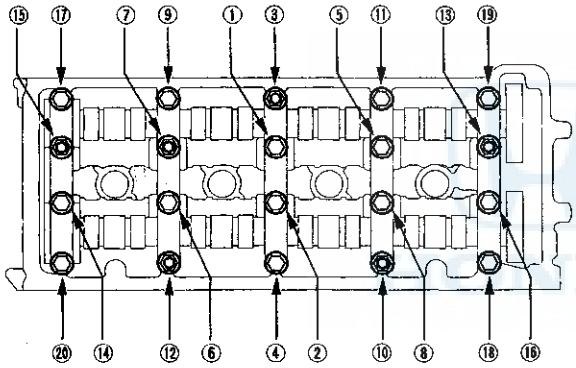
1. Remove the rocker arm assembly (see page 6-35).

2. Disassemble the rocker arm assembly (see page 6-36).

3. Put the rocker shaft holders, camshafts, and the camshaft holders on the cylinder head, then tighten the bolts to the specified torque.

   NOTE: Apply new engine oil to the bolt threads.

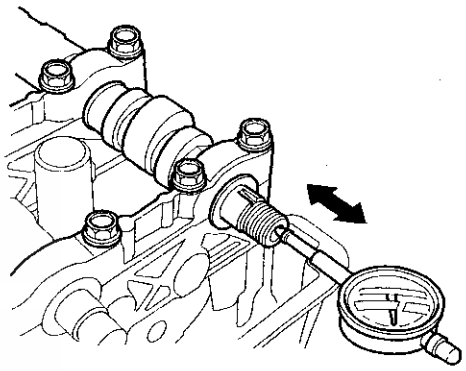
   Specified Torque
   8 x 1.25 mm:
   22 N·m (2.2 kgf·m, 16 lbf·ft)



4. Seat the camshafts by pushing them toward the rear end of the cylinder head.

5. Zero the dial indicator against the end of the camshaft, then push the camshaft back and forth and read the end play. If the end play is beyond the service limit, replace the cylinder head and recheck. If it is still beyond the service limit, replace the camshaft.

   Camshaft End Play
   Standard (New): 0.05—0.15 mm (0.002—0.006 in.)
   Service Limit: 0.30 mm (0.012 in.)



6. Remove the camshaft holders and the rocker shaft holders from the cylinder head.

7. Lift the camshafts out of the cylinder head, wipe them clean, then inspect the lift ramps. Replace the camshaft if any lobes are pitted, scored, or excessively worn.

(cont'd)

Camshaft Inspection (cont'd)

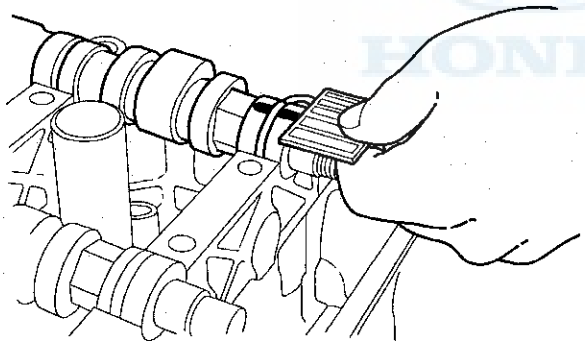
8. Clean the camshaft journal surfaces in the cylinder head, then set the camshafts back in place. Place a plastigage strip across each journal.

9. Install the camshaft holders, then tighten the bolts to the specified torque as shown in step 3.

10. Remove the camshaft holders. Measure the widest part of plastigage on each journal.

    - If the camshaft-to-holder clearance is within limits, go to step 12.
    - If the camshaft-to-holder clearance is beyond the service limit and the camshaft has been replaced, replace the cylinder head.
    - If the camshaft-to-holder clearance is beyond the service limit and the camshaft has not been replaced, go to step 11.

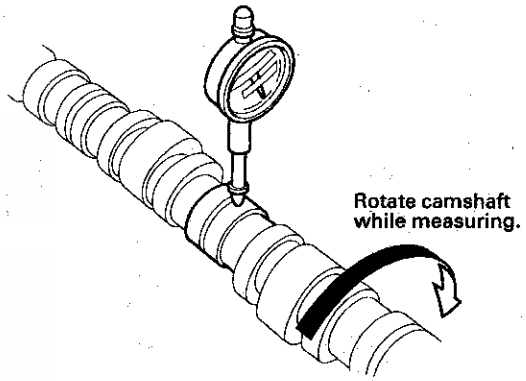
Camshaft-to-Holder Oil Clearance
Standard (New): 0.060—0.099 mm (0.002—0.004 in.)
Service Limit: 0.15 mm (0.006 in.)



11. Check the total runout with the camshaft supported on V-blocks.

    - If the total runout of the camshaft is within the service limit, replace the cylinder head.
    - If the total runout is beyond the service limit, replace the camshaft and recheck the camshaft-to-holder oil clearance. If the oil clearance is still out of tolerance, replace the cylinder head.

Camshaft Total Runout
Standard (New): 0.03 mm (0.001 in.) max.
Service Limit: 0.04 mm (0.002 in.)



12. Measure cam lobe height.

Cam Lobe Height Standard (New):

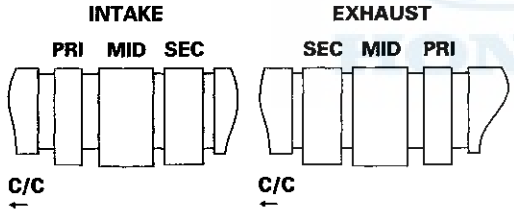
'00-03 models

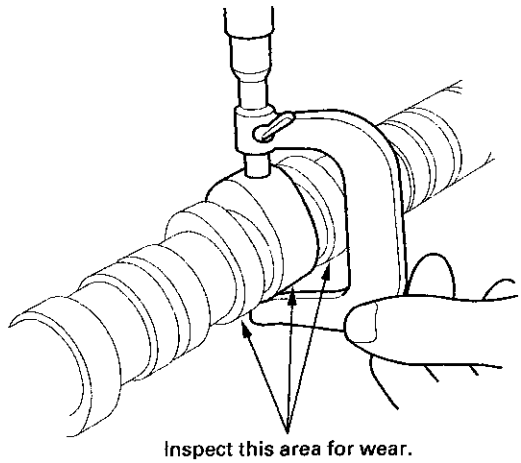
	INTAKE	EXHAUST
PRIMARY	33.677 mm (1.326 in.)	33.716 mm (1.327 in.)
MID	36.533 mm (1.438 in.)	35.928 mm (1.414 in.)
SECONDARY	33.961 mm (1.337 in.)	33.994 mm (1.338 in.)

'04-08 models

	INTAKE	EXHAUST
PRIMARY	33.961 mm (1.337 in.)	33.716 mm (1.327 in.)
MID	36.421 mm (1.434 in.)	35.660 mm (1.404 in.)
SECONDARY	33.961 mm (1.337 in.)	33.716 mm (1.327 in.)

PRI: PRIMARY MID: MID SEC: SECONDARY
C/C: CAM CHAIN





Inspect this area for wear.

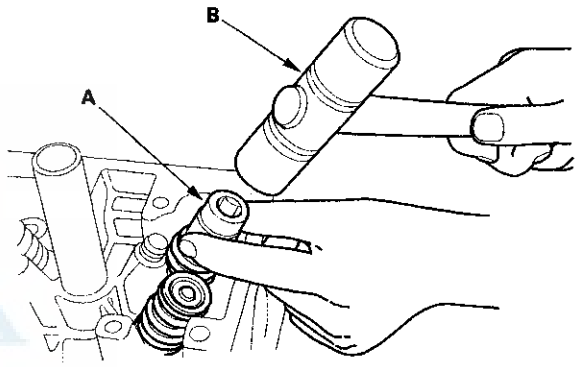
Valve, Spring, and Valve Seal Removal

Special Tools Required
Valve spring compressor attachment 07757-PJ1010A

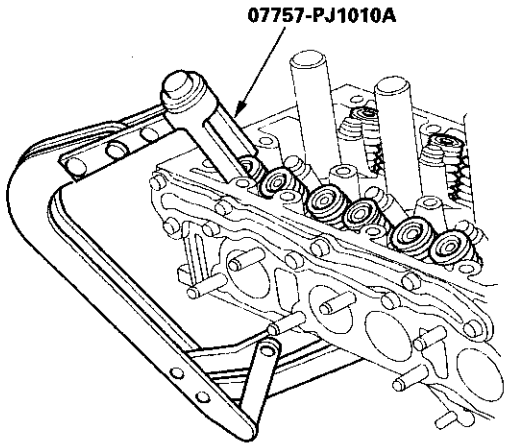
Identify the valves and valve springs as they are removed so that each item can be reinstalled in its original position.

1. Remove the cylinder head (see page 6-25).

2. Using an appropriate-sized socket (A) and plastic mallet (B), lightly tap the spring retainer to loosen the valve cotters.



3. Install the valve spring compressor. Compress the spring and remove the valve cotters.

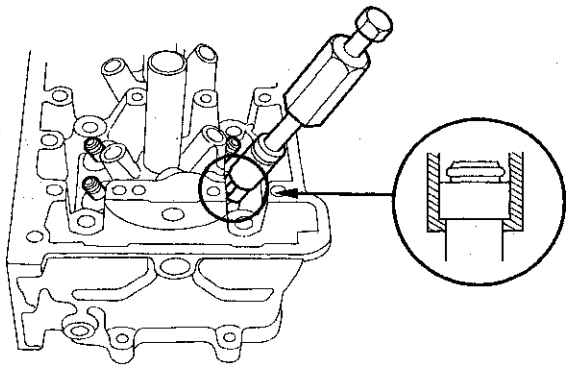


4. Remove the valve spring compressor, then remove the spring retainer and valve spring.

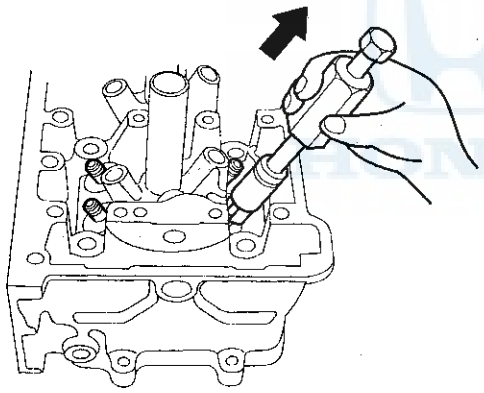
(cont'd)

Valve, Spring, and Valve Seal Removal (cont'd)

5. Install the valve guide seal remover.



6. Remove the valve seal.



7. Remove the valve spring seat and valve.

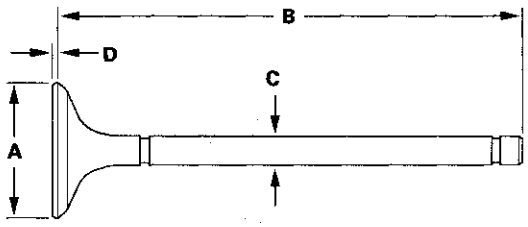
Valve Inspection

1. Remove the valves (see page 6-41).

2. Measure the valve in these areas.

Intake Valve Dimensions
A Standard (New): 35.90—36.10 mm (1.413—1.421 in.)
B Standard (New): 108.85—109.15 mm (4.285—4.297 in.)
C Standard (New): 5.48—5.49 mm (0.2157—0.2161 in.)
C Service Limit: 5.45 mm (0.215 in.)
D Standard (New): 0.55—0.85 mm (0.022—0.033 in.)
D Service Limit: 0.40 mm (0.016 in.)

Exhaust Valve Dimensions
A Standard (New): 30.90—31.10 mm (1.217—1.224 in.)
B Standard (New): 107.60—107.90 mm (4.236—4.248 in.)
C Standard (New): 5.45—5.46 mm (0.2146—0.2150 in.)
C Service Limit: 5.42 mm (0.213 in.)
D Standard (New): 0.85—1.15 mm (0.033—0.045 in.)
D Service Limit: 0.70 mm (0.028 in.)



Valve Stem-to-Guide Clearance Inspection

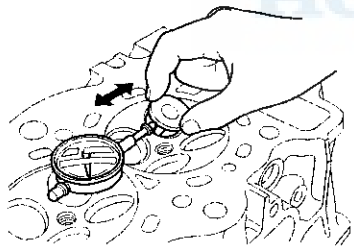
1. Remove the valves (see page 6-41).

2. Slide the valve out of its guide about 10 mm (0.39 in.), then measure the guide-to-stem clearance with a dial indicator while rocking the stem in the direction of normal thrust (wobble method).

   - If the measurement exceeds the service limit, recheck it using a new valve.
   - If the measurement is now within the service limit, reassemble using a new valve.
   - If the measurement with a new valve still exceeds the service limit, go to step 3.

   Intake Valve Stem-to-Guide Clearance
   Standard (New): 0.04—0.10 mm (0.002—0.004 in.)
   Service Limit: 0.16 mm (0.006 in.)

   Exhaust Valve Stem-to-Guide Clearance
   Standard (New): 0.10—0.16 mm (0.004—0.006 in.)
   Service Limit: 0.22 mm (0.009 in.)



3. Subtract the O.D. of the valve stem, measured with a micrometer, from the I.D. of the valve guide, measured with an inside micrometer or ball gauge. Take the measurements in three places along the valve stem and three places inside the valve guide. The difference between the largest guide measurement and the smallest stem measurement should not exceed the service limit.

   Intake Valve Stem-to-Guide Clearance
   Standard (New): 0.02—0.05 mm (0.001—0.002 in.)
   Service Limit: 0.08 mm (0.003 in.)

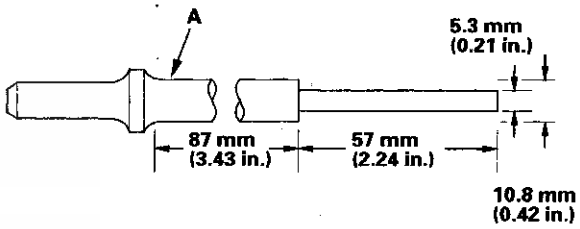
   Exhaust Valve Stem-to-Guide Clearance
   Standard (New): 0.05—0.08 mm (0.002—0.003 in.)
   Service Limit: 0.11 mm (0.004 in.)

Valve Guide Replacement

Special Tools Required
- Valve guide driver, 5.5 mm 07742-0010100
- Valve guide reamer, 5.5 mm 07HAH-PJ7A100

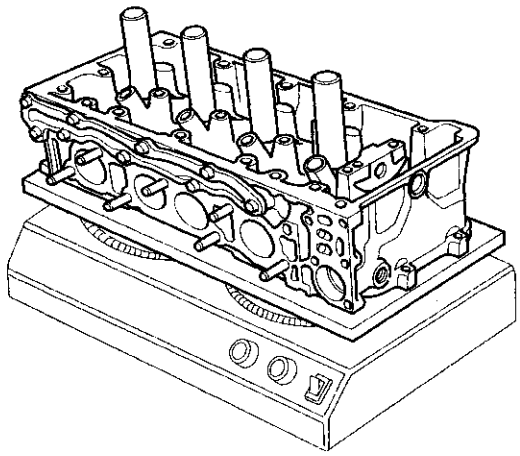
1. Inspect valve stem-to-guide clearance (see page 6-43).

2. As illustrated, use a commercially available air-impact valve guide driver (A) modified to fit the diameter of the valve guides. In most cases, the same procedure can be done using the special tool and a conventional hammer.



3. Select the proper replacement guides, and chill them in the freezer section of a refrigerator for about an hour.

4. Use a hot plate or oven to evenly heat the cylinder head to 300 °F (150 °C). Monitor the temperature with a cooking thermometer. Do not get the head hotter than 300 °F (150 °C); excessive heat may loosen the valve seats.



(cont'd)

Valve Guide Replacement (cont'd)

5. Working from the camshaft side, use the driver and an air hammer to drive the guide about 2 mm (0.1 in.) towards the combustion chamber. This will knock off some of the carbon and make removal easier. Hold the air hammer directly in line with the valve guide to prevent damaging the driver. Wear safety goggles or a face shield.

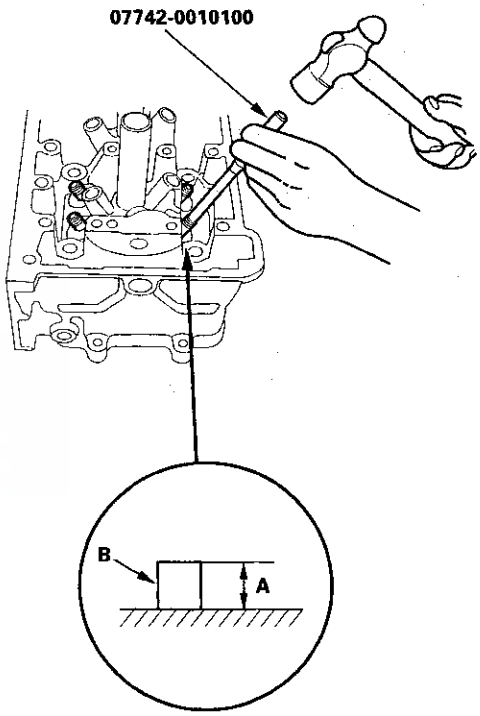
6. Turn the head over and drive the guide out toward the camshaft side of the head.

7. If a valve guide won't move, drill it out with a 8 mm (5/16 in.) bit, then try again. Drill guides only in extreme cases; you could damage the cylinder head if the guide breaks.

8. Take out the new guide(s) from the freezer, one at a time, as you need them.

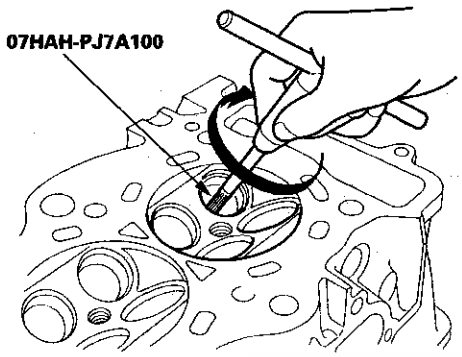
9. Apply a thin coat of new engine oil to the outside of the new valve guide. Install the guide from the camshaft side of the head; use the valve guide driver to drive the guide to the specified installed height (A) of the guide (B). If you have all 16 guides to do, you may have to reheat the head.

Valve Guide Installed Height
Intake: 15.2—16.2 mm (0.598—0.638 in.)
Exhaust: 16.0—17.0 mm (0.630—0.669 in.)



10. Coat both reamer and valve guide with cutting oil.

11. Rotate the reamer clockwise the full length of the valve guide bore.



12. Continue to rotate the reamer clockwise while drawing it from the bore.

13. Thoroughly wash the guide in detergent and water to remove any cutting residue.

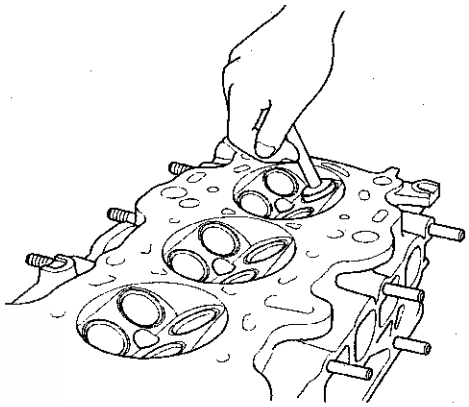
14. Check the clearances with a valve (see page 6-43). Verify that a valve slides in the intake and exhaust valve guides without sticking.

15. Inspect the valve seating, if necessary renew the valve seat using a valve seat cutter (see page 6-45).

Valve Seat Reconditioning

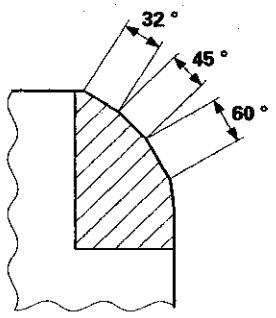
1. Inspect valve stem-to-guide clearance (see page 6-43). If the valve guides are worn, replace them (see page 6-43) before cutting the valve seats.

2. Renew the valve seats in the cylinder head using a valve seat cutter.



3. Carefully cut a 45 ° seat, removing only enough material to ensure a smooth and concentric seat.

4. Bevel the upper edge of the seat with the 32 ° cutter and the lower edge of the seat with the 60 ° cutter. Check the width of the seat and adjust accordingly.



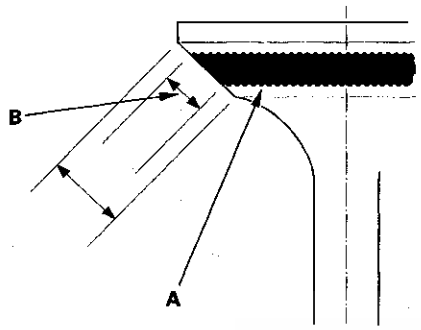
5. Make one more very light pass with the 45 ° cutter to remove any possible burrs caused by the other cutters.

Valve Seat Width
Intake:
Standard (New): 1.05—1.35 mm (0.041—0.053 in.)
Service Limit: 1.80 mm (0.071 in.)
Exhaust:
Standard (New): 1.25—1.55 mm (0.049—0.061 in.)
Service Limit: 2.00 mm (0.079 in.)

(cont'd)

Valve Seat Reconditioning (cont'd)

6. After resurfacing the seat, inspect for even valve seating. Apply Prussian Blue compound (A) to the valve face. Insert the valve in its original location in the head, then lift it and snap it closed against the seat several times.



7. The actual valve seating surface (B), as shown by the blue compound, should be centered on the seat.

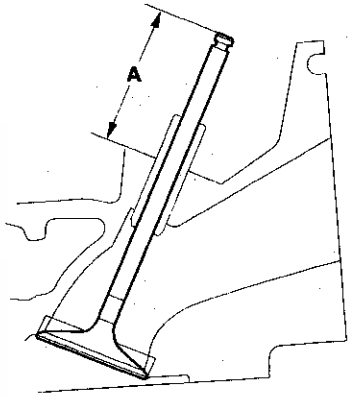
   - If it is too high (closer to the valve stem), you must make a second cut with the 60 ° cutter to move it down, then one more cut with the 45 ° cutter to restore seat width.
   - If it is too low (close to the valve edge), you must make a second cut with the 32 ° cutter to move it up, then make one more cut with the 45 ° cutter to restore seat width.

   NOTE: The final cut should always be made with the 45 ° cutter.

8. Insert the intake and exhaust valves in the head and measure valve stem installed height (A).

   Intake Valve Stem Installed Height
   Standard (New): 44.1—44.4 mm (1.736—1.748 in.)
   Service Limit: 44.7 mm (1.760 in.)

   Exhaust Valve Stem Installed Height
   Standard (New): 44.2—44.5 mm (1.740—1.752 in.)
   Service Limit: 44.8 mm (1.764 in.)



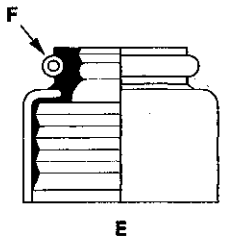
9. If valve stem installed height is over the service limit, replace the valve and recheck. If it is still over the service limit, replace the cylinder head; the valve seat in the head is too deep.

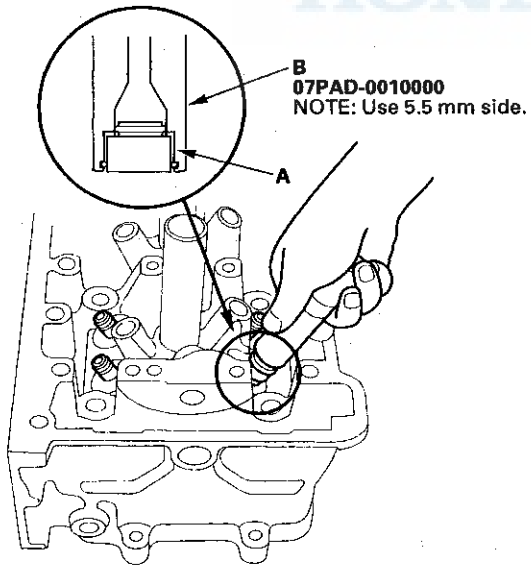
Valve, Spring, and Valve Seal Installation

Special Tools Required
- Stem seal driver 07PAD-0010000
- Valve spring compressor attachment 07757-PJ1010A

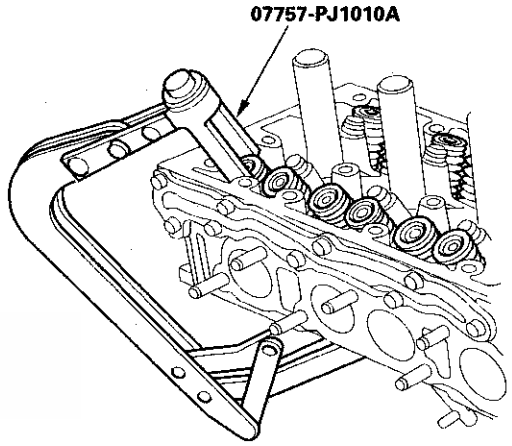
1. Coat the valve stems with new engine oil. Install the valves in the valve guides.
2. Check that the valves move up and down smoothly.
3. Install the spring seats on the cylinder head.
4. Install the new valve seals (A) using the stem seal driver (B).

   NOTE: The exhaust valve seal (C) has a black spring (D), and the intake valve seal (E) has a white spring (F). They are not interchangeable.

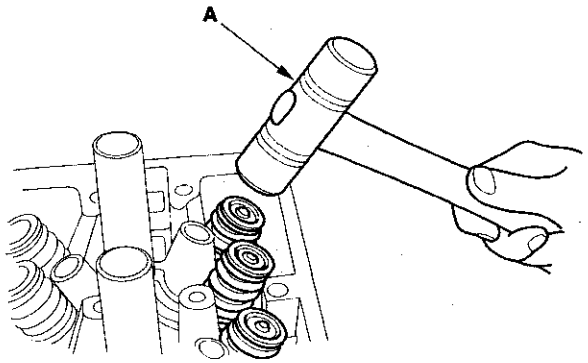




5. Install the valve spring and spring retainer. Place the end of the valve spring with closely wound coils toward the cylinder head.
6. Install the valve spring compressor. Compress the spring and install the valve cotters.

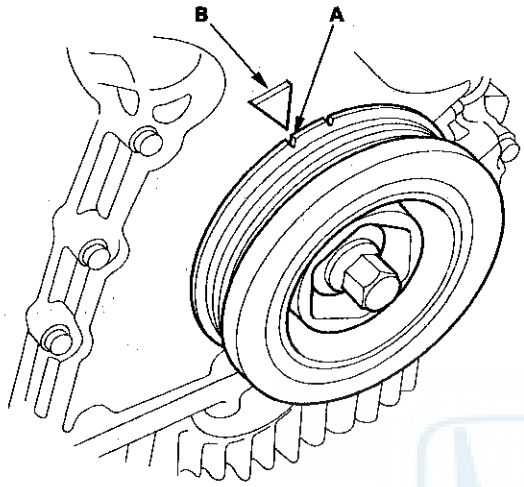


7. Remove the valve spring compressor.
8. Lightly tap the end of each valve stem two or three times with a plastic mallet (A) to ensure proper seating of the valve and valve cotters. Tap the valve stem only along its axis so you do not bend the stem.

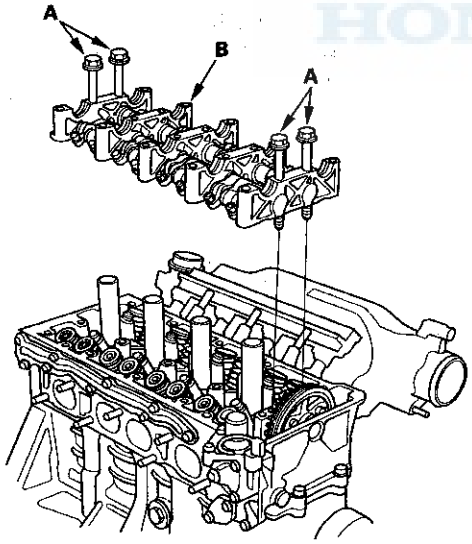


Rocker Arm Assembly Installation

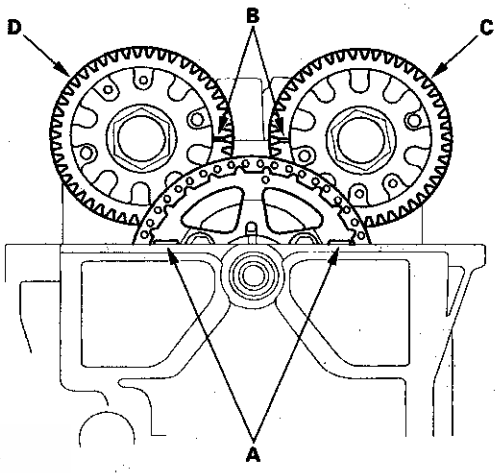
1. Make sure the crankshaft pulley is at top dead center (TDC). Align the TDC mark (A) on the crankshaft pulley with the pointer (B) on the chain case.



2. Insert the bolts (A) into the rocker shaft holder, then install the rocker arm assembly (B).



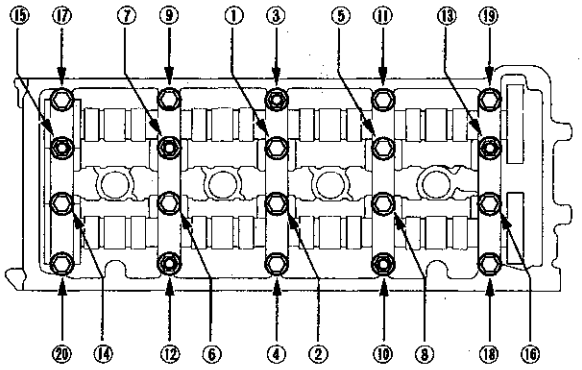
3. Check the alignment of the TDC marks (A) on the cam chain sprocket with the cylinder head surface.



4. Align the TDC marks (B) on the intake camshaft gear (C) and the exhaust camshaft gear (D), and install the camshafts.

5. Apply new engine oil to the bolt threads of all the camshaft holder bolts.

6. Put the camshaft holders on the cylinder head, then tighten all bolts to 22 N·m (2.2 kgf·m, 16 lbf·ft). To prevent damaging the camshafts, tighten the bolts two turns at a time, in the sequence shown.



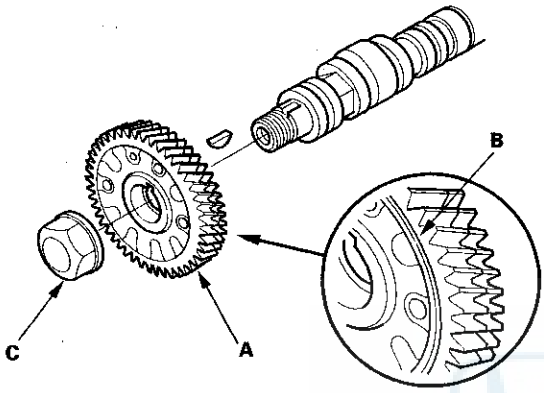
7. Adjust the valve clearance (see page 6-10).

8. Install the cylinder head cover (see page 6-22).

Camshaft Gear Installation

1. Install the camshaft gear (A).

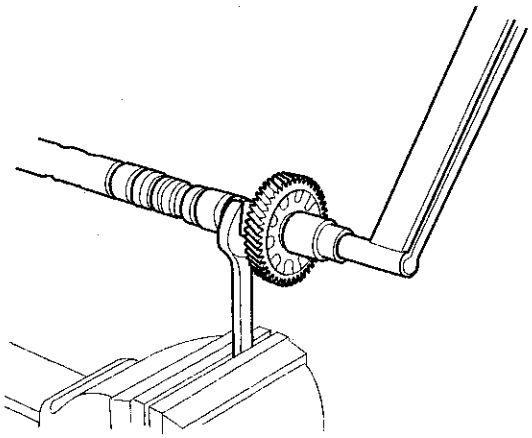
   NOTE: The exhaust camshaft gear has a groove (B) in the face. The intake camshaft gear does not have a groove. Be sure to install the correct camshaft gear on each camshafts.



2. Apply new engine oil to the threads of the camshaft gear mounting nut (C), then install it.

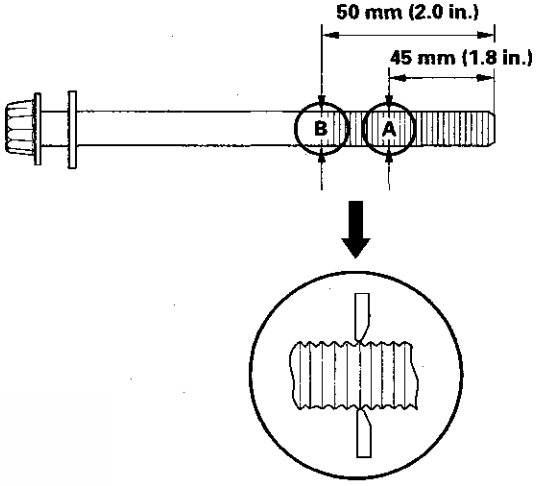
3. Hold the camshaft with an open-end wrench, then tighten the camshaft gear mounting nut.

   Specified Torque:
   118 N·m (12.0 kgf·m, 86.8 lbf·ft)



Cylinder Head Installation

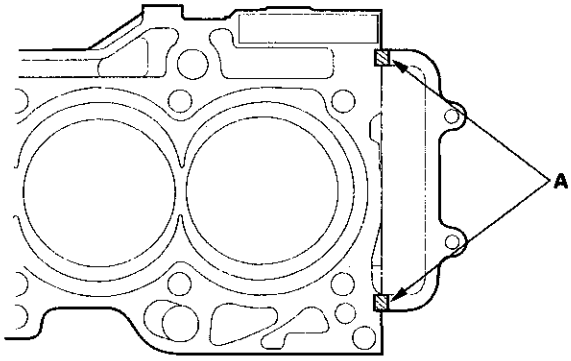
1. Measure the diameter of each cylinder head bolt at point A and point B. If either diameter is less than 11.5 mm (0.45 in.), replace the cylinder head bolt.



2. Clean and dry the cylinder head, engine block, and chain case mating surfaces.

3. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, to the shaded areas (A) of the cylinder head gasket mating surface of the engine block and chain case.

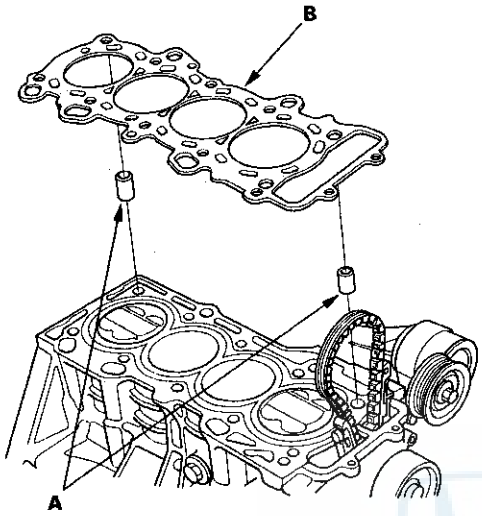
   NOTE: Do not install the parts if 5 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing the old residue.



(cont'd)

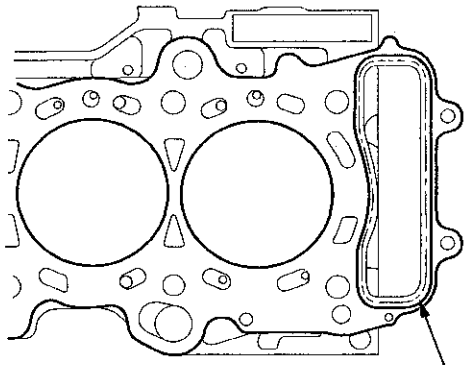
Cylinder Head Installation (cont'd)

4. Install the dowel pins (A) and the new cylinder head gasket (B).



5. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, to the cylinder head mating surface of the block and chain case within 5 mm of the edge of the cylinder head gasket.

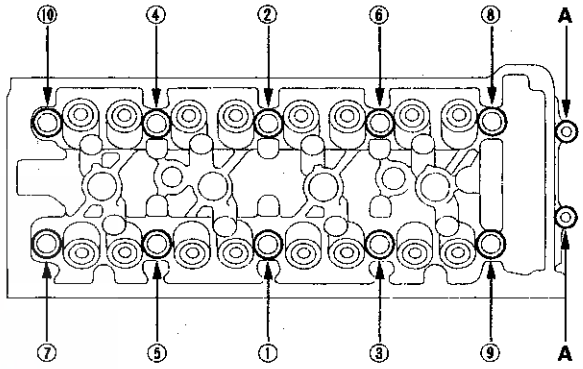
   NOTE: Do not install the parts if 5 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing the old residue.

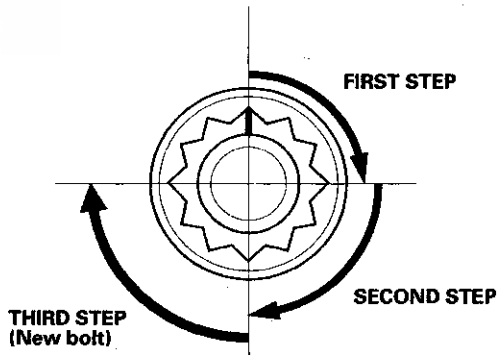


6. Install the cylinder head on the engine block.

7. Apply new engine oil to the threads and flange of all the cylinder head bolts.

8. Tighten the cylinder head bolts in sequence to 29 N·m (3.0 kgf·m, 22 lbf·ft). Use a beam-type torque wrench. When using a preset-type torque wrench, be sure to tighten slowly and do not overtighten. If a bolt makes anynoise while you are torquing it, loosen the bolt and retighten it.

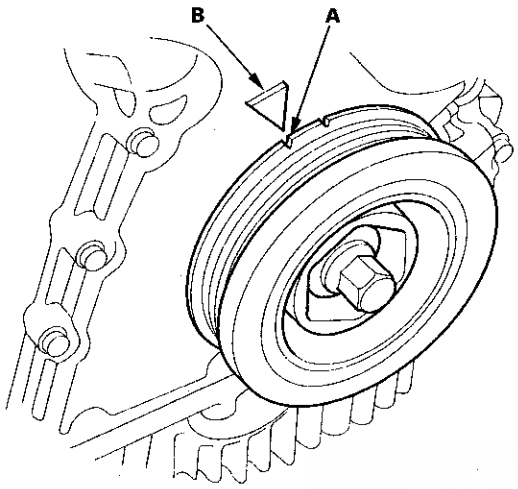




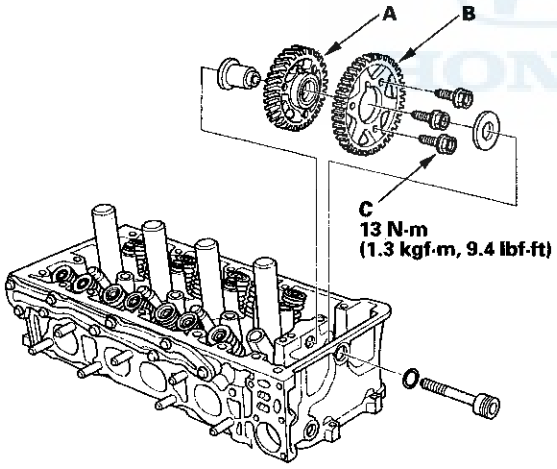
9. Tighten all cylinder head bolts in two steps (90 ° per step). If you are using a new cylinder head bolt, tighten the bolt an extra 90 °.

10. Tighten the 8 mm bolts (A) to 22 N·m (2.2 kgf·m, 16 lbf·ft).

11. Make sure the crankshaft pulley is at top dead center (TDC). Align the TDC mark (A) on the crankshaft pulley with the pointer (B) on the chain case.



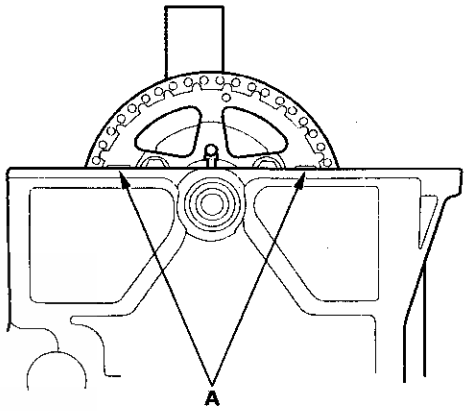
12. Assemble the idler gear (A) and cam chain sprocket (B) with three mounting bolts (C). Torque the bolts to 13 N·m (1.3 kgf·m, 9.4 lbf·ft).



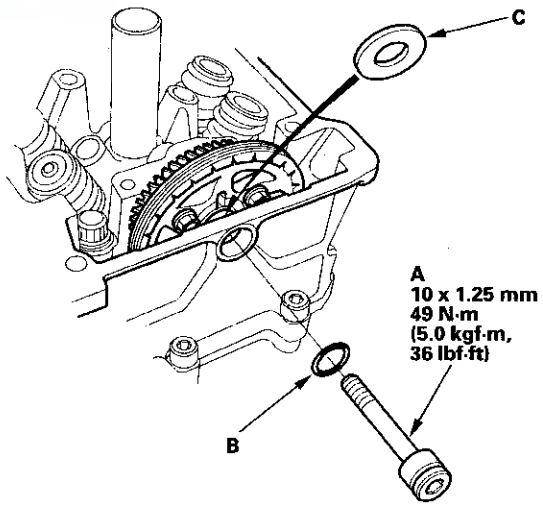
13. Place the idler gear/cam chain sprocket assembly and idler gear collar into the cylinder head.

14. Install the cam chain on the sprocket, then fit the assembly into the cylinder head.

15. Turn the cam chain sprocket assembly counterclockwise to relieve cam chain free play, and check the alignment of the TDC marks (A) on the cam chain sprocket with the cylinder head surface. If the cam chain sprocket is not positioned at TDC, remove the assembly from the cylinder head and reposition the cam chain to bring the cam chain sprocket to TDC.



16. Apply new engine oil to the idler gear/cam chain sprocket center bolt threads (A). Install a new O-ring (B) on the bolt.



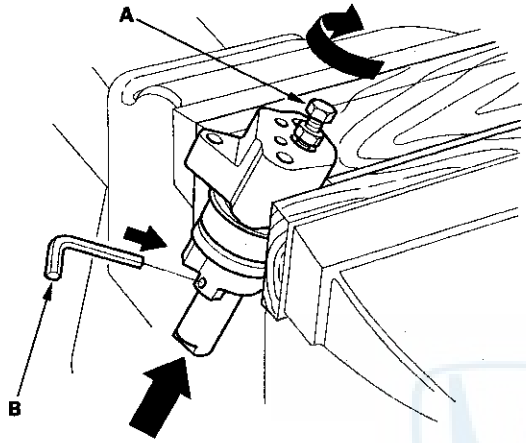
17. Install the washer (C) on the idler gear, and tighten the center bolt.

(cont'd)

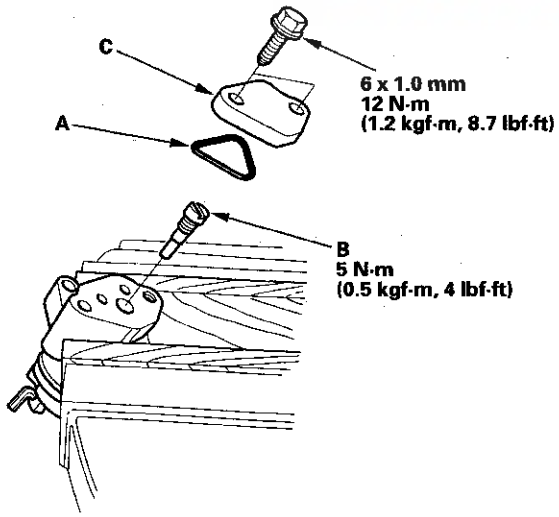
Cylinder Head Installation (cont'd)

18. Clamp the cam chain auto-tensioner in a soft-jawed vise.

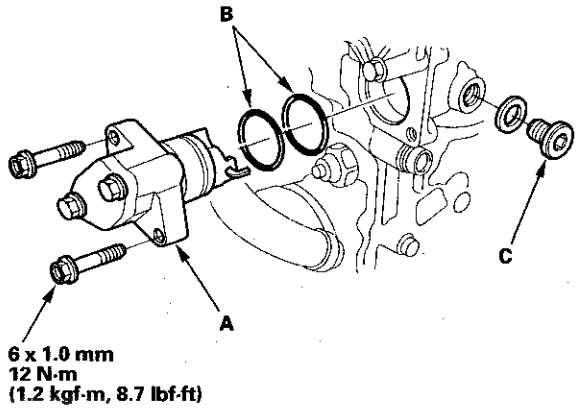
19. Turn the 5 x 0.8 mm bolt (A) clockwise to compress the bottom of the auto-tensioner, then insert the set pin (B), P/N 14511-PCX-005.



20. Remove the 5 x 0.8 mm bolt from the maintenance hole. Install a new O-ring (A), then install the nozzle (B) and end cover (C).

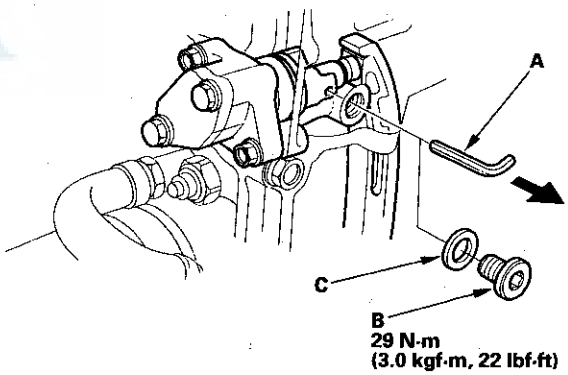


21. Install the cam chain auto-tensioner (A) in the cylinder head with new O-rings (B).

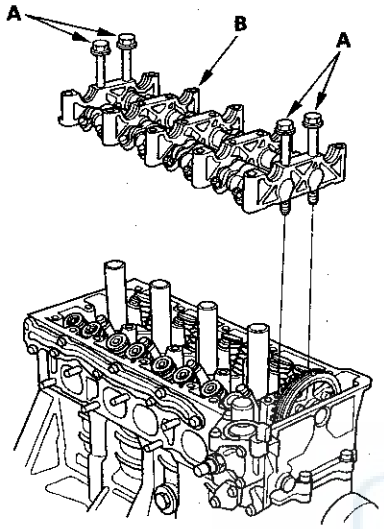


22. Remove the maintenance bolt (C) from the cylinder head.

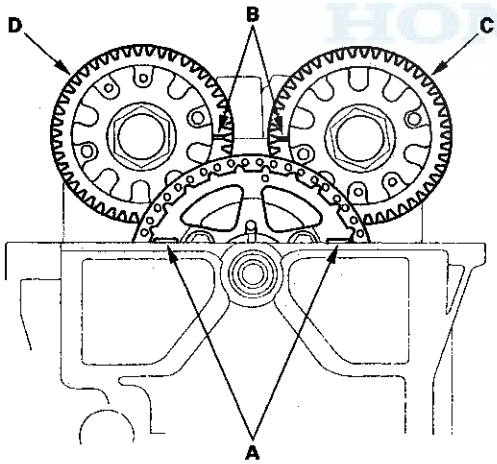
23. Remove the set pin (A) from the cam chain auto-tensioner. Reinstall the maintenance bolt (B) with a new washer (C).



24. Insert the bolts (A) into the rocker shaft holder, then install the rocker arm assembly (B).



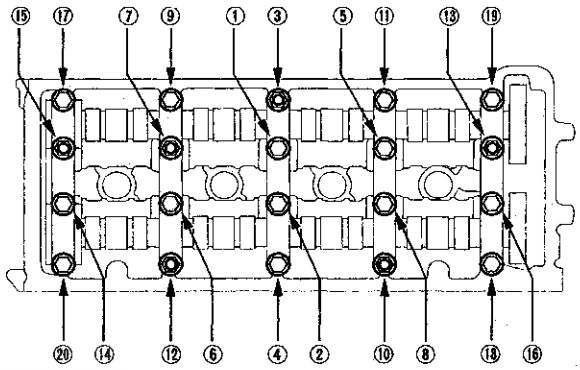
25. Check the alignment of the TDC marks (A) on the cam chain sprocket with the cylinder head surface.



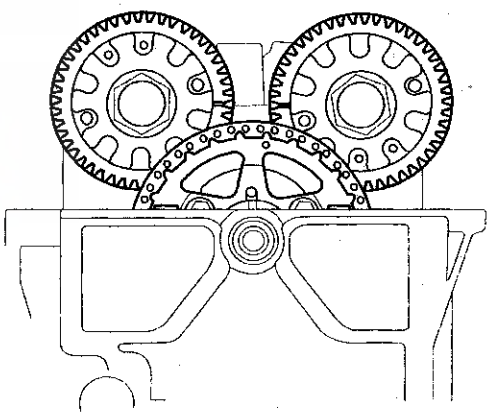
26. Align the TDC marks (B) on the intake camshaft gear (C) and the exhaust camshaft gear (D), and install the camshafts.

27. Apply new engine oil to the bolt threads of all the camshaft holder bolts.

28. Put the camshaft holders on the cylinder head, then tighten all bolts to 22 N·m (2.2 kgf·m, 16 lbf·ft). To prevent damaging the camshafts, tighten the bolts two turns at a time, in the sequence shown.



29. Make sure the camshaft gears are at TDC.



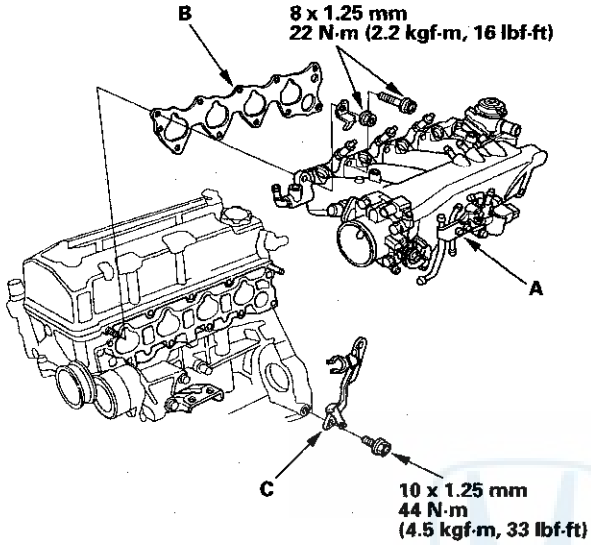
30. Adjust the valve clearance (see page 6-10).

31. Install the cylinder head cover (see page 6-22).

(cont'd)

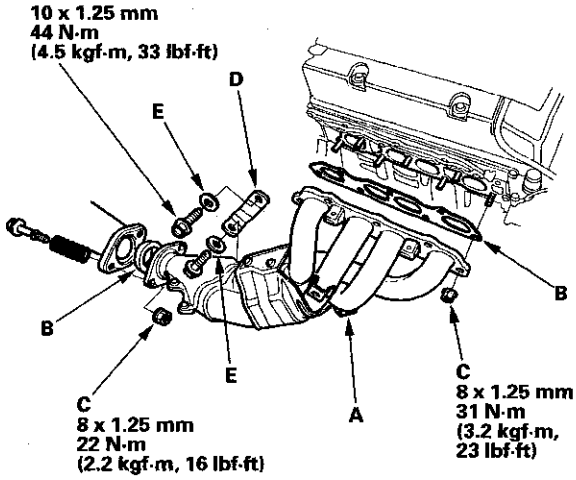
Cylinder Head Installation (cont'd)

32. Install the intake manifold (A) with a new gasket (B), then install the intake manifold stay (C).



33. '00-05 models: Install the injectors (see page 11-112).

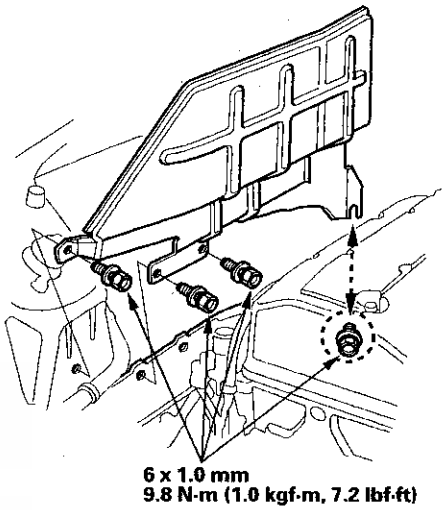
34. Install the exhaust manifold (A) using new gaskets (B) and new self-locking nuts (C).



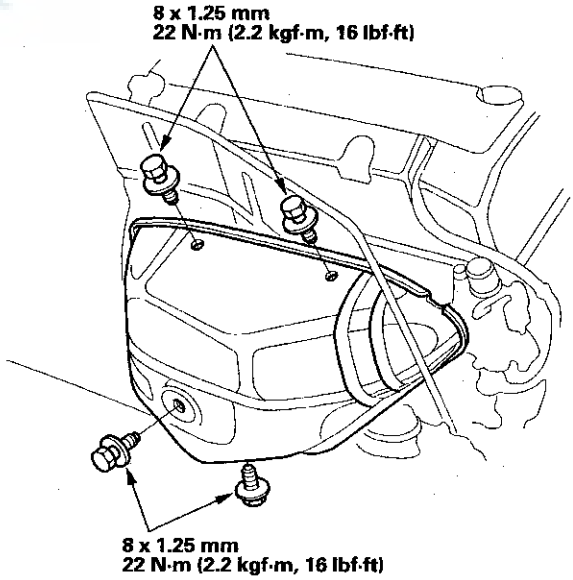
35. Install the exhaust manifold bracket (D). Make sure the smooth sides of the washers (E) face the exhaust manifold bracket.

36. Put the exhaust manifold cover on the exhaust manifold.

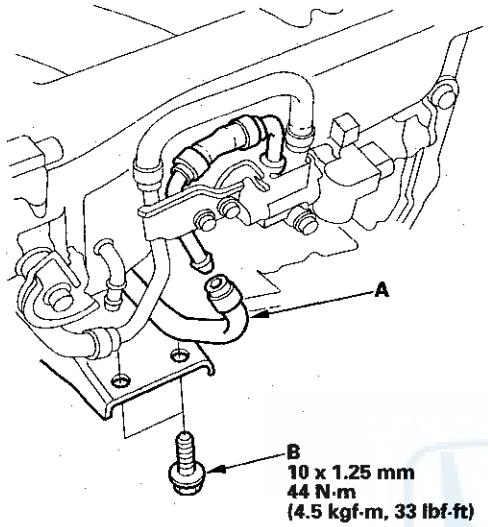
37. Install the heat shield.



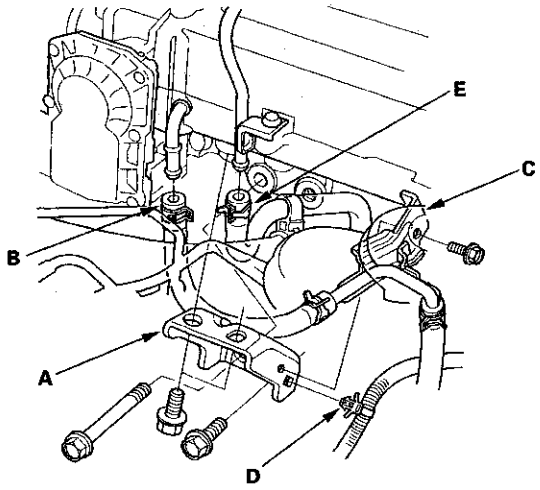
38. Tighten the four bolts securing the exhaust manifold cover.



39. '00-05 models: Install the water bypass hose (A), and tighten the two bolts (B) securing the intake manifold bracket.



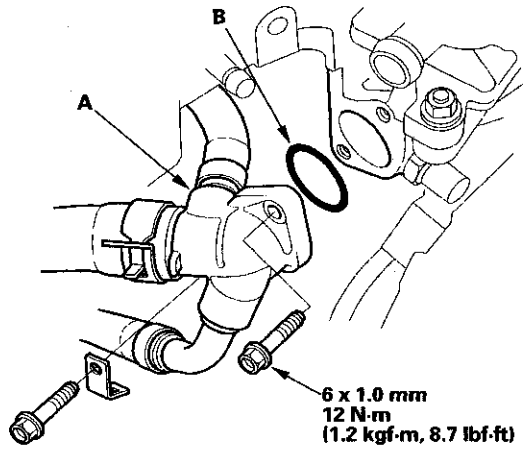
40. '06-08 models: Install the intake manifold bracket (A), then install the evaporative emission (EVAP) hose (B) and its bracket (C), install the wire harness clamp (D) and the water bypass hose (E).



41. Install the following engine wire harness connectors and wire harness clamps to the cylinder head and intake intake manifold:

- Four fuel injector connectors
- Intake air temperature (IAT) sensor connector ('00-05 models)
- Idle air control (IAC) valve connector ('00-05 models)
- Throttle position (TP) sensor connector ('00-05 models)
- Throttle body connector ('06-08 models)
- Manifold absolute pressure (MAP) sensor connector
- Primary heated oxygen sensor (primary HO2S) connector ('00-05 models)
- A/F sensor connector ('06-08 models)
- Engine coolant temperature (ECT) sensor connector ('00-05 models)
- Engine coolant temperature (ECT) sensor 1 connector ('06-08 models)
- Rocker arm oil control solenoid (VTEC solenoid valve) connector
- Rocker arm oil pressure switch (VTEC oil pressure switch) connector
- Crankshaft position (CKP) sensor connector

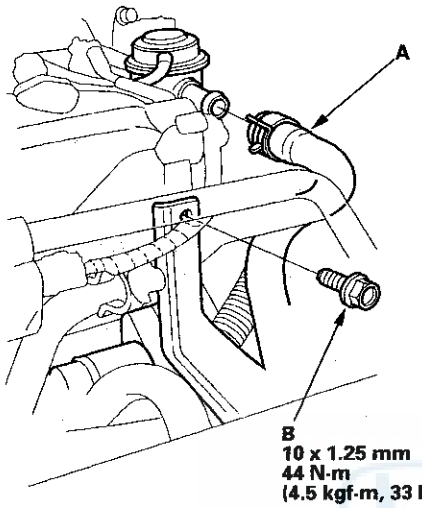
42. Install the water outlet cover (A) with a new O-ring (B).



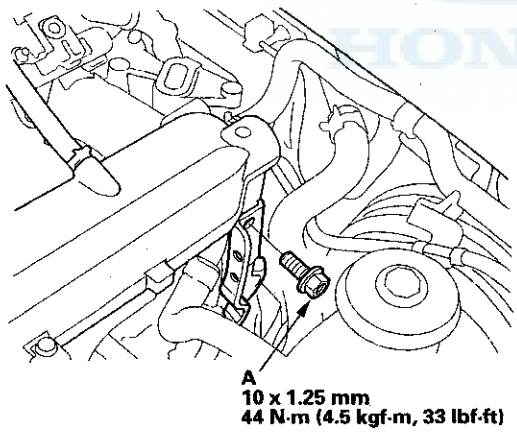
(cont'd)

Cylinder Head Installation (cont'd)

43. '00-05 models: Install the air hose (A), and tighten the bolt (B) securing the intake manifold bracket.

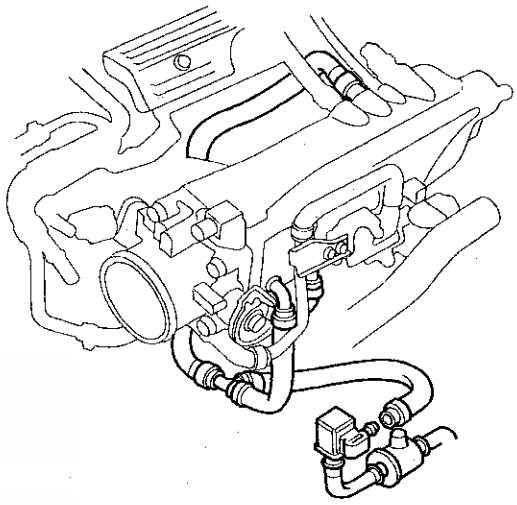


44. '06-08 models: Install the bolt (A) securing the intake manifold bracket.

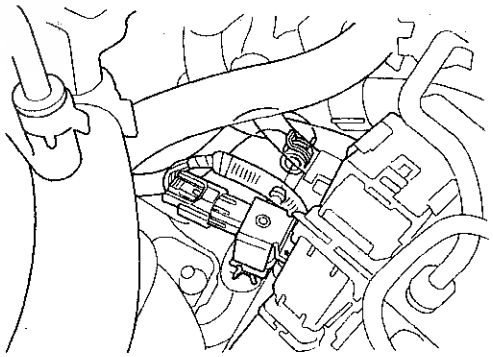


45. Connect the evaporative emission (EVAP) canister hose.

'00-05 models

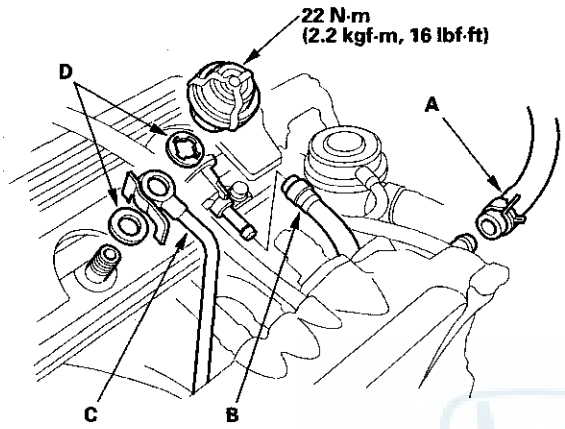


'06-08 models

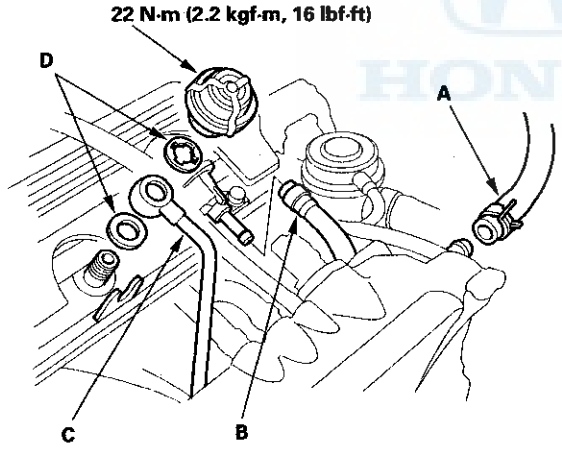


46. '00-05 models: Install the brake booster vacuum hose (A), fuel return hose (B), and fuel feed hose (C), using new washers (D).

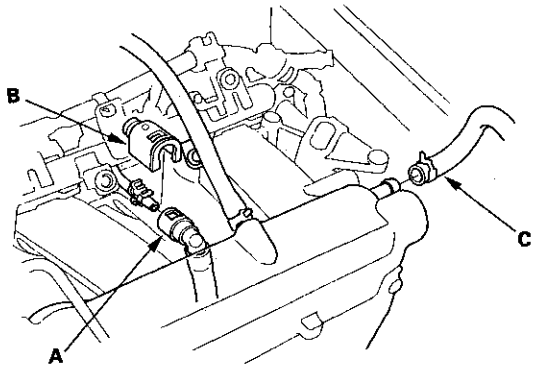
'00-03 models



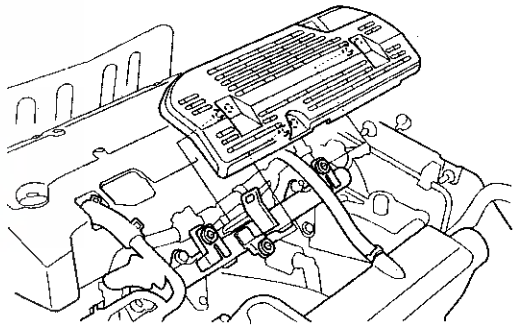
'04-05 models



47. '06-08 models: Connect the fuel feed hose (A), then install the quick-connect fitting cover (B), and install the brake booster vacuum hose (C).



48. '06-08 models: Install the intake manifold cover.



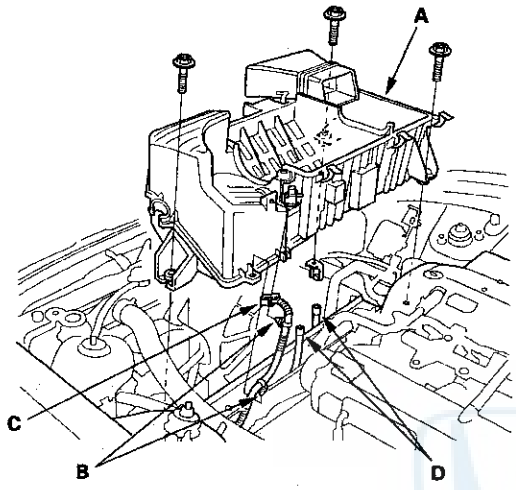
49. '00-05 models: Install the throttle cable (see page 11-167), then adjust the cable (see page 11-168).

50. Install the drive belt (see page 4-42).

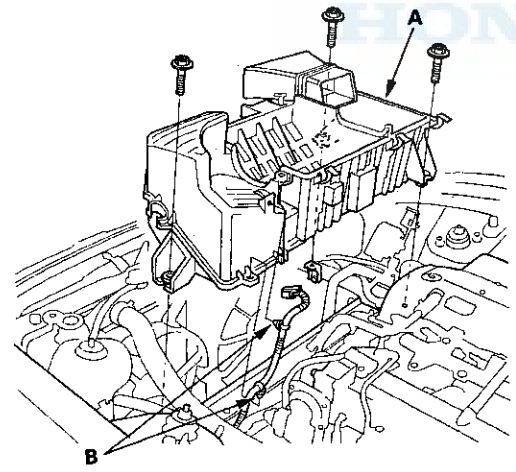
(cont'd)

Cylinder Head Installation (cont'd)

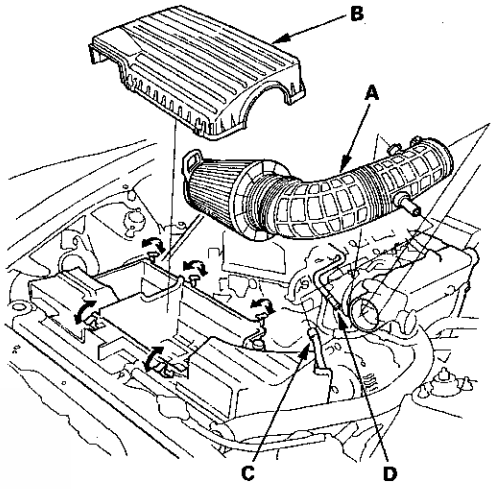
51. '00-05 models: Install the intake air cleaner housing (A), then install the harness clamps (B), connect air control solenoid valve connector (C) and vacuum hoses (D).



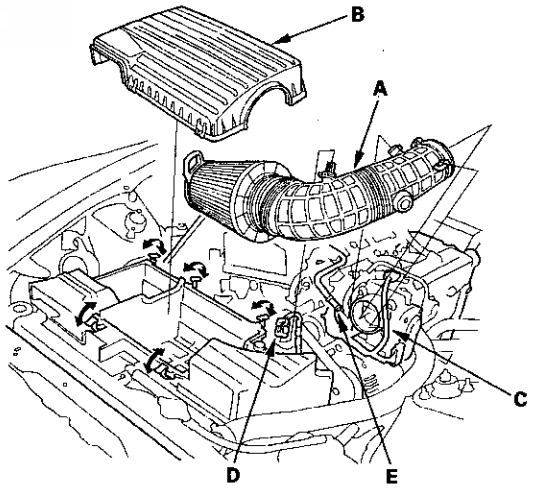
52. '06-08 models: Install the intake air cleaner housing (A), then install the IAT sensor harness clamps (B).



53. '00-05 models: Install the air cleaner assembly (A) and air cleaner housing cover (B), then connect the air hose (C) and breather pipe (D).



54. '06-08 models: Install the air cleaner assembly (A) and air cleaner housing cover (B), then install the MAP sensor harness (C) to the holder, connect the IAT sensor connector (D) and breather pipe (E).



55. After installation, check that all tubes, hoses, and connectors are installed correctly.

56. After assembly, wait at least 30 minutes before filling the engine with oil.

57. Clean the battery posts and cable terminals, then assemble them and apply grease to prevent corrosion.

58. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so that the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.

59. Refill the engine with engine oil (see page 8-6).

60. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 7 on page 10-9).

61. '00-05 models: Do the engine control module (ECM) idle learn procedure (see page 11-140).

62. '06-08 models: Do the crankshaft position (CKP)/ CKP learn procedure (see page 11-214).

63. Inspect the idle speed:

    - '00-05 models (see page 11-140)
    - '06-08 models (see page 11-461)

64. Inspect the ignition timing (see page 4-24).

65. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

HONDA

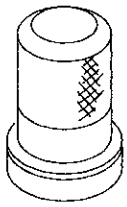
Engine Mechanical

Engine Block

Engine Block

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07LAD-PT3010A	Seal Driver	1
②	07749-0010000	Handle Driver	1
③	07948-SB00101	Driver Attachment	1



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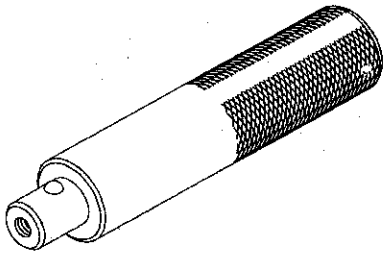

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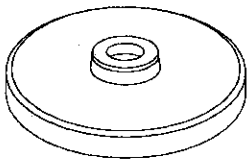
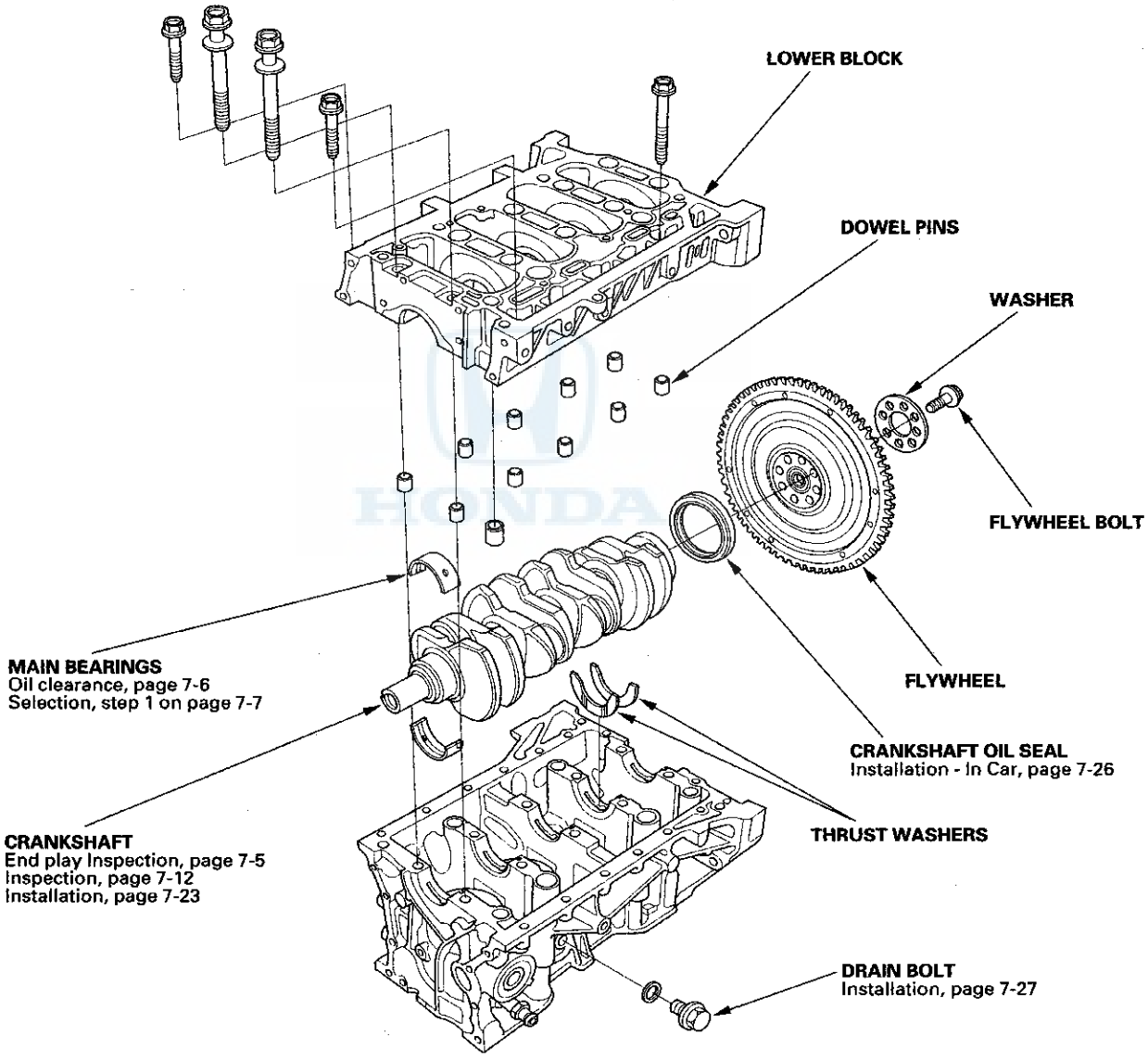


③

Component Location Index



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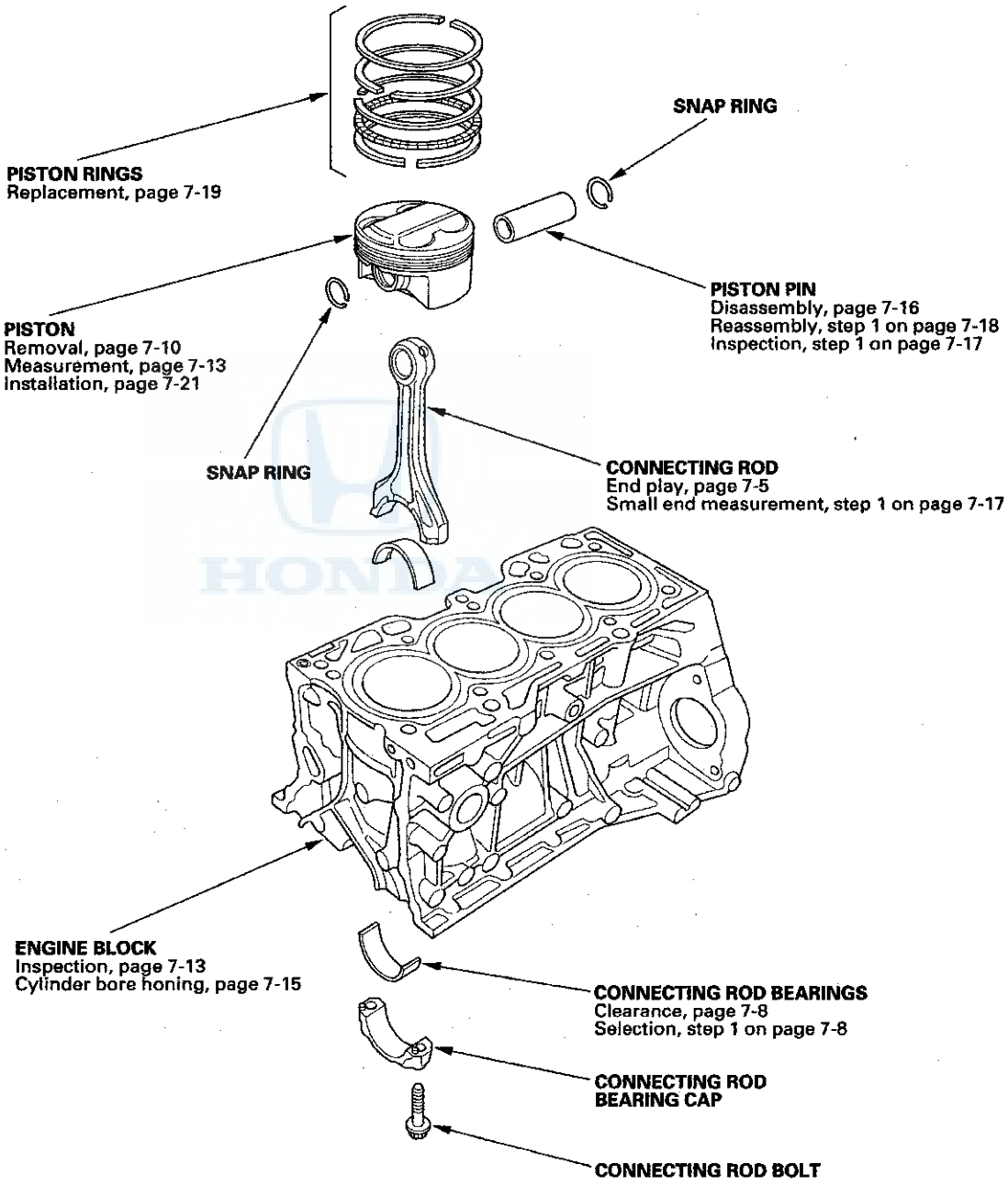
Component Location Index (cont'd)

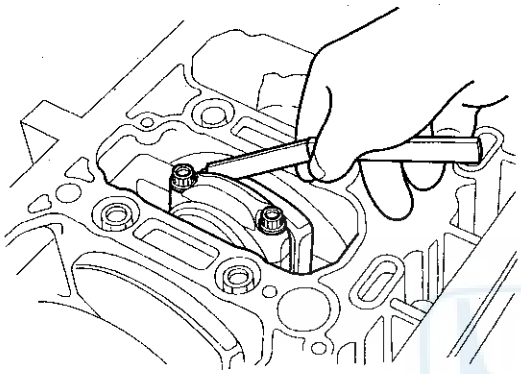


Connecting Rod and Crankshaft End Play Inspection

1. Remove the oil pump (see page 8-11).

2. Measure the connecting rod end play with a feeler gauge between the connecting rod and crankshaft.

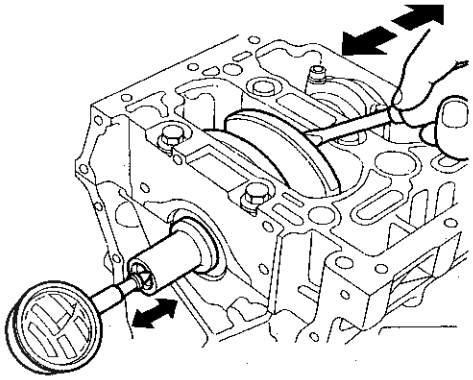
   Connecting Rod End Play
   Standard (New): 0.15—0.30 mm (0.006—0.012 in.)
   Service Limit: 0.40 mm (0.016 in.)



3. If the connecting rod end play is out-of-tolerance, install a new connecting rod, and recheck. If it is still out-of-tolerance, replace the crankshaft (see page 7-10).

4. Push the crankshaft firmly away from the dial indicator, and zero the dial against the end of the crankshaft. Then pull the crankshaft firmly back toward the indicator; the dial reading should not exceed the service limit.

   Crankshaft End Play
   Standard (New): 0.10—0.35 mm (0.004—0.014 in.)
   Service Limit: 0.45 mm (0.018 in.)



5. If the end play is excessive, replace the thrust washers and recheck. If it is still out-of-tolerance, replace the crankshaft (see page 7-10).

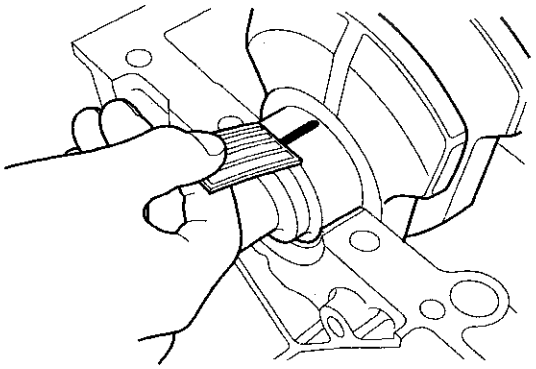
Crankshaft Main Bearing Replacement

Main Bearing Clearance Inspection

1. Remove the lower block and bearing halves (see page 7-10).
2. Remove all of the old liquid gasket from the lower block mating surfaces, bolts, and bolt holes.
3. Clean the lower block mating surface.
4. Clean each main journal and bearing half with a clean shop towel.
5. Place one strip of plastigauge across each main journal.
6. Reinstall the bearings and lower block, then torque the bolts to 29 N·m (3.0 kgf·m, 22 lbf·ft) + 60 °.

   NOTE: Do not rotate the crankshaft during inspection.
7. Remove the lower block and bearings again, and measure the widest part of the plastigauge.

   Main Bearing-to-Journal Oil Clearance
   Standard (New): 0.017—0.041 mm (0.0007—0.0016 in.)
   Service Limit: 0.050 mm (0.0020 in.)



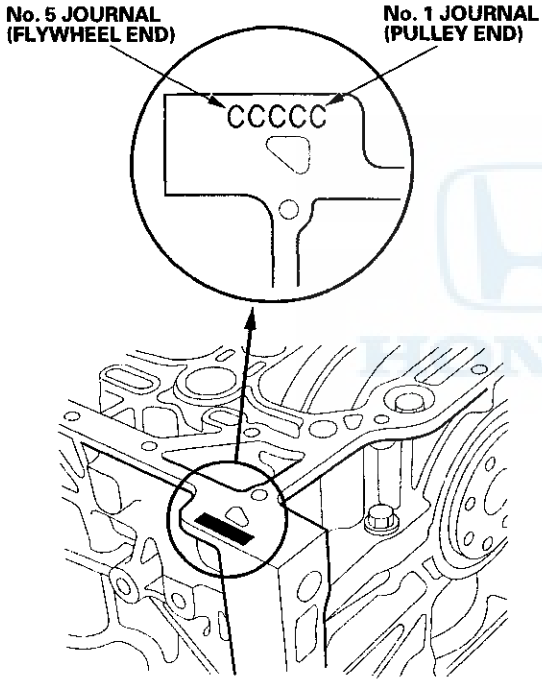
8. If the plastigauge measures too wide or too narrow, remove the crankshaft, and remove the upper half of the bearing. Install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
9. If the plastigauge shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearings, replace the crankshaft and start over.

Main Bearing Selection

Crankshaft Bore Code Location

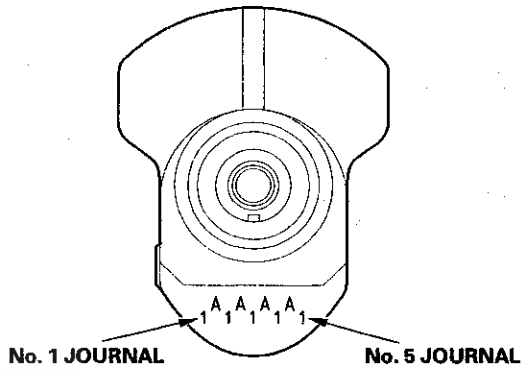
1. Numbers or letters or bars have been stamped on the end of the block as a code for the size of each of the five main journal bores. Write down the crank bore codes.

   If you can't read the codes because of accumulated dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.



Main Journal Code Location

2. The main journal codes are stamped on the No. 1 web.



3. Use the crank bore codes and crank journal codes to select the appropriate replacement bearings from the following table.

   NOTE:
   - Color code is on the edge of the bearing.
   - When using bearing halves of different colors, it does not matter which color is used in the top or bottom.

Main journal code (Smaller main journal)	Crank bore code: 1 or A or I (Larger crank bore)	2 or B or II	3 or C or III	4 or D or IIII (Smaller bearing (Thicker))
1 or I	Pink/ Yellow	Yellow	Yellow/ Green	Green
2 or II	Yellow	Yellow/ Green	Green	Green/ Brown
3 or III	Yellow/ Green	Green	Green/ Brown	Brown
4 or IIII	Green	Green/ Brown	Brown	Brown/ Black
5 or IIIII	Green/ Brown	Brown	Brown/ Black	Black
6 or IIIIII	Brown	Brown/ Black	Black	Black/ Blue

Smaller bearing (Thicker)

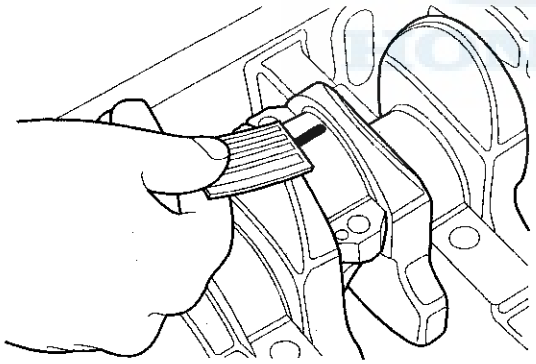
Connecting Rod Bearing Replacement

Connecting Rod Bearing Clearance Inspection

1. Remove the connecting rod cap and bearing half (see page 7-10).
2. Clean the crankshaft rod journal and bearing half with a clean shop towel.
3. Place a plastigauge across the rod journal.
4. Reinstall the bearing half and cap, and torque the bolt to 25 N·m (2.5 kgf·m, 18 lbf·ft) + 90 °.

   NOTE: Do not rotate the crankshaft during inspection.
5. Remove the rod cap and bearing half, and measure the widest part of the plastigauge.

   Connecting Rod Bearing-to-Journal Oil Clearance
   Standard (New): 0.030—0.054 mm (0.0012—0.0021 in.)
   Service Limit: 0.060 mm (0.0024 in.)



6. If the plastigauge measures too wide or too narrow, remove the upper half of the bearing, install a new, complete bearing with the same color code(s), and recheck the clearance. Do not file, shim, or scrape the bearings or the caps to adjust clearance.
7. If the plastigauge shows the clearance is still incorrect, try the next larger or smaller bearing (the color listed above or below that one), and check clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller bearing, replace the crankshaft and start over.

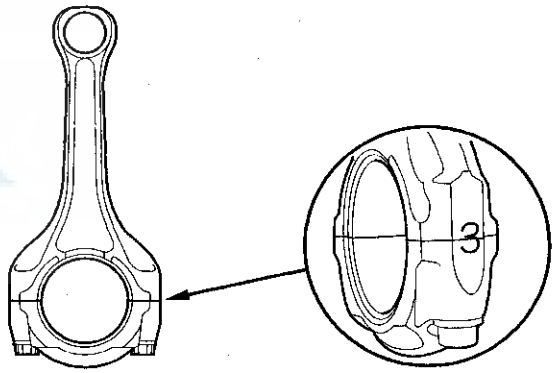
Connecting Rod Bearing Selection

1. Inspect each connecting rod for cracks and heat damage.

Connecting Rod Big End Bore Code Locations

2. Each connecting rod has a tolerance range from 0 to 0.024 mm (0.0009 in.), in 0.006 mm (0.0002 in.) increments, depending on the size of its big end bore. It's then stamped with a number or bar (1, 2, 3 or 4/I, II, III, or IIII) indicating the range. You may find any combination of numbers or bars in any engine, (half the number or bar is stamped on the bearing cap, the other half on the rod).

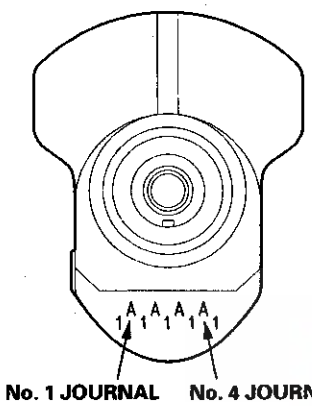
   If you can't read the code because of an accumulation of oil and varnish, do not scrub it with a wire brush or scraper. Clean it only with solvent or detergent.



Connecting Rod Journal Code Location

3. The connecting rod journal codes are stamped on the No. 1 web.

Connecting Rod Journal Code Location (Letters or Bars)



4. Use the big end bore codes and rod journal codes to select appropriate replacement bearings from the following table.

NOTE: Color code is on the edge of the bearing.

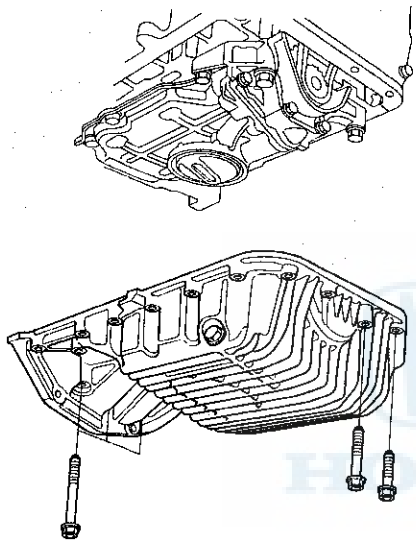
Rod Journal code ↓ / Big end bore code →	1 or I	2 or II	3 or III	4 or IIII
	Smaller bearing (Thicker)			Larger big end bore
A or I	Red	Pink	Yellow	Green
B or II	Pink	Yellow	Green	Brown
C or III	Yellow	Green	Brown	Black
D or IIII	Green	Brown	Black	Blue
Smaller rod journal	Smaller bearing (Thicker)			

Engine Block

Oil Pan Removal

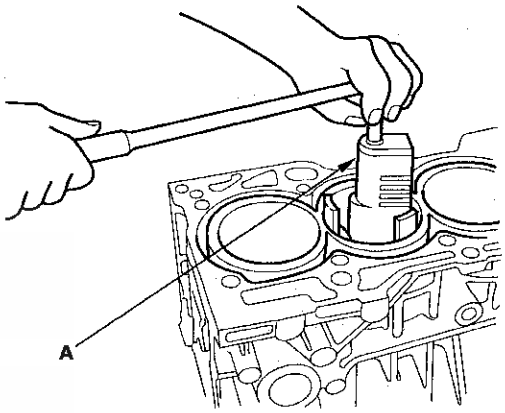
1. If the engine is out of the vehicle, go to step 3.
2. Drain the engine oil (see page 8-6).
3. Remove the bolt securing the oil pan, then remove the oil pan.

   NOTE: Cut the oil pan seal by using the oil seal cutter when oil pan doesn't come off easily.

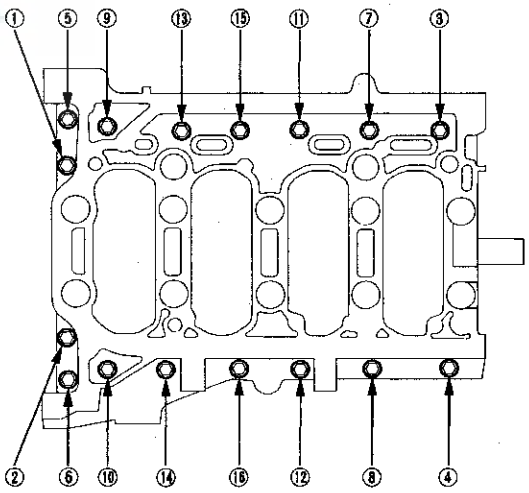


Crankshaft and Piston Removal

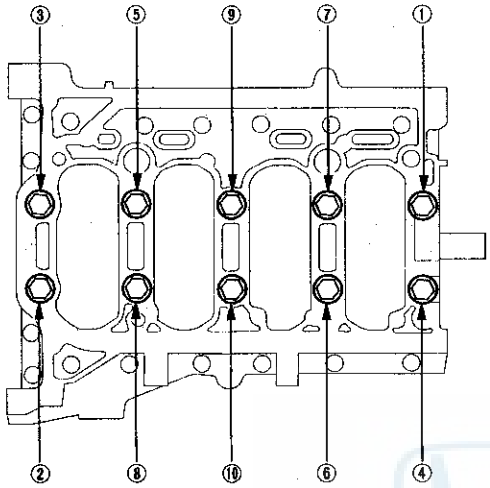
1. Remove the cam chain (see page 6-13).
2. Remove the oil pump (see step 1 on page 8-11).
3. If you can feel a ridge of metal or hard carbon around the top of any cylinder, remove it with a ridge reamer (A). Follow the reamer manufacturer's instructions. If the ridge is not removed, it may damage the piston as it is pushed out.



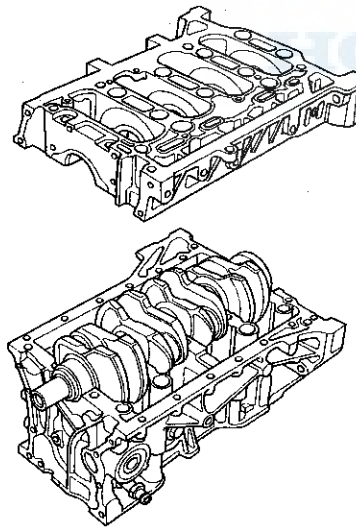
4. Remove the 8 mm bolts securing the lower block.



5. Remove the bearing cap bolts. To prevent warpage, loosen the bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.

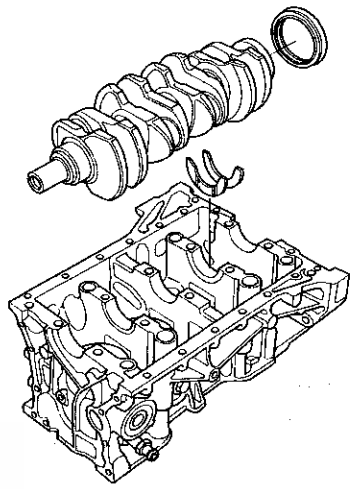


6. Remove the lower block and bearings. Keep all bearings in order.

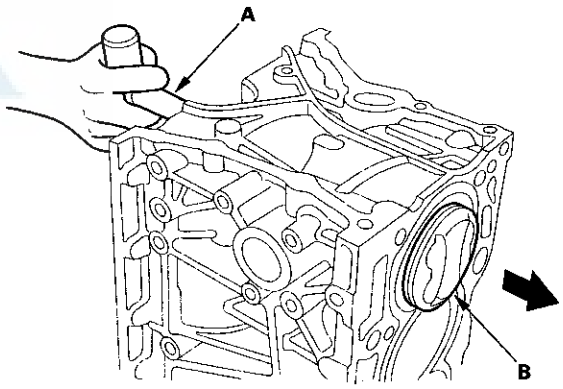


7. Remove the rod caps and bearings. Keep all caps and bearings in order.

8. Lift the crankshaft out of the engine block, being careful not to damage the journals.



9. Use the wooden handle of a hammer (A) to drive out the pistons (B).



10. Reinstall the connecting rod bearings and caps after removing each piston and connecting rod assembly.

11. To avoid mix-up on reassembly, mark each piston and connecting rod assembly with its cylinder number.

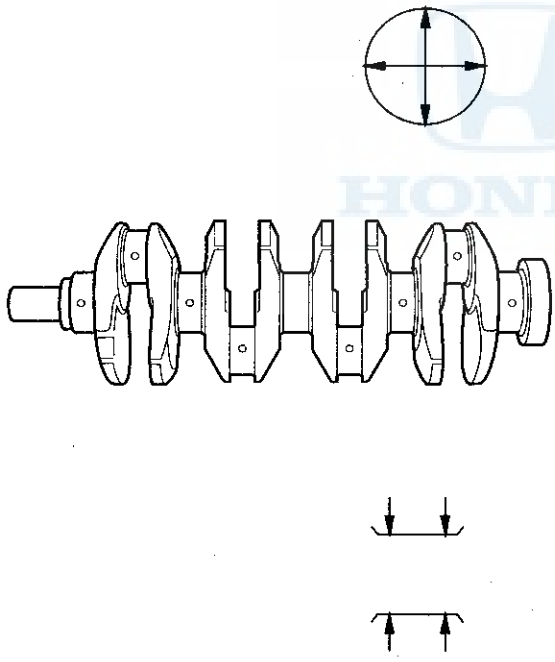
    NOTE: The existing number on the connecting rod does not indicate its position in the engine, it indicates the rod bore size.

Crankshaft Inspection

Out-of-Round and Taper

1. Remove the crankshaft from the engine block (see page 7-10).
2. Clean the crankshaft oil passages with pipe cleaners or a suitable brush.
3. Check the keyway and threads.
4. Measure the out-of-round at the middle of each rod and main journal in two places of the cross direction. The difference between measurements on each journal must not be more than the service limit.

Journal Out-of-Round
Standard (New): 0.004 mm (0.0002 in.) max.
Service Limit: 0.006 mm (0.0002 in.)



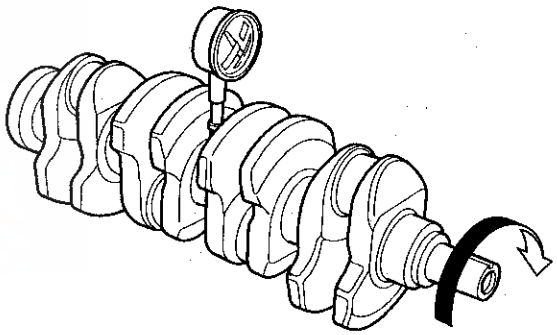
5. Measure the taper at the edge of each rod and main journal. The difference between measurements on each journal must not be more than the service limit.

Journal Taper
Standard (New): 0.005 mm (0.0002 in.) max.
Service Limit: 0.006 mm (0.0002 in.)

Straightness

6. Place the engine block on the surface plate.
7. Clean and install the bearings on the No. 1 and No. 5 journals of the engine block.
8. Lower the crankshaft into the engine block.
9. Measure the runout on all of the main journals. Rotate the crankshaft two complete revolutions. The difference between measurements on each journal must not be more than the service limit.

Crankshaft Total Indicator Runout
Standard (New): 0.02 mm (0.0008 in.) max.
Service Limit: 0.04 mm (0.0016 in.)

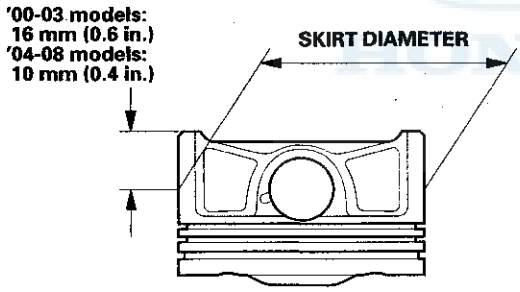


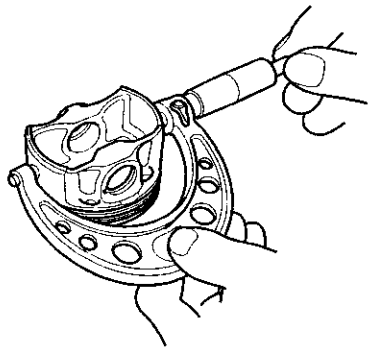
Block and Piston Inspection

1. Remove the crankshaft and pistons (see page 7-10).
2. Check the piston for distortion or cracks.
3. Measure the piston diameter at a point 16 mm (0.6 in.) ('00-03 models), or 10 mm (0.4 in.) ('04-08 models) from the bottom of the skirt. There are two standard-size pistons (No Letter or A, and B). The letter is stamped on the top of the piston. Letters are also stamped on the engine block as cylinder bore sizes.

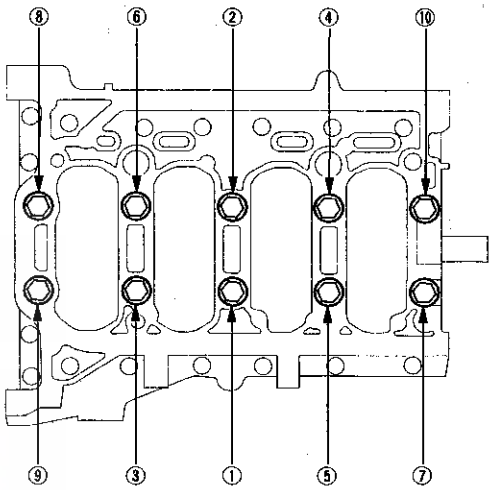
Piston Diameter
Standard (New):
No Letter (or A): **86.993—87.006 mm (3.4249—3.4254 in.)**
B: **86.983—86.996 mm (3.4245—3.4250 in.)**
Service Limit:
No Letter (or A): **86.980 mm (3.4244 in.)**
B: **86.970 mm (3.4240 in.)**

Oversize Piston Diameter
0.25: 87.233—87.246 mm (3.4344—3.4349 in.)

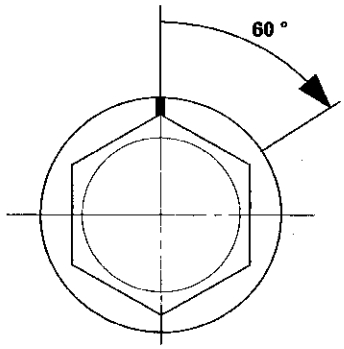




4. Remove all of the old liquid gasket from the lower block mating surfaces, bolts, and bolt holes.
5. Clean the lower block mating surfaces.
6. Put the lower block on the engine block.
7. Tighten the bearing cap bolts in sequence to 29 N·m (3.0 kgf·m, 22 lbf·ft).



8. Tighten the bearing cap bolts an additional 60 °.



(cont'd)

Block and Piston Inspection (cont'd)

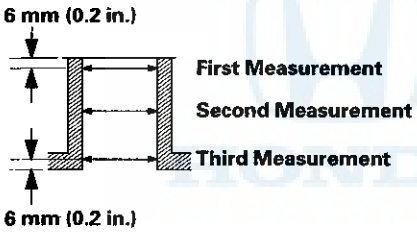
9. Measure the wear and taper in direction X and Y at three levels in each cylinder as shown. If measurements in any cylinder are beyond the oversize bore service limit, replace the engine block. If the block is to be rebored, refer to step 12 after reboring.

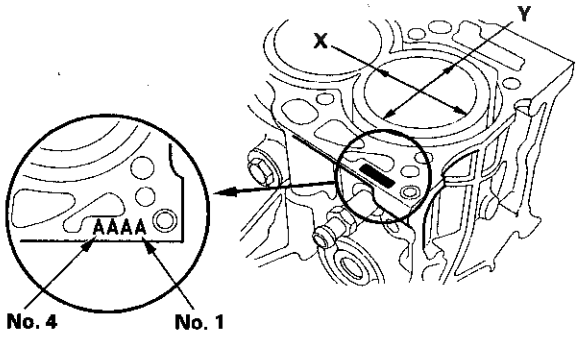
Cylinder Bore Size
Standard (New)
A or I: 87.010—87.020 mm (3.4256—3.4260 in.)
B or II: 87.000—87.010 mm (3.4252—3.4256 in.)

Oversize
0.25: 87.250—87.260 mm (3.4350—3.4354 in.)

Reboring Limit: 0.25 mm (0.01 in.) max.

Bore Taper
Limit: (Difference between first and third measurement) 0.05 mm (0.002 in.)

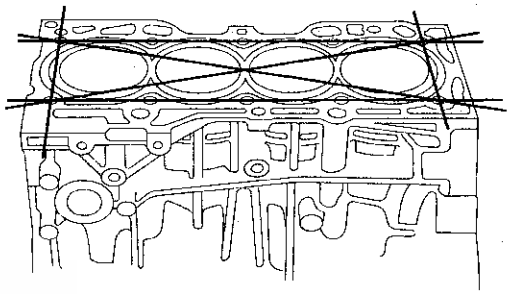


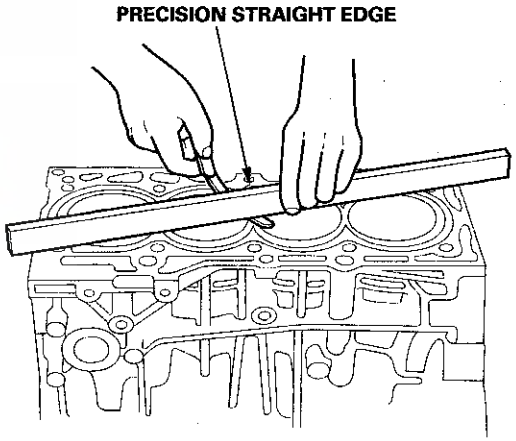


10. Scored or scratched cylinder bores must be honed.

11. Check the top of the block for warpage. Measure along the edges and across the center as shown.

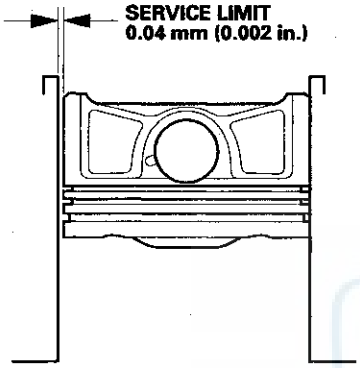
Engine Block Warpage
Standard (New): 0.07 mm (0.003 in.) max.
Service Limit: 0.10 mm (0.004 in.)





12. Calculate the difference between the cylinder bore diameter and the piston diameter. If the clearance is near or exceeds the service limit, inspect the piston and engine block for excessive wear.

Piston-to-Cylinder Clearance
Standard (New): 0.004—0.027 mm (0.0002—0.0011 in.)
Service Limit: 0.004 mm (0.0002 in.)



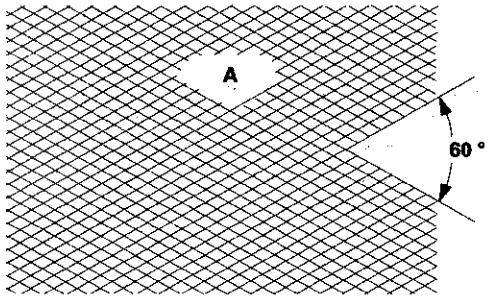
Cylinder Bore Honing

The cylinder liners are made with FRM (fiber reinforced metal). Hone the cylinders only as described here.

1. Measure the cylinder bores (see page 7-13). If the engine block is to be reused, hone the cylinders and remeasure the bores. Scored or scratched cylinder bores must be honed.

2. Hone the cylinders using the following equipment, materials and methods:

   - Use only a rigid hone.
   - Honing stones: GC-600-J or finer stones for nonferrous metals
   - Pressure: 200—300 kPa (2—3 kgf/cm², 28—43 psi)
   - Honing rpm: 45—50
   - Honing thickness: Less than 0.02 mm (0.0008 in.) Do not hone more than 20 cycles.
   - Honing lubricant: Oil type
   - Honing pattern: 60 degree cross-hatch (A)
   - Hone cleaning: Clean the stones every five cycles.



3. When honing is complete, thoroughly clean the engine block of all metal particles. Wash the cylinder bores with hot soapy water, then dry and oil them immediately to prevent rusting. Never use solvent, it will only redistribute the grit on the cylinder walls.

4. If scoring or scratches are still present in the cylinder bores after honing to the service limit, rebore the cylinders. Some light vertical scoring and scratching is acceptable if it is not deep enough to catch your fingernail and if it does not run the full length of the bore.

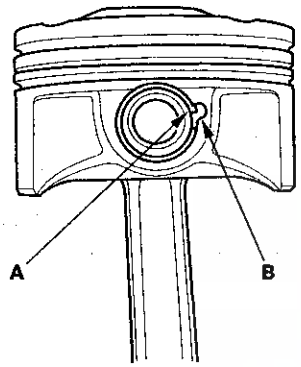
Piston, Pin, and Connecting Rod Replacement

Disassembly

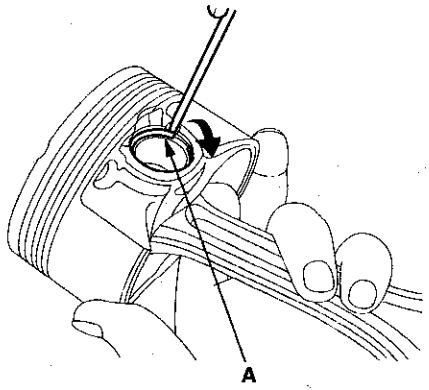
1. Remove the piston from the engine block (see page 7-10).

2. Apply new engine oil to the piston pin snap rings (A), and turn them in the ring grooves until the end gaps are lined up with the cutouts in the piston pin bores (B).

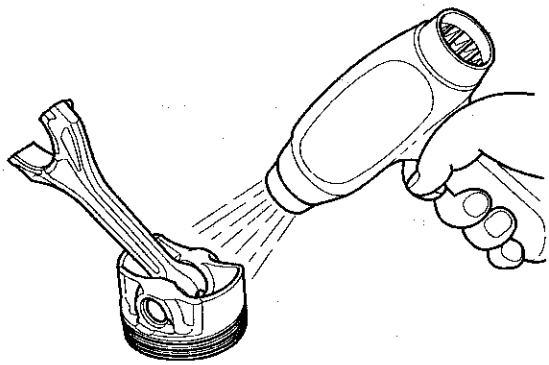
   NOTE: Take care not to damage the ring grooves.



3. Remove both snap rings (A). Start at the cutout in the piston pin bore. Remove the snap rings carefully so they do not go flying or get lost. Wear eye protection.



4. Heat the piston and connecting rod assembly to about 158 °F (70 °C), then remove the piston pin.

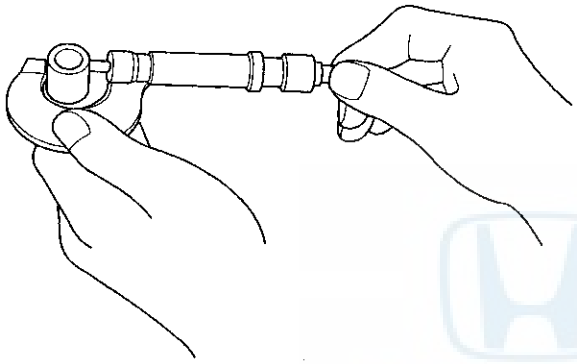


Inspection

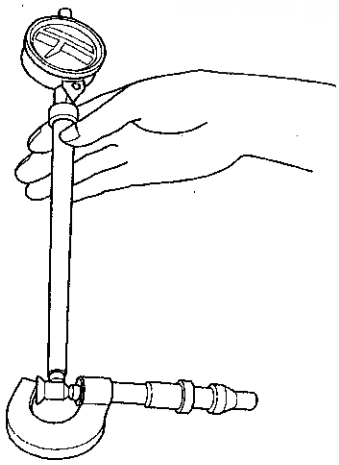
NOTE: Inspect the piston, piston pin, and connecting rod when they are at room temperature.

1. Measure the diameter of the piston pin.

Piston Pin Diameter
Standard (New): 22.961—22.965 mm (0.9040—0.9041 in.)
Service Limit: 22.953 mm (0.9037 in.)

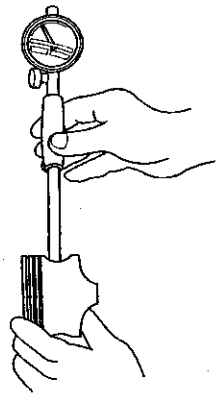


2. Zero the dial indicator to the piston pin diameter.



3. Check the difference between the piston pin diameter and piston pin hole diameter in the piston.

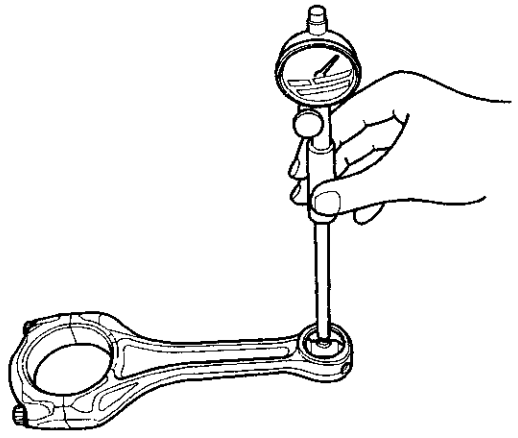
Piston Pin-to-Piston Clearance
Standard (New): —0.002 to +0.005 mm (—0.00008 to +0.00020 in.)
Service Limit: 0.010 mm (0.0004 in.)



4. Measure the piston pin-to-connecting rod clearance.

NOTE: When replacing the connecting rod, also replace the piston pin as a set.

Piston Pin-to-Connecting Rod Clearance
Standard (New): 0.018—0.035 mm (0.0007—0.0014 in.)
Service Limit: 0.04 mm (0.0016 in.)



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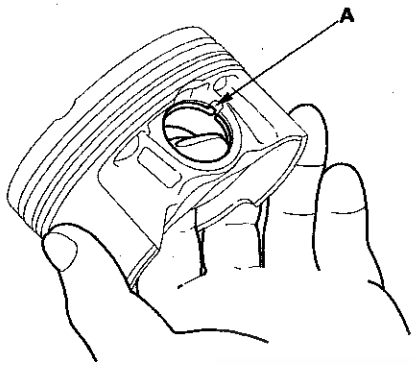
Piston, Pin, and Connecting Rod Replacement (cont'd)

Reassembly

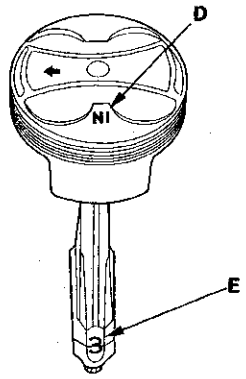
1. Install a new piston pin snap ring (A) only on one side.

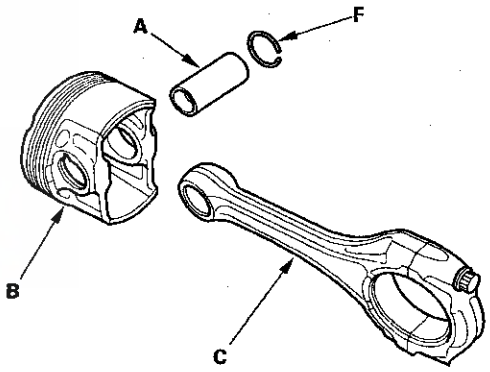


2. Coat the piston pin bore in the piston and the connecting rod, and the piston pin with new engine oil.

3. Heat the piston to about 158 °F (70 °C).

4. Install the piston pin (A). Assemble the piston (B) and connecting rod (C) with the "IN" mark (D) and the reference mark (E) on the same side.





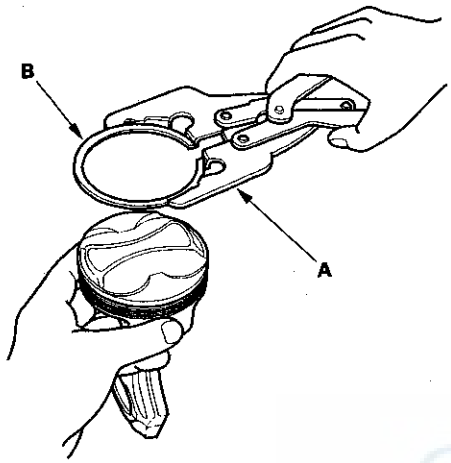
5. Install the remaining new snap ring (F).

6. Turn the snap rings in the ring grooves until the end gaps are positioned at the bottom of the piston.

Piston Ring Replacement

1. Remove the piston from the engine block (see page 7-10).

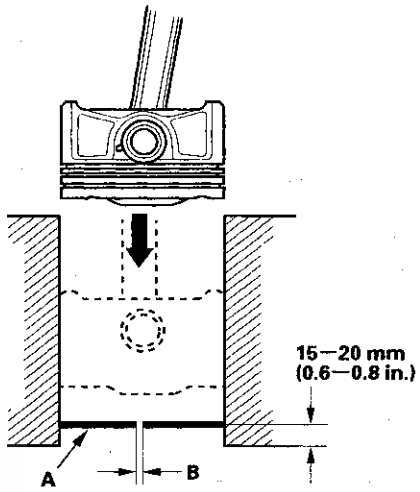
2. Using a ring expander (A), remove the old piston rings (B).



3. Clean all ring grooves thoroughly with a squared-off broken ring or ring groove cleaner with a blade that fits the piston grooves. The top and second ring grooves are 1.2 mm (0.05 in.) wide. The oil ring groove is 2.0 mm (0.08 in.) wide. File down a blade if necessary. Do not use a wire brush to clean the ring grooves, or cut the ring grooves deeper with the cleaning tools.

   NOTE: If the piston is to be separated from the connecting rod, do not install new rings yet.

4. Using a piston, push a new ring (A) into the cylinder bore 15—20 mm (0.6—0.8 in.) from the bottom.



5. Measure the piston ring end-gap (B) with a feeler gauge:

   - If the gap is too small, check to see if you have the proper rings for your engine.
   - If the gap is too large, recheck the cylinder bore diameter against the wear limits (see page 7-13). If the bore is over the service limit, the engine block must be rebored.

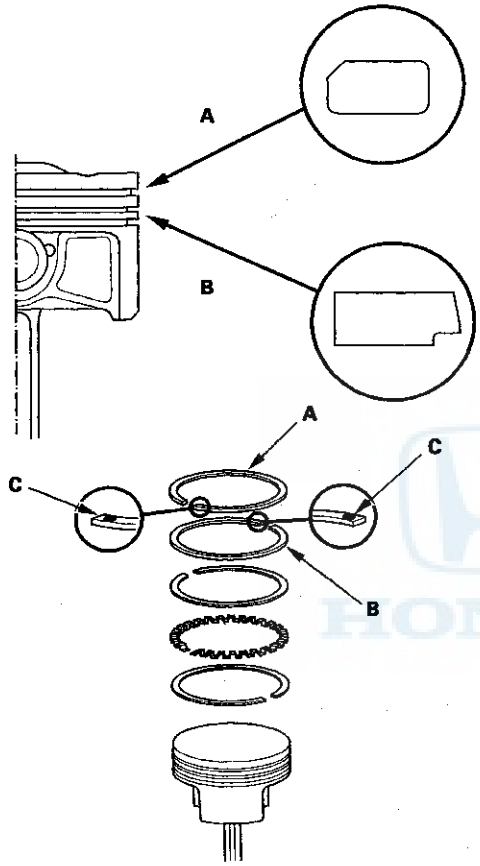
Piston Ring End-Gap

Top Ring:	
Standard (New):	**0.25—0.35 mm (0.010—0.014 in.)**
Service Limit:	**0.60 mm (0.024 in.)**
Second Ring:	
Standard (New):	**0.60—0.75 mm (0.024—0.030 in.)**
Service Limit:	**0.90 mm (0.035 in.)**
Oil Ring:	
Standard (New):	**0.20—0.70 mm (0.008—0.028 in.)**
Service Limit:	**0.80 mm (0.031 in.)**

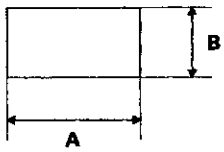
(cont'd)

Piston Ring Replacement (cont'd)

6. Install the rings as shown. The top ring (A) has a R1 mark and the second ring (B) has a R2 mark. The manufacturing marks (C) must be facing upward.



Piston Ring Dimensions:

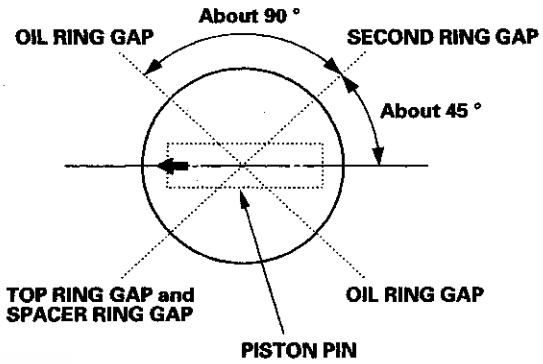


Top Ring (Standard):
A: 2.8 mm (0.11 in.)
B: 1.2 mm (0.05 in.)

Second Ring (Standard):
A: 3.2 mm (0.13 in.)
B: 1.2 mm (0.05 in.)

7. Rotate the rings in their grooves to make sure they do not bind.

8. Position the ring end gaps as shown:

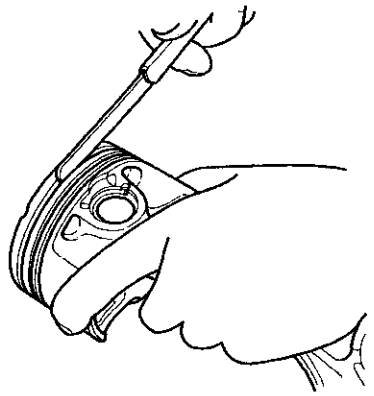


9. After installing a new set of rings, measure the ring-to-groove clearances:

NOTE: After the inspection, make sure each ring is in proper position as step 8.

Top Ring Clearance
Standard (New): 0.045—0.090 mm (0.0018—0.0035 in.)
Service Limit: 0.135 mm (0.005 in.)

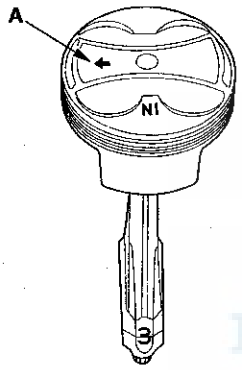
Second Ring Clearance
Standard (New): 0.040—0.070 mm (0.0016—0.0028 in.)
Service Limit: 0.13 mm (0.005 in.)



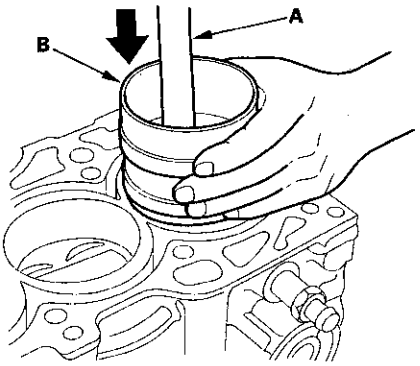
Piston Installation

If the Crankshaft is Already Installed

1. Set the crankshaft to bottom dead center (BDC) for each cylinder.
2. Apply new engine oil to the piston, inside the ring compressor, and the cylinder bore. Then attach the ring compressor to the piston.
3. Remove the connecting rod caps, then check that the bearing is securely in place.
4. Position the arrow (A) facing the cam chain side of the engine.



5. Position the piston in the cylinder, and tap it in using the wooden handle of a hammer (A). Maintain downward force on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.



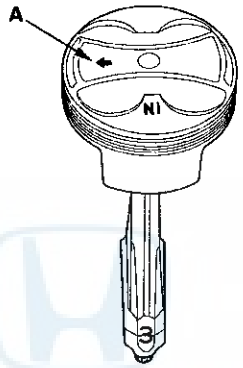
6. Stop after the ring compressor pops free, and check the connecting rod-to-crank journal alignment before pushing the piston into place.
7. Check the connecting rod bearing clearance with plastigauge (see page 7-8).
8. Apply new engine oil to the threads of the connecting rod bolts.
9. Install the rod caps with bearings, then tighten the connecting rod bolts is sequence to 25 N·m (2.5 kgf·m, 18 lbf·ft).
10. Tighten the connecting rod bolts an additional 90 °.

(cont'd)

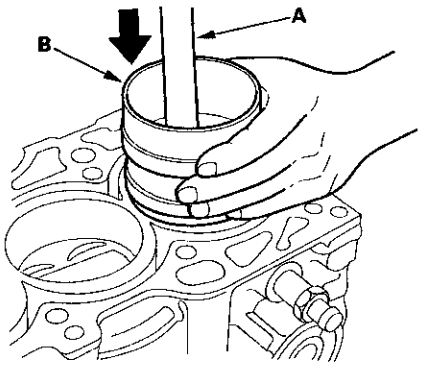
Piston Installation (cont'd)

If the Crankshaft is Not Installed

1. Apply new engine oil to the piston, inside the ring compressor, and the cylinder bore. Then attach the ring compressor to the piston.
2. Remove the connecting rod caps, then check that the bearing is securely in place.
3. Position the arrow (A) facing the cam chain side of the engine.



4. Position the piston in the cylinder, and tap it in using the wooden handle of a hammer (A). Maintain downward force on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.

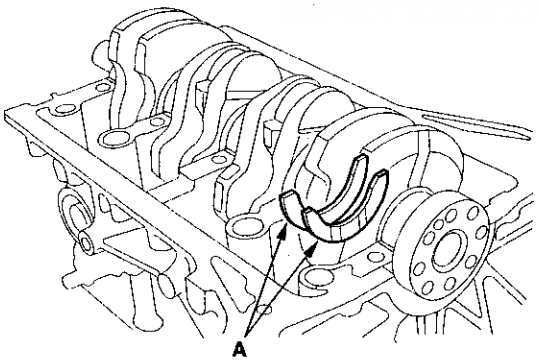


5. Position all pistons at top dead center.

Crankshaft Installation

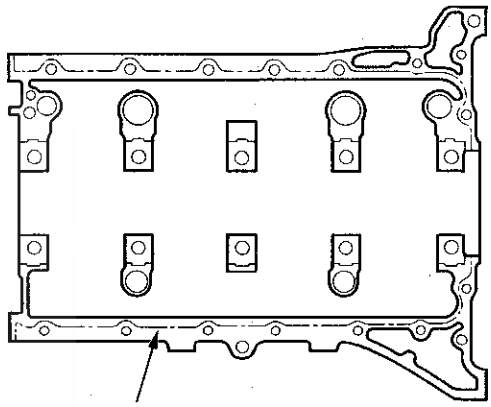
Special Tools Required
- Handle driver 07749-0010000
- Driver attachment 07948-SB00101

1. Remove all of the old liquid gasket from the lower block mating surfaces, bolt, and bolt holes.
2. Clean the lower block mating surfaces.
3. Check the connecting rod bearing clearance with plastigauge (see page 7-8).
4. Check the main bearing clearance with plastigauge (see page 7-6).
5. Install the bearing halves in the engine block and connecting rods.
6. Apply new engine oil to the main bearings and rod bearings.
7. Hold the crankshaft so rod journal No. 2 and rod journal No. 3 are straight up, and lower the crankshaft into the engine block.
8. Install the thrust washers (A) on both edges of the No. 4 main bearing recess.



9. Apply new engine oil to the threads of the connecting rod bolts.
10. Seat the rod journals into connecting rod No. 1 and connecting rod No. 4. Install the connecting rod caps and bolts finger-tight. Install the caps so the bearing recess is on the same side as the recess in the rod.
11. Rotate the crankshaft clockwise, and seat the journals into connecting rod No. 2 and connecting rod No. 3. Install the connecting rod caps and bolts finger-tight.
12. Tighten the connecting rod bolts in sequence to 25 N·m (2.5 kgf·m, 18 lbf·ft).
13. Tighten the connecting rod bolts an additional 90 °.
14. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the lower block.

    NOTE: Do not install the parts if 5 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing old the residue.

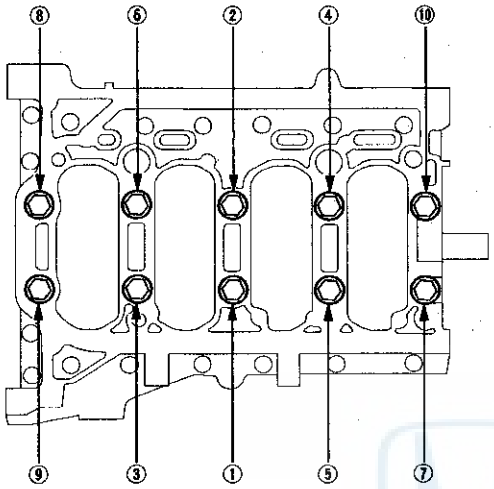


(cont'd)

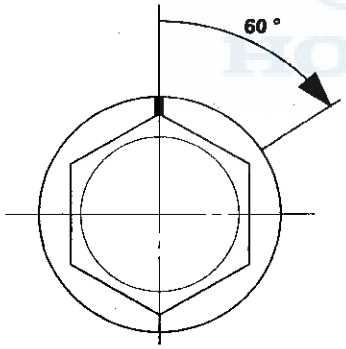
Crankshaft Installation (cont'd)

15. Put the lower block on the engine block.

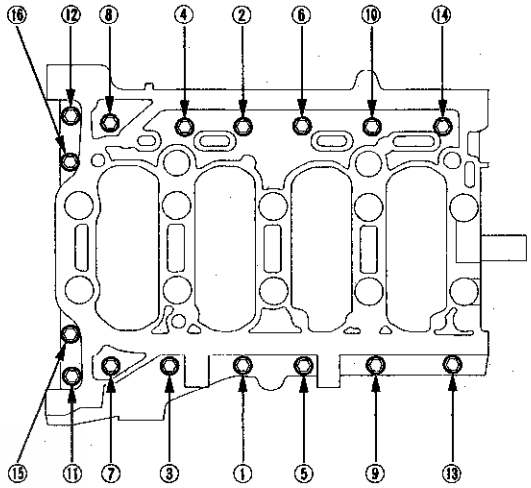
16. Tighten the bearing cap bolts is sequence to 29 N·m (3.0 kgf·m, 22 lbf·ft).



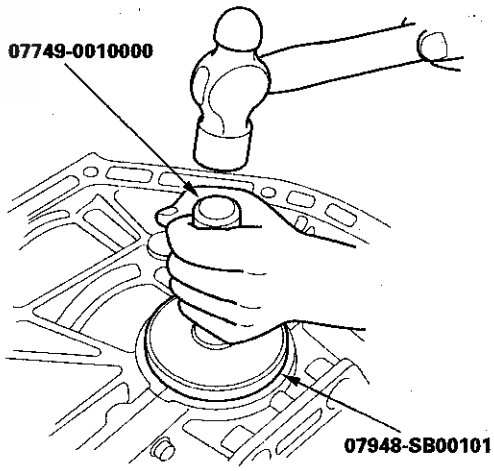
17. Tighten the bearing cap bolts an additional 60 °.



18. Tighten the 8 mm bolts in sequence to 22 N·m (2.2 kgf·m, 16 lbf·ft).

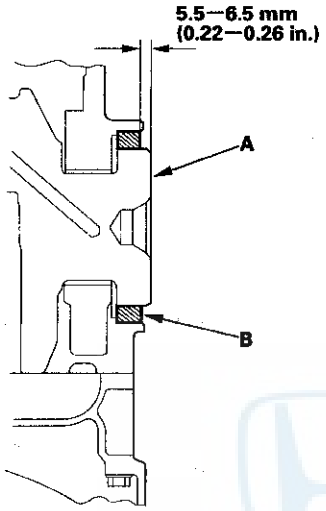


19. Use the handle driver and driver attachment to drive a new oil seal squarely into the block to the specified installed height.



20. Measure the distance between the crankshaft (A) and oil seal (B).

Oil Seal Installed Height: 5.5—6.5 mm (0.22—0.26 in.)



21. Install the oil pump (see step 12 on page 8-13).

22. Install the cam chain (see page 6-15).

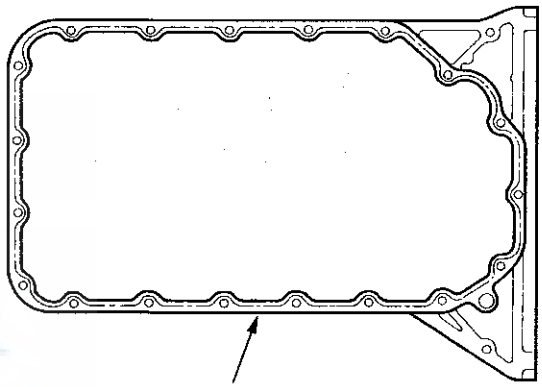
Oil Pan Installation

1. Remove any old liquid gasket from the oil pan mating surfaces, bolts, and bolt holes.

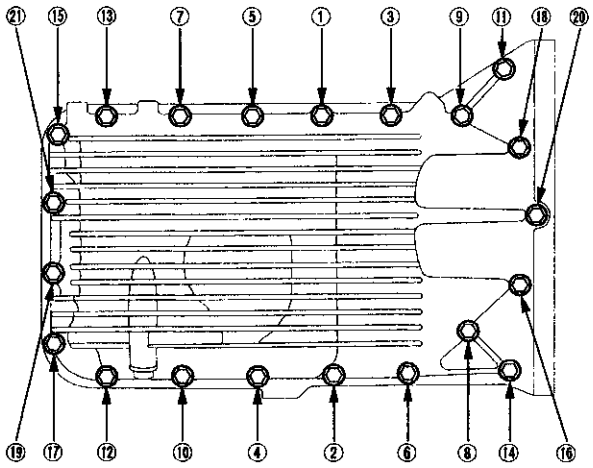
2. Clean and dry the oil pan mating surfaces.

3. Apply liquid gasket, P/N 08717-0004, 08718-0001, 08718-0003, or 08718-0009, evenly to the engine block mating surface of the oil pan. Install the oil pan.

   NOTE: Do not install the parts if 5 minutes or more have elapsed since applying liquid gasket. Instead, reapply liquid gasket after removing the old residue.



4. Tighten the bolts in three steps. In the final step, tighten all bolts, in sequence, to 12 N·m (1.2 kgf·m, 8.7 lbf·ft).

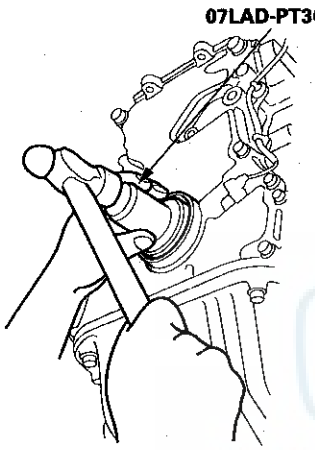


5. After assembly, wait at least 30 minutes before filling the engine with oil.

Pulley End Crankshaft Oil Seal Installation - In Car

Special Tools Required
Seal driver 07LAD-PT3010A

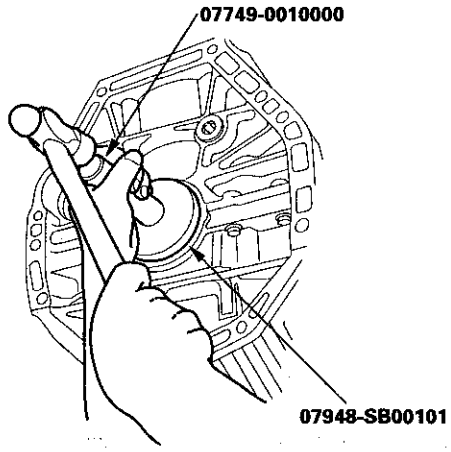
1. Clean and dry the crankshaft oil seal housing.
2. Using the seal driver, drive in the crankshaft oil seal until the driver bottoms against the chain case.



Transmission End Crankshaft Oil Seal Installation - In Car

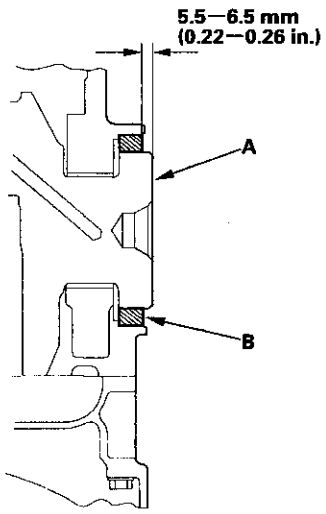
Special Tools Required
- Handle driver 07749-0010000
- Driver attachment 07948-SB00101

1. Clean and dry the crankshaft oil seal housing.
2. Use the handle driver and driver attachment to drive a new oil seal squarely into the block to the specified installed height.



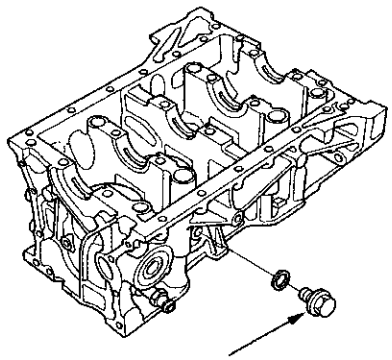
3. Measure the distance between the crankshaft (A) and oil seal (B).

Oil Seal Installed Height: **5.5—6.5 mm (0.22—0.26 in.)**



Drain Bolt Installation

NOTE: When installing the drain bolt, always use a new washer.



28 x 1.0 mm
83 N·m
(8.5 kgf·m, 61 lbf·ft)


HONDA

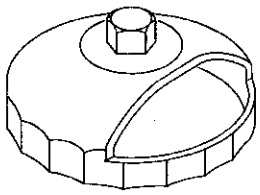
Engine Mechanical

Engine Lubrication

Engine Lubrication

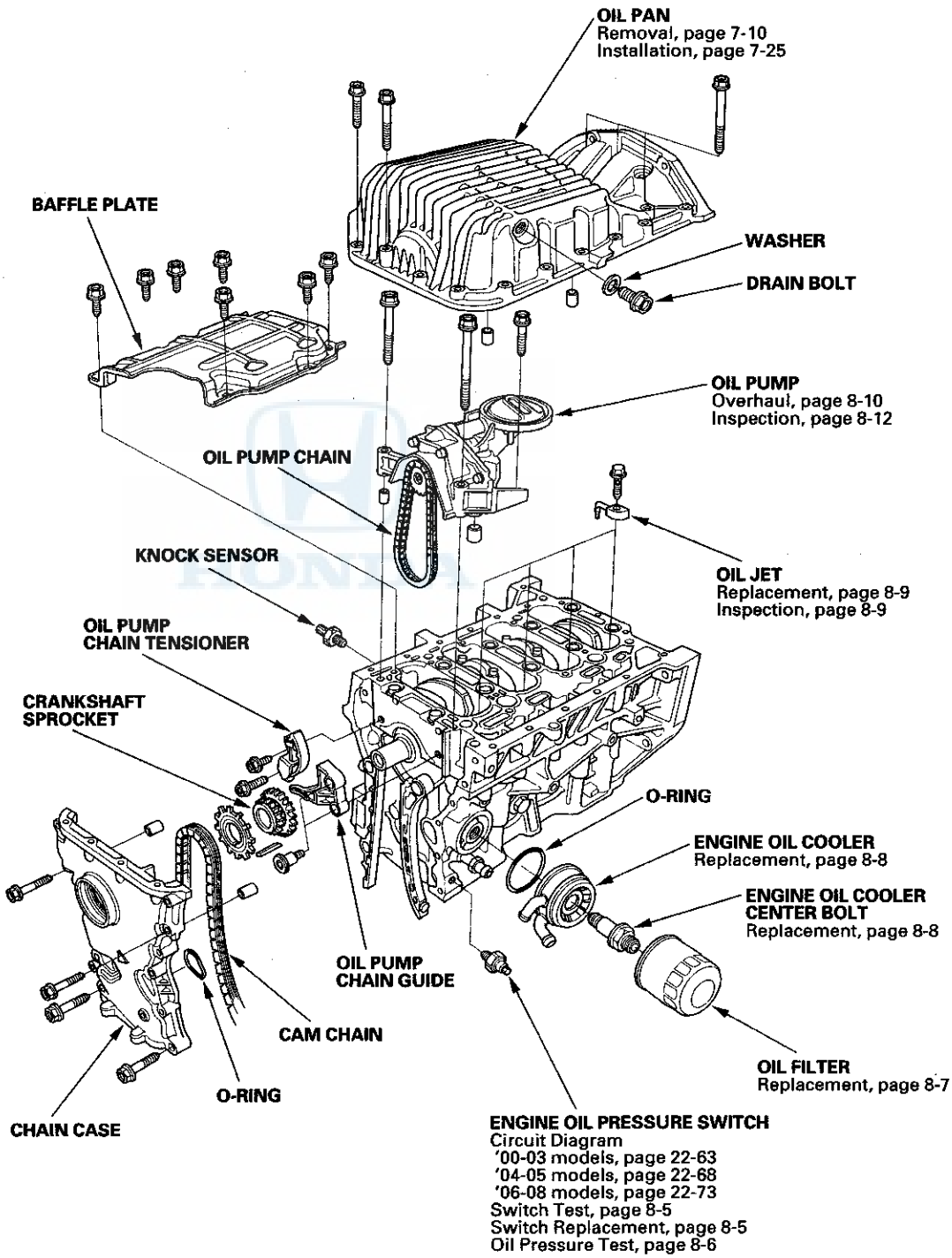
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07912-6110001	Oil Filter Wrench	1



①

Component Location Index

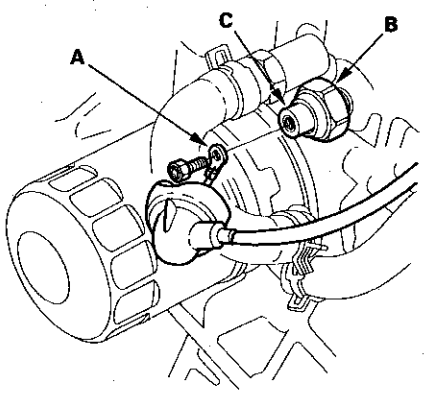


Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Excessive engine oil consumption	1. Verify the engine oil filler cap, oil drain bolt, and oil filter are tight. 2. Check for oil leaks. 3. Check for worn valve guide(s) (see page 6-43) or worn valve stem seal(s) (see page 6-43). 4. Check for damaged or worn piston ring(s) (see page 7-19). 5. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.).	
Low oil pressure indicator does not come on with the ignition switch ON (II)	1. '06-08 models: Do the gauge assembly self-diagnostic function (see page 22-60). 2. Test the oil pressure switch (see page 8-5).	An open in the wire between the gauge assembly and the oil pressure switch
Low oil pressure indicator stays on	1. Check the engine oil level. 2. '06-08 models: Do the gauge assembly self-diagnostic function (see page 22-60). 3. Test the oil pressure switch (see page 8-5). 4. Check the engine oil pressure (see page 8-6). 5. Check the oil filter for clogging. 6. Check the oil screen for clogging. 7. Check the relief valve. 8. Check the oil pump (see page 8-12).	A wire shorted to ground between the gauge assembly and the oil pressure switch

Oil Pressure Switch Test

1. Remove the wire (A) from the engine oil pressure switch (B).

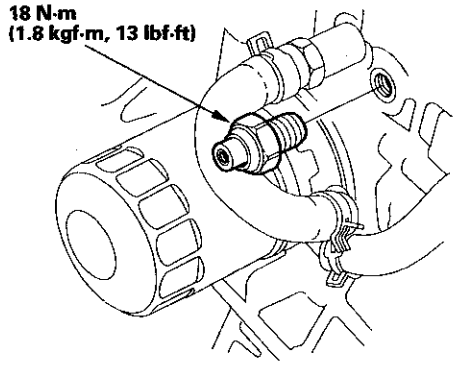


2. Check for continuity between the positive terminal (C) and the engine (ground). There should be continuity with the engine stopped. There should be no continuity with the engine running.

3. If the switch fails to operate, check the engine oil level. If the engine oil level is OK, check the engine oil pressure (see page 8-6).

Oil Pressure Switch Replacement

1. Remove the wire from the oil pressure switch, then remove the oil pressure switch.



2. Remove any old liquid gasket from the switch and switch mounting hole.

3. Apply a very small amount of liquid gasket to the oil pressure switch threads, then install the oil pressure switch.

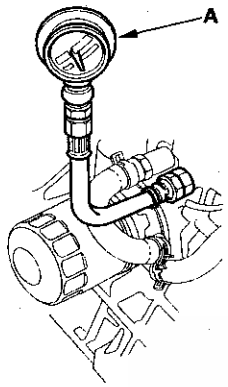
   NOTE: Using too much liquid gasket may cause liquid gasket to enter the oil passage or the end of the new oil pressure switch.

Engine Lubrication

Oil Pressure Test

If the oil pressure indicator stays on with the engine running, check the engine oil level. If the oil level is correct:

1. Remove the engine oil pressure switch, and install an oil pressure gauge (A).



2. Start the engine. Shut it off immediately if the gauge registers no oil pressure. Repair the problem before continuing.

3. Allow the engine to reach operating temperature (fan comes on at least twice). The pressure should be:

   Engine Oil Temperature: 176 °F (80 °C)
   Engine Oil Pressure:
   At Idle: 250 kPa (2.5 kgf/cm², 36 psi) min.
   At 3,000 rpm: 590 kPa (6.0 kgf/cm², 85 psi) min.

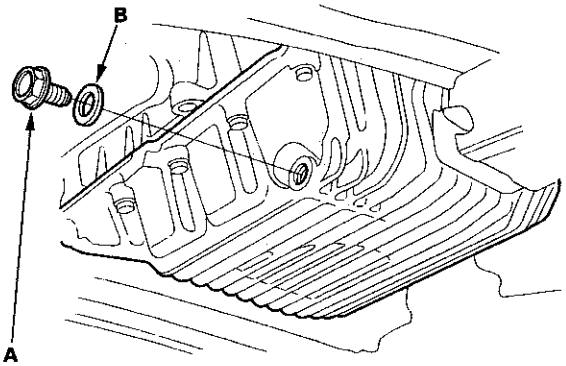
4. If oil pressure is out of specifications, inspect these items:

   - Inspect the oil pressure relief valve (see page 8-10).
   - Check the oil filter for clogging.
   - Inspect the oil pump (see page 8-12).

Engine Oil Replacement

1. Warm up the engine.

2. Remove the drain bolt (A), and drain the engine oil.



39 N·m (4.0 kgf·m, 29 lbf·ft)
Do not overtighten.

3. Reinstall the drain bolt with a new washer (B).

4. Refill with the recommended oil.

   Capacity
   At Oil Change:
   4.5 L (4.8 US qt)
   At Oil Change including Filter:
   4.8 L (5.1 US qt)
   After Engine Overhaul:
   5.6 L (5.9 US qt)

5. Run the engine for more than 3 minutes, then check for oil leakage.

Maintenance Minder Reset ('06-08 models)

6. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-213).
7. Turn the ignition switch to ON (II).
8. Make sure the HDS communicates with the vehicle and the engine control module (ECM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).
9. Select BODY ELECTRICAL with the HDS.
10. Select ADJUSTMENT in the GAUGES MENU with the HDS.
11. Select RESET in the MAINTENANCE MINDER with the HDS.
12. Select RESETTING THE ENGINE OIL LIFE with the HDS.

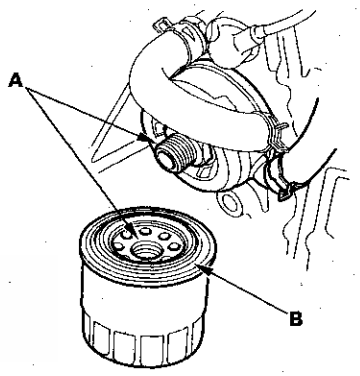
    NOTE: If you changed the MTF at the same time with the engine oil, select RESETTING THE ENGINE OIL LIFE AND MTF with the HDS instead.

13. Reset the maintenance information display (see page 3-27).

Engine Oil Filter Replacement

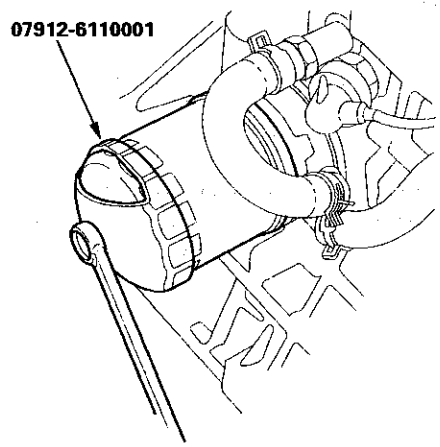
Special Tools Required
Oil filter wrench 07912-6110001

1. Remove the oil filter with the oil filter wrench.
2. Inspect the threads (A) and rubber seal (B) on the new filter. Wipe off the seat on the engine block, then apply a light coat of new engine oil to the filter rubber seal. Use only filters with a built-in bypass system.



3. Install the oil filter by hand.
4. After the rubber seal seats, tighten the oil filter clockwise with the oil filter wrench.

Tighten: 7/8 Turn Clockwise
Tightening Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

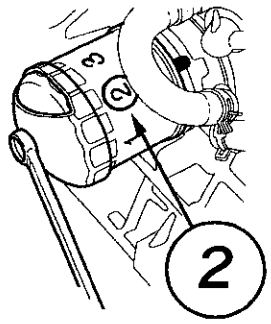


(cont'd)

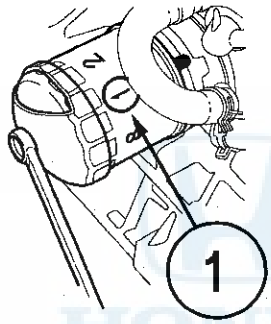
Engine Oil Filter Replacement (cont'd)

5. If eight numbers (1 to 8) are printed around the outside of the filter, use the following procedure to tighten the filter.

   - Spin the filter on until its seal lightly seats against the engine oil cooler, and note which number is at the bottom.
   - Tighten the filter by turing it clockwise seven numbers from the one you noted. For example, if number 2 is at the bottom when the seal is lightly seated, tighten the filter until the number 1 comes around the bottom.



Number when rubber seal is seated.



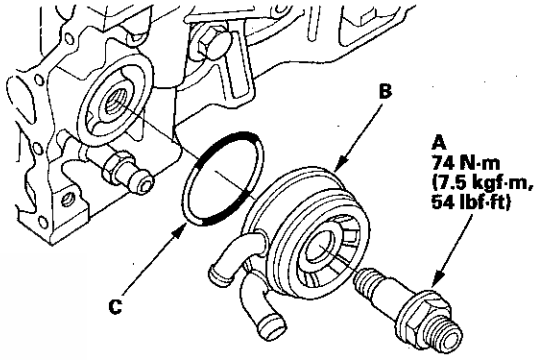
Number after tightening.

Number when rubber seal is seated	1	2	3	4	5	6	7	8
Number after tightening	8	1	2	3	4	5	6	7

6. After installation, fill the engine with the recommended oil up to the specified level, run the engine for more than 3 minutes, then check for oil leakage.

Oil Cooler Center Bolt/Oil Cooler Replacement

1. Remove the oil filter (see page 8-7).
2. Disconnect the water bypass hoses.
3. Remove the oil cooler center bolt (A) and oil cooler (B).

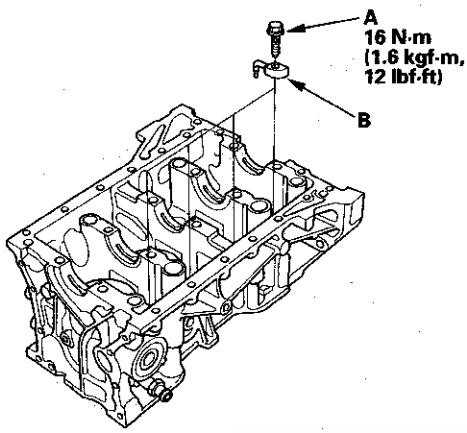


4. Apply new engine oil to new O-ring (C).
5. Install the oil cooler. Tighten the oil cooler center bolt to the engine block.
6. Connect the water bypass hoses.
7. Install the new oil filter (see page 8-7).

Oil Jet Replacement

1. Remove the crankshaft from the engine block (see page 7-10).

2. Remove the oil jet bolt (A) and oil jet (B).



3. Carefully install the oil jet and tighten the oil jet bolt.

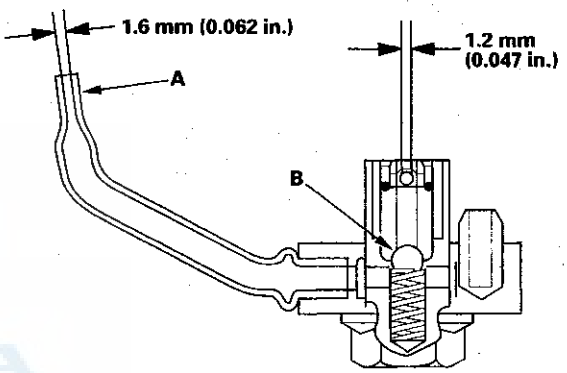
4. Install the crankshaft (see page 7-10).

Oil Jet Inspection

1. Remove the oil jet, and inspect it as follows.

   - Make sure that a 1.5 mm (0.059 in.) diameter drill will go through the nozzle hole (A) (1.6 mm (0.062 in.) diameter).
   - Insert the end of a 1.1 mm (0.043 in.) drill into the oil intake (1.2 mm (0.047 in.) diameter).
   - Make sure the check ball (B) moves smoothly and has a stroke of approximately 4.0 mm (0.16 in.).
   - Check the oil jet operation with an air nozzle. It should take at least 200 kPa (2.0 kgf/cm², 28 psi) to unseat the check ball.

   NOTE: Replace the oil jet assembly if the nozzle is damaged or bent.

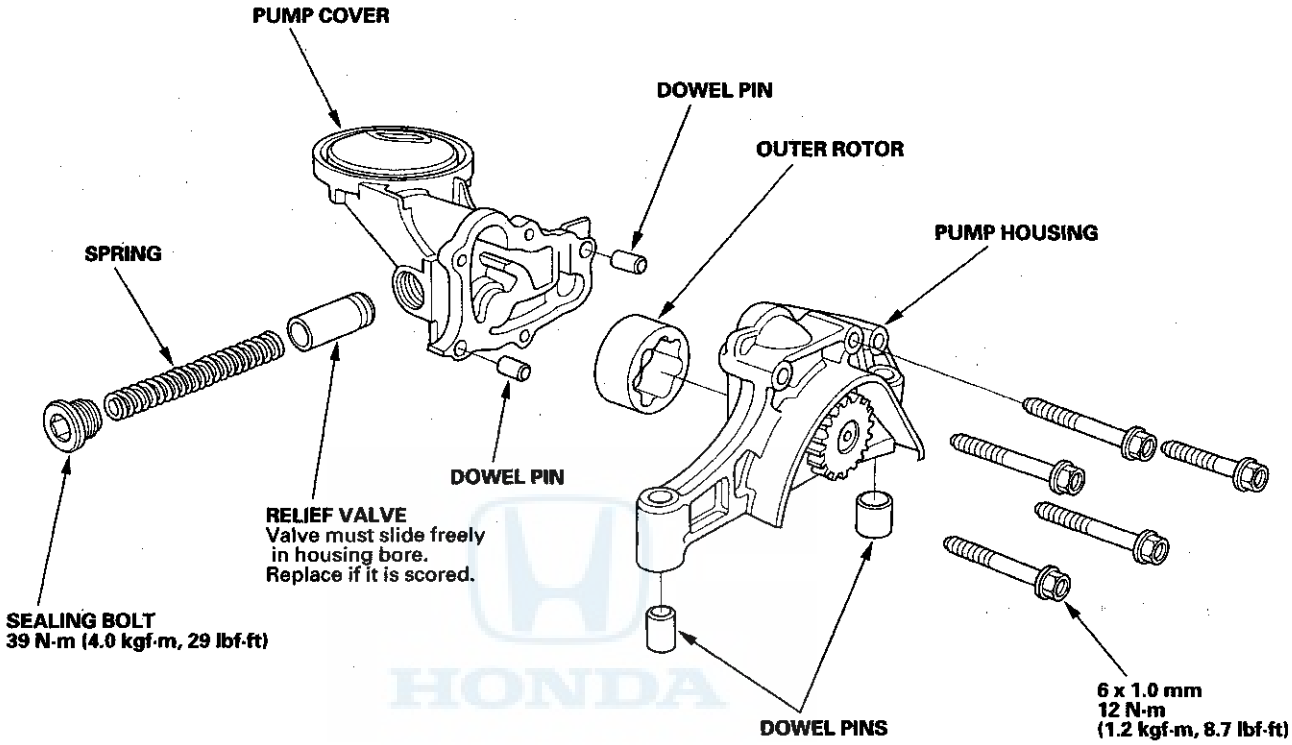


2. The mounting torque is critical. Be very precise when installing the oil jet.

   Torque: 16 N·m (1.6 kgf·m, 12 lbf·ft)

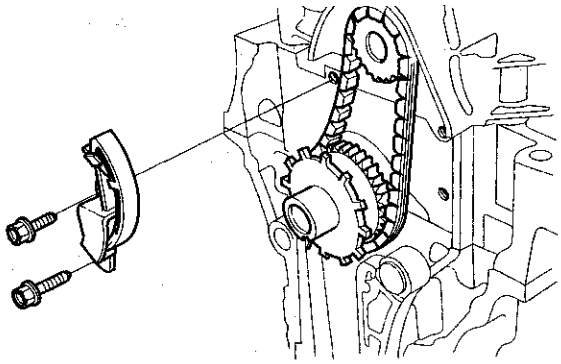
Oil Pump Overhaul

Exploded View

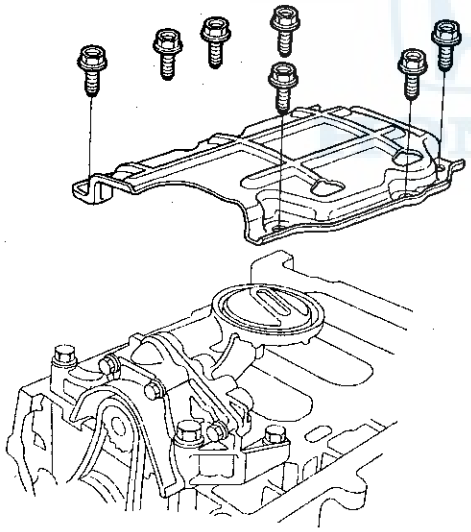


Removal

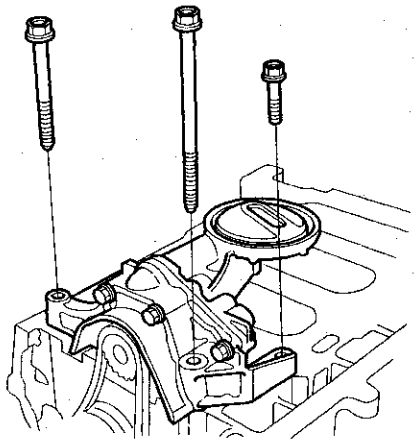
1. Remove the cam chain (see page 6-13).
2. Remove the oil pump chain tensioner.



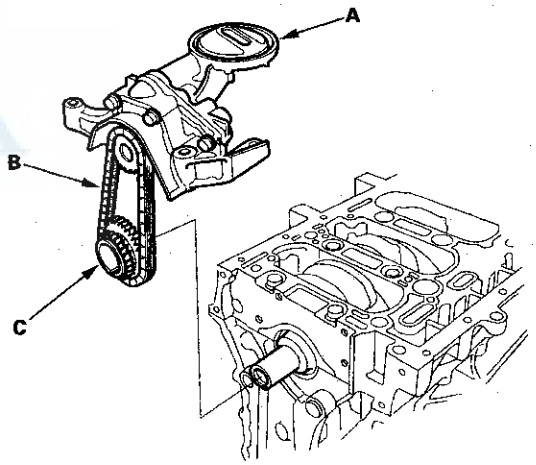
3. Remove the baffle plate.



4. Remove the three bolts securing the oil pump.



5. Remove the oil pump (A), oil pump chain (B), and crankshaft sprocket (C).



(cont'd)

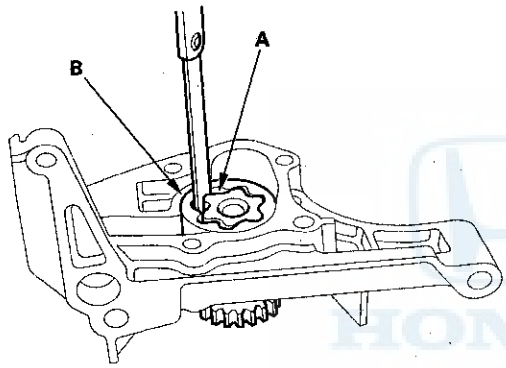
Oil Pump Overhaul (cont'd)

Inspection

6. Remove the bolts from the pump housing, then separate the pump housing and the pump cover.

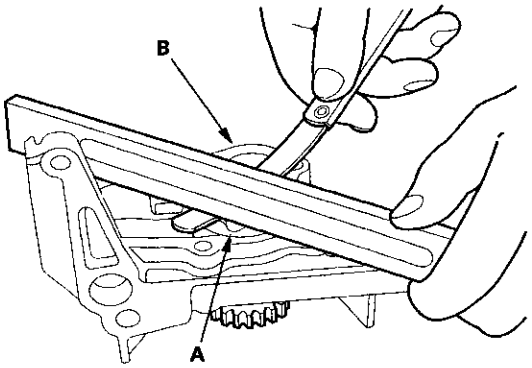
7. Check the inner-to-outer rotor radial clearance between the inner rotor (A) and outer rotor (B). If the inner-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

   Inner Rotor-to-Outer Rotor Radial Clearance
   Standard (New): 0.02—0.14 mm (0.001—0.006 in.)
   Service Limit: 0.20 mm (0.008 in.)



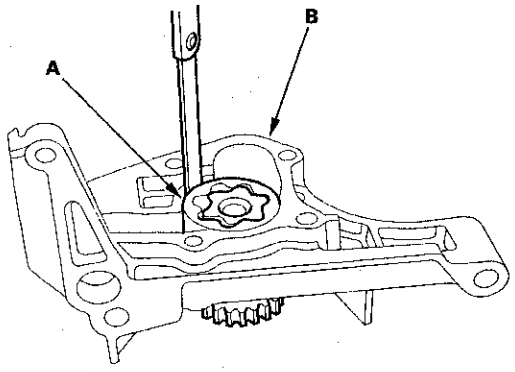
8. Check the housing-to-rotor axial clearance between the rotors (A) and pump housing (B). If the housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

   Housing-to-Rotor Axial Clearance
   Standard (New): 0.02—0.07 mm (0.001—0.003 in.)
   Service Limit: 0.12 mm (0.005 in.)



9. Check the housing-to-outer rotor radial clearance between the outer rotor (A) and pump housing (B). If the housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

   Housing-to-Outer Rotor Radial Clearance
   Standard (New): 0.15—0.21 mm (0.006—0.008 in.)
   Service Limit: 0.23 mm (0.009 in.)



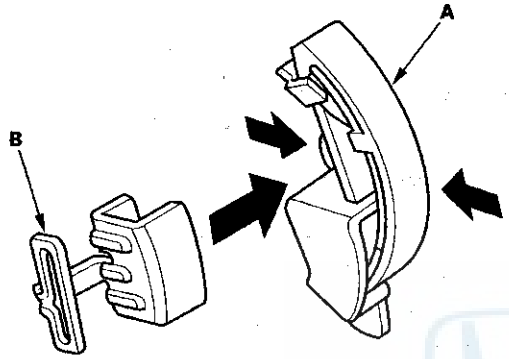
10. Inspect both rotors and the pump housing for scoring or other damage. Replace the oil pump assembly, if necessary.

11. Check that the oil pump turns freely.

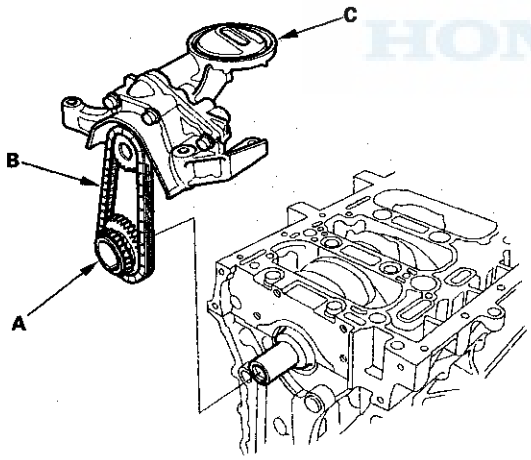
Installation

12. Squeeze the new oil pump chain tensioner (A), then install the set clip (B) on it as shown.

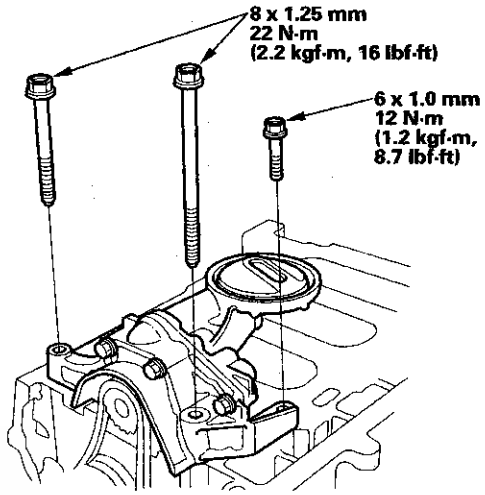
    NOTE: The set clip is supplied with the oil pump chain tensioner.



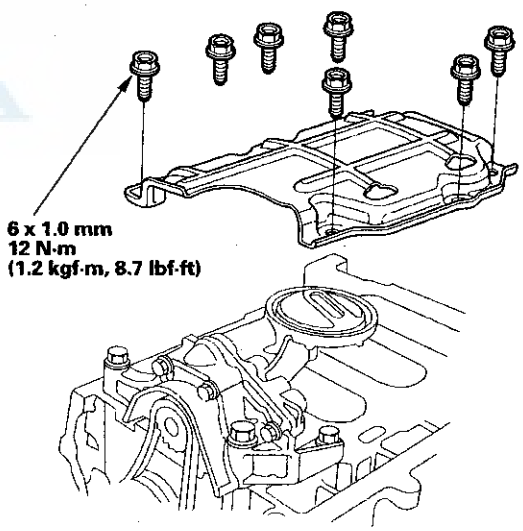
13. Install the crankshaft sprocket (A), oil pump chain (B), and oil pump (C).



14. Tighten the bolts on the oil pump.



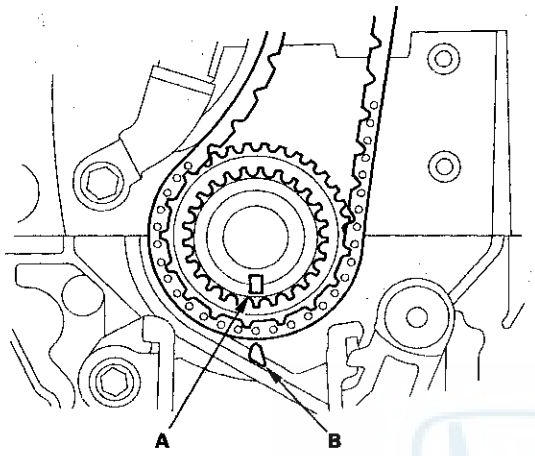
15. Install the baffle plate.



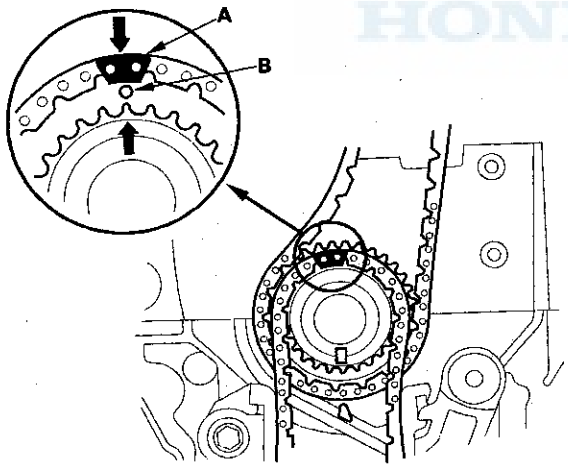
(cont'd)

Oil Pump Overhaul (cont'd)

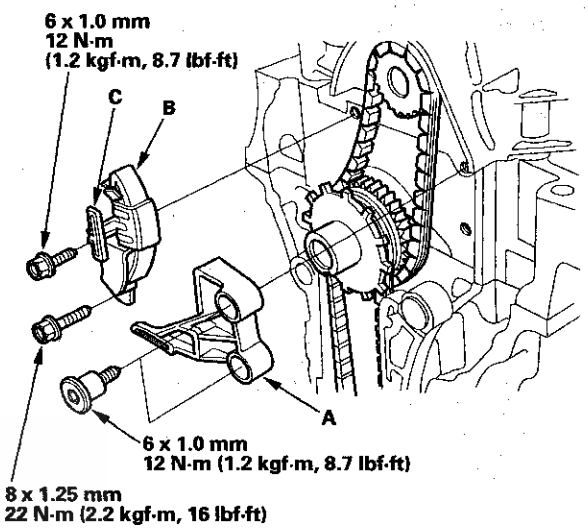
16. Set the crankshaft sprocket so that the No. 1 piston is at top dead center (TDC). Align the key (A) on the sprocket and crankshaft with the pointer (B) on the engine block.



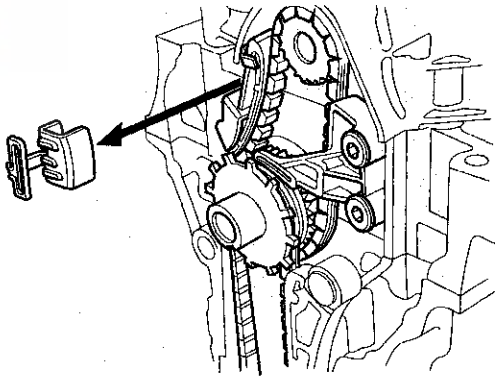
17. Move the cam chain so that the colored piece (A) aligns with the punch mark (B) on the crankshaft sprocket.



18. Install the oil pump chain guide (A) and oil pump chain tensioner (B) with the seat clip (C).



19. Remove the set clip from the oil pump chain tensioner.



20. Install the cam chain (see page 6-15).

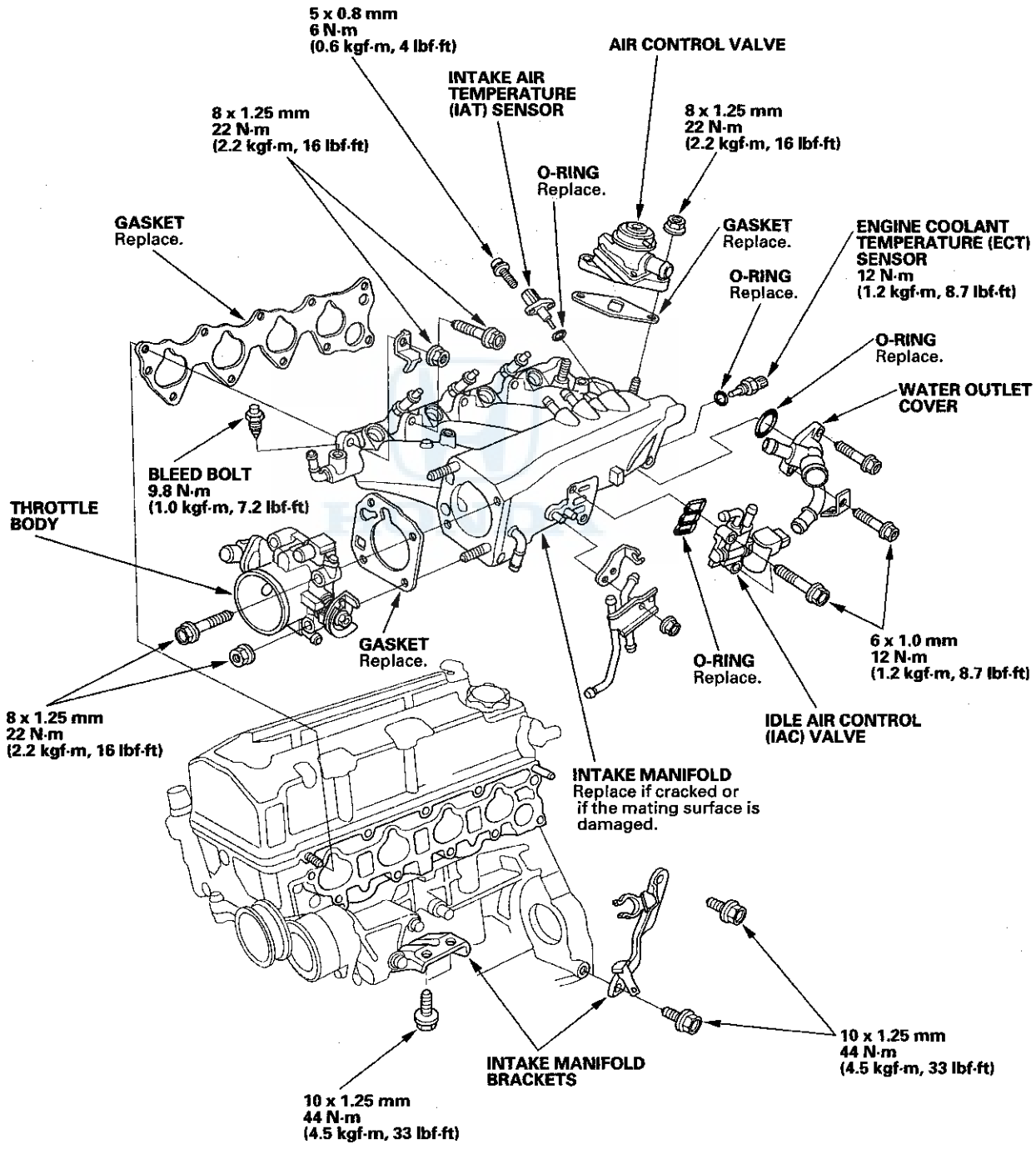
Engine Mechanical

Intake Manifold and Exhaust System

Intake Manifold Removal and Installation

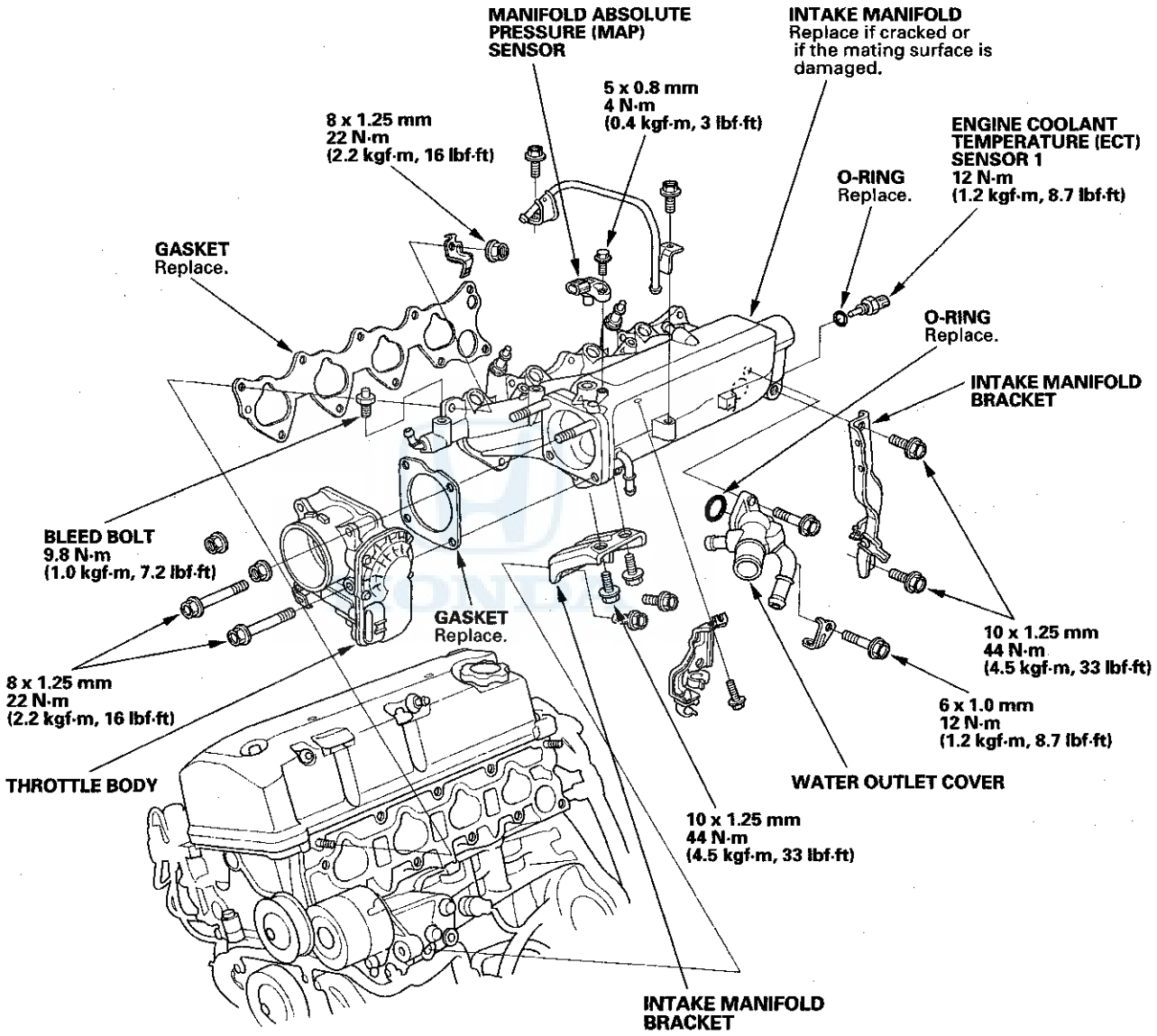
'00-05 models

NOTE: Use new O-rings and gaskets when reassembling.



'06-08 models

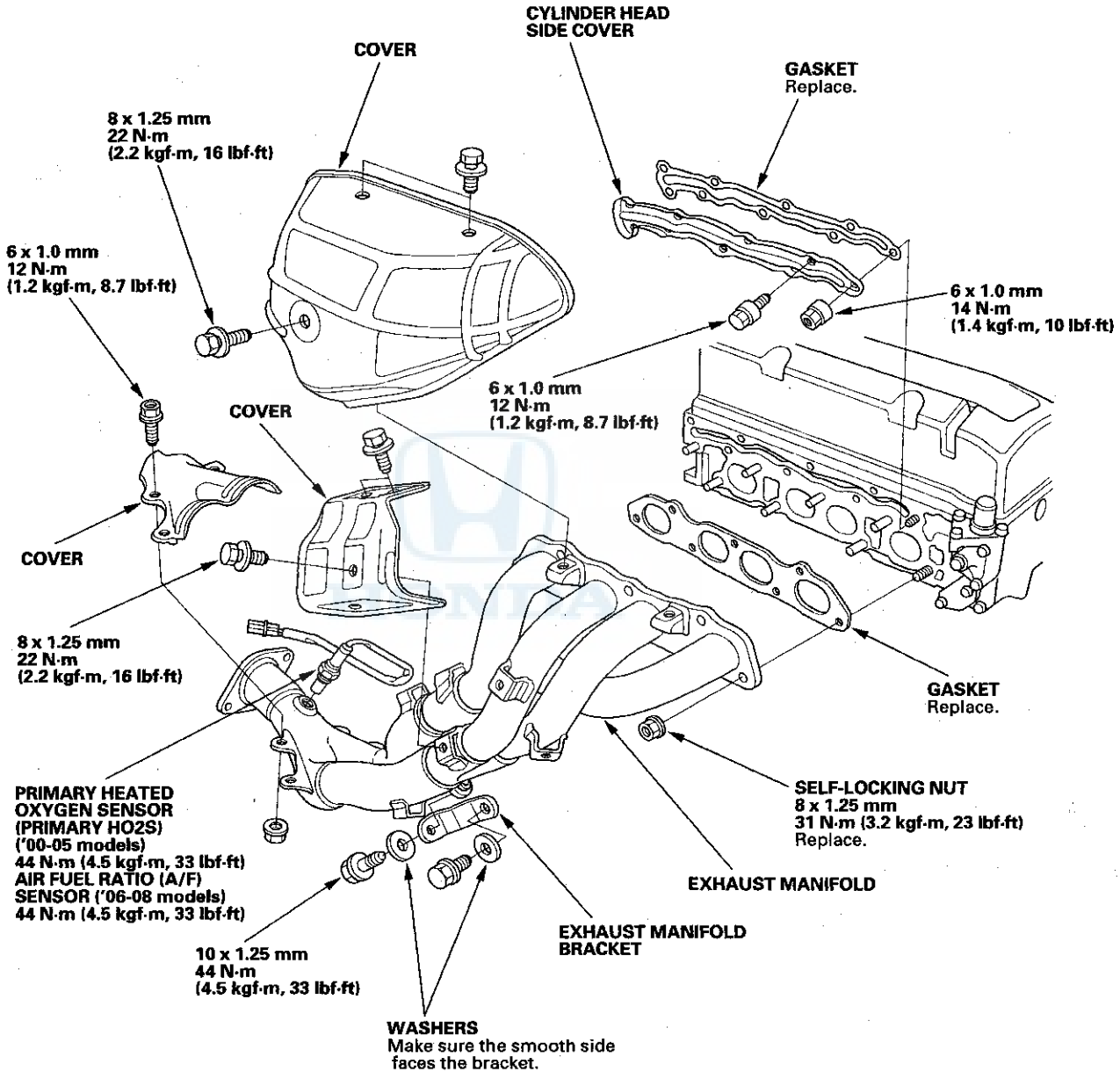
NOTE: Use new O-rings and gaskets when reassembling.



Intake Manifold and Exhaust System

Exhaust Manifold Removal and Installation

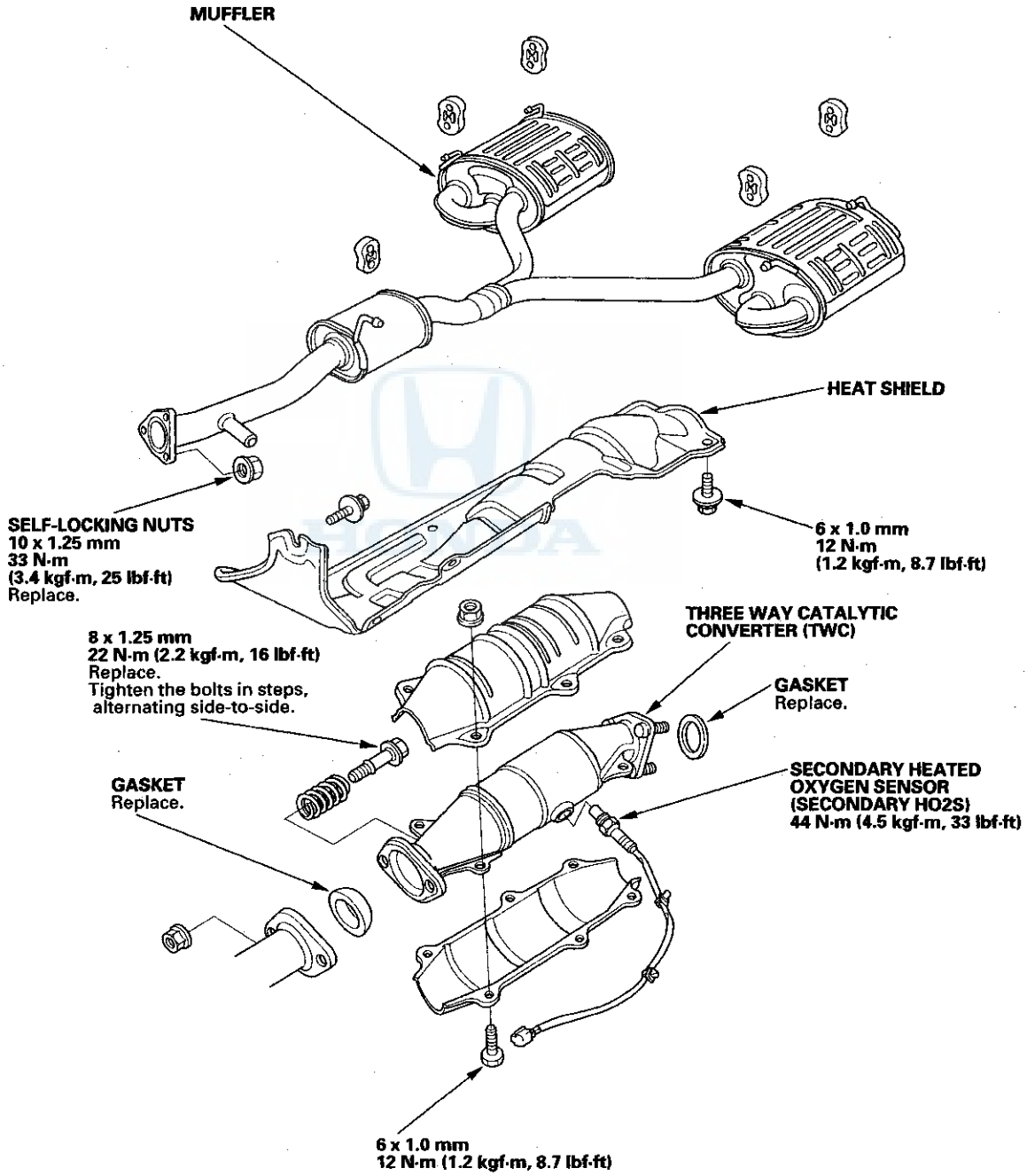
NOTE: Use new gaskets and self-locking nuts when reassembling.



Exhaust Pipe and Muffler Replacement

'00-03 models

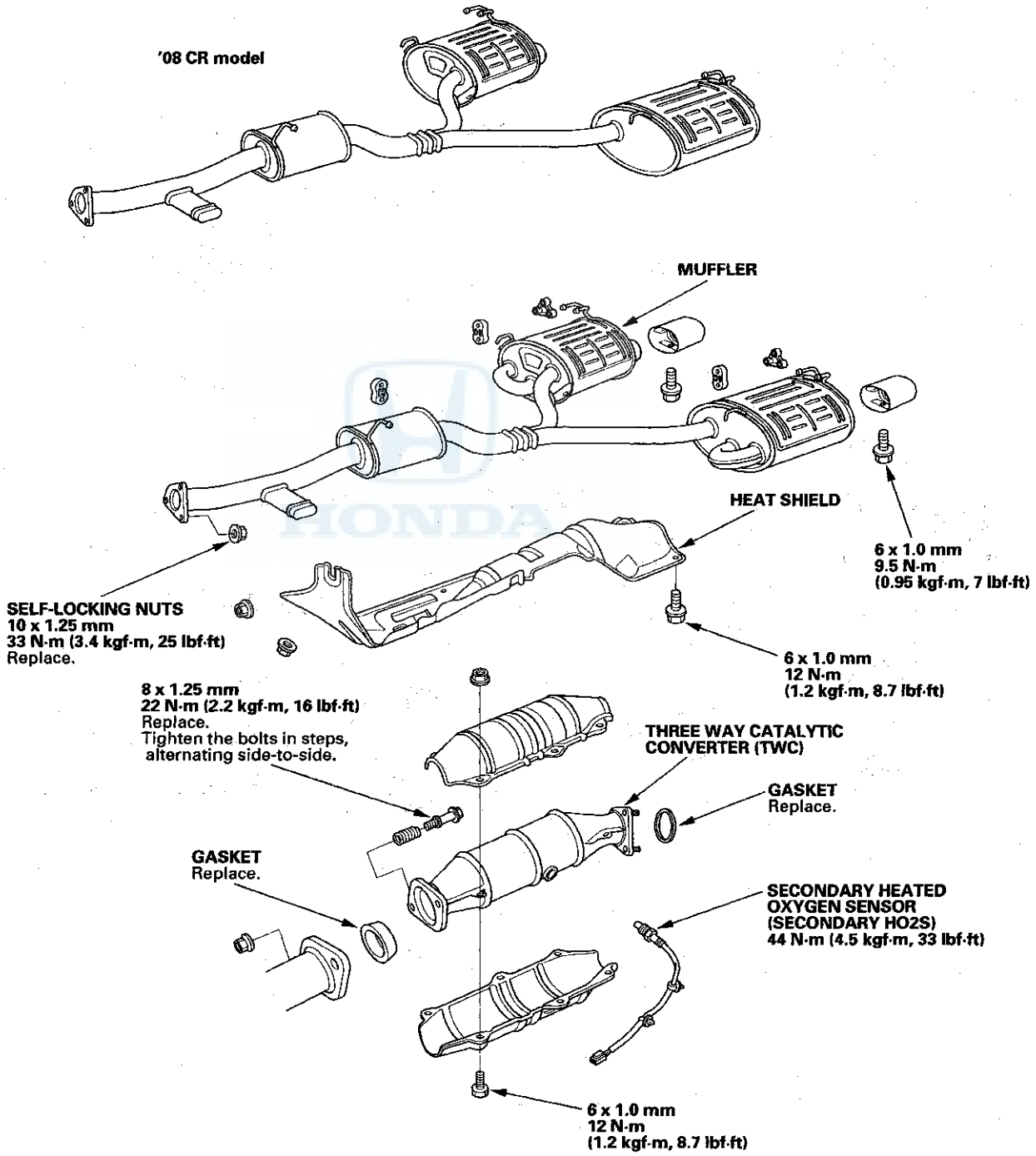
NOTE: Use new gaskets and self-locking nuts when reassembling.



Exhaust Pipe and Muffler Replacement (cont'd)

'04-08 models

NOTE: Use new gaskets and self-locking nuts when reassembling.

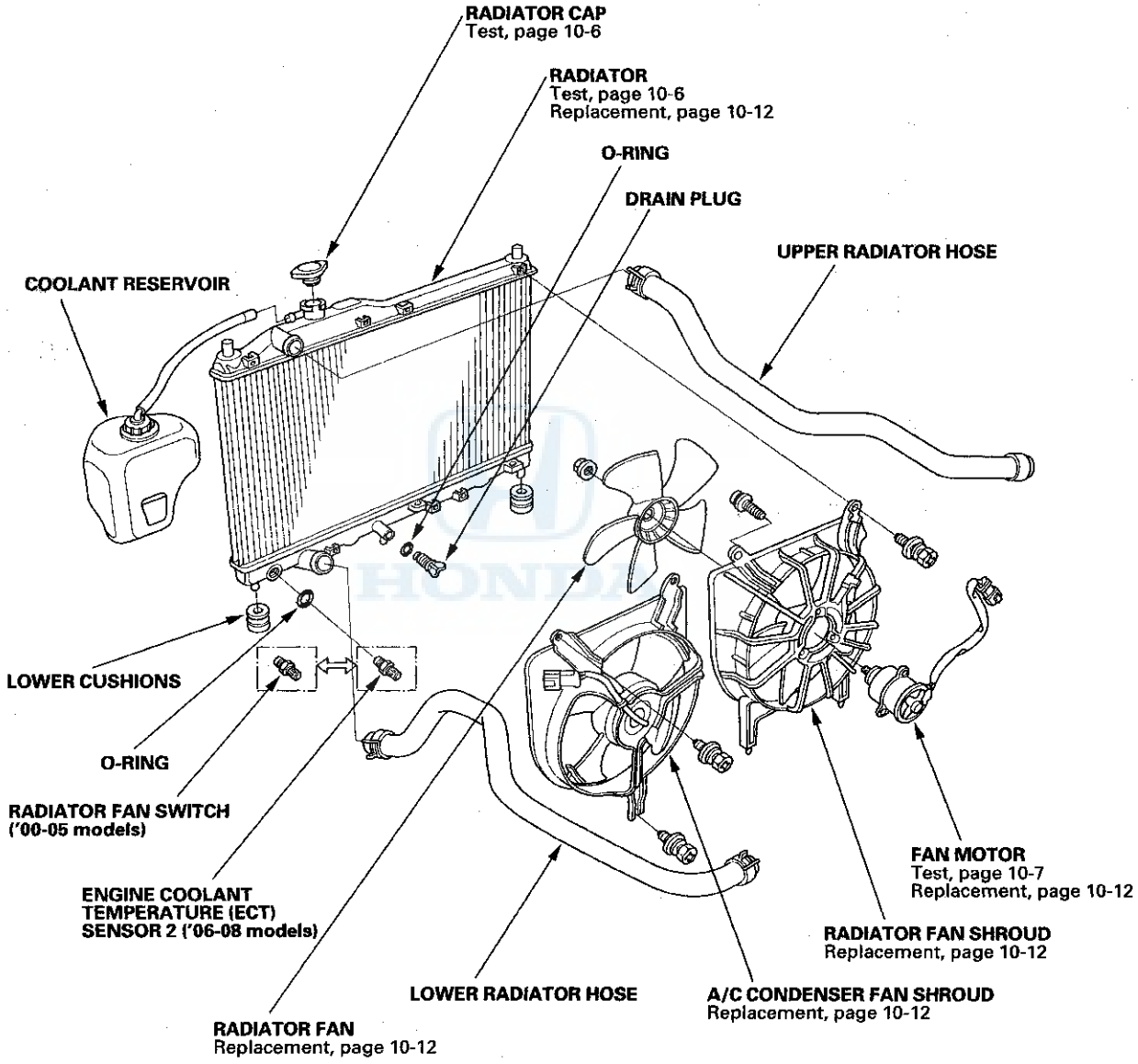


Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

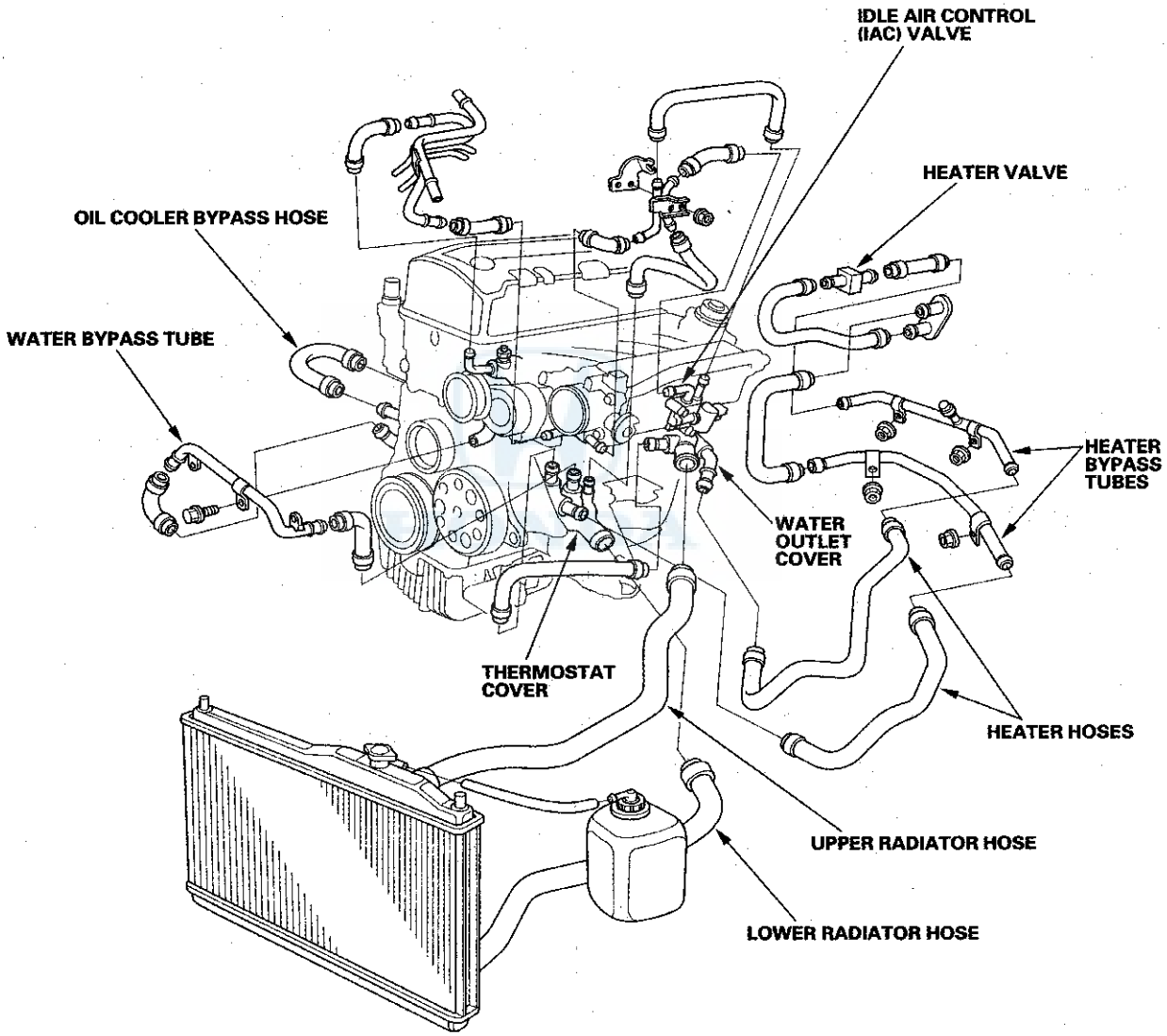
Engine Cooling

Cooling System

Component Location Index



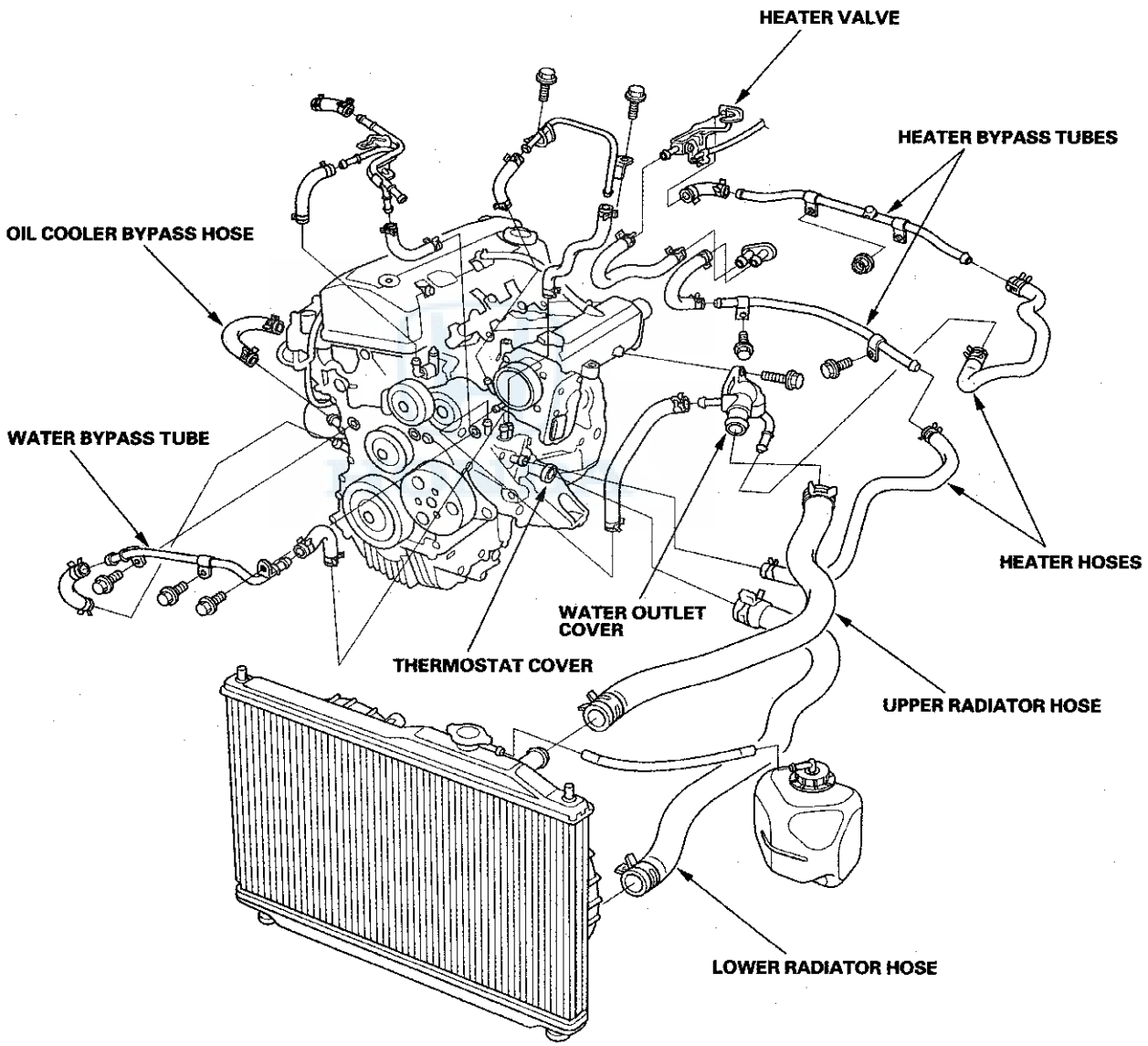
'00-05 models

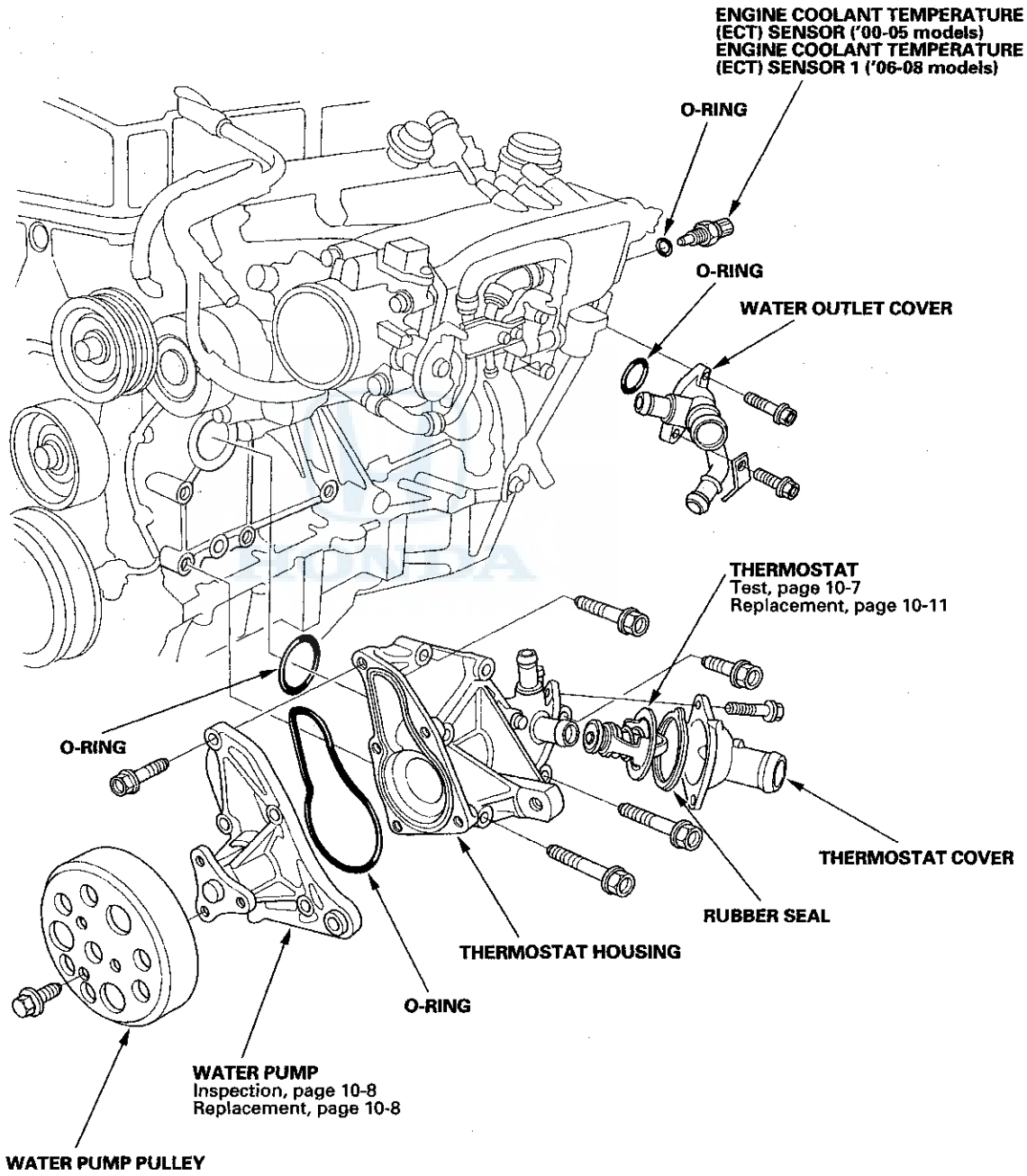


(cont'd)

Component Location Index (cont'd)

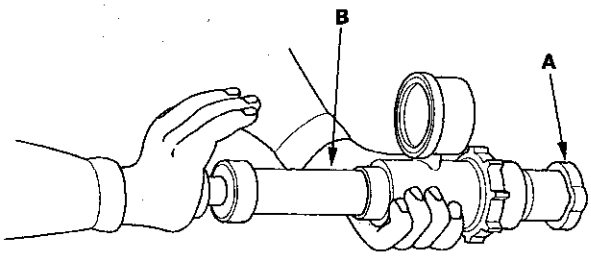
'06-08 models




ENGINE COOLANT TEMPERATURE (ECT) SENSOR ('00-05 models)
ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1 ('06-08 models)
O-RING
O-RING
WATER OUTLET COVER
THERMOSTAT
Test, page 10-7
Replacement, page 10-11
O-RING
THERMOSTAT COVER
RUBBER SEAL
THERMOSTAT HOUSING
O-RING
WATER PUMP
Inspection, page 10-8
Replacement, page 10-8
WATER PUMP PULLEY

Radiator Cap Test

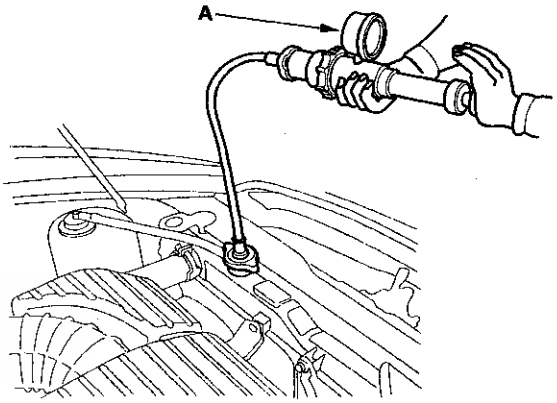
1. Remove the radiator cap (A), wet its seal with engine coolant, then install it on the commercially available pressure tester (B).



2. Apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm², 14—18 psi).
3. Check for a drop in pressure.
4. If the pressure drops, replace the cap.

Radiator Test

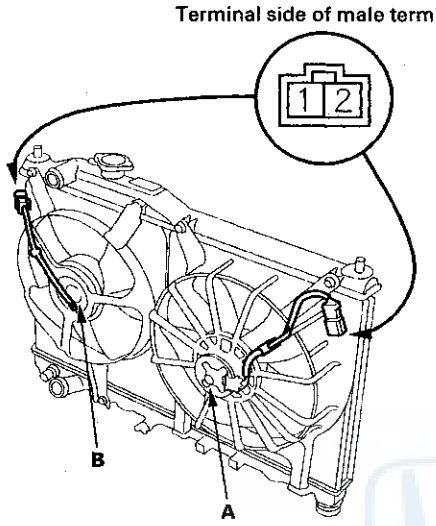
1. Wait until the engine is cool, then carefully remove the radiator cap and fill the radiator with engine coolant to the top of the filler neck.
2. Attach the commercially available pressure tester (A) to the radiator and apply a pressure of 93—123 kPa (0.95—1.25 kgf/cm², 14—18 psi).



3. Inspect for engine coolant leaks and a drop in pressure.
4. Remove the tester and reinstall the radiator cap.

Fan Motor Test

1. Disconnect the 2P connectors from the radiator fan motor (A) and A/C condenser fan motor (B).



2. Test the motor by connecting battery power to terminal No. 2 and ground to terminal No. 1.

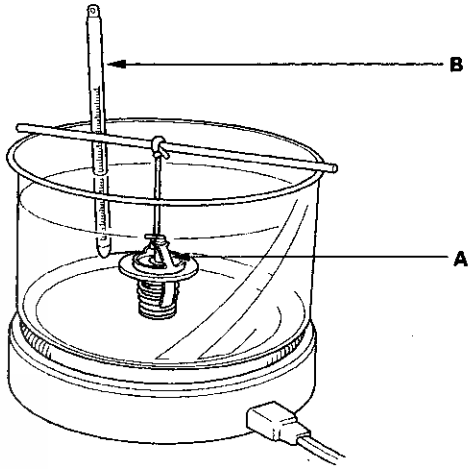
3. If either motor fails to run or does not run smoothly, replace it (see page 10-12).

Thermostat Test

Replace the thermostat if it is open at room temperature.

To test a closed thermostat:

1. Suspend the thermostat (A) in a container of water. Do not let the thermometer (B) touch the bottom of the hot container.



2. Heat the water and check the temperature with the thermometer. Check the temperature when the thermostat first opens, then check the temperature when the thermostat is fully open.

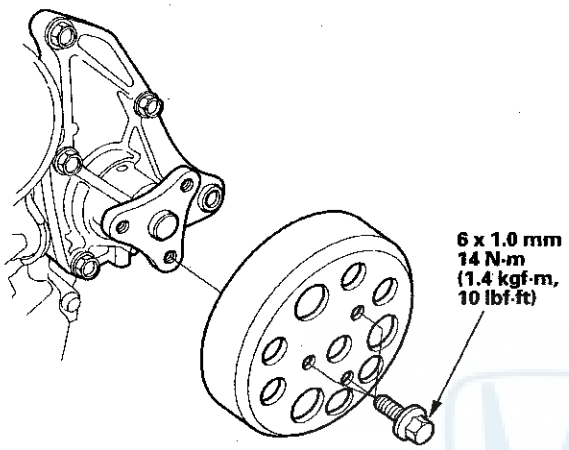
3. Measure the lift height of the thermostat when it is fully open.

Standard Thermostat

Lift Height:	**Above 10.0 mm (0.39 in.)**
Starts Opening:	**169—176 °F (76—80 °C)**
Fully Open:	**194 °F (90 °C)**

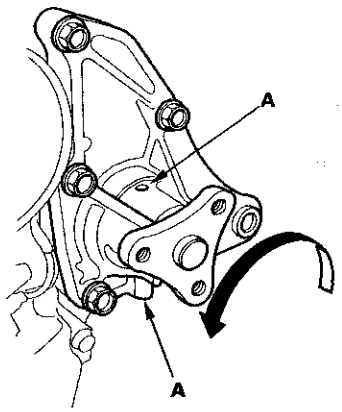
Water Pump Inspection

1. Loosen the water pump pulley bolts.
2. Remove the drive belt (see page 4-42).
3. Remove the water pump pulley.



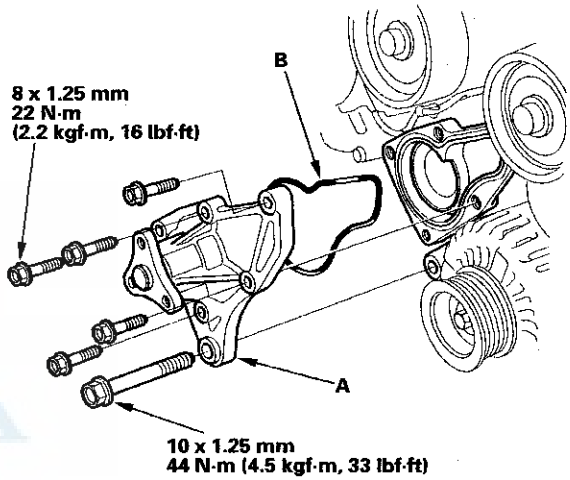
4. Turn the water pump pulley counterclockwise, and make sure it turns freely. If it doesn't, replace the water pump (see page 10-8).

   NOTE: When you check the water pump pulley, you may see a small amount of "weeping" from the bleed holes (A). This is normal.



Water Pump Replacement

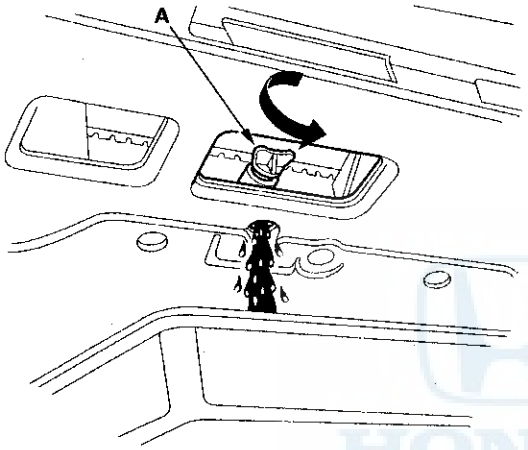
1. Drain the engine coolant (see page 10-9).
2. Loosen the water pump pulley bolts.
3. Remove the drive belt (see page 4-42).
4. Remove the water pump pulley.
5. Remove the six bolts then remove the water pump (A).



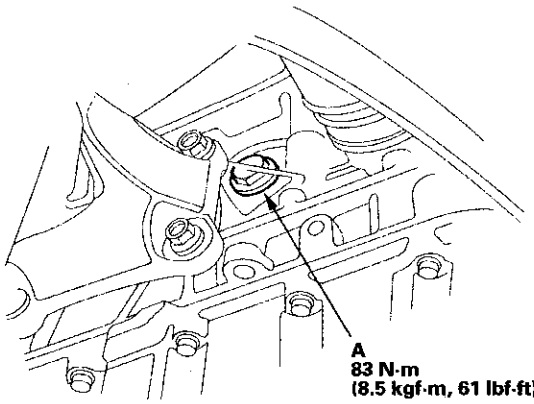
6. Clean and inspect the O-ring groove and the mating surface with the thermostat housing.
7. Install the water pump with a new O-ring (B) in the reverse order of removal.
8. Refill the radiator with engine coolant, then bleed the air from the cooling system (see step 7 on page 10-9).
9. Clean up any spilled engine coolant.

Coolant Replacement

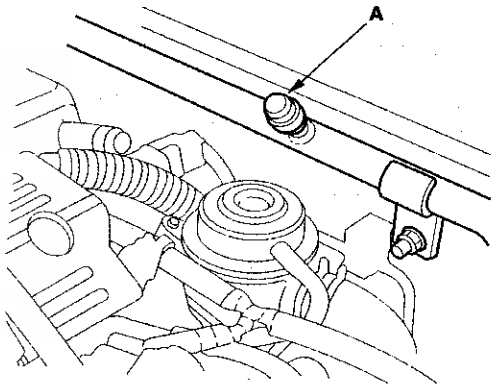
1. Start the engine. Set the heater temperature control dial to maximum heat, then turn the ignition switch to LOCK (0). Make sure the engine and radiator are cool to the touch.
2. Remove the radiator cap.
3. Loosen the drain plug (A), and drain the coolant.



4. Remove the drain bolt (A) from the right side of the engine block.



5. After the coolant has drained, apply liquid gasket, P/N 08718-0009, to the drain bolt threads, then reinstall the bolt with a new washer and tighten it securely.
6. Tighten the radiator drain plug securely.
7. Remove, drain, and reinstall the coolant reservoir. Fill the coolant reservoir to the MAX mark with Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001).
8. Remove the bleed cap (A) from the heater bypass tube.



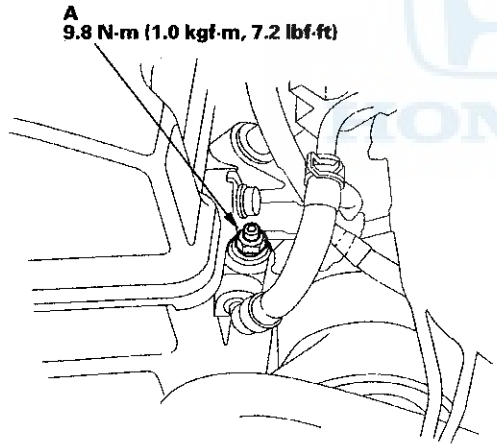
(cont'd)

Coolant Replacement (cont'd)

9. Loosen the air bleed bolt (A) in the intake manifold, then pour Honda Long Life Antifreeze/Coolant Type 2 into the radiator to the bottom of the filler neck. Do not let coolant spill on any electrical parts or the paint. If any coolant spills, rinse it off immediately.

   NOTE:
   - Always use Honda Long Life Antifreeze/Coolant Type 2 (P/N OL999-9001). Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.
   - Honda Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Premixing is not required.

   Engine Coolant Refill Capacities (including reserve tank capacity of 0.6 L (0.16 US gal))
   At Coolant Change: 6.5 L (1.72 US gal)
   After Engine Overhaul: 7.6 L (2.01 US gal)



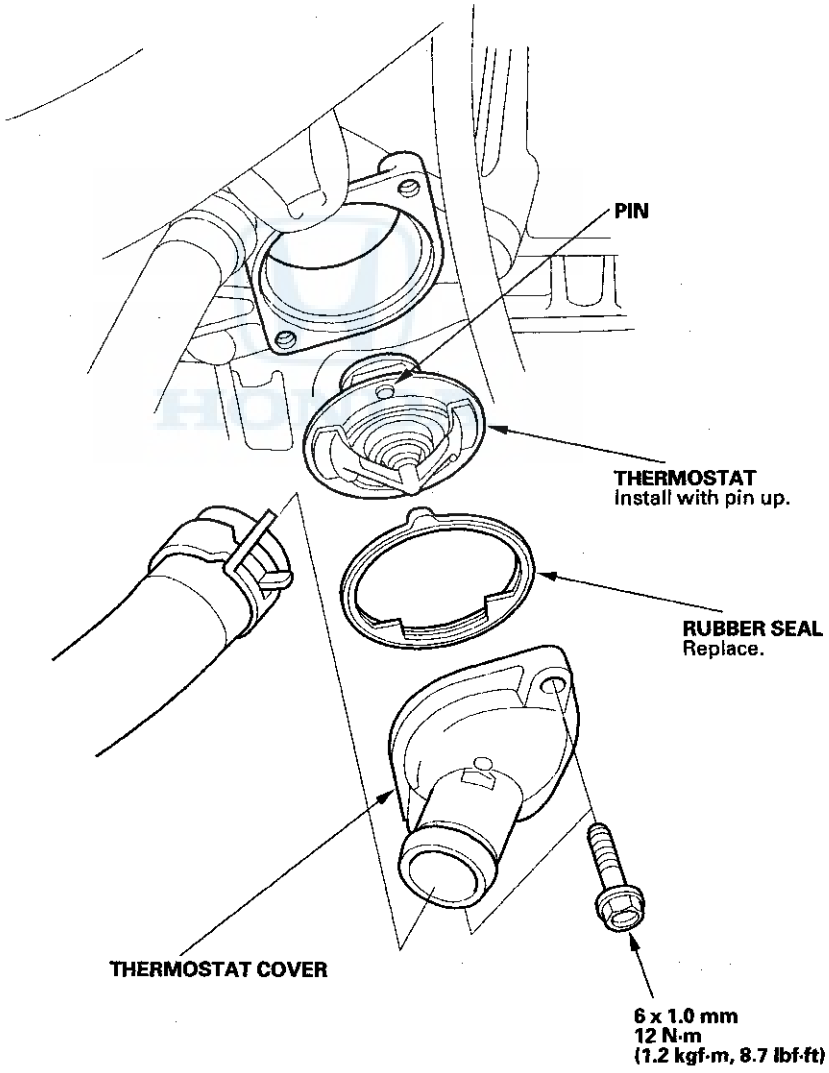
10. Tighten the air bleed bolt as soon as coolant starts to run out in a steady stream.
11. Reinstall the bleed cap on the heater bypass tube as soon as coolant starts to run out in a steady stream.
12. With the radiator cap off, start the engine and let it run until warmed up (radiator fan comes on at least twice). Then, if necessary, add more Honda Long Life Antifreeze/Coolant Type 2 to bring the level back up to the bottom of the filler neck.
13. Put the radiator cap on tightly, then run the engine again and check for leaks.
14. Clean up any spilled engine coolant.

Maintenance Minder Reset ('06-08 models)

15. If the maintenance minder required engine coolant replacement, reset the maintenance minder (see page 3-27), and this procedure is complete. If the maintenance minder did not require engine coolant replacement, go to step 16.
16. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-213).
17. Make sure the HDS communicates with the vehicle and the engine control module (ECM). If it doesn't communicate, troubleshoot the DLC circuit (see page 11-367).
18. Turn the ignition switch to ON (II).
19. Select BODY ELECTRICAL with the HDS.
20. Select ADJUSTMENT in the GAUGE MENU with the HDS.
21. Select RESET in the MAINTENANCE MINDER with the HDS.
22. Select MAINTENANCE SUB ITEM 5 RESET with the HDS.
23. Reset the maintenance information display (see page 3-27).

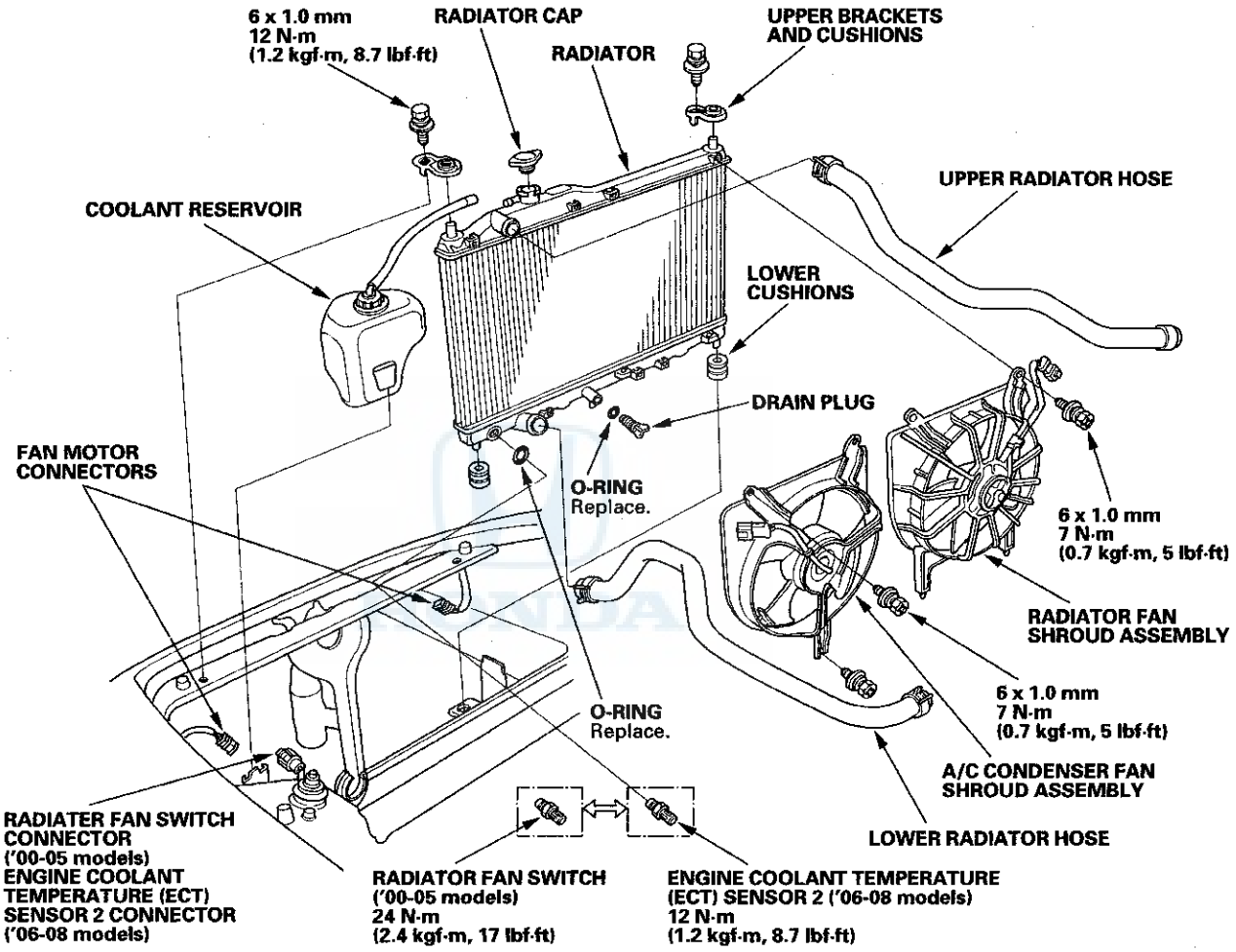
Thermostat Replacement

1. Drain the engine coolant (see page 10-9).
2. Remove the lower radiator hose and the thermostat cover, then remove the thermostat.
3. Install the thermostat with a new rubber seal.
4. Install the thermostat cover and the lower radiator hose.
5. Refill the radiator with engine coolant, then bleed air from the cooling system (see step 7 on page 10-9).
6. Clean up any spilled engine coolant.



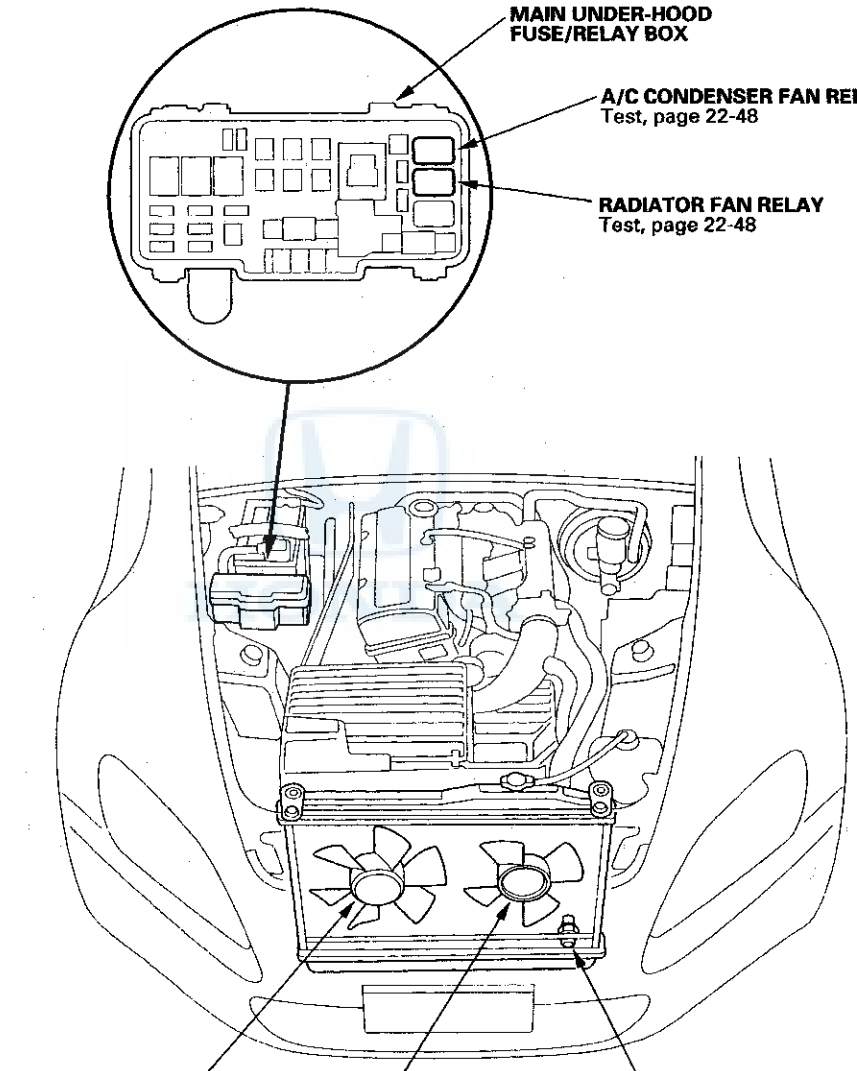
Radiator and Fan Replacement

1. Drain the engine coolant (see page 10-9).
2. Remove the upper and lower radiator hoses.



3. '00-05 models: Disconnect the fan motor connectors and radiator fan switch connector.
4. '06-08 models: Disconnect the fan motor connectors and engine coolant temperature (ECT) sensor 2 connector.
5. Remove the radiator upper brackets and cushions, then pull up the radiator.
6. Remove both fan shroud assemblies and other parts from the radiator.
7. Install the radiator in the reverse order of removal. Make sure the upper and lower cushions are set securely.
8. Refill the radiator with engine coolant, then bleed the air from the cooling system (see step 7 on page 10-9).
9. Clean up any spilled engine coolant.

Component Location Index



Fan Controls

Symptom Troubleshooting Index

'00-05 models

Symptom	Diagnostic procedure	Also check for
Engine overheats	1. Check the coolant level. 2. Check for any engine coolant leakage (from gaskets, hoses, O-rings, etc.). 3. Check for dirt, leaves, or insects on radiator and A/C condenser. 4. Check for deteriorated coolant. 5. Check for damaged or deformed fan shroud. 6. Inspect the fan motors (see page 10-7), fan relays (see page 22-48), or radiator fan switch (see page 10-23). 7. Check the radiator cap (see page 10-6). 8. Check the thermostat (see page 10-7). 9. Inspect the water pump (see page 10-8). 10. Check for plugged or deteriorated radiator hoses. 11. Check for plugged heater core or hoses. 12. Check for a damaged cylinder head gasket.	
The radiator fan does not run at all	Radiator fan circuit troubleshooting (see page 10-18).	Cleanliness and tightness of all connectors
The radiator fan does not run for engine cooling, but it runs with the A/C on	Radiator fan switch circuit troubleshooting (Open) (see page 10-22).	Cleanliness and tightness of all connectors
The radiator fan runs with the ignition switch ON (II), the A/C off, and the engine coolant temperature below 199 °F (93 °C)	Radiator fan switch circuit troubleshooting (Short) (see page 10-23).	Cleanliness and tightness of all connectors
The A/C condenser fan does not run at all (but the radiator fan runs with the A/C on)	A/C condenser fan circuit troubleshooting (see page 21-53).	• HVAC DTCs (see page 21-5) • Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan do not run with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser fan common circuit troubleshooting (see page 21-54).	• HVAC DTCs (see page 21-5) • Cleanliness and tightness of all connectors

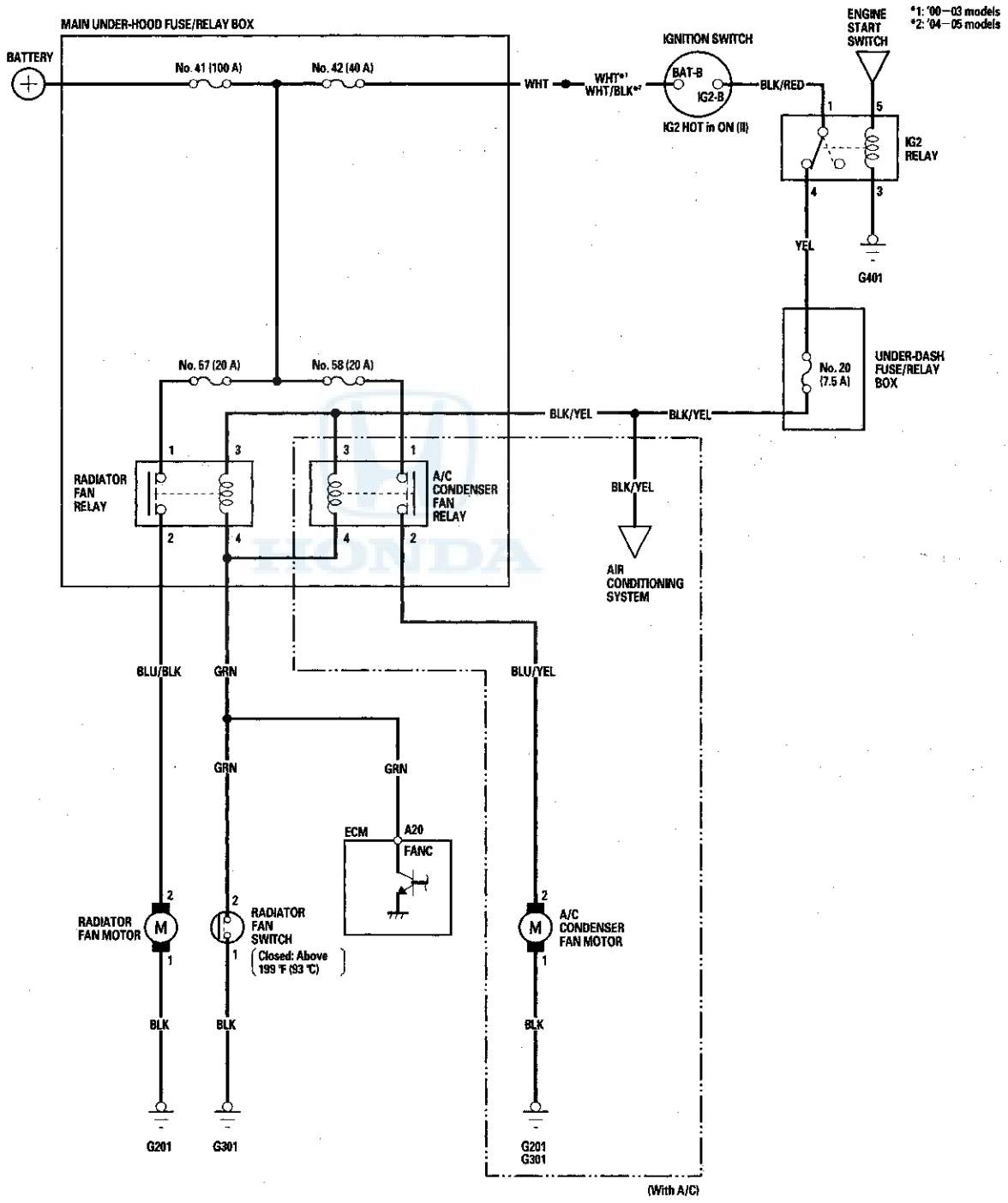
'06-08 models

Symptom	Diagnostic procedure	Also check for
Engine overheats	1. Check the coolant level. 2. Check for any engine coolant leakage (from gaskets, hoses, O-rings, etc.). 3. Check for dirt, leaves, or insects on radiator and A/C condenser. 4. Check for deteriorated coolant. 5. Check for damaged or deformed fan shroud. 6. Inspect the fan motors (see page 10-7) or fan relays (see page 22-48). 7. Check the radiator cap (see page 10-6). 8. Check the thermostat (see page 10-7). 9. Inspect the water pump (see page 10-8). 10. Check for plugged or deteriorated radiator hoses. 11. Check for plugged heater core or hoses. 12. Check for a damaged cylinder head gasket.	
The radiator fan does not run at all	1. Check for PGM-FI DTCs (see page 11-213). 2. Radiator fan circuit troubleshooting (see page 10-20).	Cleanliness and tightness of all connectors
The radiator fan does not run for engine cooling, but it runs with the A/C on	1. Check for PGM-FI DTCs (see page 11-213). 2. Radiator fan circuit troubleshooting (see page 10-20).	Cleanliness and tightness of all connectors
The radiator fan runs with the ignition switch ON (II), the A/C off, and the engine coolant temperature below 199 °F (93 °C)	1. Check for PGM-FI DTCs (see page 11-213). 2. Radiator fan circuit troubleshooting (see page 10-20).	Cleanliness and tightness of all connectors
The A/C condenser fan does not run at all (but the radiator fan runs with the A/C on)	A/C condenser fan circuit troubleshooting (see page 21-53).	• HVAC DTCs (see page 21-5) • Cleanliness and tightness of all connectors
Both the radiator fan and the A/C condenser fan do not run with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser fan common circuit troubleshooting (see page 21-54).	• HVAC DTCs (see page 21-5) • Cleanliness and tightness of all connectors

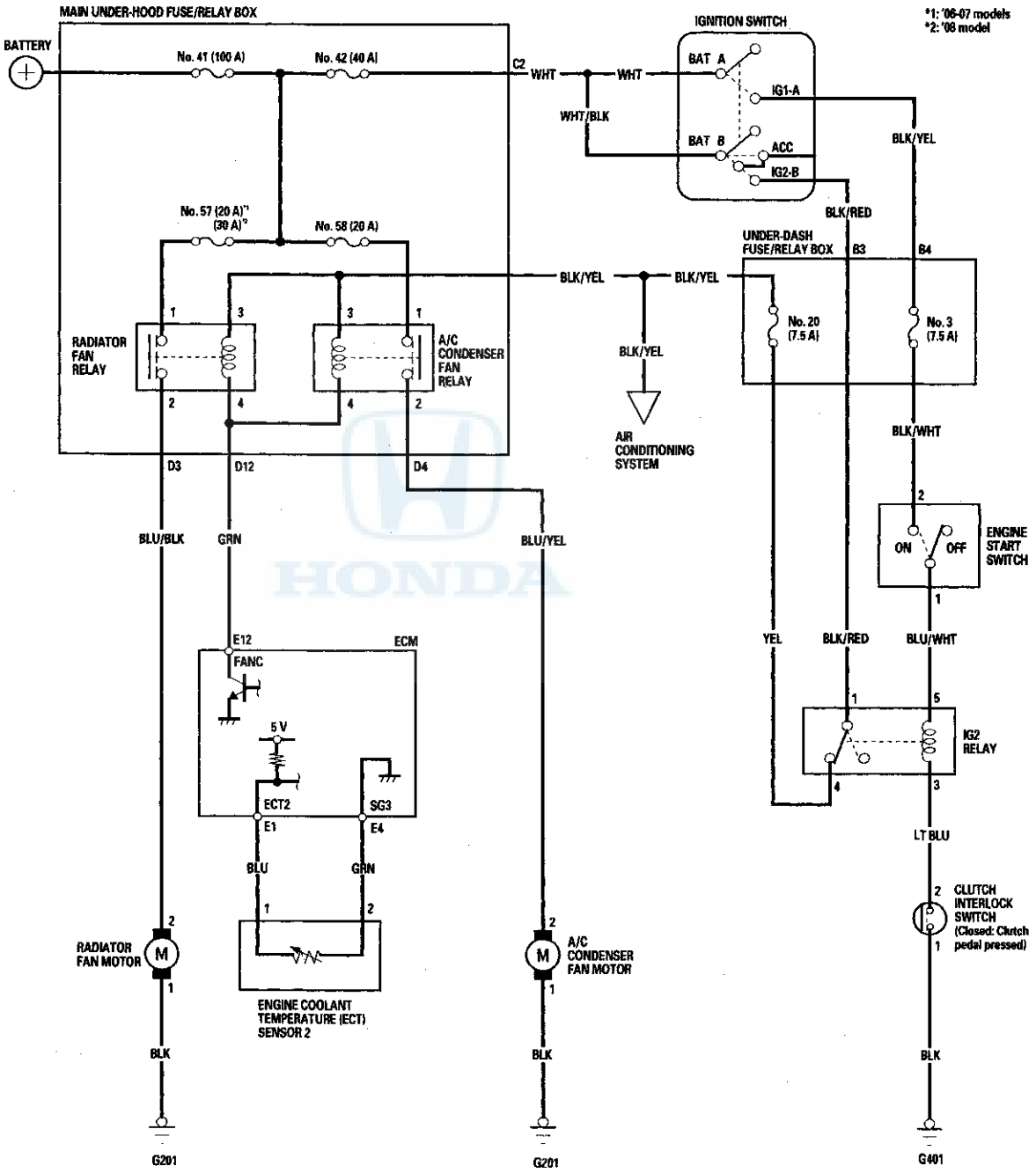
Fan Controls

Circuit Diagram

'00-05 models



'06-08 models


MAIN UNDER-HOOD FUSE/RELAY BOX
BATTERY
No. 41 (100 A)
No. 42 (40 A)
C2
WHT
WHT
WHT/BLK
IGNITION SWITCH
BAT A
IG1-A
BAT B
ACC
IG2-B
BLK/YEL
BLK/RED
*1: '06-07 models
*2: '08 model
No. 57 (20 A)*1 (30 A)*2
No. 58 (20 A)
BLK/YEL
BLK/YEL
UNDER-DASH FUSE/RELAY BOX
B3
B4
No. 20 (7.5 A)
No. 3 (7.5 A)
RADIATOR FAN RELAY
A/C CONDENSER FAN RELAY
BLK/YEL
AIR CONDITIONING SYSTEM
BLK/WHT
D3
D12
D4
BLU/BLK
GRN
BLU/YEL
ENGINE START SWITCH
ON
OFF
E12
ECM
FANC
5 V
ECT2
SG3
E1
E4
YEL
BLK/RED
BLU/WHT
IG2 RELAY
LT BLU
BLU
GRN
CLUTCH INTERLOCK SWITCH (Closed: Clutch pedal pressed)
RADIATOR FAN MOTOR
ENGINE COOLANT TEMPERATURE (ECT) SENSOR 2
A/C CONDENSER FAN MOTOR
BLK
BLK
BLK
G201
G201
G401

Radiator Fan Circuit Troubleshooting

'00-05 models

1. Check the No. 57 (20 A), No. 41 (100 A), and No. 42 (40 A) fuses in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Reinstall the fuse, then go to step 2.

   NO—Replace the fuse(s) and recheck.■

2. Remove the radiator fan relay from the main under-hood fuse/relay box, and test it (see page 22-48).

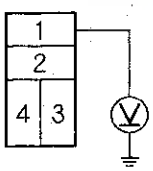
   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the radiator fan relay.■

3. Measure the voltage between the radiator fan relay 4P socket terminal No. 1 and body ground.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

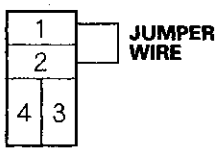
   Is there battery voltage?

   YES—Go to step 4.

   NO—Replace the main under-hood fuse/relay box.■

4. Connect the radiator fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

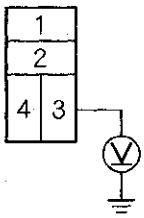
   Does the radiator fan run?

   YES—Go to step 5.

   NO—Go to step 6.

5. Disconnect the jumper, and turn the ignition switch to ON (II). Check for voltage between the radiator fan relay 4P socket terminal No. 3 and body ground.

   RADIATOR FAN RELAY 4P SOCKET



   Terminal side of female terminals

   Is there battery voltage?

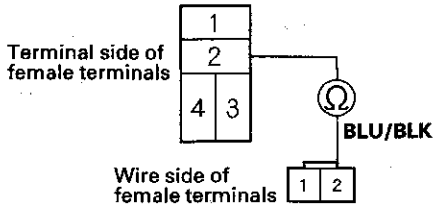
   YES—Go to step 9.

   NO—Repair open in the wire between the main under-hood fuse/relay box and under-dash fuse/relay box.■

6. Disconnect the radiator fan motor 2P connector.

7. Check for continuity between the radiator fan relay 4P socket terminal No. 2 and the radiator fan motor 2P connector terminal No. 2.

RADIATOR FAN RELAY 4P SOCKET



RADIATOR FAN MOTOR 2P CONNECTOR

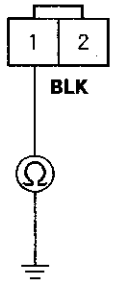
Is there continuity?

YES—Go to step 8.

NO—Repair open in the wire between the main under-hood fuse/relay box and the radiator fan motor 2P connector terminal No. 2.■

8. Check for continuity between the radiator fan motor 2P connector terminal No. 1 and body ground.

RADIATOR FAN MOTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the radiator fan motor.■

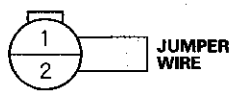
NO—Repair open in the wire between radiator fan motor 2P connector terminal No. 1 and body ground. If the wire is OK, check for a poor ground at G201.■

9. Reinstall the radiator fan relay.

10. Disconnect the radiator fan switch 2P connector.

11. Turn the ignition switch to LOCK (0). Connect the radiator fan switch 2P connector terminals No. 1 and No. 2 with a jumper wire, then turn the ignition switch to ON (II).

RADIATOR FAN SWITCH 2P CONNECTOR



Wire side of female terminals

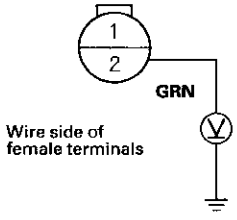
Does the radiator fan run?

YES—Replace the radiator fan switch.■

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0). Remove the jumper wire, then turn the ignition switch to ON (II). Measure the voltage between the radiator fan switch 2P connector terminal No. 2 and body ground.

RADIATOR FAN SWITCH 2P CONNECTOR



Is there battery voltage?

YES—Repair open in the wire between radiator fan switch 2P connector terminal No. 1 and body ground. If the wire is OK, check for a poor ground at G301.■

NO—Repair open in the wire between the radiator fan switch 2P connector terminal No. 2 and the main under-hood fuse/relay box.■

Radiator Fan Circuit Troubleshooting (cont'd)

'06-08 models

1. Check for the PGM-FI DTCs (see page 11-213).

   Is DTC P2183, P2184, and/or P2185 indicated?

   YES—Do the appropriate troubleshooting, then recheck.■

   NO—Go to step 2.

2. '06-07 models: Check the No. 57 (20 A), No. 41 (100 A), and No. 42 (40 A) fuses in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

3. '08 model: Check the No. 57 (30 A), No. 41 (100 A), and No. 42 (40 A) fuses in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Reinstall the fuse, then go to step 4.

   NO—Replace the fuse(s) and recheck.■

4. Remove the radiator fan relay from the main under-hood fuse/relay box, and test it (see page 22-48).

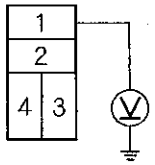
   Is the relay OK?

   YES—Go to step 5.

   NO—Replace the radiator fan relay.■

5. Measure the voltage between the radiator fan relay 4P socket terminal No. 1 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

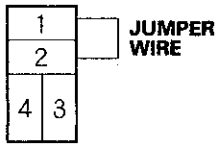
Is there battery voltage?

YES—Go to step 6.

NO—Replace the main under-hood fuse/relay box.■

6. Connect the radiator fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

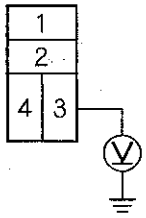
Does the radiator fan run?

YES—Go to step 7.

NO—Go to step 8.

7. Disconnect the jumper, and turn the ignition switch to ON (II). Check for voltage between the radiator fan relay 4P socket terminal No. 3 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

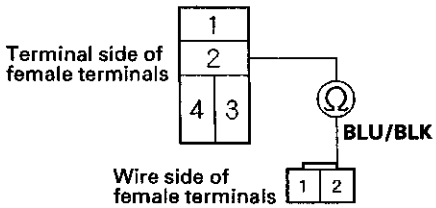
YES—Go to step 11.

NO—Repair open in the wire between the main under-hood fuse/relay box and under-dash fuse/relay box. ■

8. Disconnect the radiator fan motor 2P connector.

9. Check for continuity between the radiator fan relay 4P socket terminal No. 2 and the radiator fan motor 2P connector terminal No. 2.

RADIATOR FAN RELAY 4P SOCKET



RADIATOR FAN MOTOR 2P CONNECTOR

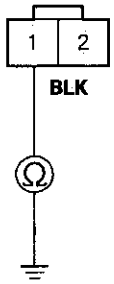
Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the main under-hood fuse/relay box and the radiator fan motor 2P connector terminal No. 2. ■

10. Check for continuity between the radiator fan motor 2P connector terminal No. 1 and body ground.

RADIATOR FAN MOTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

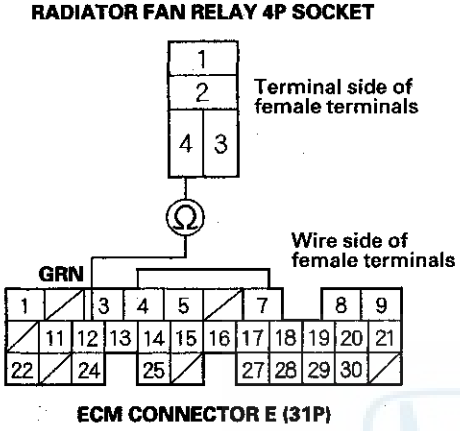
YES—Replace the radiator fan motor. ■

NO—Repair open in the wire between radiator fan motor 2P connector terminal No. 1 and body ground. If the wire is OK, check for a poor ground at G201. ■

(cont'd)

Radiator Fan Circuit Troubleshooting (cont'd)

11. Check for continuity between the radiator fan relay 4P socket terminal No. 4 and the engine control module (ECM) connector terminal E12.



Is there continuity?

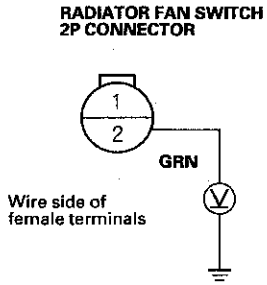
YES—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck it. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

NO—Repair open in the wire between the ECM connector terminal E12 and the main under-hood fuse/relay box. ■

Radiator Fan Switch Circuit Troubleshooting (Open)

'00-05 models

1. Disconnect the radiator fan switch 2P connector.
2. Turn the ignition switch to ON (II).
3. Measure the voltage between the radiator fan switch 2P connector terminal No. 2 and body ground.

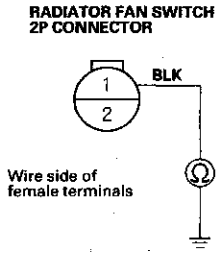


Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the wire between the radiator fan switch 2P connector terminal No. 2 and main under-hood fuse/relay box. ■

4. Turn the ignition switch to LOCK (0), and check for continuity between the radiator fan switch 2P connector terminal No. 1 and body ground.



Is there continuity?

YES—Replace the radiator fan switch. ■

NO—Repair open in the wire between the radiator fan switch 2P connector terminal No. 1 and body ground. If the wire is OK, check for a poor ground at G301. ■

Radiator Fan Switch Circuit Troubleshooting (Short)

'00-05 models

1. Remove the radiator fan relay from the main under-hood fuse/relay box, and test it (see page 22-48).

   Is the relay OK?

   YES—Go to step 2.

   NO—Replace the radiator fan relay.■

2. Remove the radiator fan switch (see page 10-24), and test it (see page 10-23).

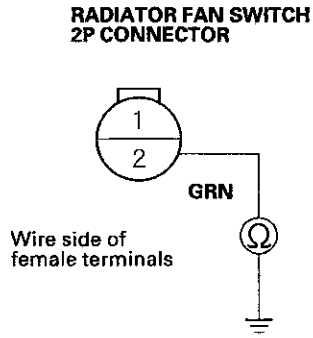
   Is the radiator fan switch OK?

   YES—Go to step 3.

   NO—Replace the radiator fan switch (see page 10-24).■

3. Disconnect engine control module (ECM) connector A (32P) and the under-hood fuse/relay box 16P connector.

4. Check for continuity between the radiator fan switch 2P connector terminal No. 2 and body ground.



   Is there continuity?

   YES—Repair short in the wire between the radiator fan switch 2P connector terminal No. 2 and main under-hood fuse/relay box.■

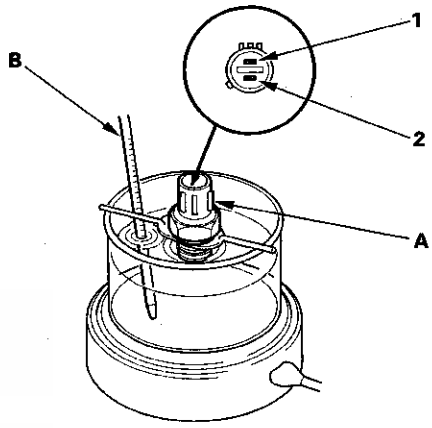
   NO—Replace the main under-hood fuse/relay box.■

Radiator Fan Switch Test

'00-05 models

1. Remove the radiator fan switch from the radiator (see page 10-24).

2. Suspend the radiator fan switch (A) in a container of water as shown.



3. Heat the water and check the temperature with a thermometer. Do not let the thermometer (B) touch the bottom of the hot container.

4. Measure the continuity between terminal No. 1 and terminal No. 2 according to the table.

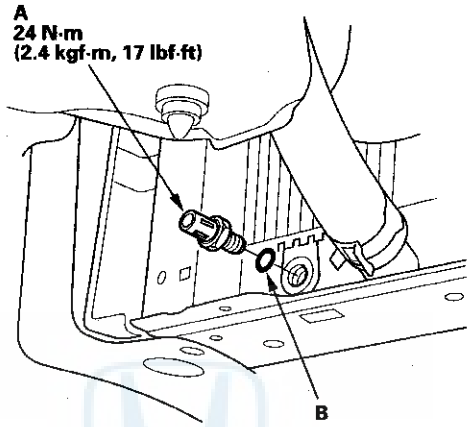
Operation		Temperature	Terminal 1	Terminal 2
SWITCH	ON	196—203 °F (91—95 °C)	○—○	
	OFF	5—15 °F (3—8 °C) lower than the temperature when it goes on		

5. Replace if necessary, and install the radiator fan switch (see page 10-24).

Radiator Fan Switch Replacement

'00-05 models

1. Drain the engine coolant (see page 10-9).
2. Disconnect the radiator fan switch connector, then remove the radiator fan switch (A).



3. Install the radiator fan switch with a new O-ring (B).
4. Refill the radiator with engine coolant, then bleed the air from the cooling system (see step 7 on page 10-9).

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Fuel and Emissions

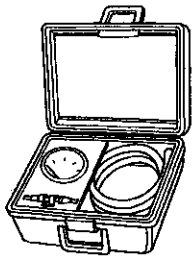
HONDA

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

’00-05 Models

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07JAZ-001000B	Vacuum/Pressure Gauge, 0—4 in.Hg	1
②	07SAZ-001000A	Backprobe Set	2
③	07VAJ-0040100	Fuel Pressure Gauge Attachment	1
④	07406-004000B	Fuel Pressure Gauge	1
⑤	07NAJ-P07010A	Pressure Gauge Adapter	1
⑥-1	07406-0020201	A/T Pressure Hose	1
⑥-2	07406-0070301	A/T Low Pressure Gauge W/Panel	1
⑥-3	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	1
⑥-4	07MAJ-PY40120	A/T Pressure Hose, Adapter	1



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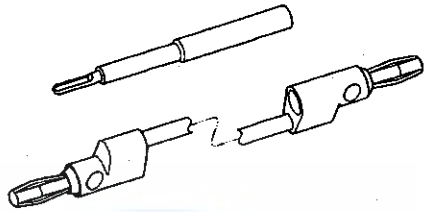
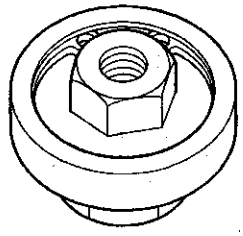
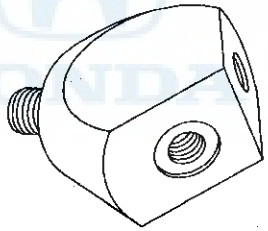


②

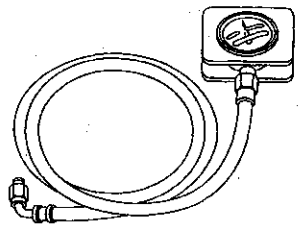


③

④



⑤



⑥-1, ⑥-2, ⑥-3, ⑥-4

General Troubleshooting Information

Intermittent Failures

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the malfunction indicator lamp (MIL) on the dash does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. The MIL may be turned off by the ECM if the problem that originally caused the MIL to be illuminated is an intermittent one.

Service Information

Periodically, new ECM software or new service procedures may become available. Always check online for the latest software or service information related to the DTCs or symptoms you are troubleshooting.

Opens and Shorts

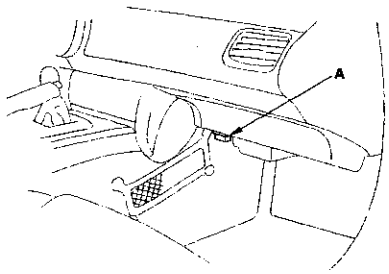
"Open" and "Short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as ECMs), this can sometimes mean something works, but not the way it's supposed to.

How to Use the Honda Diagnostic System (HDS) or a Scan Tool

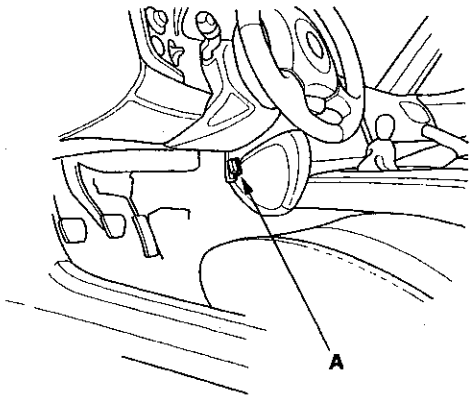
If the MIL (malfunction indicator lamp) has come on

1. Start the engine, and check the MIL.
2. If the MIL stays on, connect the HDS or an OBD II scan tool to the data link connector (DLC) (A).
   For '00-01 models, the DLC is located under the passenger's side of the dashboard.
   For '02-05 models, the DLC is located behind the driver's side of the front console.

'00-01 models



'02-05 models



3. Turn the ignition switch ON (II).
4. Make sure the HDS or an OBD II scan tool communicates with the ECM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-110).
5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data. Refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.

   NOTE:
   - Freeze data indicates the engine conditions when the first malfunction, misfire or fuel trim malfunction was detected.
   - The scan tool and the HDS can read the DTC, freeze data, current data, and other engine control module (ECM) data.
   - For specific operations, refer to the user's manual that came with a scan tool or HDS.
6. If no DTCs are found, go to MIL troubleshooting (see page 11-106).

If the MIL did not come on
If the MIL did not come on but there is a driveablity problem, do the symptom troubleshooting.

If you can't duplicate the DTC
Some of the troubleshooting requires you to reset the ECM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the DTC, do not continue through the procedure. To do so will only result in confusion and possibly, a needlessly replaced ECM.

(cont'd)

General Troubleshooting Information (cont'd)

How to Reset the ECM

You can reset the ECM in either of two ways:

NOTE: After resetting the ECM, do the ECM idle learn procedure (see page 11-140).

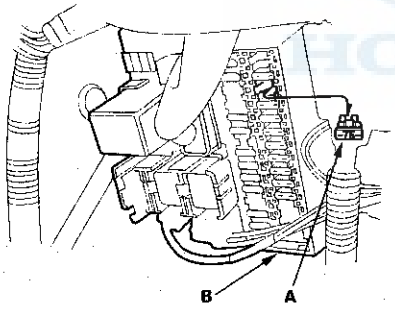
Reset the ECM with an OBD II Scan Tool or the HDS

1. Turn the ignition switch ON (II). Do not start the engine.
2. Use an OBD II scan tool or HDS to clear the DTC.

   NOTE: For the specific operations, refer to the user's manual that came with a scan tool or HDS.

Reset the ECM by Removing the Fuse

1. Turn the ignition switch OFF.
2. Remove the No. 25 BACK UP (7.5 A) fuse (A) from the under-dash fuse/relay box (B) for 60 seconds.



How to End a Troubleshooting Session (required after any troubleshooting)

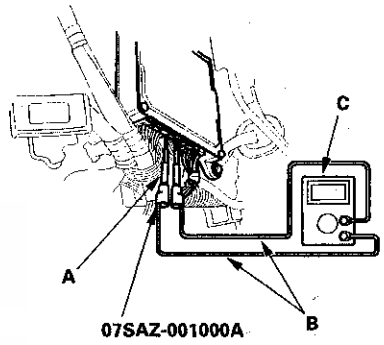
1. Reset the ECM with the HDS or OBD II scan tool.
2. Do the ECM idle learn procedure (see page 11-140).
3. Turn the ignition switch OFF.
4. Disconnect an OBD II scan tool or HDS from the data link connector (DLC).

   NOTE: The ECM is part of the immobilizer system. If you replace the ECM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the HDS.

How to Troubleshoot Circuits at the ECM

Special Tools Required
- Digital multimeter KS-AHM-32-003 (1) or a commercially available digital multimeter
- Backprobe set 07SAZ-001000A (2)

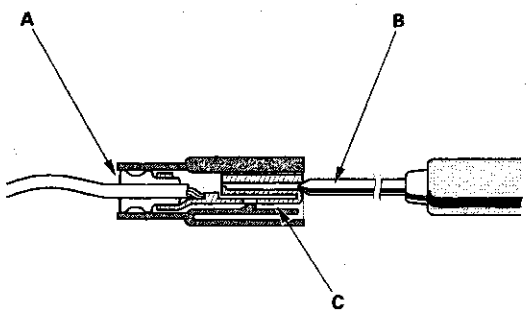
1. Connect the backprobe adapters (A) to the stacking patch cords (B), and connect the cords to a multimeter (C).



2. Using the wire insulation as a guide for the contoured tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it touches the end of the wire terminal.
3. If you cannot get to the wire side of the connector or the wire side is sealed (A), disconnect the connector and touch the tester probe (B) to terminals (C) from the terminal side. Do not force the probe into the connector.

NOTICE

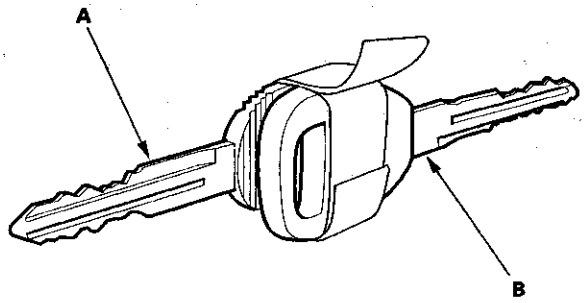
Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.



How to Substitute the ECM for Testing Purposes

Use this procedure if you need a known-good ECM to test a vehicle. It allows you to swap an ECM from a "donor" vehicle without having to program it to the test vehicle's ignition key.

1. Disconnect the negative cable from the battery on the test vehicle.
2. Cut a temporary ignition key for the test vehicle with a non-immobilizer key blank.
3. Remove the ECM from the test vehicle.
4. Write the test vehicle's VIN on the ECM you just removed to avoid confusing it with the donor vehicle's ECM.
5. Disconnect the negative cable from the battery on the donor vehicle.
6. Remove the known-good ECM from the donor vehicle, and install it in the test vehicle.
7. Tape the donor vehicle's ignition key head-to-head to the test vehicle's temporary key (A). The ECM will recognize the code from the donor vehicle's key (B) and allow you to start the engine with the temporary key.



8. After completing your tests, reinstall both ECMs, and destroy the temporary key.
9. Reconnect the negative cable to the battery.

DTC Troubleshooting Index

DTC (MIL indication *1)	Two Drive Cycle Detection	Detection Item	Note
P0107 (3)	———	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage	(see page 11-45)
P0108 (3)	———	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage	(see page 11-47)
P0112 (10)	———	Intake Air Temperature (IAT) Sensor Circuit Low Voltage	(see page 11-49)
P0113 (10)	———	Intake Air Temperature (IAT) Sensor Circuit High Voltage	(see page 11-50)
P0116 (86)	P0116	Engine Coolant Temperature (ECT) Sensor Circuit Range/ Performance Problem	(see page 11-52)
P0117 (6)	———	Engine Coolant Temperature (ECT) Sensor Circuit Low Voltage	(see page 11-52)
P0118 (6)	———	Engine Coolant Temperature (ECT) Sensor Circuit High Voltage	(see page 11-54)
P0122 (7)	———	Throttle Position (TP) Sensor Circuit Low Voltage	(see page 11-56)
P0123 (7)	———	Throttle Position (TP) Sensor Circuit High Voltage	(see page 11-58)
P0125 (86) *4	P0125	Engine Coolant Temperature (ECT) Sensor Malfunction/ Slow Response	(see page 11-59)
P0128 (87) *2	P0128	Cooling System Malfunction	(see page 11-59)
P0131 (1) *3	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit Low Voltage	(see page 11-61)
P0131 (1) *4	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit Low Voltage	(see page 11-62)
P0132 (1) *3	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit High Voltage	(see page 11-63)
P0132 (1) *4	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit High Voltage	(see page 11-64)
P0133 (61)	P0133	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit Slow Response	(see page 11-66)
P0134 (1) *6	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Heater System Malfunction	(see page 11-67)
P0134 (1) *7	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Heater System Malfunction	(see page 11-69)
P0135 (41)	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Heater Circuit Malfunction	(see page 11-70)
P0137 (63)	P0136 *5 ——— *7	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit Low Voltage	(see page 11-73)

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.
* 2: '02-05 models
* 3: '00-03 models
* 4: '04-05 models
* 5: '00-04 models
* 6: '04 model
* 7: '05 model

DTC (MIL indication *1)	Two Drive Cycle Detection	Detection Item	Note
P0138 (63) *5	P0136	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit High Voltage	(see page 11-74)
P0138 (63) *7	———	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit High Voltage	(see page 11-75)
P0139 (63) *5	P0139	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit Slow Response	(see page 11-77)
P0141 (65)	———	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Heater Circuit Malfunction	(see page 11-70)
P0171 (45)	P0170 *5 P0171 *7	Fuel System Too Lean	(see page 11-78)
P0172 (45)	P0170 *5 P0172 *7	Fuel System Too Rich	(see page 11-78)
P0300 any combination of the following P0301 (71) P0302 (72) P0303 (73) P0304 (74)	P1399 *5 P0300 *7	Random Misfire Detected	(see page 11-79)
P0301 (71)	P1399 *5 P0301 *7	No. 1 Cylinder Misfire Detected	(see page 11-80)
P0302 (72)	P1399 *5 P0302 *7	No. 2 Cylinder Misfire Detected	(see page 11-80)
P0303 (73)	P1399 *5 P0303 *7	No. 3 Cylinder Misfire Detected	(see page 11-80)
P0304 (74)	P1399 *5 P0304 *7	No. 4 Cylinder Misfire Detected	(see page 11-80)
P0325 (23)	———	Knock Sensor Circuit Malfunction	(see page 11-85)
P0335 (4)	———	Crankshaft Position (CKP) Sensor No Signal	(see page 11-86)
P0336 (4) *3	———	Crankshaft Position (CKP) Sensor Circuit Intermittent Interruption	(see page 11-86)
P0339 (4) *4	———	Crankshaft Position (CKP) Sensor Circuit Intermittent Interruption	(see page 11-86)
P0340 (8) *4	———	Camshaft Position (CMP) Sensor A No Signal	(see page 11-88)
P0344 (8) *4	———	Camshaft Position (CMP) Sensor A Circuit Intermittent Interruption	(see page 11-88)
P0365 (58) *4	———	Camshaft Position (CMP) Sensor B No Signal	(see page 11-89)
P0369 (58) *4	———	Camshaft Position (CMP) Sensor B Circuit Intermittent Interruption	(see page 11-89)

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.
* 3: '00-03 models
* 4: '04-05 models
* 5: '00-04 models
* 7: '05 model

(cont'd)

DTC Troubleshooting Index (cont'd)

DTC (MIL indication *1)	Two Drive Cycle Detection	Detection Item	Note
P0410 (60)	P0410	Air Pump Circuit Malfunction	(see page 11-198)
P0411 (60)	P0411	Secondary Air Injection System Incorrect Flow	(see page 11-202)
P0420 (67)	P0420	Catalyst System Efficiency Below Threshold	(see page 11-170)
P0451 (91)	P0451	Fuel Tank Pressure (FTP) Sensor Circuit Range/ Performance Problem	(see page 11-174)
P0452 (91)	P0450 *5 P0452 *7	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	(see page 11-175)
P0453 (91)	P0450 *5 P0453 *7	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	(see page 11-177)
P0497 (90) *4	P0497	Evaporative Emission (EVAP) System Low Purge Flow Detected	(see page 11-179)
P0500 (17)	———	Vehicle Speed Sensor (VSS) Circuit Malfunction	(see page 11-91)
P0505 (14) *3	———	Idle Control System Malfunction	(see page 11-128)
P0506 (14) *4	P0506	Idle Air Control System RPM Lower Than Expected	(see page 11-129)
P0507 (14) *4	P0507	Idle Air Control System RPM Higher Than Expected	(see page 11-130)
P0511 (14) *4	———	Idle Air Control (IAC) Valve Circuit Malfunction	(see page 11-131)
P0607 (—) *4	———	Engine Control Module (ECM) Internal Circuit Malfunction	(see page 11-93)
P0630 (139) *4	———	VIN Not Programmed or Mismatch	(see page 11-94)
P1106 (13) *3	P1106	Barometric Pressure (BARO) Sensor Range/Performance Problem	(see page 11-95)
P1107 (13) *3	———	Barometric Pressure (BARO) Sensor Circuit Low Voltage	(see page 11-95)
P1108 (13) *3	———	Barometric Pressure (BARO) Sensor Circuit High Voltage	(see page 11-95)
P1109 (13) *4	———	Barometric Pressure (BARO) Sensor Circuit Out of Range High	(see page 11-96)
P1121 (7)	P1121	Throttle Position (TP) Sensor Signal Lower Than Expected	(see page 11-97)
P1122 (7)	P1122	Throttle Position (TP) Sensor Signal Higher Than Expected	(see page 11-97)
P1128 (5)	P1128	Manifold Absolute Pressure (MAP) Sensor Signal Lower Than Expected	(see page 11-98)
P1129 (5)	P1129	Manifold Absolute Pressure (MAP) Sensor Signal Higher Than Expected	(see page 11-98)

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.
* 3: '00-03 models
* 4: '04-05 models
* 5: '00-04 models
* 7: '05 model

DTC (MIL indication*1)	Two Drive Cycle Detection	Detection Item	Note
P1259 (22)*3	P1257	VTEC System Malfunction	(see page 11-117)
P1297 (20)	———	Electrical Load Detector (ELD) Circuit Low Voltage	(see page 11-99)
P1298 (20)	———	Electrical Load Detector (ELD) Circuit High Voltage	(see page 11-100)
P1361 (8)*3	———	Camshaft Position (CMP) Sensor A (Top Dead Center (TDC) Sensor) Circuit Intermittent Interruption	(see page 11-88)
P1362 (8)*3	———	Camshaft Position (CMP) Sensor A (Top Dead Center (TDC) Sensor) No Signal	(see page 11-88)
P1366 (58)*3	———	Camshaft Position (CMP) Sensor B (Top Dead Center (TDC) Sensor) Circuit Intermittent Interruption	(see page 11-89)
P1367 (58)*3	———	Camshaft Position (CMP) Sensor B (Top Dead Center (TDC) Sensor) No Signal	(see page 11-89)
P1410 (60)*3	P1410	Air Pump Malfunction	(see page 11-204)
P1415 (83)	———	Air Pump Electrical Current Sensor Circuit Low Voltage	(see page 11-205)
P1416 (83)	———	Air Pump Electrical Current Sensor Circuit High Voltage	(see page 11-207)
P1456 (90)	P1456	Evaporative Emissions (EVAP) Control System Leakage (Fuel Tank System)	(see page 11-183)
P1457 (90)	P1457	Evaporative Emissions (EVAP) Control System Leakage (EVAP Canister System)	(see page 11-188)
P1519 (14)*3	———	Idle Air Control (IAC) Valve Circuit Malfunction	(see page 11-131)
P1607 (—)*3	———	Engine Control Module (ECM) Internal Circuit Malfunction	(see page 11-93)
P2195 (1)*6	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit Low Voltage	(see page 11-102)
P2195 (1)*7	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit Low Voltage	(see page 11-103)
P2227 (13)*4	P2227	Barometric Pressure (BARO) Sensor Range/Performance Problem	(see page 11-95)
P2228 (13)*4	———	Barometric Pressure (BARO) Sensor Circuit Low Voltage	(see page 11-95)
P2229 (13)*4	———	Barometric Pressure (BARO) Sensor Circuit High Voltage	(see page 11-95)
P2270 (63)*4	———*6 P2270*7	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit Signal Stuck Lean	(see page 11-104)
P2271 (63)*4	———*6 P2271*7	Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2) Circuit Signal Stuck Rich	(see page 11-105)
P2279 (109)*4	P2279	Intake Air System Leak Detected	(see page 11-171)
P2297 (1)*4	———	Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1) Circuit High Voltage	(see page 11-105)
P2445 (60)*4	P2445	Air Pump Malfunction	(see page 11-204)
P2646 (22)*4	———	Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit Low Voltage	(see page 11-121)
P2647 (22)*4	———	Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit High Voltage	(see page 11-124)

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.
* 3: '00-03 models
* 4: '04-05 models
* 6: '04 model
* 7: '05 model

Symptom Troubleshooting Index

These symptoms DO NOT trigger diagnostic trouble codes (DTCs) or cause the malfunction indicator lamp (MIL) to come on. If the MIL is reported on, check for DTCs. If the vehicle has one of these symptoms, do the diagnostic procedure for it, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-47). 2. Test the starter (see page 4-7). 3. Test the fuel pump (see page 11-147). 4. Troubleshoot the PGM-FI main relay circuit (see page 11-142).	• Low compression • No ignition spark • Intake air leaks • Locked up engine • Broken cam chain • Contaminated fuel
Engine will not start (MIL comes on and stays on, or never comes on at all, no DTCs set)	Troubleshoot the MIL circuit (see page 11-106).	
Engine will not start (immobilizer indicator stays on or flashes)	Troubleshoot the immobilizer system (see page 22-192).	
Engine is hard to start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-47). 2. Check the fuel pressure (see page 11-145).	• Low compression • Intake air leaks • Contaminated fuel
Cold fast idle too low (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-140). 2. Check the idle speed (see page 11-140).	
Cold fast idle too high (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-140). 2. Check the idle speed (see page 11-140). 3. Inspect/adjust the throttle cable (see page 11-168). 4. Test the throttle body (see page 11-163).	Intake air leaks
Idle speed fluctuates (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-140). 2. Check the idle speed (see page 11-140). 3. Inspect/adjust the throttle cable (see page 11-168). 4. Test the throttle body (see page 11-163). 5. Troubleshoot the A/C signal circuit (see page 11-133).	Incorrect valve timing or clearance adjustment
After warming up, idle speed is below specification without load (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-140). 2. Troubleshoot the alternator FR signal circuit (see page 11-135). 3. Troubleshoot the electrical power steering (EPS) signal circuit (see page 11-137). 4. Test the throttle body (see page 11-163).	• Faulty throttle cable • Incorrect valve timing or clearance adjustment
After warming up, idle speed is above specification without load (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-140). 2. Troubleshoot the alternator FR signal circuit (see page 11-135). 3. Inspect the TP Sensor (see page 11-164). 4. Troubleshoot the A/C signal circuit (see page 11-133). 5. Troubleshoot the electrical power steering (EPS) signal circuit (see page 11-137).	Intake air leaks

Symptom	Diagnostic procedure	Also check for
Low power (MIL works OK, no DTCs set)	1. Test the fuel pressure (see page 11-145). 2. Test the throttle body (see page 11-163). 3. Inspect/adjust the throttle cable (see page 11-168).	• Low compression • Incorrect camshaft timing • Incorrect engine oil level
Engine stalls (MIL works OK, no DTCs set)	1. Do the idle learn procedure (see page 11-140). 2. Test the fuel pressure (see page 11-145). 3. Check the idle speed (see page 11-140). 4. Troubleshoot the brake pedal position switch signal circuit (see page 11-139).	• Intake air leaks • Faulty harness and sensor connections
Difficult to refuel (MIL works OK, no DTCs set)	1. Test the fuel tank vapor control valve (see page 11-195). 2. Inspect the fuel tank signal tube between the fuel pipe and the fuel tank vapor control valve. 3. Inspect the fuel tank vent tube between the EVAP canister and the fuel tank vapor control valve. 4. Check the EVAP canister.	Malfunctioning gas station filling nozzle.
Fuel overflows during refueling (No DTCs set)	Replace the fuel tank vapor control valve (see page 11-196).	Malfunctioning gas station filling nozzle.

System Description

Electronic Control System

The functions of the fuel and emissions control systems are managed by the engine control module (ECM).

Fail-safe Function
When an abnormality occurs in the signal from a sensor, the ECM ignores the signal and assumes a pre-programmed value for the sensor that allows the engine to continue to run.

Back-up Function
When an abnormality occurs in the ECM, the injectors are controlled by a back-up circuit independent of the system to permit minimal driving.

Self-diagnosis
When an abnormality occurs in the signal from a sensor, the ECM supplies ground for the malfunction indicator lamp (MIL) and stores the diagnostic trouble code (DTC) in erasable memory. When the ignition is first turned on (II), the ECM supplies ground to the MIL for 15 to 20 seconds to check the MIL bulb condition. If all readiness code are not set, the MIL will flash five times. If readiness code are set to complete, the MIL will go out. The MIL may be turned off by the ECM if the problem that originally caused the MIL to be illuminated is a intermittent one.

Two Driving Cycle Detection Method
To prevent false indications, the "two driving cycle detection method" is used for some self-diagnostic functions. When an abnormality occurs, the ECM stores it in its memory. When the same abnormality recurs after the ignition switch is turned OFF and ON (II) again, the ECM turns on the MIL.

ECM Data

You can retrieve data from the ECM by connecting an OBD II scan tool or the HDS to the data link connector (DLC). The items listed in the table below conform to SAE recommended practice. The HDS also reads data beyond that recommended by SAE to help you find the causes of intermittent problems.

NOTE:
The "operating values" listed are approximate and may vary depending on the environment and the individual vehicle. Unless noted otherwise, "at idle speed" means idling with the engine completely warmed up, in neutral position, and the A/C and all accessories turned off.

Data	Description	Operating Value	Freeze Data
Diagnostic Trouble Code (DTC)	If the ECM detects a problem, it will store it as a code consisting of one letter and four numbers. Depending on the problem, an SAE-defined code (P0xxx, P2xxx) or a Honda-defined code (P1xxx) will be output to a scan tool or the HDS.	If no problem is detected, there is no output.	YES
Engine Speed	The ECM computes engine speed from the signals sent from the Crankshaft Position (CKP) sensor. This data is used for determining the time and amount of injected fuel.	Nearly the same as tachometer indication At idle speed: 800±50 rpm	YES
Vehicle Speed	The ECM converts pulse signals from the Vehicle Speed Sensor (VSS) into speed data.	Nearly the same as speedometer indication	YES
Manifold Absolute Pressure (MAP)	The absolute pressure caused in the intake manifold by engine load and speed.	With engine stopped: Nearly the same as atmospheric pressure At idle speed: 28—48 kPa (8.3—14.2 in.Hg, 210—360 mmHg)	YES
Engine Coolant Temperature (ECT)	The ECT sensor converts coolant temperature into voltage, and sends a voltage signal to the ECM. The sensor is a thermistor whose internal resistance changes with coolant temperature. The ECM uses the voltage signals from the ECT sensor to determine the amount of injected fuel.	With cold engine: Same as ambient temperature and IAT With engine warmed up: about 176—212 °F (80—100 °C)	YES
Primary Heated Oxygen Sensor (Primary HO2S) (Sensor 1), Secondary Heated Oxygen Sensor (Secondary HO2S) (Sensor 2)	The HO2S detects the oxygen content in the exhaust gas and sends voltage signals to the ECM. Based on these signals, the ECM controls the air/fuel ratio. When the oxygen content is high (that is, when the ratio is leaner than the stoichiometric ratio), the voltage signal is lower. When the oxygen content is low (that is, when the ratio is richer than the stoichiometric ratio), the voltage signal is higher.	0.0—1.4 V At idle speed: about 0.1—0.9 V	NO

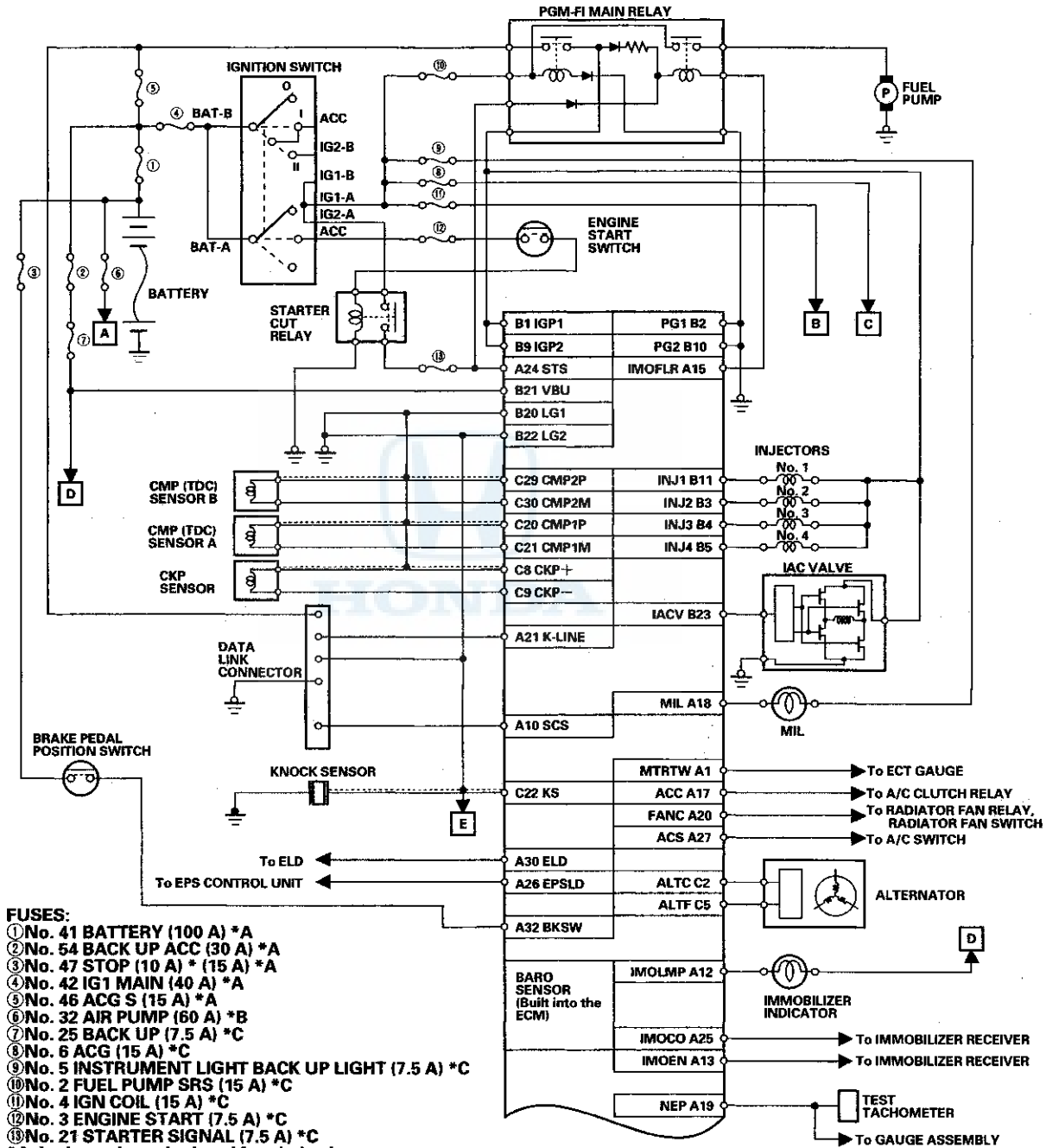
(cont'd)

System Description (cont'd)

ECM Data (cont'd)

Data	Description	Operating Value	Freeze Data
Fuel System Status	Fuel system status is indicated as "open" or "closed". Closed: Based on the HO2S output, the ECM determines the air/fuel ratio and controls the amount of injected fuel. Open: Ignoring HO2S output, the ECM refers to signals from the throttle position (TP), manifold absolute pressure (MAP), intake air temperature (IAT), barometric pressure (BARO) and engine coolant temperature (ECT) sensors to control the amount of injected fuel.	At idle speed: closed	YES
Short Term Fuel Trim	The air fuel ratio correction coefficient for correcting the amount of injected fuel when the Fuel System Status is "closed". When the ratio is leaner than the stoichiometric ratio, the ECM increase short term fuel trim gradually, and the amount of injected fuel increases. The air fuel ratio gradually gets richer, causing a lower oxygen content in the exhaust gas. Consequently, the short term fuel trim is lowered, and the ECM reduces the amount of injected fuel. This cycle keeps the air/fuel ratio close to the stoichiometric ratio when in closed loop status.	0.73—1.47	YES
Long Term Fuel Trim	Long term fuel trim is computed from short term fuel trim and indicates changes occurring in the fuel supply system over a long period. If long term fuel trim is higher than 1.00, the amount of injected fuel must be increased. If it is lower than 1.00, the amount of injected fuel must be reduced.	0.80—1.20	YES
Intake Air Temperature (IAT)	The IAT sensor converts intake air temperature into voltage and signals the ECM. When intake air temperature is low, the internal resistance of the sensor increases, and the voltage signal is higher.	With cold engine: Same as ambient temperature and ECT	YES
Throttle Position	Based on the accelerator pedal position, the opening angle of the throttle valve is indicated.	At idle speed: about 6 %	YES
Ignition Timing	Ignition timing is the ignition advance angle set by the ECM. The ECM matches ignition timing to the driving conditions.	At idle speed: 5 °±5 °BTDC with the SCS service signal line jumped with the HDS	NO
Calculated Load Value (CLV)	CLV is the engine load calculated from the MAP data.	At idle speed: 22—42 % At 2,500 rpm without load: 27—48 %	YES

ECM Electrical Connections

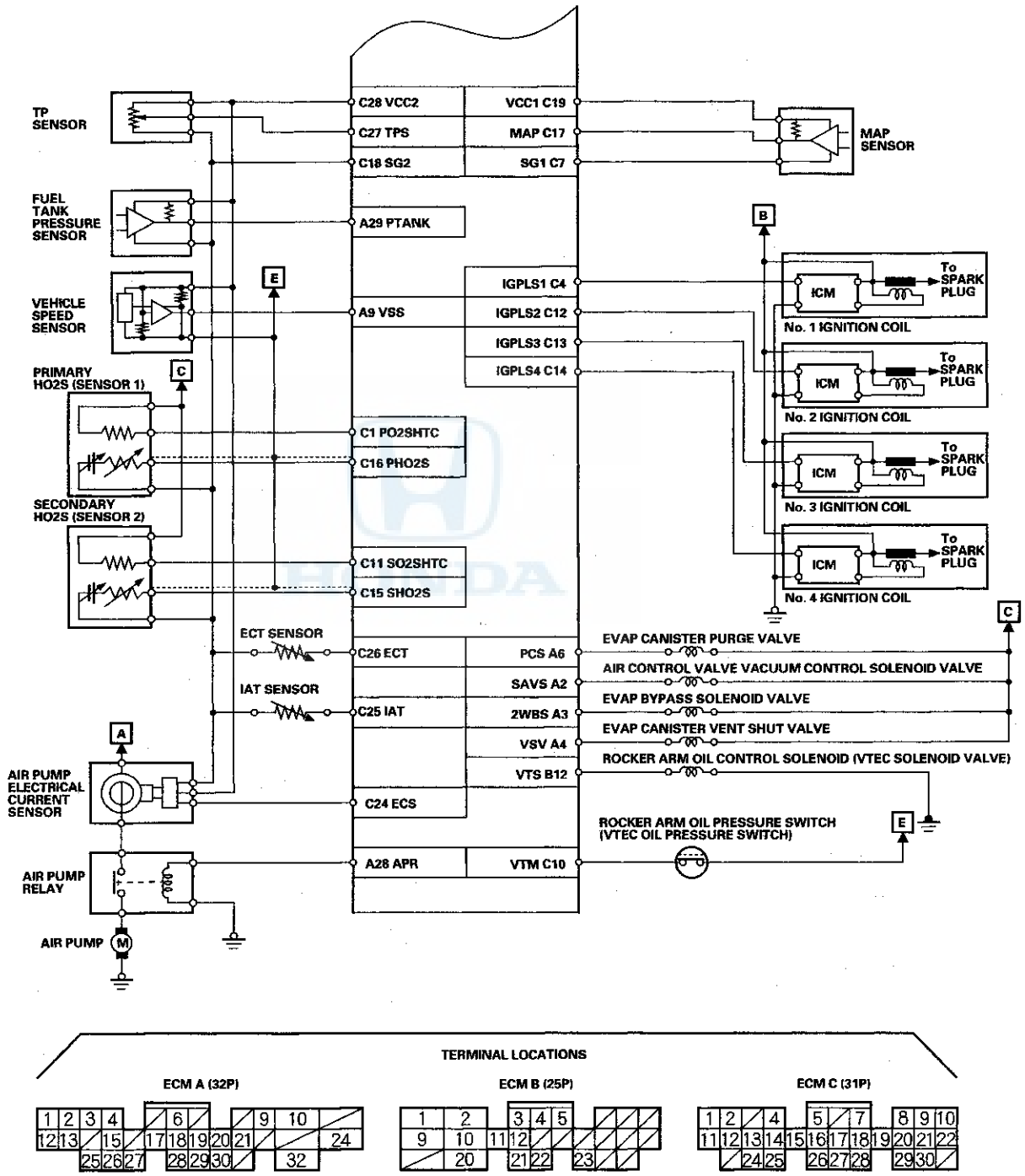


FUSES:
①No. 41 BATTERY (100 A) *A
②No. 54 BACK UP ACC (30 A) *A
③No. 47 STOP (10 A) * (15 A) *A
④No. 42 IG1 MAIN (40 A) *A
⑤No. 46 ACG S (15 A) *A
⑥No. 32 AIR PUMP (60 A) *B
⑦No. 25 BACK UP (7.5 A) *C
⑧No. 6 ACG (15 A) *C
⑨No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) *C
⑩No. 2 FUEL PUMP SRS (15 A) *C
⑪No. 4 IGN COIL (15 A) *C
⑫No. 3 ENGINE START (7.5 A) *C
⑬No. 21 STARTER SIGNAL (7.5 A) *C
*A: in the main under-hood fuse/relay box
*B: in the auxiliary under-hood fuse box
*C: in the under-dash fuse/relay box
*: '00-01 models

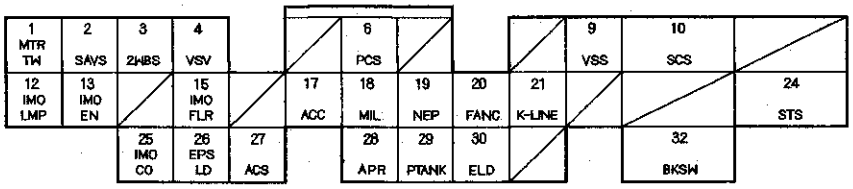
(cont'd)

System Description (cont'd)

ECM Electrical Connections (cont'd)



ECM Inputs and Outputs at Connector A (32P)



Wire side of female terminals

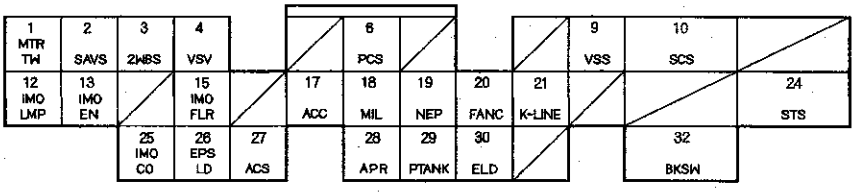
NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL/GRN	MTRTW	Sends ECT signal to ECT gauge	With ignition switch ON (II): duty controlled
2	RED	SAVS (AIR CONTROL VALVE VACUUM CONTROL SOLENOID VALVE)	Drives air control valve vacuum control solenoid valve	With ignition switch ON (II): battery voltage With air pump working: about 0 V
3	ORN	2WBS (EVAP BYPASS SOLENOID VALVE)	Drives EVAP bypass solenoid valve	With ignition switch ON (II): battery voltage
4	LT GRN/ WHT	VSV (EVAP CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
6	RED/YEL	PCS (EVAP CANISTER PURGE VALVE)	Drives EVAP canister purge valve	With engine running, engine coolant below 149 °F (65 °C): battery voltage With engine running engine coolant above 149 °F (65 °C): duty controlled
9	BLU/WHT	VSS (VEHICLE SPEED SENSOR (VSS) INPUT SIGNAL)	Sends vehicle speed sensor (VSS) input signal	Depending on vehicle speed: pulses
10	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check connector signal (the signal causing a DTC indication)	With the service check signal shorted with the HDS: about 0 V With the service check signal opened: about 5.0 V or battery voltage
12	PNK	IMOLMP (IMMOBILIZER INDICATOR)	Drives immobilizer indicator	With immobilizer indicator turned ON: about 0 V With immobilizer indicator turned OFF: battery voltage
13	PNK/BLU	IMOEN (IMMOBILIZER ENABLE SIGNAL)	Sends immobilizer enable signal	
15	GRN/YEL	IMOFLR (IMMOBILIZER FUEL PUMP RELAY)	Drives fuel pump relay	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
17	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	With compressor ON: about 0 V With compressor OFF: battery voltage
18	GRN/ORN	MIL (MALFUNCTION INDICATOR LAMP)	Drives MIL	With MIL turned ON: about 0 V With MIL turned OFF: battery voltage
19	BLU	NEP (ENGINE SPEED PULSE)	Outputs engine speed pulse	With engine running: pulses
20	GRN	FANC (RADIATOR FAN CONTROL)	Drives radiator fan relay	With radiator fan running: about 0 V With radiator fan stopped: battery voltage

(cont'd)

System Description (cont'd)

ECM Inputs and Outputs at Connector A (32P)

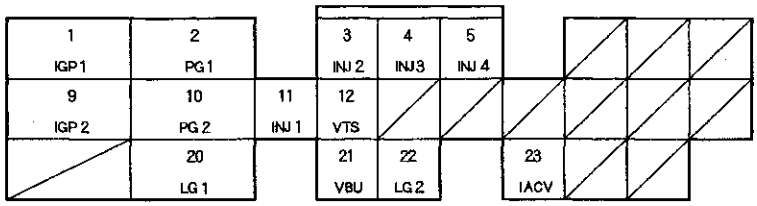


Wire side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
21	GRY	K-LINE	Sends and receives scan tool signal	With ignition switch ON (II): battery voltage
24	BLU/ORN	STS (STARTER SWITCH SIGNAL)	Detects starter switch signal	With starter switch ON (III): battery voltage With starter switch OFF: about 0 V
25	RED/BLU	IMOCO (IMMOBILIZER CODE)	Detects immobilizer signal	
26	BLU/BLK	EPSLD (ELECTRICAL P/S LOAD DETECT)	Detects P/S load signal	With steering wheel at full lock: battery voltage momentarily With steering wheel stationary: about 0 V
27	BLU/RED	ACS (A/C SWITCH SIGNAL)	Detects A/C switch signal	With A/C switch ON: about 0 V With A/C switch OFF: about 5.0 V
28	BLU	APR (AIR PUMP RELAY)	Drives air pump relay	With ignition switch ON (II): about 0 V With air pump working: battery voltage
29	LT GRN	PTANK (FUEL TANK PRESSURE (FTP) SENSOR)	Detects fuel tank pressure (FTP) sensor signal	With ignition switch ON (II) and fuel fill cap: opened: about 2.5 V
30	GRN/RED	ELD (ELECTRICAL LOAD DETECTOR)	Detects ELD signal	With parking lights turned on at idle: about 2.5—3.5 V With high beam headlights turned on at idle: about 1.5—2.5 V
32	WHT/BLK	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage

ECM Inputs and Outputs at Connector B (25P)



Wire side of female terminals

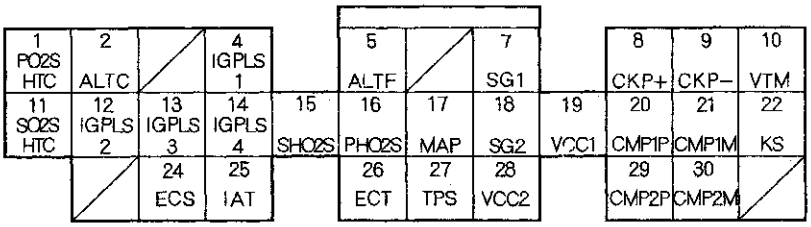
NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	YEL/BLK	IGP1 (POWER SOURCE)	Power source for ECM control circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
2	BLK	PG1 (POWER GROUND)	Ground for ECM control circuit	Less than 1.0 V at all times
3	RED	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	With ignition switch ON (II): battery voltage With engine running: duty controlled
4	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	
5	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	
9	YEL/BLK	IGP2 (POWER SOURCE)	Power source for ECM control circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
10	BLK	PG2 (POWER GROUND)	Ground for ECM control circuit	Less than 1.0 V at all times
11	BRN	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	With ignition switch ON (II): battery voltage With engine running: duty controlled
12	GRN/YEL	VTS (ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE))	Drives rocker arm oil control solenoid (VTEC solenoid valve)	With engine at low rpm: about 0 V With engine at high rpm: battery voltage
20	BRN/YEL	LG1 (LOGIC GROUND)	Ground for ECM control circuit	Less than 1.0 V at all times
21	WHT/RED	VBU (VOLTAGE BACK UP)	Power source for ECM control circuit Power source for DTC memory	Battery voltage at all times
22	BRN/YEL	LG2 (LOGIC GROUND)	Ground for ECM control circuit	Less than 1.0 V at all times
23	BLK/RED	IACV (IDLE AIR CONTROL VALVE)	Drives IAC valve	With engine running: duty controlled

(cont'd)

System Description (cont'd)

ECM Inputs and Outputs at Connector C (31P)

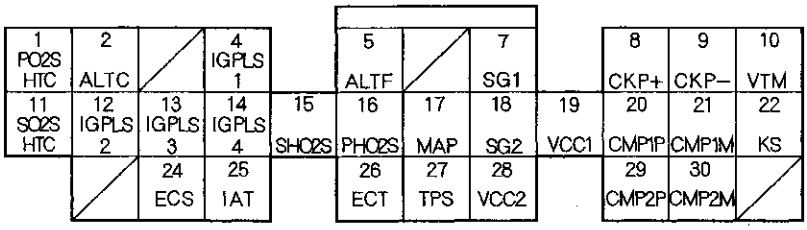


Wire side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLK/WHT	PO2SHTC (PRIMARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives primary heated oxygen sensor heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
2	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running: about 8.0 V With engine running at low electrical load: about 0 V
4	WHT	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
5	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With fully warmed up engine running: about 0 V—battery voltage (depending on electrical load)
7	GRN/WHT	SG1 (SENSOR GROUND)	Ground for MAP sensor	Less than 1.0 V at all times
8	BLU	CKP+ (CKP SENSOR P +SIDE)	Detects CKP sensor	With engine running: pulses
9	WHT	CKP− (CKP SENSOR M −SIDE)	Ground for CKP sensor	
10	BLU/BLK	VTM (ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) SIGNAL)	Detects rocker arm oil pressure switch (VTEC oil pressure switch) signal	With engine at low engine speed: about 0 V With engine at high engine speed (vehicle running): battery voltage
11	BLK/WHT	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR HEATER CONTROL)	Drives secondary heated oxygen sensor heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
12	WHT/GRN	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
13	WHT/BLK	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
14	WHT/BLU	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	
15	WHT/RED	SHO2S (SECONDARY HEATED OXYGEN SENSOR, SENSOR 2)	Detects secondary heated oxygen sensor (sensor 2) signal	With throttle fully opened from idle with fully, warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
16	WHT	PHO2S (PRIMARY HEATED OXYGEN SENSOR, SENSOR 1)	Detects primary heated oxygen sensor (sensor 1) signal	With throttle fully opened from idle with fully, warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
17	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
18	GRN/YEL	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times.
19	YEL/RED	VCC1 (SENSOR VOLTAGE)	Power source to MAP sensor	With ignition switch ON (II): about 5.0 V With ignition switch OFF: about 0 V

ECM Inputs and Outputs at Connector C (31P)



Wire side of female terminals

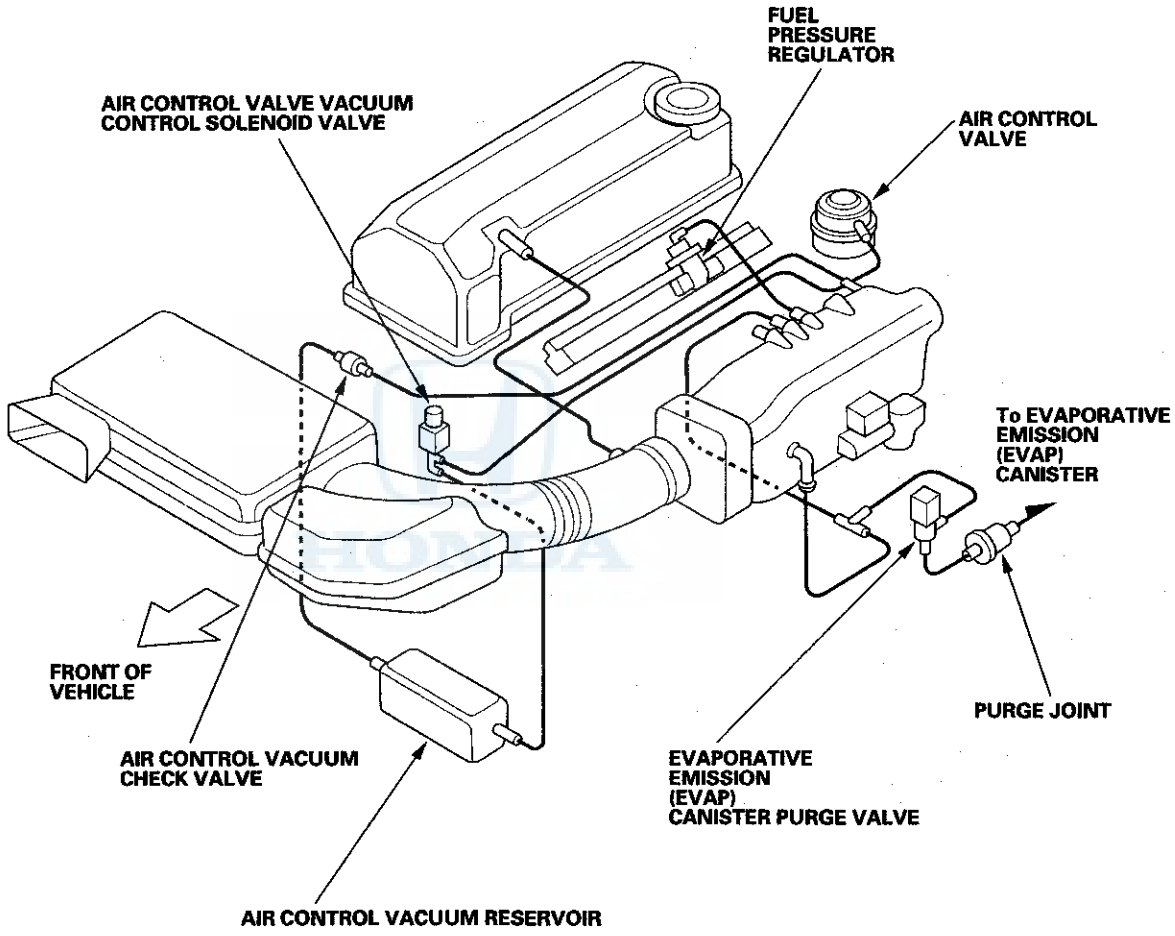
NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
20	GRN	CMP1P (CAMSHAFT POSITION (CMP) SENSOR (TOP DEAD CENTER (TDC) SENSOR) A P SIDE)	Detects CMP (TDC) sensor A	With engine running: pulses
21	RED	CMP1M (CAMSHAFT POSITION (CMP) SENSOR (TOP DEAD CENTER (TDC) SENSOR) A M SIDE)	Ground for CMP (TDC) sensor A	
22	RED/BLU	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
24	WHT/BLK	ECS (AIR PUMP ELECTRICAL CURRENT SENSOR)	Detects air pump electrical current sensor signal	With ignition switch ON (II): about 0.5 V With air pump working: about 2.0—5.0 V
25	RED/YEL	IAT (INTAKE AIR TEMPERATURE SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1—4.8 V (depending on intake air temperature)
26	RED/WHT	ECT (ENGINE COOLANT TEMPERATURE SENSOR)	Detects ECT sensor signal	With ignition switch ON (II): about 0.1—4.8 V (depending on engine coolant temperature)
27	RED/BLK	TPS (THROTTLE POSITION SENSOR)	Detects TP sensor signal	With throttle fully open: about 4.8 V With throttle fully closed: about 0.3 V
28	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V With ignition switch OFF: about 0 V
29	YEL	CMP2P (CAMSHAFT POSITION (CMP) SENSOR (TOP DEAD CENTER (TDC) SENSOR) B P SIDE)	Detects CMP (TDC) sensor B	With engine running: pulses
30	BLK	CMP2M (CAMSHAFT POSITION (CMP) SENSOR (TOP DEAD CENTER (TDC) SENSOR) B M SIDE)	Ground for CMP (TDC) sensor B	

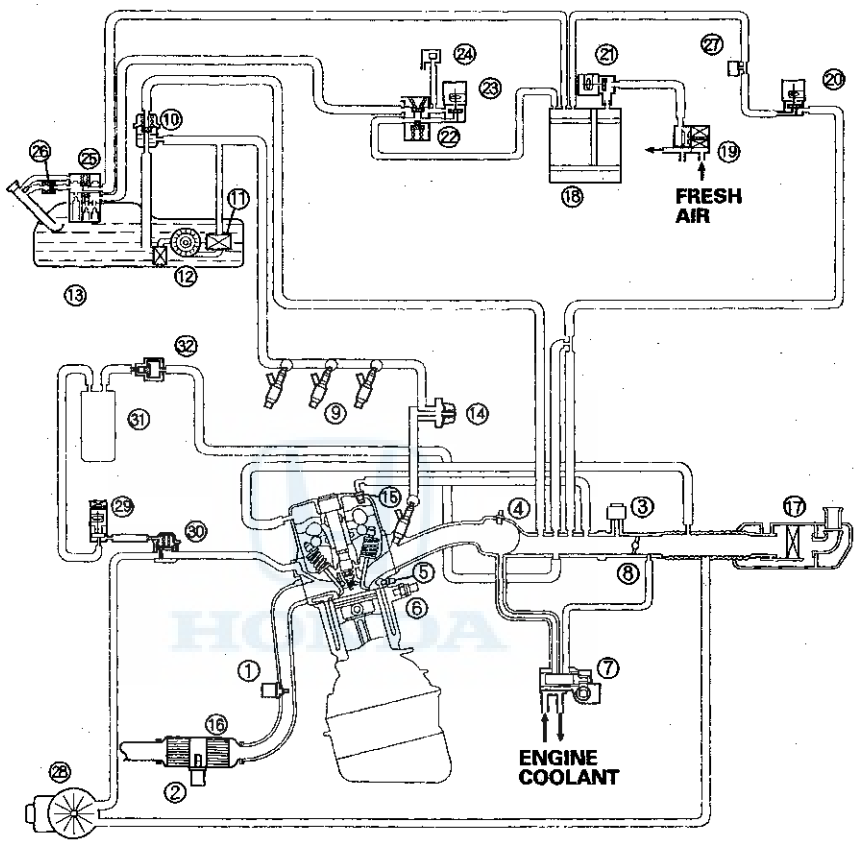
(cont'd)

System Description (cont'd)

Vacuum Hose Routing



Vacuum Distribution



① PRIMARY HEATED OXYGEN SENSOR (PRIMARY HO2S) (SENSOR 1)
② SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
④ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑤ ENGINE COOLANT TEMPERATURE (ECT) SENSOR
⑥ KNOCK SENSOR
⑦ IDLE AIR CONTROL (IAC) VALVE
⑧ THROTTLE BODY
⑨ INJECTOR
⑩ FUEL PRESSURE REGULATOR
⑪ FUEL FILTER
⑫ FUEL PUMP
⑬ FUEL TANK
⑭ FUEL PULSATION DAMPER
⑮ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
⑯ THREE WAY CATALYTIC CONVERTER
⑰ AIR CLEANER
⑱ EVAPORATIVE EMISSION (EVAP) CANISTER
⑲ EVAPORATIVE EMISSION (EVAP) CANISTER FILTER
⑳ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉑ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉒ EVAPORATIVE EMISSION (EVAP) TWO WAY VALVE
㉓ EVAPORATIVE EMISSION (EVAP) BYPASS SOLENOID VALVE
㉔ FUEL TANK PRESSURE (FTP) SENSOR
㉕ FUEL TANK VAPOR CONTROL VALVE
㉖ FUEL TANK VAPOR RECIRCULATION VALVE
㉗ PURGE JOINT
㉘ AIR PUMP
㉙ AIR CONTROL VALVE VACUUM CONTROL SOLENOID VALVE
㉚ AIR CONTROL VALVE
㉛ AIR CONTROL VACUUM RESERVOIR
㉜ AIR CONTROL VACUUM CHECK VALVE

(cont'd)

System Description (cont'd)

PGM-FI System

The programmed fuel injection (PGM-FI) system is a sequential multiport fuel injection system.

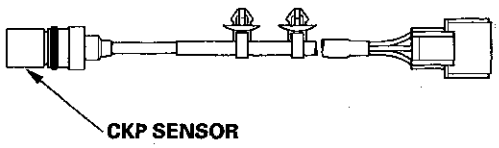
Alternator Control
The alternator signals the ECM during charging. The ECM then controls the voltage generated at the alternator according to the electrical load determined by the ELD (Electrical Load Detector) and driving mode. This reduces engine load to improve fuel economy.

A/C Switch
The A/C (air conditioning) switch signals the ECM whenever there is a demand for cooling.

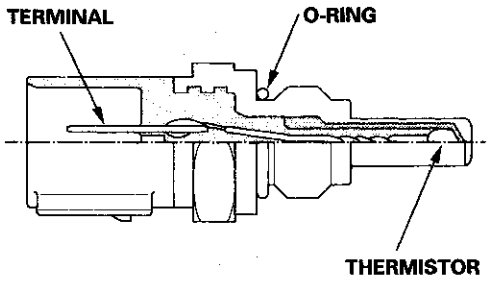
A/C Compressor Clutch Relay
When the ECM receives a demand for cooling from the A/C system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

Barometric Pressure (BARO) Sensor
The BARO sensor is inside the ECM. It converts atmospheric pressure into a voltage signal that is used by the ECM to modify the basic duration of the fuel injection discharge.

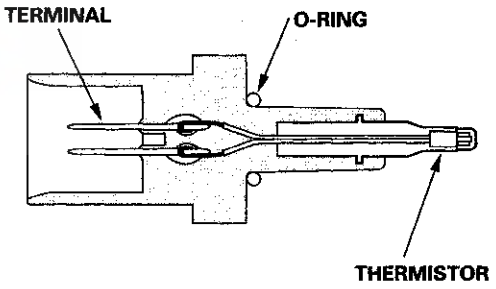
Crankshaft Position (CKP) Sensor
The CKP sensor determines timing for injection of each cylinder and also detects engine speed.
The ECM detects misfiring by using the CKP sensor to monitor fluctuations in crankshaft speed. It will then set DTCs depending on how much misfiring occurs.



Engine Coolant Temperature (ECT) Sensor
The ECT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the engine coolant temperature increases.



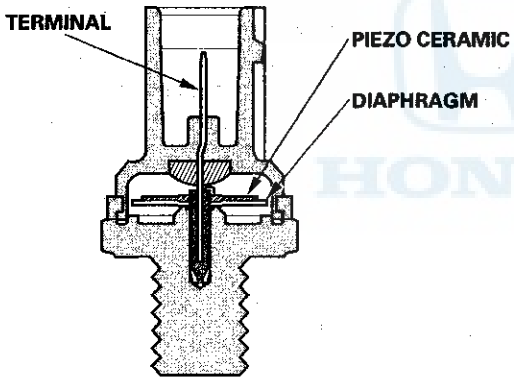
Intake Air Temperature (IAT) Sensor
The IAT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the intake air temperature increases.



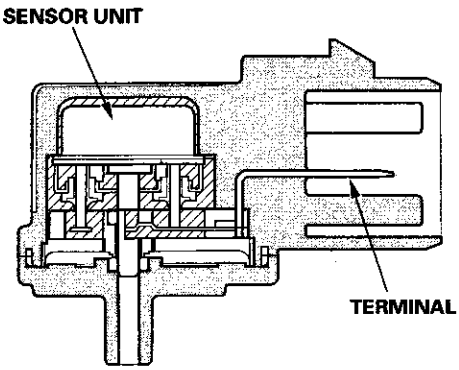
Injector Timing and Duration
The ECM contains the memory for basic discharge duration at various engine speeds and manifold pressures. The basic discharge duration, after being read out from the memory, is further modified by signals sent from various sensors to obtain the final discharge duration.
By monitoring long term fuel trim, the ECM detects long term malfunctions in the fuel system, and will set a DTC if the malfunction occurs during two consecutive trips.

Ignition Timing Control
The ECM contains the memory for basic ignition timing at various engine speeds and manifold pressures. It also adjusts the timing according to engine coolant temperature.

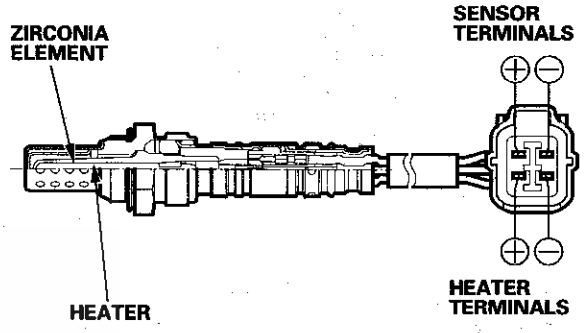
Knock Sensor
The knock control system adjusts the ignition timing to minimize knock.



Manifold Absolute Pressure (MAP) Sensor
The MAP sensor converts manifold absolute pressure into electrical signals to the ECM.



Primary and Secondary Heated Oxygen Sensors (HO2S)
The heated oxygen sensors detect the oxygen content in the exhaust gas, then sends a signal to the ECM which varies the duration of injection accordingly. To stabilize its output, the sensors have an internal heater. The primary sensor is installed in the exhaust pipe. The secondary sensor is installed in the TWC.



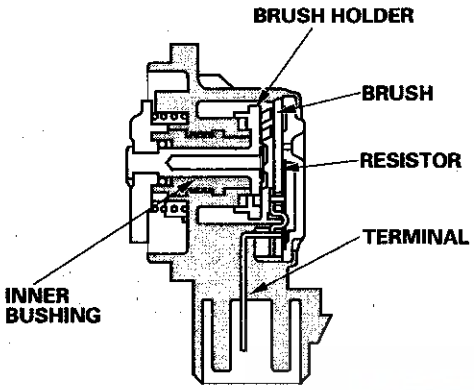
By controlling the air/fuel ratio with sensors, the deterioration of the primary sensor can be evaluated by its feedback period. When the feedback period exceeds a certain value during stable driving conditions, the sensor is considered deteriorated and the ECM sets a DTC.

Starting Control
When the engine is started, the ECM provides a rich mixture by increasing injector duration.

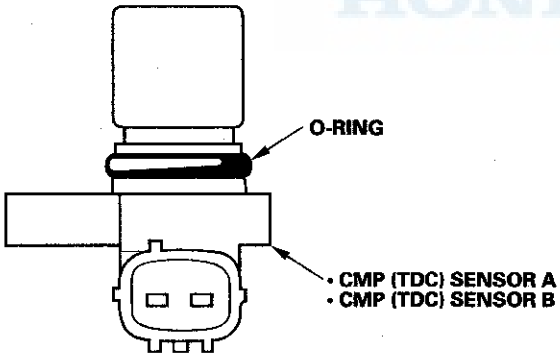
(cont'd)

System Description (cont'd)

Throttle Position (TP) Sensor
The TP sensor is a potentiometer connected to the throttle valve shaft. As the throttle position changes, the sensor varies the signal voltage to the ECM. The TP sensor is not replaceable apart from the throttle body.



Camshaft Position (CMP Sensor (Top Dead Center (TDC) Sensors)
The CMP A/B (TDC 1/2) sensor determines the ignition timing at start up (cranking) and when the crank angle is abnormal.



Idle Control System

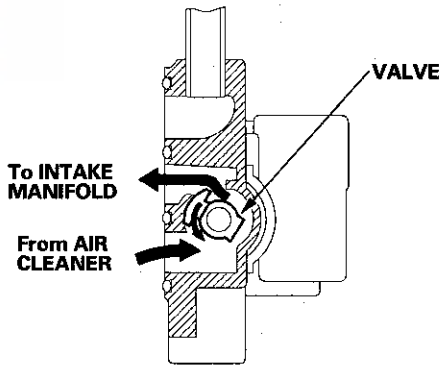
When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is pressed, the P/S load is high, or the alternator is charging, the ECM sends signals to the IAC valve to maintain the correct idle speed. Refer to the system diagram to see the functional layout of the system.

Brake Pedal Position Switch
The brake pedal position switch signals the ECM when the brake pedal is pressed.

Electrical Power Steering (EPS) Signal
The EPS signals the ECM when the power steering load is high.

Engine Start Switch
The engine start switch signals the ECM when the engine is cranking.

Idle Air Control (IAC) Valve
To maintain the proper idle speed, the IAC valve changes the amount of air bypassing the throttle body in response to an electrical signal from the ECM.



Fuel Supply System

Fuel Cutoff Control
During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at speeds over 1,050 rpm.
Fuel cutoff also occurs when engine speed exceeds 9,000 rpm, regardless of the position of the throttle valve, to protect the engine from over-revving.

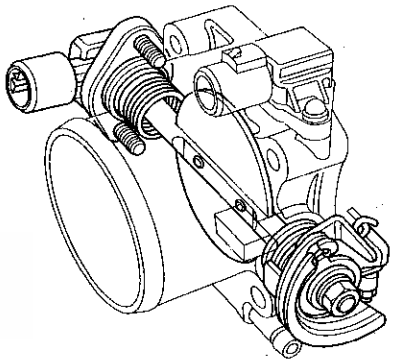
Fuel Pump Control
When the ignition is turned ON (II), the ECM grounds the PGM-FI main relay which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM grounds the PGM-FI main relay and feeds current to the fuel pump. When the engine is not running and the ignition is ON (II), the ECM cuts ground to the PGM-FI main relay which cuts current to the fuel pump.

PGM-FI Main Relay
The PGM-FI main relay contains two separate relays. One is energized whenever the ignition is ON (II), which supplies battery voltage to the ECM, power to the injectors, and power for the second relay. The second relay is energized to supply power to the fuel pump for 2 seconds when the ignition switch is ON (II), and when the engine is running or cranking.

Intake Air System

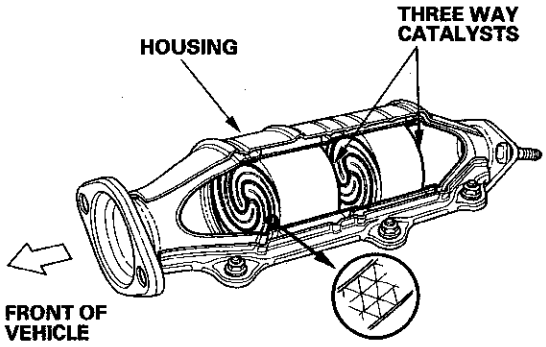
Refer to the system diagram to see a functional layout of the system.

Throttle Body
The throttle body is a single-barrel side draft type. The lower portion of the throttle valve is heated by engine coolant from the cylinder head.



Catalytic Converter System

TWC (Three Way Catalytic Converter)
The TWC converts hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO_2), nitrogen (N_2), and water vapor.

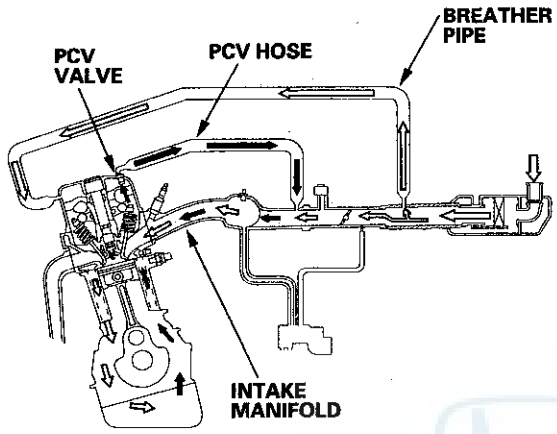


(cont'd)

System Description (cont'd)

Positive Crankcase Ventilation (PCV) System

The PCV valve prevents blow-by gases from escaping into the atmosphere by venting them into the intake manifold.



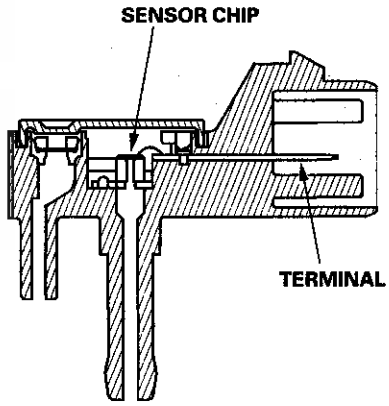
Evaporative Emission (EVAP) Control System

Refer to the system diagram to see a functional layout of the system.

EVAP Canister
The EVAP canister temporarily stores fuel vapor from the fuel tank until it can be purged back into the engine and burned.

EVAP Canister Purge Valve
When the engine coolant temperature is below 149 °F (65 °C), the ECM turns off the EVAP canister purge valve which cuts vacuum to the EVAP canister.

Fuel Tank Pressure (FTP) Sensor
The FTP sensor converts fuel tank absolute pressure into an electrical input to the ECM.

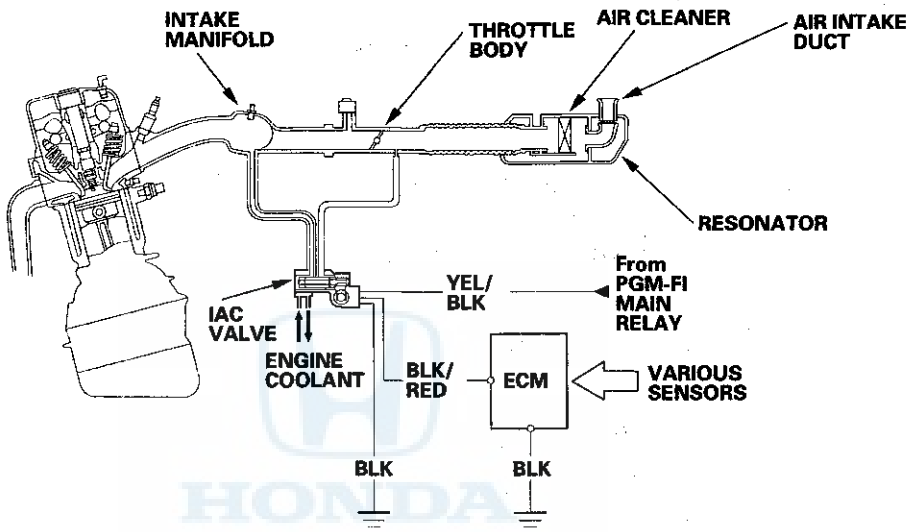


EVAP Canister Vent Shut Valve
The EVAP canister vent shut valve is on the EVAP canister.
The EVAP canister vent shut valve controls the venting of the EVAP canister.

Idle Control System Diagram

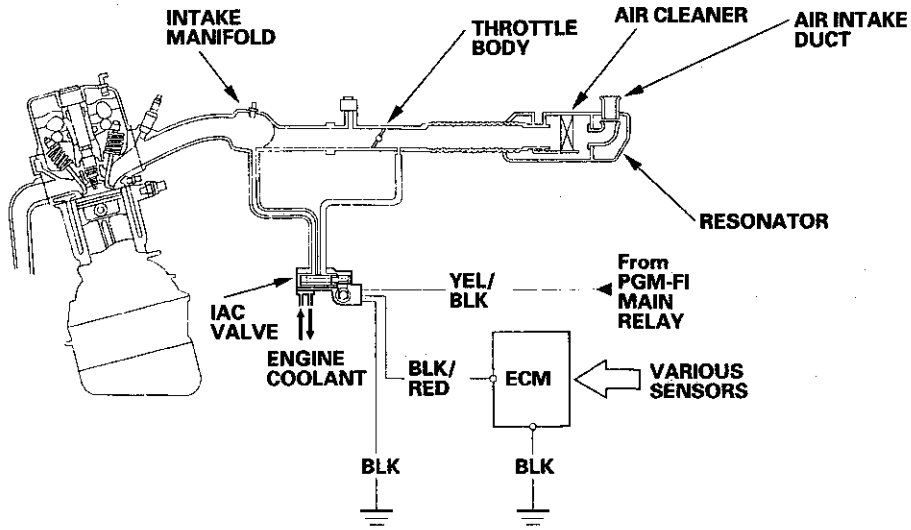
The idle speed of the engine is controlled by the idle air control (IAC) valve:

- After the engine starts, the IAC valve opens for a certain amount of time. The amount of air is increased to raise the idle speed.
- When the engine coolant temperature is low, the IAC valve is opened to obtain the proper fast idle speed. The amount of bypassed air is controlled in relation to engine coolant temperature.



Intake Air System Diagram

This system supplies air for engine needs. A resonator in the air intake duct provides additional silencing as air is drawn into the system.



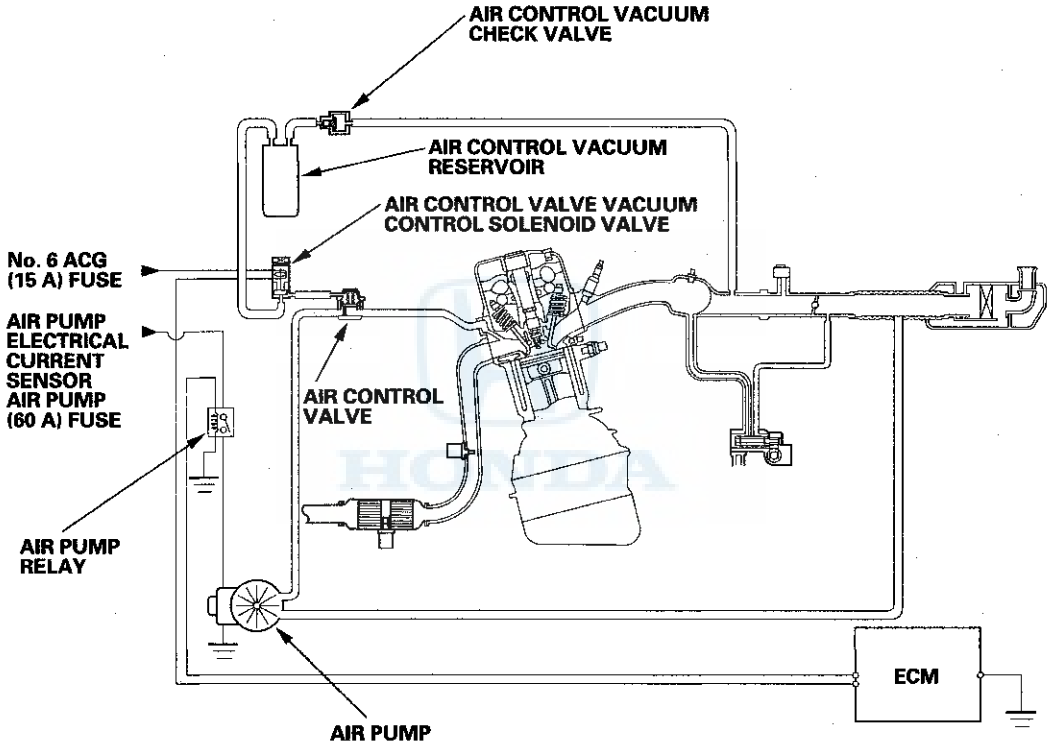
(cont'd)

System Description (cont'd)

Pulsed Secondary Air Injection

The pulsed secondary air injection advances the activation of the catalytic converter and reduces the hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas.

The system operates after the engine starts under these conditions:
- The engine coolant temperature is between 32 °F and 158 °F (0 °C and 70 °C).
- The difference is more than 36 °F (20 °C) between the engine coolant temperature when the engine is started and when the engine was stopped in the previous driving cycle.



When the engine is cold and first started, the air pump pumps fresh air into the exhaust ports. The amount of air entering the exhaust is regulated by an air control valve which is controlled by the ECM. The system does not work for more than 60 seconds at a time. Actual operating time will very depending on the difference between engine coolant temperature and intake air temperature.

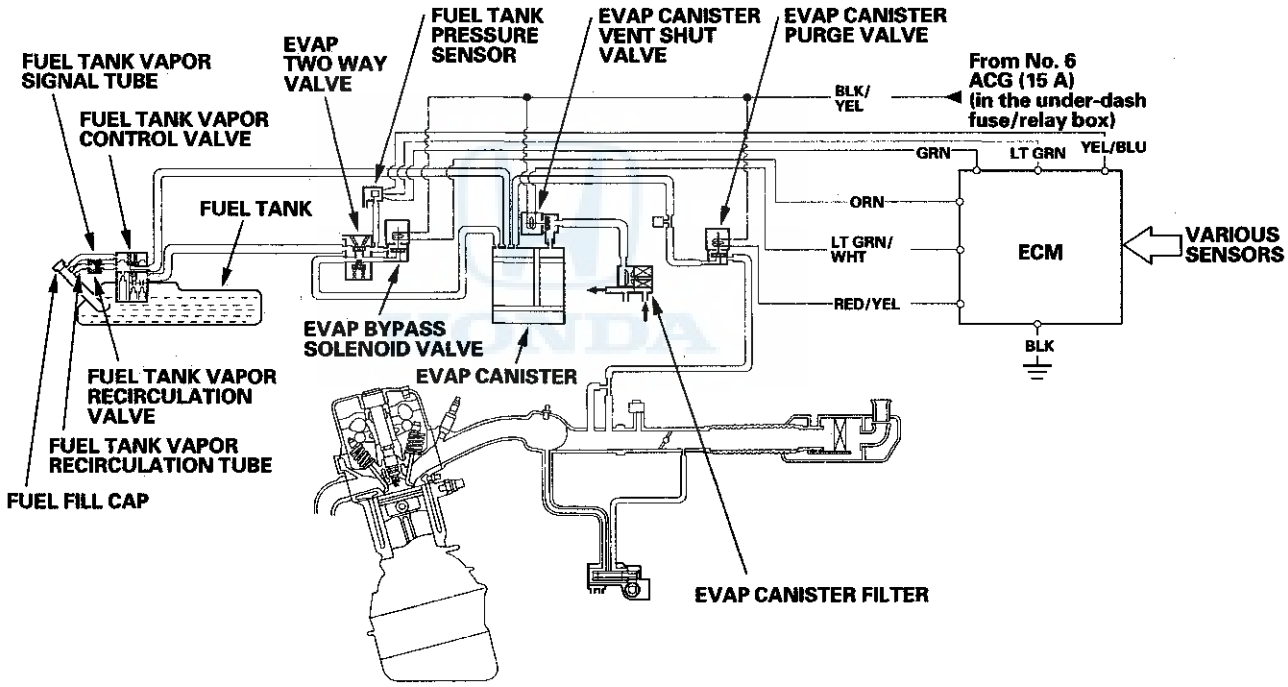
When fresh air reacts with any unburned exhaust gases, the exhaust gas temperatures rise. This rise in temperature promotes faster warm-up of the catalytic converter, resulting in cleaner emissions during cold start-up.

When the air induction system is not operating, the air control solenoid closes the air control valve to prevent any exhaust gases from flowing back into the system.

Evaporative Emission (EVAP) Control Diagram

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP canister until it can be purged from the canister into the engine and burned.

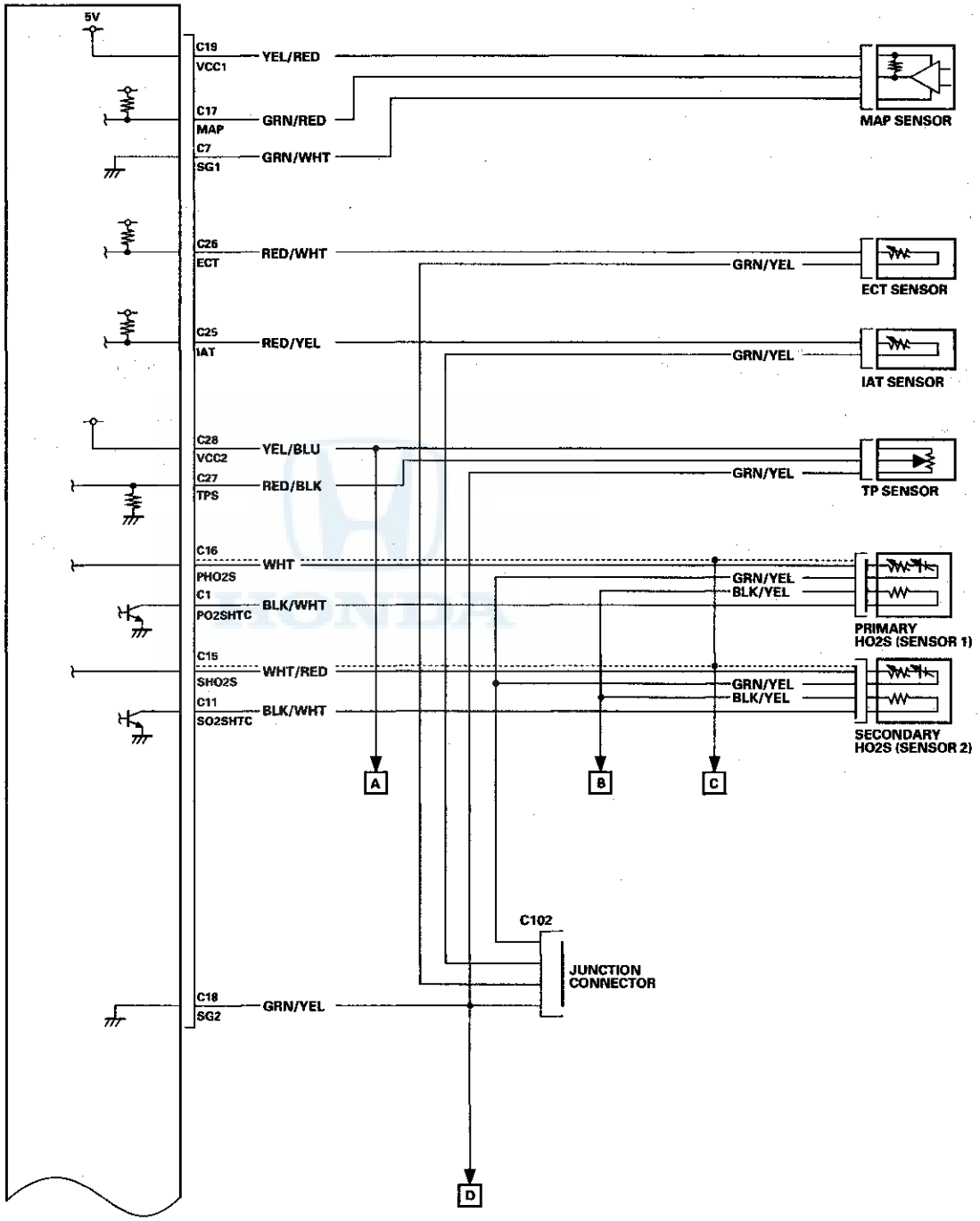
- The EVAP canister is purged by drawing fresh air through it and a port on the intake manifold. The purging vacuum is controlled by the EVAP canister purge valve, which is open whenever engine coolant temperature is above 149 °F (65 °C).
- When vapor pressure in the fuel tank is higher than the set value of the EVAP two way valve, the valve opens and regulates the flow of fuel vapor to the EVAP canister.
- During refueling, the fuel tank vapor control valve opens with the pressure in the fuel tank, and feeds the fuel vapor to the EVAP canister.

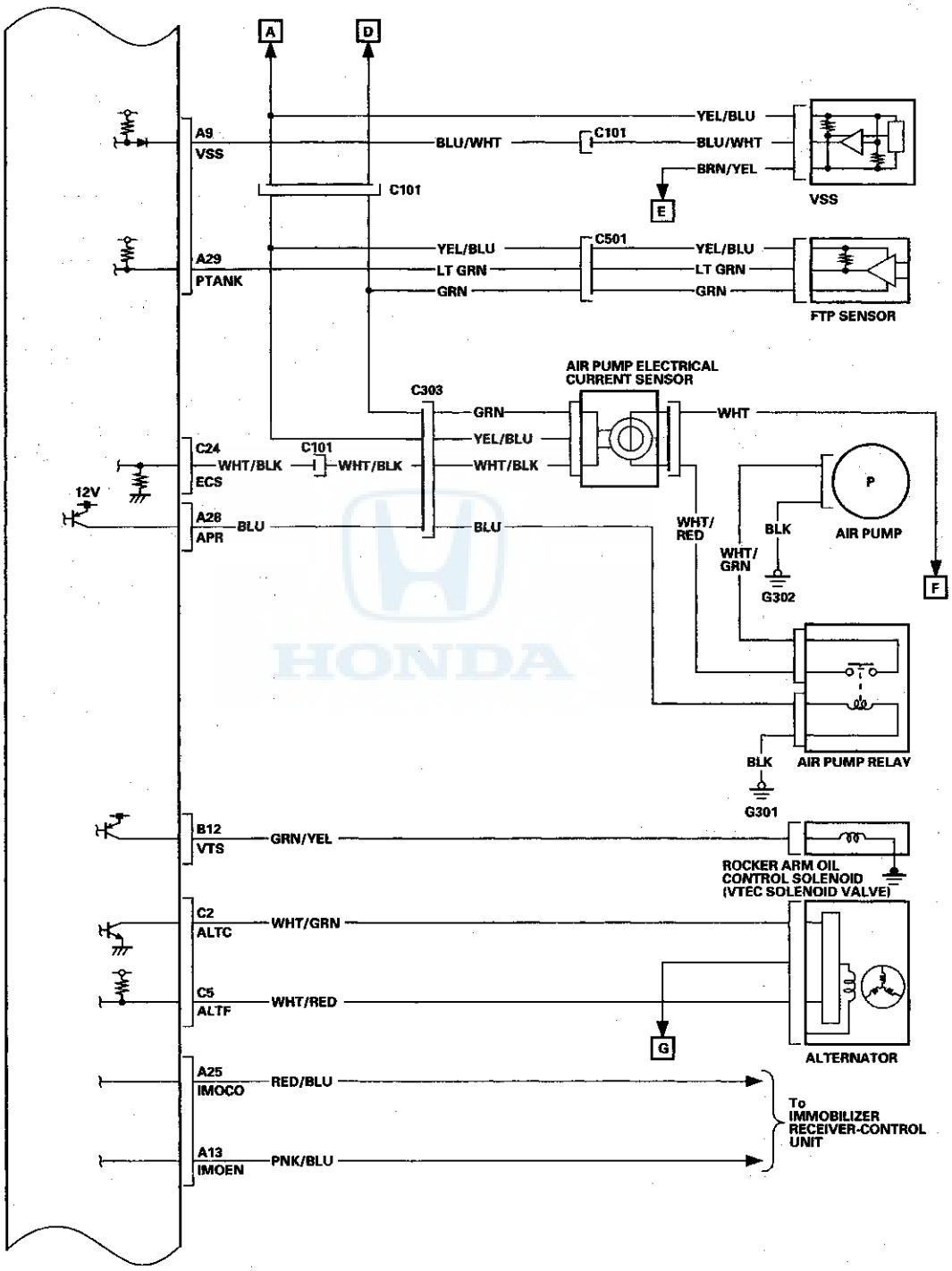


(cont'd)

System Description (cont'd)

ECM Circuit Diagram

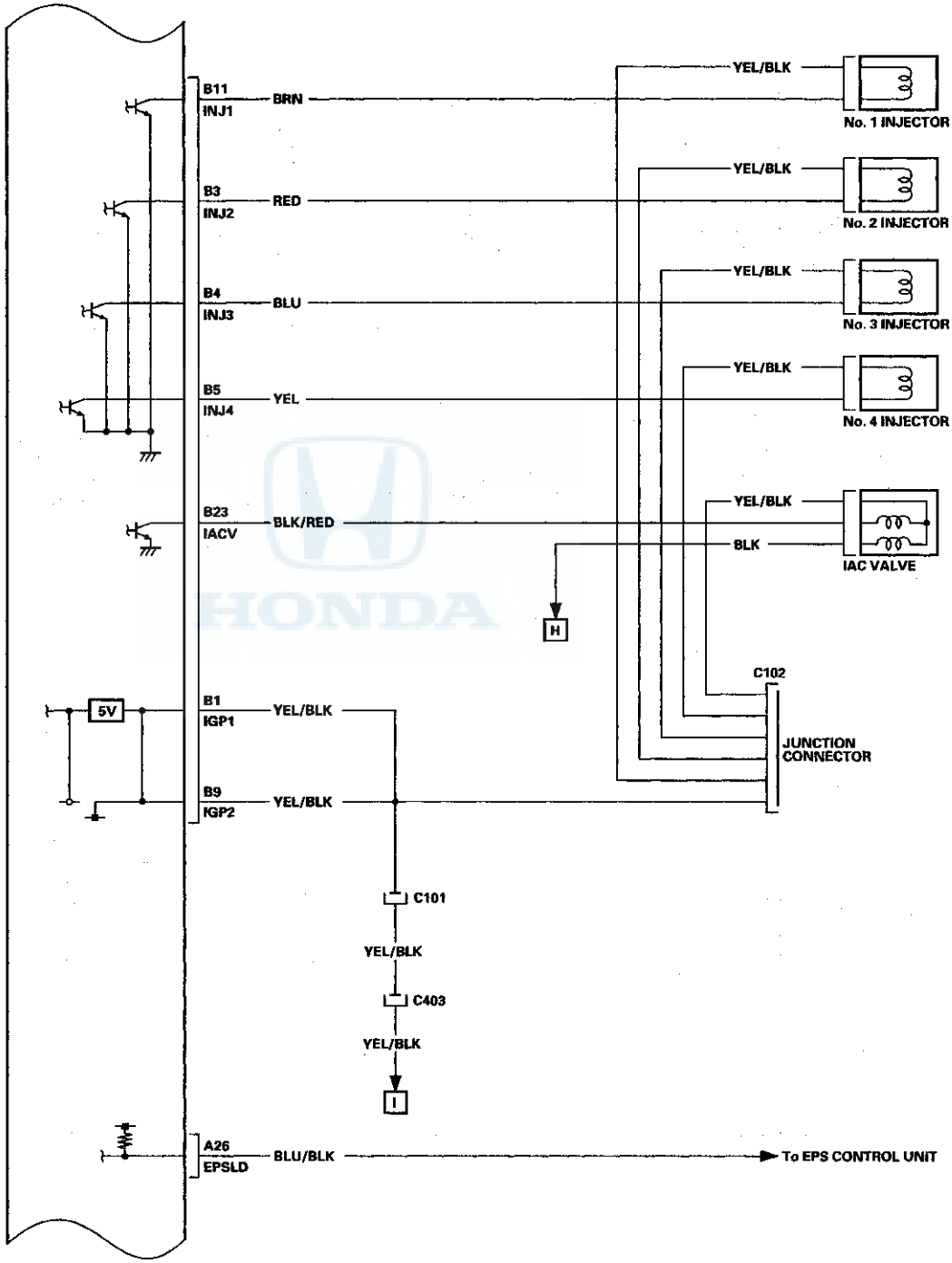


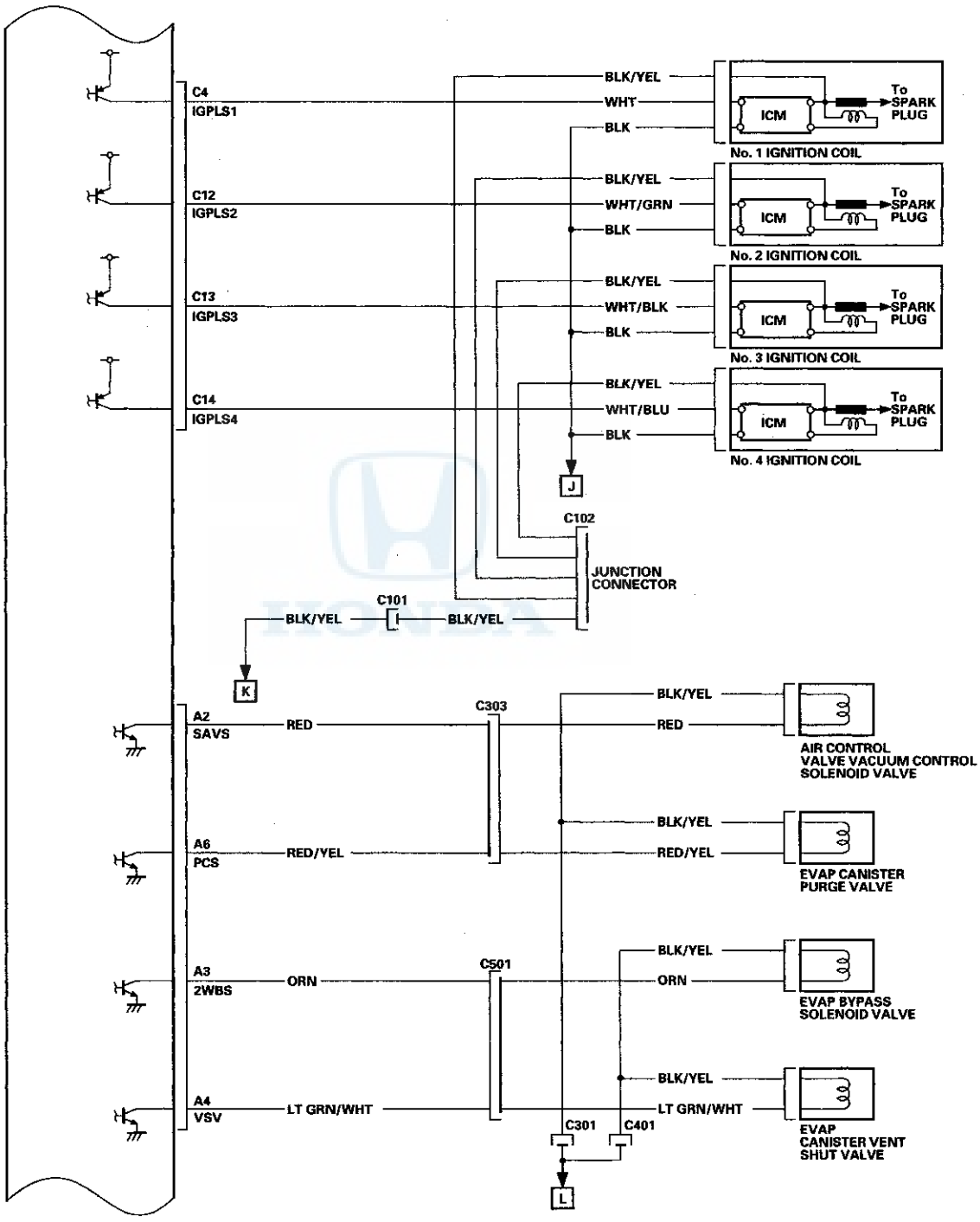

A
D
A9
VSS
BLU/WHT
C101
YEL/BLU
BLU/WHT
BRN/YEL
E
VSS
C101
A29
PTANK
YEL/BLU
LT GRN
GRN
C501
YEL/BLU
LT GRN
GRN
FTP SENSOR
AIR PUMP ELECTRICAL CURRENT SENSOR
C303
GRN
YEL/BLU
WHT/BLK
WHT
C24
ECS
WHT/BLK
C101
WHT/BLK
12V
A28
APR
BLU
BLU
WHT/ RED
WHT/ GRN
BLK
P
AIR PUMP
G302
F
BLK
AIR PUMP RELAY
G301
B12
VTS
GRN/YEL
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE)
C2
ALTC
WHT/GRN
C5
ALTF
WHT/RED
G
ALTERNATOR
A25
IMOCO
RED/BLU
A13
IMOEN
PNK/BLU
To IMMOBILIZER RECEIVER-CONTROL UNIT

(cont'd)

System Description (cont'd)

ECM Circuit Diagram (cont'd)

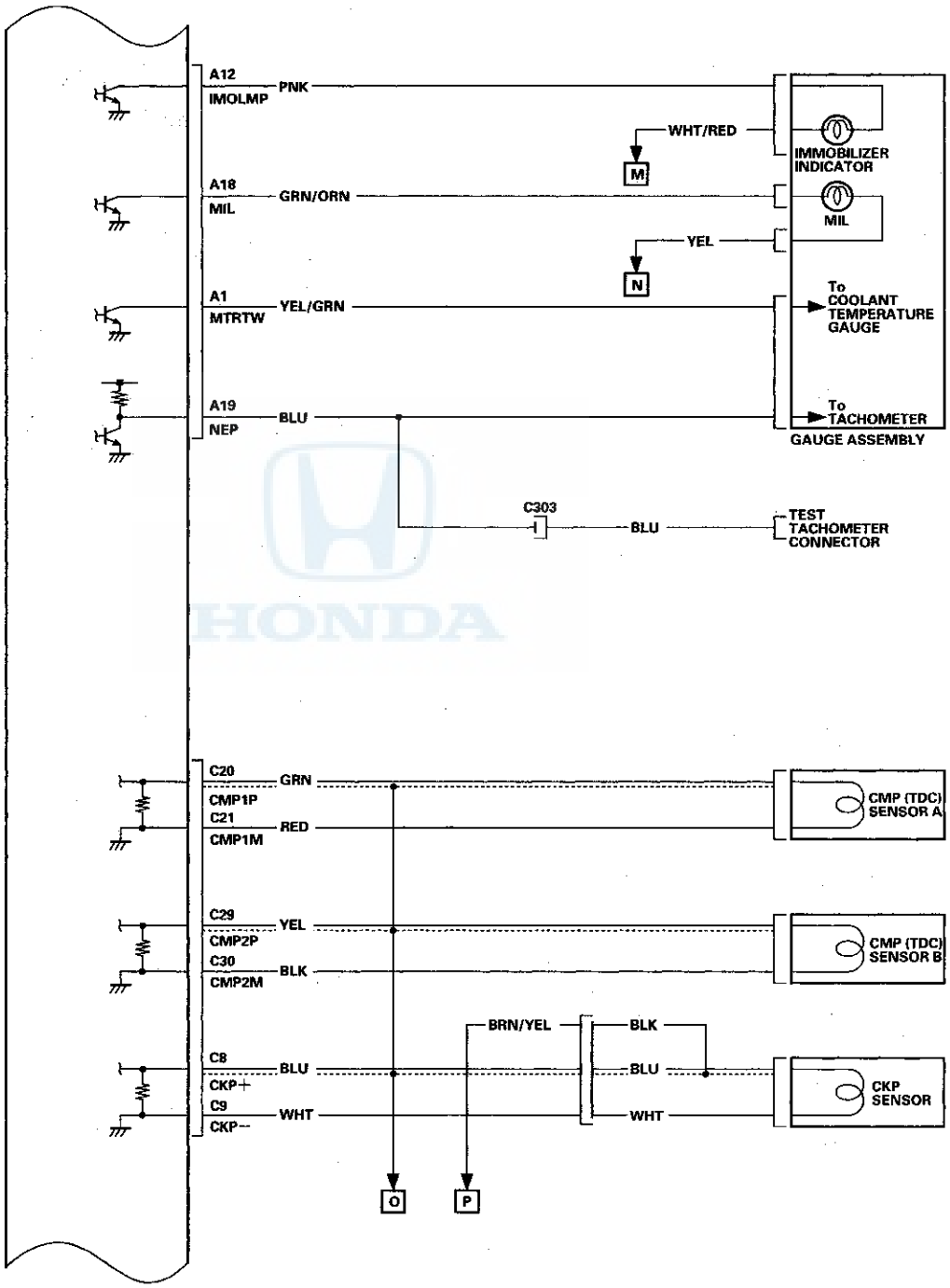


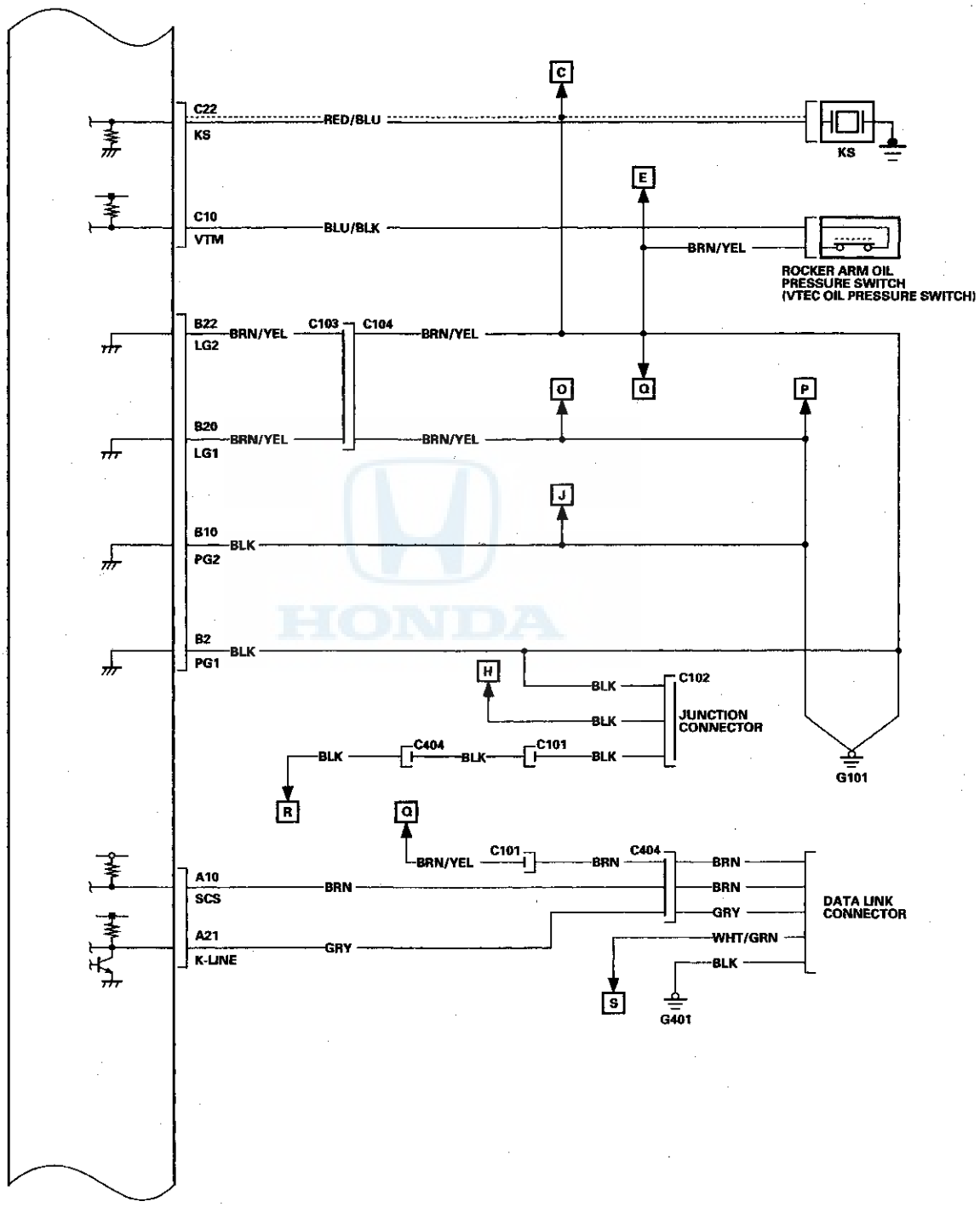

C4
IGPLS1
C12
IGPLS2
C13
IGPLS3
C14
IGPLS4
BLK/YEL
WHT
BLK
ICM
To SPARK PLUG
No. 1 IGNITION COIL
BLK/YEL
WHT/GRN
BLK
ICM
To SPARK PLUG
No. 2 IGNITION COIL
BLK/YEL
WHT/BLK
BLK
ICM
To SPARK PLUG
No. 3 IGNITION COIL
BLK/YEL
WHT/BLU
BLK
ICM
To SPARK PLUG
No. 4 IGNITION COIL
J
C102
JUNCTION CONNECTOR
C101
BLK/YEL
BLK/YEL
K
A2
SAVS
RED
C303
BLK/YEL
RED
AIR CONTROL VALVE VACUUM CONTROL SOLENOID VALVE
A6
PCS
RED/YEL
BLK/YEL
RED/YEL
EVAP CANISTER PURGE VALVE
A3
2WBS
ORN
C501
BLK/YEL
ORN
EVAP BYPASS SOLENOID VALVE
A4
VSV
LT GRN/WHT
BLK/YEL
LT GRN/WHT
C301
C401
EVAP CANISTER VENT SHUT VALVE
L

(cont'd)

System Description (cont'd)

ECM Circuit Diagram (cont'd)

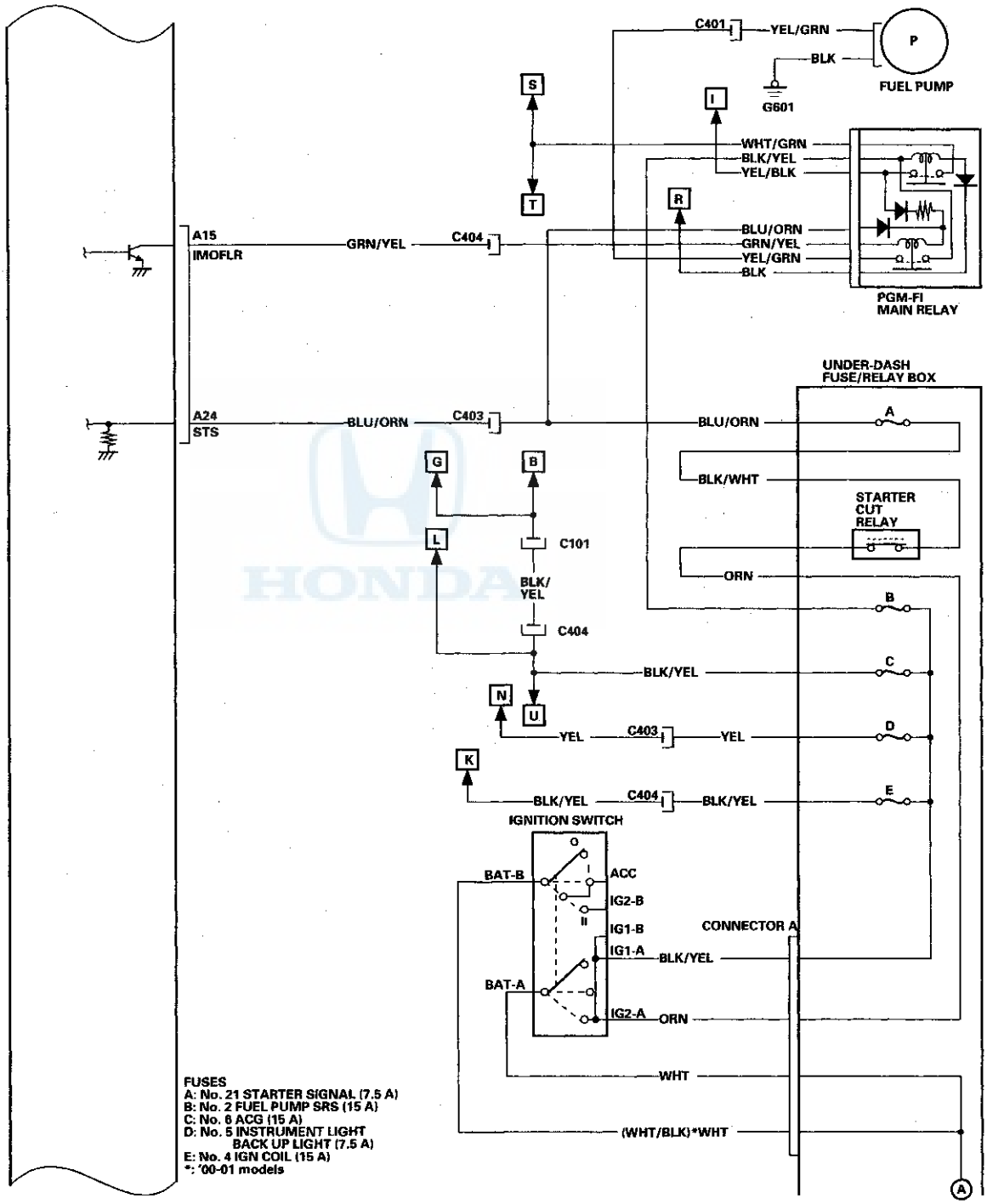


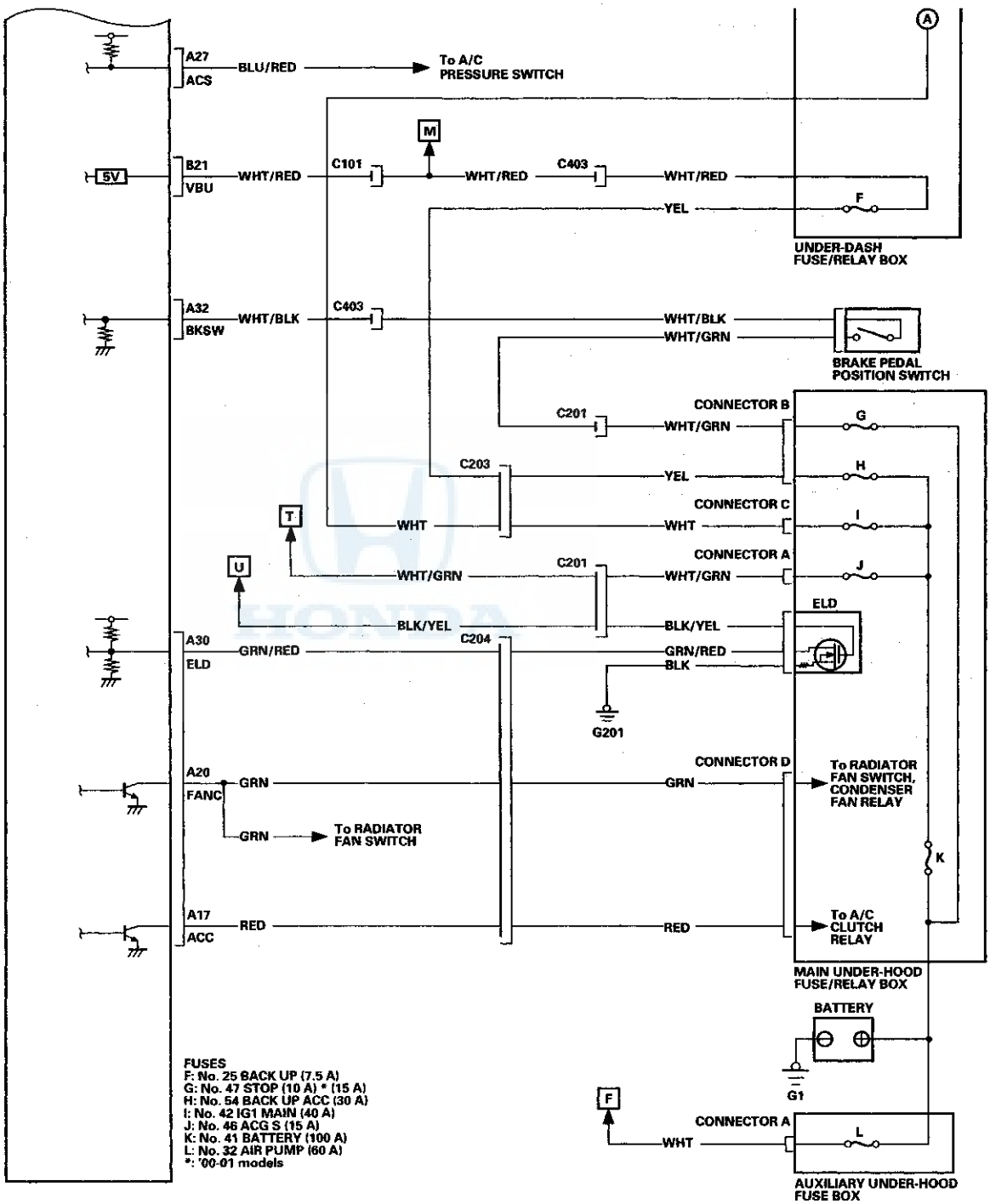

C22
KS
RED/BLU
KS
C10
VTM
BLU/BLK
BRN/YEL
ROCKER ARM OIL
PRESSURE SWITCH
(VTEC OIL PRESSURE SWITCH)
B22
LG2
BRN/YEL
C103
C104
BRN/YEL
B20
LG1
BRN/YEL
BRN/YEL
B10
PG2
BLK
B2
PG1
BLK
BLK
BLK
C102
JUNCTION
CONNECTOR
BLK
C404
BLK
C101
BLK
G101
BRN/YEL
C101
BRN
C404
BRN
BRN
GRY
WHT/GRN
BLK
DATA LINK
CONNECTOR
A10
SCS
BRN
A21
K-LINE
GRY
G401
C
E
O
Q
P
J
H
R
Q
S

(cont'd)

System Description (cont'd)

ECM Circuit Diagram (cont'd)




A27
ACS
BLU/RED
To A/C
PRESSURE SWITCH
A
M
5V
B21
VBU
WHT/RED
C101
WHT/RED
C403
WHT/RED
YEL
F
UNDER-DASH
FUSE/RELAY BOX
A32
BKSW
WHT/BLK
C403
WHT/BLK
WHT/GRN
BRAKE PEDAL
POSITION SWITCH
CONNECTOR B
C201
WHT/GRN
G
C203
YEL
H
CONNECTOR C
T
WHT
WHT
I
CONNECTOR A
U
WHT/GRN
C201
WHT/GRN
J
ELD
BLK/YEL
BLK/YEL
A30
ELD
GRN/RED
C204
GRN/RED
BLK
G201
CONNECTOR D
A20
FANC
GRN
GRN
To RADIATOR
FAN SWITCH,
CONDENSER
FAN RELAY
GRN
To RADIATOR
FAN SWITCH
K
A17
ACC
RED
RED
To A/C
CLUTCH
RELAY
MAIN UNDER-HOOD
FUSE/RELAY BOX
BATTERY
G1
F
CONNECTOR A
WHT
L
AUXILIARY UNDER-HOOD
FUSE BOX
FUSES
F: No. 25 BACK UP (7.5 A)
G: No. 47 STOP (10 A) * (15 A)
H: No. 54 BACK UP ACC (30 A)
I: No. 42 IG1 MAIN (40 A)
J: No. 46 ACG S (15 A)
K: No. 41 BATTERY (100 A)
L: No. 32 AIR PUMP (60 A)
*: '00-01 models

How to Set Readiness Codes

Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)

The vehicle has certain "readiness codes" that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the ECM has been reset, these codes are reset to incomplete. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the emission test, or the test cannot be finished.

To check if the readiness codes are complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are complete. If it blinks several times, one or more readiness codes are not complete. To set readiness codes from incomplete to complete, do the procedure for the appropriate code.

Catalytic Converter Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected or when the ECM is cleared with an OBD II scan tool or the HDS.
- Low ambient temperatures or excessive stop-and-go traffic may increase the drive time needed to switch the readiness code from incomplete to complete.
- The readiness code will not switch to complete until all the enable criteria are met.
- If a fault in the secondary HO2S system caused the MIL to come on, the readiness code cannot be set to complete until you correct the fault.

Enable Criteria

- ECT SENSOR at 158 °F (70 °C) or more.
- IAT SENSOR at 20 °F (—7 °C) or more.
- Vehicle speed is steady, and vehicle speed sensor (VSS) reads more than 25 mph (40 km/h).

Procedure

When using the HDS

1. Connect the HDS to the vehicle's data link connector (DLC), and bring up the READINESS CODEs screen for Catalyst in the DTCs MENU.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (8 km), the readiness code should switch to completed.
4. If the readiness code is still not set to complete, check for a Temporary DTC with the HDS. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

When using a scan tool

1. Connect a scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (8 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a Temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

Evaporative Emission (EVAP) Control System Monitor and Readiness Code

NOTE:
- All readiness codes are cleared when the battery is disconnected or when the ECM is cleared with an OBD II scan tool or the HDS.
- The enable criteria must be repeated if the intake air temperature (IAT) drops lower then 36 °F (20 °C) from its value at engine start up.

Enable Criteria
- At engine start up, ECT SENSOR and IAT SENSOR are higher than 32 °F (0 °C) , but lower then 95 °F (35 °C).
- At engine start up, the ECT SENSOR and IAT SENSOR are within 12 °F (7 °C) of each other.

Procedure

When using the HDS
1. Connect the HDS to the vehicle's data link connector (DLC).
2. Start the engine.
3. Select EVAP TEST in the INSPECTION MENU with the HDS, then select the FUNCTION TEST in the EVAP TEST MENU.
   - If the functions are normal, readiness is complete.
   - If the functions are not normal, go to the next step.
4. If the readiness code is still not set to complete, check for a Temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

When using a scan tool
1. Connect a scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 2.5 miles (4.0 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a Temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

HO2S Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected or when the ECM is cleared with an OBD II scan tool or the HDS.

Enable Criteria
ECT SENSOR at 140 °F (60 °C) or more.

Procedure

When using the HDS
1. Start the engine.
2. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (with the throttle fully closed) for 5 seconds. After about 3.5 miles (5.6 km), the readiness code should switch from incomplete to completed.
3. Check the readiness codes screen for the HO2S in the DTCs MENU with the HDS.
   - If the screen shows complete, readiness is complete.
   - If the screen shows not complete, go to the next step.
4. Check for a Temporary DTC. If there is no DTC, the enable criteria was probably not met. Select the DATA LIST Menu. Check the ECT in the ALL DATA LIST with the HDS. If the ECT is lower than 140 °F (60 °C), run the engine until it is higher than 140 °F (60 °C), then repeat the procedure.

When using a scan tool
1. Connect a scan tool to the vehicle's data link connector (DLC), and bring up the tool's generic OBD II mode.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (with the throttle fully closed) for 5 seconds. After about 3.5 miles (5.6 km), the readiness code should switch from incomplete to complete.
4. If the readiness code is still set to incomplete, check for a Temporary DTC. If there is no DTC, the enable criteria was probably not met; repeat the procedure.

(cont'd)

How to Set Readiness Codes (cont'd)

HO2S Heater Monitor Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected or when the ECM is cleared with an OBD II scan tool or the HDS.

Procedure

1. Connect a scan tool or the HDS to the vehicle's data link connector (DLC). Bring up the tool's generic OBD II mode (scan tool only).
2. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.
3. If the readiness code is still set to incomplete, check for a Temporary DTC. If there is no DTC, repeat the procedure.

Secondary Air Injection (AIR) System Monitor and Readiness Code

NOTE:
- All readiness codes are cleared when the battery is disconnected or the ECM is cleared with an OBD II scan tool or the HDS.

Enable Criteria

- At engine start up, ECT SENSOR and IAT SENSOR higher than 32 °F (0 °C), but lower than 95 °F (35 °C).
- At engine start up, ECT SENSOR and IAT SENSOR are within 12 °F (7 °C) of each other.
- Altitude below 2,400 m (7,874 ft).

Procedure

1. Connect a scan tool or the HDS to the vehicle's data link connector (DLC). Bring up the tool's generic OBD II mode (scan tool only).
2. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.
3. If the readiness code is still set to incomplete, check for a Temporary DTC. If there is no DTC, repeat the procedure.

Misfire Monitor and Readiness Code

- This readiness code is always set to available because misfiring is continuously monitored.
- Monitoring pauses, and the misfire counter resets, if the vehicle is driven over a rough road.
- Monitoring also pauses, and the misfire counter holds at its current value, if the throttle position changes more than a predetermined value, or if driving conditions fall outside the range of any related enable criteria.

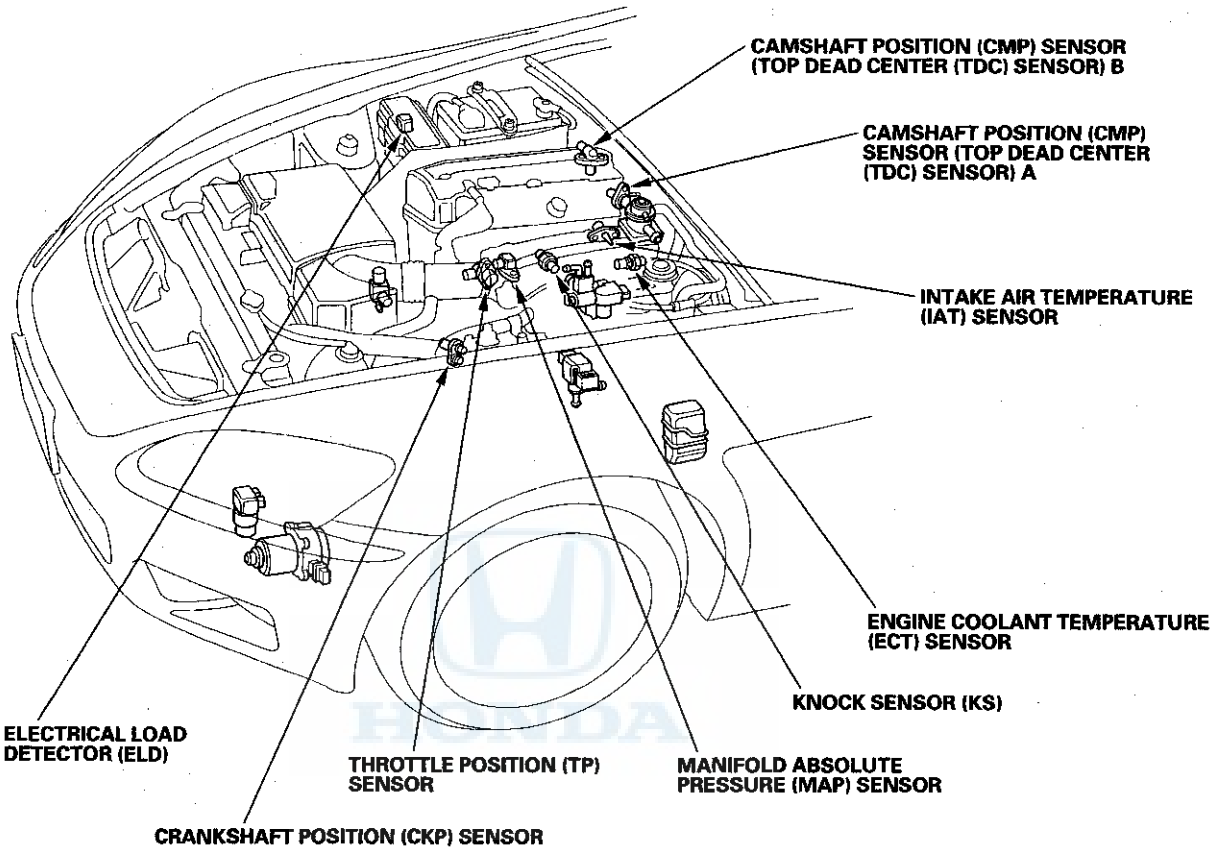
Fuel System Monitor and Readiness Code

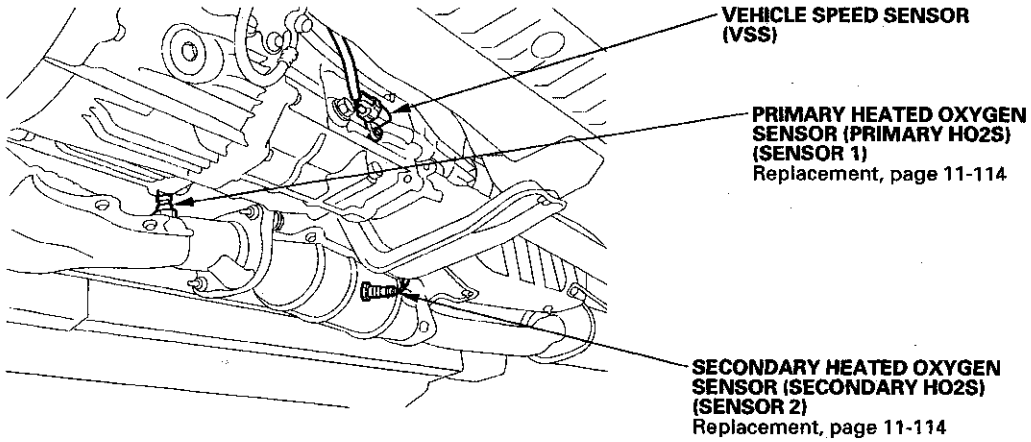
- This readiness code is always set to available because the fuel system is continuously monitored during closed loop operation.
- Monitoring pauses when the catalytic converter, EVAP control system, and HO2S monitors are active.
- Monitoring also pauses when any related enable criteria are not being met. Monitoring resumes when the enable criteria is again being met.

Comprehensive Component Monitor and Readiness Code

This readiness code is always set to available because the comprehensive component monitor is continuously running whenever the engine is cranking or running.

Component Location Index





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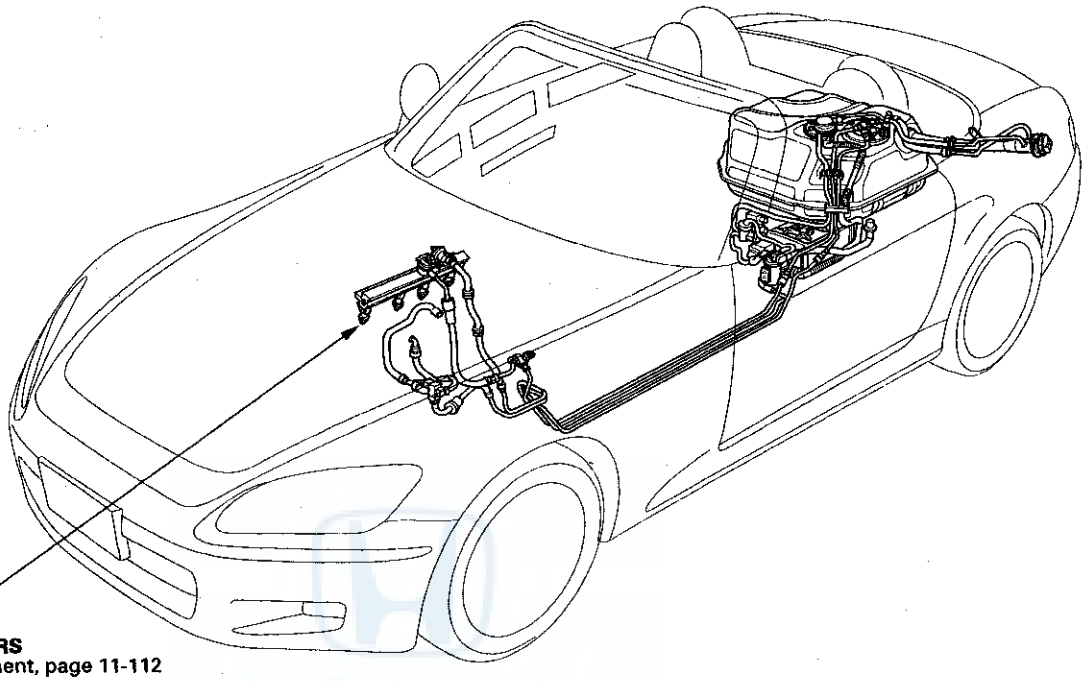
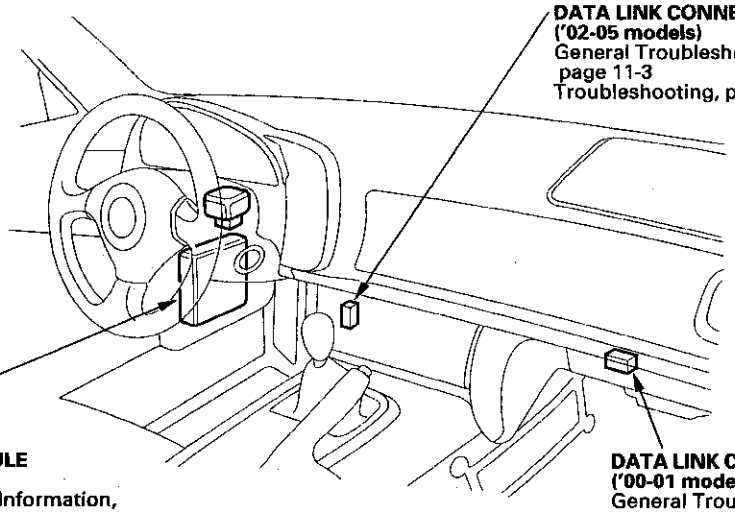
Component Location Index (cont'd)



INJECTORS
Replacement, page 11-112



DATA LINK CONNECTOR (DLC)
('02-05 models)
General Troubleshooting Information, page 11-3
Troubleshooting, page 11-110

ENGINE CONTROL MODULE (ECM)
General Troubleshooting Information, page 11-3
Replacement, page 11-115

DATA LINK CONNECTOR (DLC)
('00-01 models)
General Troubleshooting Information, page 11-3
Troubleshooting, page 11-110

DTC P0107: MAP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

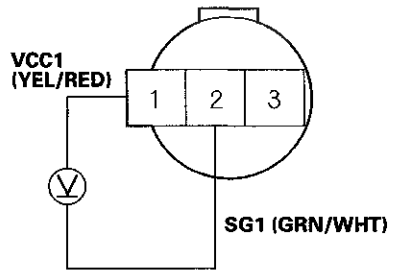
1. Turn the ignition switch ON (II).
2. Check the MAP with a scan tool or the HDS.

   Is about 101 kPa (30 in.Hg, 760 mmHg), or 2.9 V indicated?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and at the ECM. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 2.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

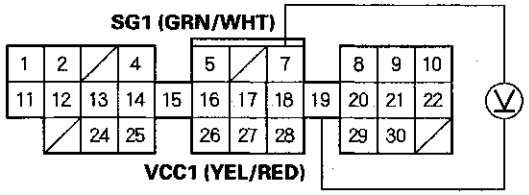
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 7.

7. Measure voltage between ECM connector terminals C19 and C7.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C19) and the MAP sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If normal MAP is indicated, replace the original ECM (see page 11-115). ■

(cont'd)

DTC Troubleshooting (cont'd)

8. Check the MAP with a scan tool or the HDS.

   Is about 2 kPa (0.6 in.Hg, 15 mmHg), or 0.5 V or less indicated?

   YES—Go to step 9.

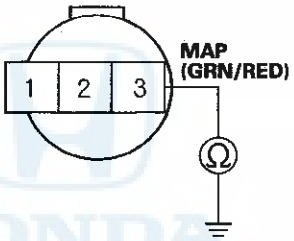
   NO—Replace the MAP sensor (see page 11-166).■

9. Turn the ignition switch OFF.

10. Disconnect ECM connector C (31P).

11. Check for continuity between MAP sensor connector terminal No. 3 and body ground.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C17) and the MAP sensor.■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If normal MAP is indicated, replace the original ECM (see page 11-115).■

DTC P0108: MAP Sensor Circuit High Voltage

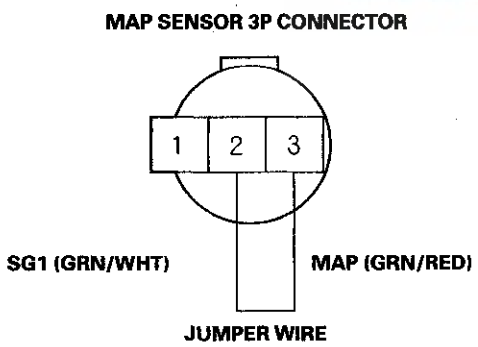
NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with a scan tool or the HDS.

   Is about 101 kPa (30 in.Hg, 760 mmHg), or 2.9 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and at the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Install a jumper wire between MAP sensor 3P connector terminals No. 2 and No. 3.



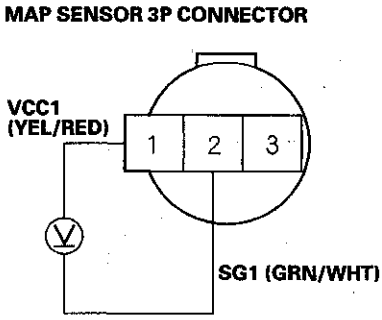
Wire side of female terminals

6. Turn the ignition switch ON (II).
7. Check the MAP with a scan tool or the HDS.

   Is about 101 kPa (30 in.Hg, 760 mmHg), or 2.9 V or more indicated?

   YES—Go to step 8.

   NO—Replace the MAP sensor (see page 11-166).■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Turn the ignition switch ON (II).
11. Measure voltage between MAP sensor connector terminals No. 1 and No. 2.



Wire side of female terminals

Is there about 5 V?

YES—Go to step 16.

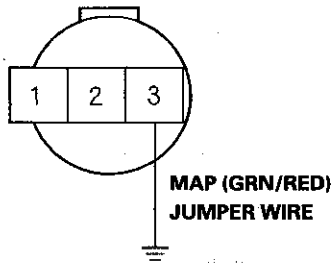
NO—Go to step 12.

(cont'd)

DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Disconnect ECM connector C (31P).
14. Connect MAP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

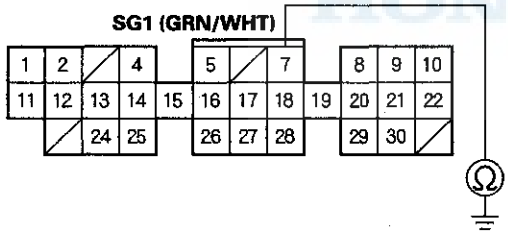
MAP SENSOR 3P CONNECTOR



Wire side of female terminals

15. Check for continuity between ECM connector terminal C7 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

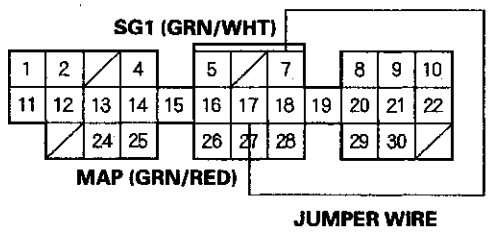
Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If normal MAP is indicated, replace the original ECM (see page 11-115).■

NO—Repair open in the wire between the ECM (C7) and the MAP sensor.■

16. Turn the ignition switch OFF.
17. Install a jumper wire on the ECM connector terminals between C7 and C17.

ECM CONNECTOR C (31P)



Wire side of female terminals

18. Turn the ignition switch ON (II).
19. Check the MAP with a scan tool or the HDS.

Is about 101 kPa (30 in.Hg, 760 mmHg), or 2.9 V or more indicated?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If normal MAP is indicated, replace the original ECM (see page 11-115).■

NO—Repair open in the wire between the ECM (C17) and the MAP sensor.■

DTC P0112: IAT Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the IAT with a scan tool or the HDS.

   Is about 302 °F (150 °C) or more, or 0 V indicated?

   YES—Go to step 3.

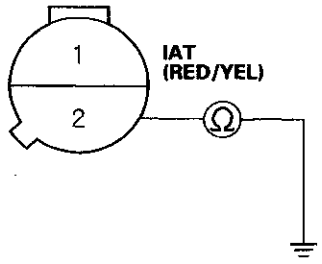
   NO—Go to step 10.
3. Turn the ignition switch OFF.
4. Disconnect the IAT sensor 2P connector.
5. Turn the ignition switch ON (II).
6. Check the IAT with a scan tool or the HDS.

   Is about 302 °F (150 °C) or more, or 0 V indicated?

   YES—Go to step 7.

   NO—Replace the IAT sensor (see page 9-2). ■
7. Turn the ignition switch OFF.
8. Disconnect ECM connector C (31P).
9. Check the continuity between IAT sensor 2P connector terminal No. 2 and body ground.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C25) and the IAT sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If normal IAT is indicated, replace the original ECM (see page 11-115). ■

10. Check the temperature reading on the scan tool or the HDS. Be aware that if the engine is warm, the reading will be higher than ambient temperature. If the engine is cold, the IAT and ECT will have the same value.

    Is the correct ambient temperature indicated?

    YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and at the ECM. ■

    NO—Replace the IAT sensor (see page 9-2). ■

DTC Troubleshooting (cont'd)

DTC P0113: IAT Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

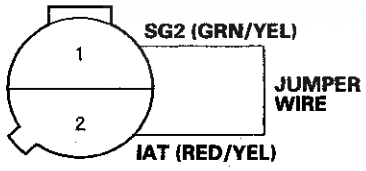
1. Turn the ignition switch ON (II).
2. Check the IAT with a scan tool or the HDS.

   Is about −4 °F (−20 °C) or less, or 5 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAT sensor 2P connector.
5. Connect IAT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

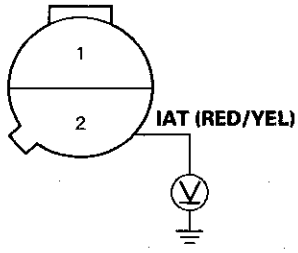
6. Turn the ignition switch ON (II).
7. Check the IAT with a scan tool or the HDS.

   Is about −4 °F (−20 °C) or less, or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the IAT sensor (see page 9-2). ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Turn the ignition switch ON (II).
11. Measure voltage between IAT sensor 2P connector terminal No. 2 and body ground.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

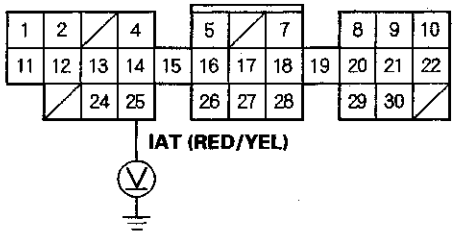
Is there about 5 V?

YES—Go to step 13.

NO—Go to step 12.

12. Measure voltage between ECM connector terminal C25 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C25) and the IAT sensor. ■

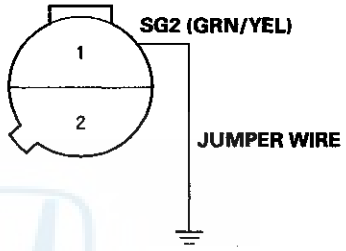
NO—Substitute a known-good ECM (see page 11-5), then recheck. If normal IAT is indicated, replace the original ECM (see page 11-115). ■

13. Turn the ignition switch OFF.

14. Disconnect ECM connector C (31P).

15. Connect IAT sensor 2P connector terminal No. 1 to body ground with a jumper wire.

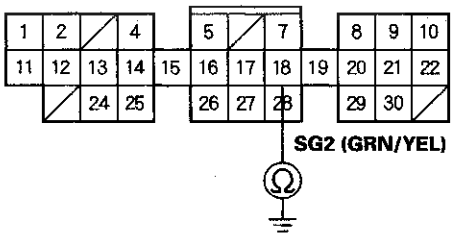
IAT SENSOR 2P CONNECTOR



Wire side of female terminals

16. Check for continuity between ECM connector terminal C18 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If normal IAT is indicated, replace the original ECM (see page 11-115).■

NO—Repair open in the wire between the ECM (C18) and the IAT sensor.■

DTC Troubleshooting (cont'd)

DTC P0116: ECT Sensor Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If DTC P0117 and/or P0118 are stored at the same time as DTC P0116, troubleshoot those DTCs first, then recheck for DTC P0116.

1. Turn the ignition switch ON (II).
2. Check the ECT with a scan tool or the HDS.

   Is about 176 °F (80 °C) or more, or 0.86 V or less indicated?

   YES—Go to step 3.

   NO—Go to step 7.
3. Note the coolant temperature from step 2.
4. Turn the ignition switch OFF.
5. Cool the engine for 1 hour.
6. Check the ECT with a scan tool or the HDS.

   Did the ECT change 3.6 °F (2 °C) or more?

   YES—Intermittent failure, the system is OK at this time. Check the thermostat and the cooling system. ■

   NO—Replace the ECT sensor (see page 9-2). ■
7. Note the coolant temperature from step 2.
8. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
9. Check the ECT with a scan tool or the HDS.

   Does the ECT change 3.6 °F (2 °C) or more?

   YES—Intermittent failure, the system is OK at this time. Check the thermostat and the cooling system. ■

   NO—Replace the ECT sensor (see page 9-2). ■

DTC P0117: ECT Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the ECT with a scan tool or the HDS.

   Is 302 °F (150 °C) or higher, or 0 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose wires at the ECT sensor and at the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2P connector.
5. Turn the ignition switch ON (II).
6. Check the ECT with a scan tool or the HDS.

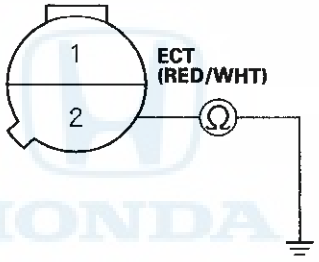
   Is 302 °F (150 °C) or higher, or 0 V indicated?

   YES—Go to step 7.

   NO—Replace the ECT sensor (see page 9-2). ■
7. Turn the ignition switch OFF.
8. Disconnect ECM connector C (31P).

9. Check for continuity between ECT sensor 2P connector terminal No. 2 and body ground.

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C26) and the ECT sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If normal ECT is indicated, replace the original ECM (see page 11-115). ■

DTC Troubleshooting (cont'd)

DTC P0118: ECT Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

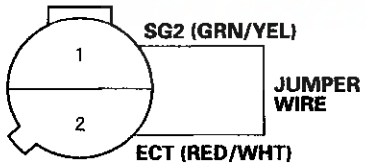
1. Turn the ignition switch ON (II).
2. Check the ECT with a scan tool or the HDS.

   Is −4 °F (−20 °C) or less, or 5 V indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ECT sensor and at the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2P connector.
5. Connect ECT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2P CONNECTOR



Wire side of female terminals

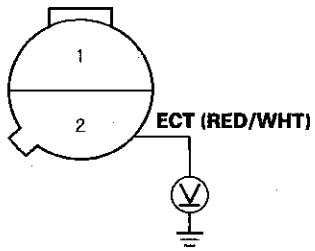
6. Turn the ignition switch ON (II).
7. Check the ECT with a scan tool or the HDS.

   Is −4 °F (−20 °C) or less, or 5 V indicated?

   YES—Go to step 8.

   NO—Replace the ECT sensor (see page 9-2). ■
8. Turn the ignition switch OFF.
9. Remove the jumper wire.
10. Turn the ignition switch ON (II).
11. Measure voltage between ECT sensor 2P connector terminal No. 2 and body ground.

ECT SENSOR 2P CONNECTOR



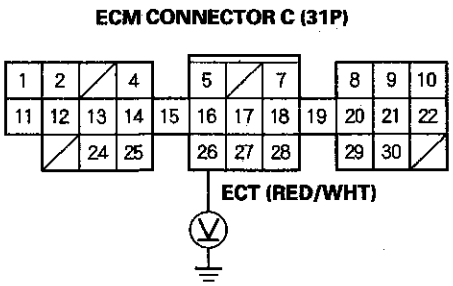
Wire side of female terminals

Is there about 5 V?

YES—Go to step 13.

NO—Go to step 12.

12. Measure voltage between ECM connector terminal C26 and body ground.



Wire side of female terminals

Is there about 5 V?

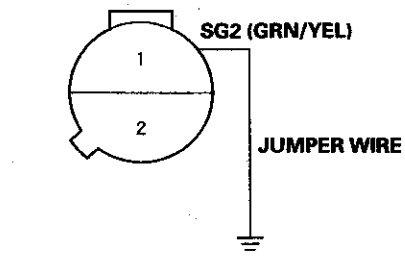
YES—Repair open in the wire between the ECM (C26) and the ECT sensor.■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If normal ECT is indicated, replace the original ECM (see page 11-115).■

13. Turn the ignition switch OFF.

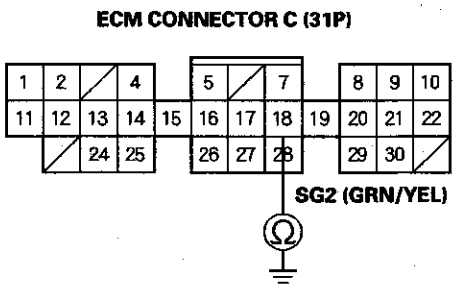
14. Disconnect ECM connector C (31P).

15. Connect ECT sensor 2P connector terminal No. 1 to body ground with a jumper wire.



Wire side of female terminals

16. Check for continuity between ECM connector terminal C18 and body ground.



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If normal ECT is indicated, replace the original ECM (see page 11-115).■

NO—Repair open in the wire between the ECM (C18) and the ECT sensor.■

DTC Troubleshooting (cont'd)

DTC P0122: TP Sensor Circuit Low Voltage

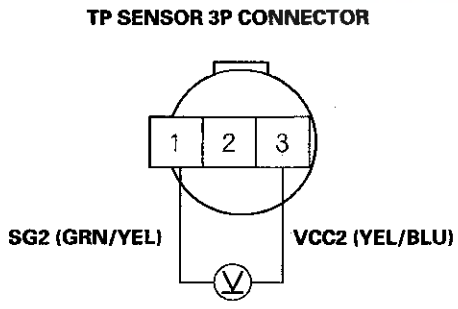
NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the throttle position with a scan tool or the HDS.

   Is there about 6 % when the throttle is fully closed and about 90 % when the throttle is fully opened?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose wires at the TP sensor and at the ECM. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the TP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between TP sensor 3P connector terminals No. 1 and No. 3.



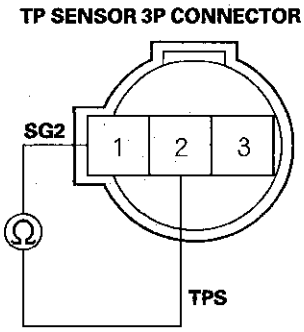
Wire side of female terminals

Is there about 5 V?

YES—Go to step 7.

NO—Go to step 13.

7. Turn the ignition switch OFF.
8. At the sensor side, measure resistance between TP sensor 3P connector terminals No. 1 and No. 2 with the throttle fully closed.



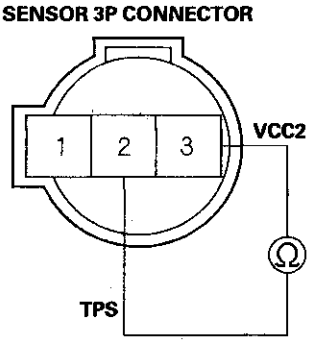
Terminal side of male terminals

Is there about 0.5—0.9 kΩ ?

YES—Go to step 9.

NO—Replace the throttle body (see page 11-165). ■

9. At the sensor side, measure resistance between TP sensor 3P connector terminals No. 2 and No. 3 with the throttle fully closed.



Terminal side of male terminals

Is there about 4.5 kΩ ?

YES—Go to step 10.

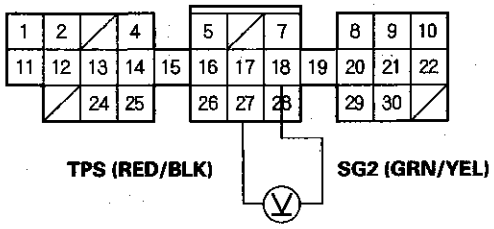
NO—Replace the throttle body (see page 11-165). ■

10. Reconnect the TP sensor 3P connector.

11. Turn the ignition switch ON (II).

12. Measure voltage between ECM connector terminals C18 and C27.

ECM CONNECTOR C (31P)



Wire side of female terminals

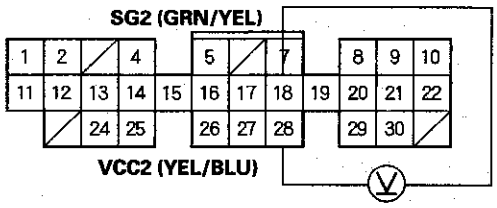
Is there about 0.3 V when the throttle is fully closed and about 4.5 V when the throttle is fully opened?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the TP sensor voltage is now normal, replace the original ECM (see page 11-115). ■

NO—Repair short in the wire between the ECM (C27) and the TP sensor. ■

13. Measure voltage between ECM connector terminals C18 and C28.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C28) and the TP sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the prescribed voltage is now available, replace the original ECM (see page 11-115). ■

DTC Troubleshooting (cont'd)

DTC P0123: TP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

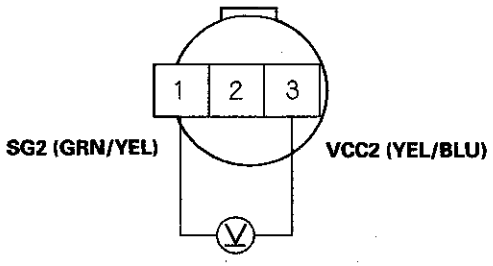
1. Turn the ignition switch ON (II).
2. Check the throttle position with a scan tool or the HDS.

   Is there about 6 % when the throttle is fully closed and about 90 % when the throttle is fully opened?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the TP sensor and at the ECM. ■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect the TP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between TP sensor 3P connector terminals No. 1 and No. 3.

TP SENSOR 3P CONNECTOR



Wire side of female terminals

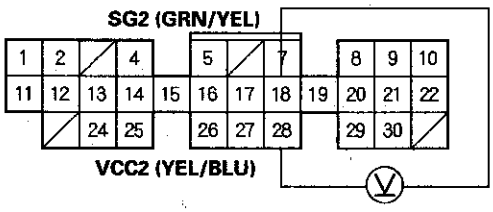
Is there about 5 V?

YES—Replace the throttle body (see page 11-165). ■

NO—Go to step 7.

7. Measure voltage between ECM connector terminals C18 and C28.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C18) and the TP sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the prescribed voltage is now available replace the original ECM (see page 11-115). ■

DTC P0125: ECT Sensor Malfunction/Slow Response ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Start the engine, and let it idle.
2. Check the ECT with a scan tool or the HDS.

   Is about 86 °F (30 °C) or less, or 2.61 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check the thermostat and the cooling system.■
3. Let the engine idle for 6 minutes.
4. Check the ECT with a scan tool or the HDS.

   Is about 86 °F (30 °C) or less, or 2.61 V or more indicated?

   YES—Replace the ECT sensor (see page 9-2).■

   NO—Intermittent failure, the system is OK at this time. Check the thermostat and the cooling system.■

DTC P0128: Cooling System Malfunction ('02-05 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If the DTCs listed below are stored at the same time as DTC P0128, troubleshoot those DTCs first, then recheck for P0128.

P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P1106**, P1107**, P1108** (P2227, P2228, P2229)*: Barometric pressure (BARO) sensor
P1259** (P2646, P2647)*: VTEC system
P0116, P0117, P0118 (P0125)*: Engine coolant temperature (ECT) sensor
P0112, P0113: Intake air temperature (IAT) sensor
P0335, P0336: Crankshaft position (CKP) sensor
P0300: Random misfire detected
P0301, P0302, P0303, P0304: No. 1, No. 2, No. 3, or No. 4 Cylinder misfire detected
P0505** (P0506, P0507)*: Idle control system
P1519** (P0511)*: Idle air control (IAC) valve
*: '04-05 models
**: '02-03 models

DTC P0128 can occasionally set when the hood is opened while the engine is running.

1. Check the engine coolant level.

   Is the engine coolant level low?

   YES—Refill the engine coolant. If necessary, repair the coolant leakage.■

   NO—Go to step 2.
2. Turn the ignition switch ON (II), and make sure the A/C is off.

(cont'd)

DTC Troubleshooting (cont'd)

3. Check the radiator fan.

   Does the radiator fan keep running?

   YES—Check the radiator fan circuit (see page 10-18), radiator fan switch circuit for open (see page 10-22), radiator fan switch circuit for short (see page 10-23) and the radiator fan switch (see page 10-23). If they are OK, substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

   NO—Replace the thermostat (see page 10-11).■

DTC P0131: Primary HO2S (Sensor 1) Circuit Low Voltage ('00-03 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS during acceleration using wide open throttle.

   Does the voltage stay at 0.5 V or less?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM. ■
4. Check the fuel pressure (see page 11-145).

   Is it normal?

   YES—Go to step 5.

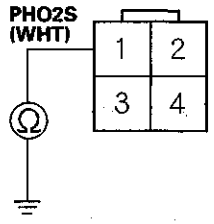
   NO—Repair the fuel supply system. ■
5. Turn the ignition switch OFF.
6. Disconnect the primary HO2S (Sensor 1) 4P connector.
7. Start the engine, and let it idle.
8. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does it stay at 0.5 V or less?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114). ■
9. Turn the ignition switch OFF.
10. Disconnect ECM connector C (31P).
11. Check for continuity between primary HO2S (Sensor 1) 4P connector terminal No. 1 and body ground.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C16) and the primary HO2S (Sensor 1). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

DTC Troubleshooting (cont'd)

DTC P0131: Primary HO2S (Sensor 1) Circuit Low Voltage ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS during acceleration using wide open throttle.

   Does the voltage stay at 0.1 V or less?

   YES—Go to step 4.

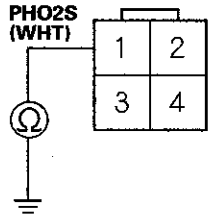
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the primary HO2S (Sensor 1) 4P connector.
6. Turn the ignition switch ON (II).
7. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Is there 0.1 V or less?

   YES—Go to step 8.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114).■
8. Turn the ignition switch OFF.
9. Disconnect ECM connector C (31P).
10. Check for continuity between primary HO2S (Sensor 1) 4P connector terminal No. 1 and body ground.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C16) and the primary HO2S (Sensor 1).■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

DTC P0132: Primary HO2S (Sensor 1) Circuit High Voltage ('00-03 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does the voltage stay at 0.9 V or more?

   YES—Go to step 4.

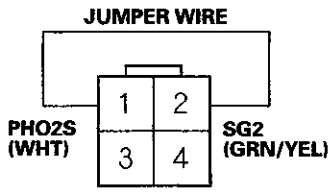
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM. ■
4. Check the fuel pressure (see page 11-145).

   Is it normal?

   YES—Go to step 5.

   NO—Repair the fuel supply system. ■
5. Turn the ignition switch OFF.
6. Disconnect the primary HO2S (Sensor 1) 4P connector.
7. Connect primary HO2S (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

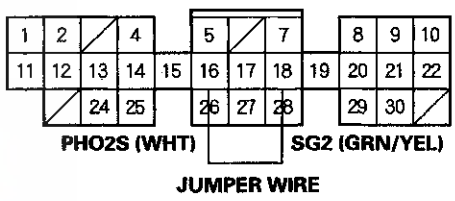
8. Turn the ignition switch ON (II).
9. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Is there 0.9 V or more?

   YES—Go to step 10.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114). ■
10. Turn the ignition switch OFF.
11. Connect ECM connector terminals C16 and C18 with a jumper wire.

ECM CONNECTOR C (31P)



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

    Is there 0.9 V or more?

    YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

    NO—Repair open in the wire between the ECM (C16, C18) and the primary HO2S (Sensor 1). ■

DTC Troubleshooting (cont'd)

DTC P0132: Primary HO2S (Sensor 1) Circuit High Voltage ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

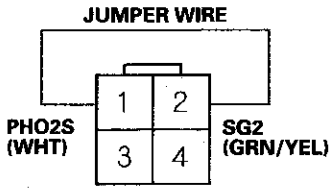
1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does the voltage stay at 3.5 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the primary HO2S (Sensor 1) 4P connector.
6. Connect primary HO2S (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

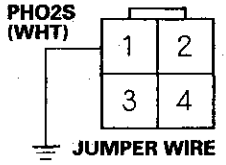
7. Turn the ignition switch ON (II).
8. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Is there 3.5 V or more?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114).■
9. Turn the ignition switch OFF.
10. Disconnect the jumper wire.
11. Connect primary HO2S (Sensor 1) 4P connector terminal No. 1 to body ground with a jumper wire.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

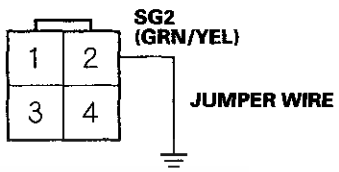
    Is there 3.5 V or more?

    YES—Repair open in the wire between the ECM (C16) and the primary HO2S (Sensor 1).■

    NO—Go to step 14.
14. Turn the ignition switch OFF.
15. Disconnect the jumper wire.
16. Disconnect ECM connector C (31P).

17. Connect primary HO2S (Sensor 1) 4P connector terminal No. 2 to body ground with a jumper wire.

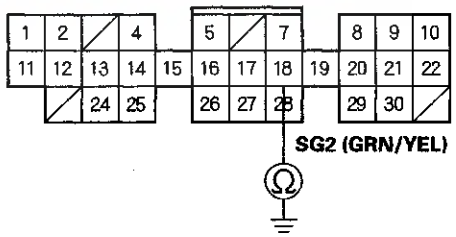
PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

18. Check for continuity between ECM connector terminal C18 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair short in the wire between the ECM (C18) and the primary HO2S (Sensor 1). ■

DTC Troubleshooting (cont'd)

DTC P0133: Primary HO2S (Sensor 1) Circuit Slow Response

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If DTC P0131, P0132, and/or P0135 are stored at the same time as DTC P0133, troubleshoot those DTCs first, then recheck for DTC P0133.

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Test-drive under these conditions:
   - Transmission in 6th gear
   - 55 mph (89 km/h) steady speed
   - Until readiness code or Temporary DTC P0133 comes on
4. Check for a Temporary DTC with a scan tool or the HDS.

   Is Temporary DTC P0133 indicated?

   YES—Replace the primary HO2S (Sensor 1) (see page 11-114).■

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■

DTC P0134: Primary HO2S (Sensor 1) Heater System Malfunction ('04 model)

NOTE:
- Before you troubleshoot, record all freeze and review the general troubleshooting information (see page 11-3).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel, and clear the DTC with the HDS.

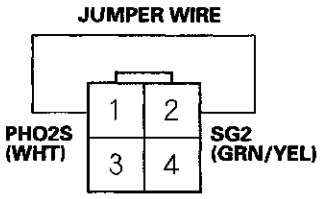
1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does the voltage stay at 1.5 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the primary HO2S (Sensor 1) 4P connector.
6. Connect primary HO2S (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

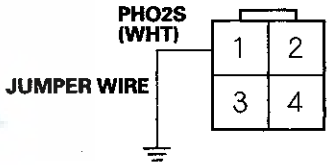
7. Turn the ignition switch ON.
8. Check the primary HO2S (Sensor 1) output voltage with the HDS or a scan tool.

   Is there 1.5 V or more?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114).■
9. Turn the ignition switch OFF.
10. Disconnect the jumper wire.
11. Connect primary HO2S (Sensor 1) 4P connector terminal No. 1 to body ground with a jumper wire.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

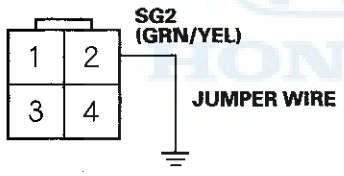
12. Turn the ignition switch ON (II).
13. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

    Is there 1.5 V or more?

    YES—Repair open in the wire between the ECM (C16) and the primary HO2S (Sensor 1). ■

    NO—Go to step 14.
14. Turn the ignition switch OFF.
15. Disconnect the jumper wire.
16. Disconnect ECM connector C (31P).
17. Connect primary HO2S (Sensor 1) 4P connector terminal No. 2 to body ground with a jumper wire.

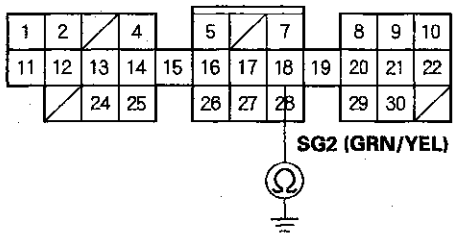
PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

18. Check for continuity between ECM connector terminal C18 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair open in the wire between the ECM (C18) and the primary HO2S (Sensor 1). ■

DTC P0134: Primary HO2S (Sensor 1) Heater System Malfunction ('05 model)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel, and clear the DTC with a scan tool or the HDS.

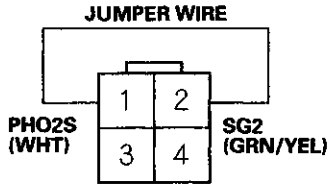
1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does the voltage stay at 1.5—3.5 V?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the primary HO2S (Sensor 1) 4P connector.
6. Connect primary HO2S (Sensor 1) 4P connector terminals No. 1 and No. 2 with a jumper wire.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

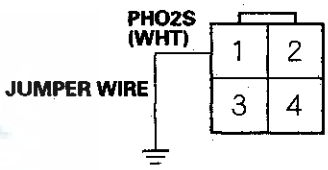
7. Turn the ignition switch ON.
8. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Is there 1.5—3.5 V?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114).■
9. Turn the ignition switch OFF.
10. Disconnect the jumper wire.
11. Connect primary HO2S (Sensor 1) 4P connector terminal No. 1 to body ground with a jumper wire.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

    Is there 1.5—3.5 V?

    YES—Repair open in the wire between the ECM (C16) and the primary HO2S (Sensor 1).■

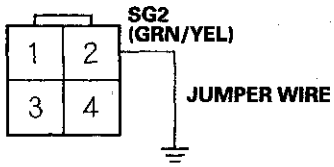
    NO—Go to step 14.
14. Turn the ignition switch OFF.
15. Disconnect the jumper wire.
16. Disconnect ECM connector C (31P).

(cont'd)

DTC Troubleshooting (cont'd)

17. Connect primary HO2S (Sensor 1) 4P connector terminal No. 2 to body ground with a jumper wire.

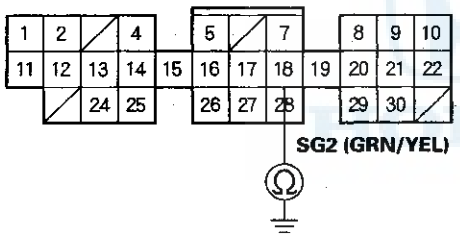
PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

18. Check for continuity between ECM connector terminal C18 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair short in the wire between the ECM (C18) and the primary HO2S (Sensor 1). ■

DTC P0135: Primary HO2S (Sensor 1) Heater Circuit Malfunction

DTC P0141: Secondary HO2S (Sensor 2) Heater Circuit Malfunction

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to DTC P0141.

1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Check for Temporary DTC or DTC with a scan tool or the HDS.

Is DTC P0135 or P0141 indicated?

YES—Go to step 4.

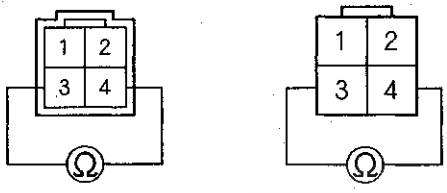
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) or secondary HO2S (Sensor 2) and at the ECM. ■

4. Turn the ignition switch OFF.

5. Disconnect the HO2S (primary or secondary*) (Sensor 1 or Sensor 2*) 4P connector.

6. At the HO2S side, measure resistance between HO2S 4P connector terminals No. 3 and No. 4.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR **SECONDARY HO2S (SENSOR 2) 4P CONNECTOR***



Terminal side of male terminals

Wire side of female terminals

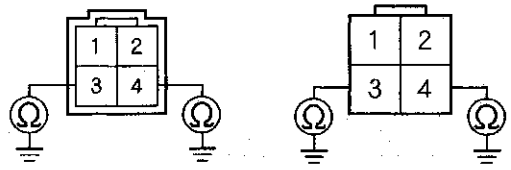
Is there about 3.3 Ω (12 – 14.3 Ω) ?*

YES—Go to step 7.

NO—Replace the primary HO2S (Sensor 1) (see page 11-114) or secondary HO2S (Sensor 2)* (see page 11-114).■

7. At the HO2S side, check continuity between body ground and HO2S 4P connector terminals No. 3 and No. 4 individually.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR **SECONDARY HO2S (SENSOR 2) 4P CONNECTOR***



Terminal side of male terminals

Wire side of female terminals

Is there continuity?

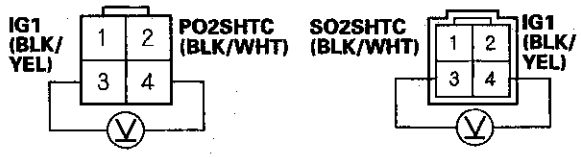
YES—Replace the primary HO2S (Sensor 1) (see page 11-114) or secondary HO2S (Sensor 2)* (see page 11-114).■

NO—Go to step 8.

8. Turn the ignition switch ON (II).

9. Measure voltage between HO2S 4P connector terminals No. 3 and No. 4.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR **SECONDARY HO2S (SENSOR 2) 4P CONNECTOR***



Wire side of female terminals

Terminal side of male terminals

Is there battery voltage?

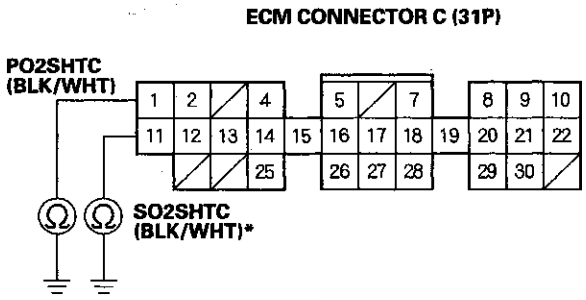
YES—Go to step 10.

NO—Go to step 13.

(cont'd)

DTC Troubleshooting (cont'd)

10. Turn the ignition switch OFF.
11. Disconnect ECM connector C (31P).
12. Check for continuity between ECM connector terminal C1 (C11)* and body ground.

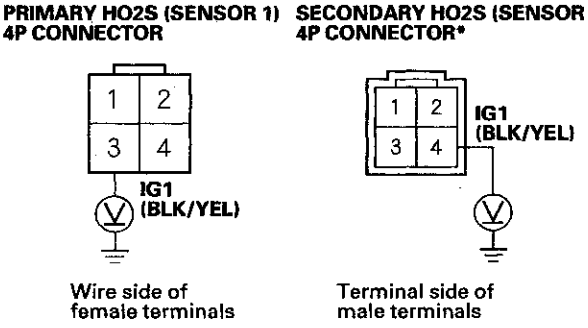


Is there continuity?

YES—Repair short in the wire between the ECM (C1, C11*) and the HO2S (primary or secondary*) (Sensor 1 or Sensor 2*).■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

13. Measure voltage between primary HO2S 4P connector terminal No. 3 (secondary HO2S No. 4)* and body ground.

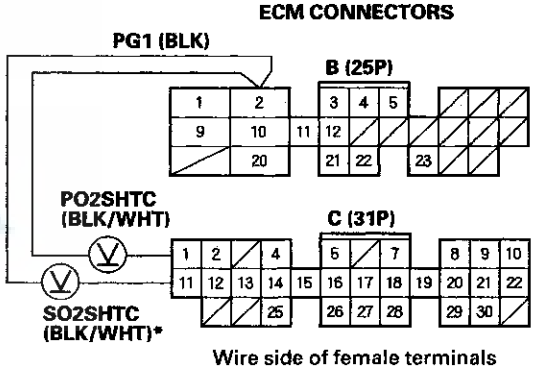


Is there battery voltage?

YES—Go to step 14.

NO—Repair open in the wire between the primary HO2S (Sensor 1), the secondary HO2S (Sensor 2)* and the No. 6 ACG (15 A) fuse.■

14. Turn the ignition switch OFF.
15. Reconnect the HO2S 4P connector.
16. Disconnect ECM connector C (31P).
17. Turn the ignition switch ON (II).
18. Measure voltage between ECM connector terminals B2 and C1 (B2 and C11)*.



Is there 0.1 V or less?

YES—Repair open in the wire between the ECM (C1 and C11*) and the HO2S (primary or secondary*) (Sensor 1 or Sensor 2*).■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

DTC P0137: Secondary HO2S (Sensor 2) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with a scan tool or the HDS.

   Does the voltage stay at 0.3 V or less?

   YES—Go to step 4.

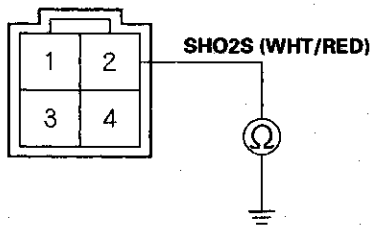
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM. ■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Start the engine.
7. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

   Does the voltage stay at 0.3 V or less?

   YES—Go to step 8.

   NO—Replace the secondary HO2S (Sensor 2) (see page 11-114). ■
8. Turn the ignition switch OFF.
9. Disconnect ECM connector C (31P).
10. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C15) and the secondary HO2S (Sensor 2). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

DTC Troubleshooting (cont'd)

DTC P0138: Secondary HO2S (Sensor 2) Circuit High Voltage ('00-04 models)

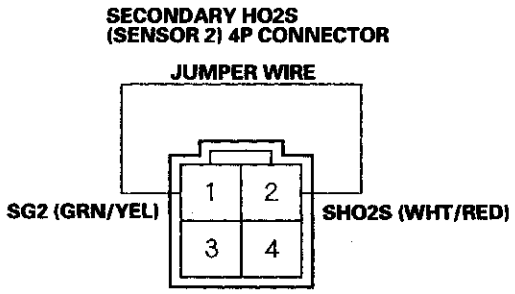
NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with a scan tool or the HDS.

   Does the voltage stay at 0.6 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.



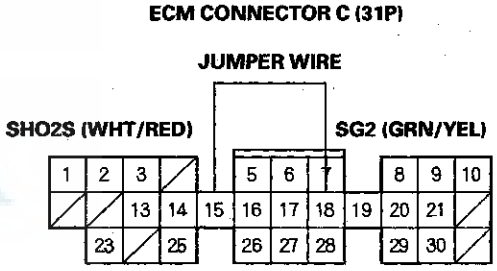
Terminal side of male terminals

7. Turn the ignition switch ON (II).
8. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

   Is there 0.6 V or more?

   YES—Go to step 9.

   NO—Replace the secondary HO2S (Sensor 2)* (see page 11-114).■
9. Turn the ignition switch OFF.
10. Disconnect the jumper wire.
11. Connect ECM connector terminals C15 and C18 with a jumper wire.



Wire side of female terminals

12. Turn the ignition switch ON (II).
13. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

    Is there 0.6 V or more?

    YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

    NO—Repair open in the wire between the ECM (C15, C18) and the secondary HO2S (Sensor 2).■

DTC P0138: Secondary HO2S (Sensor 2) Circuit High Voltage ('05 model)

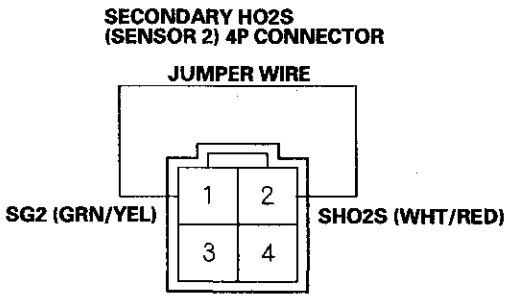
NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with a scan tool or the HDS.

   Does the voltage stay at 3.0 V or more?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM. ■
4. Turn the ignition switch OFF.
5. Disconnect the secondary HO2S (Sensor 2) 4P connector.
6. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.



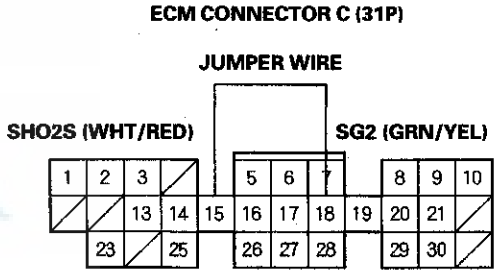
Terminal side of male terminals

7. Turn the ignition switch ON (II).
8. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

   Is there 3.0 V or more?

   YES—Go to step 9.

   NO—Replace the secondary HO2S (Sensor 2) (see page 11-114). ■
9. Turn the ignition switch OFF.
10. Disconnect the jumper wire.
11. Connect ECM connector terminals C15 and C18 with a jumper wire.



Wire side of female terminals

12. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

13. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

    Is there 3.0 V or more?

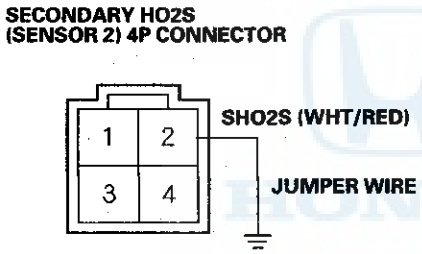
    YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

    NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Disconnect the jumper wire.

16. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 2 to body ground with a jumper wire.



Terminal side of male terminals

17. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

    Is there 3.0 V or more?

    YES—Repair open in the wire between the ECM (C15) and the secondary HO2S (Sensor 2). ■

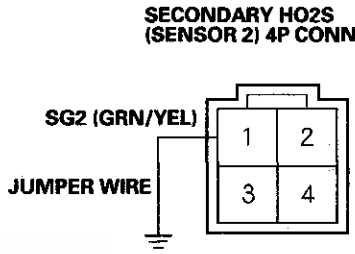
    NO—Go to step 18.

18. Turn the ignition switch OFF.

19. Disconnect the jumper wire.

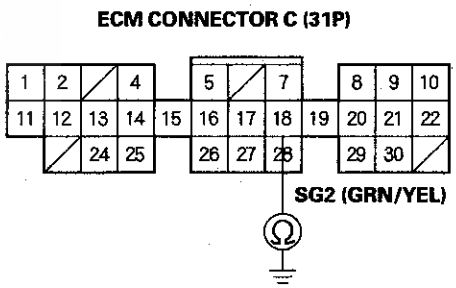
20. Disconnect ECM connector C (31P).

21. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 1 to body ground with a jumper wire.



Terminal side of male terminals

22. Check for continuity between ECM connector terminal C18 and body ground.



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair open in the wire between the ECM (C18) and the secondary HO2S (Sensor 2). ■

DTC P0139: Secondary HO2S (Sensor 2) Circuit Slow Response ('00-04 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the secondary HO2S (Sensor 2) output voltage at 3,000 rpm with a scan tool or the HDS.

   Does the voltage stay within 0.3—0.6 V for 2 minutes?

   YES—Replace the secondary HO2S (Sensor 2) (see page 11-114). ■

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM. ■

DTC Troubleshooting (cont'd)

DTC P0171: Fuel System Too Lean

DTC P0172: Fuel System Too Rich

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If some of the DTCs listed below are stored at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then recheck for P0171 and/or P0172.

P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P0135: Primary heated oxygen sensor (primary HO2S) (Sensor 1) heater
P0137, P0138: Secondary HO2S (Sensor 2)
P0141: Secondary HO2S (Sensor 2) heater
P1259 (P2646, P2647)*: VTEC system
*: '04-05 models

1. Check the fuel pressure (see page 11-145).

   Is fuel pressure OK?

   YES—Go to step 2.

   NO—Check these items:

   - If the pressure is too high. Check the fuel pressure regulator, and the fuel return pipe.■
   - If the pressure is too low. Check the fuel pump, the fuel feed pipe, the fuel filter, and the fuel pressure regulator.■

2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.

3. Check the primary HO2S (Sensor 1) output with a scan tool or the HDS.

   Does it stay less than 0.3 V or more than 0.6 V?

   YES—Replace the primary HO2S (Sensor 1) (see page 11-114).■

   NO—Go to step 4.

4. Turn the ignition switch OFF.

5. With a vacuum pump, apply vacuum to the EVAP canister purge valve from the intake manifold side.

   Does it hold vacuum?

   YES—Check the valve clearances and adjust if necessary. If the valve clearances are OK, replace the injectors.■

   NO—Replace the EVAP canister purge valve.■

DTC P0300: Random Misfire and Any Combination of the Following:

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If the misfiring is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some combination of P0301 through P0304) will be stored.
- If the misfiring is frequent enough to damage the catalyst, the MIL will blink whenever the misfiring occurs, and DTC P0300 (and some combination of P0301 through P0304) will be stored. When the misfiring stops, the MIL will remain on.

1. Troubleshoot the following DTCs first if any of them were stored along with the random misfire DTC(s):

   P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
   P0131, P0132: Primary heated oxygen sensor (primary HO2S) (Sensor 1)
   P0171, P0172: Fuel metering
   P0335, P0336: Crankshaft position (CKP) sensor
   P0505 (P0506, P0507)*: Idle control system
   P1259 (P2646, P2647)*: VTEC system
   P1361, P1362, P1366, P1367 (P0340, P0344, P0365, P0369)*: Camshaft position (CMP) sensor (top dead center (TDC) Sensor) A/B
   P0511*: Idle air control (IAC) valve
   *: '04-05 models

2. Test-drive the vehicle to verify the symptom.

3. Find the symptom in the chart, and do the related procedures in the order listed until you find the cause.

Symptom	Procedure(s)	Also check for:
Random misfire only at low RPM and load	Check fuel pressure (see page 11-145).	• Low compression. • Low quality fuel.
Random misfire only during acceleration	Check fuel pressure (see page 11-145).	Malfunction in the VTEC system (see page 6-8).
Random misfire at high RPM and load, or under random conditions	Check fuel pressure (see page 11-145).	Correct valve clearance (see page 6-10).

DTC Troubleshooting (cont'd)

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '00-04 models.
- Information marked with double asterisk (* *) applies to '05 model.

1. After checking and recording the freeze data, reset the ECM (see page 11-4). If there is no freeze data of the misfire, just clear the DTC.
2. Start the engine, listen for a clicking sound at the injector at the problem cylinder.

   Does it click?

   YES—Go to step 3.

   NO—Go to step 30.
3. Turn the ignition switch OFF.
4. Exchange the ignition coil from the problem cylinder with one from another cylinder.
5. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.
6. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P0301, P0302, P0303, or P0304 or Temporary DTC P1399 (P0301, P0302, P0303, or P0304)* * indicated?*

   YES—Go to step 7.

   NO—Intermittent misfire due to poor contact at the ignition coil connector (no misfire at this time).■
7. Determine which cylinder(s) had the misfire.

   Does the misfire occur in the other cylinder where the ignition coil was exchanged?

   YES—Replace the faulty ignition coil.■

   NO—Go to step 8.
8. Turn the ignition switch OFF.
9. Exchange the spark plug from the problem cylinder with one from another cylinder.
10. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.
11. Check for Temporary DTC or DTC with a scan tool or the HDS.

    Is DTC P0301, P0302, P0303 or P0304 or Temporary DTC P1399 (P0301, P0302, P0303, or P0304)* * indicated?*

    YES—Go to step 12.

    NO—Intermittent misfire due to spark plug fouling, etc. (no misfire at this time).■
12. Determine which cylinder had the misfire.

    Does the misfire occur in the other cylinder where the spark plug was exchanged?

    YES—Replace the faulty spark plug.■

    NO—Go to step 13.
13. Turn the ignition switch OFF.
14. Exchange the injector from the problem cylinder with one from the another cylinder.
15. Let the engine idle for 2 minutes.
16. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

17. Check for Temporary DTC or DTC with a scan tool or the HDS.

    Is DTC P0301, P0302, P0303, or P0304 or Temporary DTC P1399 (P0301, P0302, P0303, or P0304)** indicated?*

    YES—Go to step 18.

    NO—Intermittent misfire due to bad contact in the injector connector (no misfire at this time).■

18. Determine which cylinder had the misfire.

    Does the misfire occur in the other cylinder where the injector was exchanged?

    YES—Replace the faulty injector (see page 11-112). ■

    NO—Go to step 19.

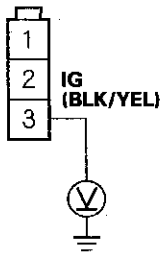
19. Turn the ignition switch OFF.

20. Disconnect the ignition coil 3P connector from the problem cylinder.

21. Turn the ignition switch ON (II).

22. Measure voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

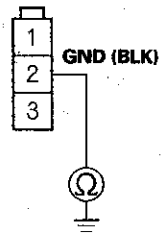
YES—Go to step 23.

NO—Repair open in the wire between the No. 4 IGN COIL (15 A) fuse and the ignition coil.■

23. Turn the ignition switch OFF.

24. Check for continuity between ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 25.

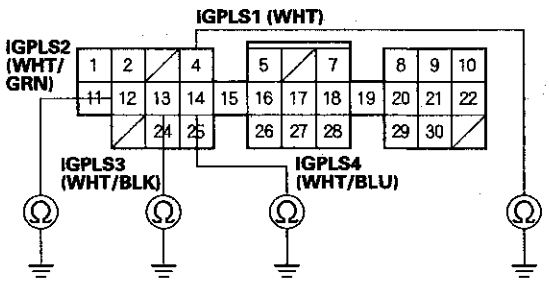
NO—Repair open in the wire between the ignition coil and G101.■

25. Disconnect ECM connector C (31P).

26. Check for continuity between body ground and the ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	C4	WHT
No. 2	P0302	C12	WHT/GRN
No. 3	P0303	C13	WHT/BLK
No. 4	P0304	C14	WHT/BLU

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM and the ignition coil.■

NO—Go to step 27.

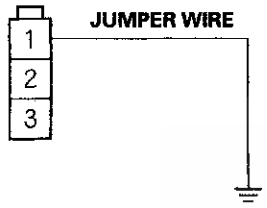
(cont'd)

DTC Troubleshooting (cont'd)

27. Connect appropriate ignition coil 3P connector terminal No. 1 to body ground with a jumper wire (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	WHT
No. 2	P0302	WHT/GRN
No. 3	P0303	WHT/BLK
No. 4	P0304	WHT/BLU

IGNITION COIL 3P CONNECTOR

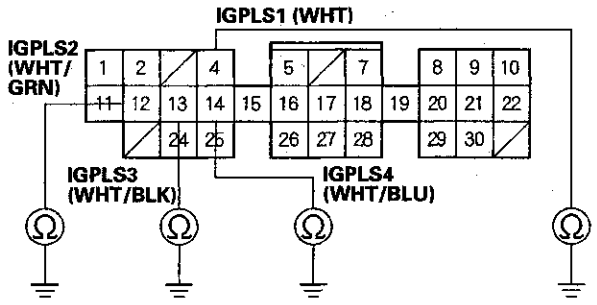


Wire side of female terminals

28. Check for continuity between body ground and the ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	C4	WHT
No. 2	P0302	C12	WHT/GRN
No. 3	P0303	C13	WHT/BLK
No. 4	P0304	C14	WHT/BLU

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the ECM and the ignition coil.■

29. Check the engine compression.

Is the engine compression OK?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair the engine.■

30. Turn the ignition switch OFF.

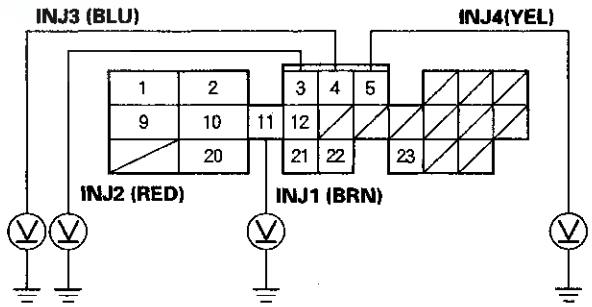
31. Disconnect ECM connector B (25P).

32. Turn the ignition switch ON (II).

33. Measure voltage between body ground and the ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B11	BRN
No. 2	P0302	B3	RED
No. 3	P0303	B4	BLU
No. 4	P0304	B5	YEL

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 34.

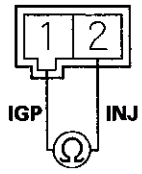
NO—Go to step 42.

34. Turn the ignition switch OFF.

35. Disconnect the injector 2P connector from the problem cylinder.

36. At the injector side, measure resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10– 13 Ω ?

YES—Go to step 37.

NO—Replace the injector (see page 11-112). ■

37. Exchange the injector from the problem cylinder with one from another cylinder.

38. Let the engine idle for 2 minutes.

39. Test-drive the vehicle several times in the range of the freeze data or under various conditions if there was no freeze data.

40. Check for Temporary DTC or DTC with a scan tool.

Is DTC P0301, P0302, P0303, or P0304 or Temporary DTC P1399' (P0301, P0302, P0303, or P0304)'' indicated?

YES—Go to step 41.

NO—Intermittent misfire due to injector malfunction, etc. ■

41. Determine which cylinder had the misfire.

Does the misfire occur in the other cylinder where the injector was exchanged?

YES—Replace the faulty injector. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

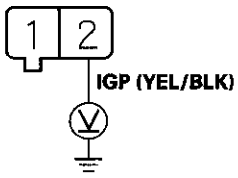
42. Turn the ignition switch OFF.

43. Disconnect injector 2P connector from the problem cylinder.

44. Turn the ignition switch ON (II).

45. Measure voltage between injector 2P connector terminal No. 2 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 46.

NO—Repair open in the wire between the injector and the PGM-FI main relay. ■

46. Turn the ignition switch OFF.

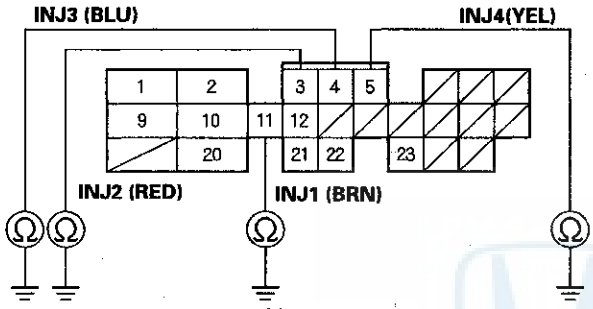
(cont'd)

DTC Troubleshooting (cont'd)

47. Check for continuity between body ground and the ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B11	BRN
No. 2	P0302	B3	RED
No. 3	P0303	B4	BLU
No. 4	P0304	B5	YEL

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

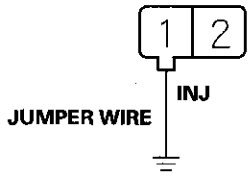
YES—Repair short in the wire between the ECM and the injector. ■

NO—Go to step 48.

48. Connect injector 2P connector terminal No. 1 to body ground with a jumper wire (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	BRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	YEL

INJECTOR 2P CONNECTOR

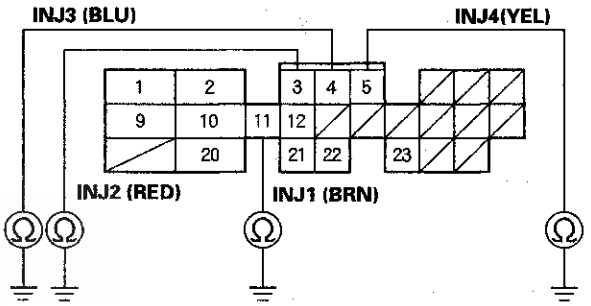


Wire side of female terminals

49. Check for continuity between body ground and the ECM connector terminals (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B11	BRN
No. 2	P0302	B3	RED
No. 3	P0303	B4	BLU
No. 4	P0304	B5	YEL

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Replace the injector, then recheck. ■

NO—Repair open in the wire between the ECM and the injector. ■

DTC P0325: Knock Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

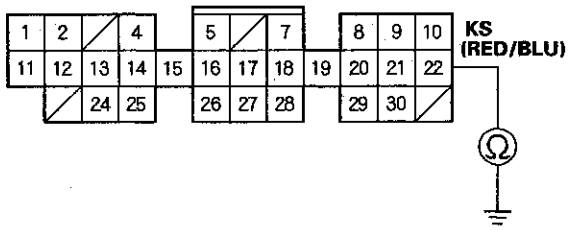
1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
3. Hold the engine speed at 3,000—4,000 rpm for 10 seconds.
4. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P0325 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the knock sensor and at the ECM.■
5. Turn the ignition switch OFF.
6. From underneath the vehicle, reach above the front of the starter motor, and disconnect the knock sensor 1P connector.
7. Disconnect ECM connector C (31P), then check for continuity between ECM connector terminals C22 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

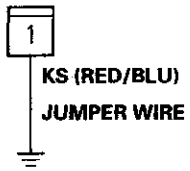
Is there continuity?

YES—Repair short in the wire between the ECM (C22) and the knock sensor.■

NO—Go to step 8.

8. Connect the knock sensor 1P connector terminal body ground with a jumper wire.

KNOCK SENSOR 1P CONNECTOR



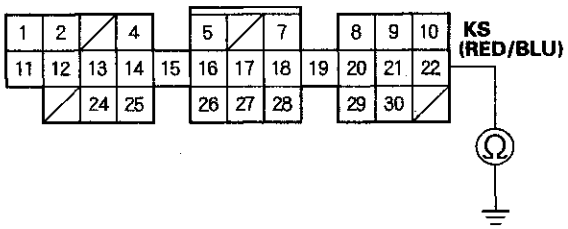
Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

9. Check for continuity between ECM connector terminal C22 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity ?

YES—Go to step 10.

NO—Repair open in the wire between the ECM (C22) and the knock sensor. ■

10. Substitute a known-good knock sensor.

11. Check for Temporary DTC or DTC with a scan tool or the HDS.

Is DTC P0325 indicated?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Replace the original knock sensor. ■

DTC P0335: CKP Sensor No Signal

DTC P0336: CKP Sensor Circuit Intermittent Interruption ('00-03 models)

DTC P0339: CKP Sensor Circuit Intermittent Interruption ('04-05 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '00-03 models.
- Information marked with double asterisk (**) applies to '04-05 models.

1. Reset the ECM (see page 11-4).

2. Start the engine.

3. Check for Temporary DTC or DTC with a scan tool or the HDS.

Is DTC P0335 and/or P0336 (P0339)** indicated?*

YES—Go to step 4.

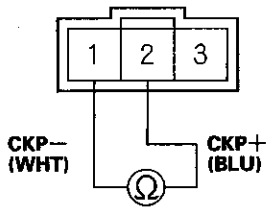
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and at the ECM. ■

4. Turn the ignition switch OFF.

5. Disconnect the CKP sensor 3P connector.

6. At the sensor side, measure resistance between CKP sensor 3P connector terminals No. 1 and No. 2.

CKP SENSOR 3P CONNECTOR



Terminal side of male terminals

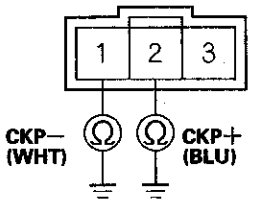
Is there 1,850–2,450 Ω ?

YES—Go to step 7.

NO—Replace the CKP sensor (see page 6-6). ■

7. At the sensor side, check for continuity between CKP sensor 3P connector terminal No. 1 and body ground and terminal No. 2 and body ground individually.

CKP SENSOR 3P CONNECTOR



Terminal side of male terminals

Is there continuity?

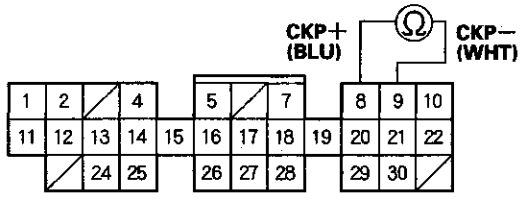
YES—Replace the CKP sensor (see page 6-3). ■

NO—Go to step 7.

8. Reconnect the CKP sensor 3P connector.

9. Disconnect ECM connector C (31P), and measure resistance between the ECM connector terminals C8 and C9.

ECM CONNECTOR C (31P)



Wire side of female terminals

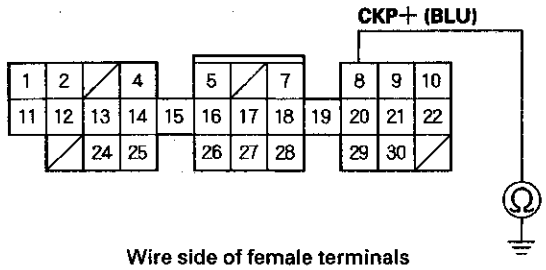
Is there 1,850–2,450 Ω ?

YES—Go to step 10.

NO—Repair open in the wire between the ECM (C8, C9) and the CKP sensor. ■

10. Check for continuity between ECM connector terminal C8 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECM terminal C8 and the CKP sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

DTC Troubleshooting (cont'd)

DTC P0340: CMP Sensor A No Signal ('04-05 models)

DTC P0344: CMP Sensor A Circuit Intermittent Interruption ('04-05 models)

DTC P1361: CMP (TDC) Sensor A Circuit Intermittent Interruption ('00-03 models)

DTC P1362: CMP (TDC) Sensor A No Signal ('00-03 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '04-05 models.
- Information marked with double asterisk (**) applies to '00-03 models.

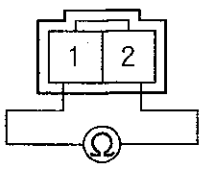
1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P0344 (P1361)** or P0340* (P1362)** indicated?*

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at CMP (TDC) sensor A and at the ECM. ■
4. Turn the ignition switch OFF.
5. Disconnect CMP (TDC) sensor A 2P connector.
6. At the sensor side, measure resistance between CMP (TDC) sensor 2P connector terminals No. 1 and No. 2.

CMP (TDC) SENSOR A 2P CONNECTOR



Terminal side of male terminals

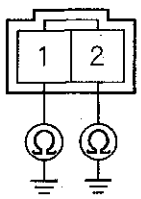
Is there 1,850—2,450 Ω ?

YES—Go to step 7.

NO—Replace CMP (TDC) sensor A (see page 6-3). ■

7. At the sensor side, check for continuity to body ground on both terminals individually.

CMP (TDC) SENSOR A 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

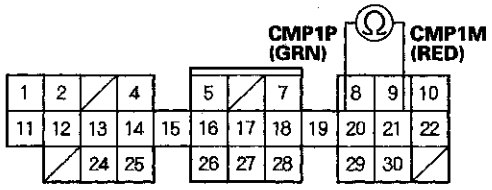
YES—Replace CMP (TDC) sensor A (see page 6-3). ■

NO—Go to step 8.

8. Reconnect CMP (TDC) sensor A 2P connector.
9. Disconnect ECM connector C (31P).

10. Measure resistance between ECM connector terminals C20 and C21.

ECM CONNECTOR C (31P)



Wire side of female terminals

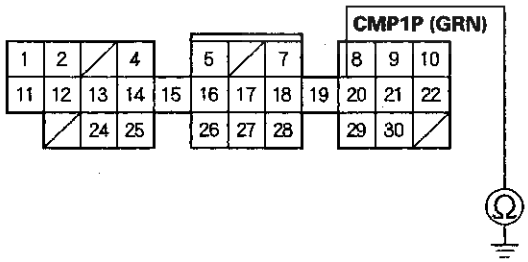
Is there 1,850–2,450 Ω ?

YES—Go to step 11.

NO—Repair open or short in the faulty sensor wire(s).■

11. Check for continuity between body ground and ECM connector terminal C20.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the faulty sensor wire(s).■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

DTC P0365: CMP Sensor B No Signal ('04-05 models)

DTC P0369: CMP Sensor B Circuit Intermittent Interruption ('04-05 models)

DTC P1366: CMP (TDC) Sensor B Circuit Intermittent Interruption ('00-03 models)

DTC P1367: CMP (TDC) Sensor B No Signal ('00-03 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '04-05 models.
- Information marked with double asterisk (**) applies to '00-03 models.

1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P0369 (P1366)** or P0365* (P1367)** indicated?*

   YES—Go to step 4.

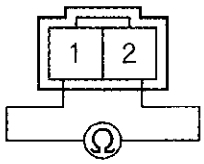
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at CMP (TDC) sensor B and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the CMP (TDC) sensor B 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

6. At the sensor side, measure resistance between CMP (TDC) sensor 2P connector terminals No. 1 and No. 2.

CMP (TDC) SENSOR B 2P CONNECTOR



Terminal side of male terminals

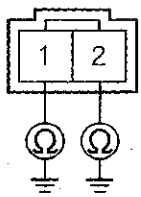
Is there 1,850—2,450 Ω ?

YES—Go to step 7.

NO—Replace CMP (TDC) sensor B (see page 6-3). ■

7. At the sensor side, check for continuity to body ground on both terminals individually.

CMP (TDC) SENSOR B 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Replace CMP (TDC) sensor B (see page 6-3). ■

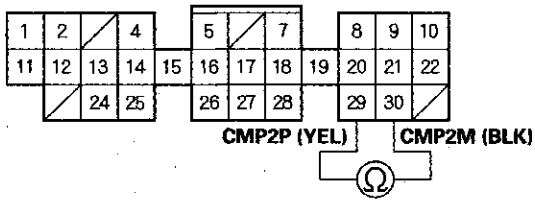
NO—Go to step 8.

8. Reconnect CMP (TDC) sensor B 2P connectors.

9. Disconnect ECM connector C (31P).

10. Measure resistance between ECM connector terminals C29 and C30.

ECM CONNECTOR C (31P)



Wire side of female terminals

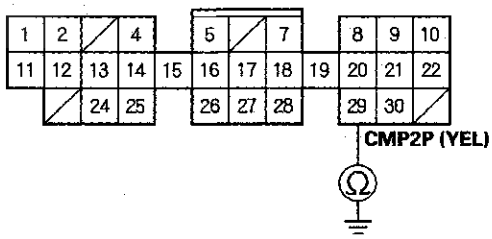
Is there 1,850—2,450 Ω ?

YES—Go to step 11.

NO—Repair open or short in the faulty sensor wire(s). ■

11. Check for continuity between body ground and ECM connector terminal C29.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the faulty sensor wire(s). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

DTC P0500: VSS Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

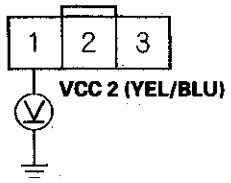
1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
3. Test-drive with the transmission in 2nd gear. Accelerate to 4,000 rpm, then decelerate to 1,500 rpm with the throttle fully closed for at least 5 seconds.
4. Check for a DTC with a scan tool or the HDS.

   Is DTC P0500 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals between the VSS and at the ECM.■
5. Turn the ignition switch OFF.
6. Raise the vehicle.
7. Disconnect the VSS 3P connector.
8. Turn the ignition switch ON (II).
9. Measure voltage between VSS 3P connector terminal No. 1 and body ground.

VSS 3P CONNECTOR



Wire side of female terminals

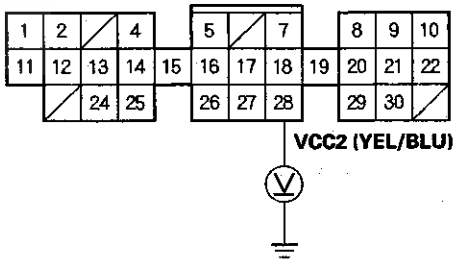
Is there about 5 V?

YES—Go to step 11.

NO—Go to step 10.

10. Measure voltage between ECM connector terminal C28 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C28) and the VSS.■

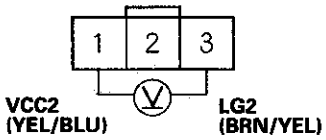
NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

(cont'd)

DTC Troubleshooting (cont'd)

11. Measure voltage between VSS 3P connector terminals No. 1 and No. 3.

VSS 3P CONNECTOR



Wire side of female terminals

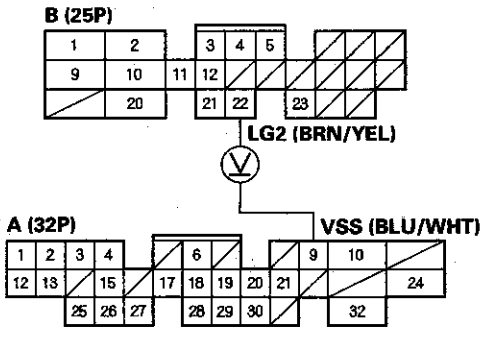
Is there about 5 V?

YES—Go to step 12.

NO—Repair open in the wire between the ECM (B22) and the VSS. ■

12. Turn the ignition switch OFF.
13. Reconnect the VSS 3P connector.
14. Turn the ignition switch ON (II).
15. Raise the rear of the vehicle, and make sure it is securely supported. Hold one wheel, and slowly rotate the other.
16. Measure voltage between ECM connector terminals A9 and B22.

ECM CONNECTORS



Wire side of female terminals

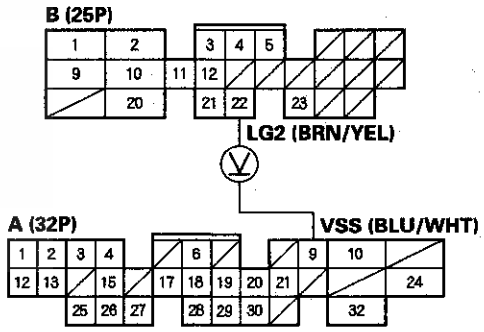
Does voltage pulse between 0 V and about 5 V?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Go to step 17.

17. Turn the ignition switch OFF.
18. Disconnect ECM connector A (32P).
19. Turn the ignition switch ON (II).
20. Hold one wheel, and slowly rotate the other.
21. Measure voltage between ECM connector terminals A9 and B22.

ECM CONNECTORS



Wire side of female terminals

Does voltage pulse between 0 V and about 5 V?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair short or open in the wire between the VSS and the ECM, if the wire is OK, replace the VSS (see page 22-93). ■

DTC P0607: ECM Internal Circuit Malfunction ('04-05 models)

DTC P1607: ECM Internal Circuit Malfunction ('00-03 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '04-05 models.
- Information marked with double asterisk (* *) applies to '00-03 models.
- If the No. 25 BACK UP (7.5 A) fuse is removed and the ignition switch is ON (II), MIL will report on and ECM will store the DTC P0607* (P1607)**.

1. Reset the ECM (see page 11-4).
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II).
4. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P0607 (P1607)** indicated?*

   YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

   NO—Go to step 5.
5. Cycle the ignition switch OFF and ON (II) five times.
6. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P0607 (P1607)** indicated?*

   YES—Inspect the No. 25 BACK UP (7.5 A) fuse. If the fuse is OK, repair open in VBU wire between the under-dash fuse/relay box and the ECM. ■

   NO—Intermittent failure, the system is OK at this time. A low battery can cause this problem. Ask the customer if the engine had to be jump-started recently. ■

DTC Troubleshooting (cont'd)

DTC P0630: VIN Not Programmed or Mismatch ('04-05 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- This DTC is stored only when the ECM does not have the VIN information of the vehicle. Use the HDS to fill the missing VIN information.

1. Turn the ignition switch ON (II).
2. Check the VIN with the HDS.

   Does the HDS show the vehicle's VIN?

   YES—Go to step 5.

   NO—Go to step 3.
3. Input the VIN to the ECM with the HDS.

   Does the screen show COMPLETE?

   YES—Go to step 5.

   NO—Go to step 4.
4. Check for DTCs with the HDS.

   Is DTC P0607 indicated?

   YES—Go to the DTC P0607 troubleshooting. ■

   NO—Substitute a known-good ECM (see page 11-5), then recheck. ■
5. Clear the DTC with the HDS.
6. Turn the ignition switch OFF.
7. Turn the ignition switch ON (II), and wait 5 seconds.
8. Check for Temporary DTCs or DTCs with the HDS.

   Are any Temporary DTCs or DTCs indicated?

   YES—If DTC P0630 is indicated, substitute a known-good ECM (see page 11-5), then recheck. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC P1106: BARO Sensor Range/ Performance Problem ('00-03 models)

DTC P2227: BARO Sensor Range/ Performance Problem ('04-05 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '00-03 models.
- Information marked with double asterisk (**) applies to '04-05 models.

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
3. Test-drive with the transmission in 4th gear.
4. Accelerate for 5 seconds using wide open throttle.
5. Check for a Temporary DTC with a scan tool or the HDS.

   Is Temporary DTC P1106 (P2227)** indicated?*

   YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC P1107: BARO Sensor Circuit Low Voltage ('00-03 models)

DTC P1108: BARO Sensor Circuit High Voltage ('00-03 models)

DTC P2228: BARO Sensor Circuit Low Voltage ('04-05 models)

DTC P2229: BARO Sensor Circuit High Voltage ('04-05 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '00-03 models.
- Information marked with double asterisk (**) applies to '04-05 models.

1. Reset the ECM (see page 11-4).
2. Turn the ignition switch ON (II).
3. Check for Temporary DTCs or DTCs with a scan tool or the HDS.

   Is DTC P1107 (P2228)** or P1108* (P2229)** indicated?*

   YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC Troubleshooting (cont'd)

DTC P1109: BARO Sensor Circuit Out of Range High ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Check for Temporary DTCs or DTCs with a scan tool or the HDS.

   Is DTC P1109 indicated?

   YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

   NO—Intermittent failure, the system is OK at this time. ■

DTC P1121: TP Sensor Signal Lower Than Expected

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the throttle position with a scan tool or the HDS.

   Is 9.4 % or more indicated when the throttle is fully opened?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Replace the throttle body (see page 11-165).■

DTC P1122: TP Sensor Signal Higher Than Expected

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the throttle position with a scan tool or the HDS.

   Is 14.1 % or less indicated when the throttle is fully closed?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Replace the throttle body (see page 11-165).■

DTC Troubleshooting (cont'd)

DTC P1128: MAP Sensor Signal Lower Than Expected

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Check the MAP with a scan tool or the HDS.

   Is about 54.1 kPa (16.0 in.Hg, 406 mmHg), or 1.6 V or more indicated?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Replace the MAP sensor (see page 11-166).■

DTC P1129: MAP Sensor Signal Higher Than Expected

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
2. Check the MAP with a scan tool or the HDS.

   Is about 36.9 kPa (10.9 in.Hg, 277 mmHg), or 1.1 V or less indicated?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Replace the MAP sensor (see page 11-166).■

DTC P1297: ELD Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

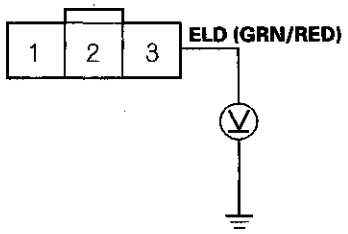
1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Turn on the headlights.
4. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P1297 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and at the ECM.■
5. Turn the ignition switch and headlights OFF.
6. Disconnect the ELD 3P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between ELD 3P connector terminal No. 3 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

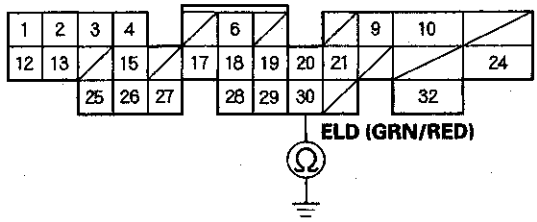
Is there about 5 V?

YES—Replace the main under-hood fuse/relay box.■

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Disconnect ECM connector A (32P).
11. Check for continuity between ECM connector terminal A30 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A30) and the ELD.■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

DTC Troubleshooting (cont'd)

DTC P1298: ELD Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

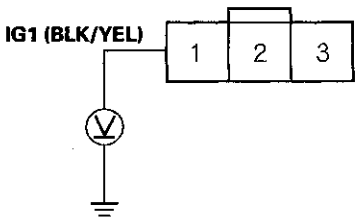
1. Reset the ECM (see page 11-4).
2. Start the engine.
3. Turn on the headlights.
4. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P1298 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and at the ECM.■
5. Turn the ignition switch and headlights OFF.
6. Disconnect the ELD 3P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between ELD 3P connector terminal No. 1 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

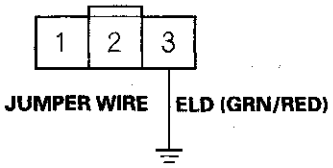
Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the No. 6 ACG (15 A) fuse and the ELD.■

9. Turn the ignition switch OFF.
10. Connect ELD 3P connector terminal No. 3 to body ground with a jumper wire.

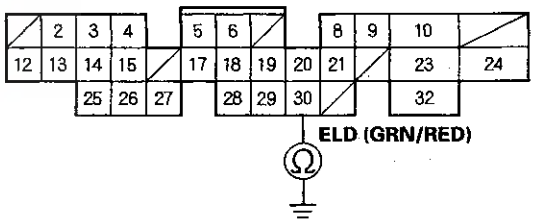
ELD 3P CONNECTOR



Wire side of female terminals

11. Disconnect ECM connector A (32P).
12. Check for continuity between ECM connector terminal A30 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

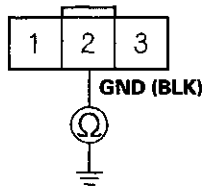
Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the ECM (A30) and the ELD.■

13. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 14.

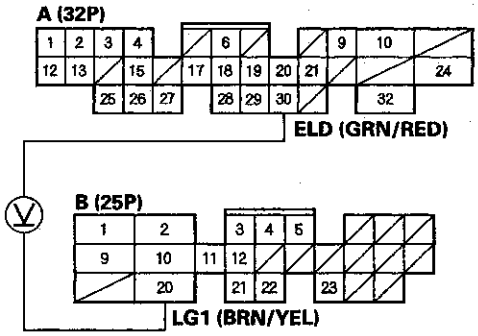
NO—Repair open in the wire between ELD connector terminal No. 2 and G201.■

14. Reconnect the ELD 3P connector and ECM connector A (32P).

15. Start the engine, and let it idle.

16. While measuring voltage between ECM connector terminals A30 and B20, turn the headlights on (low).

ECM CONNECTORS



Wire side of female terminals

Does the voltage drop?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Replace the under-hood fuse/relay box.■

DTC Troubleshooting (cont'd)

DTC P2195: Primary HO2S (Sensor 1) Circuit Low Voltage ('04 model)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel and clear the DTC with a scan tool or the HDS.

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS during acceleration using wide open throttle.

   Does the voltage stay at 0.5 V or less?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■
4. Check the fuel pressure (see page 11-145).

   Is it normal?

   YES—Go to step 5.

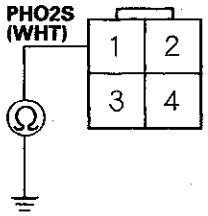
   NO—Repair the fuel supply system.■
5. Turn the ignition switch OFF.
6. Disconnect the primary HO2S (Sensor 1) 4P connector.
7. Start the engine, and let it idle.
8. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Is there 0.5 V or less?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114).■
9. Turn the ignition switch OFF.
10. Disconnect ECM connector C (31P).
11. Check for continuity between primary HO2S (Sensor 1) 4P connector terminal No. 1 and body ground.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C16) and the primary HO2S (Sensor 1).■

NO—Substitute a known-good (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

DTC P2195: Primary HO2S (Sensor 1) Circuit Low Voltage ('05 model)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel, and clear the DTC with a scan tool or the HDS.

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does the voltage stay at 0.1– 0.5 V?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■
4. Check the fuel pressure (see page 11-145).

   Is it normal?

   YES—Go to step 5.

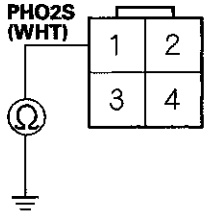
   NO—Repair the fuel supply system.■
5. Turn the ignition switch OFF.
6. Disconnect the primary HO2S (Sensor 1) 4P connector.
7. Start the engine, and let it idle.
8. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does it stay at 0.5 V or less?

   YES—Go to step 9.

   NO—Replace the primary HO2S (Sensor 1) (see page 11-114).■
9. Turn the ignition switch OFF.
10. Disconnect ECM connector C (31P).
11. Check for continuity between primary HO2S (Sensor 1) 4P connector terminal No. 1 and body ground.

PRIMARY HO2S (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (C16) and the primary HO2S (Sensor 1).■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

DTC Troubleshooting (cont'd)

DTC P2270: Secondary HO2S (Sensor 2) Circuit Signal Stuck Lean ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Test-drive under these conditions:
   - Transmission in 6th gear.
   - Vehicle speed at 65 mph (105 km/h); steady speed for at least 1 minute.
   - While driving, decelerate (with the throttle fully closed) for 4 seconds, then open the throttle slowly, and cruise 40 seconds or more.
4. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

   Does the voltage stay at 0.0–0.6 V?

   YES—Replace the secondary HO2S (Sensor 2) (see page 11-114).■

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM.■

DTC P2271: Secondary HO2S (Sensor 2) Circuit Signal Stuck Rich ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Test-drive under these conditions:
   - Transmission in 6th gear.
   - Vehicle speed at 65 mph (105 km/h); steady speed for at least 1 minute.
   - While driving, decelerate (with the throttle fully closed) for 4 seconds, then open the throttle slowly, and cruise 40 seconds or more.
4. Check the secondary HO2S (Sensor 2) output voltage with a scan tool or the HDS.

   Does the voltage stay at 0.6– 5.0 V?

   YES—Replace the secondary HO2S (Sensor 2) (see page 11-114).■

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM.■

DTC P2297: Primary HO2S (Sensor 1) Circuit High Voltage ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Test-drive under these conditions:
   - Transmission in 6th gear.
   - Vehicle speed at 65 mph (105 km/h); steady speed for at least 1 minute, then slow down with the throttle completely closed for at least 5 seconds.
4. Check the primary HO2S (Sensor 1) output voltage with a scan tool or the HDS.

   Does the voltage stay at 0.6– 1.5 V?

   YES—Replace the primary HO2S (Sensor 1) (see page 11-114).■

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the primary HO2S (Sensor 1) and at the ECM.■

MIL Circuit Troubleshooting

1. Turn the ignition switch ON (II), and watch the malfunction indicator lamp (MIL).

   Does the MIL come on and stay on?

   YES—If the MIL always come on and stays on, go to step 20. But if the MIL sometimes works normally, first check for these problems.■

   - An intermittent short in the wire between the ECM (A10) and the data link connector (DLC).
   - An intermittent short in the wire between the ECM (A18) and the gauge assembly.

   NO—If the MIL is always off, go to step 2. But if the MIL sometimes works normally, first check for these problems.■

   - A loose No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) fuse in the under-dash fuse/relay box.
   - A loose No. 46 ACG S (15 A) fuse in the main under-hood fuse/relay box.
   - A loose No. 2 FUEL PUMP SRS (15 A) fuse in the under-dash fuse/relay box.
   - A poor connection at ECM terminal A18.
   - An intermittent open in the GRN/ORN wire between the ECM (A18) and the gauge assembly.
   - An intermittent short in the wire between the ECM (C19) and the manifold absolute pressure (MAP) sensor.
   - An intermittent short in the wire between the ECM (C28) and throttle position (TP) sensor, vehicle speed sensor (VSS), air pump electric current sensor, or fuel tank pressure (FTP) sensor.
   - Faulty PGM-FI main relay.

2. Turn the ignition switch OFF, and then ON (II) again.

   Is the low oil pressure indicator on?

   YES—Go to step 3.

   NO—Check for these problems.■

   - A blown No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) fuse in the under-dash fuse/relay box.
   - A short or open in the wire between the No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) fuse and the gauge assembly.

3. Try to start the engine.

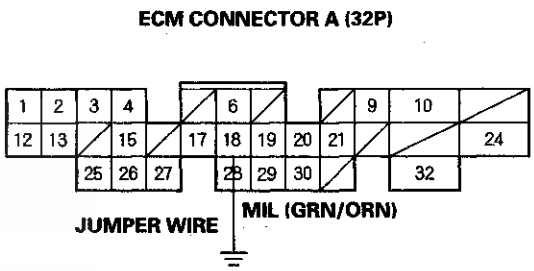
   Does the engine start?

   YES—Go to step 4.

   NO—Go to step 7.

4. Turn the ignition switch OFF.

5. Connect ECM connector terminal A18 to body ground with a jumper wire.



Wire side of female terminals

6. Turn the ignition switch ON (II).

   Is the MIL on?

   YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

   NO—Check for an open in the wires between the ECM (A18) and the gauge assembly. Also check for a blown MIL bulb.■

7. Turn the ignition switch OFF.

8. Inspect the ACG S (15 A) fuse in the main under-hood fuse/relay box.

   Is the fuse OK?

   YES—Go to step 9.

   NO—Check for these problems. ■

   - A short in the wire between the No. 46 ACG S (15 A) fuse and the PGM-FI main relay.
   - A short in the wire between the PGM-FI main relay and the ECM, injectors, or IAC valve.

9. Inspect the No. 2 FUEL PUMP SRS (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 10.

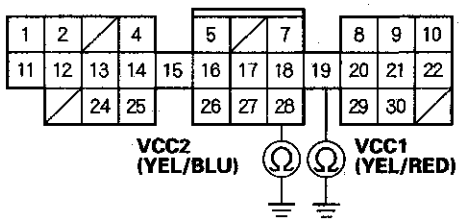
   NO—Check for these problems. ■

   - A short in the wire between the No. 2 FUEL PUMP SRS (15 A) fuse and the PGM-FI main relay or the SRS unit.
   - A short in the wire between the PGM-FI main relay and the fuel pump.
   - A faulty PGM-FI main relay or faulty fuel pump.

10. Disconnect ECM connector C (31P).

11. Check for continuity between body ground and ECM connector terminals C19 and C28 individually.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Go to step 13.

12. Disconnect the 3P connector from each of these sensors, one at a time, and check for continuity between body ground and ECM connector terminals C19 and C28 individually.

    - Manifold absolute pressure (MAP) sensor
    - Vehicle speed sensor (VSS)
    - Fuel tank pressure (FTP) sensor
    - Throttle position (TP) sensor
    - Air pump electrical current sensor

    Is there continuity?

    YES—Repair short to body ground in the wire between the ECM (C19) and the MAP sensor, or the ECM (C28) and the TP sensor, the VSS, the FTP sensor, or air pump electrical current sensor. ■

    NO—Replace the sensor that made continuity to body ground go away when disconnected. ■

13. Disconnect the injectors and IAC valve connectors.

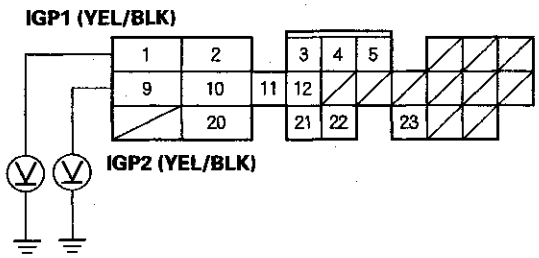
(cont'd)

MIL Circuit Troubleshooting (cont'd)

14. Turn the ignition switch ON (II).

15. Measure voltage between body ground and ECM connector terminals B1 and B9 individually.

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

NO—Check for these problems. ■

- An open in the wire(s) between the PGM-FI main relay and ECM connector terminals B1 and B9.
- Poor connections at the PGM-FI main relay.
- A faulty PGM-FI main relay (see page 11-142). Repair or replace parts as needed.

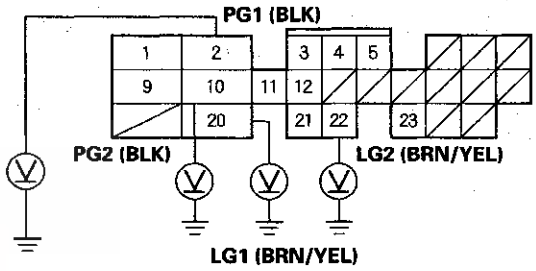
16. Turn the ignition switch OFF.

17. Reconnect the connectors to the sensors, then reconnect ECM connector C (31P).

18. Turn the ignition switch ON (II).

19. Measure voltage between body ground and ECM connector terminals B2, B10, B20, and B22 individually.

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there less than 1.0 V?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair open in the wire(s) that had more than 1.0 V between G101 and the ECM (B2, B10, B20, B22). ■

20. Turn the ignition switch OFF.

21. Connect a scan tool or the HDS.

22. Turn the ignition switch ON (II).

23. Check for Temporary DTCs or DTCs with a scan tool or the HDS.

Are any Temporary DTCs or DTCs indicated?

YES—Go to the indicated DTC's troubleshooting. ■

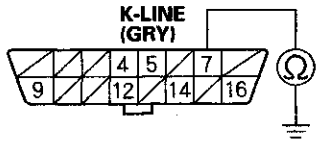
NO—Go to step 24.

24. Turn the ignition switch OFF.

25. Disconnect ECM connector A (32P).

26. Check for continuity between body ground and data link connector (DLC) (16P) terminal No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there continuity?

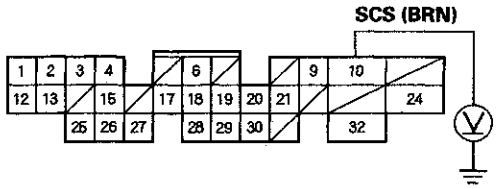
YES—Repair short in the wire between the DLC and the ECM (A21). ■

NO—Go to step 27.

27. Turn the ignition switch ON (II).

28. Measure voltage between ECM connector terminal A10 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there about 5 V?

YES—Go to step 29.

NO—Repair short in the wire between the DLC and the ECM (A10). ■

29. Turn the ignition switch OFF.

30. Disconnect ECM connector A (32P).

31. Turn the ignition switch ON (II).

Is the MIL on?

YES—Repair short in the wire between the gauge assembly and the ECM (A18). ■

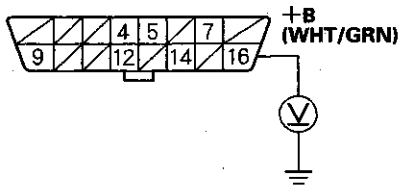
NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

DLC Circuit Troubleshooting

If the ECM does not communicate with a scan tool, the HDS, or I/M test equipment, do this troubleshooting procedure.

1. Measure voltage between DLC terminal No. 16 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

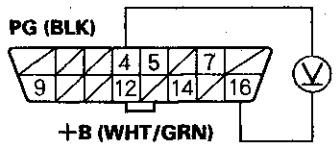
Is there battery voltage?

YES—Go to step 2.

NO—Repair open in the wire between DLC terminal No. 8 and the ACGS (15 A) fuse in the under-hood fuse/relay box.■

2. Measure voltage between DLC terminals No. 4 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

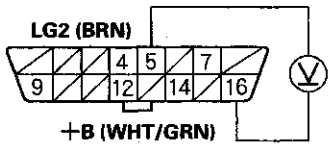
Is there battery voltage?

YES—Go to step 3.

NO—Repair open in the wire between DLC terminal No. 8 and body ground (G401).■

3. Measure voltage between DLC terminals No. 5 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there battery voltage?

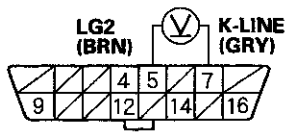
YES—Go to step 4.

NO—Repair open in the wire between DLC terminal No. 8 and body ground (G101).■

4. Turn the ignition switch ON (II).

5. Measure voltage between DLC terminals No. 5 and No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there 8.5 V or more?

YES—Go to step 10.

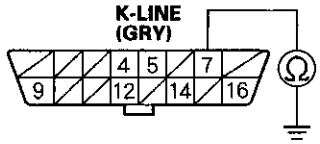
NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Disconnect ECM connector A (32P). Make sure the scan tool or the HDS is disconnected from the DLC.

8. Check for continuity between DLC terminal No. 7 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

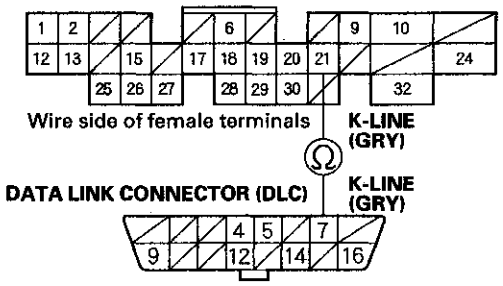
Is there continuity?

YES—Repair short to ground in the wire between DLC terminal No. 15 and the ECM (A21). After repairing the wire, check the DTC with a scan tool or the HDS, and go to the indicated DTC's troubleshooting. ■

NO—Go to step 9.

9. Check for continuity between DLC terminal No. 7 and ECM terminal A21.

ECM CONNECTOR A (32P)



Terminal side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair open in the wire between DLC terminal No. 7 and the ECM (A21). After repairing the wire, check the DTC with a scan tool or the HDS, and go to the indicated DTC's troubleshooting. ■

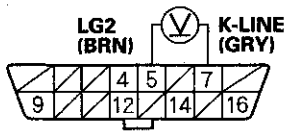
10. Turn the ignition switch OFF.

11. Disconnect ECM connector A (32P). Make sure a scan tool or the HDS is disconnected from the DLC.

12. Turn the ignition switch ON (II).

13. Measure voltage between DLC terminals No. 5 and No. 7.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

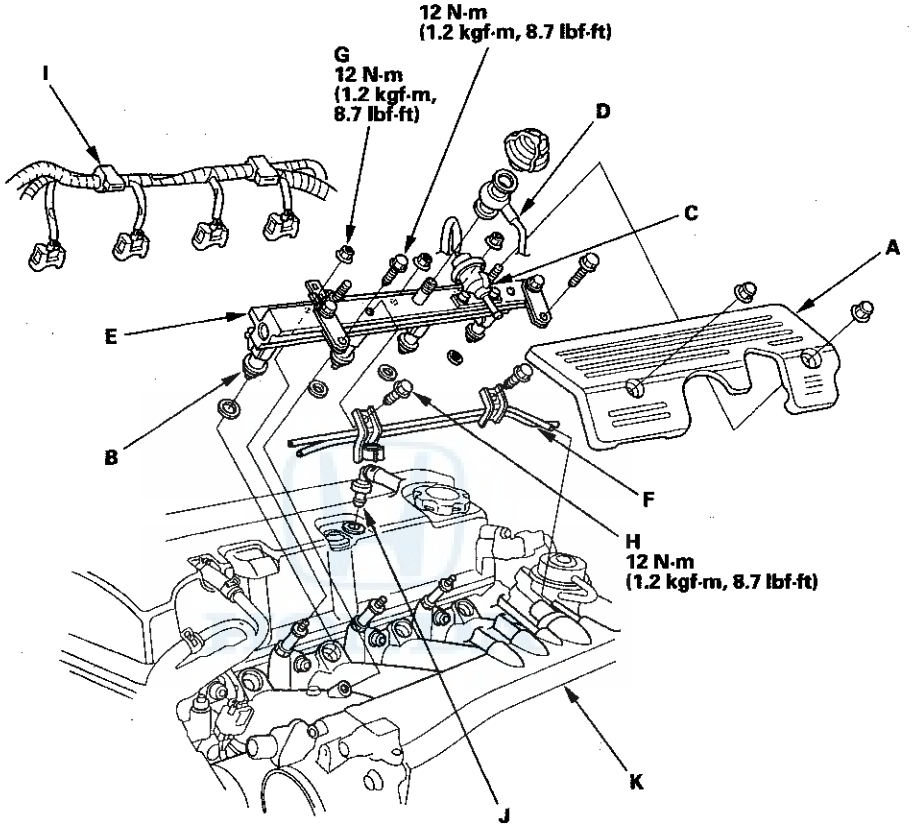
Is there 0 V?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair short to power in the wire between the DLC terminal No. 7 and the ECM (A21). After repairing the wire, check the DTC with a scan tool or the HDS, and go to the indicated DTC's troubleshooting. ■

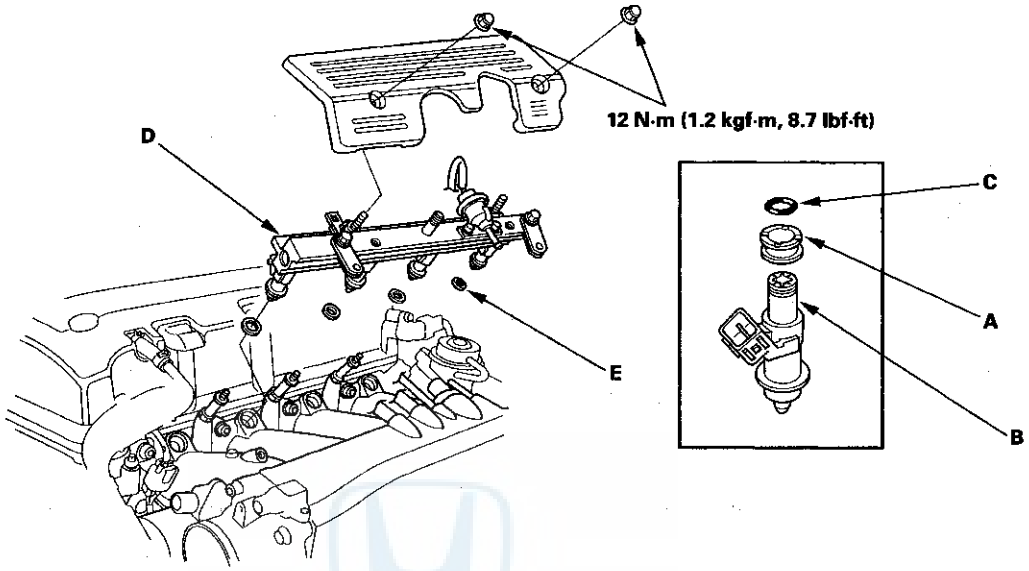
Injector Replacement

1. Relieve the fuel pressure (see page 11-145).
2. Remove the fuel rail cover (A), then disconnect the connectors from the injectors (B).



3. Disconnect the vacuum hose and fuel return hose from the fuel pressure regulator (C). Place a rag or shop towel over the hoses before disconnecting them.
4. Disconnect the fuel hose (D) from the fuel rail (E). Remove the vacuum lines (F).
5. Remove the retainer nuts (G) and bolts (H) from the fuel rail and harness holder (I).
6. Disconnect the PCV valve (J).
7. Disconnect the fuel rail.
8. Remove the injectors from the intake manifold (K).

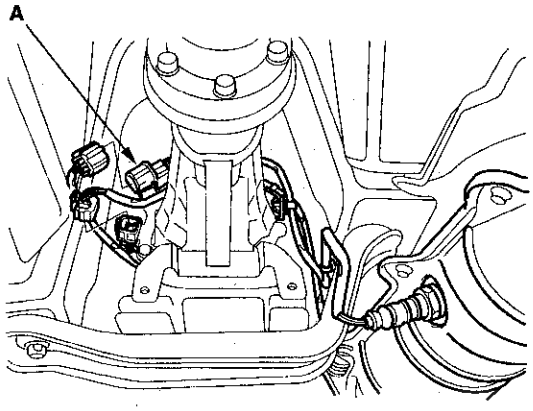
9. Slide new cushion rings (A) onto the injectors (B).



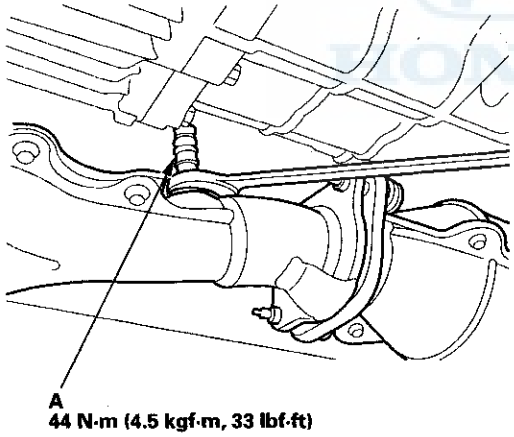
10. Coat new O-rings (C) with clean engine oil, and put them on the injectors.
11. Insert the injectors into the fuel rail (D).
12. Coat new seal rings (E) with clean engine oil, and press them into the intake manifold.
13. Install the injectors in the intake manifold.
14. Install and tighten the retainer nuts.
15. Connect the fuel hose to the fuel rail with new washers.
16. Connect the vacuum hoses and fuel return hose to the fuel pressure regulator.
17. Connect the PCV valve.
18. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this 2 or 3 times, then check for fuel leakage.

Primary HO2S Replacement

1. Disconnect primary HO2S (Sensor 1) 4P connector (A).



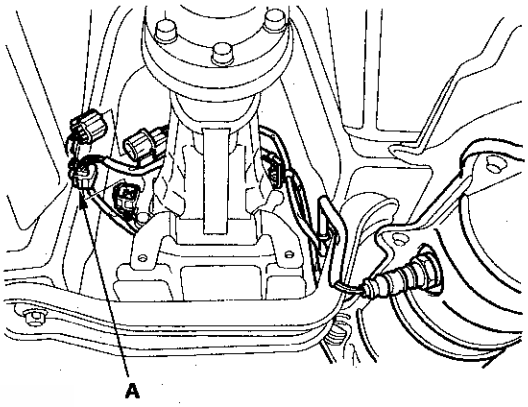
2. Remove the primary HO2S (Sensor 1) (A).



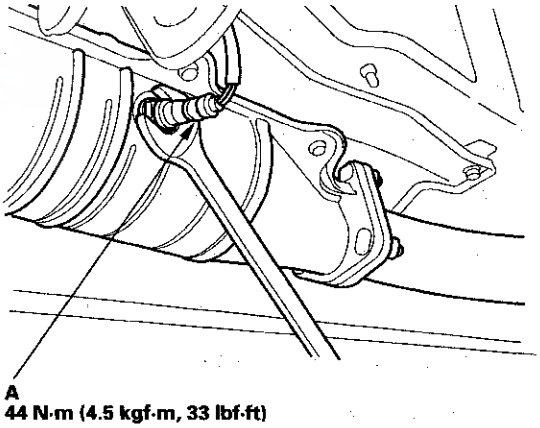
3. Install the parts in the reverse order of removal.

Secondary HO2S Replacement

1. Disconnect secondary HO2S (Sensor 2) 4P connector (A).



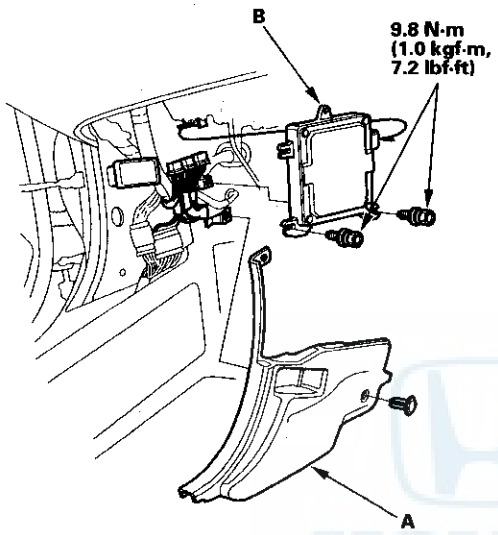
2. Remove the secondary HO2S (Sensor 2) (A).



3. Install the parts in the reverse order of removal.

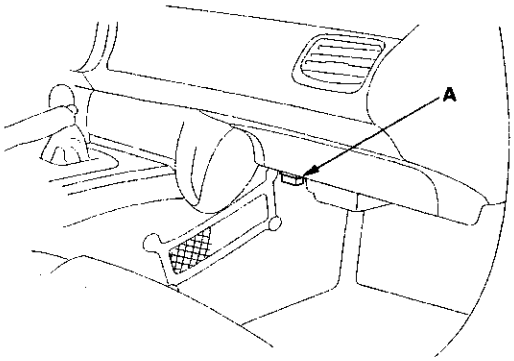
ECM Replacement

1. Turn the ignition switch OFF.
2. Disconnect the negative cable from the battery.
3. Remove the left side kick panel (A) to expose the ECM (B).

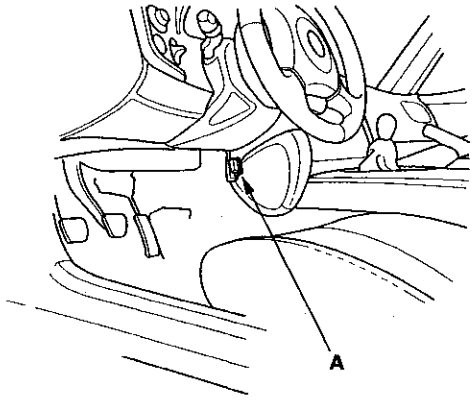


4. Remove the two bolts from the ECM.
5. Disconnect the ECM connectors.
6. Install the ECM in the reverse order of removal.
7. Connect the HDS to the DLC (A) located under the passenger's side of dashboard ('00-01 models) or behind the driver's side of the front console ('02-05 models).

'00-01 models



'02-05 models

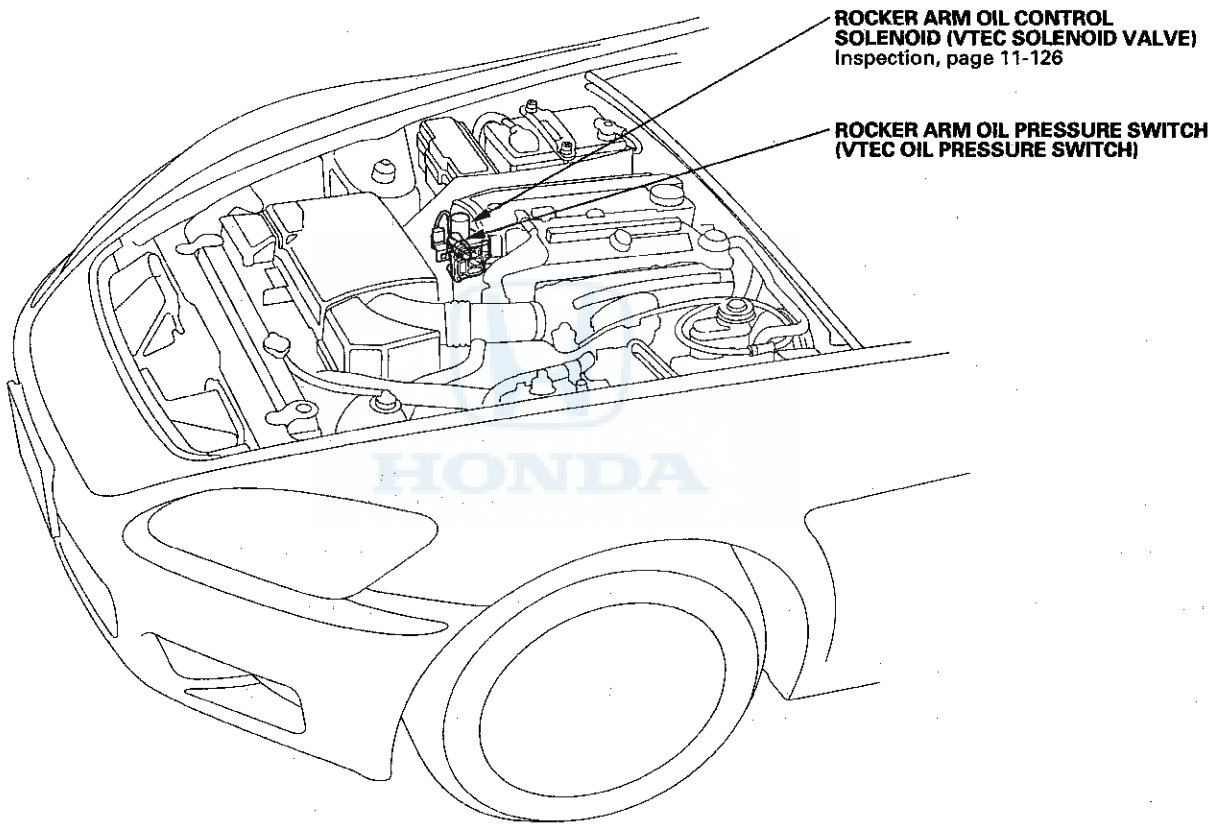


8. Turn the ignition switch ON (II).

   NOTE: If DTC P0630 "VIN Not Programmed or Mismatch" is stored at this time, ignore it and continue this procedure ('04-05 models).

9. Input the VIN to the ECM with the HDS.
10. Rewrite the immobilizer code with the ECM replacement procedure in the HDS; it allows you to start the engine.
11. Reset the ECM with the HDS.
12. Do the ECM idle learn procedure (see page 11-140).

Component Location Index



DTC Troubleshooting

DTC P1259: VTEC System Malfunction ('00-03 models)

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose, adapter 07MAJ-PY40120

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

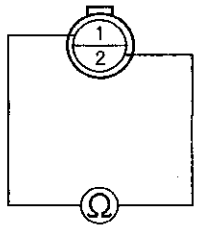
1. Reset the engine control module (ECM) (see page 11-4).
2. Check the engine oil level, and refill if necessary.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
4. Road test the vehicle:
   Accelerate in 1st gear to an engine speed over 6,000 rpm. Hold that engine speed for at least 2 seconds. If DTC P1259 is not repeated during the first road test, repeat this test two more times.

   Is DTC P1259 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose wires at the rocker arm oil control solenoid (VTEC solenoid valve), the rocker arm oil pressure switch (VTEC oil pressure switch), and the ECM.■
5. Turn the ignition switch OFF.
6. Disconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.
7. At the switch side, check for continuity on the rocker arm oil pressure switch (VTEC oil pressure switch) between rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Terminal side of male terminals

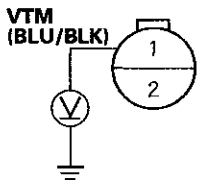
Is there continuity?

YES—Go to step 8.

NO—Replace the rocker arm oil pressure switch (VTEC oil pressure switch).■

8. Turn the ignition switch ON (II).
9. Measure the voltage between the rocker arm oil pressure switch (VTEC oil pressure switch) harness 2P connector terminal No. 1 and body ground.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 14.

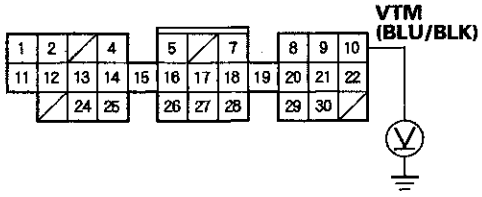
NO—Go to step 10.

(cont'd)

DTC Troubleshooting (cont'd)

10. Measure voltage between ECM connector terminal C10 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there battery voltage?

YES—Repair open in the wire between the rocker arm oil pressure switch (VTEC oil pressure switch) and the ECM. ■

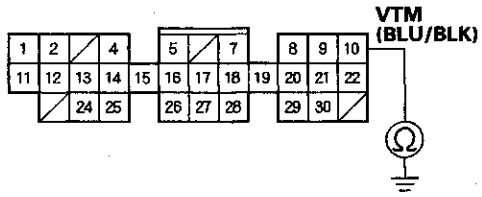
NO—Go to step 11.

11. Turn the ignition switch OFF.

12. Disconnect ECM connector C (31P).

13. Check for continuity between ECM connector terminal C10 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

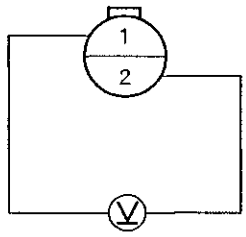
Is there continuity?

YES—Repair short in the wire between the rocker arm oil pressure switch (VTEC oil pressure switch) and the ECM (C9). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

14. Measure voltage between rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 15.

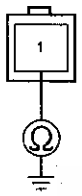
NO—Repair open in the wire between the rocker arm oil pressure switch (VTEC oil pressure switch) and G101. ■

15. Turn the ignition switch OFF.

16. Disconnect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector.

17. At the valve side, measure resistance between the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector and body ground.

ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) 1P CONNECTOR



Terminal side of male terminals

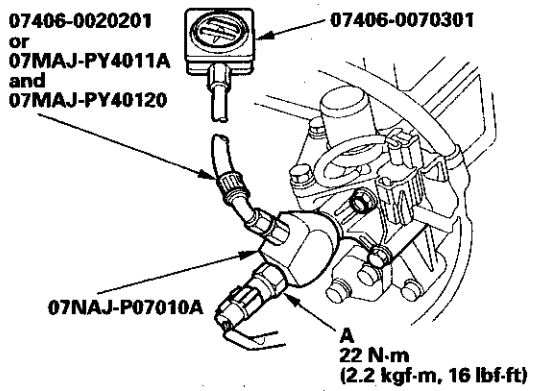
Is there 14–30 Ω ?

YES—Go to step 18.

NO—Replace the rocker arm oil control solenoid (VTEC solenoid valve).■

18. Remove the rocker arm oil pressure switch (VTEC oil pressure switch) (A) and install the special tools as shown, then reinstall the rocker arm oil pressure switch (VTEC oil pressure switch).

NOTE: Install the parts in the reverse order of removal with a new O-ring.



19. Reconnect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector and rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.

20. Connect a tachometer.

21. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.

22. Check the oil pressure at engine speeds of 1,000, 2,000 and 6,000 rpm. Keep measuring time as short as possible (less than 1 minute) because the engine is running without load.

Is the oil pressure below 49 kPa (0.5 kgf/cm², 7 psi)?

YES—Go to step 23.

NO—Inspect the rocker arm oil control solenoid (VTEC solenoid valve) (see page 11-126).■

23. Turn the ignition switch OFF.

24. Disconnect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector.

25. Attach the battery positive cable to the rocker arm oil control solenoid (VTEC solenoid valve) terminal.

26. Start the engine, and check the oil pressure at 6,000 rpm.

Is the oil pressure above 390 kPa (4.0 kgf/cm², 57 psi)?

YES—Go to step 27.

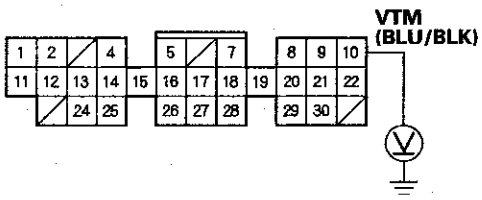
NO—Inspect the rocker arm oil control solenoid (VTEC solenoid valve) (see page 11-126).■

(cont'd)

DTC Troubleshooting (cont'd)

27. With the battery positive terminal still connected to the rocker arm oil control solenoid (VTEC solenoid valve), measure voltage between ECM connector terminal C10 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there battery voltage above 5,000 rpm?

YES—Go to step 28.

NO—Replace the rocker arm oil pressure switch (VTEC oil pressure switch). ■

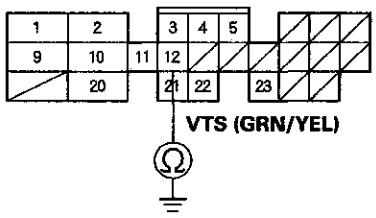
28. Turn the ignition switch OFF.

29. Disconnect the battery positive cable from the rocker arm oil control solenoid (VTEC solenoid valve) terminal.

30. Disconnect ECM connector B (25P).

31. Check for continuity between ECM connector terminal B12 and body ground.

ECM CONNECTOR B (25P)



Wire side of female terminals

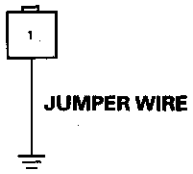
Is there continuity?

YES—Repair short in the wire between the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM (B12). ■

NO—Go to step 32.

32. Connect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector terminal body ground with a jumper wire.

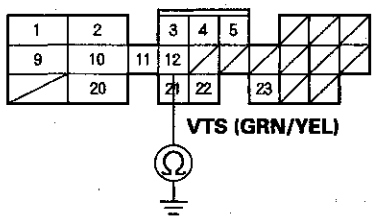
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) 1P CONNECTOR



Wire side of female terminals

33. Check for continuity between ECM connector terminal B12 and body ground.

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair a open in the wire between the ECM (B12) and the rocker arm oil control solenoid (VTEC solenoid valve). ■

DTC P2646: Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit Low Voltage ('04-05 models)

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose, adapter 07MAJ-PY40120

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch OFF.
2. Check the engine oil level.

   Is the engine oil level OK?

   YES—Go to step 3.

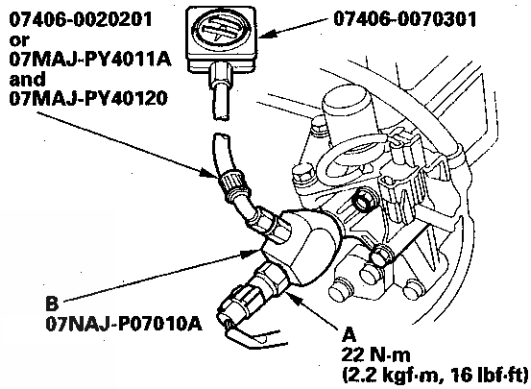
   NO—Adjust the engine oil to the proper level.■
3. Turn the ignition switch ON (II).
4. Reset the engine control module (ECM) (see page 11-4).
5. Start the engine. Hold the engine speed at 3,000 rpm without load until the radiator fan comes on, then let it idle.
6. Test-drive under following conditions: Accelerate in 1st gear to an engine speed over 6,000 rpm. Hold the speed for at least 2 seconds.
7. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P2646 indicated?

   YES—Go to step 8.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch), the rocker arm oil control solenoid (VTEC solenoid valve), and the ECM.■
8. Turn the ignition switch OFF.
9. Remove the rocker arm oil pressure switch (VTEC oil pressure switch) (A) and install the special tools as shown, then install the rocker arm oil pressure switch (VTEC oil pressure switch) (A) to the oil pressure gauge adapter (B).

   NOTE: Install the parts in the reverse or order of removal with a new O-ring.



10. Disconnect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector.
11. Start the engine. Hold the engine speed at 3,000 rpm without load until the radiator fan comes on, then let it idle.
12. Attach the battery positive terminal to the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector terminal.
13. Start the engine, and check the oil pressure at an engine speed of 3,000 rpm.

    Is the oil pressure above 390 kPa (4.0 kgf/cm², 57 psi)?

    YES—Go to step 15.

    NO—Go to step 14.

(cont'd)

DTC Troubleshooting (cont'd)

14. Check the engine oil pressure (see page 8-6).

    Is the engine oil pressure OK?

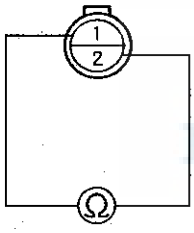
    YES—Replace the rocker arm oil control solenoid (VTEC solenoid valve) (see step 3 on page 11-126).

    NO—Repair the cause of the low oil pressure (see step 4 on page 8-6).

15. Disconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.

16. At the rocker arm oil pressure switch (VTEC oil pressure switch) side, check for continuity between rocker arm oil pressure switch (VTEC oil pressure switch) terminals No. 1 and No. 2 with the engine speed at 3,000 rpm.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Replace the rocker arm oil pressure switch (VTEC oil pressure switch) (see page 11-126).■

NO—Go to step 17.

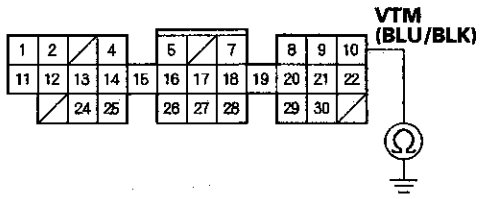
17. Turn the ignition switch OFF.

18. Disconnect the battery terminals from the rocker arm oil control solenoid (VTEC solenoid valve) terminal connector.

19. Disconnect ECM connector B (24P).

20. Check for continuity between ECM connector terminal C10 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

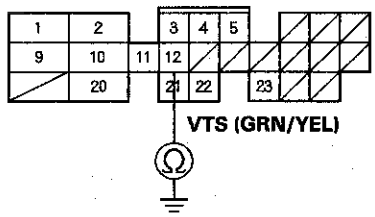
Is there continuity?

YES—Repair a short in the wire between the ECM (C10) and the rocker arm oil pressure switch (VTEC oil pressure switch).■

NO—Go to step 21.

21. Check for continuity between ECM connector terminal B12 and body ground.

ECM CONNECTOR B (25P)



Wire side of female terminals

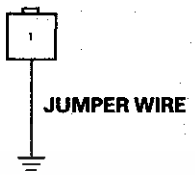
Is there continuity?

YES—Repair a short in the wire between the ECM (B12) and the rocker arm oil control solenoid (VTEC solenoid valve).■

NO—Go to step 22.

22. Connect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector terminal to body ground with a jumper wire.

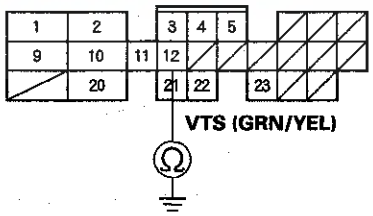
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) 1P CONNECTOR



Wire side of female terminals

23. Check for continuity between ECM connector terminal B12 and body ground.

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-115).■

NO—Repair an open in the wire between the ECM (B12) and the rocker arm oil control solenoid (VTEC solenoid valve).■

DTC Troubleshooting (cont'd)

DTC P2647: Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit High Voltage ('04-05 models)

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose, adapter 07MAJ-PY40120

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch OFF.
2. Check the engine oil level.

   Is the engine oil level OK?

   YES—Go to step 3.

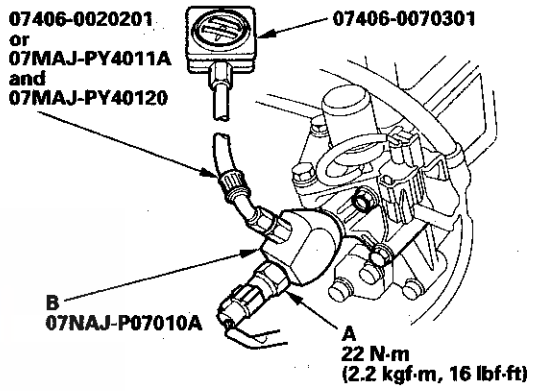
   NO—Adjust the engine oil to the proper level. ■
3. Turn the ignition switch ON (II).
4. Reset the engine control module (ECM) (see page 11-4).
5. Start the engine. Hold the engine speed at 3,000 rpm without load until radiator fan comes on, then let it idle.
6. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P2647 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch), the rocker arm oil control solenoid (VTEC solenoid valve), and the ECM. ■
7. Turn the ignition switch OFF.
8. Remove the rocker arm oil pressure switch (VTEC oil pressure switch) (A) and install the special tools as shown, then install the rocker arm oil pressure switch (VTEC oil pressure switch) to the oil pressure gauge adapter (B).

   NOTE: Install the parts in the reverse or order of removal with a new O-ring.



9. Start the engine. Hold the engine speed at 3,000 rpm without load until the radiator fan comes on, then let it idle.
10. Check the oil pressure at engine speeds of 1,000 and 2,000 rpm. Keep the measuring time as short as possible (less than 1 minute) because the engine is running without load.

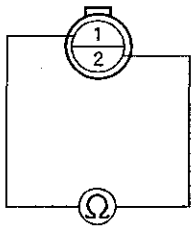
    Is the oil pressure below 49 kPa (0.5 kgf/cm², 7 psi)?

    YES—Go to step 11.

    NO—Inspect the rocker arm oil control solenoid (VTEC solenoid valve) (see page 11-126). ■
11. Turn the ignition switch OFF.
12. Disconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.

13. At the rocker arm oil pressure switch (VTEC oil pressure switch) side, check for continuity between rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Terminal side of male terminals

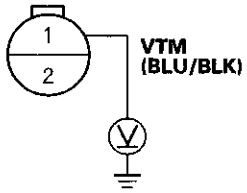
Is there continuity?

YES—Go to step 14.

NO—Replace the rocker arm oil pressure switch (VTEC oil pressure switch) (see page 11-126).■

14. Measure voltage between rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector terminal No. 1 and body ground.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Wire side of female terminals

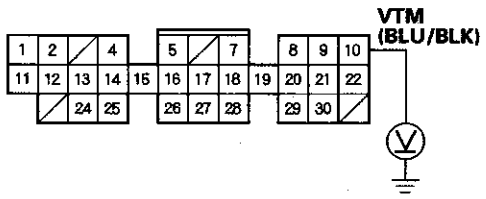
Is there battery voltage?

YES—Repair an open in the wire between the rocker arm oil pressure switch (VTEC oil pressure switch) and G101.■

NO—Go to step 15.

15. Measure voltage between ECM connector terminal C10 and body ground.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there battery voltage?

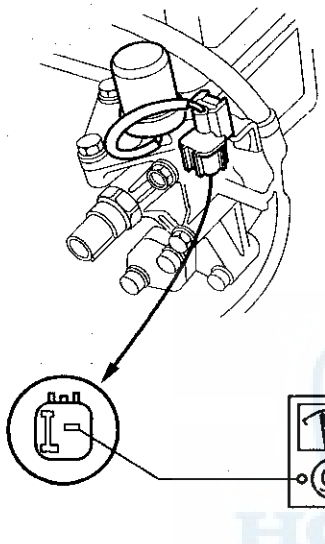
YES—Repair an open in the wire between the ECM (C10) and the rocker arm oil pressure switch (VTEC oil pressure switch).■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-115).■

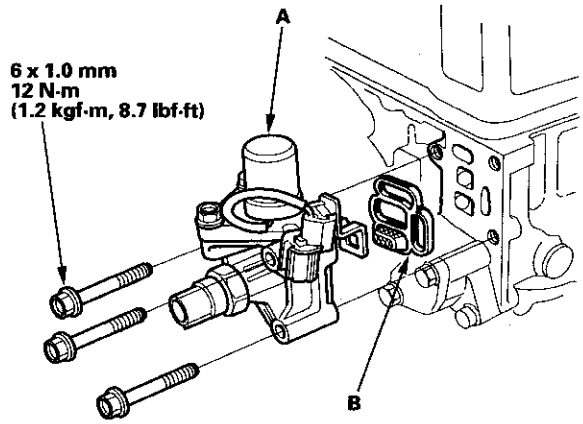
Rocker Arm Oil Control Solenoid (VTEC Solenoid Valve) Inspection

1. Disconnect the 1P connector from the rocker arm oil control solenoid (VTEC solenoid valve).
2. Measure resistance between the terminal and body ground.

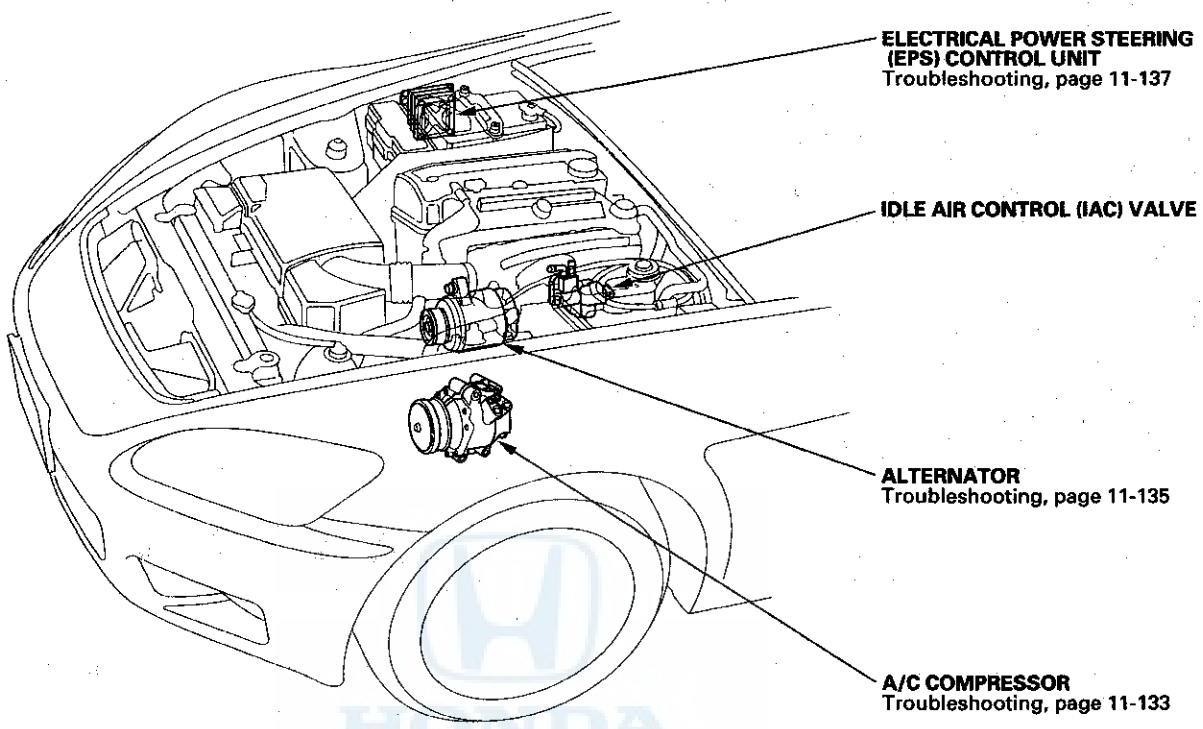
   Resistance: 14—30 Ω

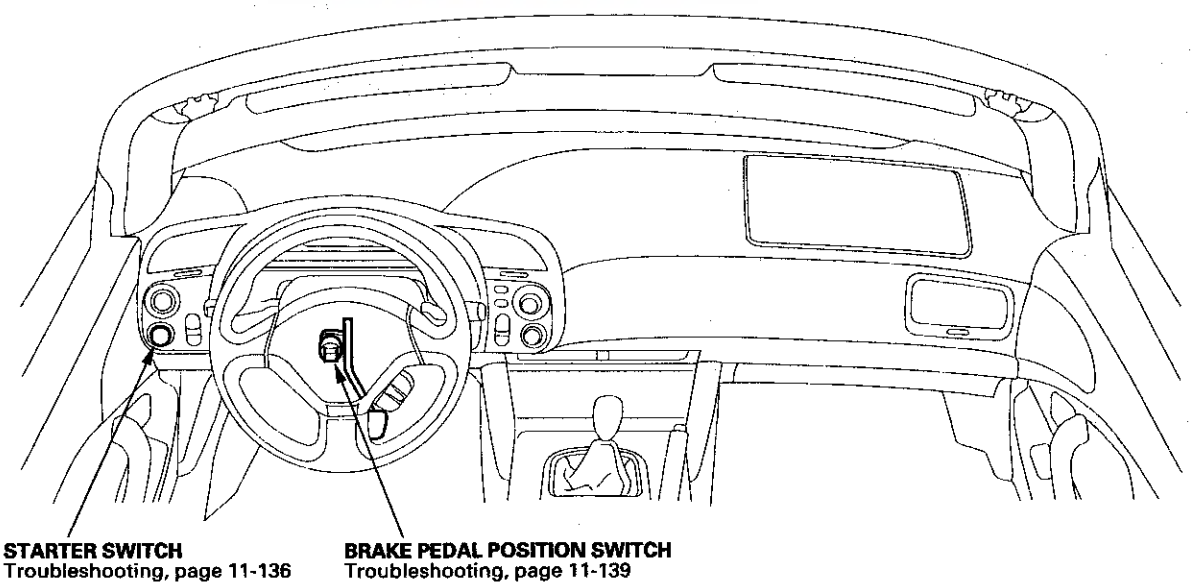


3. If the resistance is within specifications, remove the rocker arm oil control valve (VTEC solenoid valve) (A) from the cylinder head, and check the rocker arm oil control valve (VTEC solenoid valve) filter (B) for clogging. If there is clogging, replace the engine oil filter, the rocker arm oil control valve (VTEC solenoid valve) filter, and the engine oil.
   If the filter is not clogged, replace the rocker arm oil control valve (VTEC solenoid valve).



Component Location Index





DTC Troubleshooting

DTC P0505: Idle Control System Malfunction ('00-03 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If DTC P1519 is stored at the same time as DTC P0505, troubleshooting DTC P1519 first, then recheck for DTC P0505.

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

2. Check the engine speed at idle without load conditions: headlights, blower fan, radiator fan, and air conditioner off.

   Is the idle speed 800± 50 rpm?

   YES—Intermittent failure, the system is OK at this time.■

   NO—If the idle speed is less than 750 rpm, go to step 3; if it is 850 rpm or higher, go to step 4.

3. Disconnect the idle air control (IAC) valve 3P connector.

   Dose the engine speed increase or fluctuate?

   YES—Check the idle speed with a different load condition (electrical, A/C, etc.). If it is out of specification, replace the IAC valve (see page 9-2). ■

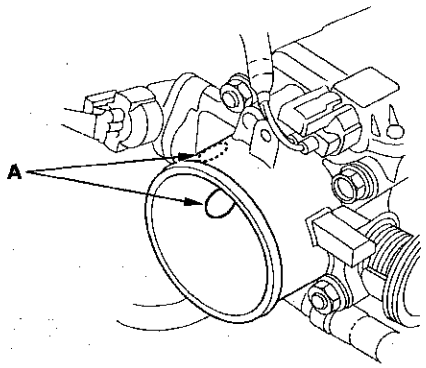
   NO—Replace the IAC valve (see page 9-2).■

4. Turn the ignition switch OFF.

5. Remove the intake air duct from the throttle body.

6. Start the engine, and let it idle.

7. Put your fingers on the upper and lower ports (A) in the throttle body.



Does the engine speed drop below 750 rpm?

YES—Check the idle speed with a different load condition (electrical, A/C, etc.). If it is out of specification, replace the IAC valve (see page 9-2). ■

NO—Check for vacuum leaks at these parts.■

- PCV valve
- PCV hose
- EVAP canister purge valve
- Intake manifold
- Throttle body
- Brake booster hose

DTC P0506: Idle Control System RPM Lower Than Expected ('04-05 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If DTC P0511 is stored at the same time as DTC P0506, troubleshoot DTC P0511 first, then recheck for DTC P0506.

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

2. Check the engine speed at idle without load conditions; headlights, blower fan, radiator fan, and air conditioner off.

   Is the idle speed 800± 50 rpm?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Go to step 3.

3. Turn the ignition switch OFF.

4. Disconnect the IAC valve 3P connector.

5. Start the engine, and let it idle.

6. Check the engine speed at idle without load conditions; headlights, blower fan, radiator fan, and air conditioner off.

   Does the idle speed increase or fluctuate?

   YES—Check the idle speed with a different load condition (electrical, A/C, etc.). If it is out of specification, replace the IAC valve (see page 9-2). ■

   NO—Replace the IAC valve (see page 9-2).■

DTC Troubleshooting (cont'd)

DTC P0507: Idle Control System RPM Higher Than Expected
('04-05 models)

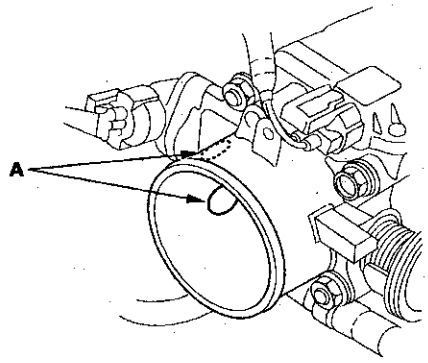
NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If DTC P0511 is stored at the same time as DTC P0507, troubleshooting DTC P0511 first, then recheck for DTC P0507.

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
2. Check the engine speed at idle without load conditions: headlights, blower fan, radiator fan, and air conditioner off.

   Is the idle speed 800±50 rpm?

   YES—Intermittent failure, the system is OK at this time.■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Remove the intake air duct from the throttle body.
5. Start the engine, and let it idle.
6. Put your fingers on the upper and lower ports (A) in the throttle body.



Does the idle speed drop below 850 rpm?

YES—Check the idle speed with a different load condition (electrical, A/C, etc.). If it is out of specification, replace the IAC valve (see page 9-2). ■

NO—Check for vacuum leaks at these parts.■

- PCV valve
- PCV hose
- EVAP canister purge valve
- Intake manifold
- Throttle body
- Brake booster hose

DTC P0511: IAC Valve Circuit Malfunction ('04-05 models)

DTC P1519: IAC Valve Circuit Malfunction ('00-03 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '04-05 models.
- Information marked with double asterisk (**) applies to '00-03 models.

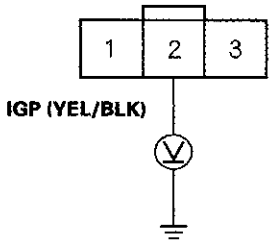
1. Reset the ECM (see page 11-4).
2. Turn the ignition switch ON (II).
3. Check for Temporary DTC or DTC with a scan tool or the HDS.

   Is DTC P0511 (P1519)** indicated?*

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAC valve and at the ECM.■
4. Turn the ignition switch OFF.
5. Disconnect the IAC valve 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between IAC valve 3P connector terminal No. 2 and body ground.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

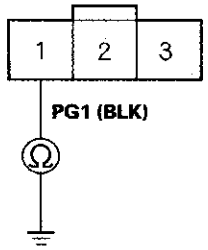
Is there battery voltage?

YES—Go to step 8.

NO—Repair open in the wire between the IAC valve and the PGM-FI main relay.■

8. Turn the ignition switch OFF.
9. Check for continuity between body ground and IAC valve 3P connector terminal No. 1.

IAC VALVE 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the IAC valve and G101.■

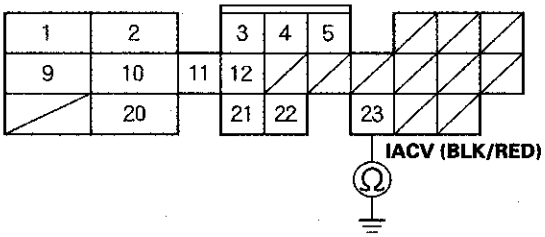
(cont'd)

DTC Troubleshooting (cont'd)

10. Disconnect ECM connector B (25P).

11. Check for continuity between body ground and ECM connector terminal B23.

ECM CONNECTOR B (25P)



Wire side of female terminals

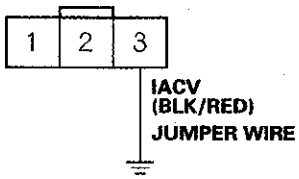
Is there continuity?

YES—Repair short in the wire between the IAC valve and the ECM (B23). ■

NO—Go to step 12.

12. Connect IAC valve 3P connector terminal No. 3 and body ground with a jumper wire.

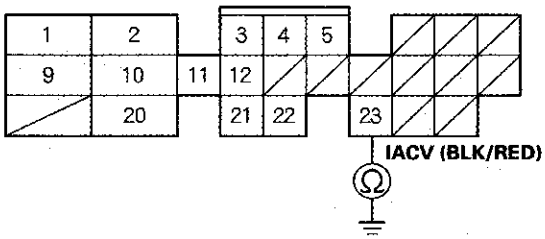
IAC VALVE 3P CONNECTOR



Wire side of female terminals

13. Check for continuity between ECM connector terminal B23 and body ground.

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there continuity?

YES—Go to step 14.

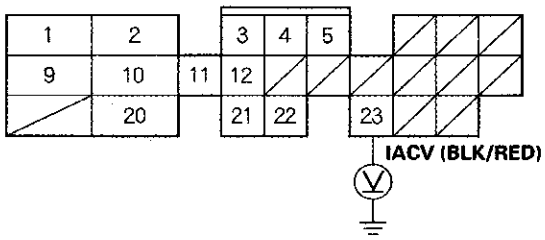
NO—Repair open in the wire between the IAC valve and the ECM (B23). ■

14. Remove the jumper wire from the IAC valve 3P connector, then reconnect the IAC valve 3P connector.

15. Turn the ignition switch ON (II).

16. Measure voltage between body ground and ECM connector terminal B23.

ECM CONNECTOR B (25P)



Wire side of female terminals

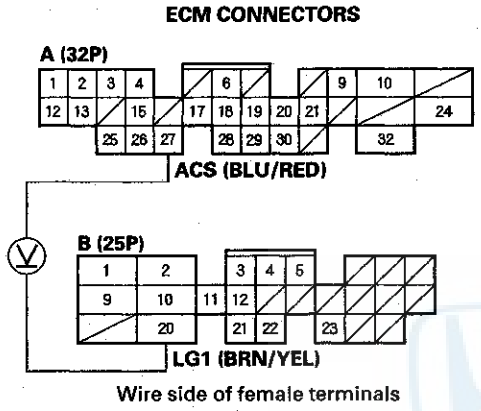
Is there battery voltage?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Replace the IAC valve (see page 9-2). ■

A/C Signal Circuit Troubleshooting

1. Turn the ignition switch OFF.
2. Disconnect the A/C pressure switch connector.
3. Turn the ignition switch ON (II).
4. Measure voltage between ECM connector terminals A27 and B20.



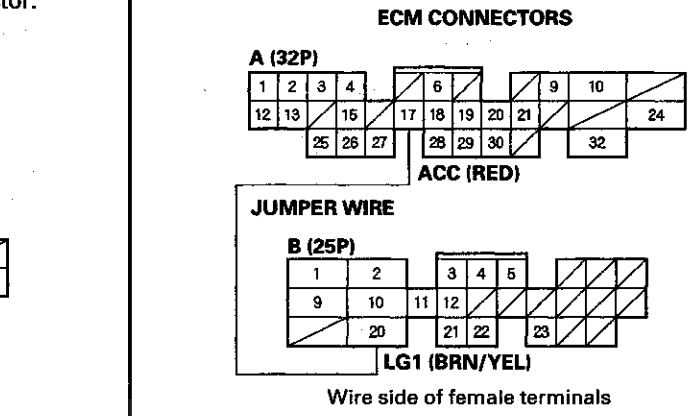
Wire side of female terminals

Is there about 5 V?

YES—Go to step 5.

NO—Go to step 12.

5. Turn the ignition switch OFF.
6. Reconnect the A/C pressure switch connector.
7. Turn the ignition switch ON (II).
8. Momentarily connect ECM connector terminals A17 and B20 with a jumper wire several times.



Wire side of female terminals

Is there a clicking noise from the A/C compressor clutch?

YES—Go to step 9.

NO—Go to step 15.

9. Start the engine.
10. Turn the blower switch ON.
11. Turn the A/C switch ON.

Does the A/C operate?

YES—The air conditioning signal is OK.■

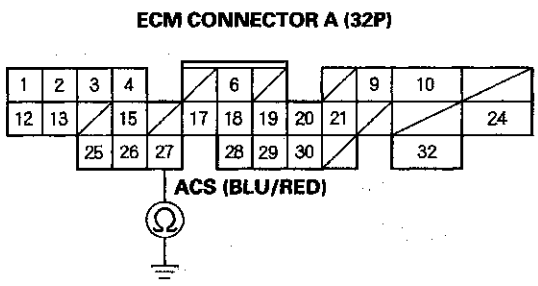
NO—Go to step 16.

12. Turn the ignition switch OFF.
13. Disconnect ECM connector A (32P).

(cont'd)

A/C Signal Circuit Troubleshooting (cont'd)

14. Check for continuity between body ground and ECM connector terminal A27.



Wire side of female terminals

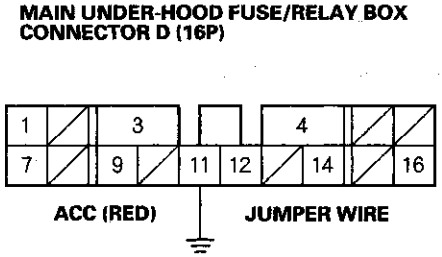
Is there continuity?

YES—Repair short in the wire between the ECM (A27) and the A/C pressure switch. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If voltage is now normal, replace the original ECM (see page 11-115). If not, check the A/C system for other symptoms. ■

15. Momentarily connect main under-hood fuse/relay box 16P connector terminal No. 11 to body ground with a jumper wire several times.

NOTE: The main under-hood fuse/relay box 14P connector is on the bottom of the fuse box. When you unbolt and invert the fuse box, leave the upper cover on it to prevent short circuits.



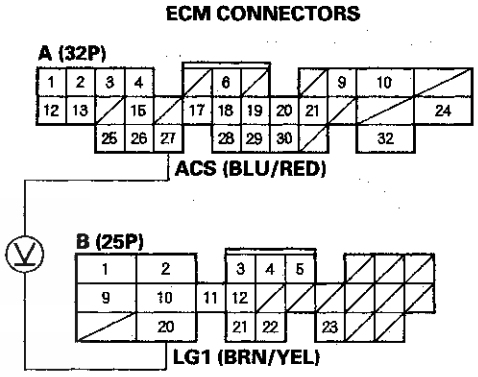
Wire side of female terminals

Is there a clicking noise from the A/C compressor clutch?

YES—Repair open in the wire between the ECM (A17) and the A/C clutch relay. ■

NO—Check the A/C system for other symptoms. ■

16. Measure voltage between ECM connector terminals A27 and B20.



Wire side of female terminals

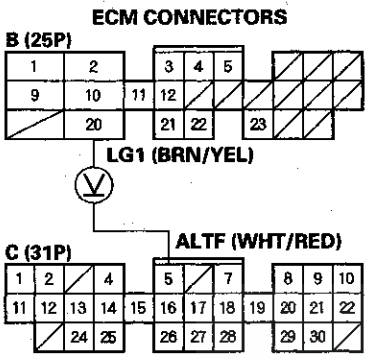
Is there less than 1.0 V?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). If not, inspect the A/C system for other symptoms. ■

NO—Repair open in the wire between the ECM (A27) and the A/C pressure switch, or between the A/C pressure switch and the heater control panel. ■

Alternator FR Signal Circuit Troubleshooting

1. Disconnect alternator 4P connector.
2. Turn the ignition switch ON (II).
3. Measure voltage between ECM connector terminals B20 and C5.



Wire side of female terminals

Is there about 5 V?

YES—Go to step 4.

NO—Go to step 13.

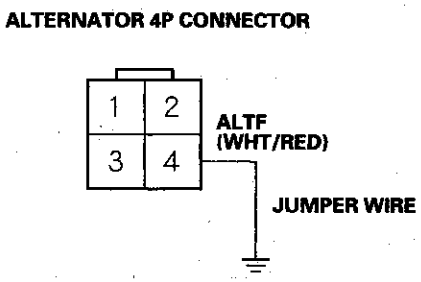
4. Turn the ignition switch OFF.
5. Reconnect the alternator 4P connector.
6. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
7. Measure voltage between ECM connector terminals B20 and C5.

Does the voltage decrease when the headlights and rear window defogger are turned on?

YES—The alternator FR signal is OK.■

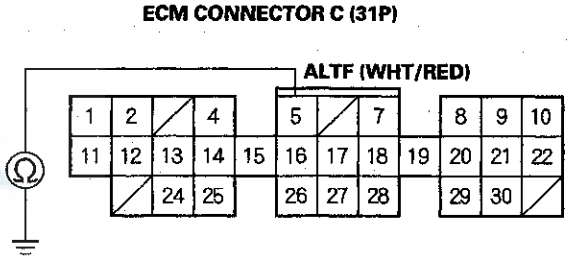
NO—Go to step 8.

8. Turn the ignition switch OFF.
9. Disconnect ECM connector C (31P).
10. Disconnect the alternator 4P connector.
11. Connect alternator 4P connector terminal No. 4 to body ground with a jumper wire.



Wire side of female terminals

12. Check for continuity between body ground and ECM connector terminal C5.



Wire side of female terminals

Is there continuity?

YES—Test the alternator (see page 4-38).■

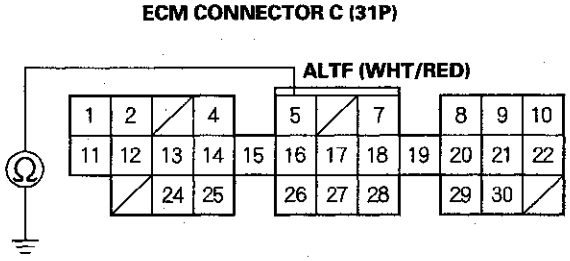
NO—Repair open in the wire between the ECM (C5) and the alternator.■

13. Turn the ignition switch OFF.
14. Disconnect ECM connector C (31P).

(cont'd)

Alternator FR Signal Circuit Troubleshooting (cont'd)

15. Check for continuity between body ground and ECM connector terminal C5.



Is there continuity?

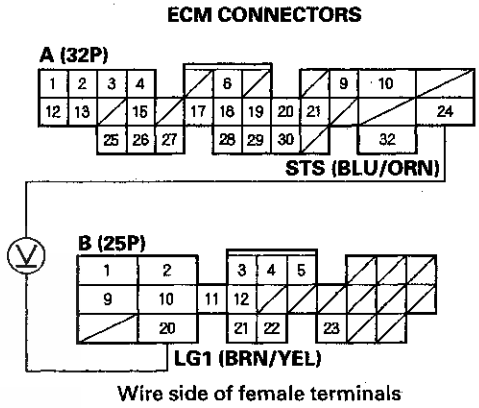
YES—Repair short in the wire between the ECM (C5) and the alternator. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the prescribed voltage is now normal, replace the original ECM (see page 11-115). ■

Starter Switch Signal Circuit Troubleshooting

NOTE: The clutch pedal must be pressed.

1. Measure voltage between ECM connector terminals A24 and B20 with the ignition switch in the ON (II) position and the engine start button pressed.



Is there battery voltage?

YES—The starter switch signal is OK. ■

NO—Go to step 2.

2. Inspect the No. 21 STARTER SIGNAL (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse OK ?

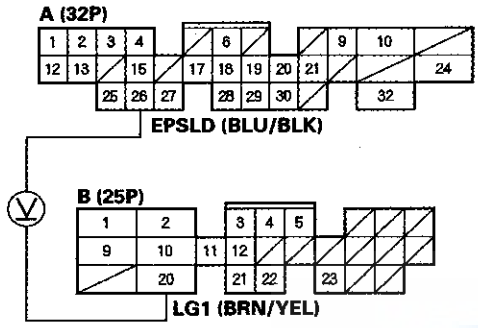
YES—Repair open in the wire between the ECM (A24) and the No. 21 STARTER SIGNAL (7.5 A) fuse. ■

NO—Repair short in the wire between the ECM (A24) and the No. 21 STARTER SIGNAL (7.5 A) fuse or the PGM-FI main relay. Replace the No. 21 STARTER SIGNAL (7.5 A) fuse. ■

Electrical Power Steering (EPS) Signal Circuit Troubleshooting

1. Turn the ignition switch ON (II).
2. Measure voltage between ECM connector terminals A26 and B20.

ECM CONNECTORS



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Go to step 3.

3. Start the engine.
4. Turn the steering wheel to the full lock position.
5. Measure voltage between ECM connector terminals A26 and B20.

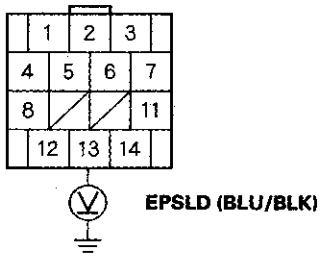
Is there battery voltage briefly?

YES—The EPS signal is OK. ■

NO—Go to step 10.

6. Turn the ignition switch OFF.
7. Disconnect the EPS control unit 14P connector.
8. Turn the ignition switch ON (II).
9. Measure voltage between EPS control unit 14P connector terminal No. 13 and body ground.

EPS CONTROL UNIT 14P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good EPS control unit, then recheck. ■

NO—Repair open in the wire between the ECM (A26) and the EPS control unit. ■

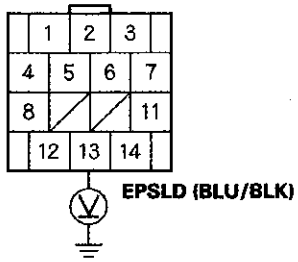
10. Turn the ignition switch OFF.
11. Disconnect the EPS control unit 14P connector.
12. Turn the ignition switch ON (II).

(cont'd)

Electrical Power Steering (EPS) Signal Circuit Troubleshooting (cont'd)

13. Measure voltage between EPS control unit 14P connector terminal No. 13 and body ground.

EPS CONTROL UNIT 14P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good EPS control unit, then recheck. ■

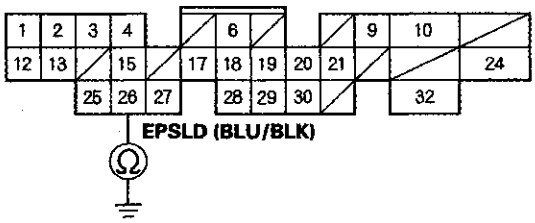
NO—Go to step 14.

14. Turn the ignition switch OFF.

15. Disconnect ECM connector A (32P).

16. Check for continuity between body ground and ECM connector terminal A26.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A26) and the EPS control unit. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the voltage is now normal, replace the original ECM (see page 11-115). ■

Brake Pedal Position Switch Signal Circuit Troubleshooting

1. Check the brake lights.

   Are the brake lights on without pressing the brake pedal?

   YES—Inspect the brake pedal position switch adjustment (see page 19-6). ■

   NO—Go to step 2.

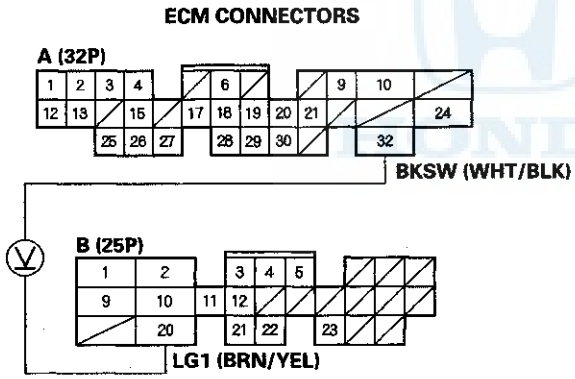
2. Press the brake pedal.

   Do the brake lights come on?

   YES—Go to step 3.

   NO—Go to step 4.

3. Measure voltage between ECM connector terminals A32 and B20 with the brake pedal pressed.



Wire side of female terminals

   Is there battery voltage?

   YES—The brake pedal position switch signal is OK. ■

   NO—Repair open in the wire between the ECM (A32) and the brake pedal position switch. ■

4. Inspect the No. 47 STOP ('00-01 models: 10 A, '02-05 models: 15 A) fuse in the main under-hood fuse/relay box.

   Is the fuse OK?

   YES—Repair open in the wire between the brake pedal position switch and the No. 47 STOP ('00-01 models: 10 A, '02-05 models: 15 A) fuse. Inspect the brake pedal position switch (see page 22-144). ■

   NO—Repair short in the wire between the ECM (A32) and the No. 47 STOP ('00-01 models: 10 A, '02-05 models: 15 A) fuse. Replace the No. 47 STOP ('00-01 models: 10 A, '02-05 models: 15 A) fuse. ■

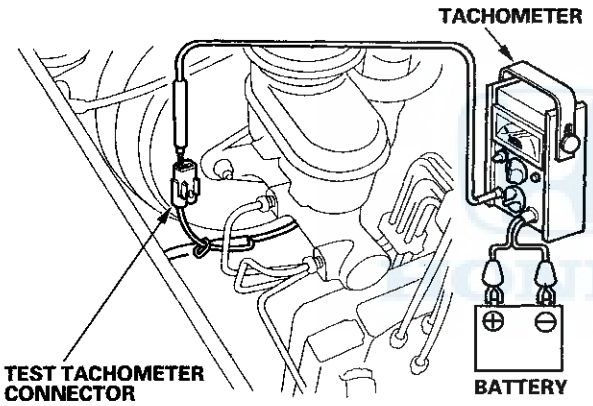
Idle Control System

Idle Speed Inspection

NOTE:
- Leave the IAC valve connected.
- Before checking the idle speed, check these items:
  - The MIL has not been reported on.
  - Ignition timing
  - Spark plugs
  - Air cleaner
  - PCV system
- On Canadian models, pull the parking brake lever up. Start the engine, then check that the headlights are off.

1. Disconnect the EVAP canister purge valve 2P connector.

2. Connect a tachometer.



3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

4. Check the idle speed without load conditions; headlights, blower fan, radiator fan, and air conditioner off.

   Idle speed should be: 800±50 rpm

5. Let the engine idle for 1 minute with high electric load (A/C switch ON, temperature set to Max cool, blower fan on High, and head light on high beam).

   Idle speed should be: 900±50 rpm

   NOTE: If the idle speed is not within specification, do the symptom troubleshooting.

6. Reconnect the EVAP canister purge valve 2P connector.

ECM Idle Learn Procedure

The idle learn procedure must be done so that the ECM can learn the engine idle characteristics.
Do the idle learn procedure whenever you do any of these actions:

- Disconnect the battery.
- Replace the ECM or disconnect its connector.
- Reset the ECM.
  NOTE: Erasing DTCs with HDS does requires the idle learn procedure to be done again.
- Remove the No. 6 ECU (ECM) (15 A) fuse from the under-dash fuse/relay box.
- Remove the No. 41 BATTERY (100 A) fuse from the under-hood fuse/relay box.
- Remove the PGM-FI main relay.
- Remove the battery wire from the under-hood fuse/relay box.
- Disconnect any of the connectors from the under-hood fuse/relay box.
- Disconnect the connector (C404) between the dashboard wire harness A and dashboard wire harness B.
- Disconnect the G1 terminal.
- Adjust the idle speed.

Procedure

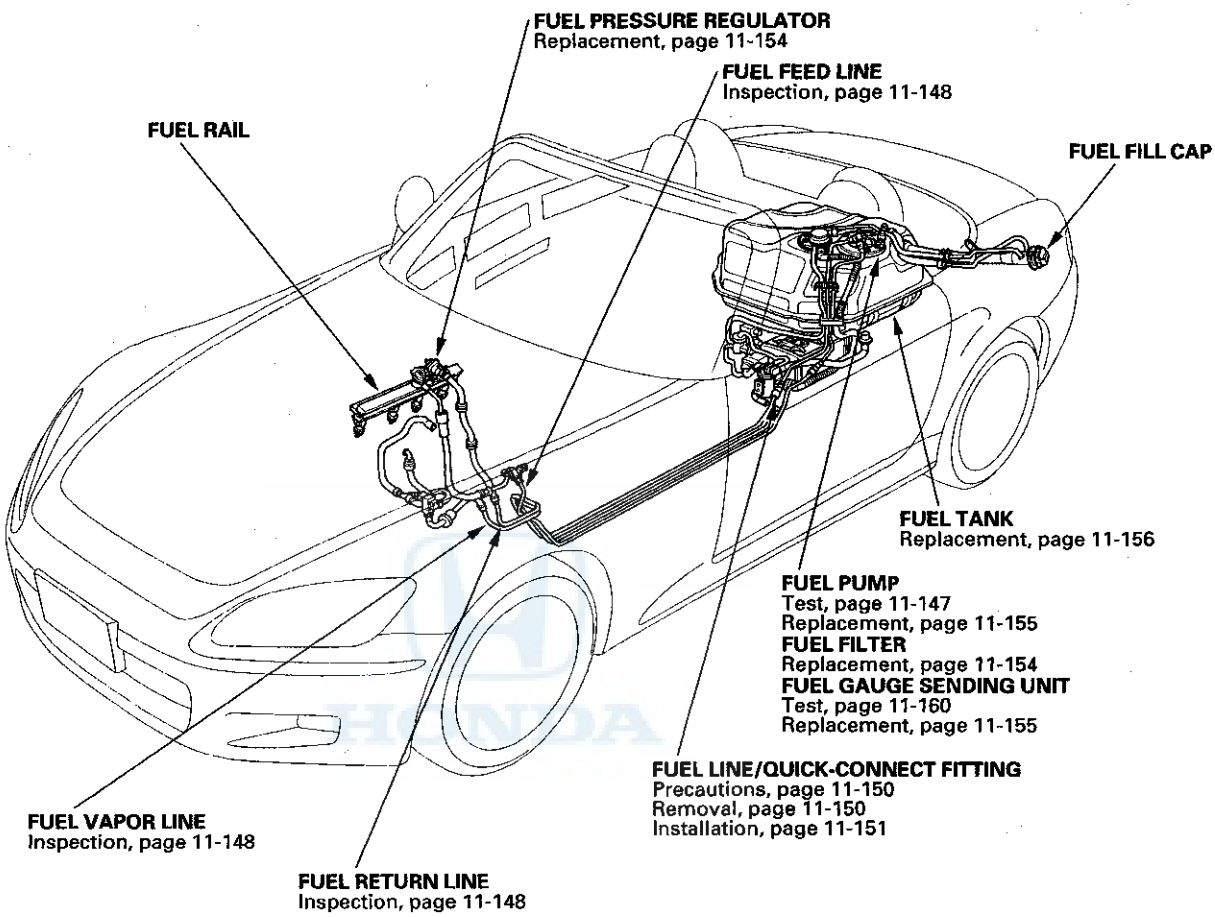
1. Make sure all electrical items (A/C, audio, rear window defogger, lights, etc.) are off.

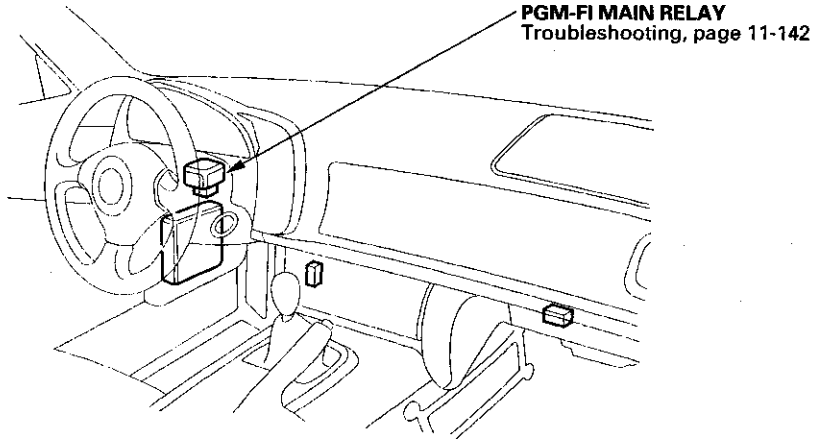
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, or the engine coolant temperature reaches 176 °F (80 °C) —212 °F (100 °C).

3. Let the engine idle for about 5 minutes with the throttle fully closed and with all electrical items off.

NOTE: If the radiator fan comes on, do not include its running time in the 5 minutes.

Component Location Index

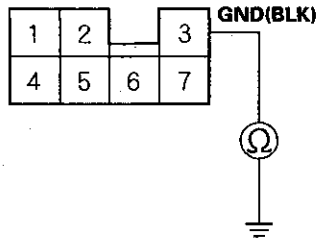




PGM-FI Main Relay Circuit Troubleshooting

1. Turn the ignition switch OFF, then disconnect the PGM-FI main relay 7P connector.
2. Check for continuity between body ground and PGM-FI main relay 7P connector terminal No. 3.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

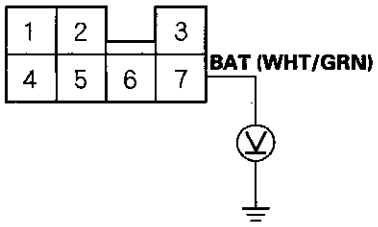
Is there continuity?

YES—Go to step 3.

NO—Repair open in the wire between the PGM-FI main relay and G101.■

3. Measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 7.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Go to step 4.

4. Check for a blown No. 46 ACG S (15 A) fuse in the main under-hood fuse/relay box.

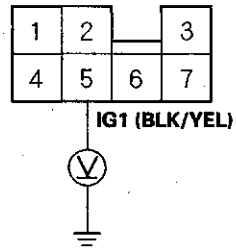
Is the fuse blown?

YES—Repair short in the wire between the PGM-FI main relay and the No. 46 ACG S (15 A) fuse.■

NO—Repair open in the wire between the PGM-FI main relay and the No. 46 ACG S (15 A) fuse.■

5. Turn the ignition switch ON (II), and measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 5.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

NO—Go to step 6.

6. Check for a blown No. 2 FUEL PUMP SRS (15 A) fuse in the under-dash fuse/relay box.

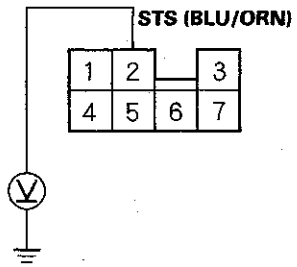
Is the fuse blown?

YES—Repair short in the wire between the PGM-FI main relay and the No. 2 FUEL PUMP SRS (15 A) fuse.■

NO—Repair open in the wire between the PGM-FI main relay and the No. 2 FUEL PUMP SRS (15 A) fuse.■

7. Push the clutch pedal in, then turn the ignition switch ON (II), and press the engine start button. Measure voltage between body ground and PGM-FI main relay 7P connector terminal No. 2.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Go to step 8.

8. Check for a blown No. 21 STARTER SIGNAL (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

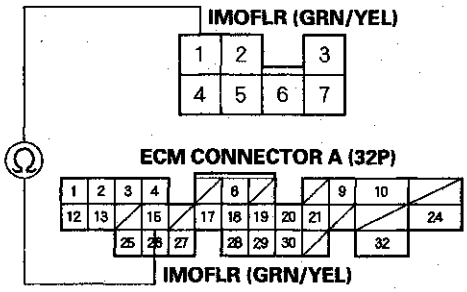
YES—Repair short in the wire between the PGM-FI main relay and the No. 21 STARTER SIGNAL (7.5 A) fuse. ■

NO—Repair open in the wire between the PGM-FI main relay and the No. 21 STARTER SIGNAL (7.5 A). ■

9. Turn the ignition switch OFF, and disconnect ECM connector A (32P).

10. Check for continuity between PGM-FI main relay 7P connector terminal No. 1 and ECM connector terminal A15.

PGM-FI MAIN RELAY 7P CONNECTOR



Wire side of female terminals

Is there continuity?

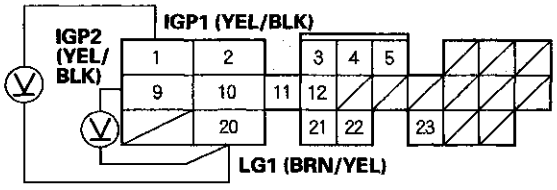
YES—Go to step 11.

NO—Repair open in the wire between the PGM-FI main relay and the ECM (A15). ■

11. Reconnect ECM connector A (32P) and the PGM-FI main relay 7P connector.

12. Turn the ignition switch ON (II), and measure voltage between ECM connector terminals B1 and B20, and between B9 and B20 individually.

ECM CONNECTOR B (25P)



Wire side of female terminals

Is there battery voltage?

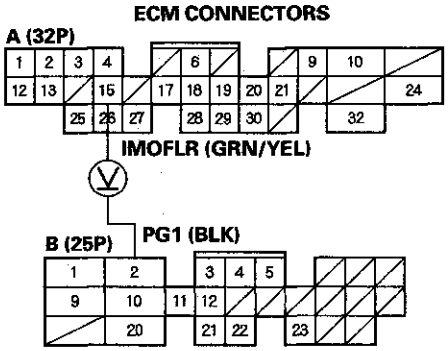
YES—Go to step 13.

NO—Check for an open in the wires between the PGM-FI main relay and the ECM (B1, B9). If the wires are OK, replace the PGM-FI main relay. ■

(cont'd)

PGM-FI Main Relay Circuit Troubleshooting (cont'd)

13. Turn the ignition switch OFF, then ON (II) again, and measure voltage between ECM connector terminals A15 and B2 within 2 seconds.



Wire side of female terminals

Is there 1.0 V or less?

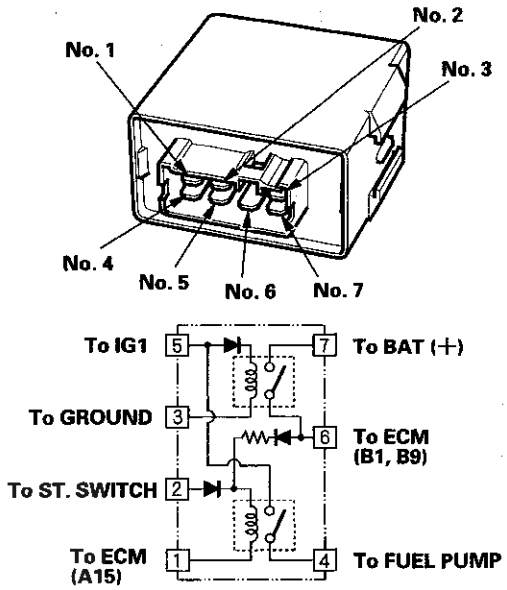
YES—The PGM-FI main relay may be faulty; go to step 14.

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the voltage is now normal, replace the original ECM (see page 11-115).■

14. Remove the PGM-FI main relay.

15. Connect battery power to PGM-FI main relay 7P connector terminal No. 2 and connect ground to PGM-FI main relay 7P connector terminal No. 1. Then check for continuity between PGM-FI main relay 7P connector terminals No. 5 and No. 4.

NOTE: Use the terminal numbers shown. Ignore the terminal numbers molded into the relay.



Is there continuity?

YES—Go to step 16.

NO—Replace the PGM-FI main relay, then recheck the circuit.■

16. Connect battery power to PGM-FI main relay 7P connector terminal No. 5, and connect ground to PGM-FI main relay 7P connector terminal No. 3. Then check for continuity between PGM-FI main relay 7P connector terminals No. 7 and No. 6.

Is there continuity?

YES—Go to step 17.

NO—Replace the PGM-FI main relay, then recheck the circuit.■

17. Connect battery power to PGM-FI main relay 7P connector terminal No. 6, and connect ground to PGM-FI main relay 7P connector terminal No. 1. Then check for continuity between PGM-FI main relay 7P connector terminals No. 5 and No. 4.

Is there continuity?

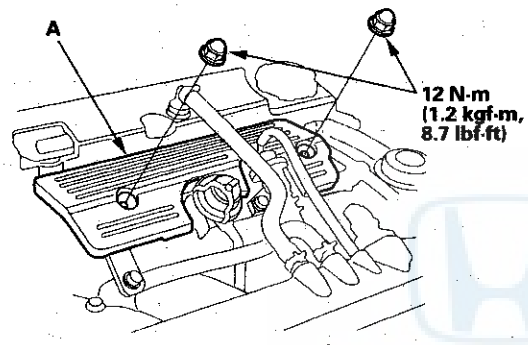
YES—The PGM-FI main relay is OK.■

NO—Replace the PGM-FI main relay, then recheck the circuit.■

Fuel Pressure Relieving

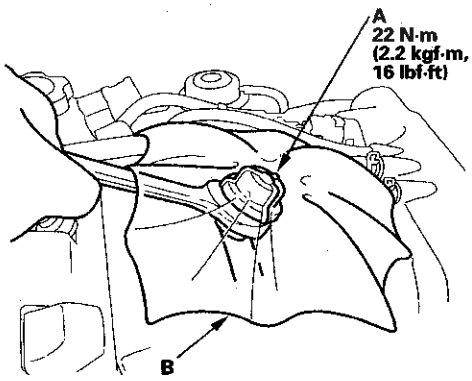
Before disconnecting fuel lines or hoses, release pressure from the system by loosening the fuel pulsation damper on top of the fuel rail.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Disconnect the negative cable from the battery.
3. Remove the fuel fill cap.
4. Remove the intake manifold cover (A).



*: This illustration shows '00-03 models.

5. Use a wrench on the fuel pulsation damper (A) at the fuel rail.



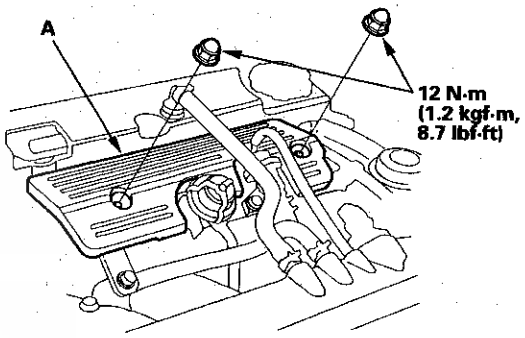
6. Place a rag or shop towel (B) over the fuel pulsation damper.
7. Slowly loosen the fuel pulsation damper one complete turn.

   NOTE: Replace all washers whenever the fuel pulsation damper is loosened or removed.

Fuel Pressure Test

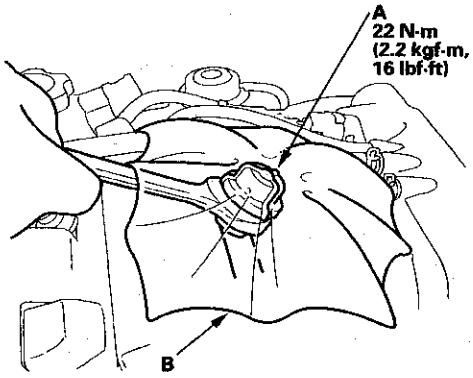
Special Tools Required
- Fuel pressure gauge 07406-004000B
- Fuel pressure gauge adapter 07VAJ-0040100

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Disconnect the negative cable from the battery.
3. Remove the fuel fill cap.
4. Remove the intake manifold cover (A).



*: This illustration shows '00-03 models.

5. Use a wrench on the fuel pulsation damper (A) at the fuel rail.



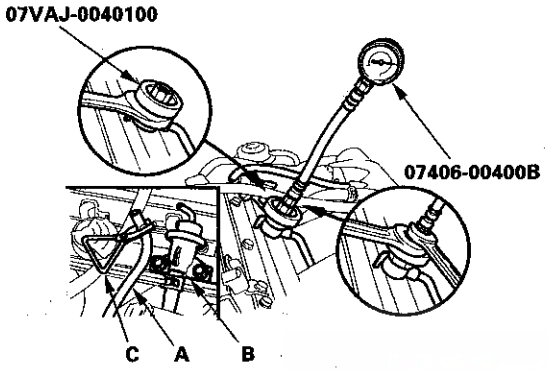
6. Place a rag or shop towel (B) over the fuel pulsation damper.
7. Slowly loosen the fuel pulsation damper one complete turn.

(cont'd)

Fuel Pressure Test (cont'd)

8. Remove the fuel pulsation damper from the fuel rail.

9. Attach the fuel pressure gauge attachment and fuel pressure gauge.



*: This illustration shows '00-03 models.

10. Disconnect the vacuum hose (A) from the fuel pressure regulator (B) and pinch it closed with a clamp (C).

11. Reconnect the negative battery cable, then start the engine, and let it idle.

    - If the engine starts, go to step 13.
    - If the engine does not start, go to step 12.

12. Check to see if the fuel pump is running: remove the fuel fill cap and listen to the fuel fill port while an assistant turns the ignition switch ON (II), you should hear the pump run for about 2 seconds when the ignition switch is turned ON (II).

    - If the fuel pump runs, go to step 13.
    - If the fuel pump does not run, test it (see page 11-147).

13. Read the pressure gauge (with the fuel pressure regulator vacuum hose disconnected and clamped). The pressure should be 320—370 kPa (3.3—3.8 kgf/cm², 47—54 psi).

    - If the pressure is OK and the engine is running, go to step 14. If the engine is not running, repair the cause, then continue this test.
    - If the pressure is out of spec, go to step 14.

14. With the engine running, unpinch and reconnect the vacuum hose and read the gauge again. The pressure should be 260—310 kPa (2.7—3.2 kgf/cm², 38—46 psi).

    - If the fuel pressure is OK, the test is complete.
    - If the pressure is out of spec, go to step 15.

15. Disconnect the vacuum hose from the pressure regulator again while you watch the pressure gauge. The pressure should rise when you disconnect the hose.

    - If the pressure did not rise, replace the fuel pressure regulator (see page 11-154).
    - If the pressure rises, but all your readings were lower than specified, check for a clogged fuel filter and for leaks in the fuel lines.
    - If the pressure rises, but all your readings were higher than specified, check for a pinched or clogged fuel return hose or line.

16. Reconnect the vacuum hose, remove the pressure gauge, and reinstall the fuel pulsation damper with a new washer. Tighten the fuel pulsation damper to 22 N·m (2.2 kgf·m, 16 lbf·ft).

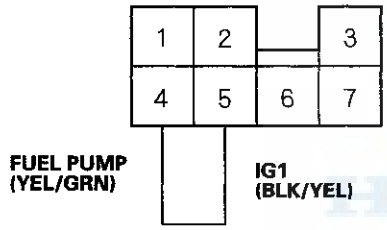
    NOTE: Disassemble and clean the fuel pressure gauge attachment thoroughly after use.

Fuel Pump Test

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is ON, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when ignition switch is first turned on. If the fuel pump does not make noise, check as follows:

1. Remove the rear tray (see page 20-73).
2. Remove the access panel from the floor.
3. Turn the ignition switch OFF.
4. Disconnect the fuel pump 5P connector.
5. Connect the PGM-FI main relay 7P connector terminals No. 4 and No. 5 with a jumper wire.

PGM-FI MAIN RELAY 7P CONNECTOR

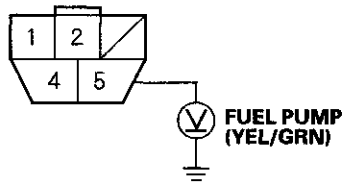


JUMPER WIRE

Wire side of female terminals

6. Turn the ignition switch ON (II).
7. Check that battery voltage is available between fuel pump 5P connector terminal No. 5 and body ground when the ignition switch is turned ON (II).
   - If battery voltage is available, check the fuel pump ground. If the ground is OK, replace the fuel pump (see page 11-155).
   - If there is no voltage, check the wire harness (see page 11-142).

FUEL PUMP 5P CONNECTOR

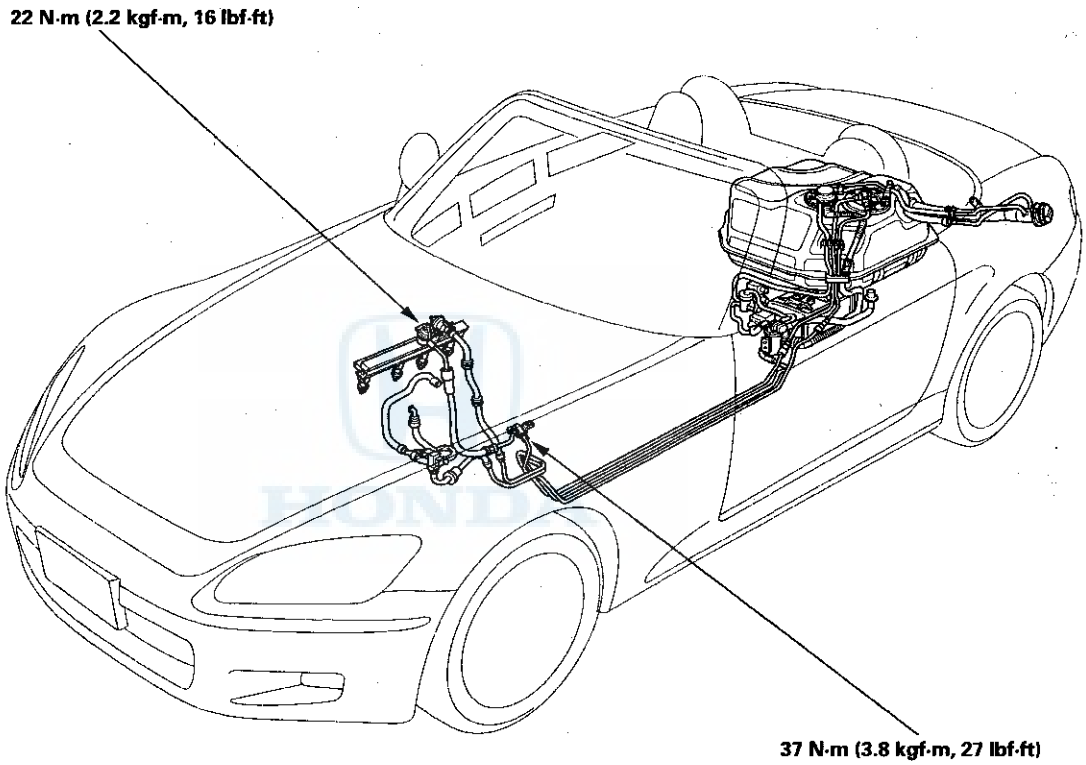


Wire side of female terminals

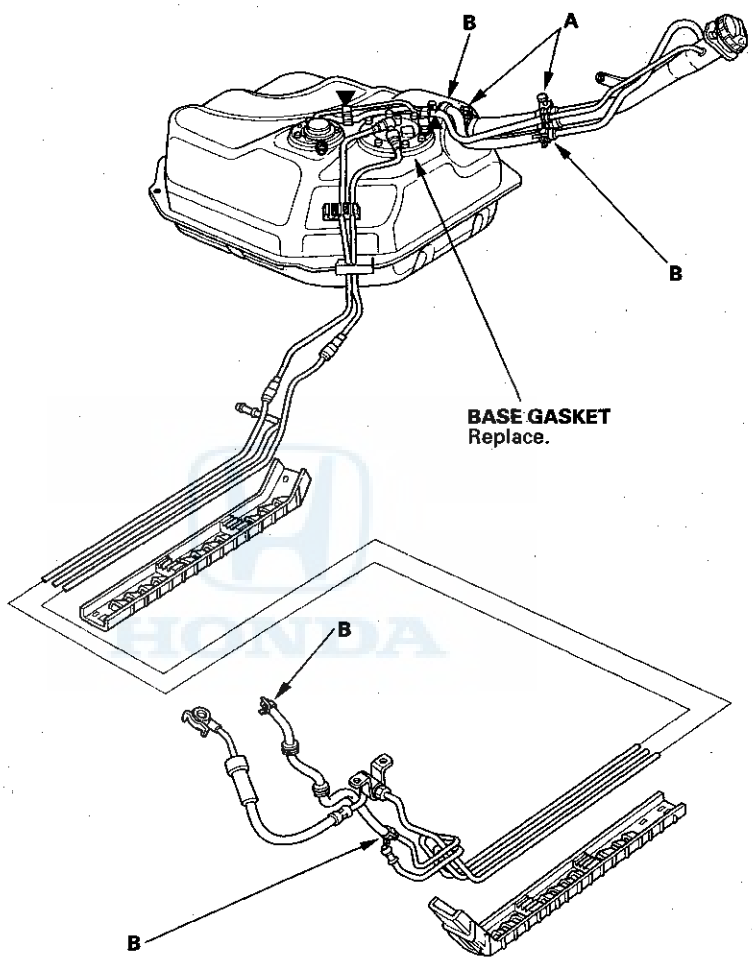
Fuel Supply System

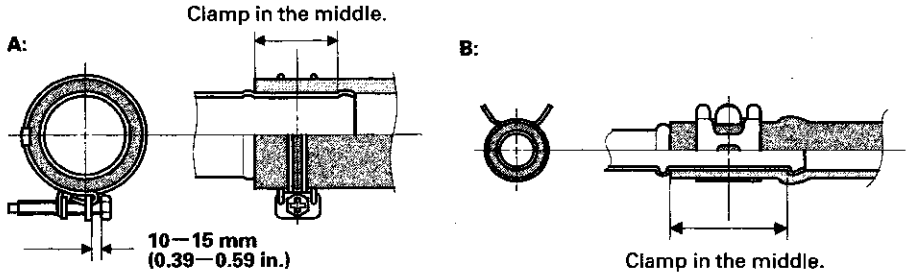
Fuel Line Inspection

Check the fuel system lines, hoses, and fuel filter for damage, leaks, or deterioration, and replace parts as needed.



Check all hose clamps and retighten if necessary.
▲▼: Do not disconnect the hose from the line at these joints.





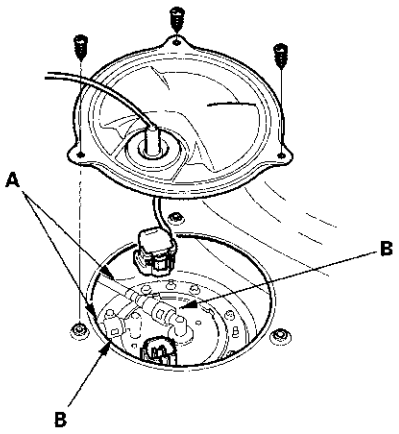
Fuel Line/Quick-Connect Fitting Precautions

The fuel tube/quick-connect fittings assembly connects the in-tank fuel pump to the fuel feed line and the fuel return line. When removing or installing the fuel pump and fuel tank, it is necessary to disconnect or connect the quick-connect fittings.
Pay attention to the following:

- The fuel tubes (A) and quick-connect fittings (B) are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel tubes and quick-connect fittings are not acid-proof; do not touch it with a shop towel which was used for wiping battery electrolyte. Replace them if they came into contact with electrolyte or something similar.
- When connecting or disconnecting the fuel tubes and quick-connect fittings, be careful not to bend or twist them excessively. Replace them when damaged.

A disconnected quick-connect fittings can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line. Replace the retainer when:

- replacing the fuel tank unit.
- replacing the fuel filter.
- replacing the fuel feed line.
- replacing the fuel return line.
- it has been removed from the line.
- it is damaged.

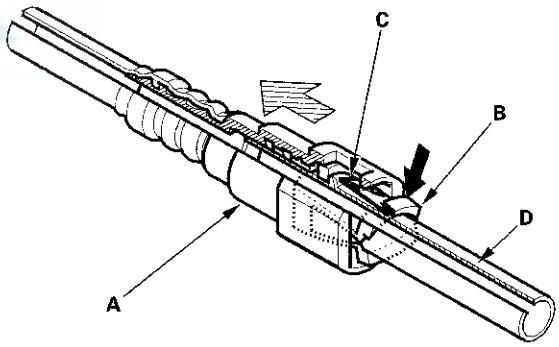


Fuel Line/Quick-Connect Fitting Removal

NOTE: Before you work on the fuel line and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see page 11-150).

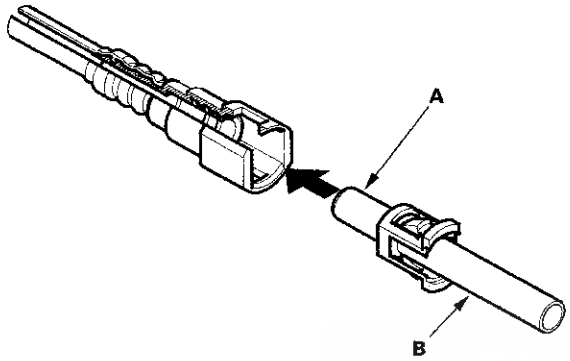
1. Relieve fuel pressure (see page 11-145).
2. Check the fuel quick-connect fittings for dirt, and clean them if necessary.
3. Hold the connector (A) with one hand, and squeeze the retainer tabs (B) with the other hand to release them from the locking pawls (C). Pull the connector off.

   NOTE:
   - Be careful not to damage the line (D) or other parts. Do not use tools.
   - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
   - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



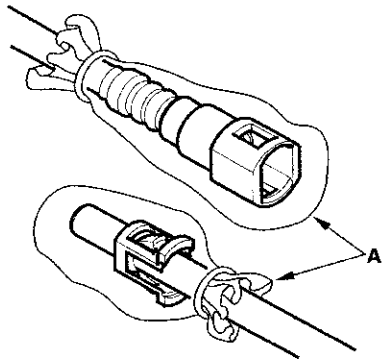
4. Check the contact area (A) of the line (B) for dirt and damage.

   - If the surface is dirty, clean it.
   - If the surface is rusty or damaged, replace the fuel tank unit, fuel filter, fuel feed line, or fuel return line.



5. To prevent damage and keep foreign matter out, cover the disconnected connector and line end with plastic bags (A).

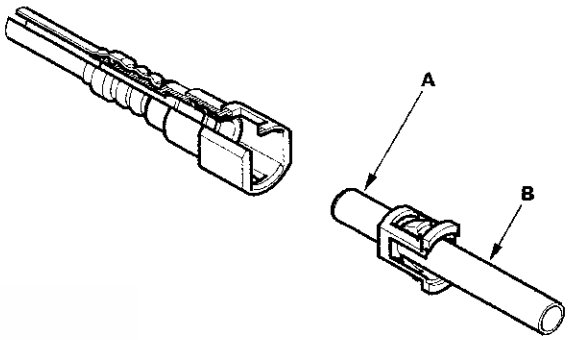
   NOTE:
   - The retainer cannot be reused once it has been removed from the pipe.
   - Replace the retainer when:
     – replacing the fuel tank unit.
     – replacing the fuel filter.
     – replacing the fuel feed line.
     – replacing the fuel return line.
     – it has been removed from the line.
     – it is damaged.



Fuel Line/Quick-Connect Fitting Installation

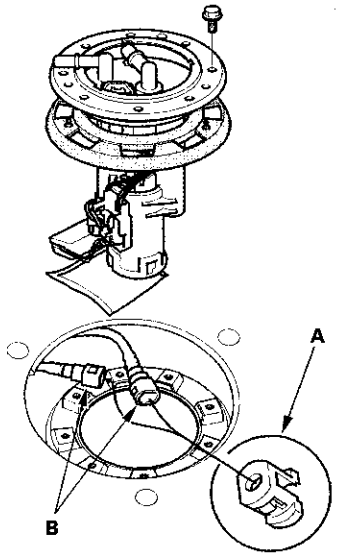
NOTE: Before you work on the fuel line and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see page 11-150).

1. Check the contact area (A) of the line (B) for dirt and damage, and clean if necessary.



2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:

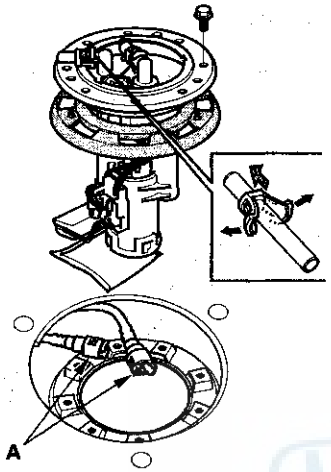
   - replacing the fuel tank unit.
   - replacing the fuel filter.
   - replacing the fuel feed line.
   - replacing the fuel return line.
   - removing the retainer from the line.



(cont'd)

Fuel Line/Quick-Connect Fitting Installation (cont'd)

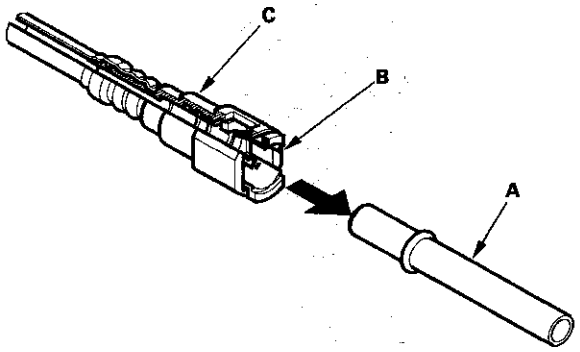
3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer from the mating line.



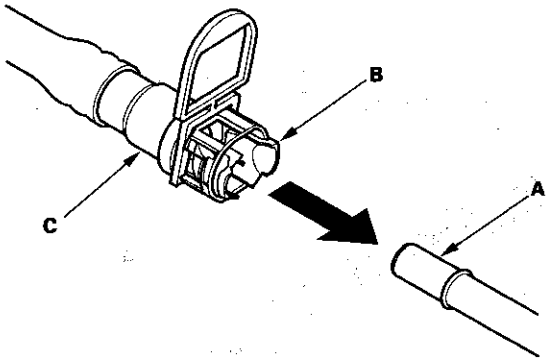
4. Align the quick-connect fittings with the line (A), and align the retainer (B) locking pawls with the connector (C) grooves. Then press the quick-connect fittings onto the line until both retainer pawls lock with a clicking sound.

   NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

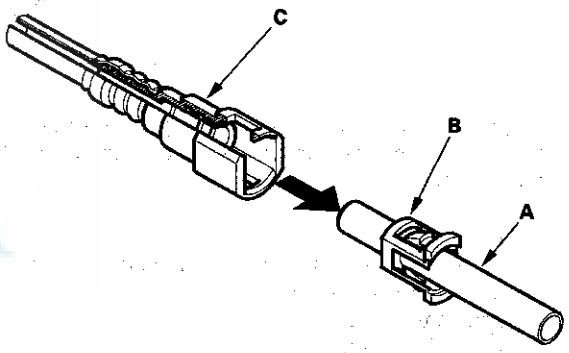
Connection with new retainer



Connection to new fuel line



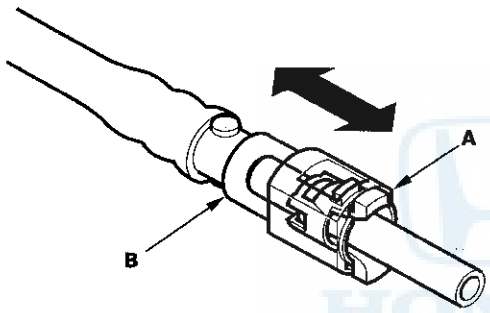
Reconnection to existing retainer



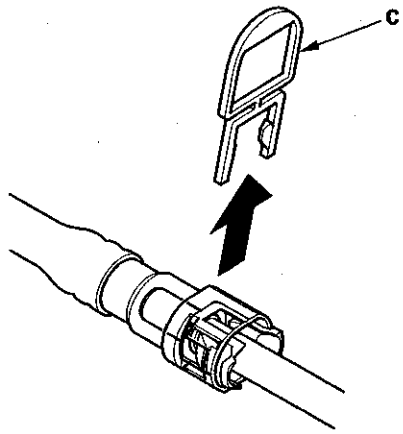
5. When you reconnect the connector with the old retainer, make sure the connection is secure and the tabs (A) are firmly locked into place; check visually and also by pulling the connector (B). When you replace the fuel line with a new one, make sure you remove the ring pull (C) upwards after you confirm the connection is secure.

   NOTE: Before you remove the ring pull, make sure the fuel line connection is secure. If the connection is not secure, the ring pull could break when you try to remove it.

   Reconnection to existing retainer



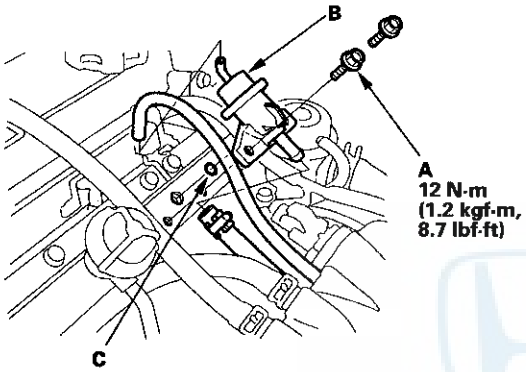
   Connection to new fuel line



6. Reconnect the negative cable to the battery, and turn the ignition switch ON (II). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat this two or three times, and check that there is no leakage in the fuel supply system.

Fuel Pressure Regulator Replacement

1. Place a shop towel under the fuel pressure regulator, then relieve fuel pressure (see page 11-145).
2. Disconnect the vacuum hose and fuel return hose.
3. Remove the two 6 mm retainer bolts (A) and the fuel pressure regulator (B).

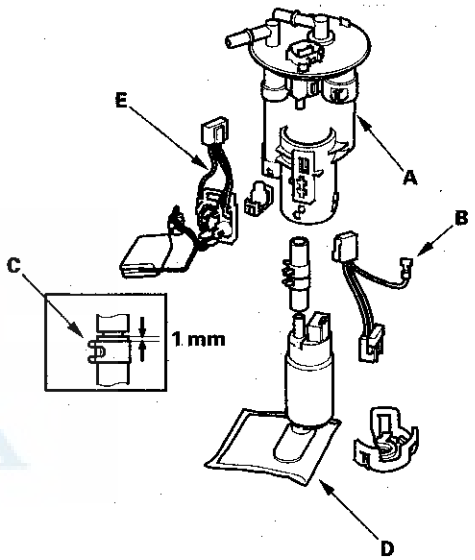


4. Apply clean engine oil to a new o-ring (C), and carefully install it into its proper position.
5. Install the fuel pressure regulator and the 6 mm retainer bolts.
6. Reconnect the vacuum hose and fuel return hose.
7. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this two or three times, then check whether there is any fuel leakage.

Fuel Filter Replacement

The fuel filter should be replaced whenever the fuel pressure drops below the specified value (320—370 kPa, 3.3—3.8 kgf/cm², 47—54 psi with the fuel pressure regulator vacuum hose disconnected and pinched) after making sure that the fuel pump and the fuel pressure regulator are OK.

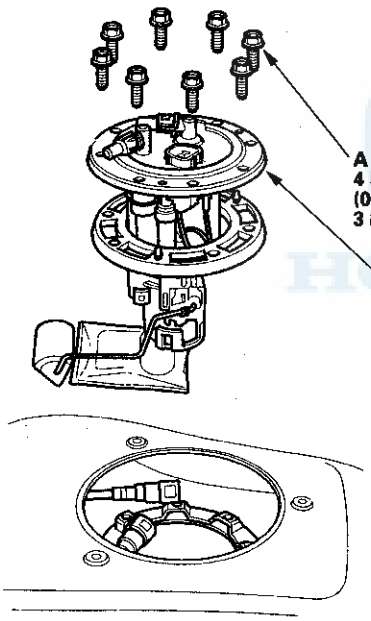
1. Remove the fuel tank unit (see page 11-155).
2. Remove the fuel filter (A).



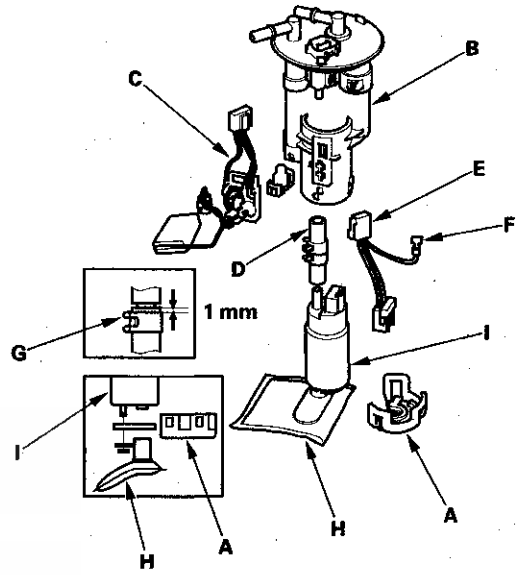
3. Install the parts in the reverse order of removal with a new base gasket, then check these items:
   - When connecting the wire harness, make sure the connection is secure and the terminal (B) is firmly locked into place.
   - Check that the tab of the clamp (C) does not interfere with the wire harness.
   - Do not push the lower part of the suction filter (D).
   - When installing the fuel gauge sending unit (E), make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

Fuel Pump/Fuel Gauge Sending Unit Replacement

1. Remove the rear tray (see page 20-73).
2. Remove the access panel from the floor.
3. Disconnect the fuel pump 5P connector.
4. Remove the fuel fill cap.
5. Relieve the fuel pressure (see page 11-145).
6. Disconnect the quick-connect fittings from the fuel pump.
7. Remove the bolts (A) and the fuel tank unit (B).



8. Remove the bracket (A), the fuel filter (B), the fuel gauge sending unit (C), the hose (D), and the wire harness (E).



9. When connecting the fuel pump, make sure the connections are secure and the suction filter (H) is firmly connected the fuel pump (I).
10. Install the parts in the reverse order of removal with a new base gasket, then check these items:

- When connecting the wire harness, make sure the connection is secure and the terminal (F) is firmly locked into place.
- Check that the tab of the clamp (G) does not interfere with the wire harness.
- Do not push the lower part of the suction filter.
- When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.
- Check for fuel leaks.

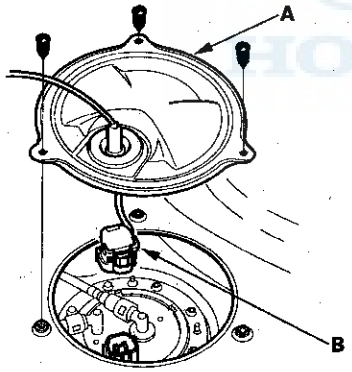
Fuel Tank Replacement

Removal

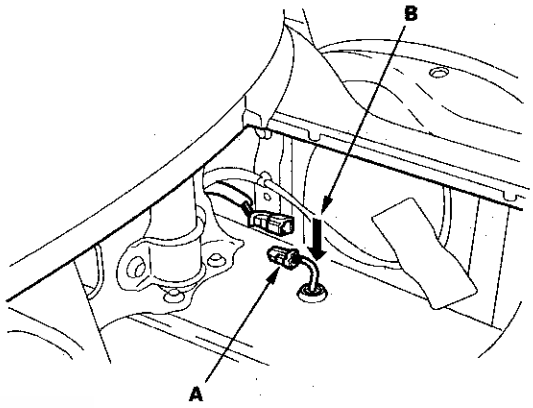
1. Remove the fuel fill cap.
2. Relieve the fuel pressure (see page 11-145).
3. Remove the rear tray (see page 20-73).
4. Drain the fuel tank: Remove the fuel tank unit (see page 11-155). Using a hand pump, hose, and a container suitable for fuel, draw the fuel from the fuel tank.
5. Reinstall the fuel tank unit.
6. Remove the brake fluid from the master cylinder reservoir with a syringe.

   NOTE: Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.

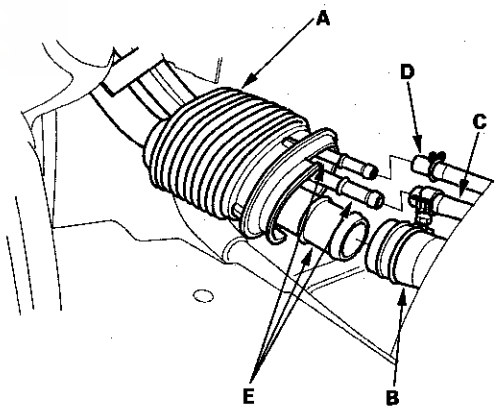
7. Remove the access panel (A) from the floor, and disconnect the fuel tank 5P connector (B).



8. Disconnect both ABS rear wheel sensors 2P connectors (A), and push the connectors out (B).

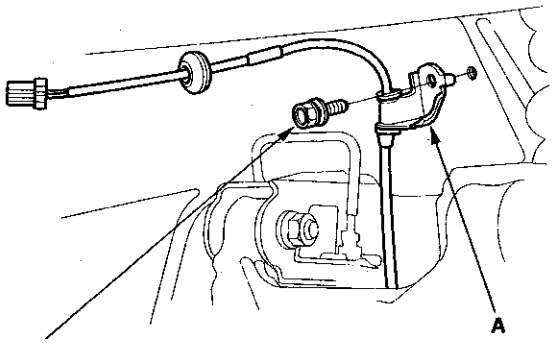


9. Remove the fuel pipe cover (A), and disconnect the fuel fill neck tube (B), the fuel tank vapor recirculation tube (C) and the fuel tank vapor signal tube (D) from the fuel fill pipes (E).



10. Loosen the rear wheel nuts slightly, then raise the vehicle and make sure it is securely supported.
11. Remove the rear wheels.

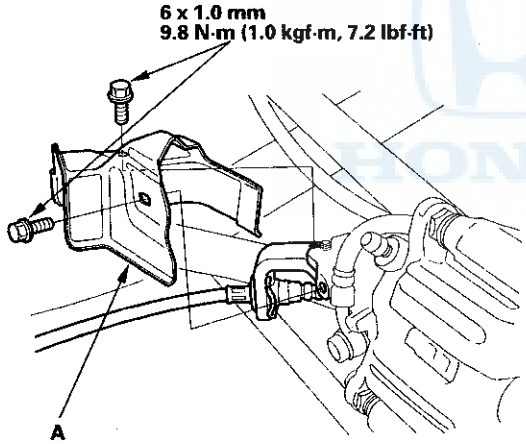
12. Remove the bolts from both ABS rear wheel sensor harness brackets (A).



6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

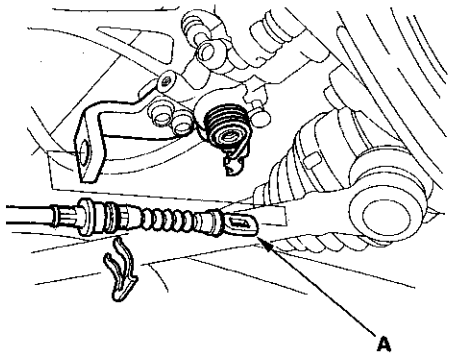
*: This illustration shows the left side of the vehicle.

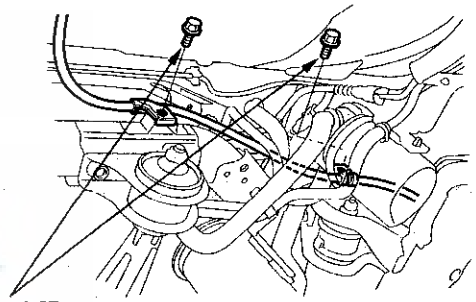
13. Remove both caliper shields (A).



*: This illustration shows the left side of the vehicle.

14. Disconnect both parking brake cables (A), and move them out of the way.

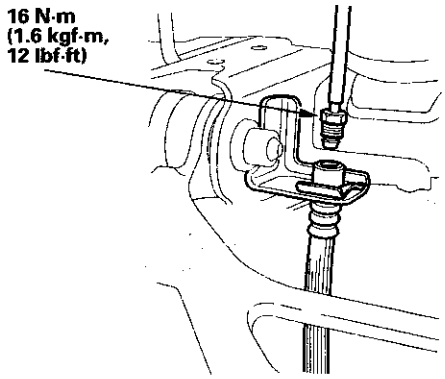




8 x 1.25 mm
22 N·m (2.2 kgf·m, 16 lbf·ft)

*: This illustration shows the left side of the vehicle.

15. Disconnect the brake hoses from both rear brake lines using a 10 mm flare-nut wrench.

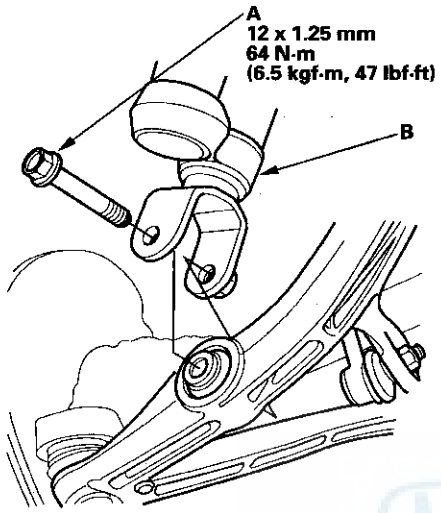


*: This illustration shows the left side of the vehicle.

(cont'd)

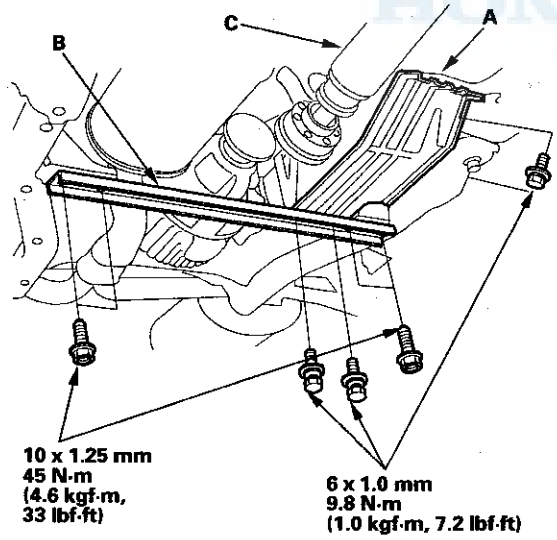
Fuel Tank Replacement (cont'd)

16. Remove the flange bolt (A) from both rear dampers (B).

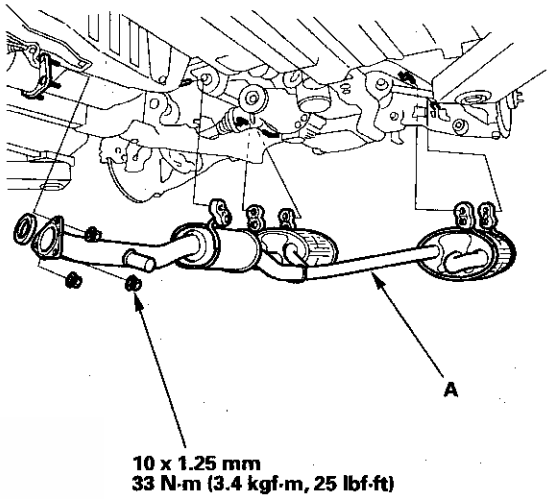


*: This illustration shows the left side of the vehicle.

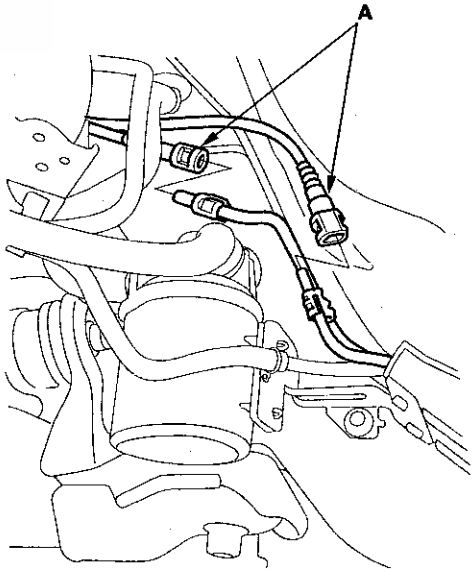
17. Remove the canister cover (A), rear suspension stiffener (B), and the propeller shaft (C) (see page 16-18).



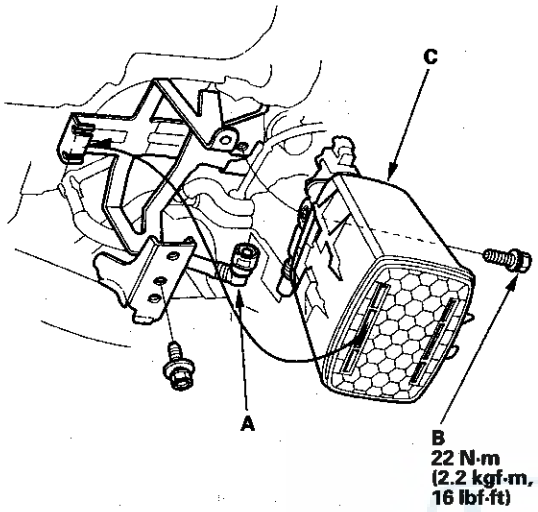
18. Remove the muffler (A).



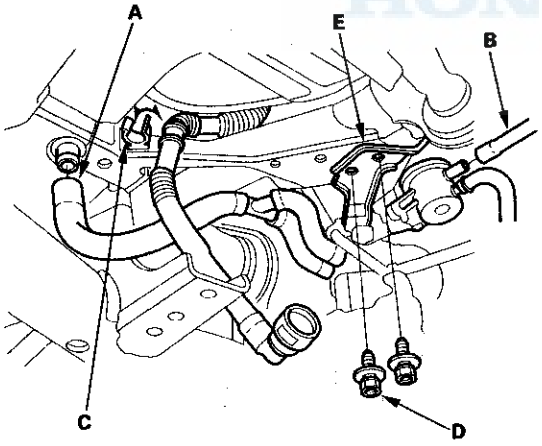
19. Disconnect the quick-connect fittings (A) (see page 11-150).



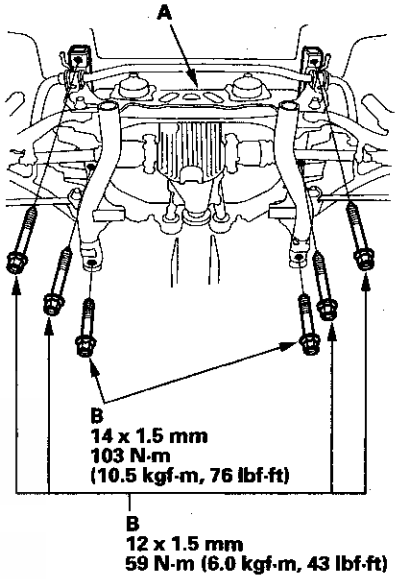
20. Disconnect the fuel tank vapor vent tube (A), then remove the bolt (B) and the EVAP canister (C).



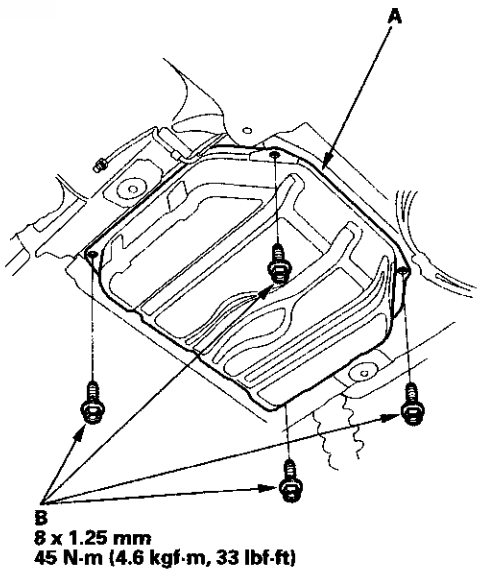
21. Disconnect the hose (A) and fuel vent tube (B), then remove the fuel tank vapor vent tube from the tube holder (C). Remove the bolts (D) and the fuel vent assembly (E).



22. Place a jack or other support under the rear suspension subframe (A). Remove the mounting bolts (B) and the rear suspension subframe (A).



23. Place the jack or support under the fuel tank (A) and remove the mounting bolts (B) and the fuel tank.



(cont'd)

Fuel Tank Replacement (cont'd)

Installation

1. Install the parts in the reverse order of removal.
2. After installing, bleed the brake system (see page 19-9), and adjust the wheel alignment (see page 18-7).
3. Check for fuel leaks.

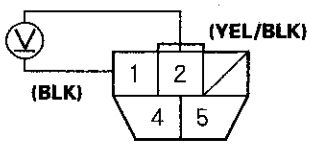
Fuel Gauge Sending Unit Test

NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram.

- '00-03 models (see page 22-63)
- '04-05 models (see page 22-68)

1. Check the No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) fuse in the under-dash fuse/relay box.
   - If the fuse is OK, check for an open in the YEL wire between the gauge assembly and the No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) fuse.
   - If the fuse is blown, replace it, and check for an open in the YEL wire between the gauge assembly and the No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) fuse.
2. Remove the rear tray (see page 20-73).
3. Remove the access panel from the floor.
4. Disconnect the fuel pump 5P connector.
5. Measure voltage between fuel pump 5P connector terminals No. 1 and No. 2 with the ignition switch ON (II). There should be about 5 to 8 V.
   - If the voltage is as specified, go to step 6.
   - If the voltage is not as specified, check for:
     – an open or short in the YEL/BLK or BLK wire.
     – poor ground (G 601).
     – a faulty main printed circuit board in the gauge assembly.

FUEL PUMP 5P CONNECTOR



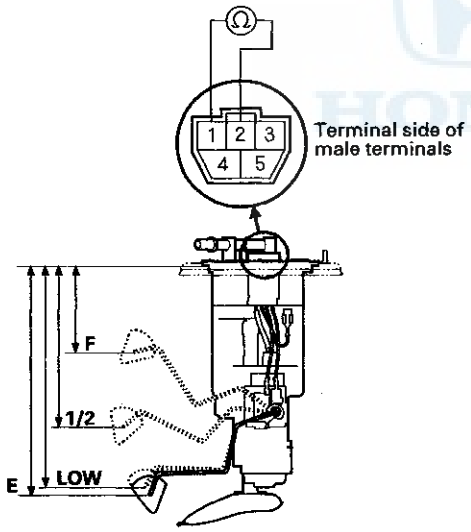
Wire side of female terminals

6. Turn the ignition switch OFF.

7. Remove the bolts and the fuel tank unit (see page 11-155).

8. Measure the resistance between the No. 1 and No. 2 terminals with the float at E (EMPTY), LOW (LOW FUEL INDICATOR LIGHT IS ON), 1/2 (HALF FULL) and F (FULL) positions.
   If you do not get the following readings, replace the fuel gauge sending unit.

Float Position	Resistance (Ω)	Height (mm) (in.)
F	11—13	82.9±1.9 (3.26±0.0748)
1/2	52—58	154.2±1.2 (6.07±0.0472)
LOW	114.4—120.4	215.5 (8.48)
E	130—132	222.8±1.9 (8.77±0.0748)



9. To prevent the fuel pump from running, remove the No. 2 FUEL PUMP SRS (15 A) fuse from the under-dash fuse/relay box.

10. Connect the fuel pump 5P connector.

11. Turn the ignition switch ON (II) with the float at F (FULL) position.

    - If the fuel gauge indicates "F", the system is OK.
    - If the fuel gauge does not indicate "F", replace the gauge assembly.

Low Fuel Indicator Test

1. Do the fuel gauge sending unit test (see page 11-160).

   - If the system is OK, go to step 2.
   - If the system has any malfunction, repair it.

2. Turn the ignition switch ON (II) with the float at E (EMPTY) position.

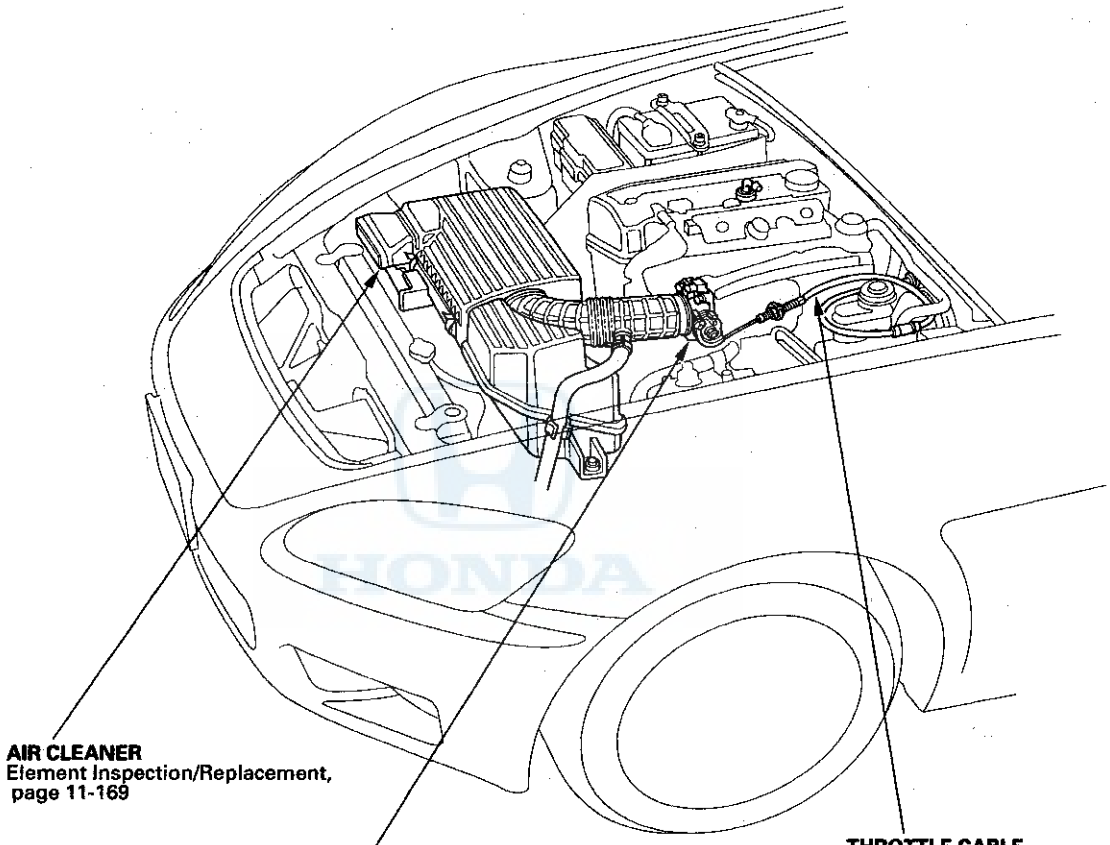
   - If the low fuel indicator is on, go to step 3.
   - If the low fuel indicator is not on, refer to the low fuel indicator Circuit Diagram, '00-03 models (see page 22-63), '04-05 models (see page 22-68), and check the circuit.

3. Lift the float above LOW position.

   - If the low fuel indicator goes off, the system is OK.
   - If the low fuel indicator is still on, refer to the low fuel indicator Circuit Diagram, '00-03 models (see page 22-63), '04-05 models (see page 22-68), and check the circuit.

Intake Air System

Component Location Index



AIR CLEANER
Element Inspection/Replacement, page 11-169

THROTTLE BODY
Test, page 11-163
Removal/Installation, page 11-165
Disassembly/Reassembly, page 11-166

THROTTLE CABLE
Adjustment, page 11-168
Removal/Installation, page 11-167

Throttle Body Test

NOTE: Do not adjust the throttle stop screw. It is preset at the factory.

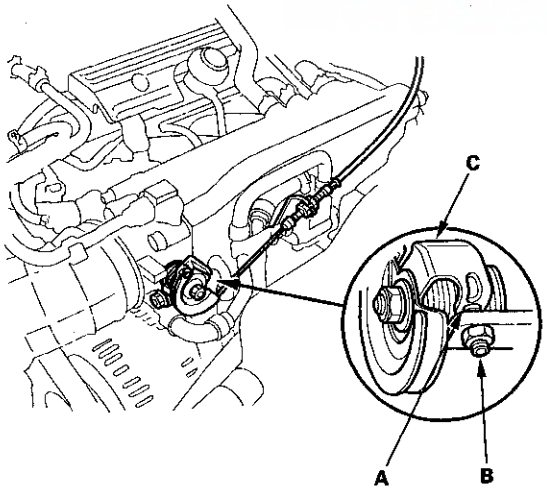
1. With the engine off, check the throttle cable operation. The cable should operate without binding or sticking.

   - If the cable operates OK, go to step 2.
   - If the cable binds or sticks, check it and its routing. If it's faulty, reroute it or replace it and adjust it (see page 11-168), then go to step 2.

2. Operate the throttle lever by hand to see if the throttle valve and/or shaft are too loose or too tight.

   - If there is excessive play in the throttle valve shaft, or any binding in the throttle valve at the fully closed position, replace the throttle body.
   - If the throttle valve and shaft are OK, go to step 3.

3. Check for clearance (A) between the throttle stop screw (B) and the throttle lever (C) at the fully closed position. If there is any clearance, replace the throttle body (see page 11-165). Do not adjust the throttle stop screw.

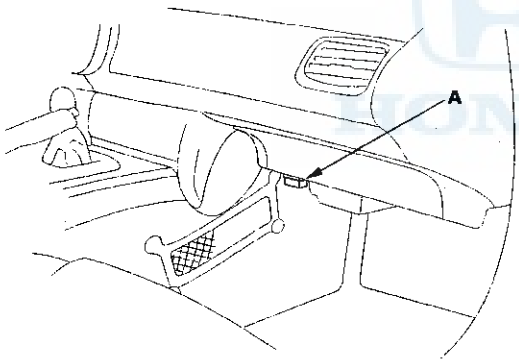


Throttle Position Sensor Signal Inspection

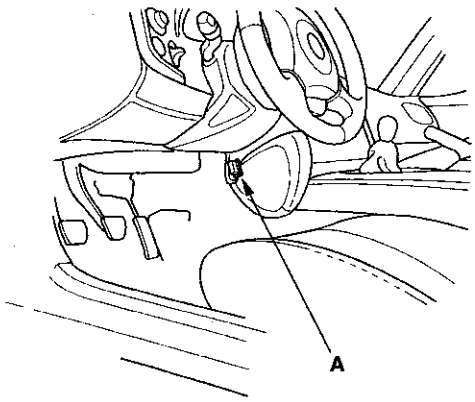
NOTE:
- This procedure checks the APP sensor in its fully closed position. In any other position, the APP sensor stores DTCs which are covered in other troubleshooting procedures.
- Check for Temporary DTCs or DTCs with the HDS before doing this procedure. If any DTCs are indicated, troubleshoot them first, then do this procedure.
- Press the accelerator pedal several times to check its movement. If it does not move smoothly, check the pedal, the throttle cable, and the throttle linkage individually. If you find a problem in one of them, replace the part(s) that caused the problem.

1. Connect the HDS or an OBD II scan tool to the data link connector (DLC) (A). On '00-01 models, the DLC is located under the passenger's side of the dashboard. On '02-05 models, the DLC is located behind the driver's side of the front console.

'00-01 models



'02-05 models



2. Turn the ignition switch ON (II).

3. Make sure the HDS or an OBD II scan tool communicates with the ECM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-110).

4. Make sure the accelerator pedal is not pressed, then check the TP SENSOR in the DATA LIST with the HDS.

   - If it is below 0.5 V, the throttle position sensor is OK.
   - If it is above 0.5 V, adjust the throttle cable (see page 11-168), then go to step 4.

5. Make sure the accelerator pedal is not pressed, then check the TP SENSOR in the DATA LIST with the HDS.

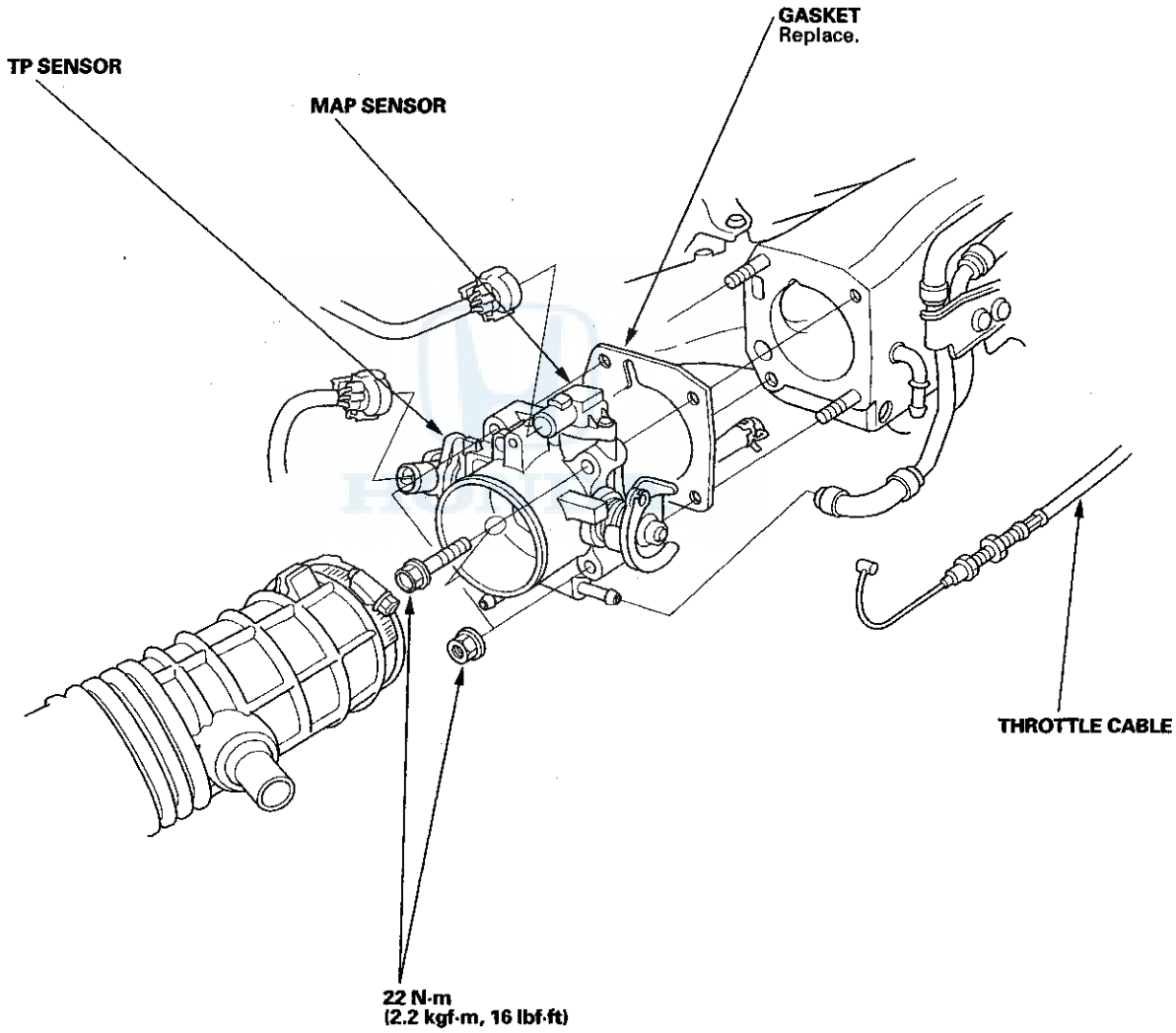
   - If it is below 0.5 V, the throttle position sensor is OK.
   - If it is above 0.5 V, substitute a known-good ECM (see page 11-5), then go to step 5.

6. Make sure the accelerator pedal is not pressed, then check the TP SENSOR in the DATA LIST with the HDS.

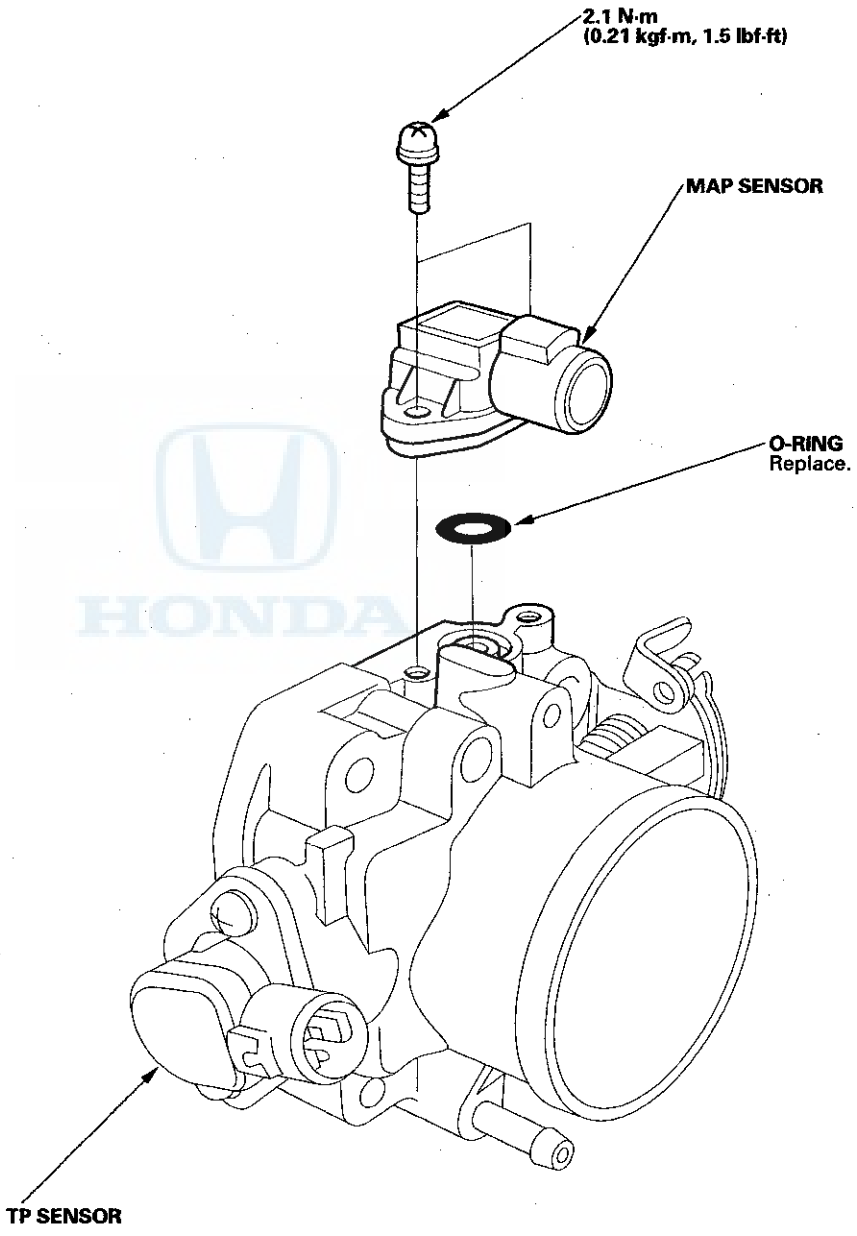
   - If it is below 0.5 V, the throttle position sensor is OK.
   - If it is above 0.5 V, replace the throttle body (see page 11-165), then go to step 1.

Throttle Body Removal/Installation

NOTE:
- Do not adjust the throttle stop screw.
- After reassembly, adjust the cruise control actuator cable (see page 4-71), and the throttle cable (see page 11-168).
- The TP sensor is not removable.

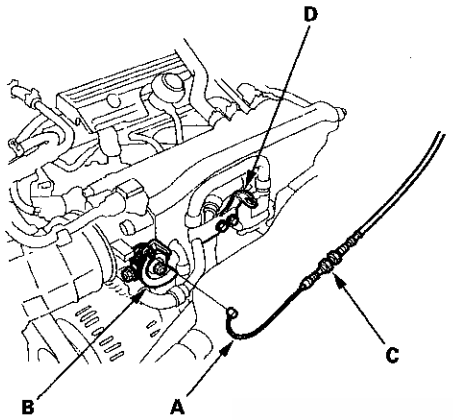


Throttle Body Disassembly/Reassembly



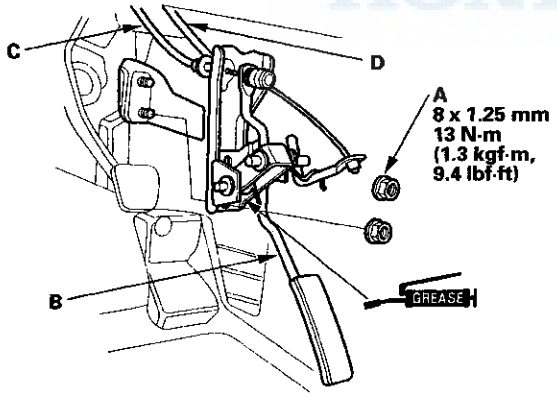
Throttle Cable Removal/Installation

1. Fully open the throttle valve, then remove the throttle cable (A) from the throttle link (B).



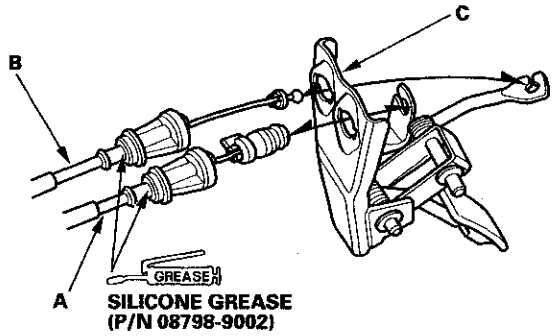
2. Remove the cable housing (C) from the cable bracket (D).

3. Remove the nuts (A), then remove the accelerator pedal (B) along with the throttle cable (C) and the actuator cable (D).



4. Pull the throttle cable (C) and the actuator cable (D) out toward the passenger compartment.

5. Remove the throttle cable (A) and the actuator cable (B) from the accelerator pedal bracket (C).

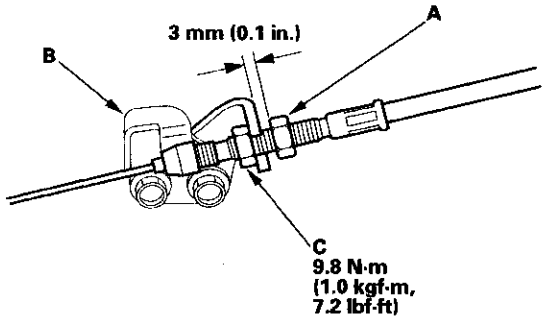


6. Install the parts in the reverse order of removal.

7. After installing, start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

8. Hold the cable sheath, removing all slack from the cable.

9. Turn the adjusting nut (A) until it is 3 mm (0.1 in.) away from the cable bracket (B).

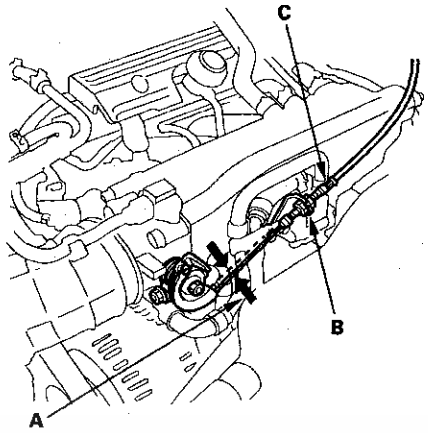


10. Tighten the locknut (C). The cable free play should now be 4—6 mm (0.2—0.3 in.). If free play is not within specs, loosen the locknut, turn the adjusting nut until the free play is as specified, then retighten the locknut.

11. With the cable properly adjusted, check the throttle valve to be sure it opens fully when you push the accelerator pedal to the floor. Also check the throttle valve to be sure it returns to the idle position whenever you release the accelerator pedal.

Throttle Cable Adjustment

1. Check cable free play at the throttle linkage. Cable free play (A) should be 4—6 mm (0.2—0.3 in.).

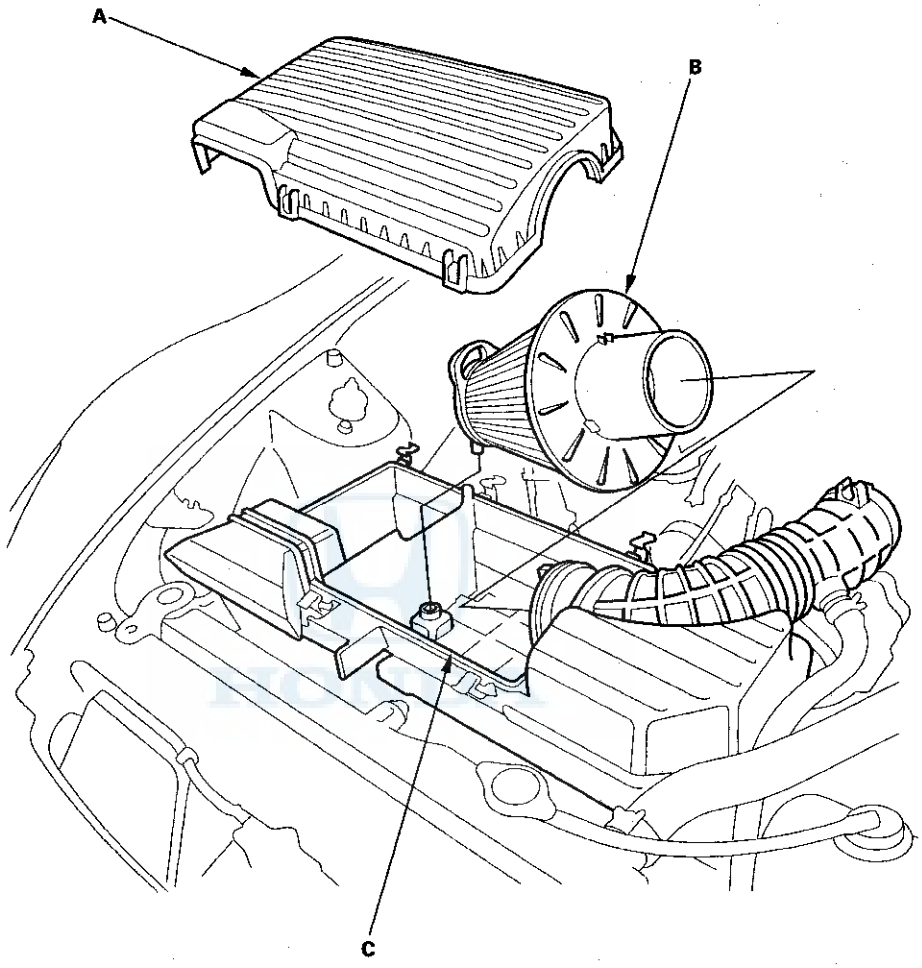


2. If free play (A) is not within spec (4—6 mm, 0.2—0.3 in.) loosen the locknut (B), turn the adjusting nut (C) until the free play is as specified, then retighten the locknut.

3. With the cable properly adjusted, check the throttle valve to be sure it opens fully when you push the accelerator pedal to the floor. Also check the throttle valve to be sure it returns to the idle position whenever you release the accelerator pedal.

Air Cleaner Element Inspection/Replacement

1. Remove the air cleaner housing cover (A).



2. Remove the air cleaner element (B) from the air cleaner housing (C).
3. Check the air cleaner element for damage or clogging. If there is damage or clogging, replace the air cleaner element.

   NOTE: Do not clean the air cleaner element by blowing if off with compressed air.

4. Clean and remove any debris from inside the air cleaner housing.
5. Install the parts in the reverse order of removal.

DTC Troubleshooting

DTC P0420: Catalyst System Efficiency Below Threshold

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- If some of the DTCs listed below are stored at the same time as DTC P0420, troubleshoot those DTCs first, then recheck for DTC P0420.

P0137, P0138: Secondary heated oxygen sensor (secondary HO2S (Sensor 2))
P0141: Secondary HO2S (Sensor 2) heater

1. Reset the ECM (see page 11-4), then continue to steps 2 through 5 to reset the readiness code.
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Drive on a highway for about 10 minutes without stopping. Your speed can vary.
4. With the transmission in 4th gear, drive at a steady speed between 50—62 mph (80—100 km/h) for 30 seconds.
5. Repeat step 4 three times. Between each repetition, close the throttle completely for 1—2 seconds. If the engine is stopped during this part of the procedure, go to step 3 and do the procedure again.
6. Check for a Temporary DTC with the scan tool.

   Does the scan tool indicate Temporary DTC P0420?

   YES—Check the three way catalytic converter (TWC). If necessary, replace the TWC (see page 9-5). ■

   NO—Check for readiness code completion. If the readiness is complete, it was a intermittent failure, the system is OK at this time. If the readiness is incomplete, repeat steps 2 through 5. ■

DTC Troubleshooting

DTC P2279: Intake Air System Leak Detected ('04-05 models)

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
3. Let the engine idle for at least 40 seconds with the throttle fully closed.
4. Check for DTC with a scan tool or the HDS.

   Is DTC P2279 indicated?

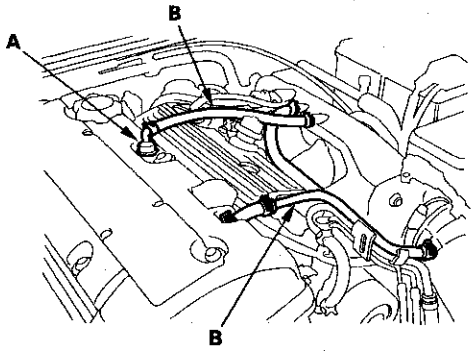
   YES—Check these parts for vacuum leaks.■

   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Brake booster hose
   - Intake manifold gasket

   NO—Intermittent failure, the system is OK at this time.■

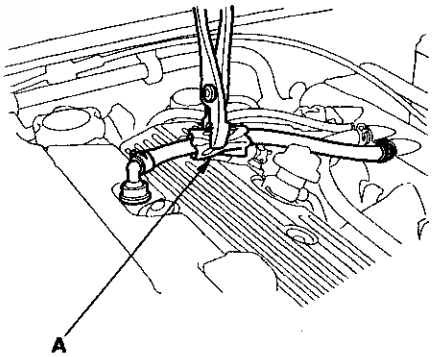
PCV Valve Inspection

1. Check the PCV valve (A), hoses (B), and connections for leaks or restrictions.



*: This illustration shows '00-03 models.

2. At idle, make sure there is a clicking sound from the PCV valve when the hose between the PCV valve and intake manifold is lightly pinched (A) with your fingers or pliers.
   If there is no clicking sound, check the PCV valve grommet for cracks or damage. If the grommet is OK, replace the PCV valve ('04-05 models) (see page 11-172), then recheck.

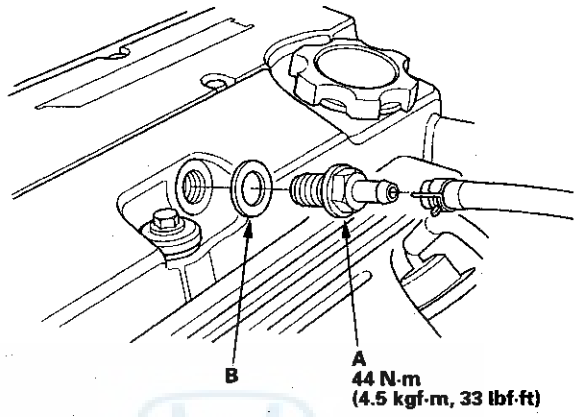


*: This illustration shows '00-03 models.

PCV Valve Replacement

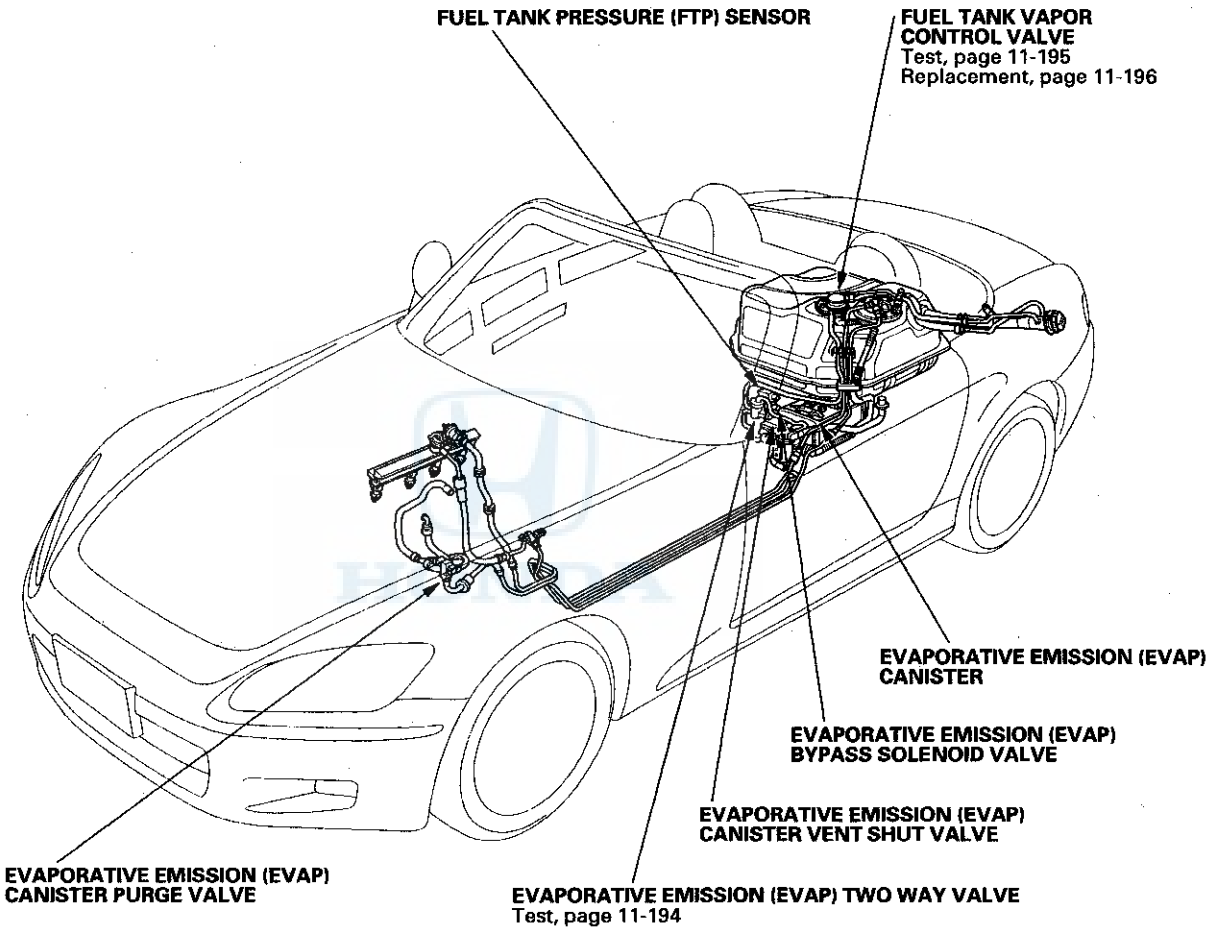
'04-05 models

1. Disconnect the PCV hose.
2. Remove the PCV valve (A).



3. Install the parts in the reverse order of removal with a new washer (B).

Component Location Index



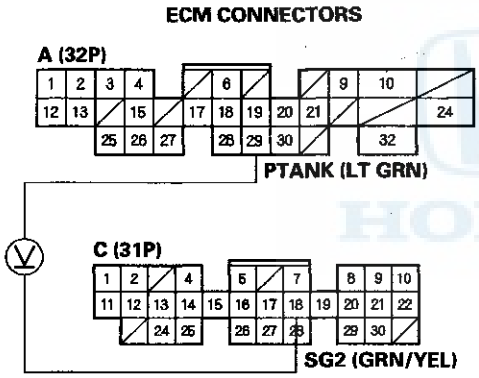
DTC Troubleshooting

DTC P0451: FTP Sensor Circuit Range/ Performance Problem

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Remove the fuel fill cap.
2. Turn the ignition switch ON(II).
3. Monitor FTP sensor voltage with the HDS, or measure voltage between ECM connector terminals A29 and C18.



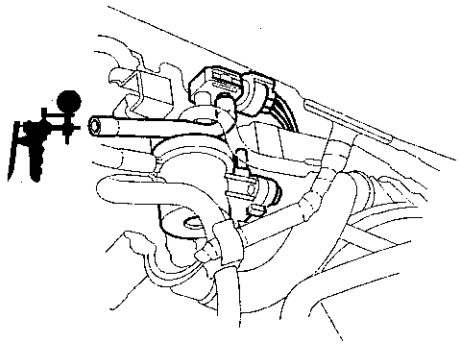
Wire side of female terminals

Is there about 2.5 V?

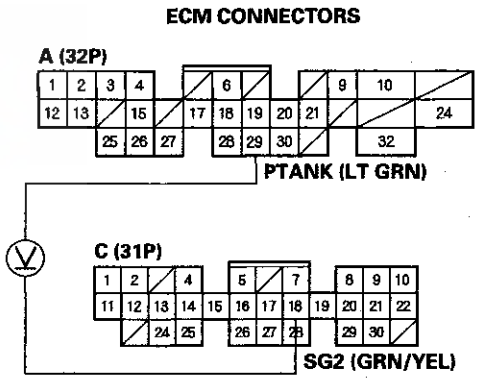
YES—Go to step 4.

NO—Replace the FTP sensor.■

4. Turn the ignition switch OFF.
5. Disconnect the hose between the EVAP two way valve and the FTP sensor at the EVAP two way valve end.
6. Connect a commercially available vacuum pump/ gauge, 0—30 in.Hg, to the open end of the hose.



7. Turn the ignition switch ON (II).
8. Monitor FTP sensor voltage with the HDS, or measure voltage between ECM connector terminals A29 and C18, and slowly squeeze the vacuum pump/gauge.



Wire side of female terminals

9. The voltage should smoothly drop from about 2.5 V down to about 1.5 V. Stop applying vacuum when the voltage drops to about 1.5 V or damage to the FTP sensor may occur.

Does the voltage drop to about 1.5 V and hold?

YES—Intermittent failure, the system is OK at this time. Check for poor connections at the FTP sensor and the ECM.■

NO—Replace the FTP sensor.■

DTC P0452: FTP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Check the vacuum lines of the FTP sensor for misrouting, leakage, breakage, and clogging.

   Are the vacuum lines OK?

   YES—Go to step 2.

   NO—Repair or replace vacuum lines as necessary.■

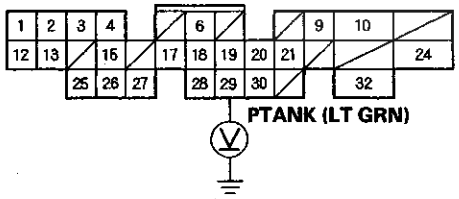
2. Reset the ECM (see page 11-4).

3. Remove the fuel fill cap.

4. Turn the ignition switch ON (II).

5. Monitor FTP sensor voltage with the HDS, or measure voltage between body ground and ECM connector terminal A29.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there about 2.5 V?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and at the ECM.■

NO—Go to step 6.

6. Turn the ignition switch OFF.

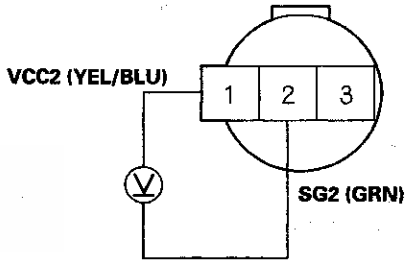
7. Reinstall the fuel fill cap.

8. Disconnect the FTP sensor 3P connector.

9. Turn the ignition switch ON (II).

10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

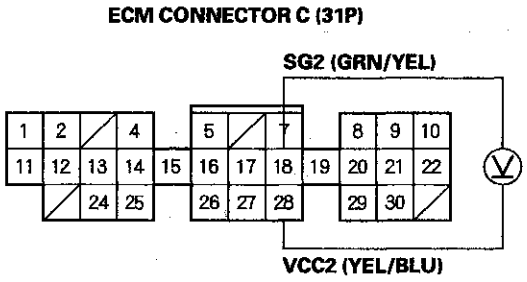
YES—Go to step 12.

NO—Go to step 11.

(cont'd)

DTC Troubleshooting (cont'd)

11. Measure voltage between ECM connector terminals C28 and C18.



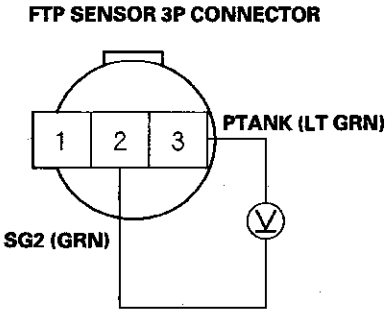
Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C28) and the FTP sensor. ■

NO—Substitute a known-good ECM (see page 11-5). If the FTP sensor readings are now normal, replace the original ECM (see page 11-115). ■

12. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.



Wire side of female terminals

Is there about 5 V?

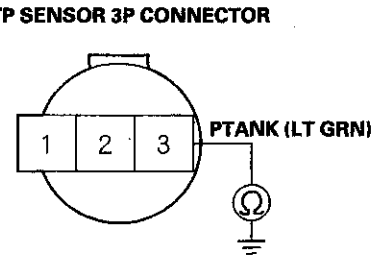
YES—Replace the FTP sensor. ■

NO—Go to step 13.

13. Turn the ignition switch OFF.

14. Disconnect ECM connector A (32P).

15. Check for continuity between FTP sensor 3P connector terminal No. 3 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the FTP sensor and the ECM (A29). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the FTP sensor readings are now normal, replace the original ECM (see page 11-115). ■

DTC P0453: FTP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Check the vacuum lines of the FTP sensor for misrouting, leakage, breakage, and clogging.

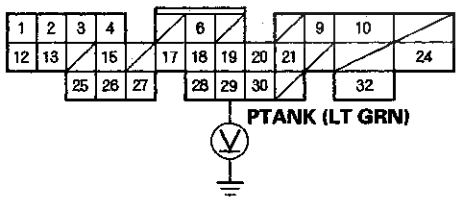
   Are the vacuum lines OK?

   YES—Go to step 2.

   NO—Repair or replace vacuum lines as necessary.■

2. Reset the ECM (see page 11-4).
3. Remove the fuel fill cap.
4. Turn the ignition switch ON (II).
5. Monitor FTP sensor voltage with the HDS, or measure voltage between body ground and ECM connector terminal A29.

ECM CONNECTOR A (32P)



Wire side of female terminals

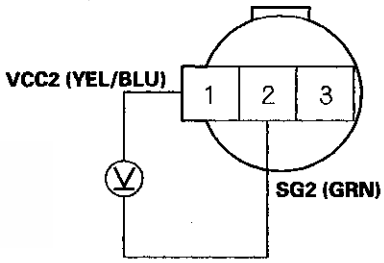
Is there about 2.5 V?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and at the ECM.■

NO—Go to step 6.

6. Turn the ignition switch OFF.
7. Reinstall the fuel fill cap.
8. Disconnect the FTP sensor 3P connector.
9. Turn the ignition switch ON (II).
10. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 2.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

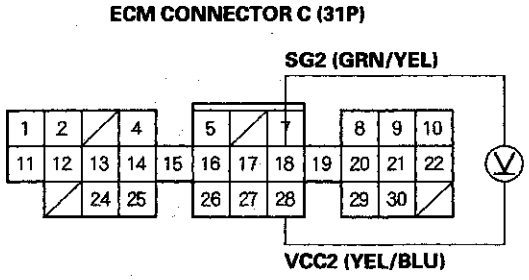
YES—Go to step 12.

NO—Go to step 11.

(cont'd)

DTC Troubleshooting (cont'd)

11. Measure voltage between ECM connector terminals C28 and C18.



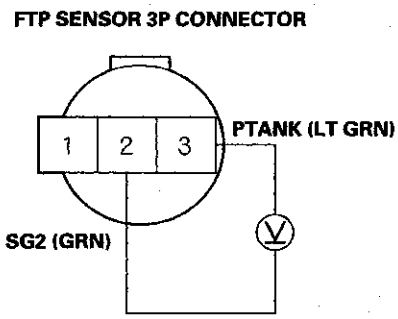
Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C18) and the FTP sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the FTP sensor readings are now normal, replace the original ECM (see page 11-115). ■

12. Measure voltage between FTP sensor 3P connector terminals No. 2 and No. 3.



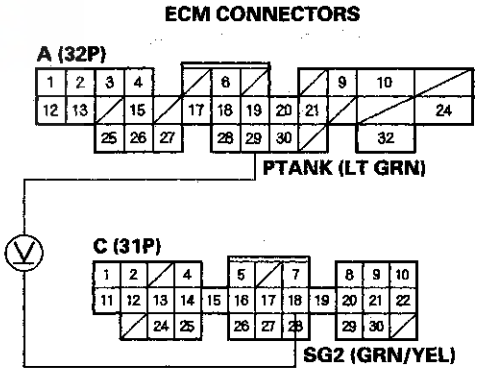
Wire side of female terminals

Is there about 5 V?

YES—Replace the FTP sensor. ■

NO—Go to step 13.

13. Measure voltage between ECM connector terminals A29 and C18.



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the FTP sensor and the ECM (A29). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the FTP sensor readings are now normal, replace the original ECM (see page 11-115). ■

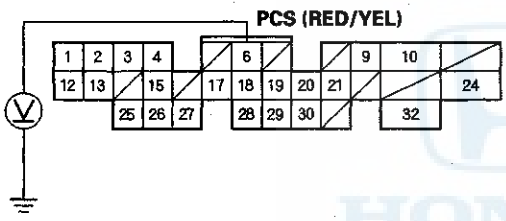
DTC P0497: EVAP System Low Purge Flow ('04-05 models)

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch ON (II).
2. Measure voltage between ECM connector terminal A6 and body ground.

ECM CONNECTOR A (32P)



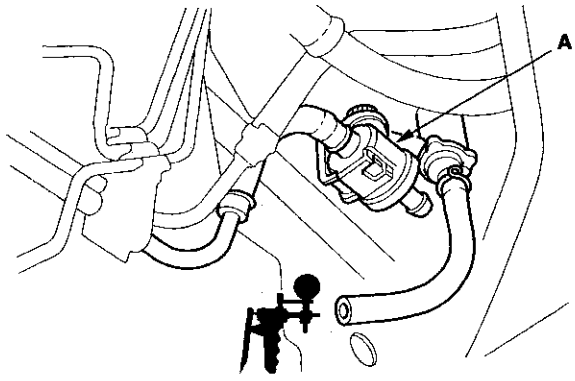
Wire side of female terminals

Is there battery voltage?

YES—Go to step 3.

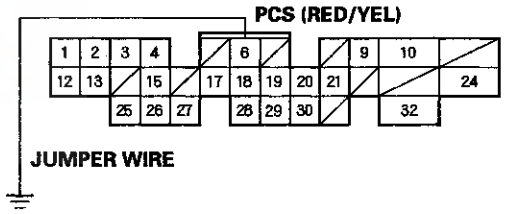
NO—Go to step 8.

3. Turn the ignition switch OFF.
4. Disconnect the vacuum hose from the EVAP purge joint (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



5. Connect ECM connector terminal A6 to body ground with a jumper wire.

ECM CONNECTOR A (32P)



Wire side of female terminals

6. Turn the ignition switch ON (II).
7. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—Replace the EVAP canister purge valve.■

NO—Go to step 14.

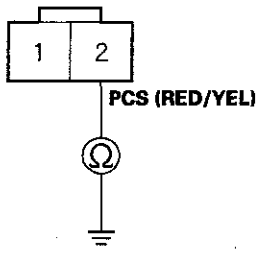
8. Turn the ignition switch OFF.
9. Disconnect the EVAP canister purge valve 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

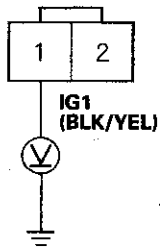
YES—Go to step 11.

NO—Repair open in the wire between the EVAP canister purge valve and the ECM (A6).■

11. Turn the ignition switch ON (II).

12. Measure voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

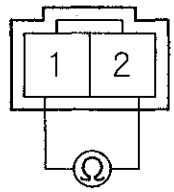
Is there battery voltage?

YES—Go to step 13.

NO—Repair open in the wire between the EVAP canister purge valve and the No. 6 ACG (15 A) fuse in the under-dash fuse/relay box.■

13. At the valve side, measure resistance between EVAP canister purge valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Terminal side of male terminals

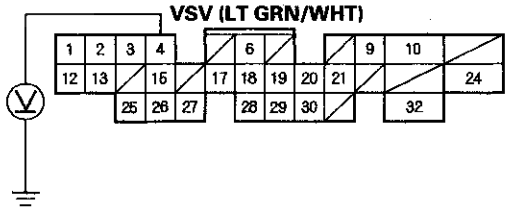
Is there about 33 Ω at room temperature?

YES—Go to step 14.

NO—Replace the EVAP canister purge valve.■

14. Measure voltage between ECM connector terminal A4 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

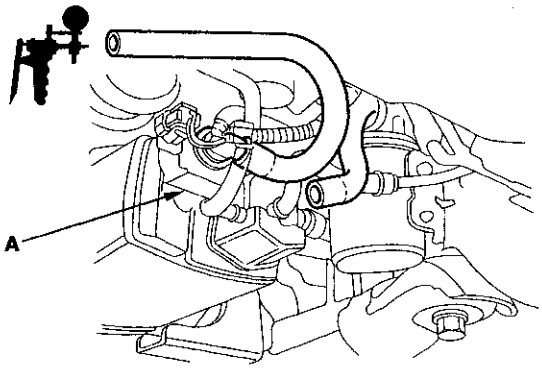
Is there battery voltage?

YES—Go to step 15.

NO—Go to step 20.

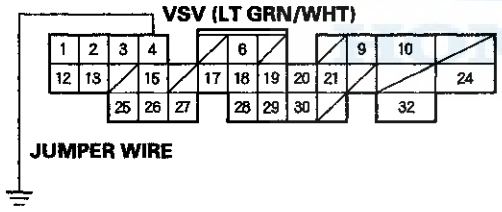
15. Turn the ignition switch OFF.

16. Disconnect the vacuum hose from the EVAP canister vent filter line (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



17. Connect ECM connector terminal A4 to body ground with a jumper wire.

ECM CONNECTOR A (32P)



Wire side of female terminals

18. Turn the ignition switch ON (II).

19. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—Inspect the vacuum line between the EVAP canister purge valve and the EVAP canister. ■

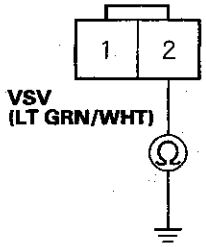
NO—Replace the EVAP canister vent shut valve. ■

20. Turn the ignition switch OFF.

21. Disconnect the EVAP canister vent shut valve 2P connector.

22. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

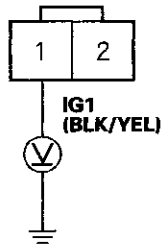
YES—Go to step 23.

NO—Repair open in the wire between the EVAP canister vent shut valve and the ECM. ■

23. Turn the ignition switch ON (II).

24. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 25.

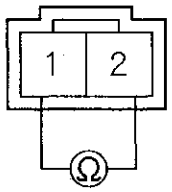
NO—Repair open in the wire between the EVAP canister vent shut valve and the No. 6 ACG (15 A) fuse in the under-dash fuse/relay box. ■

(cont'd)

DTC Troubleshooting (cont'd)

25. At the valve side, measure resistance between EVAP canister vent shut valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Terminal side of male terminals

Is there about 33 Ω at room temperature?

YES—Substitute a known-good ECM (see page 11-5) and retest. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Replace the EVAP canister vent shut valve. ■

DTC P1456: EVAP Control System Leakage (Fuel Tank System)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

This is a two-trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the ECM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code. If necessary, use the test drive procedures for setting the readiness code (see page 11-40).

Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE:

- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is fresh fuel, and must be less than a full tank of gas. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

Fuel Fill Cap Check

1. Check the fuel fill cap (the cap must say "If not tightened 3 clicks check engine light may come on.")

   Is the proper fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap. ■

2. Check the fuel fill cap seal and the fuel fill pipe sealing surface.

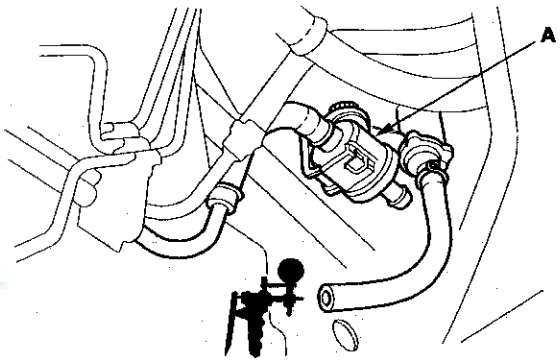
   Is the fuel fill cap seal missing or damaged, or is the fill pipe damaged?

   YES—Replace the fuel fill cap (gray or black colored cap), or the fuel fill pipe. ■

   NO—The fuel fill cap is OK. Go to step 3.

EVAP Canister Purge Valve Test

3. Disconnect the vacuum hose from the EVAP purge joint (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



4. Turn the ignition switch ON (II).

5. Apply vacuum to the hose.

   Does the valve hold vacuum?

   YES—The EVAP canister purge valve is OK. Go to step 11.

   NO—Go to step 6.

6. Turn the ignition switch OFF.

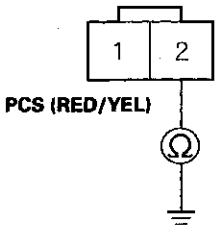
7. Disconnect the EVAP canister purge valve 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

8. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

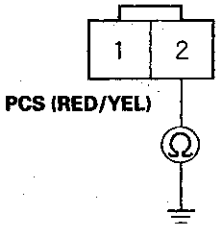
YES—Go to step 9.

NO—Replace the EVAP canister purge valve. ■

9. Disconnect ECM connector A (32P).

10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

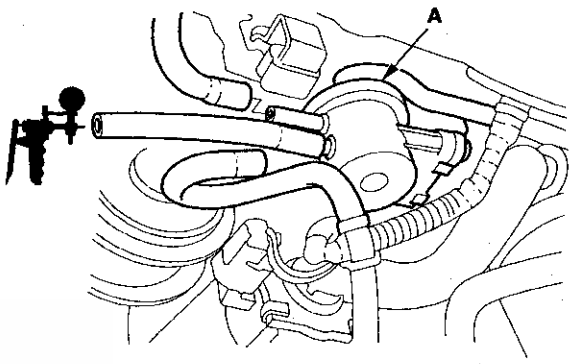
Is there continuity?

YES—Repair short in the wire between the EVAP canister purge valve and the ECM (A6). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

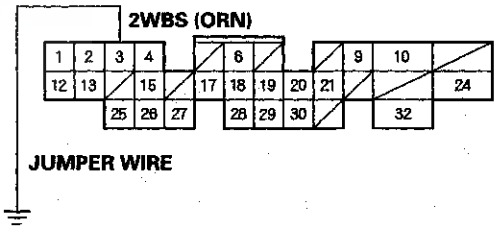
EVAP Bypass Solenoid Valve Test

11. Disconnect both vacuum hoses from the EVAP two way valve (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the canister port on the two way valve.



12. Turn the EVAP bypass solenoid valve ON with the HDS, or connect ECM connector terminal A3 to body ground with a jumper wire.

ECM CONNECTOR A (32P)



Wire side of female terminals

13. Turn the ignition switch ON (II).

14. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—Go to step 15.

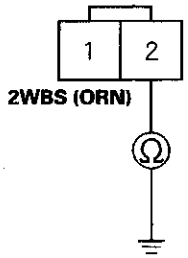
NO—Go to step 20.

15. Turn the ignition switch OFF.

16. Disconnect the EVAP bypass solenoid valve 2P connector.

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

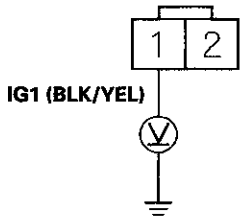
YES—Go to step 18.

NO—Repair open in the wire between the EVAP bypass solenoid valve and the ECM (A3).■

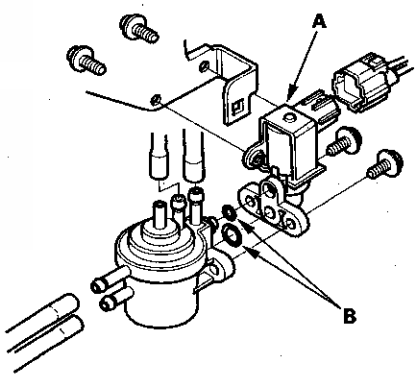
18. Turn the ignition switch ON (II).

19. Measure voltage between EVAP bypass solenoid valve 2P connector terminal No. 1 and body ground.

EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals



Is there battery voltage?

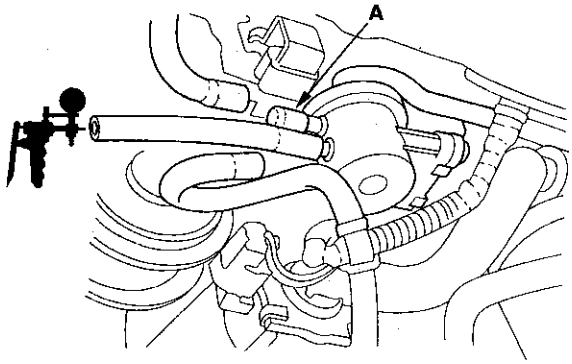
YES—Replace the EVAP bypass solenoid valve (A) and the O-rings (B).■

NO—Repair open in the wire between the EVAP bypass solenoid valve and the No. 6 ACG (15 A) fuse.■

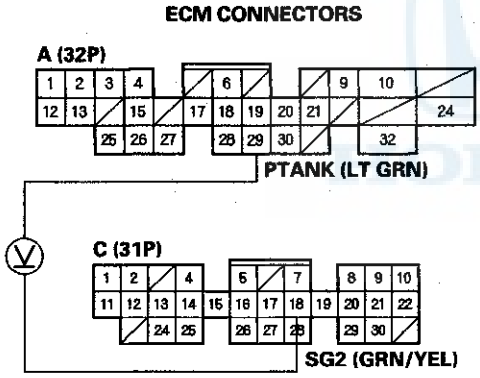
(cont'd)

DTC Troubleshooting (cont'd)

20. Plug the upper port (A) of the EVAP two way valve.



21. While monitoring FTP sensor voltage with the HDS, or measuring the voltage between ECM connector terminals A29 and C18, slowly pump the vacuum pump/gauge until the voltage drops to about 1.5 V.



Wire side of female terminals

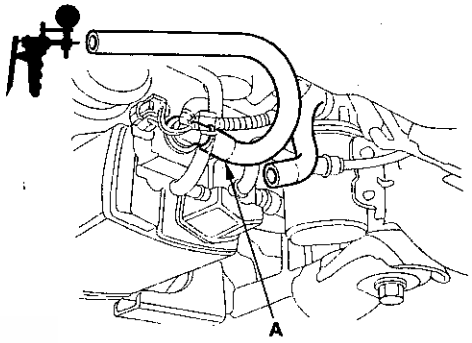
Does the voltage drop to 1.5 V and hold for at least 20 seconds?

YES—The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 22.

NO—Repair leak from the EVAP bypass solenoid valve, EVAP two way valve, FTP sensor, or O-rings.■

EVAP Canister Vent Shut Valve Test

22. Disconnect the vacuum hose from the EVAP canister vent filter line (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



23. Turn the ignition switch ON (II).

24. Apply vacuum to the hose with 5 strokes of the pump.

Does the valve hold vacuum?

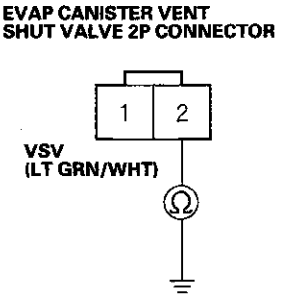
YES—Go to step 25.

NO—The EVAP canister vent shut valve is OK. Go to step 30.

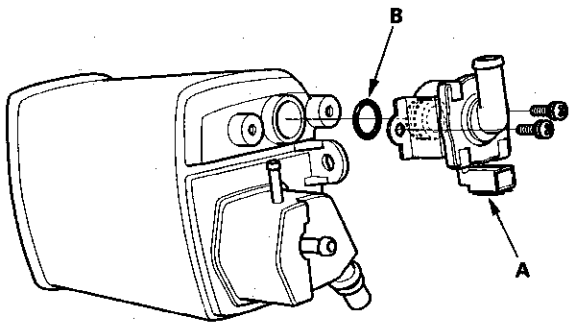
25. Turn the ignition switch OFF.

26. Disconnect the EVAP canister vent shut valve 2P connector.

27. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.



Wire side of female terminals



Is there continuity?

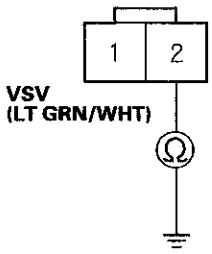
YES—Go to step 28.

NO—Replace the EVAP canister vent shut valve (A) and the O-ring (B).■

28. Disconnect ECM connector A (32P).

29. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the EVAP canister vent shut valve and the ECM (A4).■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

Vacuum Hoses and Connections Test

30. Perform the fuel tank vapor control valve test (see page 11-195).

Is the fuel tank vapor control valve OK?

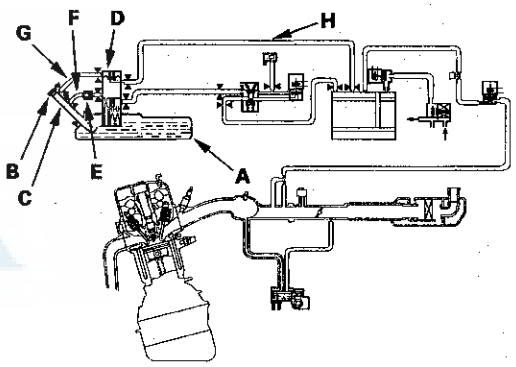
YES—Go to step 31.

NO—Replace the fuel tank vapor control valve.■

31. Tighten the fuel cap three "clicks", then monitor the FTP readings with the HDS.

32. Start the engine, and let it idle for 5 minutes.

33. Check the FTP sensor reading.



Is the reading above 4 mmHg pressure or below −4 mmHg vacuum?

YES—Substitute a known-good ECM (see page 11-5) and retest. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

NO—Check these parts for vacuum leaks.■

- Fuel tank (A)
- Fuel fill cap (B)
- Fuel fill pipe (C)
- Fuel tank vapor control valve (D)
- Fuel tank vapor recirculation valve (E)
- Fuel tank vapor recirculation tube (F)
- Fuel tank vapor signal tube (G)
- Fuel tank vapor control vent tube (H)

– Repair or replace parts as needed.

DTC Troubleshooting (cont'd)

DTC P1457: EVAP Control System Leakage (EVAP Canister System)

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

This is a two-trip code; once cleared, it cannot be reproduced in one trip. Also, certain specific driving and ambient conditions must occur before the ECM will complete the system checks. Additional test drives may still not meet the specific conditions needed to reproduce the code. If necessary, use the test drive procedures for setting the readiness code (see page 11-40).

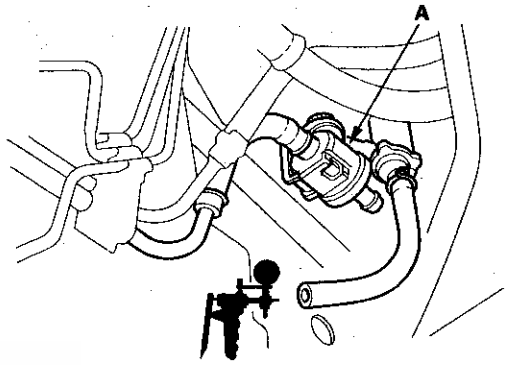
Follow these troubleshooting procedures carefully to ensure the integrity of the system and to confirm the cause of the problem or code.

NOTE:

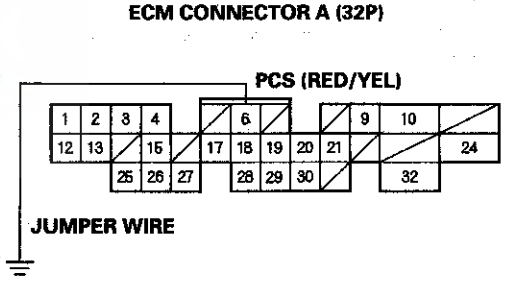
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is fresh fuel, at least half, but less than a full tank. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

EVAP Canister Purge Valve Test

1. Disconnect the vacuum hose from the EVAP purge joint (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



2. Turn the EVAP canister purge valve on with the HDS, or connect ECM connector terminal A6 to body ground with a jumper wire.



3. Turn the ignition switch ON (II).
4. Apply vacuum to the hose.

   Does the valve hold vacuum?

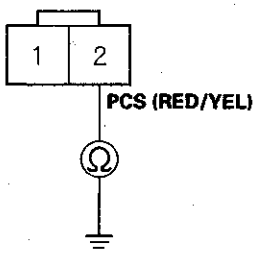
   YES—Go to step 5.

   NO—The EVAP canister purge valve is OK. Go to step 10.

5. Turn the ignition switch OFF.
6. Disconnect the EVAP canister purge valve 2P connector.

7. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

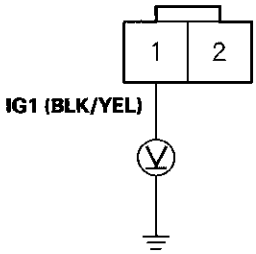
YES—Go to step 8.

NO—Repair open in the wire between the EVAP canister purge valve and the ECM (A6).■

8. Turn the ignition switch ON (II).

9. Measure voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

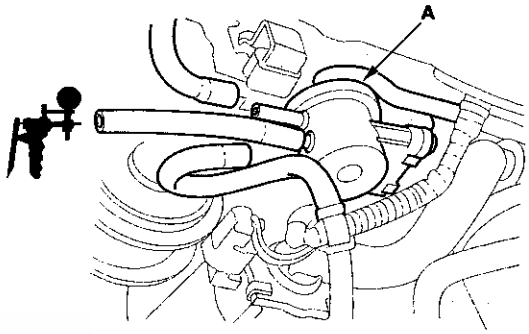
Is there battery voltage?

YES—Replace the EVAP canister purge valve.■

NO—Repair open in the wire between the EVAP canister purge valve and the No. 6 ACG (15 A) fuse.■

EVAP Bypass Solenoid Valve Test

10. Disconnect both vacuum hoses from the EVAP two way valve (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the canister port on the two way valve.



11. Turn the ignition switch ON (II).

12. Apply vacuum to the hose.

Does the valve hold vacuum?

YES—The EVAP bypass solenoid valve/EVAP two way valve is OK. Go to step 18.

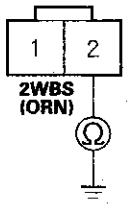
NO—Go to step 13.

13. Turn the ignition switch OFF.

14. Disconnect the EVAP bypass solenoid valve 2P connector.

15. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.

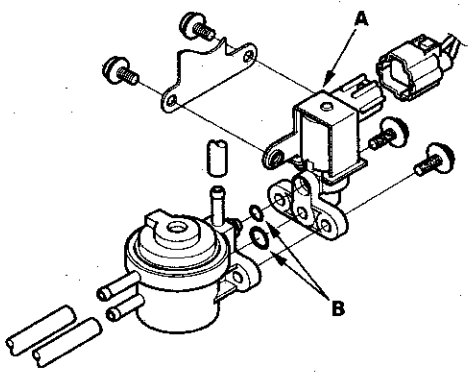
EVAP BYPASS SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)



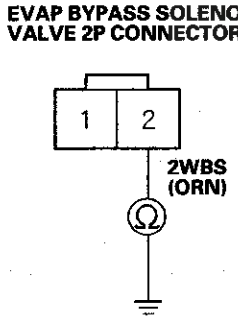
Is there continuity?

YES—Go to step 16.

NO—Replace the EVAP bypass solenoid valve (A) and O-rings (B).■

16. Disconnect ECM connector A (32P).

17. Check for continuity between EVAP bypass solenoid valve 2P connector terminal No. 2 and body ground.



Wire side of female terminals

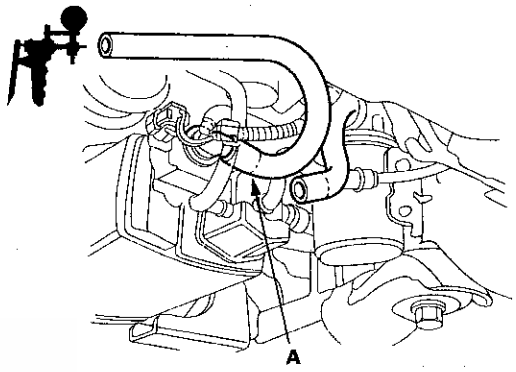
Is there continuity?

YES—Repair the short in the wire between the EVAP bypass solenoid valve and the ECM (A3).■

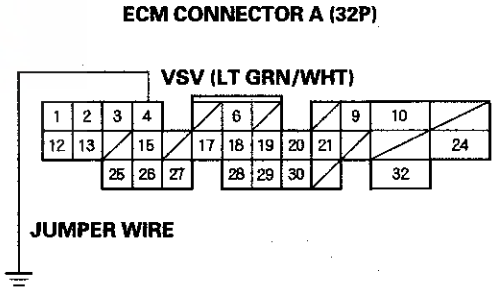
NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115).■

EVAP Canister Vent Shut Valve Test

18. Disconnect the vacuum hose from the EVAP canister vent filter line (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



19. Turn the EVAP canister vent shut valve on with the HDS, or connect ECM connector terminal A4 to body ground with a jumper wire.



Wire side of female terminals

20. Turn the ignition switch ON (II)

21. Apply vacuum to the hose.

Does the valve hold vacuum?

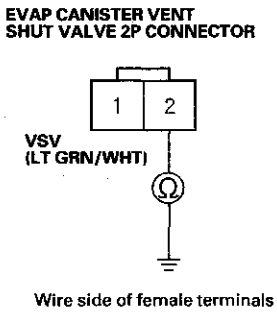
YES—The EVAP canister vent shut valve is OK. Go to step 27.

NO—Go to step 22.

22. Turn the ignition switch OFF.

23. Disconnect the EVAP canister vent shut valve 2P connector.

24. Check for continuity between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground. If using the HDS to turn the EVAP canister vent shut valve on, turn the ignition switch ON (II).



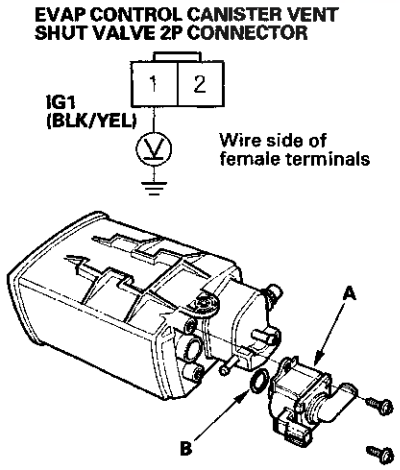
Is there continuity?

YES—Go to step 25.

NO—Repair open in the wire between the EVAP canister vent shut valve and the ECM (A4).■

25. Turn the ignition switch ON (II).

26. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 1 and body ground.



Is there battery voltage?

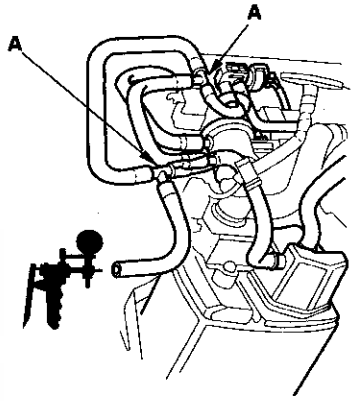
YES—Replace the EVAP canister vent shut valve (A) and the O-ring (B).■

NO—Repair open in the wire between the EVAP canister vent shut valve and the No. 6 ACG (15 A) fuse.■

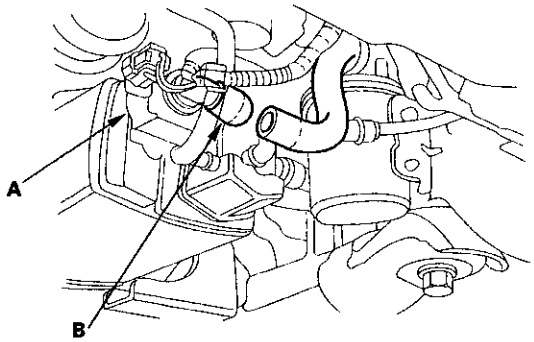
Canister System Leak Test

27. Turn the ignition switch OFF.

28. Connect two three-way T-fittings (A) into the hose from the EVAP canister to the EVAP two way valve. Connect the FTP sensor to one of the T-fittings and a commercially available vacuum pump/gauge, 0—30 in.Hg, to the other.



29. Remove the vent hose from the EVAP canister vent shut valve (A), and cap the port (B) to seal the fresh air vent for the EVAP canister.



30. Turn the ignition switch ON (II).

31. While monitoring FTP sensor voltage with the HDS, or measuring voltage between ECM connector terminals A29 and C18, slowly pump the vacuum pump.

(cont'd)

DTC Troubleshooting (cont'd)

32. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95 °F (35 °C) and your vacuum pump has no leak.

33. Check the voltage for 20 seconds.

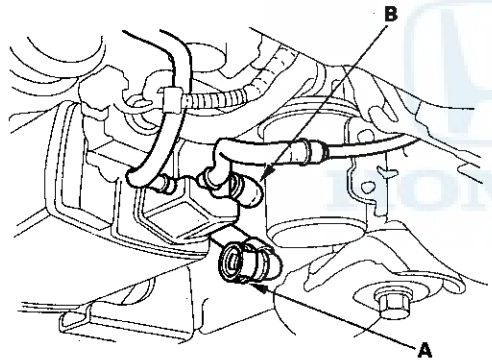
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the EVAP canister vent shut valve line and connections. ■

    NO—Go to step 34.

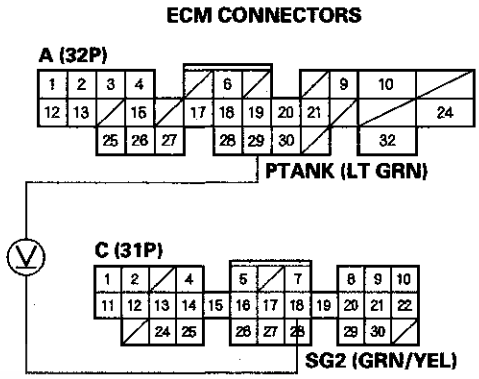
34. Turn the ignition switch OFF.

35. Disconnect the quick-connect fitting (A) from the EVAP canister, and plug the canister port (B).



36. Turn the ignition switch ON (II).

37. While monitoring FTP sensor voltage with the HDS, or measuring voltage between ECM connector terminals A29 and C18, slowly pump the vacuum pump.



Wire side of female terminals

38. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure the engine coolant temperature is still above 95 °F (35 °C) and your vacuum pump/gauge has no leak.

39. Monitor the voltage continuously for 20 seconds.

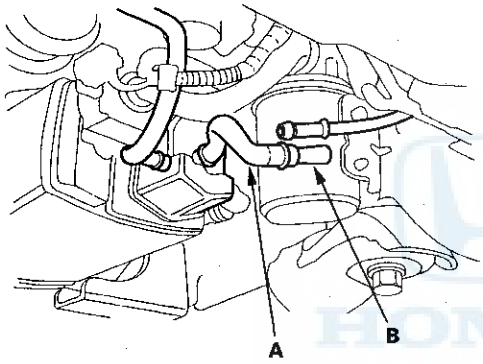
    Does the voltage drop to 1.5 V and hold for at least 20 seconds?

    YES—Inspect the fuel tank vapor control line and connections. ■

    NO—Go to step 40.

40. Turn the ignition switch OFF.

41. Disconnect the purge line hose (A) from the canister at the metal line, and plug the hose (B).



42. Turn the ignition switch ON (II).

43. While monitoring FTP sensor voltage with the HDS, or measuring voltage between ECM connector terminals A29 and C18, slowly pump the vacuum pump/gauge.

44. Continue to pump vacuum until the voltage drops to about 1.5 V. Make sure that the engine coolant temperature is still above 95 °F (35 °C) and your vacuum pump/gauge has no leak.

45. Check the voltage for 20 seconds.

    Does the voltage drop to 1.5 V and hold at least 20 seconds?

    YES—Inspect the EVAP canister purge valve line and connections. If they are OK, test the EVAP two way valve (see page 11-194), and the fuel tank vapor control valve (see page 11-195). ■

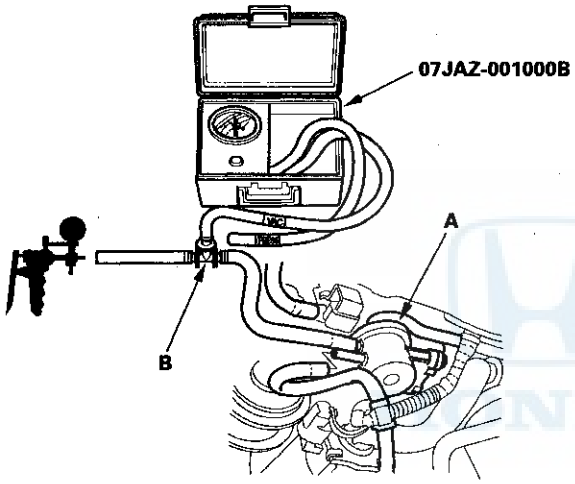
    NO—Replace the EVAP canister. ■

EVAP Two Way Valve Test

Special Tools Required
- Vacuum/pressure gauge, 0—4 in.Hg 07JAZ-001000B
- Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

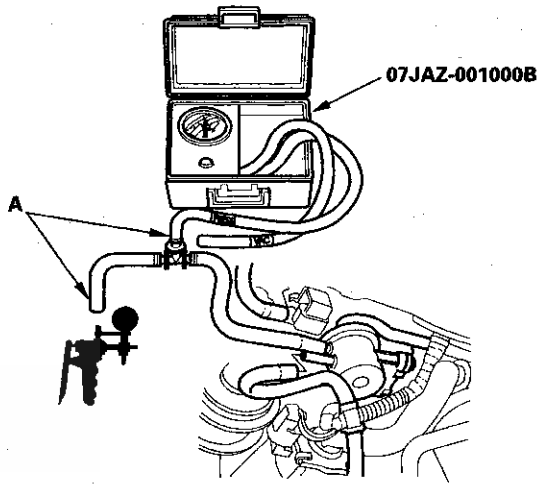
1. Remove the fuel fill cap.

2. Disconnect the vapor line from the EVAP two way valve (A). Connect it to a T-fitting (B) from the vacuum gauge and a commercially available vacuum pump/gauge, 0—30 in.Hg, as shown.



3. Apply vacuum slowly and continuously while watching the gauge.
   The vacuum should stabilize momentarily at 0.8—2.1 kPa (0.2—0.6 in.Hg, 6—16 mmHg).
   If the vacuum stabilizes (valve opens) below 0.8 kPa (0.2 in.Hg, 6 mmHg) or above 2.1 kPa (0.6 in.Hg, 16 mmHg), install a new valve and retest.

4. Move the vacuum pump hose from the vacuum fitting to the pressure fitting, and move the vacuum gauge hose from the vacuum side to the pressure side (A) as shown.



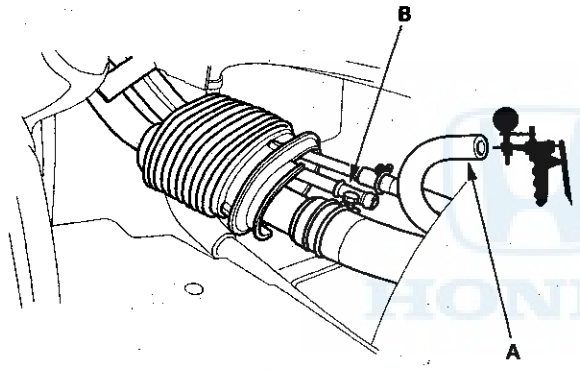
5. Slowly pressurize the vapor line while watching the gauge. The pressure should stabilize momentarily above 1.0 kPa (0.3 in.Hg, 8 mmHg).
   - If the pressure momentarily stabilizes (valve opens) above 1.0 kPa (0.3 in.Hg, 8 mmHg), the valve is OK.
   - If the pressure stabilizes below 1.0 kPa (0.3 in.Hg, 8 mmHg), install a new valve and retest.

Fuel Tank Vapor Control Valve Test

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

Float Test

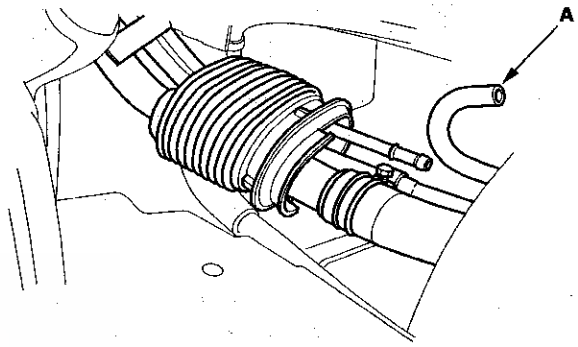
1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap to relieve the fuel tank pressure, then reinstall the cap.
3. Remove the fuel pipe cover. Disconnect the fuel tank vapor recirculation tube (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



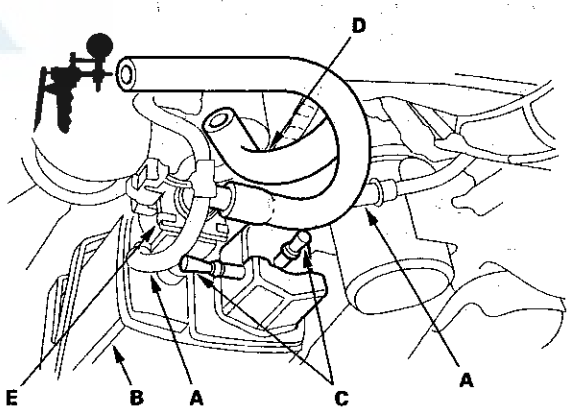
4. Plug the fuel tank vapor recirculation pipe (B).
5. Apply vacuum to the fuel tank vapor recirculation tube (A).
   - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-196).
   - If the vacuum does not hold, the float is OK. Go to step 1 of the valve test.

Valve Test

1. Make sure the fuel tank is less than half full.
2. Remove the fuel fill cap.
3. Remove the fuel pipe cover. Disconnect the fuel tank vapor signal tube (A).



4. Disconnect the vacuum hoses (A) from the EVAP canister (B), and then plug the ports with plugs (C).

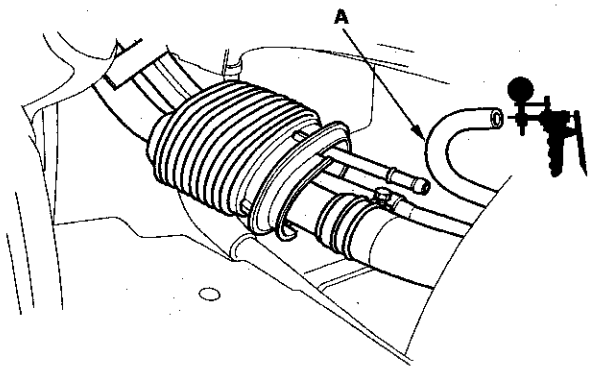


5. Disconnect the vacuum hose (D) from the EVAP canister vent shut valve (E), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the EVAP canister vent shut valve.
6. Pump the vacuum pump 80 times.
   - If the vacuum holds, go to step 7.
   - If the vacuum does not hold, go to step 9.

(cont'd)

Fuel Tank Vapor Control Valve Test (cont'd)

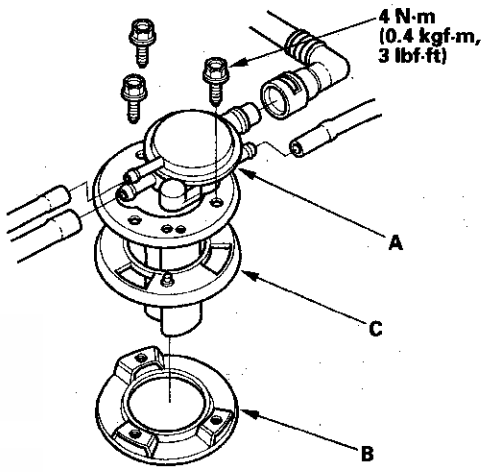
7. Connect a second vacuum pump/gauge to the fuel tank vapor signal tube (A).



8. Apply vacuum (1 pump) to the fuel tank vapor signal tube (A), then check the vacuum on the pump in step 6.
   - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-196).
   - If the vacuum is released, the fuel tank vapor control valve is OK.
9. Disconnect the fuel tank vapor quick disconnect from the EVAP canister, then plug the port on the canister. Reapply vacuum (80 pumps).
   - If the vacuum holds, replace the fuel tank vapor control valve (see page 11-196).
   - If the vacuum does not hold, inspect the EVAP canister vent shut valve O-ring. If the O-ring is OK, replace the EVAP canister and repeat step 4.

Fuel Tank Vapor Control Valve Replacement

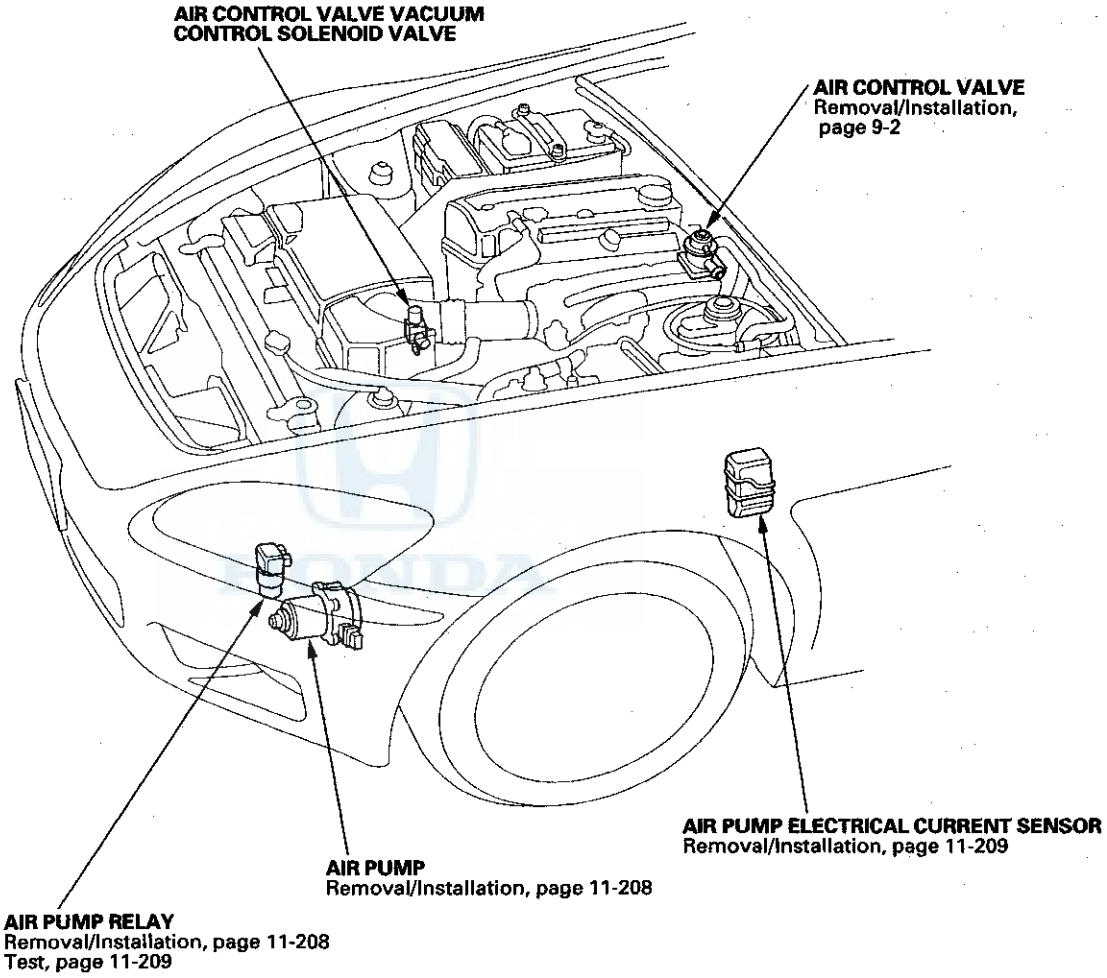
1. Remove the fuel tank (see page 11-156).
2. Remove the fuel tank vapor control valve (A) from the fuel tank (B).



3. Replace the base gasket (C).
4. Install the fuel tank vapor control valve.
5. Install the fuel tank.

Pulsed Secondary Air Injection System

Component Location Index



DTC Troubleshooting

DTC P0410: Air Pump Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Make sure the engine coolant temperature is over 32 °F (0 °C) and below 158 °F (60 °C) with a scan tool or the HDS.
3. Start the engine. During air pump operation, hold the engine at idle speed without load (in neutral) for at least 10 seconds.
4. Check for a Temporary DTC with a scan tool or the HDS.

   Is Temporary DTC P0410 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the air control valve vacuum control solenoid valve and at the ECM. ■
5. Check the air pump.

   Does the air pump operate?

   YES—Go to step 35.

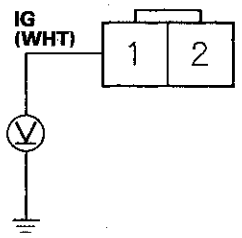
   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Check the No. 32 AIR PUMP (60 A) fuse in the auxiliary under-hood fuse box.

   Is the fuse OK?

   YES—Go to step 8.

   NO—Repair short in the wire between the No. 32 AIR PUMP (60 A) fuse and the air pump. Then replace the No. 32 AIR PUMP (60 A) fuse. ■
8. Remove the left-front inner fender (see page 20-126).
9. Disconnect the air pump electrical current sensor 2P connector.
10. Turn the ignition switch ON (II).
11. At the left engine compartment wire harness side, measure voltage between air pump electrical current sensor 2P connector terminal No. 1 and body ground.

AIR PUMP ELECTRICAL CURRENT SENSOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

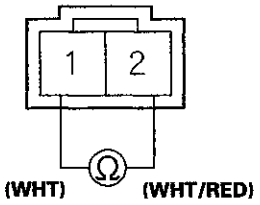
YES—Go to step 12.

NO—Repair open in the wire between the air pump electrical current sensor and the No. 32 AIR PUMP (60 A) fuse in the auxiliary under-hood fuse box. ■

12. Turn the ignition switch OFF.

13. At the air pump electrical current sensor side, check for continuity between air pump electrical current sensor 2P connector terminals No. 1 and No. 2.

AIR PUMP ELECTRICAL CURRENT SENSOR 2P CONNECTOR



Terminal side of male terminals

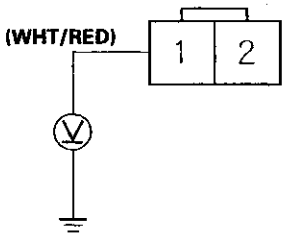
Is there continuity?

YES—Go to step 14.

NO—Replace the air pump electrical current sensor (see page 11-209). ■

14. Reconnect the air pump electrical current sensor 2P connector.
15. Disconnect the large air pump relay 2P connector.
16. Turn the ignition switch ON (II).
17. Measure voltage between large air pump relay 2P connector terminal No. 1 and body ground.

LARGE AIR PUMP RELAY 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 18.

NO—Repair open in the wire between the air pump electrical current sensor and the air pump relay. ■

18. Turn the ignition switch OFF.
19. Do the air pump relay test (see page 11-209).

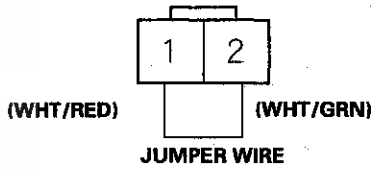
Is the air pump relay OK?

YES—Go to step 20.

NO—Replace the air pump relay (see page 11-208). ■

20. Turn the ignition switch ON (II).
21. Connect large air pump relay 2P connector terminals No. 1 and No. 2 with a jumper wire.

LARGE AIR PUMP RELAY 2P CONNECTOR



Wire side of female terminals

Does the air pump operate when the jumper wire is connected?

YES—Go to step 22.

NO—Go to step 30.

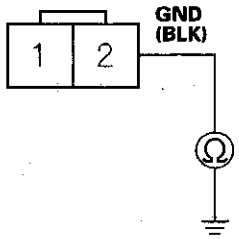
22. Turn the ignition switch OFF.
23. Disconnect the jumper wire from the large air pump relay 2P connector.
24. Disconnect the small air pump relay 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

25. Check for continuity between small air pump relay 2P connector terminal No. 2 and body ground.

SMALL AIR PUMP RELAY 2P CONNECTOR



Wire side of female terminals

Is there continuity?

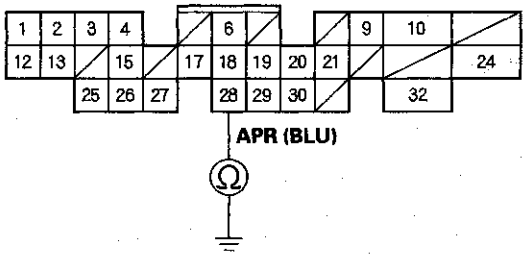
YES—Go to step 26.

NO—Repair open in the wire between the air pump relay and body ground. ■

26. Disconnect ECM connector A (32P).

27. Check for the continuity between ECM connector terminal A28 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

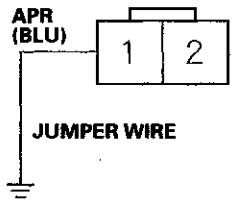
Is there continuity?

YES—Repair short in the wire between the air pump relay and the ECM (A28). ■

NO—Go to step 28.

28. Connect small air pump relay 2P connector terminal No. 1 to body ground with a jumper wire.

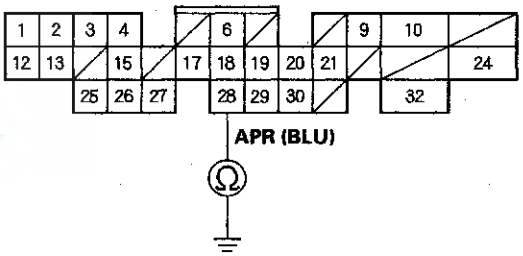
SMALL AIR PUMP RELAY 2P CONNECTOR



Wire side of female terminals

29. Check for continuity between ECM connector terminal A28 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Repair open in the wire between the air pump relay and the ECM (A28). ■

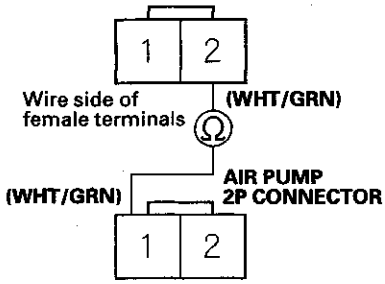
30. Turn the ignition switch OFF.

31. Disconnect the jumper wire from the large air pump relay 2P connector.

32. Disconnect the air pump 2P connector.

33. Check for continuity between large air pump relay 2P connector terminal No. 2 and air pump 2P connector terminal No. 1.

LARGE AIR PUMP RELAY 2P CONNECTOR



Wire side of female terminals

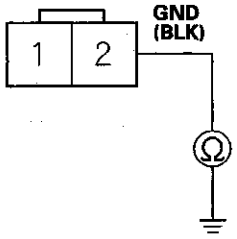
Is there continuity?

YES—Go to step 34.

NO—Repair open in the wire between the air pump relay and the air pump. ■

34. Check for continuity between air pump 2P connector terminal No. 2 and body ground.

AIR PUMP 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the air pump (see page 11-208). ■

NO—Repair open in the wire between the air pump and body ground. ■

35. Turn the ignition switch OFF.

36. Do the air pump relay test (see page 11-209).

Is the air pump relay OK?

YES—Go to step 37.

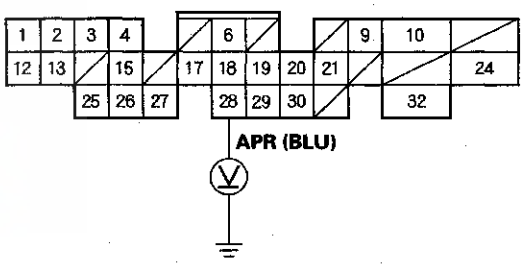
NO—Replace the air pump relay (see page 11-208). ■

37. Disconnect ECM connector A (32P).

38. Turn the ignition switch ON (II).

39. Measure voltage between ECM connector terminal A28 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire between the air pump relay and the ECM (A28). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

DTC Troubleshooting (cont'd)

DTC P0411: Secondary Air Injection System Incorrect Flow

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

1. Reset the ECM (see page 11-4).
2. Make sure the engine coolant temperature is over 32 °F (0 °C) and below 158 °F (60 °C) with a scan tool or the HDS.
3. Start the engine. While the air pump operates, let the engine idle without load (in neutral) for at least 10 seconds.
4. Check for a Temporary DTC with a scan tool or the HDS.

   Is Temporary DTC P0411 indicated?

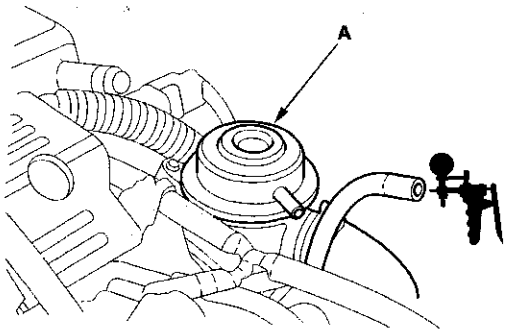
   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the air control valve vacuum control solenoid valve and at the ECM. ■
5. Turn the ignition switch OFF.
6. Check the vacuum lines of the air pump system for misrouting, leakage, breakage, and clogging.

   Are the vacuum lines OK?

   YES—Go to step 7.

   NO—Repair or replace vacuum lines as necessary. ■
7. Reset the ECM (see page 11-4).
8. Make sure the engine coolant temperature is over 32 °F (0 °C) and below 158 °F (60 °C) with a scan tool or the HDS.
9. Disconnect the vacuum hose from the air control valve (A), and connect a commercially available vacuum pump/gauge, 0—30 in.Hg, to the hose.



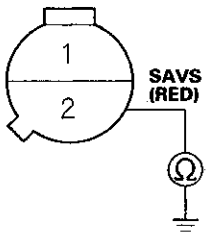
10. Start the engine. While the air pump operates, let the engine idle without load (in neutral).

    Is there vacuum while the air pump operates?

    YES—Go to step 11.

    NO—Go to step 16.
11. Turn the ignition switch OFF.
12. Disconnect the air control valve vacuum control solenoid valve 2P connector.
13. Check for continuity between air control valve vacuum control solenoid valve 2P connector terminal No. 2 and body ground.

AIR CONTROL VALVE VACUUM CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

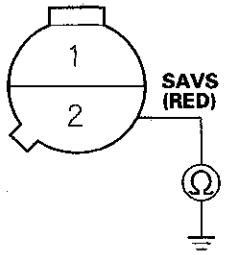
YES—Go to step 14.

NO—Replace the air control valve vacuum control solenoid valve. ■

14. Disconnect ECM connector A (32P).

15. Check for continuity between air control valve vacuum control solenoid valve 2P connector terminal No. 2 and body ground.

AIR CONTROL VALVE VACUUM CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the air control valve vacuum control solenoid valve and the ECM (A2). ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

16. Turn the ignition switch OFF.

17. Check the No. 6 ACG (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 18.

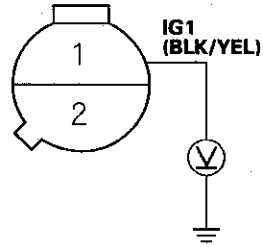
NO—Repair short in the wire between the No. 6 ACG (15 A) fuse and the gauge assembly. Then replace the No. 6 ACG (15 A) fuse. ■

18. Disconnect the air control valve vacuum control solenoid valve 2P connector.

19. Turn the ignition switch ON (II).

20. Measure voltage between air control valve vacuum control solenoid valve 2P connector terminal No. 1 and body ground.

AIR CONTROL VALVE VACUUM CONTROL SOLENOID VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 21.

NO—Repair open in the wire between the No. 6 ACG (15 A) fuse in the under-dash fuse/relay box and the air control solenoid valve. ■

21. Turn the ignition switch OFF.

22. Reconnect the air control valve vacuum control solenoid valve 2P connector.

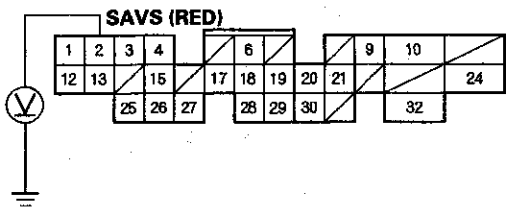
23. Disconnect ECM connector A (32P).

(cont'd)

DTC Troubleshooting (cont'd)

24. Turn the ignition switch ON (II), and measure voltage between ECM connector terminal A2 and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there less than 1.0 V?

YES—Repair open in the wire between the air control valve vacuum control solenoid valve and the ECM (A2). If the wire is OK, replace the air control valve vacuum control solenoid valve. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

DTC P1410: Air Pump Malfunction ('00-03 models)

DTC P2445: Air Pump Malfunction ('04-05 models)

NOTE:
- Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '00-03 models.
- Information marked with double asterisk (**) applies to '04-05 models.

1. Reset the ECM (see page 11-4).
2. Make sure the engine coolant temperature is over 32 °F (0 °C) and below 158 °F (60 °C) with a scan tool or the HDS.
3. Start the engine. While the air pump operates, let the engine idle without load (in neutral) for at least 10 seconds.
4. Check for a Temporary DTC with a scan tool or the HDS.

   Is Temporary DTC P1410 (P2445)** indicated?*

   YES—Replace the air pump. ■

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the air pump and the air pump relay. ■

DTC P1415: Air Pump Electrical Current Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

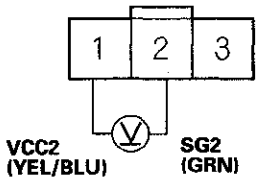
1. Reset the ECM (see page 11-4).
2. Turn the ignition switch ON (II).
3. Check for a DTC with a scan tool or the HDS.

   Is DTC P1415 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the air pump electrical current sensor and the ECM. ■
4. Turn the ignition switch OFF.
5. Disconnect the air pump electrical current sensor 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between air pump electrical current sensor 3P connector terminals No. 1 and No. 2.

   AIR PUMP ELECTRICAL CURRENT SENSOR 3P CONNECTOR



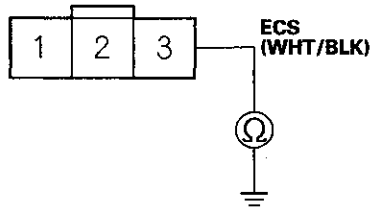
   Wire side of female terminals

   Is there about 5 V?

   YES—Go to step 8.

   NO—Go to step 17.
8. Turn the ignition switch OFF.
9. Disconnect ECM connector C (31P).
10. Check for continuity between air pump electrical current sensor 3P connector terminal No. 3 and body ground.

    AIR PUMP ELECTRICAL CURRENT SENSOR 3P CONNECTOR



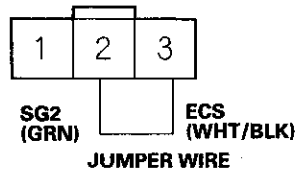
    Wire side of female terminals

    Is there continuity?

    YES—Repair short in the wire between the air pump electrical current sensor and the ECM (C24). ■

    NO—Go to step 11.
11. Connect air pump electrical current sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

    AIR PUMP ELECTRICAL CURRENT SENSOR 3P CONNECTOR



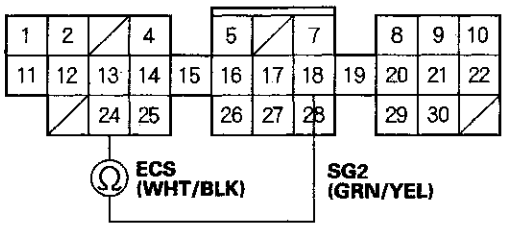
    Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

12. Check for continuity between ECM connector terminals C24 and C18.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the ECM (C24) and the air pump electrical current sensor. ■

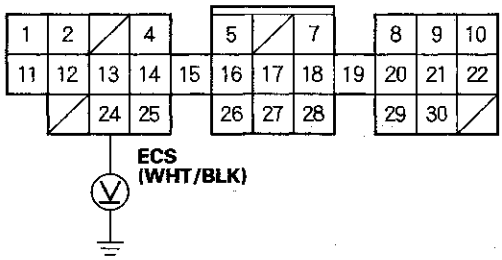
13. Disconnect the jumper wire from the air pump electrical current sensor 3P connector.

14. Reconnect ECM connector C (31P) and the air pump electrical current sensor 3P connector.

15. Turn the ignition switch ON (II).

16. Measure voltage between body ground and ECM connector terminal C24.

ECM CONNECTOR C (31P)



Wire side of female terminals

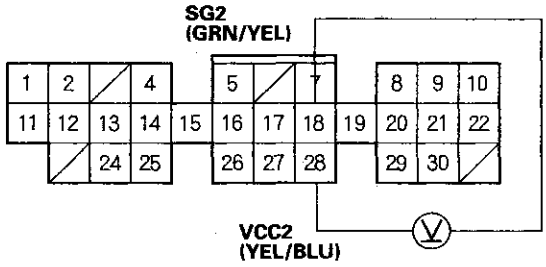
Is there about 0.5 V?

YES—Substitute a known-good ECM (see page 11-5), then recheck. If the symptom/indication goes away, replace the original ECM (see page 11-115). ■

NO—Replace the air pump electrical current sensor (see page 11-209). ■

17. Measure voltage between ECM connector terminals C18 and C28.

ECM CONNECTOR C (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (C28) and the air pump electrical current sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If voltage is normal, replace the original ECM (see page 11-115). ■

DTC P1416: Air Pump Electrical Current Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and review the general troubleshooting information (see page 11-3).

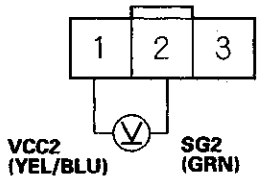
1. Reset the ECM (see page 11-4).
2. Turn the ignition switch ON (II).
3. Check for a DTC with a scan tool or the HDS.

   Is DTC P1416 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the air pump electrical current sensor and at the ECM. ■
4. Turn the ignition switch OFF.
5. Disconnect the air pump electrical current sensor 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between air pump electrical current sensor 3P connector terminals No. 1 and No. 2.

AIR PUMP ELECTRICAL CURRENT SENSOR 3P CONNECTOR



Wire side of female terminals

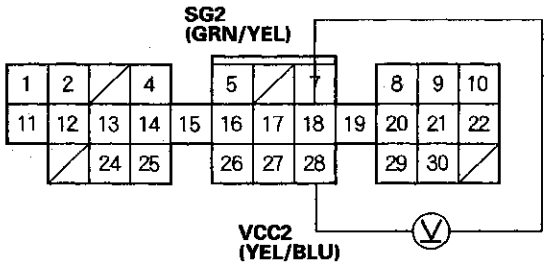
Is there about 5 V?

YES—Replace the air pump electrical current sensor (see page 11-209). ■

NO—Go to step 8.

8. Measure voltage between ECM connector terminals C18 and C28.

ECM CONNECTOR C (31P)



Wire side of female terminals

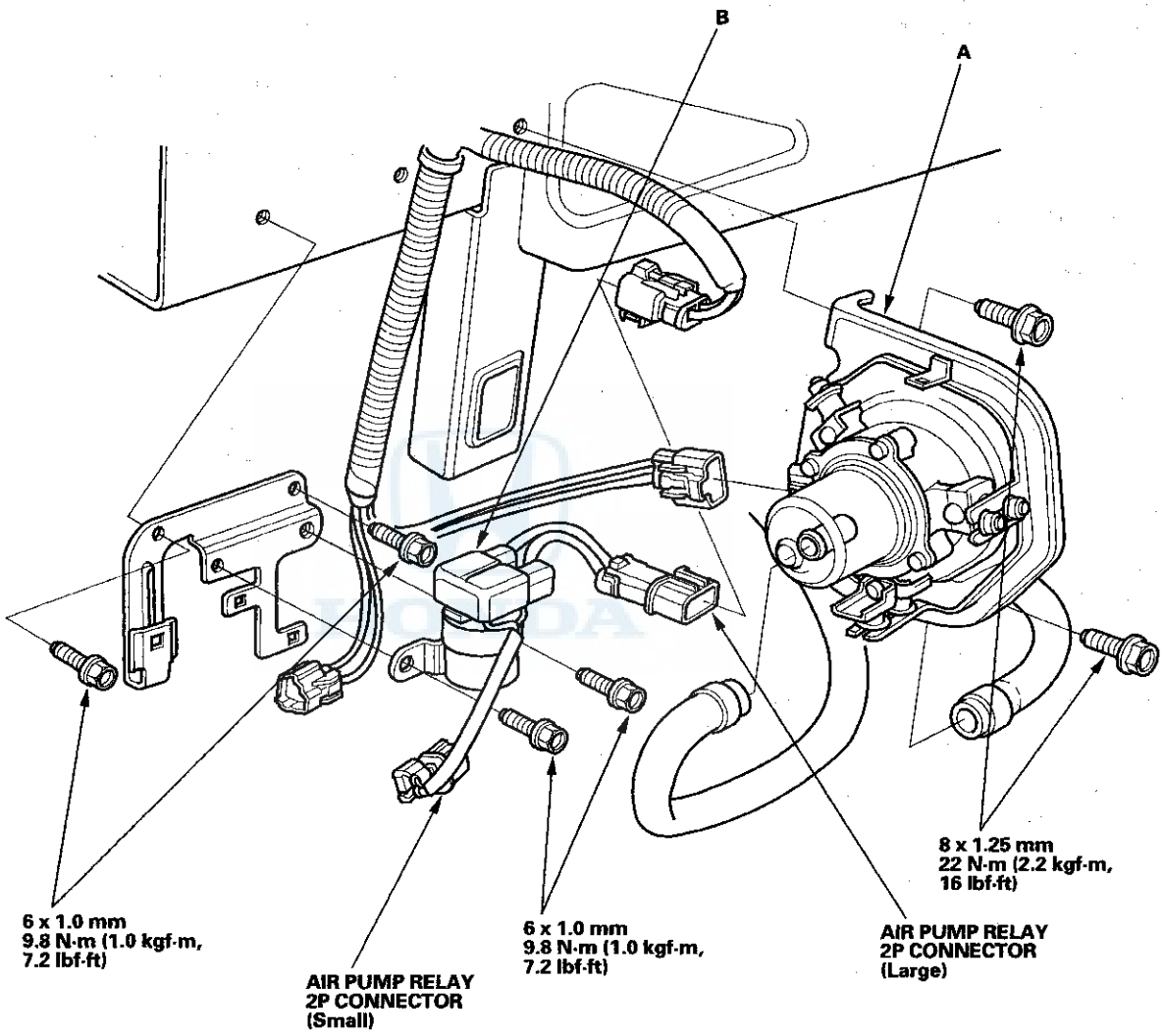
Is there about 5 V?

YES—Repair open in the wire between the ECM (C18) and the air pump electrical current sensor. ■

NO—Substitute a known-good ECM (see page 11-5), then recheck. If voltage is normal, replace the original ECM (see page 11-115). ■

Air Pump/Air Pump Relay Removal/Installation

1. Remove the front bumper; '00-03 models (see page 20-104), '04-05 models (see page 20-105).
2. Remove the air pump (A), and the air pump relay (B).



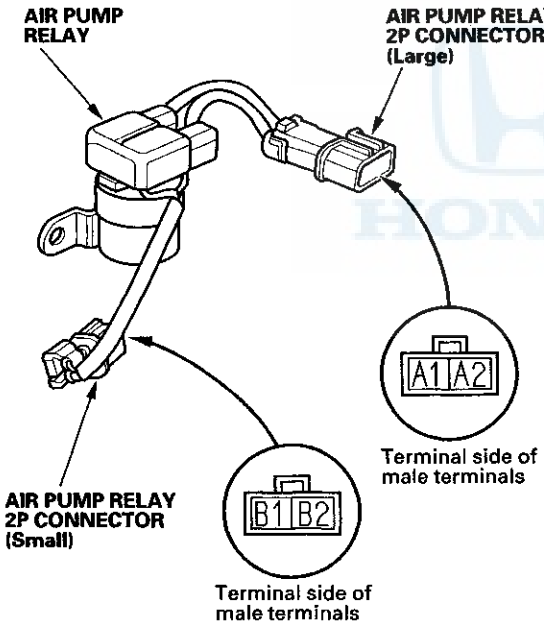
3. Install the parts in the reverse order of removal.

Air Pump Relay Test

Check for continuity between the terminals according to the table.

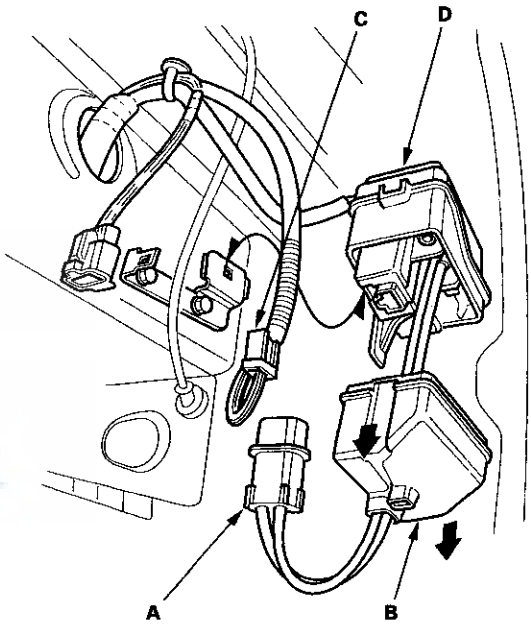
- There should be continuity between the A1 and A2 terminals of the large air pump relay 2P connector when power and ground are connected to the B1 and B2 terminals of the small air pump relay 2P connector.
- There should be no continuity between the A1 and A2 terminals when power is disconnected from the small air pump 2P connector.

Terminal / Power (B1)	A1	A2
Connected	○	○
Disconnected		



Air Pump Electrical Current Sensor Removal/Installation

1. Pull away the left inner fender as necessary (see page 20-126).
2. Disconnect the air pump electrical current sensor 2P connector (A), and remove the lower cover (B), then disconnect the air pump electrical current sensor 3P connector (C).



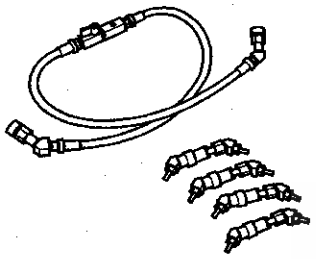
3. Remove the air pump electrical current sensor (D).
4. Install the parts in the reverse order of removal.

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

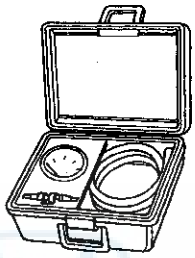
’06-08 Models

Special Tools

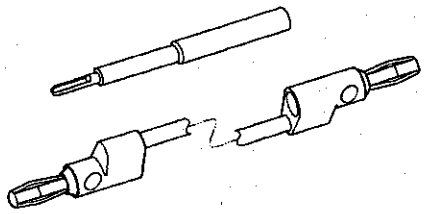
Ref. No.	Tool Number	Description	Qty
①	07AAJ-S6MA150	Fuel Pressure Gauge Attachment Set	1
②	07JAZ-001000B	Vacuum/Pressure Gauge, 0—4 in.Hg	1
③	07SAZ-001000A	Backprobe Set	2
④	07NAJ-P07010A	Pressure Gauge Adapter	1
⑤-1	07406-0020201	A/T Pressure Hose	1
⑤-2	07406-0070301	A/T Low Pressure Gauge W/Panel	1
⑤-3	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	1
⑤-4	07MAJ-PY40120	A/T Pressure Hose, Adapter	1
⑥	07406-004000B	Fuel Pressure Gauge	1



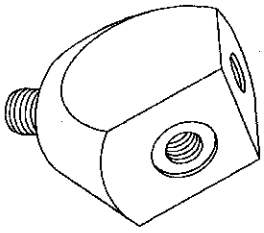
①



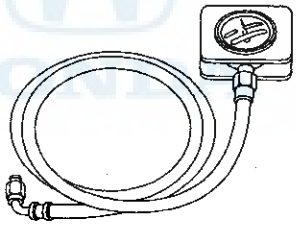
②



③



④



⑤-1, ⑤-2, ⑤-3, ⑤-4

⑥

General Troubleshooting Information

Intermittent Failures

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the malfunction indicator lamp (MIL) on the dash does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. If the MIL was on, but then went out, the original problem may have been intermittent.

Service Information

Periodically, new ECM software or new service procedures may become available. Always check online for the latest software or service information related to the DTCs or symptoms you are troubleshooting.

Opens and Shorts

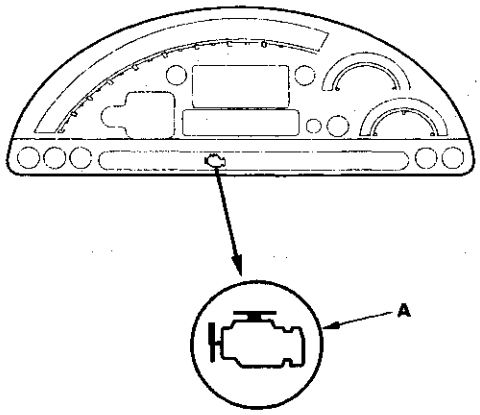
"Open" and "short" are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something won't work at all. With complex electronics (such as ECMs) this can sometimes mean something works, but not the way it's supposed to.

How to Use the HDS (Honda Diagnostic System)

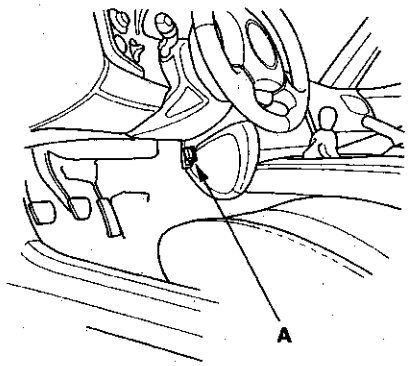
If the MIL (malfunction indicator lamp) has come on

1. Start the engine, and check the MIL (A).

   NOTE: If the ignition switch is turned ON (II), and the engine is not started, the MIL will stay on for 15—20 seconds (see page 11-256).



2. If the MIL stays on, connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



3. Turn the ignition switch ON (II).

4. Make sure the HDS communicates with the ECM and other vehicle systems. If it doesn't go to the DLC circuit troubleshooting (see page 11-367).

5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data and on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.

   NOTE:
   - Freeze data indicates the engine conditions when the first malfunction, misfire, or fuel trim malfunction was detected.
   - The HDS can read the DTC, freeze data, current data, and other engine control module (ECM) data.
   - For specific operations, refer to the user's manual that came with the HDS.

6. If no DTCs are found, go to MIL troubleshooting (see page 11-366).

If the MIL did not stay on

If the MIL did not stay on but there is a driveability problem, do the symptom troubleshooting.

If you can't duplicate the DTC

Some of the troubleshooting requires you to reset the ECM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the code, do not continue through the procedure. To do so will only result in confusion and possibly, a needlessly replaced ECM.

(cont'd)

General Troubleshooting Information (cont'd)

HDS Clear Command

The ECM stores various specific data to correct the system even if there is no electrical power such as when the battery negative terminal or No. 46 ACGS (15 A) fuse are disconnected. Stored data based on failed parts should be cleared by using the "CLEAR COMMAND" of the HDS, if parts are replaced.

The HDS has three kinds of clear commands to meet this purpose. They are DTC clear, ECM reset, and crank (CKP) pattern clear. DTC clear command erases all stored DTC codes, freeze data, readiness codes, and the on-board snapshot. This must be done with the HDS after reproducing the DTC during troubleshooting. The ECM reset command erases all stored DTC codes, freeze data, readiness codes, on-board snapshot, and all specific data to correct the system except crank (CKP) pattern. If the crank (CKP) pattern data in the ECM was cleared, you must do the crank (CKP) pattern learn procedure. The crank (CKP) pattern clear command erases only crank (CKP) pattern data. This command is for repair of a misfire or the CKP sensor.

Scan Tool Clear Command

If you are using a generic scan tool to clear commands, be aware that there is only one setting for clearing the ECM, and it clears all commands at the same time (crank (CKP) pattern learn, idle learn, readiness codes, freeze data, on-board snapshot, and DTCs). After you clear all commands, you then need to do these procedures, in this order: ECM idle learn procedure (see page 11-462); crank (CKP) pattern learn procedure; Test-drive to set readiness codes to complete (see page 11-256).

DTC Clear

1. Clear the DTC with the HDS while the engine is stopped.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II), and wait 30 seconds.
4. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

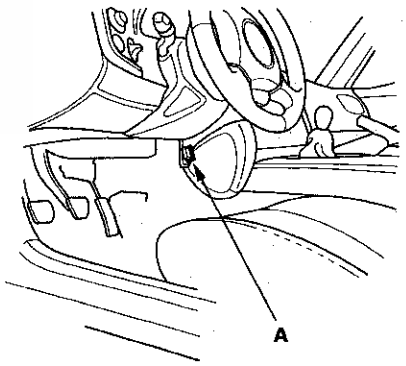
ECM Reset

1. Reset the ECM with the HDS while the engine is stopped.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON (II), and wait 30 seconds.
4. Turn the ignition switch OFF, and disconnect the HDS from the DLC.
5. Do the ECM idle learn procedure (see page 11-462).

Crank (CKP) Pattern Clear/Crank (CKP) Pattern Learn

Clear/Learn Procedure (with the HDS)

1. Connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the ECM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367).
4. Select CRANK PATTERN in the ADJUSTMENT MENU with the HDS.
5. Select CRANK PATTERN LEARNING with the HDS, and follow the screen prompts.

Learn Procedure (without the HDS)

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on.
2. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 2,500 rpm down to 1,000 rpm with the transmission in 1st gear.
3. Repeat step 2 several times.
4. Turn the ignition switch OFF.
5. Turn the ignition switch ON (II), and wait 30 seconds.

How to End a Troubleshooting Session (required after any troubleshooting)

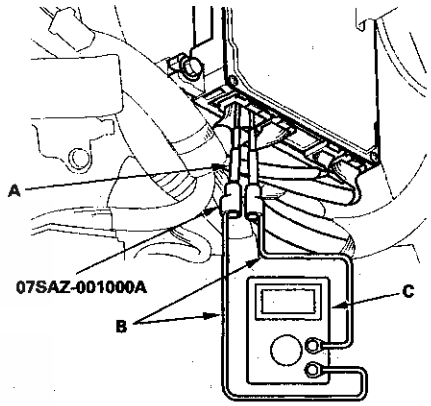
1. Reset the ECM with the HDS.
2. Do the ECM idle learn procedure (see page 11-462).
3. Turn the ignition switch OFF.
4. Disconnect the HDS from the DLC.

NOTE: The ECM is part of the immobilizer system. If you replace the ECM, it will have a different immobilizer code. In order for the engine to start, you must rewrite the immobilizer code with the HDS.

How to Troubleshoot Circuits at the ECM

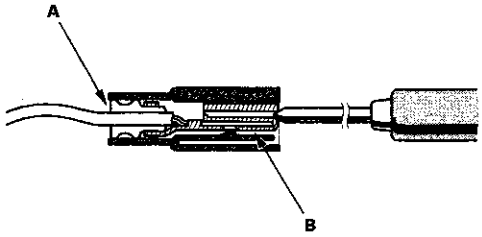
Special Tools Required
- Digital multimeter KS-AHM-32-003 (1) or a commercially available digital multimeter
- Backprobe set 07SAZ-001000A (2)

1. Connect the backprobe adapters (A) to the stacking patch cords (B), and connect the cords to a digital multimeter (C).



2. Using the wire insulation as a guide for the contoured tip of the backprobe adapter, gently slide the tip into the connector from the wire side until it touches the end of the wire terminal.
3. If you cannot get to the wire side of the connector or the wire side is sealed (A), disconnect the connector and probe the terminals (B) from the terminal side. Do not force the probe into the connector.

NOTICE
Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.



(cont'd)

General Troubleshooting Information (cont'd)

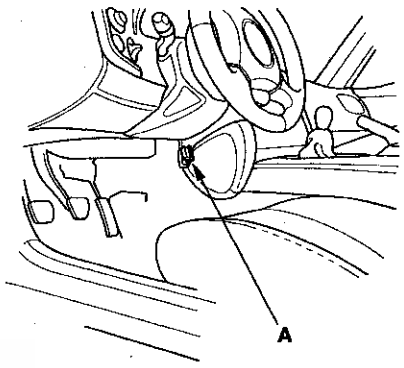
Updating the ECM

Special Tools Required
- Honda diagnostic system (HDS) tablet tester
- Honda interface module (HIM) and an iN workstation with HDS and CM update software
- HDS pocket tester
- GNA-600 and an iN workstation with HDS and CM update software

Use any one of these update tools.

NOTE:
- Use this procedure when you need to update the ECM during troubleshooting procedures.
- Make sure the HDS/HIM has the latest software version.
- Before you update the ECM, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.
- Never turn the ignition switch OFF during the update. If there is a problem with the update, leave the ignition switch ON.
- To prevent ECM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
- To ensure the latest program is installed, do ECM update whenever the ECM is substituted or replaced.
- You cannot update ECM with a program it already has. It will only accept a new program.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashed during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the data link connector (DLC). This will prevent ECM damage.

1. Turn the ignition switch ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Make sure the HDS communicates with the ECM and other vehicle system. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367). If you are returning from the DLC circuit troubleshooting, skip steps 4 and 5, then clean the throttle body after updating the ECM (see page 11-499).
4. Select the INSPECTION MENU with the HDS.
5. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

   NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.
6. Exit the HDS, then select the update mode, and follow the screen prompts to update the ECM.

7. If the software in the ECM is the latest, disconnect the HDS/HIM from the DLC, and go back to the procedure that you were doing. If the software in the ECM is not the latest, follow the instructions on the screen. If prompted to choose the PGM-FI system, make sure you update both.

   NOTE: If the ECM update system requires you to cool the ECM, follow the screen prompts. If you run into a problem (programming takes over 15 minutes, status bar goes over 100 %, or immobilizer indicator flashes, HDS tablet freezes, etc.) during the update procedure, follow these steps to minimize the chance of damaging the ECM:
   - Leave the ignition switch in the "ON (II)" position.
   - Connect a jumper battery (do not connect a battery charger).
   - Shut down the HDS.
   - Disconnect the HDS from the DLC.
   - Reboot the HDS.
   - Reconnect the HDS to the DLC, and try the update procedure again.

8. If the TP POSITION CHECK failed in step 6, clean the throttle body (see page 11-499).

9. Do the ECM idle learn procedure (see page 11-462).

10. Do the crank (CKP) pattern learn procedure.

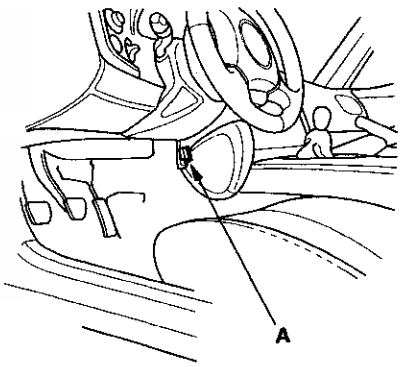
Substituting the ECM

Special Tools Required
- Honda diagnostic system (HDS) tablet tester
- Honda interface module (HIM) and an iN workstation with HDS and CM update software
- HDS pocket tester
- GNA-600 and an iN workstation with HDS and CM update software

Use any one of these update tools.

NOTE: Use this procedure when you need to substitute a known-good ECM during troubleshooting procedures.

1. Connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



2. Turn the ignition switch ON (II).

3. Make sure the HDS communicates with the ECM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367). If you are returning from DLC circuit troubleshooting, skip steps 4 thru 10, then clean the throttle body after substituting the ECM (see page 11-499).

4. Select the INSPECTION MENU with the HDS.

5. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

   NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.

6. Turn the ignition switch OFF.

7. Jump the SCS line with the HDS.

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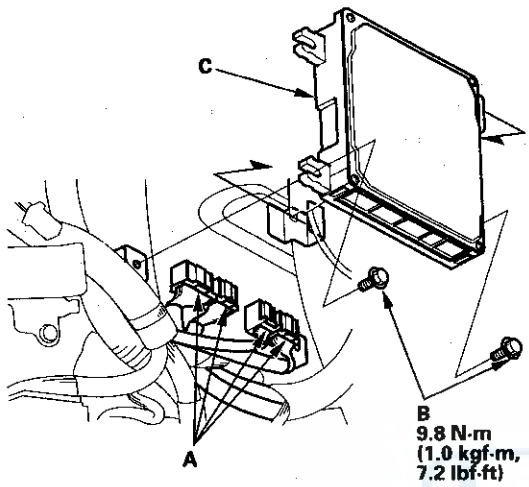
General Troubleshooting Information (cont'd)

8. Remove the left side kick panel (see page 20-71).
9. Disconnect the ECM connectors (A).



10. Remove the bolts (B), then remove the ECM (C).
11. Install the ECM in the reverse order of removal.
12. Open the SCS with the HDS.
13. Turn the ignition switch ON (II).

    NOTE: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM; ignore it, and continue this procedure.

14. Manually input the VIN to the ECM with the HDS.
15. Update the ECM if it does not have the latest software.
16. Select the IMMOBI SYSTEM with the HDS.
17. Enter the immobilizer code with the ECM replacement procedure in the HDS; it allows you to start the engine.
18. Reset the ECM with the HDS.
19. If the TP POSITION CHECK failed in step 5, clean the throttle body (see page 11-499).
20. Do the ECM idle learn procedure (see page 11-462).
21. Do the crank (CKP) pattern learn procedure.

OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- PASSED: The on board diagnosis is successfully finished.
- FAILED: The on board diagnosis has finished but failed.
- EXECUTING: The vehicle is in enable criteria conditions for the DTC and the on board diagnosis is running.
- NOT COMPLETED: The on board diagnosis was running but is out of the enable conditions of the DTC.
- OUT OF CONDITION: The vehicle has stayed out of the enable conditions for the DTC.

DTC Troubleshooting Index

DTC (MIL indication*1)	Two Drive Cycle Detection	Detection Item	MIL	Note
P0107 (3)	—	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage	ON	(see page 11-261)
P0108 (3)	—	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage	ON	(see page 11-263)
P0111 (10)	○	Intake Air Temperature (IAT) Sensor Circuit Range/Performance Problem	ON	(see page 11-266)
P0112 (10)	—	Intake Air Temperature (IAT) Sensor Circuit Low Voltage	ON	(see page 11-267)
P0113 (10)	—	Intake Air Temperature (IAT) Sensor Circuit High Voltage	ON	(see page 11-269)
P0116 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Circuit Range/ Performance Problem	ON	(see page 11-271)
P0117 (6)	—	Engine Coolant Temperature (ECT) Sensor 1 Circuit Low Voltage	ON	(see page 11-272)
P0118 (6)	—	Engine Coolant Temperature (ECT) Sensor 1 Circuit High Voltage	ON	(see page 11-274)
P0122 (7)	—	Throttle Position (TP) Sensor A Circuit Low Voltage	ON	(see page 11-392)
P0123 (7)	—	Throttle Position (TP) Sensor A Circuit High Voltage	ON	(see page 11-395)
P0125 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Malfunction/Slow Response	ON	(see page 11-276)
P0128 (87)	○	Cooling System Malfunction	ON	(see page 11-277)
P0133 (61)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Slow Response	ON	(see page 11-279)
P0134 (41)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater System Malfunction	ON	(see page 11-280)
P0135 (41)	—	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater Circuit Malfunction	ON	(see page 11-281)
P0137 (63)	—	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Low Voltage	ON	(see page 11-285)
P0138 (63)	—	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit High Voltage	ON	(see page 11-287)
P0139 (63)	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Slow Response	ON	(see page 11-290)
P0141 (65)	—	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Heater Circuit Malfunction	ON	(see page 11-291)
P0171 (45)	○	Fuel System Too Lean	ON	(see page 11-294)
P0172 (45)	○	Fuel System Too Rich	ON	(see page 11-294)
P0222 (7)	—	Throttle Position (TP) Sensor B Circuit Low Voltage	ON	(see page 11-398)
P0223 (7)	—	Throttle Position (TP) Sensor B Circuit High Voltage	ON	(see page 11-401)
P0300 (75) any combination of the following P0301 (71) P0302 (72) P0303 (73) P0304 (74)	○	Random Misfire Detected	ON	(see page 11-295)
P0301 (71)	○	No. 1 Cylinder Misfire Detected	ON	(see page 11-298)
P0302 (72)	○	No. 2 Cylinder Misfire Detected	ON	(see page 11-298)
P0303 (73)	○	No. 3 Cylinder Misfire Detected	ON	(see page 11-298)
P0304 (74)	○	No. 4 Cylinder Misfire Detected	ON	(see page 11-298)
P0325 (23)	—	Knock Sensor Circuit Malfunction	ON	(see page 11-306)
P0335 (4)	—	Crankshaft Position (CKP) Sensor No Signal	ON	(see page 11-308)
P0339 (4)	—	Crankshaft Position (CKP) Sensor Circuit Intermittent Interruption	ON	(see page 11-310)
P0365 (8)	—	Camshaft Position (CMP) Sensor No Signal	ON	(see page 11-311)
P0369 (8)	—	Camshaft Position (CMP) Sensor Circuit Intermittent Interruption	ON	(see page 11-313)
P0420 (67)	○	Catalyst System Efficiency Below Threshold	ON	(see page 11-507)
P0443 (92)	—	Evaporative Emission (EVAP) Canister Purge Valve Circuit Malfunction	ON	(see page 11-514)

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.

(cont'd)

DTC Troubleshooting Index (cont'd)

DTC (MIL indication*1)	Two Drive Cycle Detection	Detection Item	MIL	Note
P0451 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit Range/Performance Problem	ON	(see page 11-518)
P0452 (91)	—	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	ON	(see page 11-519)
P0453 (91)	—	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	ON	(see page 11-522)
P0455 (90)	○	Evaporative Emission (EVAP) System Large Leak Detected	ON	(see page 11-525)
P0456 (90)	○	Evaporative Emission (EVAP) System Very Small Leak Detected	ON	(see page 11-525)
P0457 (90)	○	Evaporative Emission (EVAP) System Leak Detected/Fuel Fill Cap Loose or Missing	ON	(see page 11-528)
P0461 (121)	—	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Range/ Performance Problem	OFF	(see page 11-464)
P0462 (121)	—	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage	OFF	(see page 11-465)
P0463 (121)	—	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage	OFF	(see page 11-467)
P0496 (92)	○	Evaporative Emission (EVAP) System High Purge Flow Detected	ON	(see page 11-530)
P0497 (90)	○	Evaporative Emission (EVAP) System Low Purge Flow Detected	ON	(see page 11-531)
P0498 (117)	—	Evaporative Emission (EVAP) Canister Vent Shut Valve Circuit Low Voltage	ON	(see page 11-534)
P0499 (117)	—	Evaporative Emission (EVAP) Canister Vent Shut Valve Circuit High Voltage	ON	(see page 11-536)
P0506 (14)	○	Idle Control System RPM Lower Than Expected	ON	(see page 11-451)
P0507 (14)	○	Idle Control System RPM Higher Than Expected	ON	(see page 11-453)
P0563 (34)	—	Engine Control Module (ECM) Power Source Circuit Unexpected Voltage	OFF	(see page 11-314)
P0600 (39)	—	Serial Communication Link Malfunction	ON	(see page 11-317)
P0602 (196)	—	Engine Control Module (ECM) Programming Error	ON	(see page 11-317)
P0603 (131)	—	Engine Control Module (ECM) Internal Control Module Keep Alive Memory (KAM) Error	ON	(see page 11-318)
P0606 (0)	—	Engine Control Module (ECM) Processor Malfunction	ON	(see page 11-318)
P0630 (139)	—	VIN Not Programmed or Mismatch	ON	(see page 11-319)
P0685 (135)	○	Engine Control Module (ECM) Power Control Circuit/Internal Circuit Malfunction	ON	(see page 11-320)
P0720 (122)	—	Output Shaft (Countershaft) Speed Sensor Circuit Malfunction	ON	(see page 11-321)
P1109 (13)	—	Barometric Pressure (BARO) Sensor Circuit Out of Range High	ON	(see page 11-324)
P1116 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Circuit Range/ Performance Problem	ON	(see page 11-325)
P1128 (5)	○	Manifold Absolute Pressure (MAP) Sensor Signal Lower Than Expected	ON	(see page 11-327)
P1129 (5)	○	Manifold Absolute Pressure (MAP) Sensor Signal Higher Than Expected	ON	(see page 11-328)
P1157 (48)	—	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS Circuit High Voltage	ON	(see page 11-330)
P1172 (61)	—	Air Fuel Ratio (A/F) Sensor (Sensor 1) Circuit Out of Range High	ON	(see page 11-333)

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.

DTC (MIL indication*1)	Two Drive Cycle Detection	Detection Item	MIL	Note
P1297 (20)	—	Electrical Load Detector (ELD) Circuit Low Voltage	OFF	(see page 11-334)
P1298 (20)	—	Electrical Load Detector (ELD) Circuit High Voltage	OFF	(see page 11-336)
P1454 (91)	○	Fuel Tank Pressure (FTP) Sensor Range/Performance Problem	ON	(see page 11-539)
P1683 (40)	—	Throttle Valve Default Position Spring Performance Problem	ON	(see page 11-404)
P1684 (40)	—	Throttle Valve Return Spring Performance Problem	ON	(see page 11-405)
P2101 (40)	—	Throttle Actuator System Malfunction	ON	(see page 11-406)
P2108 (40)	—	Throttle Actuator Control Module Problem	ON	(see page 11-408)
P2118 (40)	—	Throttle Actuator Current Range/Performance Problem	ON	(see page 11-409)
P2122 (37)	—	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit Low Voltage	ON	(see page 11-411)
P2123 (37)	—	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit High Voltage	ON	(see page 11-414)
P2127 (37)	—	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit Low Voltage	ON	(see page 11-416)
P2128 (37)	—	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit High Voltage	ON	(see page 11-419)
P2135 (7)	—	Throttle Position (TP) Sensor A/B Incorrect Voltage Correlation	ON	(see page 11-421)
P2138 (37)	—	Accelerator Pedal Position (APP) Sensor A/B (Throttle Position (TP) Sensor D/E) Incorrect Voltage Correlation	ON	(see page 11-423)
P2176 (40)	—	Throttle Actuator Control System Idle Position Not Learned	ON	(see page 11-425)
P2183 (192)	○	Engine Coolant Temperature (ECT) Sensor 2 Circuit Range/ Performance Problem	ON	(see page 11-338)
P2184 (192)	—	Engine Coolant Temperature (ECT) Sensor 2 Circuit Low Voltage	ON	(see page 11-340)
P2185 (192)	—	Engine Coolant Temperature (ECT) Sensor 2 Circuit High Voltage	ON	(see page 11-342)
P2195 (48)	—	Air Fuel Ratio (A/F) Sensor (Sensor 1) Signal Stuck Lean	ON	(see page 11-345)
P2227 (13)	○	Barometric Pressure (BARO) Sensor Circuit Range/Performance Problem	ON	(see page 11-347)
P2228 (13)	—	Barometric Pressure (BARO) Sensor Circuit Low Voltage	ON	(see page 11-349)
P2229 (13)	—	Barometric Pressure (BARO) Sensor Circuit High Voltage	ON	(see page 11-349)
P2238 (48)	—	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS+ Circuit Low Voltage	ON	(see page 11-350)
P2252 (48)	—	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS− Circuit Low Voltage	ON	(see page 11-352)
P2270 (63)	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Signal Stuck Lean	ON	(see page 11-354)
P2271 (63)	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Signal Stuck Rich	ON	(see page 11-354)
P2279 (109)	○	Intake Air System Leak Detected	ON	(see page 11-510)
P2422 (117)	○	Evaporative Emission (EVAP) Canister Vent Shut Valve Stuck Closed Malfunction	ON	(see page 11-539)
P2552 (40)	—	Throttle Actuator Control Module Relay Malfunction	ON	(see page 11-427)
P2610 (132)	—	Engine Control Module (ECM) Ignition Off Internal Timer Performance Ploblem	ON	(see page 11-355)
P2646 (22)	—	Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit Low Voltage	ON	(see page 11-439)
P2647 (22)	—	Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit High Voltage	ON	(see page 11-442)
P2648 (21)	—	Rocker Arm Oil Control Solenoid (VTEC Solenoid Valve) Circuit Low Voltage	ON	(see page 11-445)
P2649 (21)	—	Rocker Arm Oil Control Solenoid (VTEC Solenoid Valve) Circuit High Voltage	ON	(see page 11-447)
P2A00 (61)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Circuit Range/Performance Problem	ON	(see page 11-356)
U0107 (30)	—	Lost Communication With Throttle Actuator Control Module	ON	(see page 11-429)
U0122 (126)	—	F-CAN Malfunction (Engine Control Module (ECM)-Vehicle Stability Asist (VSA) Modulator-Control Unit)	OFF	(see page 11-357)
U1102 (126)	—	F-CAN Malfunction (BUS-OFF)	OFF	(see page 11-359)

* 1: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS.

Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-47). 2. Test the starter (see page 4-10). 3. Check the fuel pressure (see page 11-477). 4. Troubleshoot the fuel pump circuit (see page 11-470).	• Low compression • No ignition spark • Intake air leaks • Locked up engine • Broken cam chain • Contaminated fuel
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system (see page 22-213).	
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit (see page 11-366).	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system (see page 22-213).	
Engine is hard to start (MIL works OK, no DTCs set)	1. Test the battery (see page 22-47). 2. Check the fuel pressure (see page 11-477). 3. Clean the throttle body (see page 11-499).	• Low compression • Intake air leaks • Contaminated fuel • Weak spark
Cold fast idle too low (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-462). 2. Check the idle speed (see page 11-461). 3. Clean the throttle body (see page 11-499).	
Cold fast idle too high (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-462). 2. Check the idle speed (see page 11-461). 3. Adjust the throttle cable (see page 11-504). 4. Do the throttle position learning check (see page 11-498).	Intake air leaks
Idle speed fluctuates (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-462). 2. Check the idle speed (see page 11-461). 3. Adjust the throttle cable (see page 11-504). 4. Do the carbon accumulation check (see page 11-498). 5. Troubleshoot the A/C signal circuit (see page 11-455).	Incorrect valve timing or clearance adjustment
After warming up, idle speed is below specification without load (MIL works OK, no DTCs set)	1. Troubleshoot the alternator FR signal circuit (see page 11-456). 2. Do the carbon accumulation check (see page 11-498).	Incorrect valve timing or clearance adjustment
After warming up, idle speed is above specification without load (MIL works OK, no DTCs set)	1. Adjust the throttle cable (see page 11-504). 2. Troubleshoot the alternator FR signal circuit (see page 11-456). 3. Inspect the APP sensor (see page 11-436). 4. Troubleshoot the A/C signal circuit (see page 11-455). 5. Troubleshoot the EPS signal circuit (see page 11-458).	Intake air leaks

Symptom	Diagnostic procedure	Also check for
Low power (MIL works OK, no DTCs set)	1. Check the fuel pressure (see page 11-477). 2. Adjust the throttle cable (see page 11-504).	• Low compression • Incorrect camshaft timing • Incorrect engine oil level
Engine stalls (MIL works OK, no DTCs set)	1. Do the ECM idle learn procedure (see page 11-462). 2. Check the fuel pressure (see page 11-477). 3. Check the idle speed (see page 11-461). 4. Troubleshoot the brake pedal position switch signal circuit (see page 11-460).	• Intake air leaks • Faulty harness and sensor connections • Fuel contamination
Difficult to refuel (MIL works OK, no DTCs set)	1. Check the fuel vent tube between the EVAP canister and the fuel tank. 2. Check the fuel tank vapor recirculation tube between the fuel pipe and the fuel tank. 3. Replace the fuel tank vapor control float (see page 11-545).	Malfunctioning gas station filling nozzle.
Fuel overflows during refueling (No DTCs set)	Replace the fuel tank vapor control float (see page 11-545).	Malfunctioning gas station filling nozzle.
HDS does not communicate with the ECM or the vehicle	Troubleshoot the DLC circuit (see page 11-367).	

System Description

Electronic Control System

The fuel and emission control systems are managed by the engine control module (ECM).

Self-diagnosis
The ECM detects a failure of a signal from a sensor or from another control unit and stores a Temporary DTC or a DTC. Depending on the failure, a DTC is stored in either the first or the second drive cycle. When a DTC is stored, the ECM turns on the malfunction indicator lamp (MIL) by supplying ground to the MIL circuit.

- **One Drive Cycle Detection Method**
  When an abnormality occurs in the signal from a sensor or from another control unit, the ECM stores a DTC and turns on the MIL immediately.

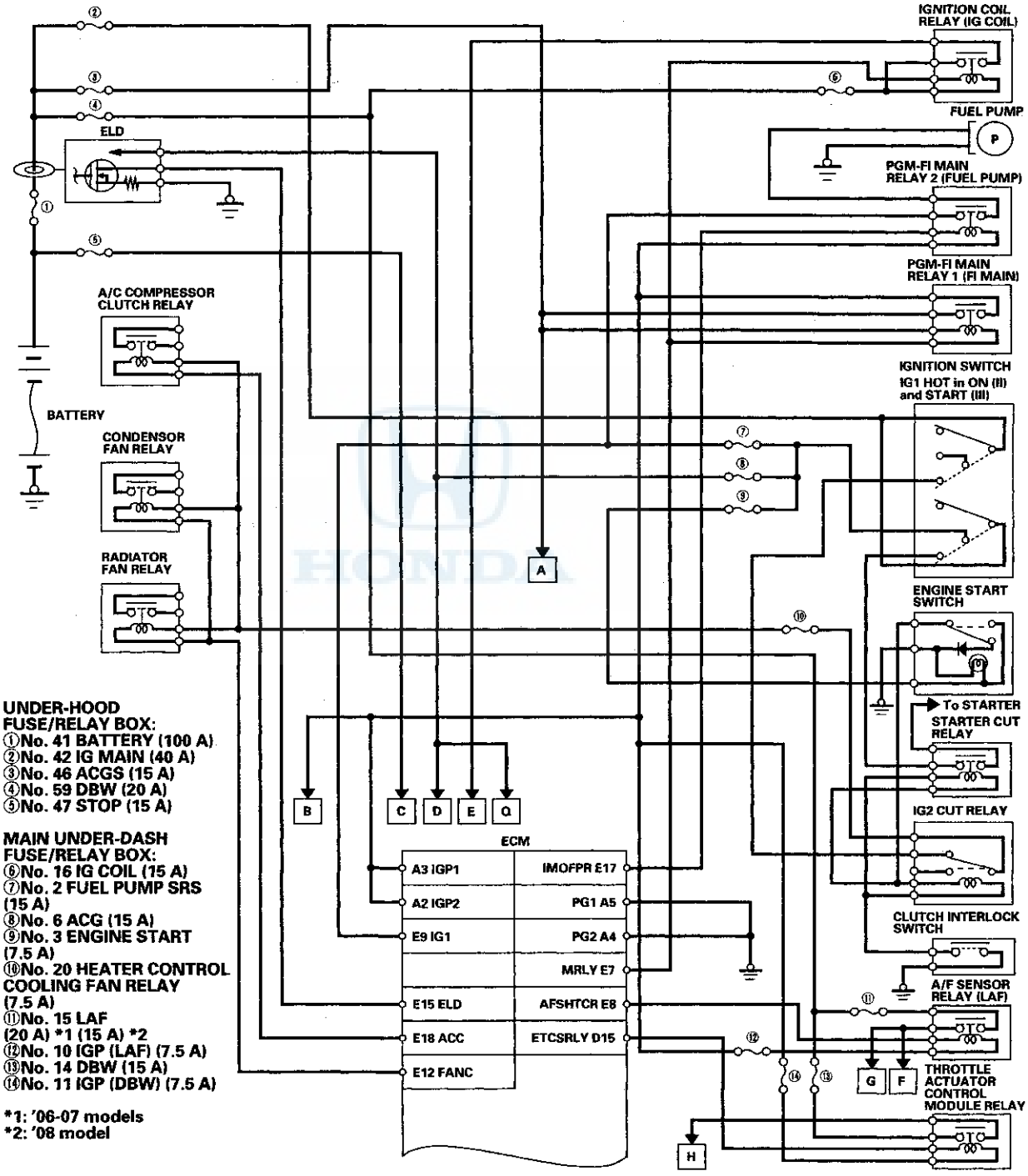
- **Two Drive Cycle Detection Method**
  When an abnormality occurs in the signal from a sensor or from another control unit in the first drive cycle, the ECM stores a Temporary DTC. The MIL does not come on at this time. If the failure continues in the second drive cycle, the ECM stores a DTC in erasable memory and turns on the MIL.

Fail-safe Function
When an abnormality occurs in the signal from a sensor or from another control unit, the ECM ignores that signal and substitutes a pre-programmed value that allows the engine to continue running. This causes a DTC to be stored and the MIL to come on.

MIL Bulb Check and Readiness Code Condition
When the ignition switch is turned ON (II), the ECM supplies ground to the MIL circuit for about 15 to 20 seconds to check the bulb condition. If any readiness codes are not set to complete, the MIL flashes five times. If all readiness codes are set to complete, the MIL goes off.

Self Shut Down (SSD) Mode
After the ignition switch is turned OFF, the ECM stays on (up to 25 minutes). If the ECM connector is disconnected during this time, the ECM may be damaged. To cancel this mode, disconnect the negative cable from the battery or jump the SCS line with the HDS after the ignition switch is turned OFF.

ECM Electrical Connections



UNDER-HOOD FUSE/RELAY BOX:
①No. 41 BATTERY (100 A)
②No. 42 IG MAIN (40 A)
③No. 46 ACGS (15 A)
④No. 59 DBW (20 A)
⑤No. 47 STOP (15 A)

MAIN UNDER-DASH FUSE/RELAY BOX:
⑥No. 16 IG COIL (15 A)
⑦No. 2 FUEL PUMP SRS (15 A)
⑧No. 6 ACG (15 A)
⑨No. 3 ENGINE START (7.5 A)
⑩No. 20 HEATER CONTROL COOLING FAN RELAY (7.5 A)
⑪No. 15 LAF (20 A) *1 (15 A) *2
⑫No. 10 IGP (LAF) (7.5 A)
⑬No. 14 DBW (15 A)
⑭No. 11 IGP (DBW) (7.5 A)

*1: '06-07 models
*2: '08 model

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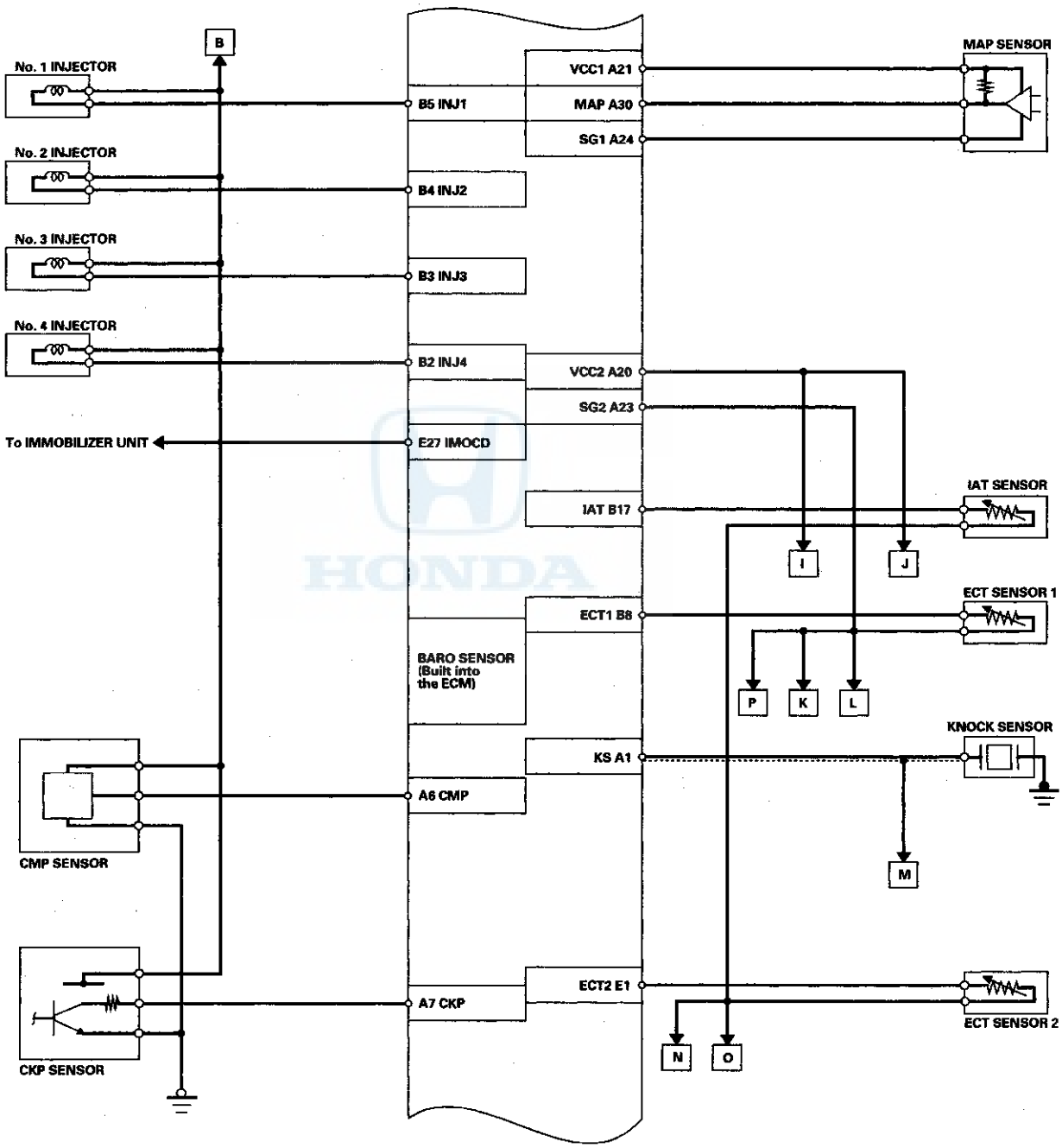
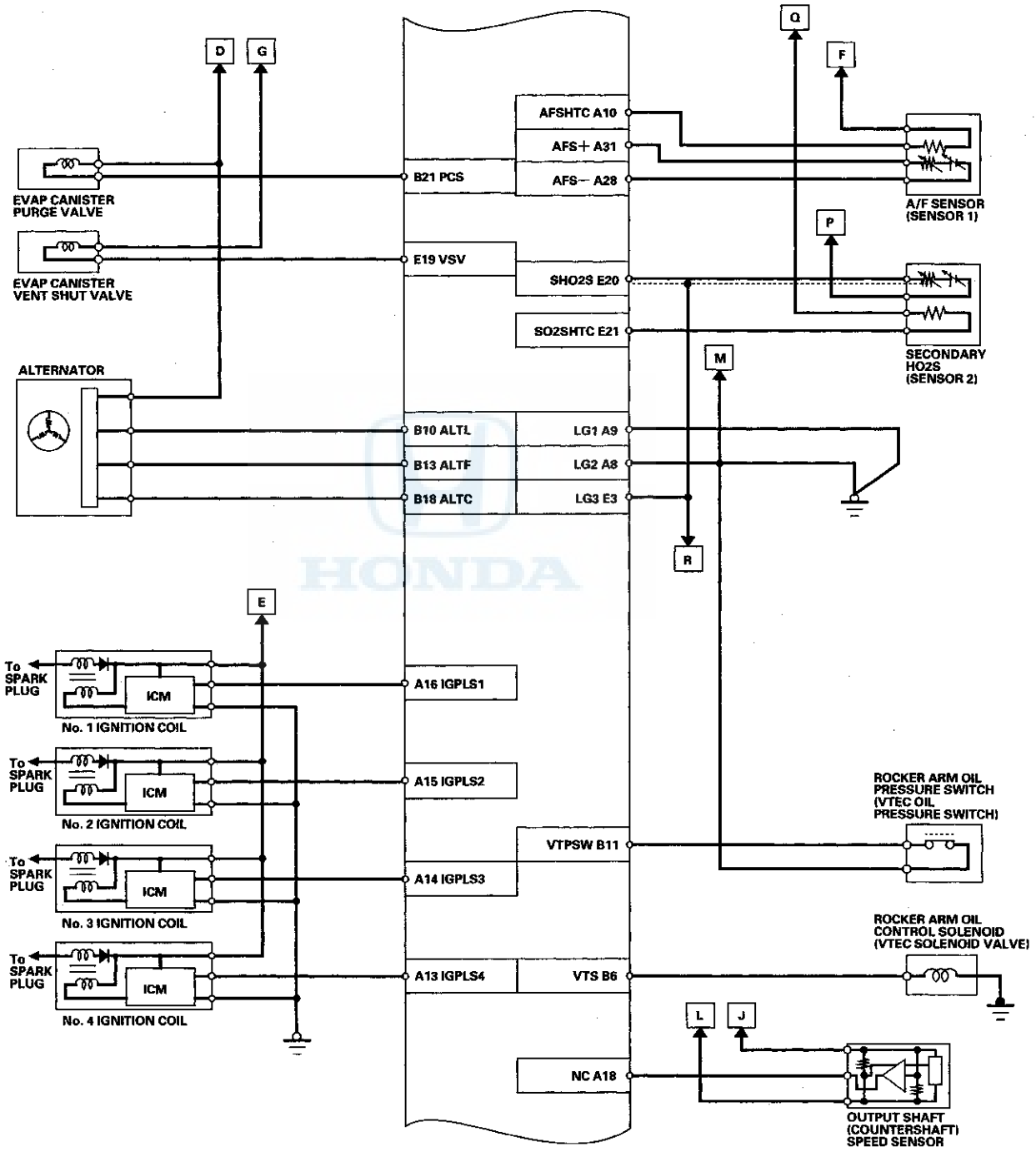
System Description (cont'd)

ECM Electrical Connections (cont'd)




D
G
Q
F
P
M
R
E
EVAP CANISTER PURGE VALVE
EVAP CANISTER VENT SHUT VALVE
ALTERNATOR
B21 PCS
E19 VSV
B10 ALTL
B13 ALTF
B18 ALTC
AFSHTC A10
AFS+ A31
AFS− A28
SHO2S E20
SO2SHTC E21
LG1 A9
LG2 A8
LG3 E3
A/F SENSOR (SENSOR 1)
SECONDARY HO2S (SENSOR 2)
To SPARK PLUG
ICM
No. 1 IGNITION COIL
No. 2 IGNITION COIL
No. 3 IGNITION COIL
No. 4 IGNITION COIL
A16 IGPLS1
A15 IGPLS2
A14 IGPLS3
A13 IGPLS4
VTPSW B11
VTS B6
NC A18
ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH)
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE)
L
J
OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR

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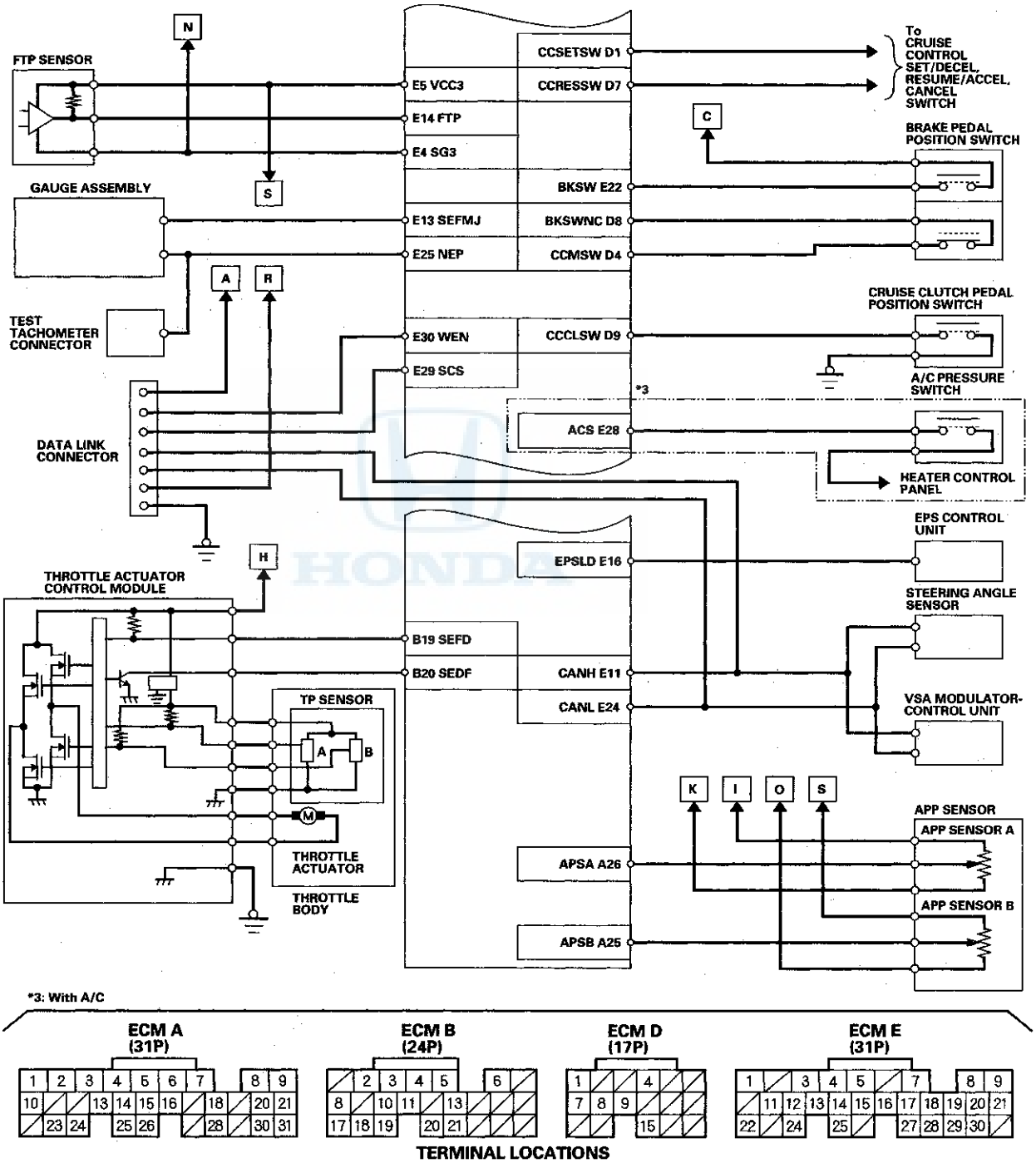
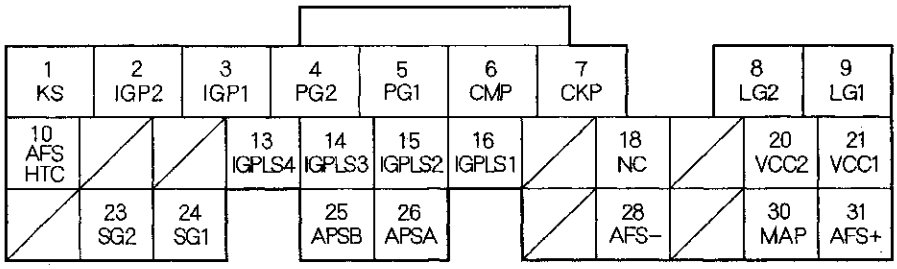
System Description (cont'd)

ECM Electrical Connections (cont'd)



ECM Inputs and Outputs at Connector A (31P)



Wire side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	RED/BLU	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
2	YEL/BLK	IGP2 (POWER SOURCE)	Power source for ECM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
3	YEL/BLK	IGP1 (POWER SOURCE)	Power source for ECM circuit	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
4	BLK	PG2 (POWER GROUND)	Ground circuit for ECM	Less than 1.0 V at all times
5	BLK	PG1 (POWER GROUND)	Ground circuit for ECM	Less than 1.0 V at all times
6	GRN	CMP (CAMSHAFT POSITION SENSOR)	Detects CMP sensor signal	With engine running: pulses With ignition switch ON (II): about 5.0 V
7	BLU	CKP (CRANKSHAFT POSITION SENSOR)	Detects CKP sensor signal	With engine running: pulses With ignition switch ON (II): about 5.0 V
8	BRN/YEL	LG2 (LOGIC GROUND)	Ground circuit for ECM	Less than 1.0 V at all times
9	BRN/YEL	LG1 (LOGIC GROUND)	Ground circuit for ECM	Less than 1.0 V at all times
10	GRN	AFSHTC (AIR FUEL RATIO (A/F) SENSOR HEATER CONTROL)	Drives A/F sensor heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: about 0 V
13	WHT/BLU	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
14	WHT/BLK	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
15	WHT/GRN	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
16	WHT	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	
18	BLU/WHT	NC (OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II): about 0 V or 5.0 V While driving: about 2.5 V

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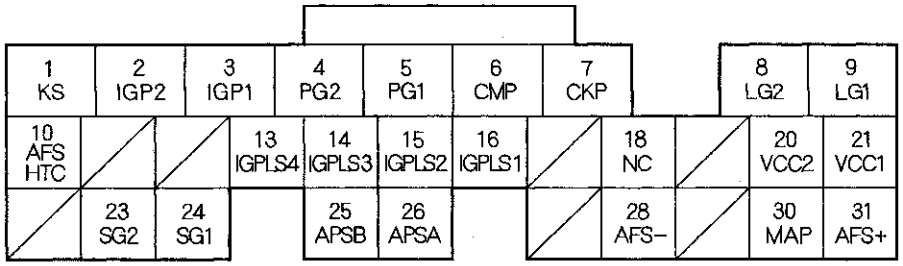
System Description (cont'd)

ECM Inputs and Outputs at Connector A (31P)

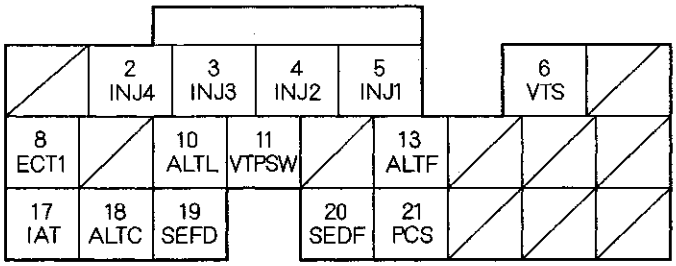


Wire side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
20	YEL/BLU	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V With ignition switch OFF: about 0 V
21	YEL/RED	VCC1 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V With ignition switch OFF: about 0 V
23	GRN/YEL	SG2 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
24	GRN/WHT	SG1 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
25	RED/YEL	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.2 V
26	RED/BLU	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V
28	RED/YEL	AFS− (AIR FUEL RATIO (A/F) SENSOR, SENSOR 1 −SIDE)	Detects A/F sensor (sensor 1) signal	
30	GRN/RED	MAP (MANIFOLD ABSOLUTE PRESSURE SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
31	RED	AFS+ (AIR FUEL RATIO (A/F) SENSOR, SENSOR 1 +SIDE)	Detects A/F sensor (sensor 1) signal	

ECM Inputs and Outputs at Connector B (24P)



Wire side of female terminals

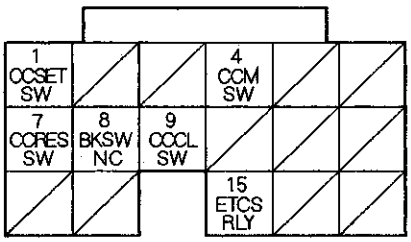
NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
2	YEL	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	At idle: duty controlled With ignition switch ON (II): battery voltage
3	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	
4	RED	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	
5	BRN	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	
6	GRN/YEL	VTS (ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE))	Drives rocker arm oil control solenoid (VTEC solenoid valve)	At idle: about 0 V
8	RED/WHT	ECT1 (ENGINE COOLANT TEMPERATURE SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1—4.8 V (depending on engine coolant temperature) With fully warmed up engine: about 0.5—0.7 V
10	WHT/BLU	ALTL (ALTERNATOR L SIGNAL)	Detects alternator signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
11	BLU/BLK	VTPSW (ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH))	Detects rocker arm oil pressure switch (VTEC oil pressure switch) signal	With engine at low rpm: about 0 V With engine at high rpm: battery voltage
13	WHT/RED	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 0—5.0 V (depending on electrical load)
17	RED/YEL	IAT (INTAKE AIR TEMPERATURE SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1—4.8 V (depending on intake air temperature)
18	WHT/GRN	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With fully warmed up engine running: about 8.0 V
19	GRN	SEFD (THROTTLE ACTUATOR CONTROL SERIAL SIGNAL)	Sends throttle actuator control serial signal	
20	BLU	SEDF (THROTTLE ACTUATOR CONTROL SERIAL SIGNAL)	Detects throttle actuator control serial signal	
21	YEL/BLU	PCS (EVAPORATIVE EMISSION CANISTER PURGE VALVE)	Drives EVAP canister purge valve	With engine running, engine coolant below 149 °F (65 °C): battery voltage With engine running, engine coolant above 149 °F (65 °C): duty controlled

(cont'd)

System Description (cont'd)

ECM Inputs and Outputs at Connector D (17P)

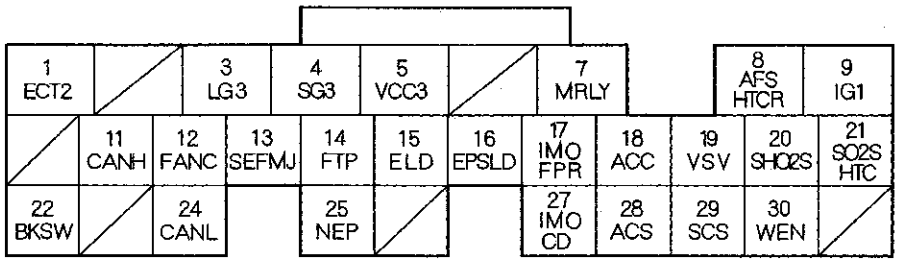


Wire side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	LT GRN/RED	CCSETSW (CRUISE CONTROL SET SWITCH)	Detects cruise SET switch signal	With cruise SET switch ON: about 0 V With cruise SET switch OFF: battery voltage
4	LT GRN	CCMSW (CRUISE CONTROL MAIN SWITCH)	Detects cruise MAIN switch signal	With cruise MAIN switch ON: about 0 V With cruise MAIN switch OFF: battery voltage
7	LT GRN/BLK	CCRESSW (CRUISE CONTROL RES SWITCH)	Detects cruise RES switch signal	With cruise RES switch ON: about 0 V With cruise RES switch OFF: battery voltage
8	GRY	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With ignition switch ON (II) and brake pedal released: battery voltage With ignition switch ON (II) and brake pedal pressed: about 5.0 V
9	PNK	CCCLSW (CRUISE CONTROL CLUTCH PEDAL POSITION SIGNAL)	Detects cruise control clutch pedal position switch signal	With ignition switch ON (II) and clutch pedal released: about 5.0 V With ignition switch ON (II) and clutch pedal pressed: battery voltage
15	BRN	ETCSRLY (THROTTLE ACTUATOR CONTROL MODULE RELAY)	Drives throttle actuator control module relay	With ignition switch ON (II): about 0 V

ECM Inputs and Outputs at Connector E (31P)



Wire side of female terminals

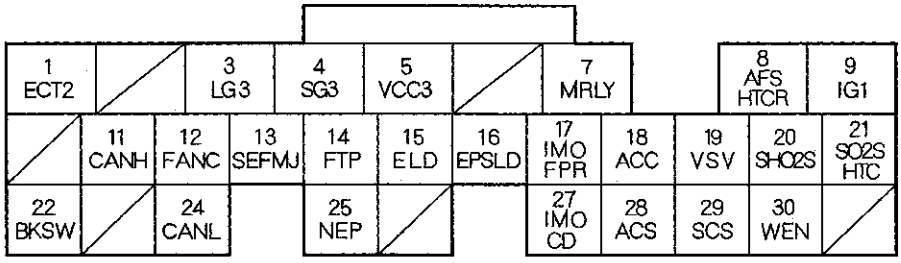
NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
1	BLU	ECT2 (ENGINE COOLANT TEMPERATURE SENSOR 2)	Detect ECT sensor 2 signal	With ignition switch ON (II): about 0.1—4.8 V (depending on engine coolant temperature)
3	GRN/WHT	LG3 (LOGIC GROUND)	Ground for ECM control circuit	Less than 1.0 V at all times
4	GRN	SG3 (SENSOR GROUND)	Sensor ground	Less than 1.0 V at all times
5	YEL/BLU	VCC3 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V With ignition switch OFF: about 0 V
7	GRN	MRLY (PGM-FI MAIN RELAY 1 (FI MAIN))	Drives PGM-FI main relay 1 (FI MAIN) Power source for DTC memory	With ignition switch ON (II): about 0 V With ignition switch OFF: battery voltage
8	ORN	AFSHTCR (AIR FUEL RATIO (A/F) SENSOR HEATER CONTROL RELAY)	Drives A/F sensor heater relay	With ignition switch ON (II): about 0 V
9	BLK/YEL	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage With ignition switch OFF: about 0 V
11	RED	CANH (CAN COMMUNICATION SIGNAL HIGH)	Sends communication signal	With ignition switch ON (II): pulses
12	GRN	FANC (RADIATOR FAN CONTROL)	Drives radiator fan relay	With radiator fan running: about 0 V With radiator fan stopped: battery voltage
13	YEL	SEFMJ	Communicates with multiplex control unit	With ignition switch ON (II): about 5.0 V With engine running with load: pulses
14	LT GRN	FTP (FUEL TUNK PRESSURE (FTP) SENSOR)	Detects FTP sensor signal	With ignition switch ON (II) and fuel fill cap removed: about 2.5 V
15	GRN/RED	ELD (ELECTRICAL LOAD DETECTOR)	Detects ELD signal	With ignition switch ON (II): about 0.1—4.8 V (depending on electrical load)
16	BLU/BLK	EPSLD (ELECTRICAL P/S LOAD DETECT)	Detects P/S load signal	At idle with steering wheel straight ahead: about 0 V At idle with steering wheel at full lock: battery voltage
17	GRN/YEL	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2 (FUEL PUMP)	0 V for 2 seconds after turning ignition switch ON (II), then battery voltage
18	RED	ACC (A/C CLUTCH RELAY)	Drives A/C clutch relay	With compressor ON: about 0 V With compressor OFF: battery voltage
19	LT GRN/ WHT	VSV (EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage

(cont'd)

System Description (cont'd)

ECM Inputs and Outputs at Connector E (31P)

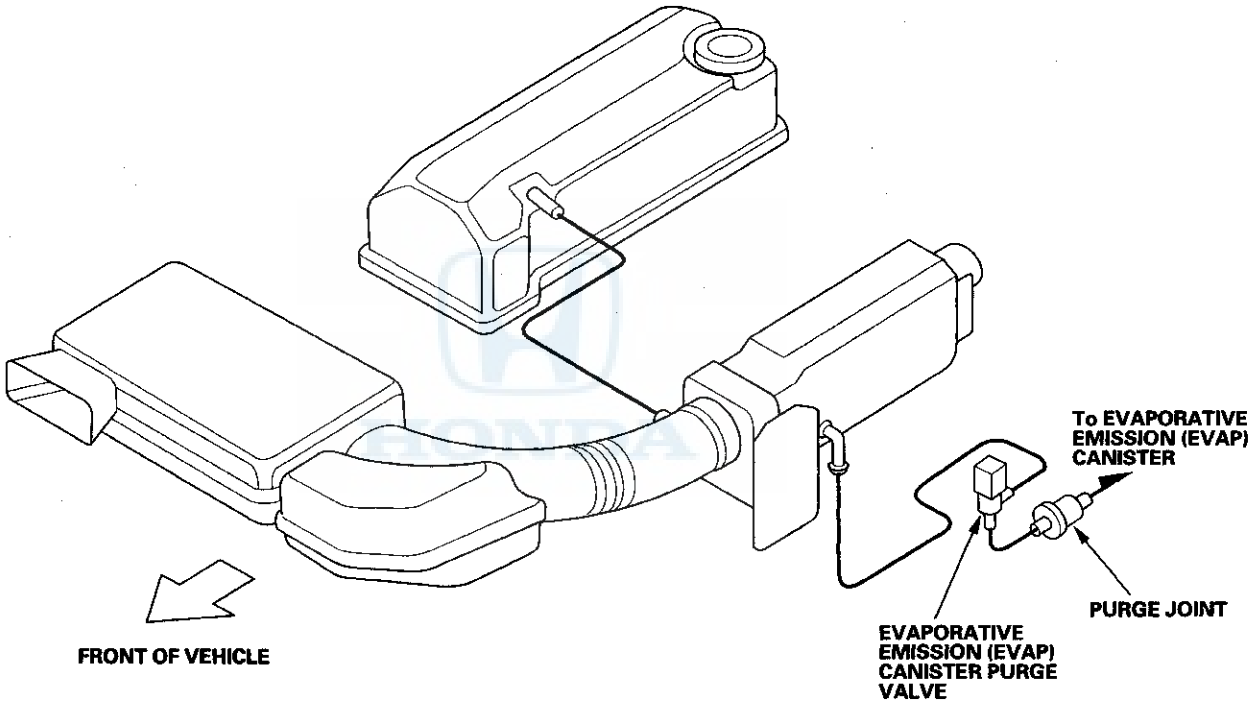


Wire side of female terminals

NOTE: Standard battery voltage is about 12 V.

Terminal number	Wire color	Terminal name	Description	Signal
20	RED	SHO2S (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S), SENSOR 2)	Detects secondary HO2S (sensor 2) signal	With fully warmed up engine at idle and throttle fully closed: above 0.6 V With throttle quickly closed: below 0.4 V
21	BLK/WHT	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) HEATER CONTROL)	Drives secondary HO2S (sensor 2) heater	With ignition switch ON (II): battery voltage With fully warmed up engine running: duty controlled
22	WHT/BLK	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage
24	WHT	CANL (CAN COMMUNICATION SIGNAL LOW)	Sends communication signal	With ignition switch ON (II): pulses
25	BLU	NEP (ENGINE SPEED PULSE)	Outputs engine speed pulse	With engine running: pulses
27	RED/BLU	IMOCD (IMMOBILIZER CODE)	Detects immobilizer signal	
28	BLU/RED	ACS (A/C SWITCH SIGNAL)	Detects A/C switch signal	With A/C switch ON: about 0 V With A/C switch OFF: about 5.0 V
29	BRN	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With service check signal shorted using HDS: about 0 V With service check signal open: about 5.0 V
30	GRN/WHT	WEN (WRITE ENABLE SIGNAL)	Detects service enable signal	With ignition switch ON (II): about 0 V

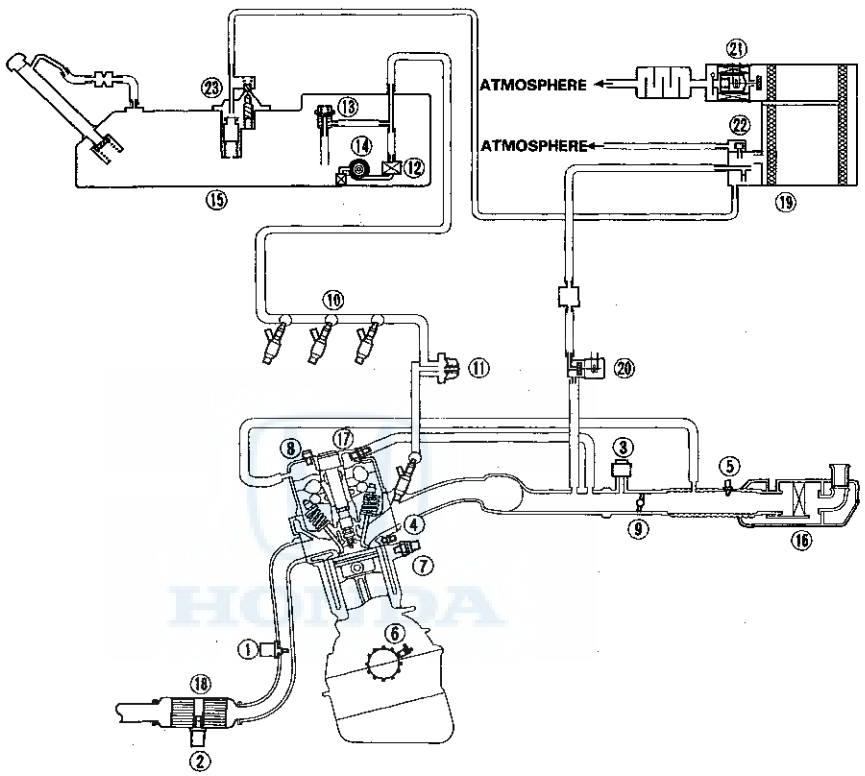
Vacuum Hose Routing



(cont'd)

System Description (cont'd)

Vacuum Distribution



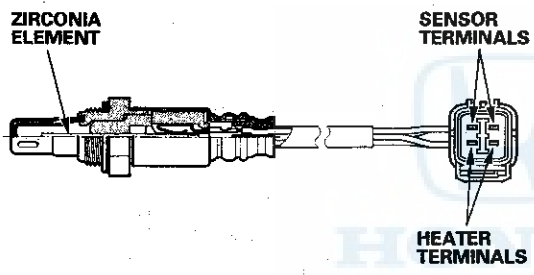
① AIR FUEL RATIO (A/F) SENSOR (SENSOR 1)
② SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) (SENSOR 2)
③ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
④ ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1
⑤ INTAKE AIR TEMPERATURE (IAT) SENSOR
⑥ CRANKSHAFT POSITION (CKP) SENSOR
⑦ KNOCK SENSOR
⑧ CAMSHAFT POSITION (CMP) SENSOR
⑨ THROTTLE BODY
⑩ INJECTOR
⑪ FUEL PULSATION DAMPER
⑫ FUEL FILTER
⑬ FUEL PRESSURE REGULATOR
⑭ FUEL PUMP
⑮ FUEL TANK
⑯ AIR CLEANER
⑰ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
⑱ THREE WAY CATALYTIC CONVERTER
⑲ EVAPORATIVE EMISSION (EVAP) CANISTER
⑳ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
㉑ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
㉒ FUEL TANK PRESSURE (FTP) SENSOR
㉓ FUEL TANK VAPOR CONTROL VALVE

PGM-FI System

The programmed fuel injection (PGM-FI) system is a sequential multiport fuel injection system.

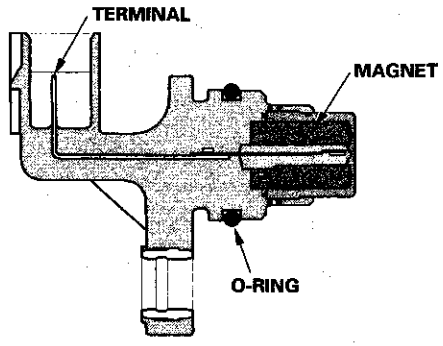
Air Conditioning (A/C) Compressor Clutch Relay
When the ECM receives a demand for cooling from the A/C system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

Air Fuel Ratio (A/F) Sensor
The A/F sensor operates over a wide air/fuel range. The A/F sensor is installed upstream of the TWC, and sends signals to the ECM which varies the duration of fuel injection accordingly.

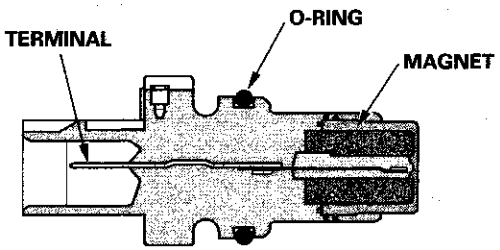


Barometric Pressure (BARO) Sensor
The BARO sensor is inside the ECM. It converts atmospheric pressure into a voltage signal that is used by the ECM to modify the basic duration of the fuel injection discharge.

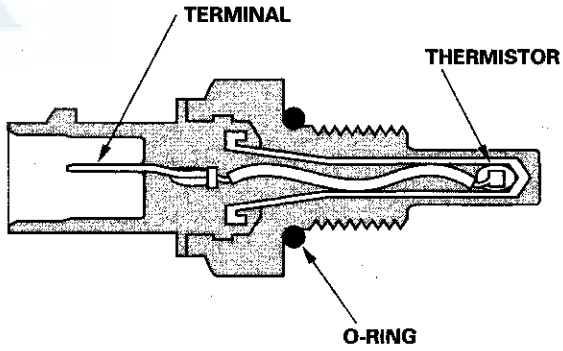
Camshaft Position (CMP) Sensor
The CMP sensor detects the position of the No. 1 cylinder as a reference for sequential fuel injection to each cylinder.



Crankshaft Position (CKP) Sensor
The CKP sensor detects crankshaft speed and is used by the ECM to determine ignition timing and timing for fuel injection of each cylinder as well as detecting engine misfire.



Engine Coolant Temperature (ECT) Sensor 1 and Engine Coolant Temperature (ECT) Sensor 2
ECT sensor 1 and ECT sensor 2 are temperature dependent resistors (thermistors). The resistance decreases as the engine coolant temperature increases.



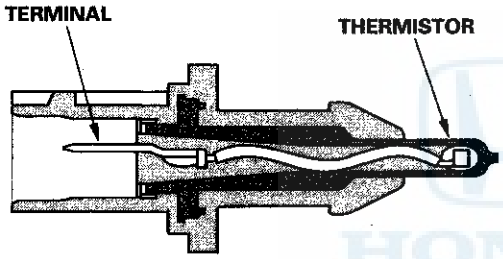
Ignition Timing Control
The ECM contains the memory for basic ignition timing at various engine speeds and manifold absolute pressures. It also adjusts the timing according to engine coolant temperature.

(cont'd)

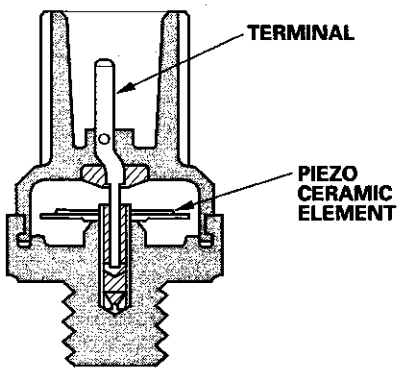
System Description (cont'd)

Injector Timing and Duration
The ECM contains the memory for basic discharge duration at various engine speeds and manifold pressures. The basic discharge duration, after being read out from the memory, is further modified by signals sent from various sensors to obtain the final discharge duration.
By monitoring long term fuel trim, the ECM detects long term malfunctions in the fuel system and sets a diagnostic trouble code (DTC).

Intake Air Temperature (IAT) Sensor
The IAT sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the intake air temperature increases.



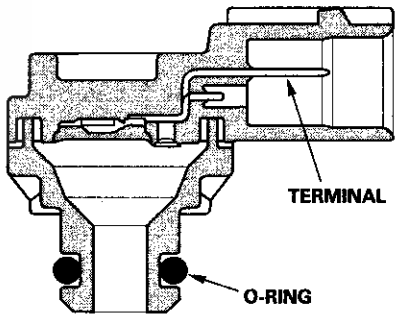
Knock Sensor
The knock control system adjusts the ignition timing to minimize knock.



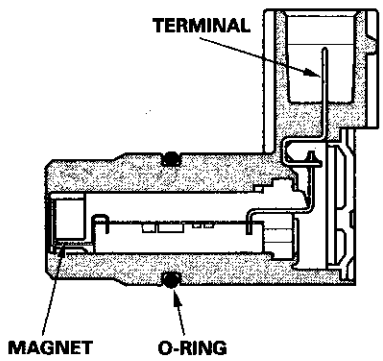
Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)
The vehicle has certain "readiness codes" that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the ECM has been reset, these codes are reset. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the test, or the test cannot be finished.

To check if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are complete. If it flashes five times, one or more readiness codes are not complete. To set each code, drive the vehicle or run the engine as described in the procedures (see page 11-256).

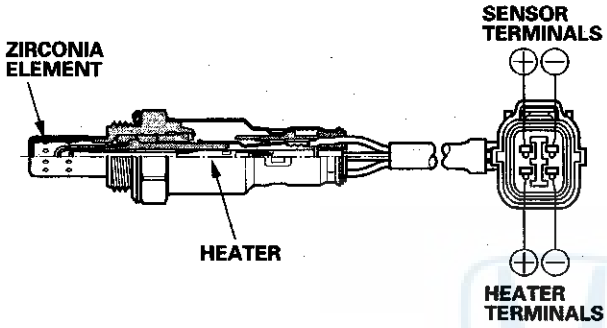
Manifold Absolute Pressure (MAP) Sensor
The MAP sensor converts manifold absolute pressure into electrical signals to the ECM.



Output Shaft (Countershaft) Speed Sensor
This sensor detects countershaft speed.



Secondary Heated Oxygen Sensor (Secondary HO2S)
The secondary HO2S detects the oxygen content in the exhaust gas downstream of the three way catalytic converter (TWC), and sends signals to the ECM which varies the duration of fuel injection accordingly. To stabilize its output, the sensor has an internal heater. The ECM compares the HO2S output with the A/F sensor output to determine catalyst efficiency. The secondary HO2S is located on the TWC.



Electronic Throttle Control System

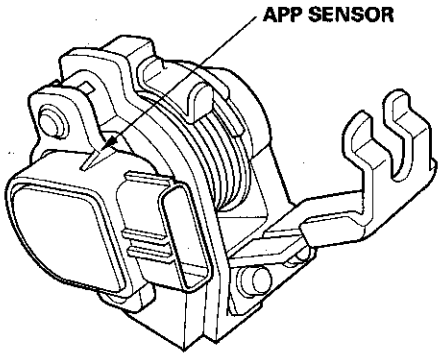
The throttle is electronically controlled by the electronic throttle control system. Refer to the system diagram to see a functional layout of the system.

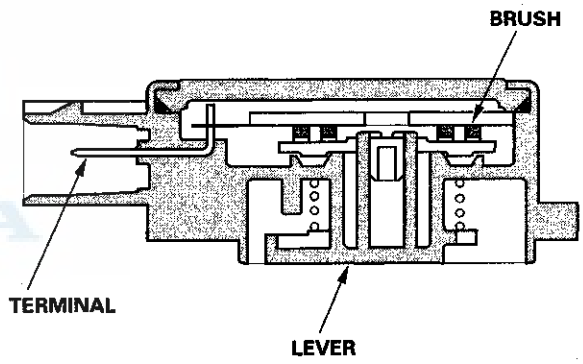
Idle control: When the engine is idling, the ECM controls the throttle actuator to maintain the proper idle speed according to engine loads.

Acceleration control: When the accelerator pedal is pressed, the ECM opens the throttle valve depending on the accelerator pedal position (APP) sensor signal.

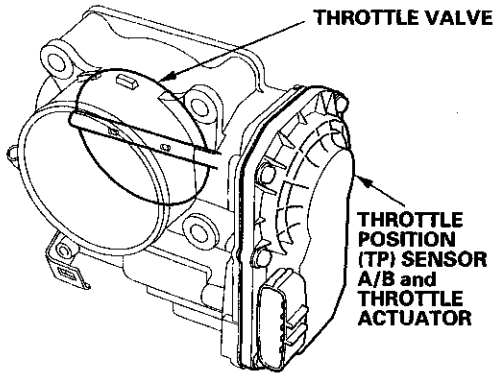
Cruise control: The ECM controls the throttle actuator to maintain set speed when the cruise control is operating. The throttle actuator takes the place of the cruise control actuator.

Accelerator Pedal Position (APP) Sensor
As the accelerator pedal position changes, the sensor varies the signal voltage to the ECM.





Throttle Body
The throttle body is a single-barrel side draft type. The lower portion of the throttle valve is heated by engine coolant from the cylinder head to prevent icing of the throttle plate.



(cont'd)

System Description (cont'd)

Idle Control System

When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is pressed, the power steering load is high, or the alternator is charging, the ECM sends signals to the throttle actuator to maintain the correct idle speed.

Brake Pedal Position Switch
The brake pedal position switch signals the ECM when the brake pedal is pressed.

Electrical Power Steering (EPS) Signal
The EPS signals the ECM when the power steering load is high.

Engine Start Switch
The engine start switch signals the ECM when the engine is cranking.

Fuel Supply System

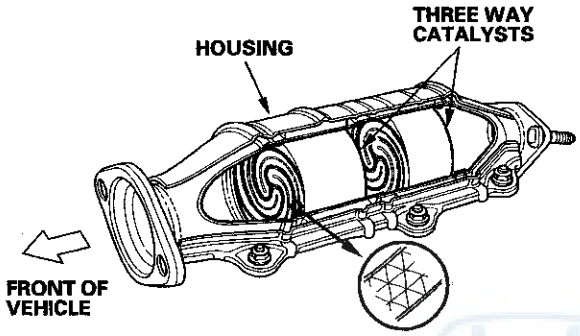
Fuel Cutoff Control
During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 1,050 rpm. Fuel cutoff control also occurs when the engine speed exceeds 8,200 rpm, regardless of the position of the throttle valve, to protect the engine from over-revving. On a cold engine, fuel cut occurs at a lower engine speed.

Fuel Pump Control
When the ignition is turned on, the ECM grounds PGM-FI main relay 2 (FUEL PUMP) which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM grounds PGM-FI main relay 2 (FUEL PUMP) and feeds current to the fuel pump. When the engine is not running and the ignition is on, the ECM cuts ground to PGM-FI main relay 2 (FUEL PUMP) which cuts current to the fuel pump.

PGM-FI Main Relay 1 (FI MAIN) and 2 (FUEL PUMP)
PGM-FI main relay 1 (FI MAIN) is energized whenever the ignition switch is ON (II) to supply battery voltage to the ECM, power to the injectors, and power for PGM-FI main relay 2 (FUEL PUMP). PGM-FI main relay 2 (FUEL PUMP) is energized to supply power to the fuel pump for 2 seconds when the ignition switch is turned ON (II), and when the engine is cranking or running.

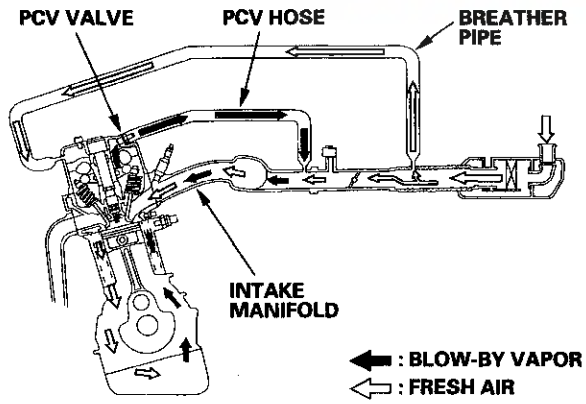
Catalytic Converter System

TWC (Three Way Catalytic Converter)
The TWC converts hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO_2), nitrogen (N_2), and water vapor.



Positive Crankcase Ventilation (PCV) System

The PCV valve prevents blow-by gases from escaping into the atmosphere by venting them into the intake manifold.



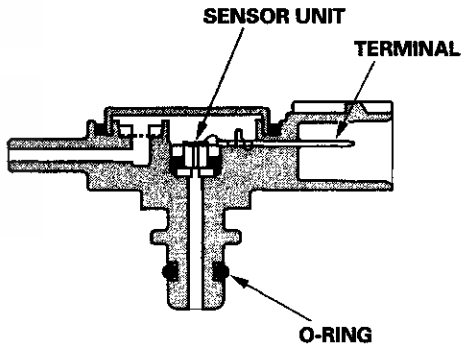
Evaporative Emission (EVAP) Control System

Refer to the system diagram to see a functional layout of the system.

EVAP Canister
The EVAP canister temporarily stores fuel vapor from the fuel tank until it can be purged from the EVAP canister into the engine and burned.

EVAP Canister Purge Valve
When the engine coolant temperature is below 149 °F (65 °C), the ECM turns off the EVAP canister purge valve which cuts vacuum to the EVAP canister.

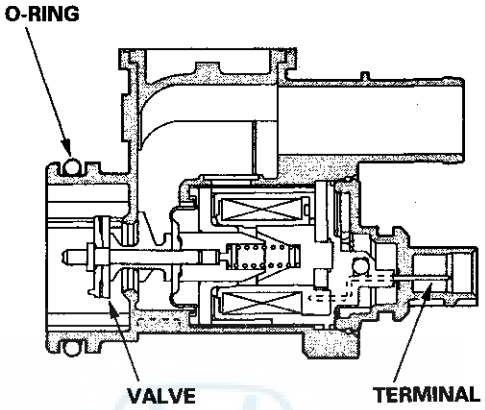
Fuel Tank Pressure (FTP) Sensor
The FTP sensor converts fuel tank absolute pressure into an electrical input to the ECM.



(cont'd)

System Description (cont'd)

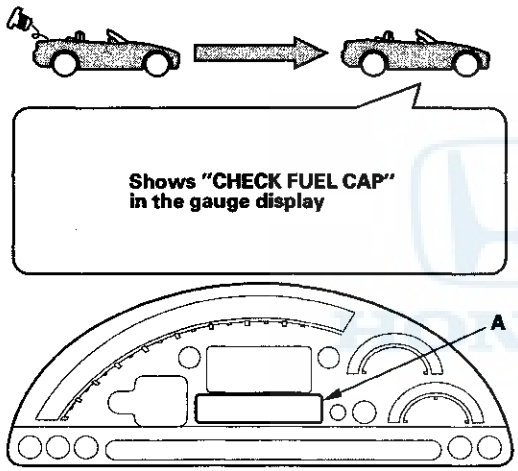
EVAP Canister Vent Shut Valve
The EVAP canister vent shut valve is on the EVAP canister.
The EVAP canister vent shut valve controls the venting of the EVAP canister.



Fuel Cap Warning Message

The ECM detects a loose or missing fuel fill cap as an evaporative system leak and alerts the driver by showing a warning message in the gauge display.

First drive cycle
The first time a leak is detected a "CHECK FUEL CAP" message appears in the gauge display (A). To scroll to another message, press the select/reset button. The"CHECK FUEL CAP" message will appear each time you restart the engine until the system turns the message off. Turn the engine off then replace or tighten the fuel fill cap until it clicks at least once.



To make the message go off (With the HDS)

Procedure

1. Tighten the fuel fill cap until it clicks.
2. Clear the Temporary DTC with the HDS.
3. Verify there is no leak by doing the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

To make the message go off (Without the HDS) ('06-07 models)

Procedure

1. Tighten the fuel fill cap until it clicks.
2. The message should go off after several days of normal driving.

To make the message go off (Without the HDS)

Procedure

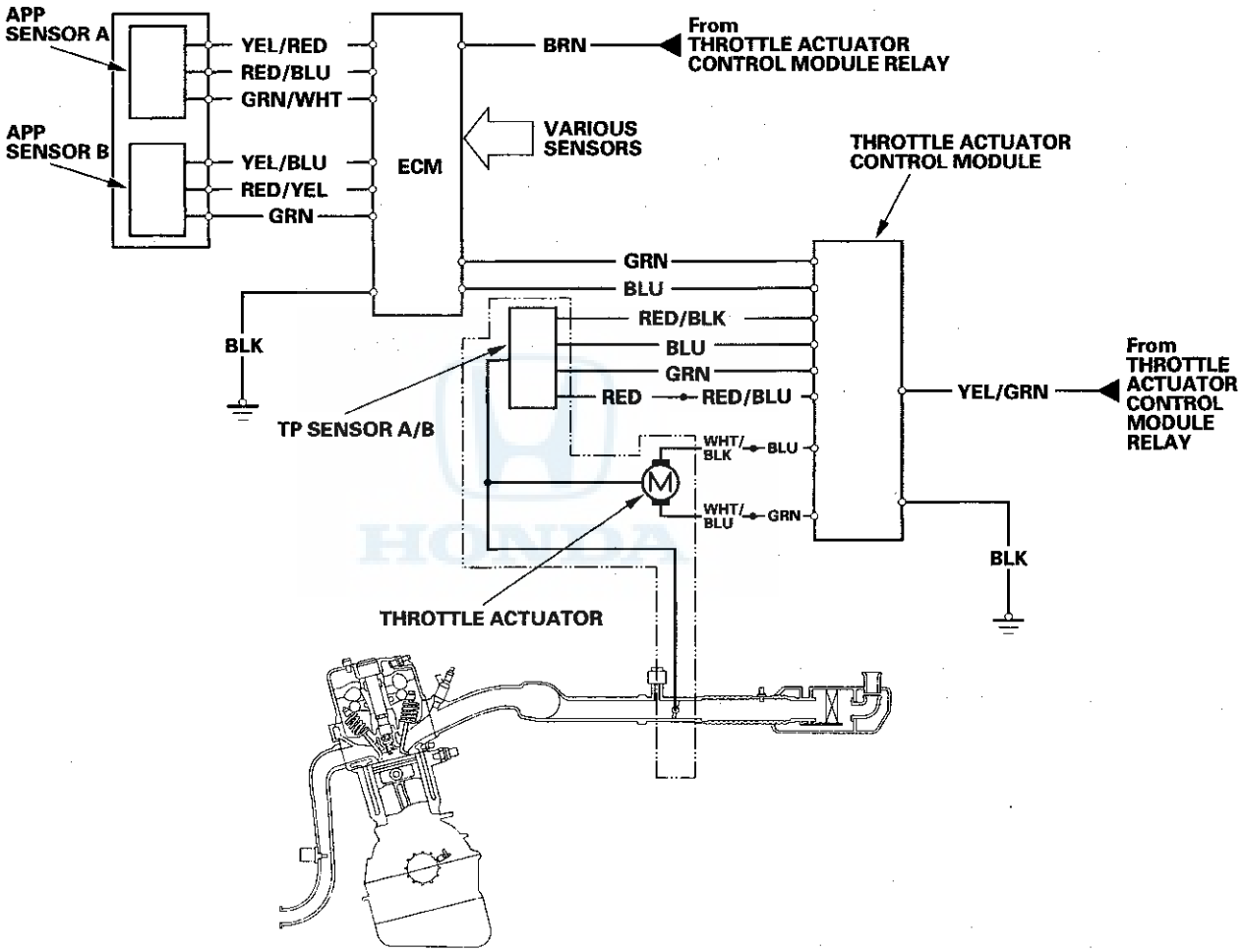
1. Tighten the fuel fill cap until it clicks.
2. Start the engine, then turn the ignition switch OFF.
3. Repeat step 2 two more times.

(cont'd)

System Description (cont'd)

Electronic Throttle Control System Diagram

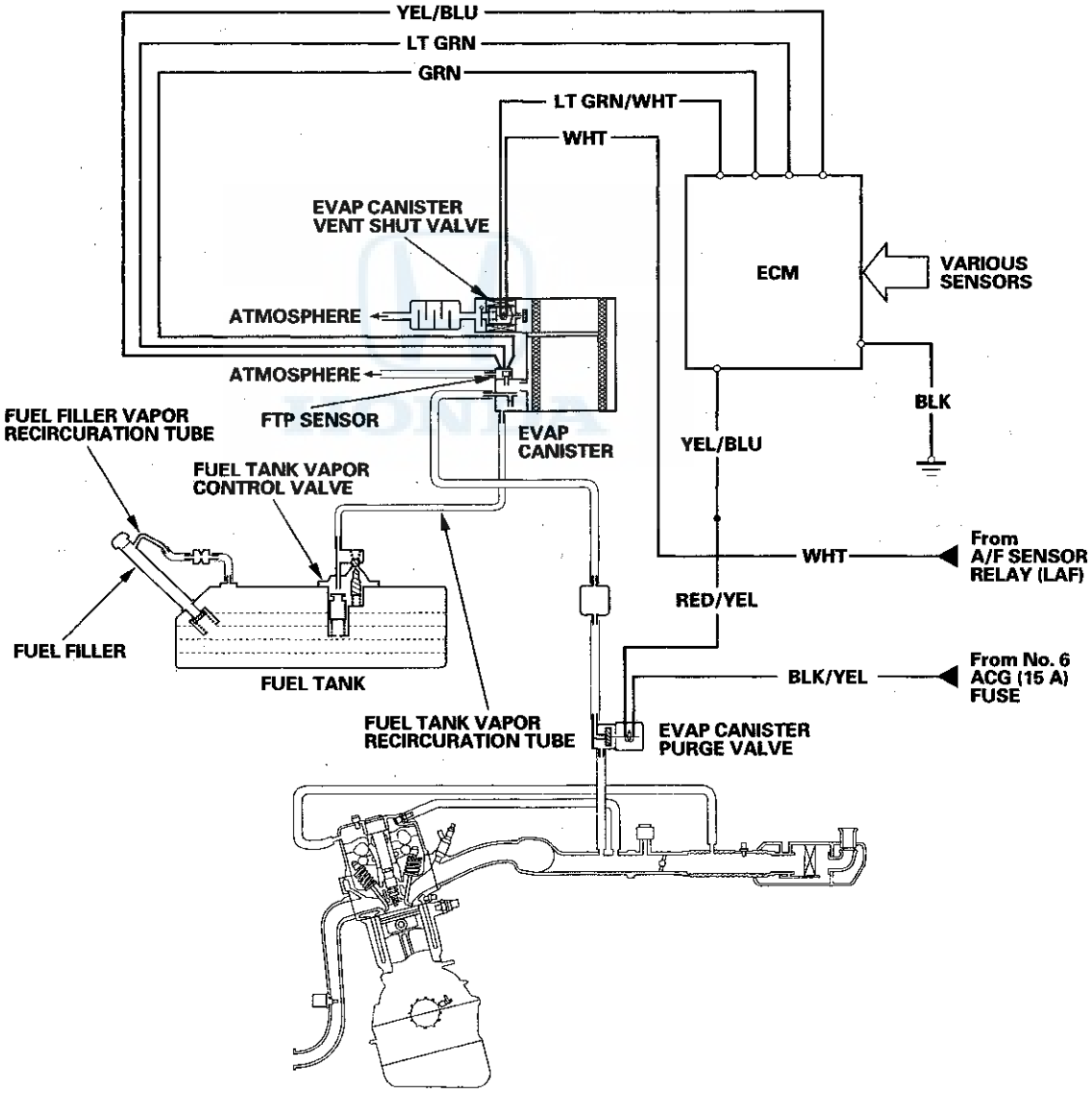
The electronic throttle control system consists of the throttle actuator, throttle position (TP) sensor A/B, accelerator pedal position (APP) sensor A/B, the throttle actuator control module, and the ECM.



Evaporative Emission (EVAP) Control Diagram

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP canister until it can be purged from the canister into the engine and burned.

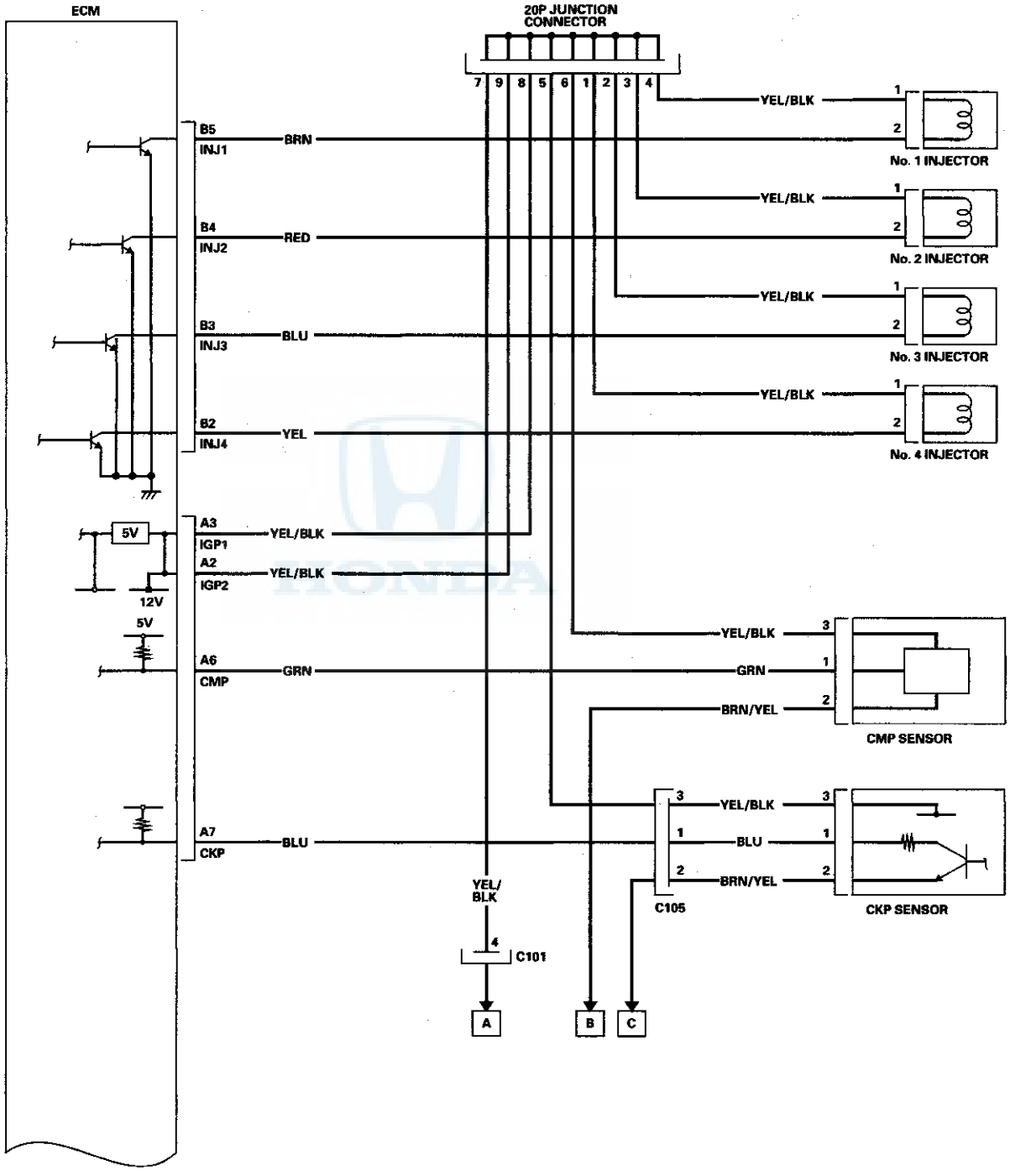
The EVAP canister is purged by drawing fresh air through it and into a port on the intake manifold. The purging vacuum is controlled by the EVAP canister purge valve, which operates whenever engine coolant temperature is above 149 °F (65 °C).

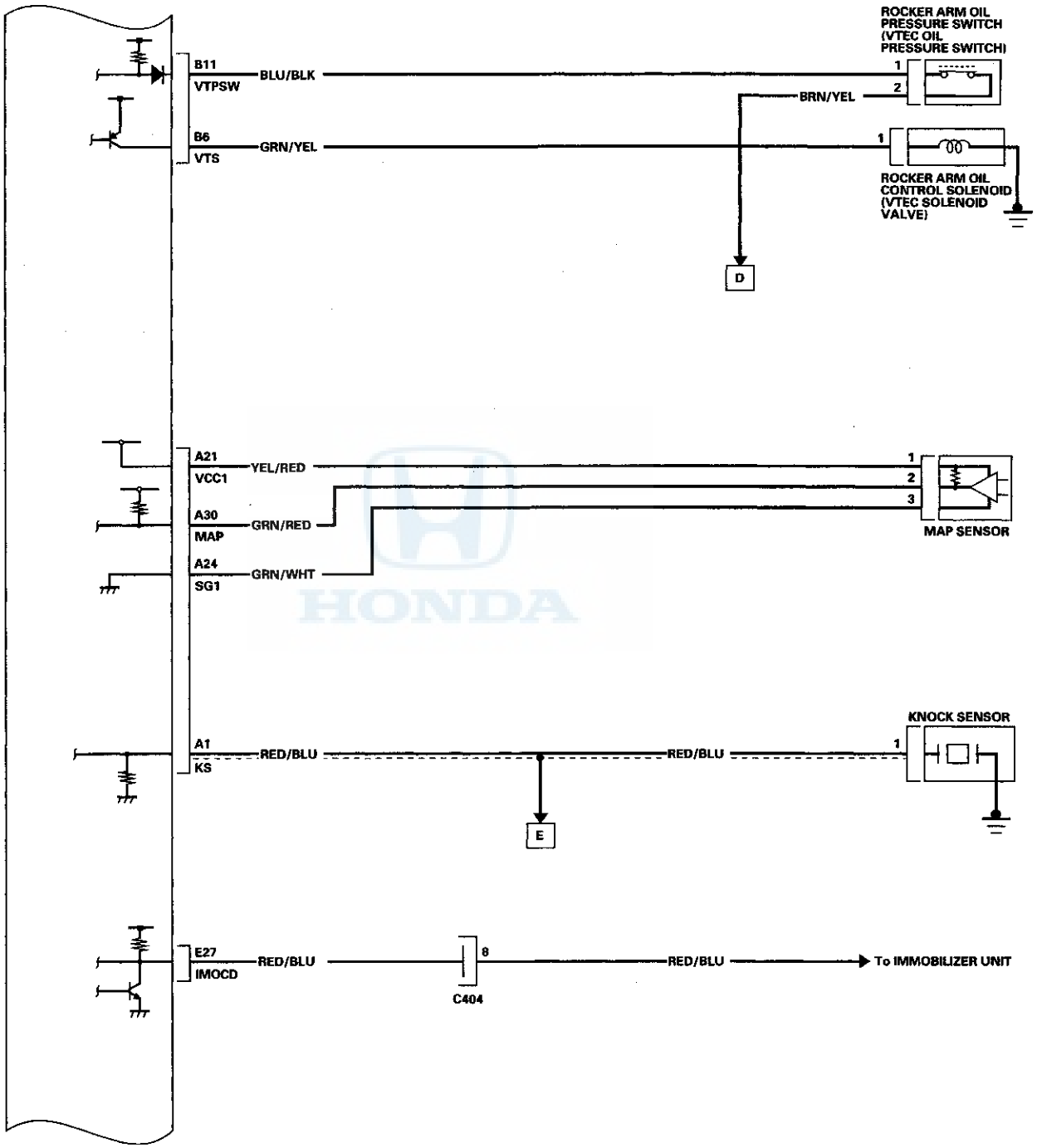


(cont'd)

System Description (cont'd)

ECM Circuit Diagram

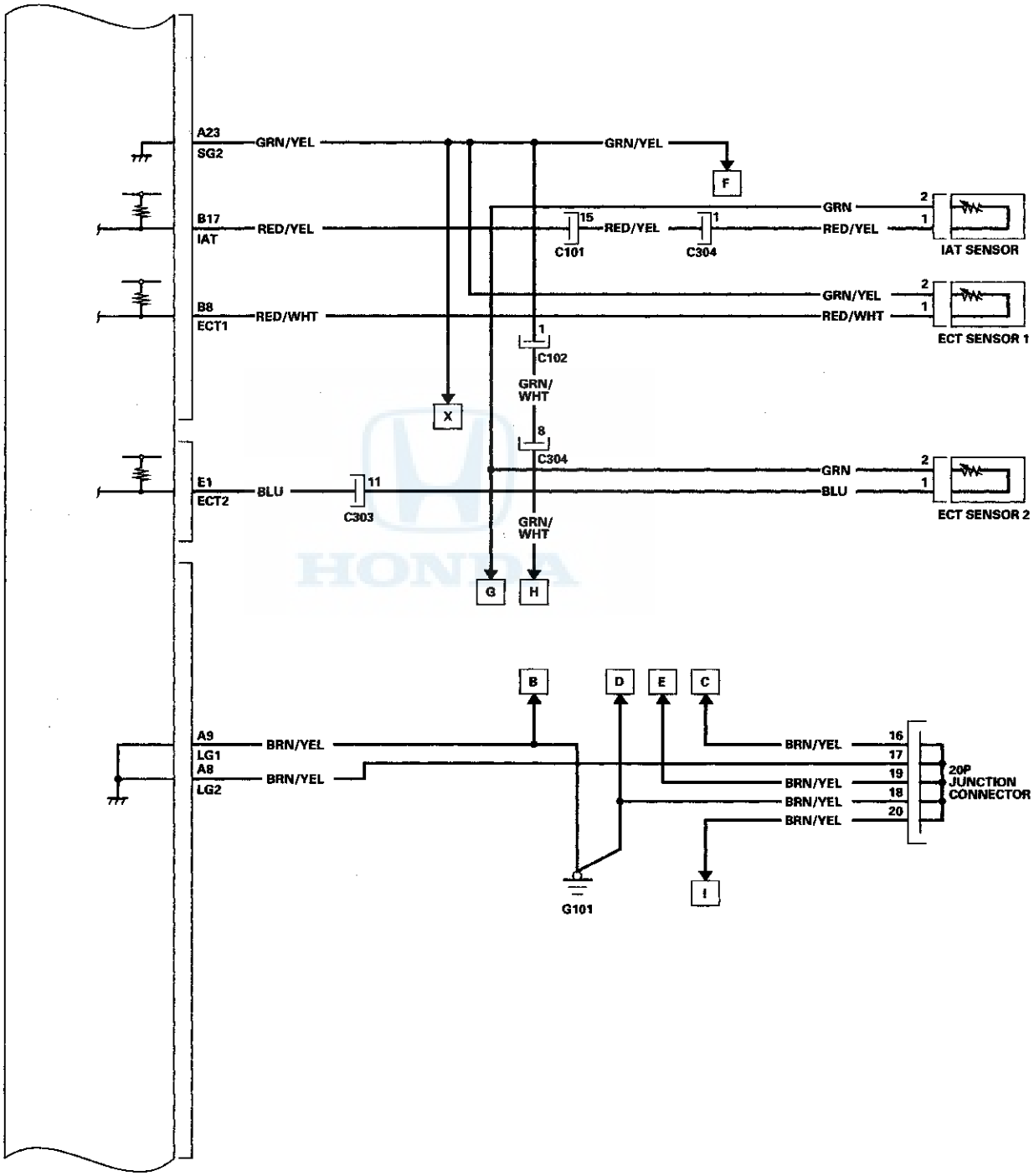


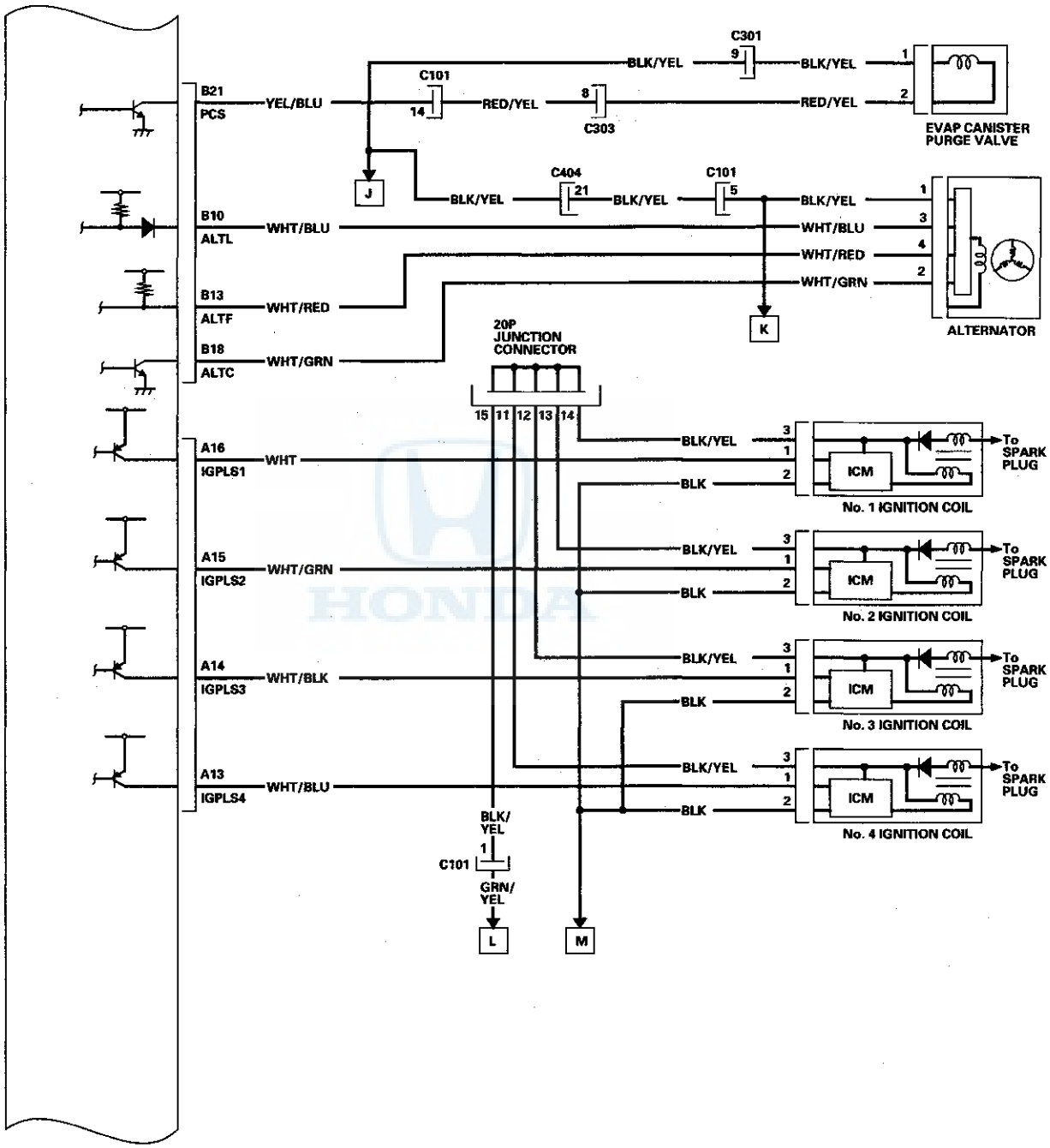

B11
VTPSW
BLU/BLK
B6
VTS
GRN/YEL
ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH)
1
2
BRN/YEL
1
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE)
D
A21
VCC1
YEL/RED
A30
MAP
GRN/RED
A24
SG1
GRN/WHT
1
2
3
MAP SENSOR
A1
KS
RED/BLU
RED/BLU
KNOCK SENSOR
1
E
E27
IMOCD
RED/BLU
8
C404
RED/BLU
To IMMOBILIZER UNIT

(cont'd)

System Description (cont'd)

ECM Circuit Diagram (cont'd)

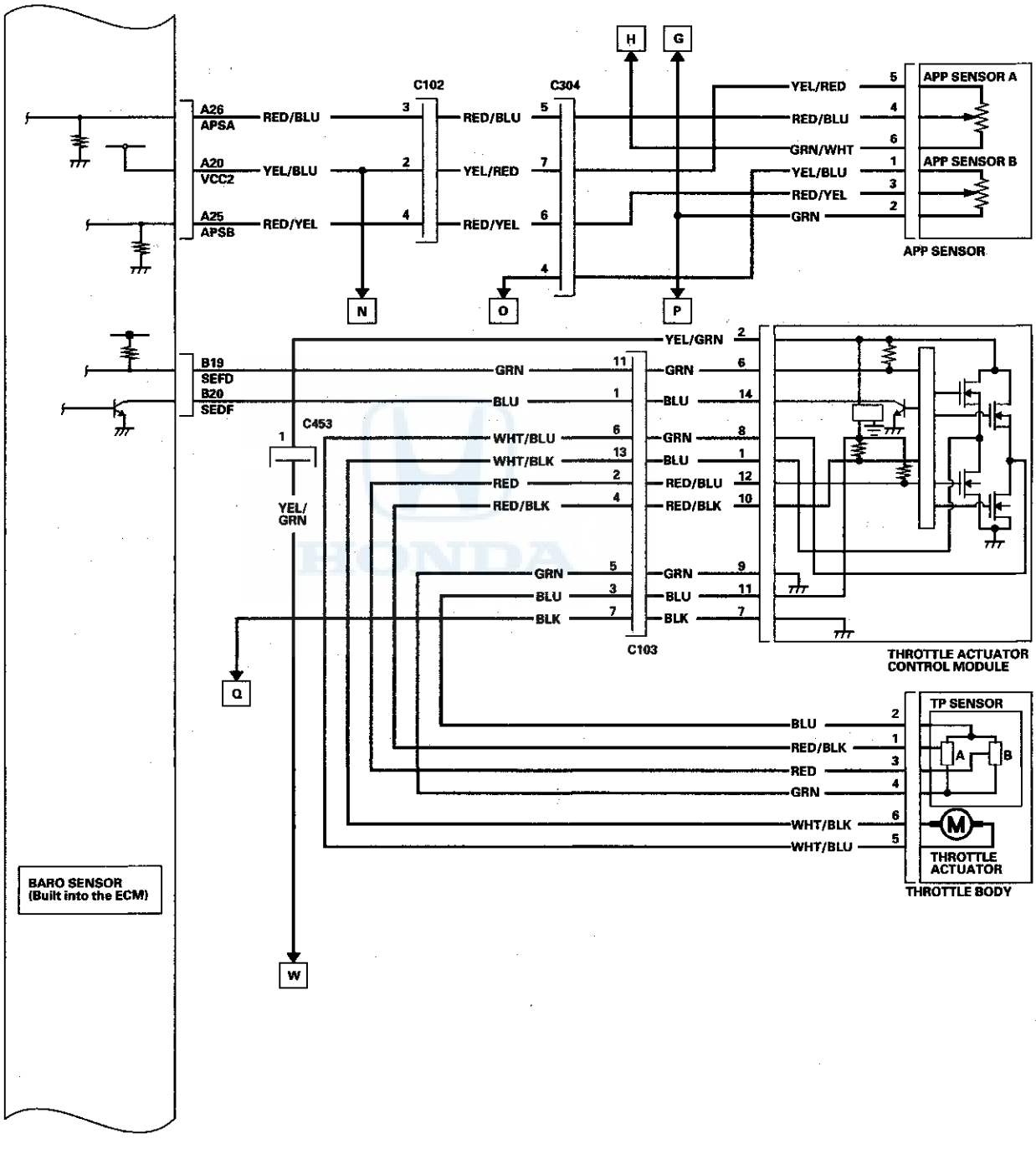


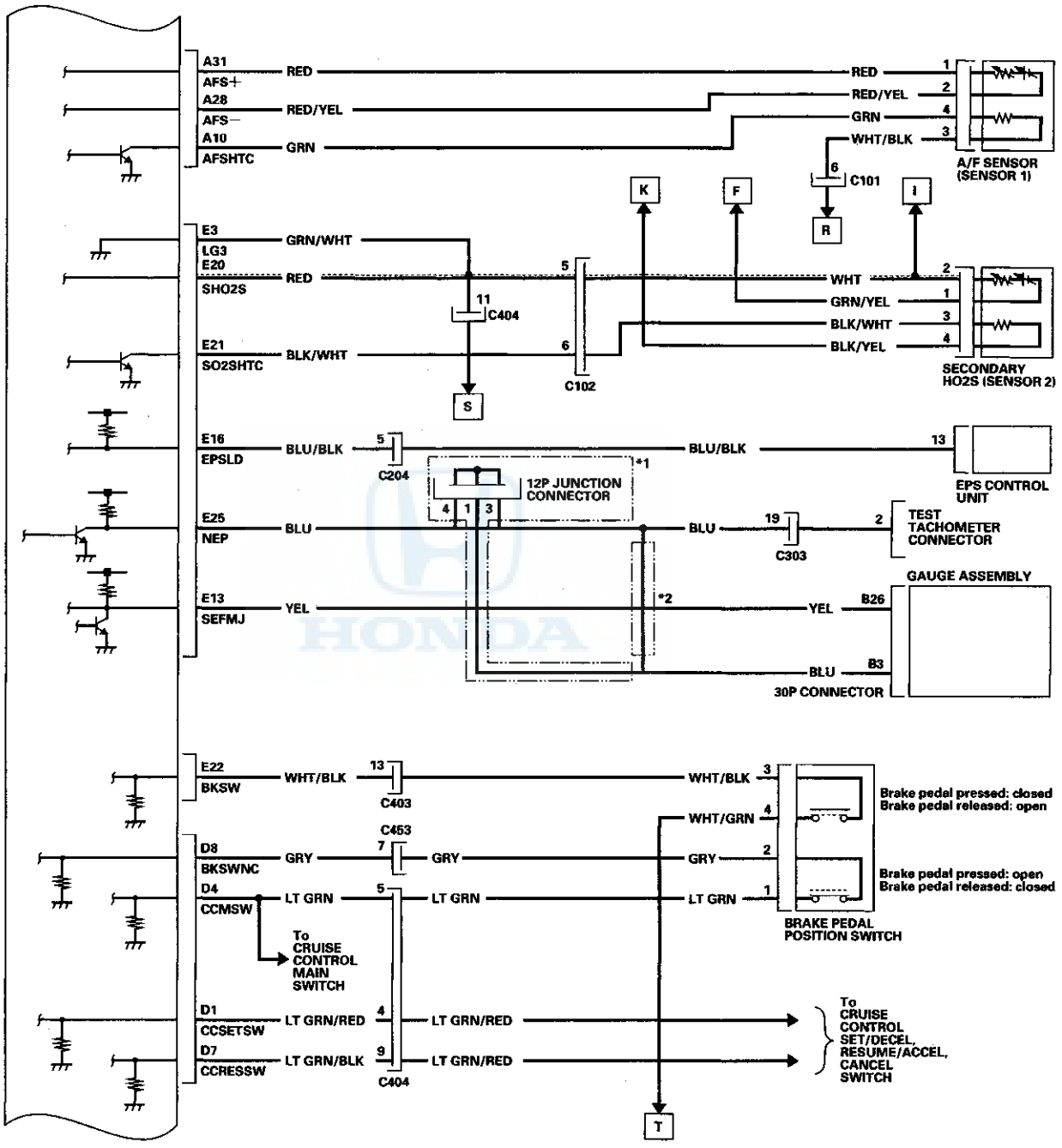

B21
PCS
YEL/BLU
C101
14
RED/YEL
8
C303
BLK/YEL
C301
9
BLK/YEL
1
RED/YEL
2
EVAP CANISTER
PURGE VALVE
J
BLK/YEL
C404
21
BLK/YEL
C101
5
BLK/YEL
1
B10
ALTL
WHT/BLU
WHT/BLU
3
WHT/RED
4
B13
ALTF
WHT/RED
WHT/GRN
2
B18
ALTC
WHT/GRN
K
ALTERNATOR
20P
JUNCTION
CONNECTOR
15 11 12 13 14
A16
IGPLS1
WHT
BLK/YEL
3
1
2
BLK
ICM
To
SPARK
PLUG
No. 1 IGNITION COIL
A15
IGPLS2
WHT/GRN
No. 2 IGNITION COIL
A14
IGPLS3
WHT/BLK
No. 3 IGNITION COIL
A13
IGPLS4
WHT/BLU
No. 4 IGNITION COIL
BLK/
YEL
1
C101
GRN/
YEL
L
M

(cont'd)

System Description (cont'd)

ECM Circuit Diagram (cont'd)



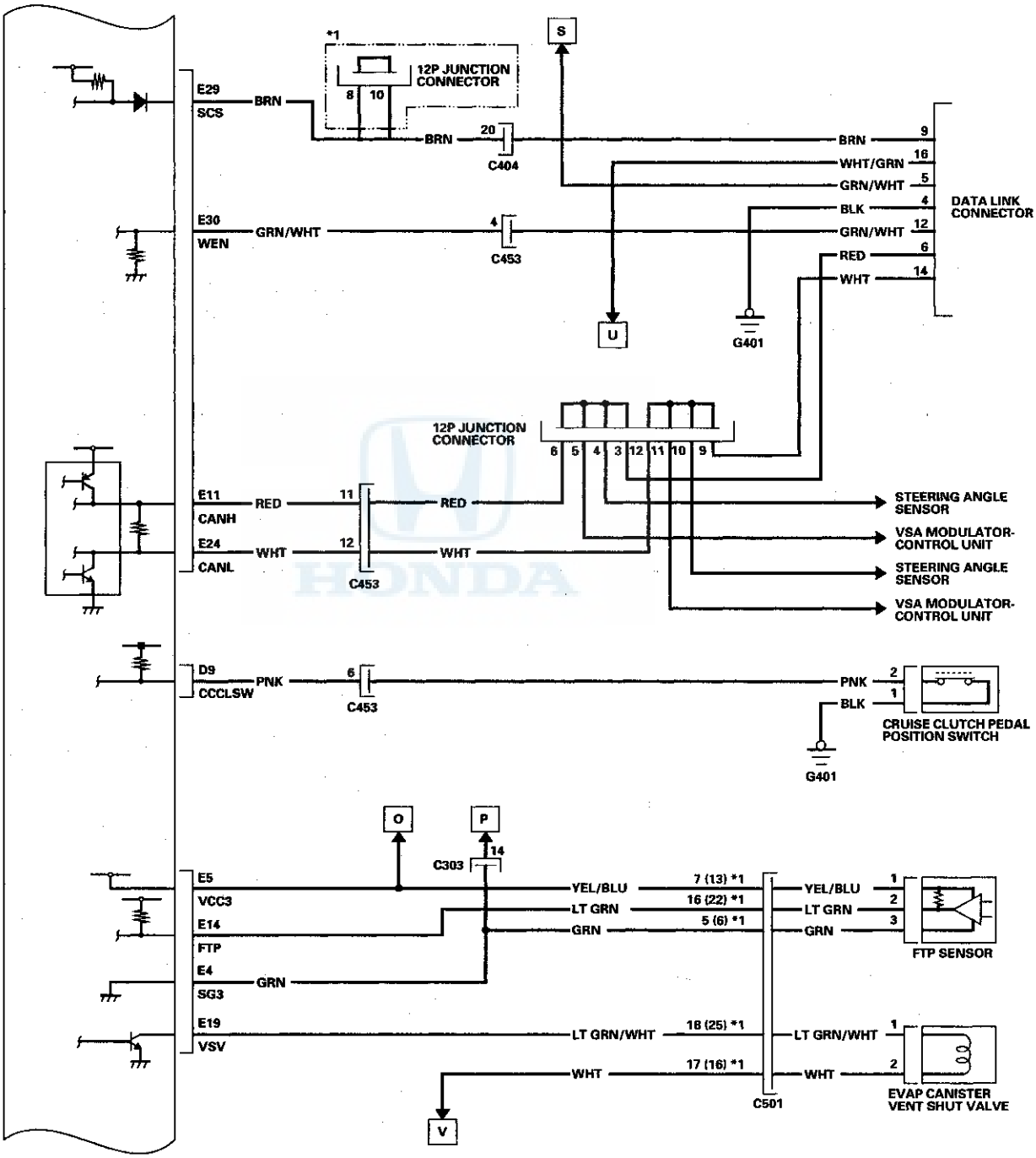


*1: '08 model
*2: '06-07 models

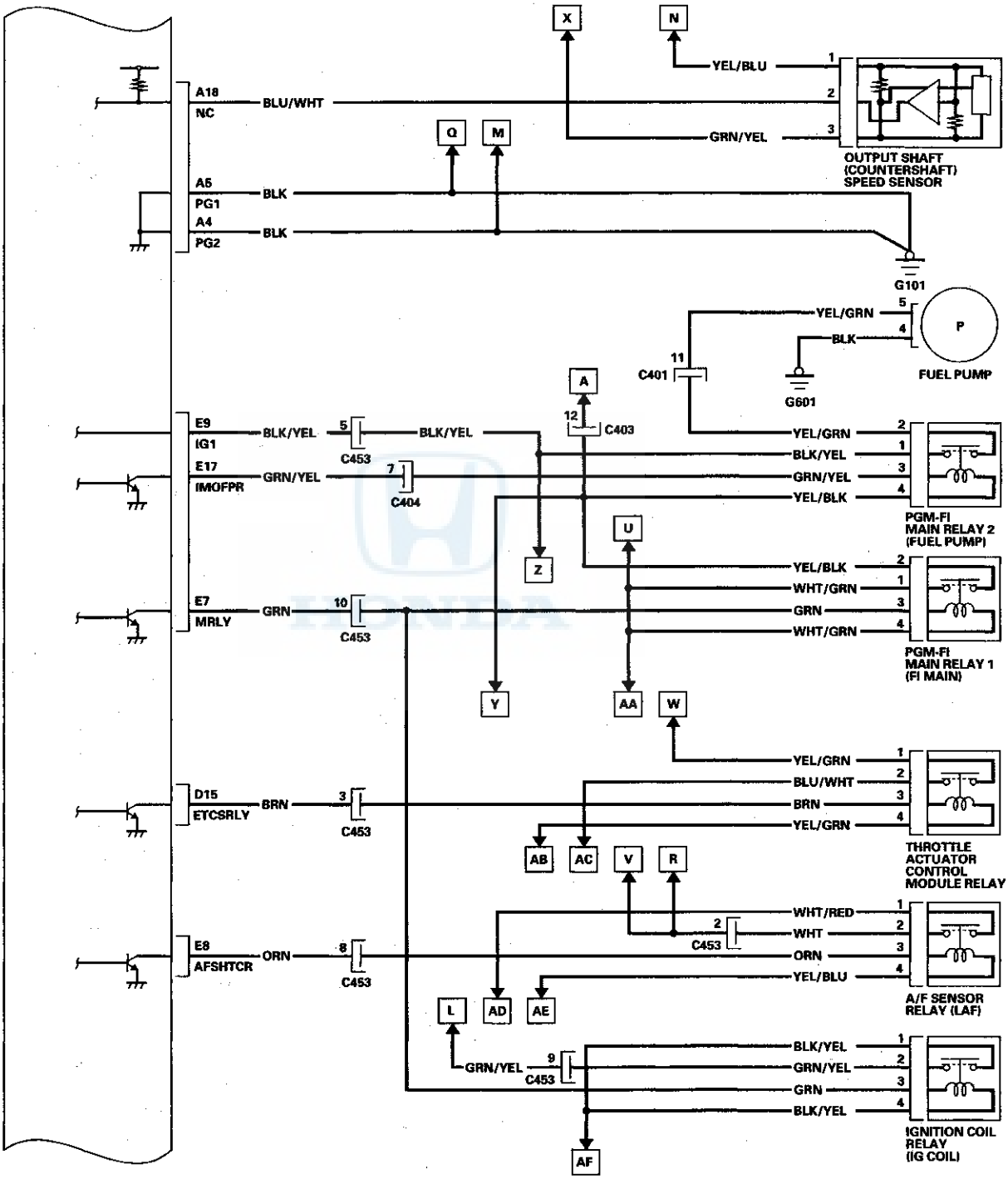
(cont'd)

System Description (cont'd)

ECM Circuit Diagram (cont'd)



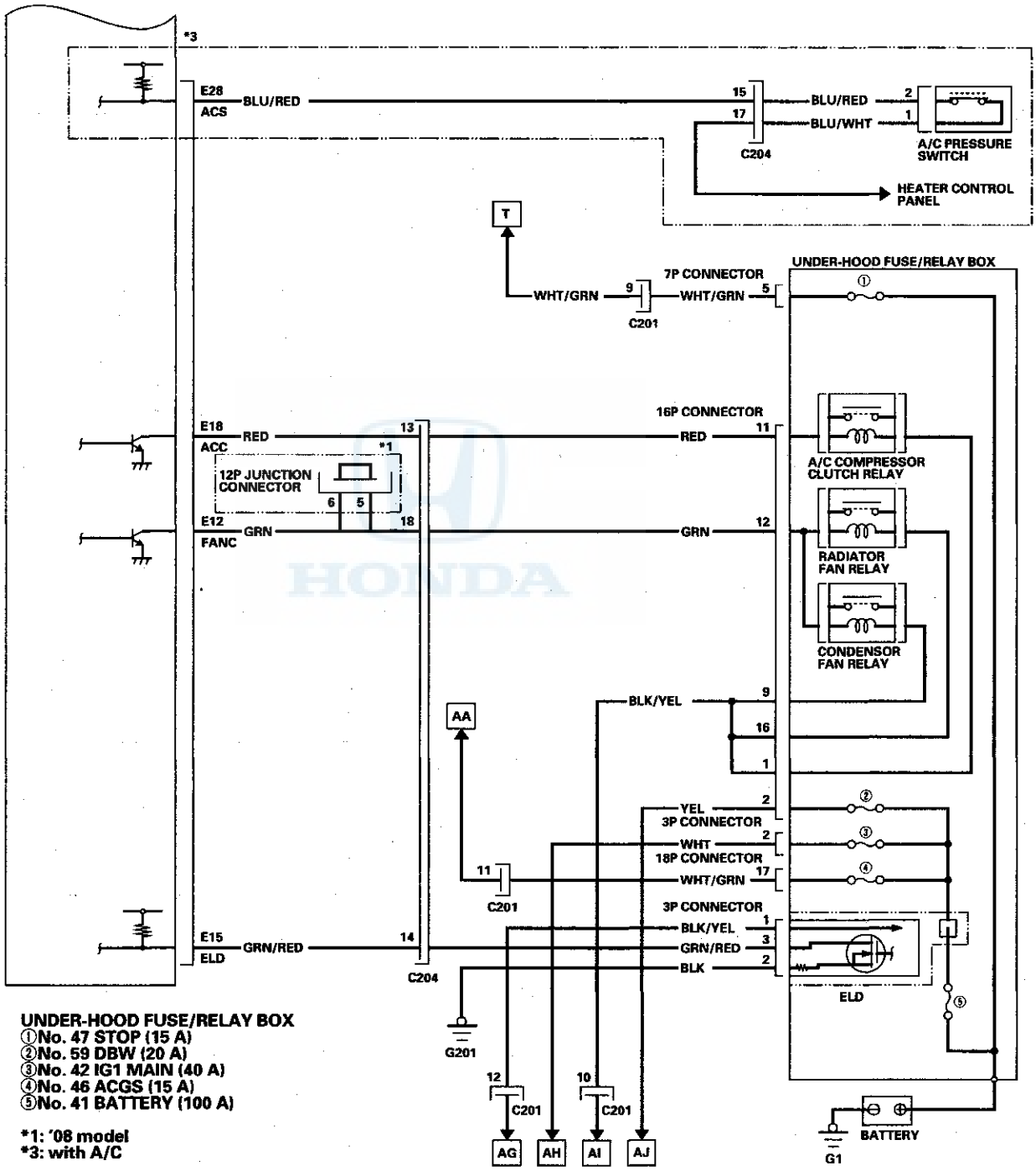
*1: '08 model

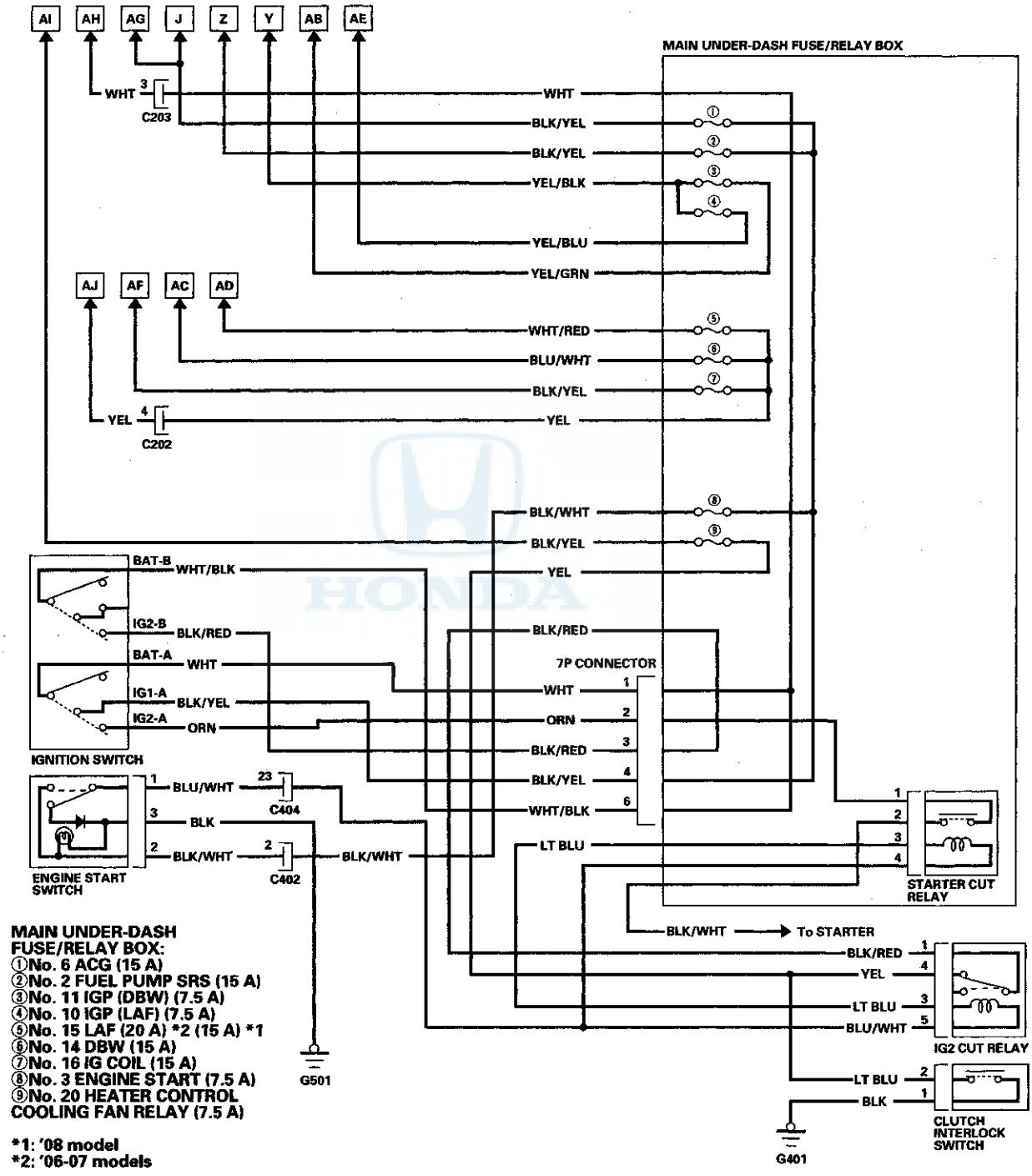

A18
NC
BLU/WHT
A5
PG1
BLK
A4
PG2
BLK
X
N
YEL/BLU
GRN/YEL
Q
M
OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR
G101
YEL/GRN
BLK
P
FUEL PUMP
C401
G601
A
C403
E9
IG1
BLK/YEL
C453
BLK/YEL
E17
IMOFPR
GRN/YEL
C404
YEL/GRN
BLK/YEL
GRN/YEL
YEL/BLK
PGM-FI MAIN RELAY 2 (FUEL PUMP)
U
Z
E7
MRLY
GRN
C453
YEL/BLK
WHT/GRN
GRN
WHT/GRN
PGM-FI MAIN RELAY 1 (FI MAIN)
Y
AA
W
D15
ETCSRLY
BRN
C453
YEL/GRN
BLU/WHT
BRN
YEL/GRN
THROTTLE ACTUATOR CONTROL MODULE RELAY
AB
AC
V
R
E8
AFSHTCR
ORN
C453
WHT/RED
WHT
ORN
YEL/BLU
A/F SENSOR RELAY (LAF)
L
AD
AE
GRN/YEL
C453
BLK/YEL
GRN/YEL
GRN
BLK/YEL
IGNITION COIL RELAY (IG COIL)
AF

(cont'd)

System Description (cont'd)

ECM Circuit Diagram (cont'd)




AI
AH
AG
J
Z
Y
AB
AE
MAIN UNDER-DASH FUSE/RELAY BOX
WHT
3
C203
WHT
BLK/YEL
BLK/YEL
YEL/BLK
YEL/BLU
YEL/GRN
AJ
AF
AC
AD
WHT/RED
BLU/WHT
BLK/YEL
YEL
4
C202
YEL
BLK/WHT
BLK/YEL
YEL
BAT-B
WHT/BLK
IG2-B
BLK/RED
BAT-A
WHT
IG1-A
BLK/YEL
IG2-A
ORN
IGNITION SWITCH
BLK/RED
7P CONNECTOR
WHT
ORN
BLK/RED
BLK/YEL
WHT/BLK
LT BLU
BLU/WHT
23
C404
BLK
BLK/WHT
2
C402
BLK/WHT
ENGINE START SWITCH
G501
STARTER CUT RELAY
BLK/WHT
To STARTER
BLK/RED
YEL
LT BLU
BLU/WHT
IG2 CUT RELAY
LT BLU
BLK
CLUTCH INTERLOCK SWITCH
G401
MAIN UNDER-DASH FUSE/RELAY BOX:
①No. 6 ACG (15 A)
②No. 2 FUEL PUMP SRS (15 A)
③No. 11 IGP (DBW) (7.5 A)
④No. 10 IGP (LAF) (7.5 A)
⑤No. 15 LAF (20 A) *2 (15 A) *1
⑥No. 14 DBW (15 A)
⑦No. 16 IG COIL (15 A)
⑧No. 3 ENGINE START (7.5 A)
⑨No. 20 HEATER CONTROL COOLING FAN RELAY (7.5 A)
*1: '08 model
*2: '06-07 models

How to Set Readiness Codes

Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)

The vehicle has certain "readiness codes" that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the ECM has been reset, these readiness codes are reset to incomplete. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the emission test, or the test cannot be finished.

To check if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15—20 seconds. If it then goes off, the readiness codes are complete. If it flashes five times, one or more readiness codes are not set to complete. To set readiness codes from incomplete to complete, do the procedure for the appropriate code.

To check the status of a specific DTC system, check the OBD status in the DTC MENU with the HDS (see page 11-218). This screen displays the code, the current data list of the enable criteria, and the status of the readiness testing.

Catalytic Converter Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM is reset with the HDS.
- Low ambient temperatures or excessive stop-and-go traffic may increase the drive time needed to switch the readiness code from incomplete to complete.
- The readiness code will not switch to complete until all the enable criteria are met.
- If a fault in the secondary HO2S system caused the MIL to come on, the readiness code cannot be set to complete until you correct the fault.

Enable Criteria

- ECT SENSOR 1 at 158 °F (70 °C) or more.
- IAT SENSOR at 20 °F (—7 °C) or more.
- VSS reads more than 25 mph (40 km/h).

Procedure

1. Connect the HDS to the vehicle's data link connector (DLC), and bring up the READINESS CODEs screen for Catalyst in the DTCs MENU.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (8 km), the readiness code should switch to completed.
4. If the readiness code is still not set to complete, check for a Temporary DTC with the HDS. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

Evaporative Emission (EVAP) Control System Monitor and Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM is reset with the HDS.

Enable Criteria

- Battery voltage is higher than 10.5 V.
- Engine at idle.
- ECT SENSOR 1 and SENSOR 2 between 176 °F (80 °C) and 212 °F (100 °C).
- MAP sensor less than 46.6 kPa (14 in.Hg, 350 mmHg).
- VSS 0 mph (0 km/h).
- IAT SENSOR between 32 °F (0 °C) and 212 °F (100 °C).

Procedure

1. Connect the HDS to the vehicle's data link connector (DLC).
2. Start the engine.
3. Select EVAP TEST in the INSPECTION MENU with the HDS, then select the FUNCTION TEST in the EVAP TEST MENU.
   - If the result is are normal, readiness is complete.
   - If the result is are not normal, go to the next step.
4. Check for a Temporary DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

Air Fuel Ratio (A/F) Sensor Monitor and Readiness Code

NOTE:
- Do not turn the ignition switch off during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM is reset with the HDS.

Enable Criteria

ECT SENSOR 1 at 140 °F (60 °C) or more.

Procedure

1. Start the engine.
2. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (with the throttle fully closed) for 5 seconds. After about 3.5 miles (5.6 km), the readiness code should switch from incomplete to complete.
3. Check the readiness codes screen for the AIR FUEL RATIO (A/F) SENSOR in the DTCs MENU with the HDS.
   - If the screen shows complete, readiness is complete.
   - If the screen shows not complete, go to the next step.
4. Check for a Temporary DTC. If there is no DTC, the enable criteria was probably not met. Select the DATA LIST Menu. Check the ECT SENSOR 1 in the ALL DATA LIST with the HDS. If ECT SENSOR 1 is lower than 140 °F (60 °C), run the engine until it is higher than 140 °F (60 °C), then repeat the procedure.

(cont'd)

How to Set Readiness Codes (cont'd)

Air Fuel Ratio (A/F) Sensor Heater Monitor Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM is reset with the HDS.

Procedure

1. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.

2. If the readiness code is still not set to complete, check for a Temporary DTC. If there is no DTC, repeat the procedure.

Misfire Monitor and Readiness Code

- This readiness code is always set to available because misfiring is continuously monitored.
- Monitoring pauses, and the misfire counter resets, if the vehicle is driven over a rough road.
- Monitoring also pauses, and the misfire counter holds at its current value, if the throttle position changes more than a predetermined value, or if driving conditions fall outside the range of any related enable criteria.

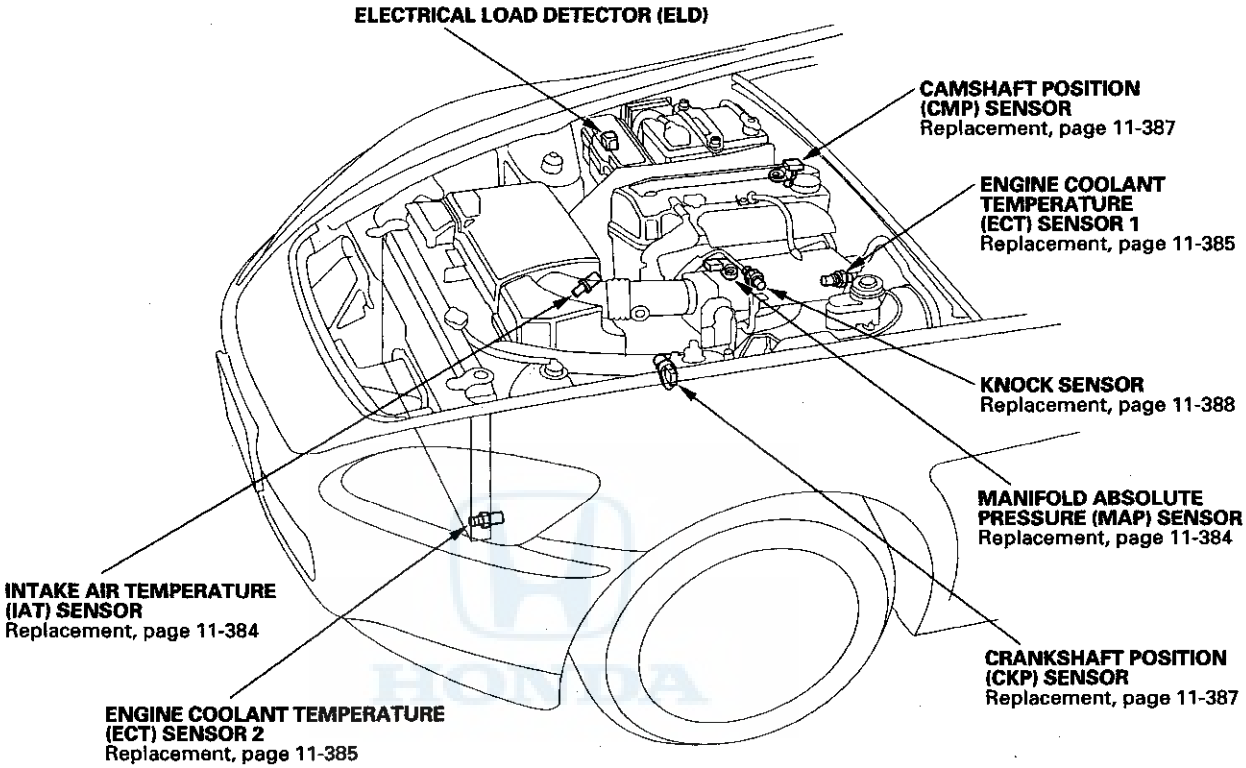
Fuel System Monitor and Readiness Code

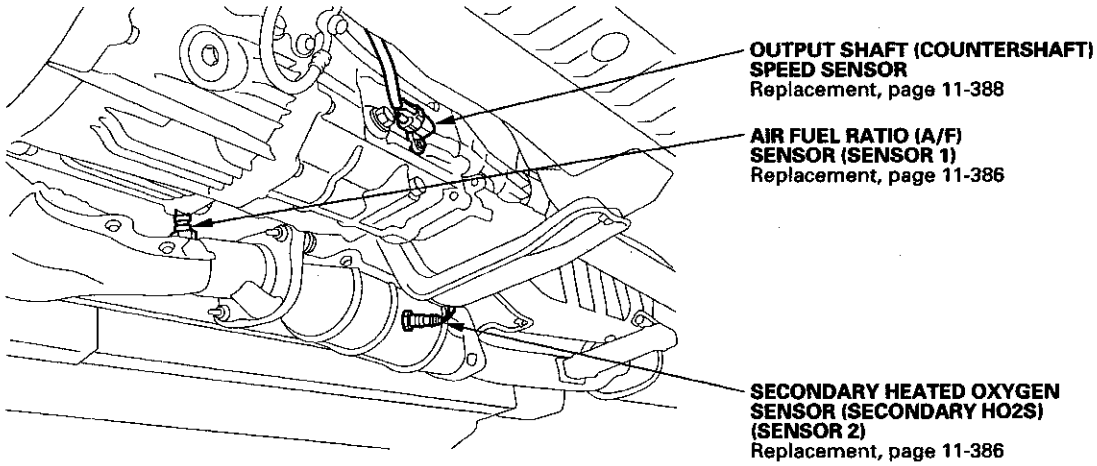
- This readiness code is always set to available because the fuel system is continuously monitored during closed loop operation.
- Monitoring pauses when the catalytic converter, EVAP control system, and A/F sensor monitors are active.
- Monitoring also pauses when any related enable criteria are not being met. Monitoring resumes when the enable criteria is again being met.

Comprehensive Component Monitor and Readiness Code

This readiness code is always set to available because the comprehensive component monitor is continuously running whenever the engine is cranking or running.

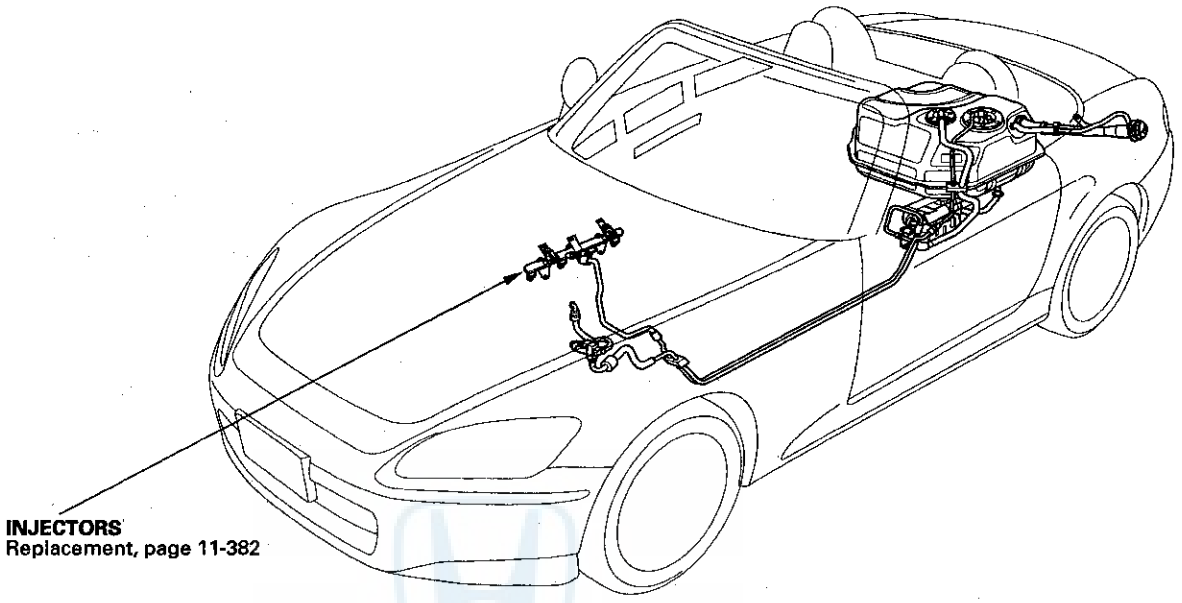
Component Location Index



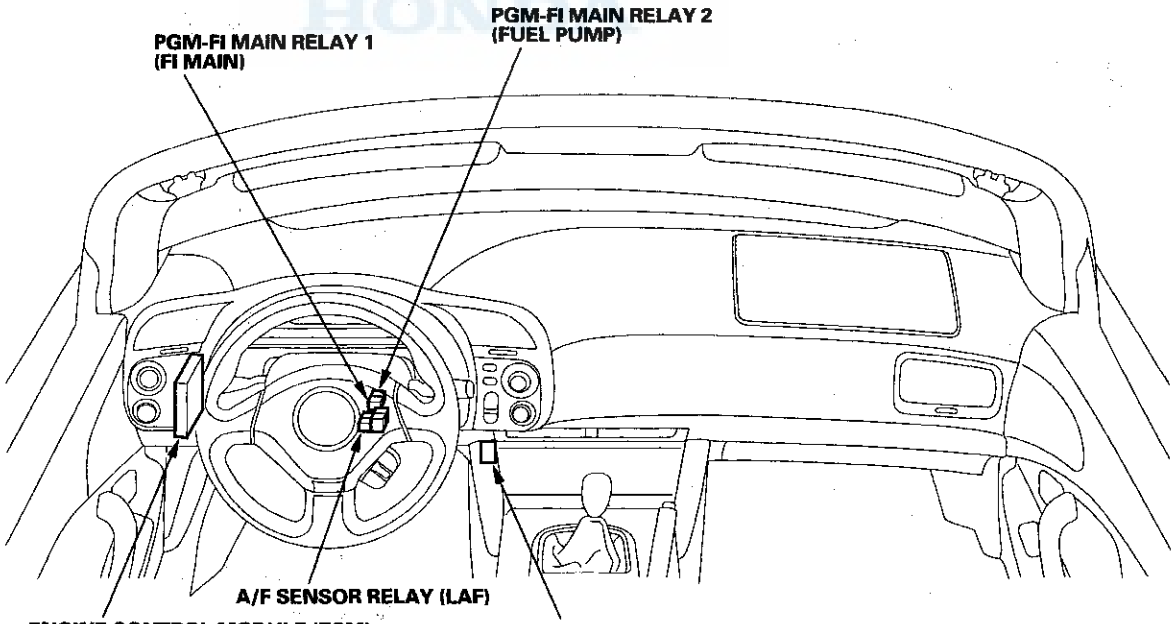


(cont'd)

Component Location Index (cont'd)



INJECTORS
Replacement, page 11-382



ENGINE CONTROL MODULE (ECM)
General Troubleshooting Information, page 11-213
Updating, page 11-216
Substitution, page 11-217
Replacement, page 11-389

DATA LINK CONNECTOR (DLC)
General Troubleshooting Information, page 11-213
Troubleshooting, page 11-367

DTC P0107: MAP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (1.0 in.Hg, 26 mmHg), or 0.23 V or less indicated?

   YES—Go to step 3.

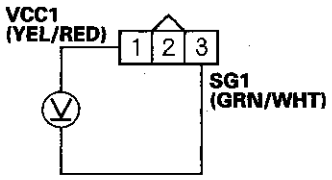
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch ON (II).
6. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 3 kPa (1.0 in.Hg, 26 mmHg), or 0.23 V or less indicated?

   YES—Go to step 9.

   NO—Go to step 7.
7. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

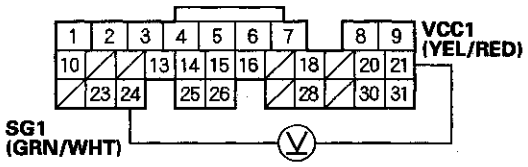
Is there about 5 V?

YES—Go to step 13.

NO—Go to step 8.

8. Measure voltage between ECM connector terminals A21 and A24.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A21) and the MAP sensor, then go to step 15.

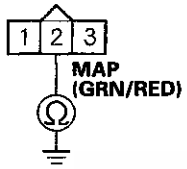
NO—Go to step 20.

(cont'd)

DTC Troubleshooting (cont'd)

9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect ECM connector A (31P).
12. Check for continuity between MAP sensor 3P connector terminal No. 2 and body ground.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A30) and the MAP sensor, then go to step 15.

NO—Go to step 21.

13. Turn the ignition switch OFF.
14. Replace the MAP sensor (see page 11-384).
15. Reconnect all connectors.
16. Turn the ignition switch ON (II).
17. Reset the ECM with the HDS.
18. Do the ECM idle learn procedure (see page 11-462).
19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

20. Turn the ignition switch OFF.
21. Reconnect all connectors.
22. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0108: MAP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

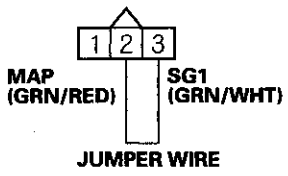
1. Turn the ignition switch ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the MAP sensor 3P connector.
5. Connect the MAP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

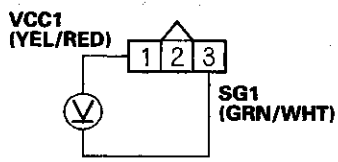
6. Turn the ignition switch ON (II).
7. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 19.
8. Remove the jumper wire from the MAP sensor 3P connector.
9. Measure voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

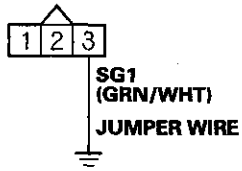
Is there about 5 V?

YES—Go to step 15.

NO—Go to step 10.

10. Turn the ignition switch OFF.
11. Jump the SCS line with the HDS.
12. Disconnect ECM connector A (31P).
13. Connect MAP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

MAP SENSOR 3P CONNECTOR

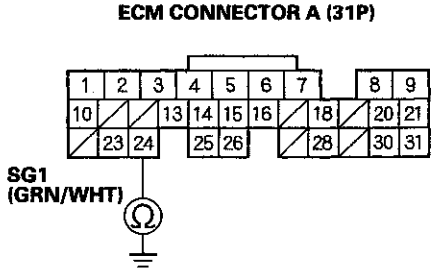


Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

14. Check for continuity between ECM connector terminal A24 and body ground.



Wire side of female terminals

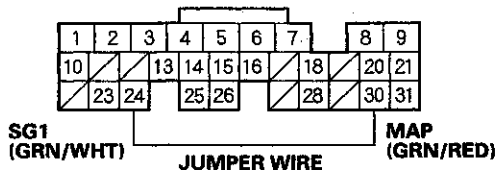
Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the ECM (A24) and the MAP sensor, then go to step 21.

15. Turn the ignition switch OFF.

16. Connect ECM connector terminals A24 and A30 with a jumper wire.



Wire side of female terminals

17. Turn the ignition switch ON (II).

18. Check the MAP SENSOR in the DATA LIST with the HDS.

Is about 160 kPa (47.1 in.Hg, 1,197 mmHg), or 4.49 V or more indicated?

YES—Go to step 26.

NO—Repair open in the wire between the ECM (A30) and the MAP sensor, then go to step 21.

19. Turn the ignition switch OFF.

20. Replace the MAP sensor (see page 11-384).

21. Reconnect all connectors.

22. Turn the ignition switch ON (II).

23. Reset the ECM with the HDS.

24. Do the ECM idle learn procedure (see page 11-462).

25. Check for Temporary DTCs or DTCs with HDS.

Is DTC P0108 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

26. Turn the ignition switch OFF.

27. Reconnect all connectors.

28. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0108 indicated?

    YES—Check for poor connections or loose terminals at the MAP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0111: IAT Sensor Circuit Range/ Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the IAT sensor.

   Are the connections and terminals OK?

   YES—Go to step 2.

   NO—Repair the connections or terminals, then go to step 15.

2. Remove the IAT sensor (see page 11-384).
3. Allow the IAT sensor to cool to ambient temperature.
4. Note the ambient temperature.
5. Connect IAT sensor to its 2P connector, but do not install it on the intake air duct.
6. Turn the ignition switch ON (II).
7. Note the value of the IAT SENSOR quickly in the DATA LIST with the HDS.
8. Compare the value of the IAT SENSOR and the ambient temperature.

   Does the value of the IAT SENSOR differ 5.4 °F (3 °C) or more?

   YES—Go to step 13.

   NO—Go to step 9.

9. Disconnect the IAT sensor from the 2P connector.
10. Using a heat gun, blow hot air on the IAT sensor for a few seconds. Do not apply the heat longer than a few seconds or you will damage the sensor.
11. Connect the IAT sensor to its 2P connector, but do not install it on the intake air duct.
12. Check the IAT SENSOR in the DATA LIST with the HDS.

    Does the IAT SENSOR change 58 °F (32 °C) or more?

    YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM. ■

    NO—Go to step 13.

13. Turn the ignition switch OFF.
14. Replace the IAT sensor (see page 11-384).
15. Turn the ignition switch ON (II).
16. Reset the ECM with the HDS.
17. Do the ECM idle learn procedure (see page 11-462).
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0111 indicated?

    YES—Check for poor connections or loose terminals at the IAT sensor and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0112: IAT Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or higher, or 0.08 V or less indicated?

   YES—Go to step 3.

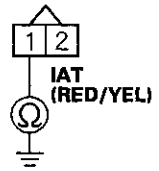
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAT sensor 2P connector.
5. Turn the ignition switch ON (II).
6. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or higher, or 0.08 V or less indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector B (24P).
10. Check for continuity between IAT sensor 2P connector terminal No. 1 and body ground.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the IAT sensor and the ECM (B17), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch OFF.
12. Replace the IAT sensor (see page 11-384).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the ECM with the HDS.
16. Do the ECM idle learn procedure (see page 11-462).

(cont'd)

DTC Troubleshooting (cont'd)

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?

    YES—Check for poor connections or loose terminals at the IAT sensor and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

18. Reconnect all connectors.

19. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0112 indicated?

    YES—Check for poor connections or loose terminals at the IAT sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P0113: IAT Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

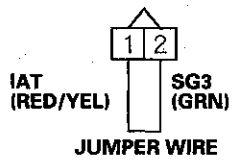
1. Turn the ignition switch ON (II).
2. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the IAT sensor 2P connector.
5. Connect IAT sensor 2P connector terminals No. 1 and No. 2 with a jumper wire.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

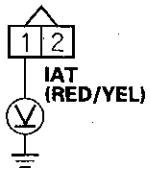
6. Turn the ignition switch ON (II).
7. Check the IAT SENSOR in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 18.
8. Turn the ignition switch OFF.
9. Remove the jumper wire from the IAT sensor 2P connector.
10. Turn the ignition switch ON (II).
11. Measure voltage between IAT sensor 2P connector terminal No. 1 and body ground.

IAT SENSOR 2P CONNECTOR



Wire side of female terminals

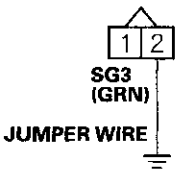
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 17.

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect ECM connector E (31P).
15. Connect IAT sensor 2P connector terminal No. 2 to body ground with a jumper wire.

IAT SENSOR 2P CONNECTOR



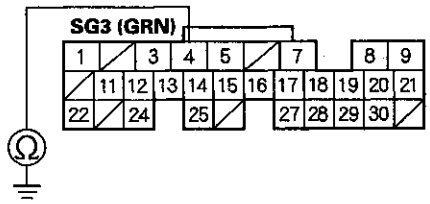
Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

16. Check for continuity between ECM connector terminal E4 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

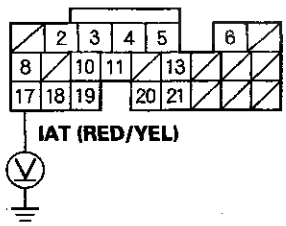
Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the ECM (E4) and the IAT sensor, then go to step 20.

17. Measure voltage between ECM connector terminal B17 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (B17) and the IAT sensor, then go to step 20.

NO—Go to step 25.

18. Turn the ignition switch OFF.
19. Replace the IAT sensor (see page 11-384).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the ECM with the HDS.
23. Do the ECM idle learn procedure (see page 11-462).
24. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0113 indicated?

YES—Check for poor connections or loose terminals at the IAT sensor and the ECM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Turn the ignition switch OFF.
26. Reconnect all connectors.
27. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
28. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0113 indicated?

YES—Check for poor connections or loose terminals at the IAT sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P0116: ECT Sensor 1 Circuit Range/ Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 176 °F (80 °C) or higher, or 0.78 V or less indicated?

   YES—Go to step 6.

   NO—Go to step 3.
3. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Does ECT SENSOR 1 change 18 °F (10 °C) or more?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM. ■

   NO—Go to step 11.
6. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.
7. Turn the ignition switch OFF.
8. Open the engine hood, and let the engine cool for 3 hours.
9. Turn the ignition switch ON (II).
10. Check ECT SENSOR 1 in the DATA LIST with the HDS.

    Does ECT SENSOR 1 change 18 °F (10 °C) or more?

    YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM. ■

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Replace ECT sensor 1 (see page 11-385).
13. Turn the ignition switch ON (II).
14. Reset the ECM with the HDS.
15. Do the ECM idle learn procedure (see page 11-462).
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0116 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0117: ECT Sensor 1 Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or higher, or 0.08 V or less indicated?

   YES—Go to step 3.

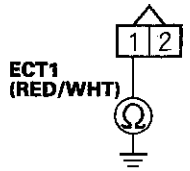
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 1 2P connector.
5. Turn the ignition switch ON (II).
6. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or higher, or 0.08 V or less indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector B (24P).
10. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECT sensor 1 and the ECM (B8), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch OFF.
12. Replace ECT sensor 1 (see page 11-385).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the ECM with the HDS.
16. Do the ECM idle learn procedure (see page 11-462).

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Reconnect all connectors.

19. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0117 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0118: ECT Sensor 1 Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

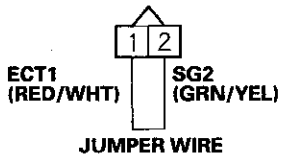
1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 1 2P connector.
5. Connect ECT sensor 1 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

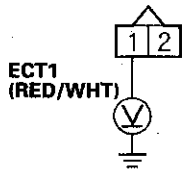
6. Turn the ignition switch ON (II).
7. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 18.
8. Turn the ignition switch OFF.
9. Remove the jumper wire from ECT sensor 1 2P connector.
10. Turn the ignition switch ON (II).
11. Measure voltage between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 12.

NO—Go to step 17.

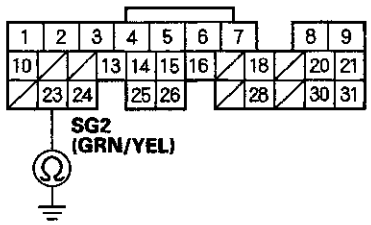
12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect ECM connector A (31P).
15. Connect ECT sensor 1 2P connector terminal No. 2 to body ground with a jumper wire.

ECT SENSOR 1 2P CONNECTOR

Wire side of female terminals

16. Check for continuity between ECM connector terminal A23 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

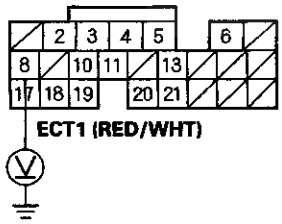
Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the ECM (A23) and ECT sensor 1, then go to step 20.

17. Measure voltage between ECM connector terminal B8 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (B8) and ECT sensor 1, then go to step 20.

NO—Go to step 25.

18. Turn the ignition switch OFF.
19. Replace ECT sensor 1 (see page 11-385).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the ECM with the HDS.
23. Do the ECM idle learn procedure (see page 11-462).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0118 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
25. Turn the ignition switch OFF.
26. Reconnect all connectors.
27. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0118 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0125: ECT Sensor 1 Malfunction/Slow Response

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Start the engine, and let it idle for 5 minutes or more.
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 10 °F (−12 °C) or less, or 4.45 V or more indicated?

   YES—Go to step 9.

   NO—Go to step 3.
3. Allow the engine to cool to 104 °F (40 °C) or less.
4. Note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
5. Start the engine, and let it idle.
6. Let the engine idle until ECT SENSOR 1 goes up 49 °F (27 °C) or more from the recorded temperature.
7. Note the value of ECT SENSOR 2 in the DATA LIST with the HDS.
8. Compare ECT SENSOR 2 and the recorded temperature.

   Did ECT SENSOR 2 change 17 °F (9.5 °C) or more?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM. ■

   NO—Check the thermostat (see page 10-7). If the thermostat is OK, go to step 9. If the thermostat is faulty, replace it (see page 10-11), then go to step 11.
9. Turn the ignition switch OFF.
10. Replace ECT sensor 1 (see page 11-385).
11. Turn the ignition switch ON (II).
12. Reset the ECM with the HDS.
13. Do the ECM idle learn procedure (see page 11-462).
14. Allow the engine to cool to ambient temperature.
15. Start the engine, and let it idle for 20 minutes.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0125 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM, then go to step 1.

    NO—Go to step 17.
17. Monitor the OBD STATUS for DTC P0125 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 14.

DTC P0128: Cooling System Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the blower switch OFF.
4. Check the FAN CTRL in the DATA LIST with the HDS.

   Is it OFF?

   YES—Go to step 5.

   NO—Wait until the FAN CTRL is off, then go to step 5.
5. Check the radiator fan operation.

   Does the radiator fan keep running?

   YES—Check the radiator fan circuit (see page 10-20). If the circuits and the switch are OK, go to step 19.

   NO—Go to step 6.
6. Let the engine cool until the coolant temperature is 104 °F (40 °C) or less.
7. Note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
8. Start the engine, and let it idle.
9. Let the engine idle until ECT SENSOR 1 goes up 49 °F (27 °C) or more from the recorded temperature.
10. Check ECT SENSOR 2 in the DATA LIST with the HDS.
11. Compare the value of recorded ECT SENSOR 2 and the value of present ECT SENSOR 2.

    Did temperature rise 17 °F (9.5 °C) or more?

    YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM. ■

    NO—Test the thermostat (see page 10-7), then go to step 12.
12. Turn the ignition switch ON (II).
13. Reset the ECM with the HDS.
14. Let the engine cool until the coolant temperature is between 21 °F (−6 °C) and 104 °F (40 °C).
15. Do the ECM idle learn procedure (see page 11-462).
16. Test-drive at a steady speed between 15—75 mph (24—120 km/h) for 10 minutes.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0128 indicated?

    YES—Check the cooling system, then go to step 1.

    NO—Go to step 18.
18. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check the cooling system, then go to step 1. If the screen indicates NOT COMPLETED, go to step 14.

(cont'd)

DTC Troubleshooting (cont'd)

19. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

20. Let the engine cool until the coolant temperature is between 21 °F (−6 °C) and 104 °F (40 °C).

21. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

22. Test-drive at a steady speed between 15—75 mph (24—120 km/h) for 10 minutes.

23. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0128 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 20. If the ECM was substituted, go to step 1.

    NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 20. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 20 and recheck.

DTC P0133: A/F Sensor (Sensor 1) Malfunction/Slow Response

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P0139 is stored at the same time as DTC P0133, troubleshoot DTC P0139 first, then recheck for DTC P0133.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
   - Transmission in 4th gear
   - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at steady speed between 26—81 mph (41—130 km/h).
5. Monitor the OBD STATUS for DTC P0133 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the A/F sensor (Sensor 1) (see page 11-386).
8. Turn the ignition switch ON (II).
9. Reset the ECM with the HDS.
10. Do the ECM idle learn procedure (see page 11-462).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
    - Transmission in 4th gear
    - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at steady speed between 26—81 mph (41—130 km/h).
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0133 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P0133 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 11.

DTC Troubleshooting (cont'd)

DTC P0134: A/F Sensor (Sensor 1) Heater System Malfunction

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P0135 is stored at the same time as DTC P0134, troubleshoot DTC P0135 first, then recheck for DTC P0134.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0134 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the ECM. ■
5. Turn the ignition switch OFF.
6. Replace the A/F sensor (Sensor 1) (see page 11-386).
7. Turn the ignition switch ON (II).
8. Reset the ECM with the HDS.
9. Do the ECM idle learn procedure (see page 11-462).
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0134 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the ECM, then go to step 1.

    NO—Go to step 11.
11. Monitor the OBD STATUS for DTC P0134 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 10, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0135: A/F Sensor (Sensor 1) Heater Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0135 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the ECM. ■
5. Turn the ignition switch OFF.
6. Check these fuses:

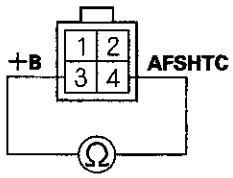
   - No. 15 LAF ('06-07 models: 20 A , '08 model: 15 A) fuse in the under-dash fuse/relay box.
   - No. 10 IGP (LAF) (7.5 A) fuse in the under-dash fuse/relay box.
   - No. 59 DBW (20 A) fuse in the under-hood fuse/relay box.

   Are any of the above fuses blown?

   YES—Repair short in the wire between the A/F sensor relay (LAF) and the fuses. Also replace the blown fuse(s), then go to step 23.

   NO—Go to step 7.
7. Disconnect the A/F sensor (Sensor 1) 4P connector.
8. At the A/F sensor side, measure resistance between A/F sensor (Sensor 1) 4P connector terminals No. 3 and No. 4.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Terminal side of male terminals

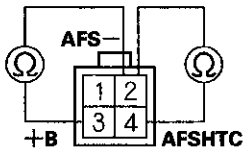
Is there 2.1—2.9 Ω at room temperature?

YES—Go to step 9.

NO—Go to step 22.

9. At the A/F sensor side, check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 2 and A/F sensor (Sensor 1) 4P connector terminals No. 3 and No. 4 individually.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Go to step 22.

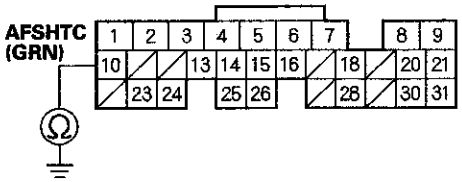
NO—Go to step 10.

(cont'd)

DTC Troubleshooting (cont'd)

10. Jump the SCS line with the HDS.
11. Disconnect ECM connector A (31P).
12. Check for continuity between ECM connector terminal A10 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

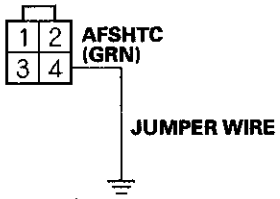
Is there continuity?

YES—Repair short in the wire between the ECM (A10) and the A/F sensor (Sensor 1), then go to step 23.

NO—Go to step 13.

13. Connect A/F sensor (Sensor 1) 4P connector terminal No. 4 to body ground with a jumper wire.

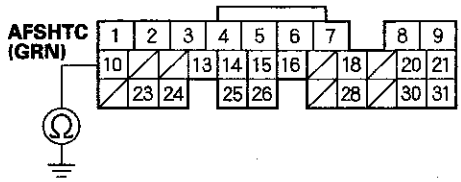
A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

14. Check for continuity between ECM connector terminal A10 and body ground.

ECM CONNECTOR A (31P)



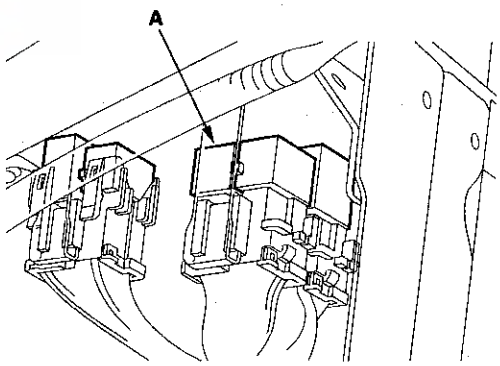
Wire side of female terminals

Is there continuity?

YES—Go to step 15.

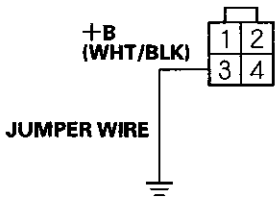
NO—Repair open in the wire between the ECM (A10) and the A/F sensor (Sensor 1), then go to step 23.

15. Remove the A/F sensor relay (LAF) (A).



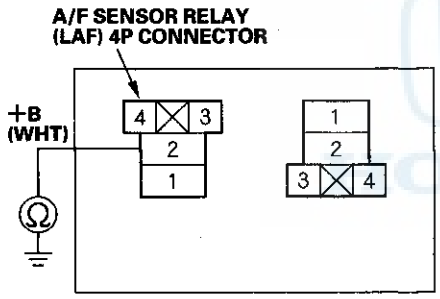
16. Connect A/F sensor (Sensor 1) 4P connector terminal No. 3 to body ground with a jumper wire.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

17. Check for continuity between A/F sensor relay (LAF) 4P connector terminal No. 2 and body ground.



Wire side of female terminals

Is there continuity?

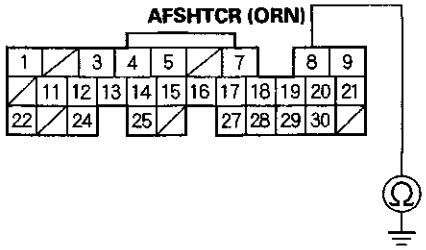
YES—Go to step 18.

NO—Repair open in the wire between the A/F sensor (Sensor 1) and the A/F sensor relay (LAF), then go to step 23.

18. Disconnect ECM connector E (31P).

19. Check for continuity between ECM connector terminal E8 and body ground.

ECM CONNECTOR E (31P)



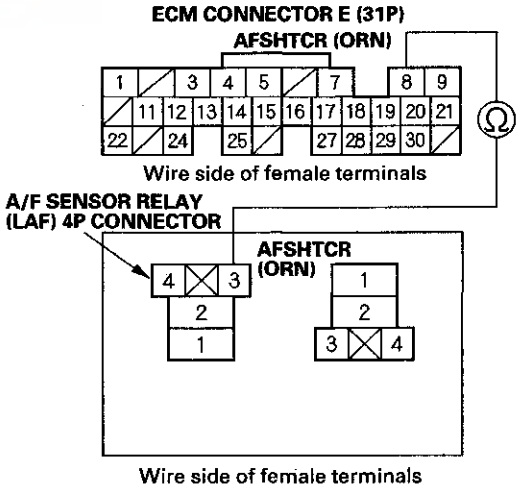
Wire side of female terminals

Is there continuity?

YES—Repair open in the wire between ECM (E8) and the A/F sensor relay (LAF), then go to step 23.

NO—Go to step 20.

20. Check for continuity between ECM connector terminal E8 and A/F sensor relay (LAF) 4P connector terminal No. 3.



Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the ECM (E8) and the A/F sensor relay (LAF), then go to step 23.

(cont'd)

DTC Troubleshooting (cont'd)

21. Check the A/F sensor relay (LAF) (see page 22-48).

    Is the A/F sensor relay (LAF) OK?

    YES—Go to step 29.

    NO—Replace the A/F sensor relay (LAF), then go to step 23.

22. Replace the A/F sensor (Sensor 1) (see page 11-386).

23. Reconnect all connectors.

24. Turn the ignition switch ON (II).

25. Reset the ECM with the HDS.

26. Do the ECM idle learn procedure (see page 11-462).

27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0135 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1.

    NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

29. Reconnect all connectors.

30. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

31. Start the engine.

32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0135 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 31. If the ECM was substituted, go to step 1.

    NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 32, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay (LAF), and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0137: Secondary HO2S (Sensor 2) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.29 V or less?

   YES—Go to step 5.

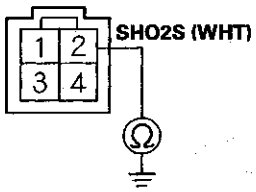
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and at the ECM.■
5. Turn the ignition switch OFF.
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Turn the ignition switch ON (II).
8. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 0.29 V or less?

   YES—Go to step 9.

   NO—Go to step 13.
9. Turn the ignition switch OFF.
10. Jump the SCS line with the HDS.
11. Disconnect ECM connector E (31P).
12. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E20) and the secondary HO2S (Sensor 2), then go to step 15.

NO—Go to step 23.

13. Turn the ignition switch OFF.
14. Replace the secondary HO2S (Sensor 2) (see page 11-386).
15. Reconnect all connectors.
16. Turn the ignition switch ON (II).
17. Reset the ECM with the HDS.
18. Do the ECM idle learn procedure (see page 11-462).
19. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.

(cont'd)

DTC Troubleshooting (cont'd)

20. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
    - Transmission in 4th gear
    - Engine speed at 1,500—3,000 rpm
    - Drive about 1 minute or more

21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 indicated?

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 20.

23. Reconnect all connectors.

24. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

25. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.

26. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
    - Transmission in 4th gear
    - Engine speed at 1,500—3,000 rpm
    - Drive about 1 minute or more

27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0137 indicated?

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 26. If the ECM was substituted, go to step 1.

    NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 26. If the ECM was substituted, go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 26.

DTC P0138: Secondary HO2S (Sensor 2) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

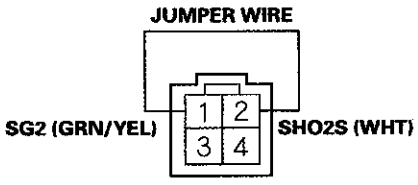
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 1.27 V or more?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM.■
5. Turn the ignition switch OFF.
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

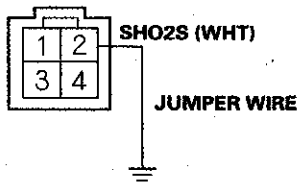
8. Turn the ignition switch ON (II).
9. Check the HO2S S2 in the DATA LIST with the HDS.

   Does the voltage stay at 1.27 V or more?

   YES—Go to step 10.

   NO—Go to step 19.
10. Turn the ignition switch OFF.
11. Remove the jumper wire from the secondary HO2S (Sensor 2) 4P connector.
12. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 2 to body ground with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

13. Turn the ignition switch ON (II).
14. Check the HO2S S2 in the DATA LIST with the HDS.

    Does the voltage stay at 1.27 V or more?

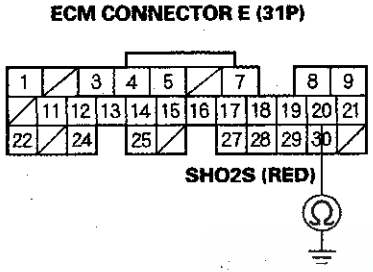
    YES—Go to step 15.

    NO—Repair open in the wire between the ECM (A23) and the secondary HO2S (Sensor 2), then go to step 21.

(cont'd)

DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF.
16. Jump the SCS line with the HDS.
17. Disconnect ECM connector E (31P).
18. Check for continuity between ECM connector terminal E20 and body ground.



Wire side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the ECM (E20) and the secondary HO2S (Sensor 2), then go to step 21.

19. Turn the ignition switch OFF.
20. Replace the secondary HO2S (Sensor 2) (see page 11-386).
21. Reconnect all connectors.
22. Turn the ignition switch ON (II).
23. Reset the ECM with the HDS.
24. Do the ECM idle learn procedure (see page 11-462).
25. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
26. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
    - Transmission in 4th gear
    - Engine speed at 1,500—3,000 rpm
    - Drive 1 minute or more
27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0138 indicated?

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go step 1.

    NO—Go to step 28.
28. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 26.

29. Reconnect all connectors.

30. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

31. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.

32. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
    - Transmission in 4th gear
    - Engine speed at 1,500—3,000 rpm
    - Drive 1 minute or more

33. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0138 indicated?

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 32. If the ECM was substituted, go to step 1.

    NO—Go to step 34.

34. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 33, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 32. If the ECM was substituted, go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 32.

DTC Troubleshooting (cont'd)

DTC P0139: Secondary HO2S (Sensor 2) Slow Response

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
   - Transmission in 4th gear
   - Vehicle speed at 35 mph (56 km/h) or more
   - Drive 50 seconds
5. Monitor the OBD STATUS for DTC P0139 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the secondary HO2S (Sensor 2) (see page 11-386).
8. Turn the ignition switch ON (II).
9. Reset the ECM with the HDS.
10. Do the ECM idle learn procedure (see page 11-462).
11. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
    - Transmission in 4th gear
    - Vehicle speed at 35 mph (56 km/h) or more
    - Drive 50 seconds
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0139 indicated?

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P0139 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

DTC P0141: Secondary HO2S (Sensor 2) Heater Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0141 indicated?

   YES—Go to step 5.

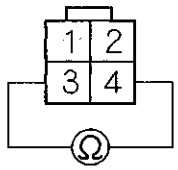
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. ■
5. Turn the ignition switch OFF.
6. Check the No. 6 ACG (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 6.

   NO—Repair short in the wire between the secondary HO2S (Sensor 2) and the No. 6 ACG (15 A) fuse, then go to step 23.
7. Disconnect the secondary HO2S (Sensor 2) 4P connector.
8. At the secondary HO2S (Sensor 2) side, measure resistance between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

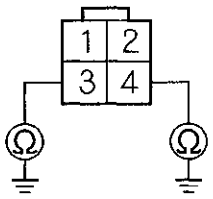
Is there 5.0—6.4 Ω at room temperature?

YES—Go to step 9.

NO—Go to step 22.

9. At the secondary HO2S (Sensor 2) side, check for continuity between body ground and secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4 individually.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 22.

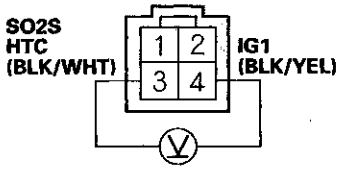
NO—Go to step 10.

(cont'd)

DTC Troubleshooting (cont'd)

10. Turn the ignition switch ON (II).
11. Measure voltage between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

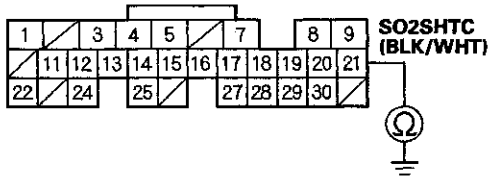
Is there battery voltage?

YES—Go to step 12.

NO—Go to step 16.

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect ECM connector E (31P).
15. Check for continuity between ECM connector terminal E21 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

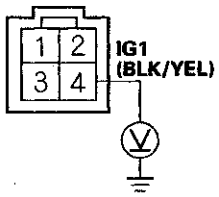
Is there continuity?

YES—Repair short in the wire between the ECM (E21) and the secondary HO2S (Sensor 2), then go to step 23.

NO—Go to step 29.

16. Measure voltage between secondary HO2S (Sensor 2) 4P connector terminal No. 4 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

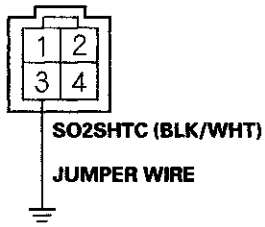
Is there battery voltage?

YES—Go to step 17.

NO—Check the No. 6 ACG (15 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the secondary HO2S (Sensor 2) and the No. 6 ACG (15 A) fuse, then go to step 23.

17. Turn the ignition switch OFF.
18. Jump the SCS line with the HDS.
19. Disconnect ECM connector E (31P).
20. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 3 to body ground with a jumper wire.

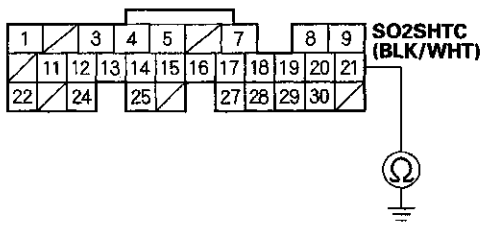
SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

21. Check for continuity between ECM connector terminal E21 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair open in the wire between the ECM (E21) and the secondary HO2S (Sensor 2), then go to step 23.

22. Replace the secondary HO2S (Sensor 2) (see page 11-386).

23. Reconnect all connectors.

24. Turn the ignition switch ON (II).

25. Reset the ECM with the HDS.

26. Do the ECM idle learn procedure (see page 11-462).

27. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0141 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1.

NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

29. Reconnect all connectors.

30. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

31. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0141 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

NO—Go to step 32.

32. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 31, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting (cont'd)

DTC P0171: Fuel System Too Lean

DTC P0172: Fuel System Too Rich

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If some of the DTCs listed below are stored at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then recheck for P0171 and/or P0172.

P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
P0133, P1157, P2195, P2238, P2252, P2A00: Air fuel ratio (A/F) sensor (Sensor 1)
P0134, P0135: Air fuel ratio (A/F) sensor (Sensor 1) heater
P0137, P0138, P0139: Secondary HO2S (Sensor 2)
P0141: Secondary HO2S (Sensor 2) heater
P0443, P0496: EVAP canister purge valve
P2646, P2647, P2648, P2649: VTEC system
P2279: Intake air leakage

1. Check the fuel pressure (see page 11-477).

   Is the fuel pressure OK?

   YES—Check the engine valve clearances and adjust if necessary (see page 6-10). If the valve clearances are OK, replace the injectors (see page 11-382), then go to step 2.

   NO—
   - If the pressure is too high, replace the fuel pressure regulator (see page 11-486), then go to step 2.
   - If the pressure is too low, check the fuel pump (see page 11-470) and the fuel feed line (see page 11-478), then go to step 2.

2. Turn the ignition switch ON (II).

3. Reset the ECM with the HDS.

4. Do the ECM idle learn procedure (see page 11-462).

5. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

6. Test-drive under these conditions:

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in 5th gear
   - Drive at a steady speed between 15—75 mph (24—120 km/h)

   NOTE: DTC P0171 and/or P0172 may take up to 80 minutes of test driving to set. Using the HDS, monitor the air fuel feed back average (AF FB AVE). If the AF FB AVE stays within 0.8—1.25, there is no problem at this time.

7. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0171 or P0172 indicated?

   YES—Go to step 1.

   NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0300: Random Misfire and Any Combination of the Following:

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose, adapter 07MAJ-PY40120

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If the misfire is frequent enough to trigger detection of increased emissions during 2 consecutive driving cycles, the MIL will come on, and DTC P0300 (and some combination of P0301 through P0304) will be stored.
- If the misfire is frequent enough to damage the catalyst, the MIL will flash whenever the misfire occurs, and DTC P0300 (and some combination of P0301 through P0304) will be stored. When the misfire stops, the MIL will remain on.
- Troubleshoot the following DTCs first, if any of them were stored along with the random misfire DTC(s):

  P0107, P0108, P1128, P1129: Manifold absolute pressure (MAP) sensor
  P0171, P0172: Fuel system
  P0335, P0339: Crankshaft position (CKP) sensor
  P0365, P0369: Camshaft position (CMP) sensor
  P0506, P0507: Idle control system
  P2646, P2647, P2648, P2649: VTEC system

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine (in neutral), then let it idle without load.
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicates PASSED, go to step 5. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, wait for several minutes, and recheck.
5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Go to step 6.
6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   - ENGINE SPEED
   - VSS
   - REL TP SENSOR
   - CLV (calculated load value)
7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicates PASSED, go to step 8. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 6 and recheck.

(cont'd)

DTC Troubleshooting (cont'd)

8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time. ■

9. Turn the ignition switch OFF.

10. Check the fuel quality.

    Is the quality good?

    YES—Go to step 11.

    NO—Drain the tank and fill with known-good fuel, then go to step 20.

11. Inspect the spark plugs (see page 4-28). If the spark plugs are fouled or worn, replace them.

12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)

13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

    YES—Go to step 14.

    NO—Go to step 20.

14. Check the fuel pressure (see page 11-477).

    Is the fuel pressure OK?

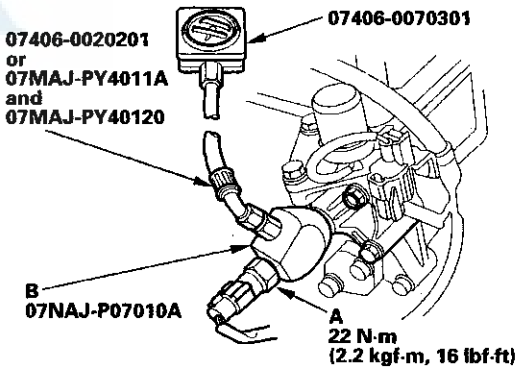
    YES—Go to step 15.

    NO—
    - If the pressure is too high, replace the fuel pressure regulator (see page 11-486), then go to step 20.
    - If the pressure is too low, check the fuel pump, the fuel feed pipe, and the fuel filter. If they are OK, replace the fuel pressure regulator (see page 11-486), then go to step 20.

15. Turn the ignition switch OFF.

16. Remove the rocker arm oil pressure switch (VTEC oil pressure switch) (A), and install the special tools as shown, then attach the rocker arm oil pressure switch (VTEC oil pressure switch) (A) to the pressure gauge adapter (B).

    NOTE: Install the parts in the reverse order of removal with a new O-ring.



17. Reconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.

18. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

19. Check the oil pressure at engine speeds of 1,000 and 2,000 rpm.

    Is the oil pressure below 49 kPa (0.5 kgf/cm², 7 psi)?

    YES—Check for air in the fuel line, then go to step 20.

    NO—Inspect the VTEC system, then go to step 20.

20. Turn the ignition switch ON (II).

21. Reset the ECM with the HDS.

22. Clear the CKP pattern with the HDS.

23. Do the ECM idle learn procedure (see page 11-462).

24. Do the CKP pattern learn procedure (see page 11-214).

25. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)

26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0300, P0301, P0302, P0303, or P0304 indicated?

    YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the ECM, then go to DTC P0301, P0302, P0303, or P0304 troubleshooting (see page 11-298).

    NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, go to step 1 and recheck. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 25.

DTC Troubleshooting (cont'd)

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle without load (in neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicate PASSED, go to step 5. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, wait for several minutes, and recheck.
5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE and/or CYL4 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Go to step 6.
6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   - ENGINE SPEED
   - VSS
   - REL TP SENSOR
   - CLV (calculated load value)
7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 9.

   NO—If the screen indicate PASSED, go to step 8. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 6 and recheck.
8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

   Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time. Check for loose wires or poor connections in the fuel system circuit. ■
9. Turn the ignition switch OFF.
10. Remove the fuel rail cover.
11. Start the engine, and listen for a clicking sound at the injector of the problem cylinder.

    Does the injector click?

    YES—Go to step 12.

    NO—Go to step 43.
12. Turn the ignition switch OFF.
13. Exchange the ignition coil from the problem cylinder with one from another cylinder.
14. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)

15. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

    YES—Go to step 16.

    NO—Intermittent misfire due to poor contact at the ignition coil connector (no misfire at this time). Make sure the coil connections are secure. ■

16. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the ignition coil was exchanged?

    YES—Replace the faulty ignition coil (see page 4-25), then go to step 63.

    NO—Go to step 17.

17. Turn the ignition switch OFF.

18. Exchange the spark plug from the problem cylinder with one from another cylinder.

19. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)

20. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

    YES—Go to step 21.

    NO—Intermittent misfire due to spark plug fouling (no misfire at this time). ■

21. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the spark plug was moved?

    YES—Replace the faulty spark plug, then go to step 63.

    NO—Go to step 22.

22. Turn the ignition switch OFF.

23. Exchange the injector from the problem cylinder with one from the another cylinder.

24. Start the engine, and let it idle for 2 minutes.

25. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)

26. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

    Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

    YES—Go to step 27.

    NO—Intermittent misfire due to bad contact in the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector. ■

27. Determine which cylinder had the misfire.

    Does the misfire occur in the cylinder where the injector was exchanged?

    YES—Replace the faulty injector (see page 11-382), then go to step 63.

    NO—Go to step 28.

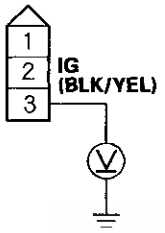
28. Turn the ignition switch OFF.

(cont'd)

DTC Troubleshooting (cont'd)

29. Disconnect the ignition coil 3P connector from the problem cylinder.
30. Turn the ignition switch ON (II).
31. Measure voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

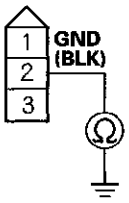
Is there battery voltage?

YES—Go to step 32.

NO—Repair open in the wire between the ignition coil and the ignition coil relay, then go to step 63.

32. Turn the ignition switch OFF.
33. Check for continuity between ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there continuity?

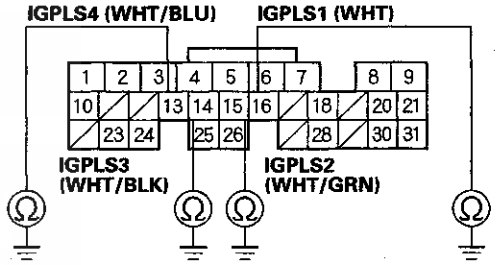
YES—Go to step 34.

NO—Repair open in the wire between the ignition coil and G101, then go to step 63.

34. Turn the ignition switch OFF.
35. Jump the SCS line with the HDS.
36. Disconnect ECM connector A (31P).
37. Check for continuity between body ground and the appropriate ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	A16	WHT
No. 2	P0302	A15	WHT/GRN
No. 3	P0303	A14	WHT/BLK
No. 4	P0304	A13	WHT/BLU

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

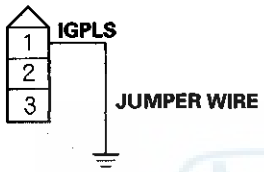
YES—Repair short in the wire between the ECM and the ignition coil, then go to step 63.

NO—Go to step 38.

38. Connect appropriate ignition coil 3P connector terminal No. 1 to body ground with a jumper wire (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	WHT
No. 2	P0302	WHT/GRN
No. 3	P0303	WHT/BLK
No. 4	P0304	WHT/BLU

IGNITION COIL 3P CONNECTOR

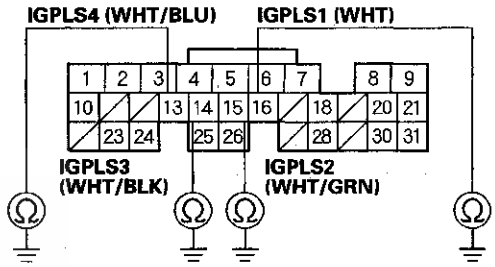


Wire side of female terminals

39. Check for continuity between body ground and the appropriate ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	A16	WHT
No. 2	P0302	A15	WHT/GRN
No. 3	P0303	A14	WHT/BLK
No. 4	P0304	A13	WHT/BLU

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 40.

NO—Repair open in the wire between the ECM and the ignition coil, then go to step 63.

40. Reconnect the ignition coil 3P connector and ECM connector A (31P).

41. Do an engine compression and a cylinder leakdown test (see page 6-7).

Did the engine pass both tests?

YES—Go to step 42.

NO—Repair the engine, then go to step 63.

(cont'd)

DTC Troubleshooting (cont'd)

42. Do the VTEC rocker arm test (see page 6-8).

    Did the VTEC rocker arm pass the test?

    YES—Go to step 72.

    NO—Repair as necessary, then go to step 63.

43. Turn the ignition switch OFF.

44. Jump the SCS line with the HDS.

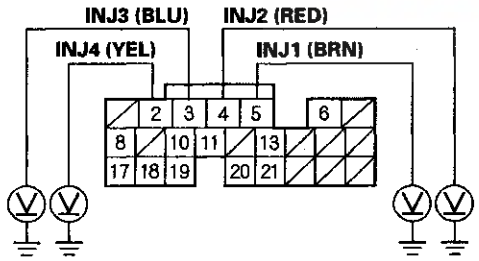
45. Disconnect ECM connector B (24P).

46. Turn the ignition switch ON (II).

47. Measure voltage between body ground and the appropriate ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B5	BRN
No. 2	P0302	B4	RED
No. 3	P0303	B3	BLU
No. 4	P0304	B2	YEL

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 57.

NO—Go to step 48.

48. Turn the ignition switch OFF.

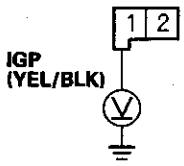
49. Remove the fuel rail cover.

50. Disconnect the injector 2P connector from the problem cylinder.

51. Turn the ignition switch ON (II).

52. Measure voltage between injector 2P connector terminal No. 1 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

It there battery voltage?

YES—Go to step 53.

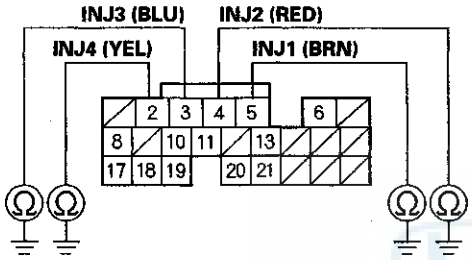
NO—Repair open in the wire between the injector and PGM-FI main relay 1 (FI MAIN), then go to step 63.

53. Turn the ignition switch OFF.

54. Check for continuity between body ground and the appropriate ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B5	BRN
No. 2	P0302	B4	RED
No. 3	P0303	B3	BLU
No. 4	P0304	B2	YEL

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

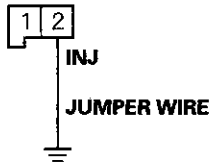
YES—Repair short in the wire between the ECM and the injector, then go to step 63.

NO—Go to step 55.

55. Connect appropriate injector 2P connector terminal No. 2 to body ground with a jumper wire (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0301	BRN
No. 2	P0302	RED
No. 3	P0303	BLU
No. 4	P0304	YEL

INJECTOR 2P CONNECTOR



Wire side of female terminals

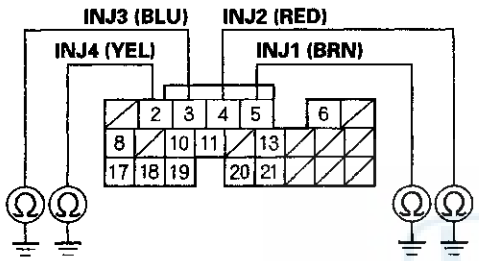
(cont'd)

DTC Troubleshooting (cont'd)

56. Check for continuity between body ground and the appropriate ECM connector terminal (see table).

PROBLEM CYLINDER	DTC	ECM TERMINAL	WIRE COLOR
No. 1	P0301	B5	BRN
No. 2	P0302	B4	RED
No. 3	P0303	B3	BLU
No. 4	P0304	B2	YEL

ECM CONNECTOR B (24P)



Wire side of female terminals

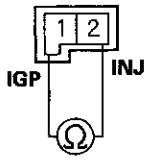
Is there continuity?

YES—Go to step 57.

NO—Repair open in the wire between the ECM and the injector, then go to step 63.

57. At the injecotor side, measure resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10– 13 Ω ?

YES—Go to step 58.

NO—Replace the injector (see page 11-382), then go to step 63.

58. Substitute a known-good injector into the problem cylinder.

59. Reconnect all connectors.

60. Start the engine, and let it idle for 2 minutes.

61. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VSS
- REL TP SENSOR
- CLV (calculated load value)

62. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 72.

NO—Replace the original injector (see page 11-382), then go to step 63.

63. Reconnect all connectors.

64. Turn the ignition switch ON (II).

65. Reset the ECM with the HDS.

66. Clear the CKP pattern with the HDS.

67. Do the ECM idle learn procedure (see page 11-462).

68. Do the CKP pattern learn procedure (see page 11-214).

69. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)

70. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0301, P0302, P0303, or P0304 indicated?

    YES—Check for poor connections or loose terminals at the ignition coil, the injector, and the ECM, then go to DTC P0300, P0301, P0302, P0303, or P0304 troubleshooting (see page 11-295).

    NO—Go to step 71.

71. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

    Does the screen indicate FAILED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 70, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicate FAILED, go to step 1 and recheck. If the screen indicated EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 69.

72. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

73. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - REL TP SENSOR
    - CLV (calculated load value)

74. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0301, P0302, P0303, or P0304 indicated?

    YES—Check for poor connections or loose terminals at the injector, the ignition coil, and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 72. If the ECM was substituted, go to step 1.

    NO—Go to step 75.

75. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 74, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ignition coil, the injector, and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 73. If the ECM was substituted, go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 73.

DTC Troubleshooting (cont'd)

DTC P0325: Knock Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

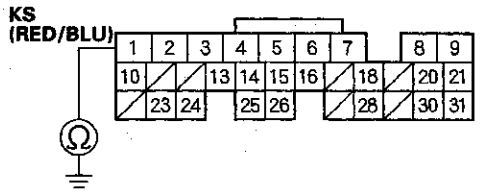
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Hold the engine speed between 3,000—4,000 rpm for at least 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0325 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the ECM. ■
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect the knock sensor 1P connector.
9. Disconnect ECM connector A (31P).
10. Check for continuity between ECM connector terminal A1 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

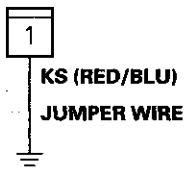
Is there continuity?

YES—Repair short in the wire between the ECM (A1) and the knock sensor, then go to step 14.

NO—Go to step 11.

11. Connect the knock sensor 1P connector terminal to body ground with a jumper wire.

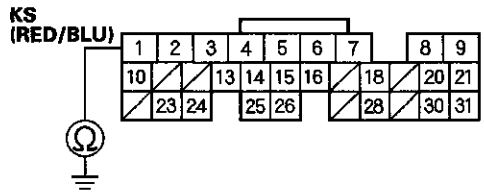
KNOCK SENSOR 1P CONNECTOR



Wire side of female terminals

12. Check for continuity between ECM connector terminal A1 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the ECM (A1) and the knock sensor, then go to step 14.

13. Replace the knock sensor (see page 11-388).
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the ECM with the HDS.
17. Do the ECM idle learn procedure (see page 11-462).
18. Hold the engine speed between 3,000—4,000 rpm for at least 10 seconds.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0325 indicated?

    YES—Go to step 21.

    NO—Go to step 20.

20. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 18.

21. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
22. Hold the engine speed between 3,000—4,000 rpm for at least 10 seconds.
23. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0325 indicated?

    YES—Check for poor connections or loose terminals at the knock sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 22. If the ECM was substituted, go to step 1.

    NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 22. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 22.

DTC Troubleshooting (cont'd)

DTC P0335: CKP Sensor No Signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

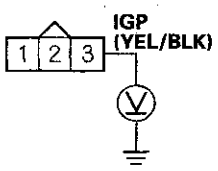
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0335 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the ECM. ■
5. Turn the ignition switch OFF.
6. Disconnect the CKP sensor 3P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between CKP sensor 3P connector terminal No. 3 and body ground.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

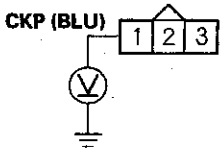
Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the CKP sensor and PGM-FI main relay 1 (FI MAIN), then go to step 18.

9. Measure voltage between CKP sensor 3P connector terminal No. 1 and body ground.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

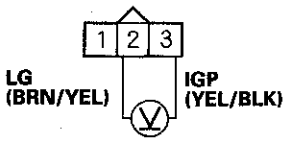
Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

10. Measure voltage between CKP sensor 3P connector terminals No. 2 and No. 3.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

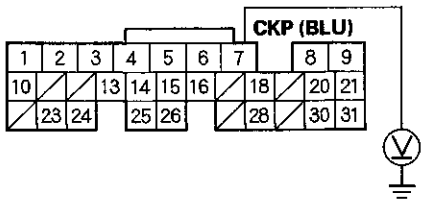
Is there battery voltage?

YES—Go to step 16.

NO—Repair open in the wire between the CKP sensor and G101, then go to step 18.

11. Measure voltage between ECM connector terminal A7 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

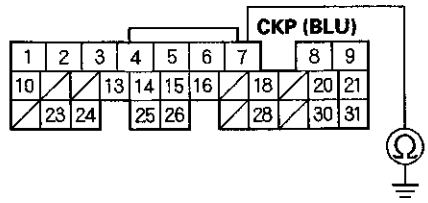
Is there about 5 V?

YES—Repair open in the wire between the ECM (A7) and the CKP sensor, then go to step 18.

NO—Go to step 12.

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect ECM connector A (31P).
15. Check for continuity between ECM connector terminal A7 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A7) and the CKP sensor, then go to step 18.

NO—Go to step 25.

16. Turn the ignition switch OFF.
17. Replace the CKP sensor (see page 11-387).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the ECM with the HDS.
21. Clear the CKP pattern with the HDS.
22. Do the ECM idle learn procedure (see page 11-462).
23. Do the CKP pattern learn procedure (see page 11-214).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0335 indicated?

    YES—Check for poor connections or loose terminals at the CKP sensor and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Reconnect all connectors.
26. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0335 indicated?

    YES—Check for poor connections or loose terminals at the CKP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting (cont'd)

DTC P0339: CKP Sensor Circuit Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 10 seconds.
4. Check the CKP NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?

   YES—Go to step 7.

   NO—Go to step 5.
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   • ENGINE SPEED
   • VSS
6. Check the CKP NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the ECM. ■
7. Check for poor or loose connections and terminals at these locations:

   • CKP sensor
   • ECM
   • Engine ground
   • Body ground

   Are the connections and terminals OK?

   YES—Go to step 8.

   NO—Repair the connectors or terminals, then go to step 11.
8. Remove the cam chain case (see page 6-13), and check the CKP sensor pulse plate for damage.

   Is the pulse plate damaged?

   YES—Replace the CKP sensor pulse plate (see page 6-19), then go to step 11.

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Replace the CKP sensor (see page 11-387).
11. Turn the ignition switch ON (II).
12. Reset the ECM with the HDS.
13. Clear the CKP pattern with the HDS.
14. Do the ECM idle learn procedure (see page 11-462).
15. Do the CKP pattern learn procedure (see page 11-214).
16. Start the engine, and let it idle for 10 seconds.
17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0339 indicated?

    YES—Check for poor connections or loose terminals at the CKP sensor and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0365: CMP Sensor No Signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

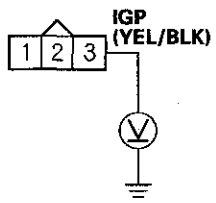
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0365 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the ECM. ■
5. Turn the ignition switch OFF.
6. Disconnect the CMP sensor 3P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between CMP sensor 3P connector terminal No. 3 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

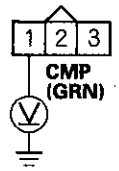
Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the CMP sensor and PGM-FI main relay 1 (FI MAIN), then go to step 18.

9. Measure voltage between CMP sensor 3P connector terminal No. 1 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

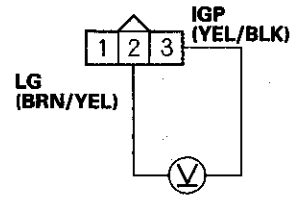
Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

10. Measure voltage between CMP sensor 3P connector terminals No. 2 and No. 3.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

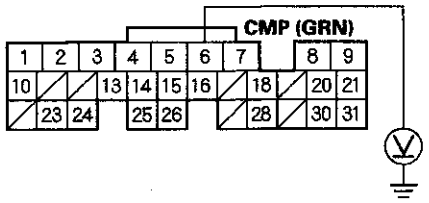
NO—Repair open in the wire between the CMP sensor and G101, then go to step 18.

(cont'd)

DTC Troubleshooting (cont'd)

11. Measure voltage between ECM connector terminal A6 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

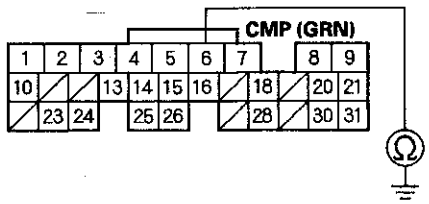
Is there about 5 V?

YES—Repair open in the wire between the ECM (A6) and the CMP sensor, then go to step 18.

NO—Go to step 12.

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect ECM connector A (31P).
15. Check for continuity between ECM connector terminal A6 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A6) and the CMP sensor, then go to step 19.

NO—Go to step 23.

16. Turn the ignition switch OFF.
17. Replace the CMP sensor (see page 11-387).
18. Reconnect all connectors.
19. Turn the ignition switch ON (II).
20. Reset the ECM with the HDS.
21. Do the ECM idle learn procedure (see page 11-462).
22. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0365 indicated?

YES—Check for poor connections or loose terminals at the CMP sensor and the ECM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

23. Reconnect all connectors.
24. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0365 indicated?

YES—Check for poor connections or loose terminals at the CMP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0369: CMP Sensor Circuit Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 10 seconds.
4. Check the CMP NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?

   YES—Go to step 7.

   NO—Go to step 5.

5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   • ENGINE SPEED
   • VSS

6. Check the CMP NOISE in the DATA LIST with the HDS.

   Are 0 counts indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the ECM. ■

7. Check for poor or loose connections and terminals at these locations:

   • CMP sensor
   • ECM
   • Engine ground
   • Body ground

   Are the connections and terminals OK?

   YES—Go to step 8.

   NO—Reconnect the connectors or terminals, then go to step 11.

8. Check for damage on the CMP pulse plate (see page 6-34).

   Is the plate damaged?

   YES—Replace the CMP pulse plate (see page 6-34), then go to step 11.

   NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Replace the CMP sensor (see page 11-387).
11. Turn the ignition switch ON (II).
12. Reset the ECM with the HDS.
13. Do the ECM idle learn procedure (see page 11-462).
14. Start the engine, and let it idle for 10 seconds.
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0369 indicated?

    YES—Check for poor connections or loose terminals at the CMP sensor and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0563: ECM Power Source Circuit Unexpected Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

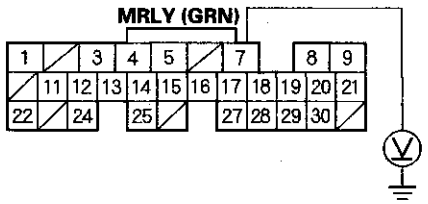
   Is DTC P0563 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the No. 46 ACGS (15 A) fuse in the under-hood fuse/relay box, PGM-FI main relay 1 (FI MAIN), and the ECM.■

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector E (31P).
10. Measure voltage between ECM connector terminal E7 and body ground.

ECM CONNECTOR E (31P)



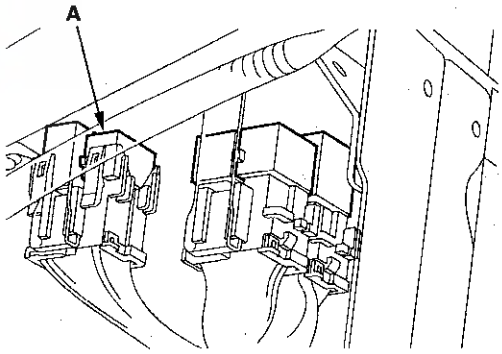
Wire side of female terminals

Is there battery voltage?

YES—Go to step 13.

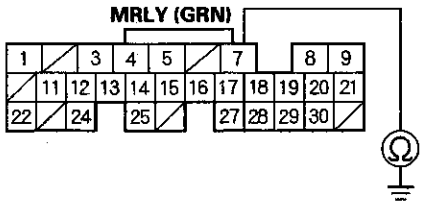
NO—Go to step 11.

11. Remove PGM-FI main relay 1 (FI MAIN) (A).



12. Check for continuity between ECM connector terminal E7 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

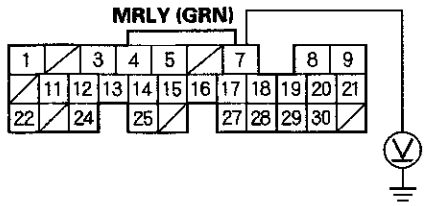
YES—Repair short in the wire between the ECM (E7) and PGM-FI main relay 1 (FI MAIN), then go to step 20.

NO—Go to step 19.

13. Reconnect ECM connector E (31P).

14. Measure voltage between ECM connector terminal E7 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there battery voltage?

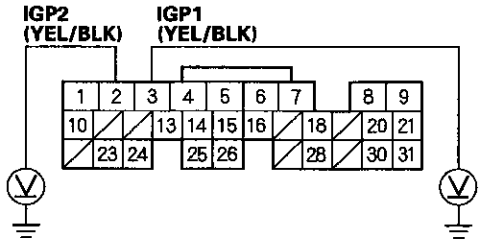
YES—Go to step 15.

NO—Go to step 27.

15. Disconnect ECM connector A (31P).

16. Measure voltage between body ground and ECM connector terminals A3 and A2 individually.

ECM CONNECTOR A (31P)



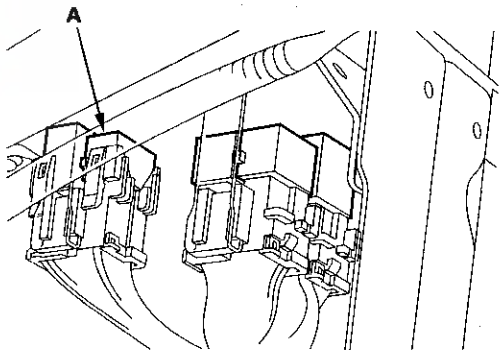
Wire side of female terminals

Is there battery voltage?

YES—Go to step 17.

NO—Go to step 27.

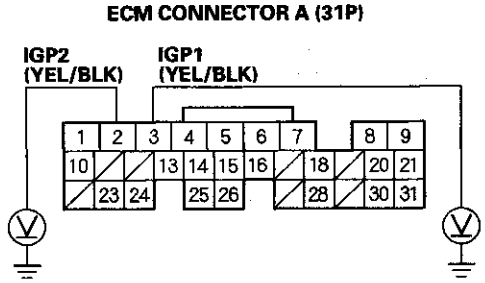
17. Remove PGM-FI main relay 1 (FI MAIN) (A).



(cont'd)

DTC Troubleshooting (cont'd)

18. Measure voltage between body ground and ECM connector terminals A3 and A2 individually.



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the ECM (A2, A3) and PGM-FI main relay 1 (FI MAIN), then go to step 20.

NO—Go to step 19.

19. Test PGM-FI main relay 1 (FI MAIN) (see page 22-48).

Is PGM-FI main relay 1 (FI MAIN) OK?

YES—Go to step 27.

NO—Replace the PGM-FI main relay 1 (FI MAIN), then go to step 20.

20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the ECM with the HDS.
23. Do the ECM idle learn procedure (see page 11-462).
24. Turn the ignition switch OFF.
25. Wait 10 seconds.
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at PGM-FI main relay 1 (FI MAIN) and the ECM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.
28. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at PGM-FI main relay 1 (FI MAIN) and the ECM, then go to step 1. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0600: Serial Communication Link Malfunction

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- This DTC is stored when there is a problem in the serial communication system. Go to the gauge assembly troubleshooting.

DTC P0602: ECM Programming Error

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- This DTC is indicated when the ECM update is not completed.
- Do not turn the ignition switch OFF while updating the ECM. If you turn the ignition switch OFF before completion, the ECM can be damaged.

1. Do the ECM update procedure (see page 11-216).

2. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0602 indicated?

   YES—Replace the original ECM (see page 11-389). ■

   NO—Updating is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0603: ECM Internal Control Module Keep Alive Memory (KAM) Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Are any Temporary DTCs or DTCs indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time.■
4. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0603 indicated?

   YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

   NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P0606: ECM Processor Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Turn the ignition switch ON (II).
5. Wait 40 seconds.
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0606 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time.■
7. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
8. Turn the ignition switch OFF.
9. Turn the ignition switch ON (II).
10. Wait 40 seconds.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0606 indicated?

    YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 8. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P0630: VIN Not Programmed or Mismatch

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- This DTC is stored only when the ECM does not have the VIN information of the vehicle. Use the HDS to input the missing VIN information.

1. Turn the ignition switch ON (II).
2. Check the VIN with the HDS.

   Does the HDS show the vehicle's VIN?

   YES—Go to step 5.

   NO—Go to step 3.
3. Input the VIN to the ECM with the HDS.

   Does the screen show COMPLETE?

   YES—Go to step 5.

   NO—Go to step 4.
4. Check for DTCs with the HDS.

   Is DTC P0603 indicated?

   YES—Go to the DTC P0603 troubleshooting. ■

   NO—Go to step 9.
5. Clear the DTC with the HDS.
6. Turn the ignition switch OFF.
7. Turn the ignition switch ON (II), and wait 5 seconds.
8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0630 indicated?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
9. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0630 indicated?

    YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0685: ECM Power Control Circuit/ Internal Circuit Malfunction

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If the problem doesn't return after you clear the DTC, or if this DTC is stored intermittently, check for loose terminals at the IGP line connectors before replacing the ECM.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, then let it idle for 30 seconds.
4. Turn the ignition switch OFF.
5. Start the engine, then let it idle for 30 seconds.
6. Turn the ignition switch OFF.
7. Turn the ignition switch ON (II).
8. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0685 indicated?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
9. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
10. Start the engine, then let it idle for 30 seconds.
11. Turn the ignition switch OFF.
12. Start the engine, then let it idle for 30 seconds.
13. Turn the ignition switch OFF.
14. Turn the ignition switch ON (II).
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0685 indicated?

    YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 10. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0720: Output Shaft (Countershaft) Speed Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

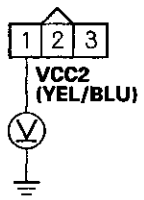
1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
2. Test-drive several miles.
3. Check the C SHAFT SPD in the DATA LIST with the HDS.

   Is any vehicle speed indicated?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM.■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the output shaft (countershaft) speed sensor 3P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 1 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONNECTOR



Wire side of female terminals

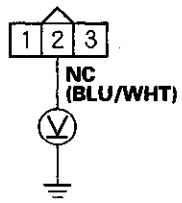
Is there about 5 V?

YES—Go to step 8.

NO—Repair open in the wire between the ECM (A20) and the output shaft (countershaft) speed sensor, then go to step 17.

8. Measure voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 2 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 9.

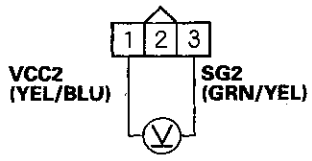
NO—Go to step 10.

(cont'd)

DTC Troubleshooting (cont'd)

9. Measure voltage between output shaft (countershaft) speed sensor 3P connector terminals No. 1 and No. 3.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONNECTOR



Wire side of female terminals

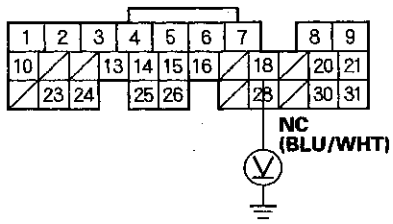
Is there about 5 V?

YES—Go to step 15.

NO—Repair open in the wire between the ECM (A23) and the output shaft (countershaft) speed sensor, then go to step 17.

10. Measure voltage between ECM connector terminal A18 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A18) and the output shaft (countershaft) speed sensor, then go to step 17.

NO—Go to step 11.

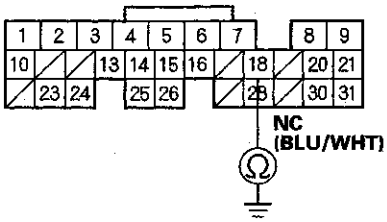
11. Turn the ignition switch OFF.

12. Jump the SCS line with the HDS.

13. Disconnect ECM connector A (31P).

14. Check for continuity between ECM connector terminal A18 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A18) and the output shaft (countershaft) speed sensor, then go to step 17.

NO—Go to step 24.

15. Turn the ignition switch OFF.

16. Replace the output shaft (countershaft) speed sensor (see page 11-388).

17. Reconnect all connectors.

18. Turn the ignition switch ON (II).

19. Reset the ECM with the HDS.

20. Do the ECM idle learn procedure (see page 11-462).

21. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in 5th gear
    - Engine speed at 2,000—3,000 rpm
    - Drive for several minutes, then decelerate (with the throttle fully closed) for 8 seconds

22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0720 indicated?

    YES—Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 21.

24. Reconnect all connectors.

25. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

26. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in 5th gear
    - Engine speed at 2,000—3,000 rpm
    - Drive for several minutes, then decelerate (with the throttle fully closed) for 8 seconds

27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0720 indicated?

    YES—Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM.

    NO—Go to step 28.

(cont'd)

DTC Troubleshooting (cont'd)

28. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 26. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 26.

DTC P1109: BARO Sensor Circuit Out of Range High

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Reset the ECM with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

5. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1109 indicated?

   YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

   NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P1116: ECT Sensor 1 Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P0111 is stored at the same time as DTC P1116, troubleshoot DTC P0111 first, then recheck for DTC P1116.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

   Are the connections and terminals OK?

   YES—Go to step 2.

   NO—Repair the connectors or terminals, then go to step 27.

2. Turn the ignition switch ON (II).

3. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P1116 and P2183 indicated at the same time?

   YES—Go to step 15.

   NO—Go to step 4.

4. Start the engine, and let it idle for 10 minutes.

5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

   Is about 113 °F (45 °C) or less indicated?

   YES—Replace ECT sensor 1 (see page 11-385), then go to step 27.

   NO—Go to step 6.

6. Turn the ignition switch OFF.

7. Drain the coolant (see page 10-9).

8. Remove ECT sensor 1 (see page 11-385).

9. Allow ECT sensor 1 to cool to ambient temperature.

10. Note the ambient temperature.

11. Connect ECT sensor 1 to the 2P connector, but do not install sensor on the engine.

12. Turn the ignition switch ON (II).

13. Note the value of ECT SENSOR 1 quickly in the DATA LIST with the HDS.

14. Compare the value of ECT SENSOR 1 and the ambient temperature.

    Does the value of ECT SENSOR 1 differ 5.4 °F (3 °C) or more?

    YES—Replace ECT sensor 1 (see page 11-385), then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM. ■

15. Start the engine, and let it idle for 10 minutes.

16. Check ECT SENSOR 1 in the DATA LIST with the HDS.

    Is about 113 °F (45 °C) or less indicated?

    YES—Replace ECT sensor 1 (see page 11-385), then go to step 27.

    NO—Go to step 17.

17. Let the engine idle for 10 minutes.

18. Check ECT SENSOR 2 in the DATA LIST with the HDS.

    Is about 113 °F (45 °C) or less indicated?

    YES—Replace ECT sensor 2 (see page 11-385), then go to step 27.

    NO—Go to step 19.

(cont'd)

DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.
20. Drain the coolant (see page 10-9).
21. Remove ECT sensor 1 (see page 11-385) and ECT sensor 2 (see page 11-385).
22. Allow the sensors to cool to ambient temperature.
23. Note the ambient temperature.
24. Connect ECT sensor 1 to the 2P connector, and ECT sensor 2 to the 2P connector, but do not install them on the engine.
25. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.
26. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

    Does one of the sensors differ more than 5.4 °F (3 °C) from the ambient temperature?

    YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM.■
27. Turn the ignition switch ON (II).
28. Reset the ECM with the HDS.
29. Do the ECM idle learn procedure (see page 11-462).
30. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1116 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P1128: MAP Sensor Signal Lower Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Inspect the air cleaner element (see page 11-505).

   Is there damage or clogging?

   YES—Replace the air cleaner element (see page 11-505). Then clear the DTC with the HDS, and go to step 13.

   NO—Go to step 2.

2. Turn the ignition switch ON (II).

3. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is less than 54.1 kPa (16.0 in.Hg, 406 mmHg), or 1.61 V held for more than 5 seconds?

   YES—Go to step 8.

   NO—Go to step 4.

4. Clear the DTC with the HDS.

5. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

6. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in 3rd gear
   - Vehicle speed at 15 mph (24 km/h) or more, and engine speed between 1,300 rpm and 7,600 rpm for 2 seconds or more.

7. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 8.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM. If the screen indicates NOT COMPLETED, go to step 5 and recheck.

8. Turn the ignition switch OFF.

9. Replace the MAP sensor (see page 11-384).

10. Turn the ignition switch ON (II).

11. Reset the ECM with the HDS.

12. Do the ECM idle learn procedure (see page 11-462).

13. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

14. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in 3rd gear
    - Vehicle speed at 15 mph (24 km/h) or more, and engine speed between 1,300 rpm and 7,600 rpm for 2 seconds or more.

15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1128 indicated?

    YES—Check for poor connections or loose terminals at the MAP sensor and the ECM, then go to step 1.

    NO—Go to step 16.

16. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 15, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 14.

DTC Troubleshooting (cont'd)

DTC P1129: MAP Sensor Signal Higher Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Check for vacuum leaks in these parts.

   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Brake booster hose
   - Intake manifold

   Are there any vacuum leaks?

   YES—Repair or replace parts with vacuum leaks, then go to step 9.

   NO—Go to step 2.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

3. Check the MAP SENSOR in the DATA LIST with the HDS.

   Is more than 36.9 kPa (11.0 in.Hg, 277 mmHg), or 1.1 V held for more than for 5 seconds?

   YES—Go to step 7.

   NO—Go to step 4.

4. Clear the DTC with the HDS.

5. Test-drive under these conditions:

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in 5th gear
   - Vehicle speed between 55—75 mph (88—121 km/h) for 10 seconds
   - Vehicle speed decelerated with throttle fully closed for at least 2 seconds for more

6. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 7.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM. If the screen indicates NOT COMPLETED, go to step 5 and recheck.

7. Turn the ignition switch OFF.

8. Replace the MAP sensor (see page 11-384).

9. Turn the ignition switch ON (II).

10. Reset the ECM with the HDS.

11. Do the ECM idle learn procedure (see page 11-462).

12. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

13. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in 5th gear
    - Vehicle speed between 55—75 mph (88—121 km/h) for 10 seconds
    - Vehicle speed decelerated with throttle fully closed for at least 2 seconds for more

14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1129 indicated?

    YES—Check for poor connections or loose terminals at the MAP sensor and the ECM, then go to step 1.

    NO—Go to step 15.

15. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 13.

DTC Troubleshooting (cont'd)

DTC P1157: A/F Sensor (Sensor 1) AFS Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

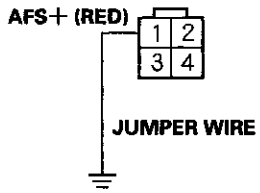
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and wait 20 seconds.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1157 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 4P connector.
8. Disconnect ECM connector A (31P).
9. Connect A/F sensor (Sensor 1) 4P connector terminal No. 1 to body ground with a jumper wire.

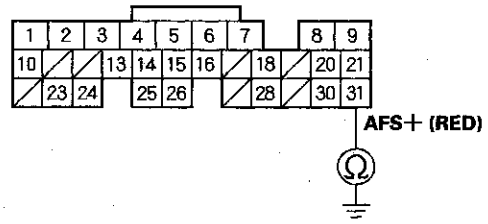
A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

10. Check for continuity between ECM connector terminal A31 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

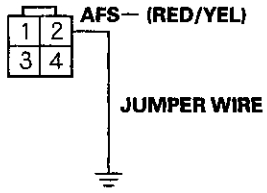
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the ECM (A31) and the A/F sensor (Sensor 1), then go to step 15.

11. Remove the jumper wire from the A/F sensor (Sensor 1) 4P connector.
12. Connect A/F sensor (Sensor 1) 4P connector terminal No. 2 to body ground with a jumper wire.

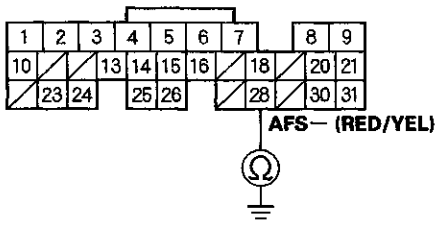
A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

13. Check for continuity between ECM connector terminal A28 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the ECM (A28) and the A/F sensor (Sensor 1), then go to step 15.

14. Replace the A/F sensor (Sensor 1) (see page 11-386).

15. Reconnect all connectors.

16. Turn the ignition switch ON (II).

17. Reset the ECM with the HDS.

18. Do the ECM idle learn procedure (see page 11-462).

19. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1157 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the connector and terminal fits are OK, go to step 21.

NO—Go to step 20.

20. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 19, go to the indicated DTC's troubleshooting.■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

21. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

22. Start the engine, and let it idle.

23. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P1157 indicated?

YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 22. If the ECM was substituted, go to step 1.

NO—Go to step 24.

(cont'd)

DTC Troubleshooting (cont'd)

24. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, go to step 1. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 22. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P1172: A/F Sensor (Sensor 1) Circuit Out of Range High

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Monitor the OBD STATUS for DTC P1172 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 5.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
5. Turn the ignition switch OFF.
6. Replace the A/F sensor (Sensor 1) (see page 11-386).
7. Turn the ignition switch ON (II).
8. Reset the ECM with the HDS.
9. Do the ECM idle learn procedure (see page 11-462).
10. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1172 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1.

    NO—Go to step 12.
12. Monitor the OBD STATUS for DTC P1172 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, go to step 10.

DTC Troubleshooting (cont'd)

DTC P1297: ELD Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?

   YES—Go to step 3.

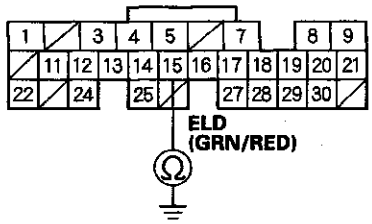
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch ON (II).
6. Check the ELD in the DATA LIST with the HDS.

   Is 72 A or more indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector E (31P).
10. Check for continuity between ECM connector terminal E15 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E15) and the ELD, then go to step 13.

NO—Go to step 20.

11. Turn the ignition switch OFF.
12. Replace the under-hood fuse/relay box.
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the ECM with the HDS.
16. Do the ECM idle learn procedure (see page 11-462).
17. Start the engine.
18. Turn on the headlights.
19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1297 indicated?

    YES—Check for poor connections or loose terminals at the ELD and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

20. Reconnect all connectors.

21. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

22. Start the engine.

23. Turn on the headlights.

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1297 indicated?

    YES—Check for poor connections or loose terminals at the ELD and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 22. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P1298: ELD Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

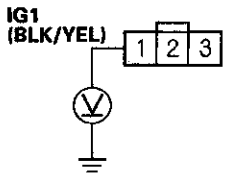
1. Start the engine, and let it idle.
2. Check the ELD in the DATA LIST with the HDS.

   Is 0.2 A or less indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between ELD 3P connector terminal No. 1 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

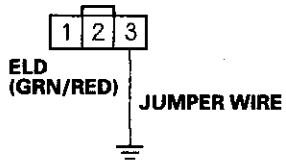
Is there battery voltage?

YES—Go to step 7.

NO—Check the No. 6 ACG (15 A) fuse in the main under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the No. 6 ACG (15 A) fuse and the ELD, then go to step 14.

7. Turn the ignition switch OFF.
8. Connect ELD 3P connector terminal No. 3 to body ground with a jumper wire.

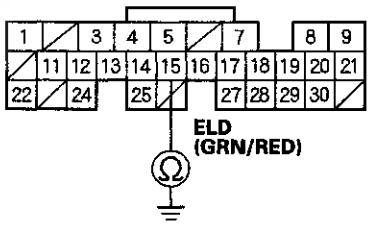
ELD 3P CONNECTOR



Wire side of female terminals

9. Jump the SCS line with the HDS.
10. Disconnect ECM connector E (31P).
11. Check for continuity between ECM connector terminal E15 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

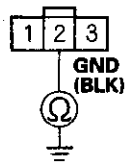
Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the ECM (E15) and the ELD, then go to step 14.

12. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the ELD and G201, then go to step 14.

13. Replace the under-hood fuse/relay box.
14. Reconnect all connectors.
15. Turn the ignition switch ON (II).
16. Reset the ECM with the HDS.
17. Do the ECM idle learn procedure (see page 11-462).
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1298 indicated?

    YES—Go to step 19.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

19. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1298 indicated?

    YES—Check for poor connections or loose terminals at the ELD and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P2183: ECT Sensor 2 Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P0111 is stored at the same time as DTC P2183, troubleshoot DTC P0111 first, then recheck for DTC P2183.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

   Are the connections and terminals OK?

   YES—Go to step 2.

   NO—Repair the connectors or terminals, then go to step 27.

2. Turn the ignition switch ON (II).
3. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P1116 and P2183 indicated at the same time?

   YES—Go to step 15.

   NO—Go to step 4.

4. Start the engine, and let it idle for 10 minutes.
5. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 129 °F (54 °C) or less indicated?

   YES—Replace ECT sensor 2 (see page 11-385), then go to step 27.

   NO—Go to step 6.

6. Turn the ignition switch OFF.
7. Drain the coolant (see page 10-9).
8. Remove ECT sensor 2 (see page 11-385).
9. Allow ECT sensor 2 to cool to ambient temperature.
10. Note the ambient temperature.
11. Connect ECT sensor 2 to the 2P connector, but do not install it on the engine.
12. Turn the ignition switch ON (II).
13. Note the value of ECT SENSOR 2 quickly in the DATA LIST with the HDS.
14. Compare the value of ECT SENSOR 2 and the ambient temperature.

    Does ECT SENSOR 2 differ 5.4 °F (3 °C) or more?

    YES—Replace ECT sensor 2 (see page 11-385), then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM. ■
15. Start the engine, and let it idle for 10 minutes.
16. Check ECT SENSOR 1 in the DATA LIST with the HDS.

    Is about 129 °F (54 °C) or less indicated?

    YES—Replace ECT sensor 1 (see page 11-385), then go to step 27.

    NO—Go to step 17.

17. Let the engine idle for 10 minutes.
18. Check ECT SENSOR 2 in the DATA LIST with the HDS.

    Is about 129 °F (54 °C) or less indicated?

    YES—Replace ECT sensor 2 (see page 11-385), then go to step 27.

    NO—Go to step 19.

19. Turn the ignition switch OFF.

20. Drain the coolant (see page 10-9).

21. Remove ECT sensor 1 (see page 11-385) and ECT sensor 2 (see page 11-385).

22. Allow the sensors to cool to ambient temperature.

23. Note the ambient temperature.

24. Connect ECT sensor 1 to 2P connector, and ECT sensor 2 to the 2P connector, but do not install them into the engine.

25. Note the value of ECT SENSOR 1 and ECT SENSOR 2 quickly in the DATA LIST with the HDS.

26. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

    Does one of the sensors differ more than 5.4 °F (3 °C) from the ambient temperature?

    YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 27.

    NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM.■

27. Turn the ignition switch ON (II).

28. Reset the ECM with the HDS.

29. Do the ECM idle learn procedure (see page 11-462).

30. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2183 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting (cont'd)

DTC P2184: ECT Sensor 2 Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 3.

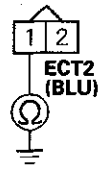
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2 2P connector.
5. Turn the ignition switch ON (II).
6. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

   YES—Go to step 7.

   NO—Go to step 11.
7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector E (31P).
10. Check for continuity between ECT sensor 2 2P connector terminal No. 1 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECT sensor 2 and the ECM (E1), then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch OFF.
12. Replace ECT sensor 2 (see page 11-385).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the ECM with the HDS.
16. Do the ECM idle learn procedure (see page 11-462).

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Reconnect all connectors.

19. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2184 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P2185: ECT Sensor 2 Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

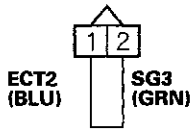
1. Turn the ignition switch ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the ECT sensor 2 2P connector.
5. Connect ECT sensor 2 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2 2P CONNECTOR



JUMPER WIRE

Wire side of female terminals

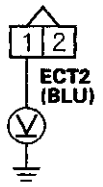
6. Turn the ignition switch ON (II).
7. Check ECT SENSOR 2 in the DATA LIST with the HDS.

   Is about −40 °F (−40 °C) or less, or 4.92 V or more indicated?

   YES—Go to step 8.

   NO—Go to step 18.
8. Turn the ignition switch OFF.
9. Remove the jumper wire from ECT sensor 2 2P connector.
10. Turn the ignition switch ON (II).
11. Measure voltage between ECT sensor 2 2P connector terminal No. 1 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

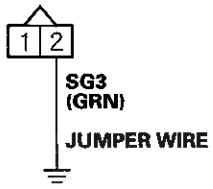
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 17.

12. Turn the ignition switch OFF.
13. Jump the SCS line with the HDS.
14. Disconnect ECM connector E (31P).
15. Connect ECT sensor 2 2P connector terminal No. 2 to body ground with a jumper wire.

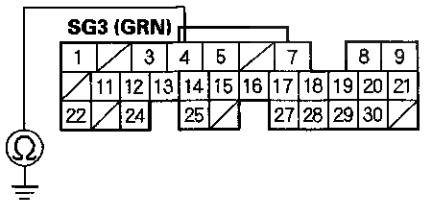
ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

16. Check for continuity between ECM connector terminal E4 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

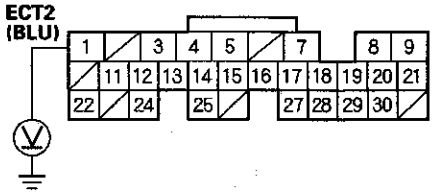
Is there continuity?

YES—Go to step 26.

NO—Repair open in the wire between the ECM (E4) and ECT sensor 2, then go to step 20.

17. Measure voltage between ECM connector terminal E1 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (E1) and ECT sensor 2, then go to step 20.

NO—Go to step 25.

18. Turn the ignition switch OFF.
19. Replace ECT sensor 2 (see page 11-385).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the ECM with the HDS.
23. Do the ECM idle learn procedure (see page 11-462).

(cont'd)

DTC Troubleshooting (cont'd)

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2185 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Turn the ignition switch OFF.

26. Reconnect all connectors.

27. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2185 indicated?

    YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P2195: A/F Sensor (Sensor 1) Signal Stuck Lean

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel, then clear the DTC with the HDS.
- If DTC P2101, P2118, P2135, P2138, P2176, or a combination of P2122 and P2127, P2122 and P2138, or P2127 and P2138 is stored at the same time, troubleshoot them first, then recheck for DTC P2195.

1. Check the installation of the A/F sensor (Sensor 1).

   Is the A/F sensor loose or disconnected from the exhaust pipe?

   YES—Go to step 6.

   NO—Go to step 2.

2. Turn the ignition switch ON (II).
3. Clear the DTC with the HDS.
4. Start the engine, then let it idle.
5. Check for Temporary DTCs or DTCs with the HDS.

   Are any Temporary DTCs or DTCs indicated?

   YES—If DTC P2195 is indicated, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 13. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. ■

6. Turn the ignition switch OFF.
7. Reinstall the A/F sensor (Sensor 1) (see page 11-386).
8. Turn the ignition switch ON (II).
9. Reset the ECM with the HDS.
10. Do the ECM idle learn procedure (see page 11-462).
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2195 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1.

    NO—Go to step 12.

12. Monitor the OBD STATUS for DTC P2195 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicated NOT COMPLETED, keep idling until a result comes on.

(cont'd)

DTC Troubleshooting (cont'd)

13. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

14. Start the engine, then let it idle.

15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2195 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 14. If the ECM was substituted, go to step 1.

    NO—Go to step 16.

16. Monitor the OBD STATUS for DTC P2195 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 15, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 14. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2227: BARO Sensor Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P0107, P0108, P1128, and/or P1129 are stored at the same time as DTC P2227, troubleshoot those DTCs first, then recheck for DTC P2227.

1. Inspect the air cleaner element (see page 11-505).

   Is there damage or clogging?

   YES—Replace the air cleaner element (see page 11-505). Clear the DTC with the HDS, then go to step 9.

   NO—Go to step 2.

2. Turn the ignition switch ON (II), and wait 2 seconds.

3. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 101 kPa (29.9 in.Hg, 760 mmHg), or about 2.9 V at sea level indicated?

   YES—Go to step 4.

   NO—Go to step 8.

4. Clear the DTC with the HDS.

5. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

6. Test-drive under these conditions, then connect the HDS.

   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in 4th gear
   - REL TP SENSOR A between 11 deg and 23 deg for 3 seconds or more

7. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 8.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates NOT COMPLETED, go to step 5 and recheck.

8. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

9. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

10. Test-drive under these conditions:

    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in 4th gear
    - REL TP SENSOR between 11 deg and 23 deg for 3 seconds or more

11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2227 indicated?

    YES—Check for poor connections or loose terminals at the ECM, then go to step 1. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—Go to step 12.

(cont'd)

DTC Troubleshooting (cont'd)

12. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 11, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 10. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 10.

DTC P2228: BARO Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 53 kPa (15.6 in.Hg, 397 mmHg), or 1.58 V or less indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time.■
3. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2228 indicated?

   YES—Check for poor connections or loose terminals at the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

   NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P2229: BARO Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

   Is about 160 kPa (47.2 in.Hg, 1,200 mmHg), or 4.49 V or more indicated?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time.■
3. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2229 indicated?

   YES—Check for poor connections or loose terminals at the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

   NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting (cont'd)

DTC P2238: A/F Sensor (Sensor 1) AFS+ Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

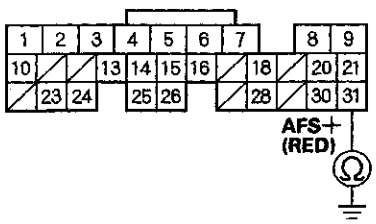
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2238 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. ■
4. Turn the ignition switch OFF.
5. Jump the SCS line with the HDS.
6. Disconnect the A/F sensor (Sensor 1) 4P connector.
7. Disconnect ECM connector A (31P).
8. Check for continuity between ECM connector terminal A31 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A31) and the A/F sensor (Sensor 1), then go to step 11.

NO—Go to step 9.

9. Replace the A/F sensor (Sensor 1) (see page 11-386).
10. Reconnect all connectors.
11. Turn the ignition switch ON (II).
12. Reset the ECM with the HDS.
13. Do the ECM idle learn procedure (see page 11-462).
14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2238 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the connector and terminal fits are OK, go to step 16.

    NO—Go to step 15.
15. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

    Does the screen indicated PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

16. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

17. Start the engine, and let it idle.

18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2238 indicated?

    YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 17. If the ECM was substituted, go to step 1.

    NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, go to step 1. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 17. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting (cont'd)

DTC P2252: A/F Sensor (Sensor 1) AFS— Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

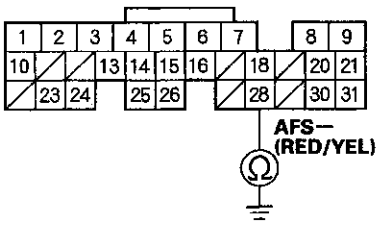
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2252 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM. ■
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the A/F sensor (Sensor 1) 4P connector.
8. Disconnect ECM connector A (31P).
9. Check for continuity between ECM connector terminals A28 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (A28) and the A/F sensor (Sensor 1), then go to step 11.

NO—Go to step 10.

10. Replace the A/F sensor (Sensor 1) (see page 11-386).
11. Reconnect all connectors.
12. Turn the ignition switch ON (II).
13. Reset the ECM with the HDS.
14. Do the ECM idle learn procedure (see page 11-462).
15. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2252 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the connectors and terminal fits are OK, go to step 17.

    NO—Go to step 16.
16. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 15, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

17. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

18. Start the engine, and let it idle.

19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2252 indicated?

    YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 18. If the ECM was substituted, go to step 1.

    NO—Go to step 20.

20. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 19, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, go to step 1. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 18. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting (cont'd)

DTC P2270: Secondary HO2S (Sensor 2) Circuit Signal Stuck Lean

DTC P2271: Secondary HO2S (Sensor 2) Circuit Signal Stuck Rich

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
   - Vehicle speed at 35 mph (56 km/h) or more
   - Drive 26 seconds or more
5. Monitor the OBD STATUS for DTC P2270 or P2271 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the secondary HO2S (Sensor 2) (see page 11-386).
8. Turn the ignition switch ON (II).
9. Reset the ECM with the HDS.
10. Do the ECM idle learn procedure (see page 11-462).
11. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
    - Vehicle speed at 35 mph (56 km/h) or more
    - Drive 26 seconds or more
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2270 or P2271 indicated?

    YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P2270 or P2271 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

DTC P2610: ECM Ignition Off Internal Timer Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. ■
4. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2610 indicated?

   YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

   NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P2A00: A/F Sensor (Sensor 1) Circuit Range/Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in 3rd gear
   - Drive the vehicle between 25—55 mph (40—88 km/h) for 5 minutes.
   - Drive at a steady speed between 55—75 mph (88—120 km/h) for 10 minutes, then slow down with the throttle completely closed for 4 seconds.
5. Monitor the OBD STATUS for DTC P2A00 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose at the A/F sensor (Sensor 1) and the ECM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 3 and recheck.
6. Turn the ignition switch OFF.
7. Replace the A/F sensor (Sensor 1) (see page 11-386).
8. Turn the ignition switch ON (II).
9. Reset the ECM with the HDS.
10. Do the ECM idle learn procedure (see page 11-462).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
12. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in 3rd gear
    - Drive first the vehicle between 25—55 mph (40—88 km/h) for 5 minutes.
    - Drive at steady speed between 55—75 mph (88—120 km/h) for 10 minutes, then slow down with the throttle completely closed for 4 seconds.
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2A00 indicated?

    YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1.

    NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P2A00 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM, then go to step 1. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

DTC U0122: F-CAN Malfunction (ECM-VSA Modulator-Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0122 indicated?

   YES—Go to step 4.

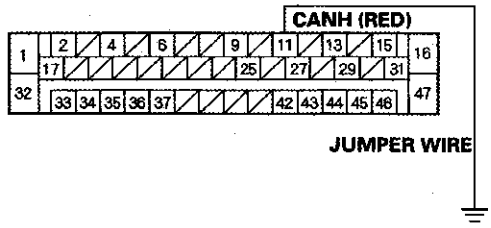
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the VSA modulator-control unit and the ECM. ■
4. Check for a DTCs in the DTCs MENU with the HDS.

   VSA DTC 86 indicated?

   YES—Go to step 5.

   NO—Go to step 13.
5. Turn the ignition switch OFF.
6. Jump the SCS line with the HDS.
7. Disconnect the VSA modulator-control unit 47P connector (see page 19-127).
8. Disconnect ECM connector E (31P).
9. Connect VSA modulator-control unit 47P connector terminal No. 11 to body ground with a jumper wire.

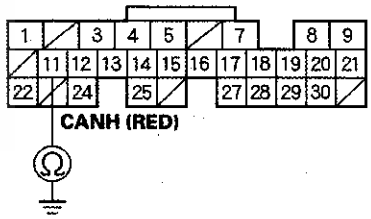
VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

10. Check for continuity between ECM connector terminal E11 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

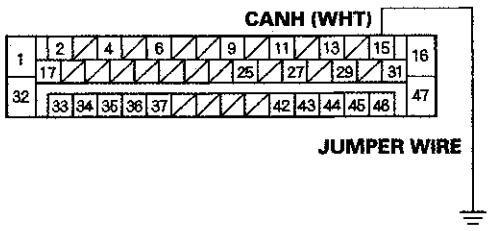
NO—Repair open in the wire between the ECM (E11) and the VSA modulator-control unit, then go to step 13.

(cont'd)

DTC Troubleshooting (cont'd)

11. Connect VSA modulator-control unit connector terminal No. 15 to body ground with a jumper wire.

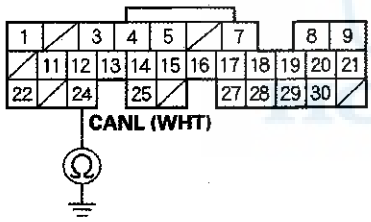
VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

12. Check for continuity between ECM connector terminal E24 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good VSA modulator-control unit (see page 19-127), then go to step 13 and recheck. If DTC U0122 is not indicated, replace the original VSA modulator-control unit (see page 19-127), then go to step 13.

NO—Repair open in the wire between the ECM (E24) and the VSA modulator-control unit, then go to step 13.

13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the ECM with the HDS.
16. Do the ECM idle learn procedure (see page 11-462).
17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC U0122 indicated?

YES—Check for poor connections or loose terminals at the VSA modulator-control unit and the ECM, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U1102: F-CAN Malfunction (BUS-OFF)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U1102 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. ■
4. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U1102 indicated?

   YES—If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

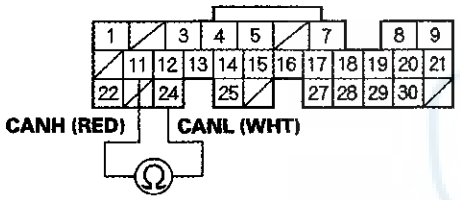
   NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

F-CAN Circuit Troubleshooting

NOTE: Information marked with an asterisk (*) applies to the CANL line.

1. Turn the ignition switch OFF.
2. Jump the SCS line with the HDS.
3. Disconnect ECM connector E (31P).
4. Disconnect HDS from the DLC.
5. Measure resistance between ECM connector terminals E11 and E24*.

ECM CONNECTOR E (31P)



Wire side of female terminals

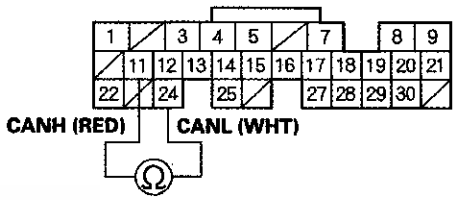
Is there about 108 – 132 Ω ?

YES—Go to step 16.

NO—Go to step 6.

6. Disconnect the VSA modulator-control unit 47P connector.
7. Disconnect the steering angle sensor 5P connector.
8. Check for continuity between ECM connector terminal E11 and E24*.

ECM CONNECTOR E (31P)



Wire side of female terminals

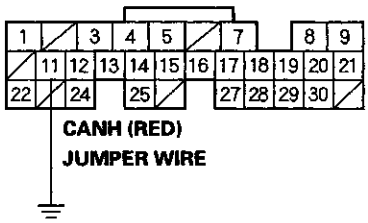
Is there continuity?

YES—Repair short in the wires between the ECM connector terminals E11 and E24*.■

NO—Go to step 9.

9. Connect ECM connector terminal E11 to body ground with a jumper wire.

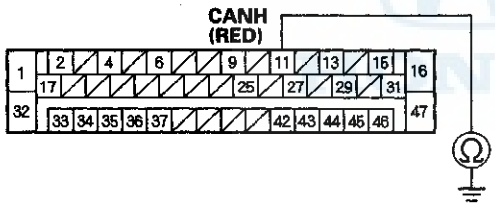
ECM CONNECTOR E (31P)



Wire side of female terminals

10. Check for continuity between VSA modulator-control unit 47P connector terminal No. 11 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

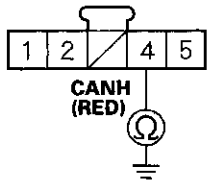
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the ECM (E11) and the VSA modulator-control unit. ■

11. Check for continuity between steering angle sensor 5P connector terminal No. 4 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between the ECM (E11) and the steering angle sensor. ■

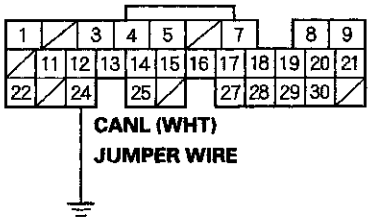
12. Remove the jumper wire from ECM connector E (31P).

(cont'd)

F-CAN Circuit Troubleshooting (cont'd)

13. Connect ECM connector terminal E24 to body ground with a jumper wire.

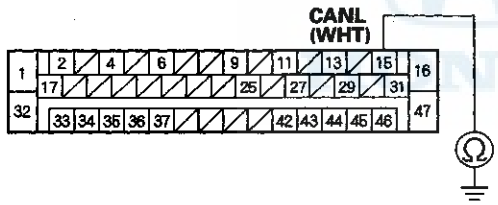
ECM CONNECTOR E (31P)



Wire side of female terminals

14. Check for continuity between VSA modulator-control unit 47P connector terminal No. 15 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

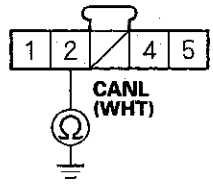
Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between the ECM (E24) and the VSA modulator-control unit. ■

15. Check for continuity between steering angle sensor 5P connector terminal No. 2 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the VSA modulator-control unit (see page 19-127).

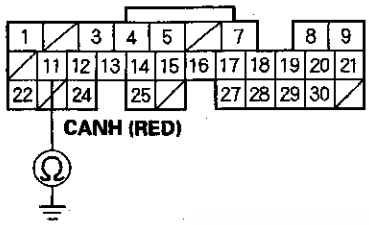
NO—Repair open in the wire between the ECM (E24) and the steering angle sensor. ■

16. Disconnect the VSA modulator-control unit 47P connector.

17. Disconnect the steering angle sensor 5P connector.

18. Check for continuity between ECM connector terminal E11 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

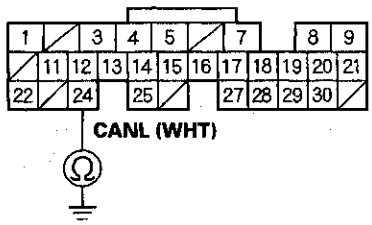
Is there continuity?

YES—Repair short in the wire between the ECM connector terminals E11 and the VSA modulator-control unit, the steering angle sensor, or the DLC.■

NO—Go to step 19.

19. Check for continuity between ECM connector terminal E24 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM connector terminal E24 and the VSA modulator-control unit, the steering angle sensor, or the DLC.■

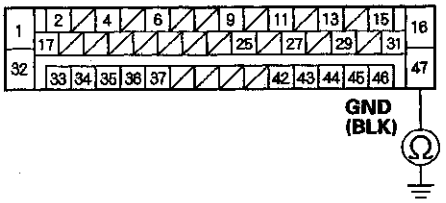
NO—Go to step 20.

(cont'd)

F-CAN Circuit Troubleshooting (cont'd)

20. Check for continuity between VSA modulator-control unit 47P connector terminal No. 47 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

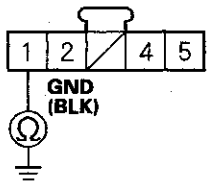
Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire between the VSA modulator-control unit (No. 47) and body ground (G303).■

21. Check for continuity between steering angle sensor 5P connector terminal No. 1 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 22.

NO—Repair open in the wire between the steering angle sensor (No. 1) and body ground (G401).■

22. Reconnect the VSA modulator-control unit 47P connector.

23. Connect the HDS (see page 11-213).

24. Turn the ignition switch ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the steering angle sensor (see page 19-124).■

NO—Go to step 25.

25. Substitute a known-good ECM (see page 11-217).

26. Turn the ignition switch ON (II), and read the HDS.

    Does the HDS identify the vehicle?

    YES—System is OK at this time. Replace the original ECM (see page 11-389). ■

    NO—Replace the VSA modulator-control unit (see page 19-127). ■

MIL Circuit Troubleshooting

1. Turn the ignition switch ON (II).
2. Do the gauge self-diagnostic function (see page 22-60).

   Does the MIL indicator flash?

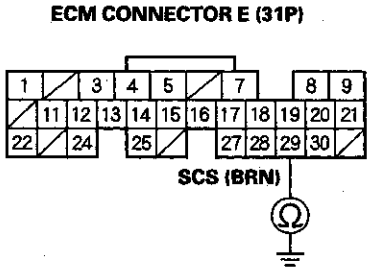
   YES—Go to step 3.

   NO—Substitute a known-good gauge assembly, and recheck. If the MIL circuit is OK, replace the original gauge assembly (see page 22-89). ■
3. Connect the HDS to the DLC (see page 11-213).
4. Check the SCS in the DATA LIST with the HDS.

   Is a short indicated?

   YES—Go to step 5.

   NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■
5. Turn the ignition switch OFF.
6. Disconnect ECM connector E (31P), then disconnect the HDS.
7. Check for continuity between ECM connector terminal E29 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E29) and the SRS unit, the EPS control unit, the DLC. ■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

DLC Circuit Troubleshooting

NOTE: Before you begin, make sure the HDS and the DLC cable are working properly.

1. Turn the ignition switch OFF.
2. Connect the HDS to the DLC (see page 11-213).

   NOTE: Make sure the HDS is properly connected to the DLC.
3. Turn the ignition switch ON (II), and read the HDS.

   Does the HDS identify the vehicle?

   YES—Go to step 4.

   NO—Go to step 22.
4. Check the Temporary DTCs or DTCs in the PGM-FI system with the HDS.

   Are any Temporary DTCs or DTCs indicated?

   YES—Go to the indicated DTC's troubleshooting.■

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Turn the ignition switch ON (II), and watch the SRS indicator.

   Does the SRS indicator stay ON?

   YES—Go to the SRS system's general troubleshooting information (see page 23-24).■

   NO—Go to step 7.
7. Turn the ignition switch OFF.
8. Turn the ignition switch ON (II), and watch the VSA indicator.

   Does the VSA indicator stay ON?

   YES—Go to the VSA system's general troubleshooting information (see page 19-69).■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Turn the ignition switch ON (II), and watch the immobilizer indicator.

    Does the immobilizer indicator stay on?

    YES—Go to the immobilizer system check (see page 22-213).■

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Start the engine, and watch the EPS indicator.

    Does the EPS indicator stay on?

    YES—Go to the EPS system's general troubleshooting information (see page 17-17).■

    NO—
    - With TPMS: go to step 13.
    - Without TPMS: go to step 15.

(cont'd)

DLC Circuit Troubleshooting (cont'd)

13. Turn the ignition switch OFF.
14. Start the engine, and watch the TPMS indicator.

    Does the TPMS indicator stay ON?

    YES—Go to the TPMS's general troubleshooting information (see page 18-51). ■

    NO—Go to step 15.

15. Do the gauge self-diagnostic function without the HDS (see page 22-60).

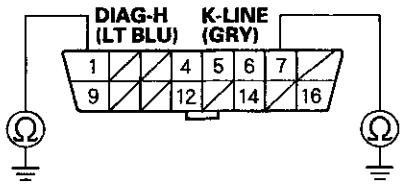
    Are all the indicator flashing?

    YES—Go to step 16.

    NO—Troubleshoot the gauge assembly.

16. Turn the ignition switch OFF.
17. Disconnect the HDS from the DLC.
18. Check for continuity between DLC terminals No. 1 and No. 7 and body ground individually.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there continuity?

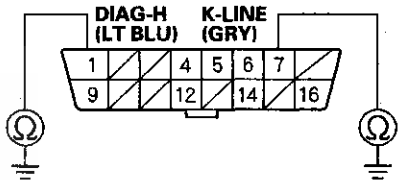
YES—Go to step 19.

NO—Go to step 20.

19. Continue to check for continuity between DLC terminals No. 1 and No. 7 and body ground individually, while disconnecting these parts, one at a time:

    - EPS control unit (14P) connector
    - Immobilizer control unit-receiver (7P) connector
    - SRS unit connector A (28P)
    - VSA modulator-control unit (47P) connector
    - Gauge assembly A (22P) connector
    - TPMS control unit (20P) connector (with TPMS)

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

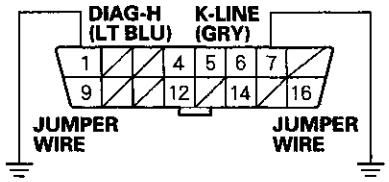
Does continuity go away when one of the above components is disconnected?

YES—Replace the part that caused an open when it was disconnected. ■

NO—Repair short in the wire between the DLC (DIAG-H) and the EPS control unit or the immobilizer control unit-receiver or the DLC (K-line) and the gauge assembly, the SRS unit, the VSA modulator-control unit, and the TPMS control unit (with TPMS). ■

20. Connect DLC terminals No. 1 and No. 7 to body ground with a jumper wire.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

21. Check for continuity between body ground and these connector terminals:

Connector	Unit Terminal	DLC Terminal
SRS unit A (28P)	No. 24 (GRY)	No. 7 (GRY)
Gauge assembly A (22P)	No. 11 (GRY)	No. 7 (GRY)
VSA modulator-control unit (47P)	No. 2 (GRY)	No. 7 (GRY)
TPMS control unit (20P)	No. 7 (GRY)	No. 7 (GRY)
Immobilizer control unit-receiver (7P)	No. 3 (LT BLU)	No. 1 (LT BLU)
EPS control unit (14P)	No. 14 (LT BLU)	No. 1 (LT BLU)

Is there continuity between the DLC terminal and each of the terminals in the chart?

YES—Replace the control unit that does not communicated with the HDS.■

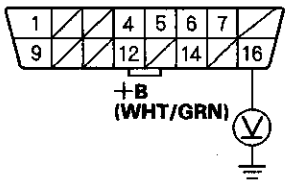
NO—Repair open in the wire between the DLC (K-line or DIAG H) and the appropriate connector.■

22. Turn the ignition switch OFF.

23. Disconnect the HDS from the DLC.

24. Measure voltage between DLC terminal No. 16 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 25.

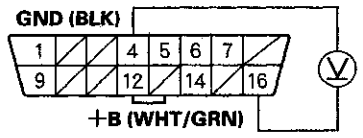
NO—Repair open in the wire between DLC terminal No. 16 and the No. 46 ACGS (15 A) fuse in the under-hood fuse/relay box.■

(cont'd)

DLC Circuit Troubleshooting (cont'd)

25. Measure voltage between DLC terminals No. 4 and No. 16.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

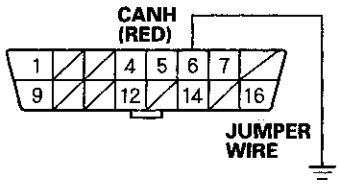
Is there battery voltage?

YES—Go to step 26.

NO—Repair open in the wire between the DLC terminal (No. 4) and body ground (G401).

26. Connect the HDS to the DLC (see page 11-213).
27. Jump the SCS line with the HDS.
28. Disconnect ECM connector E (31P).
29. Disconnect the HDS from the DLC.
30. Connect DLC terminal No. 6 to body ground with a jumper wire.

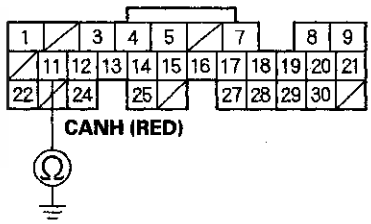
DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

31. Check for continuity between ECM connector terminal E11 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

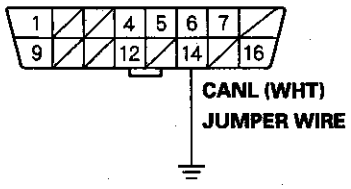
YES—Go to step 32.

NO—Repair open in the wire between the ECM (E11) and DLC terminal No. 6. ■

32. Disconnect the jumper wire.

33. Connect DLC terminal No. 14 to body ground with a jumper wire.

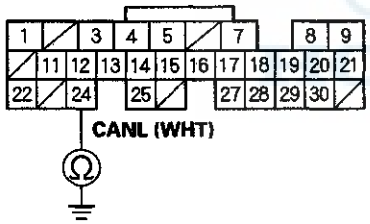
DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

34. Check for continuity between ECM connector terminal E24 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 35.

NO—Repair open in the wire between the ECM (E24) and DLC terminal No. 14.

35. Try to start the engine.

Does the engine start and idle smoothly?

YES—Go to F-CAN circuit troubleshooting (see page 11-360).

NO—Go to step 36.

36. Turn the ignition switch OFF.

37. Inspect the No. 42 IG1 MAIN (40 A) fuse in the under-hood fuse/relay box.

Is the fuse OK?

YES—Repair open in the wire between the No. 42 IG1 MAIN (40 A) fuse and the ignition switch. If the wire is OK, go to step 38.

NO—Repair short in the wire between the No. 42 IG1 MAIN (40 A) fuse and the under-hood fuse/relay box. Also replace the No. 42 IG1 MAIN (40 A) fuse.■

38. Inspect the No. 46 ACGS (15 A) fuse in the under-hood fuse/relay box.

Is the fuse OK?

YES—Go to step 45.

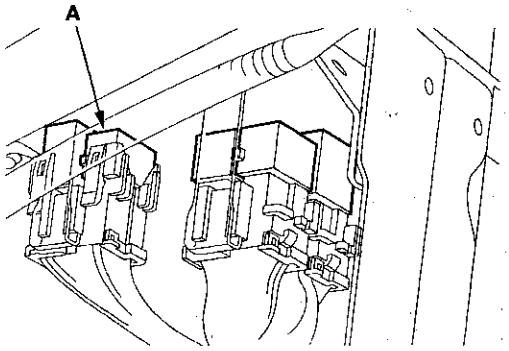
NO—Go to step 39.

(cont'd)

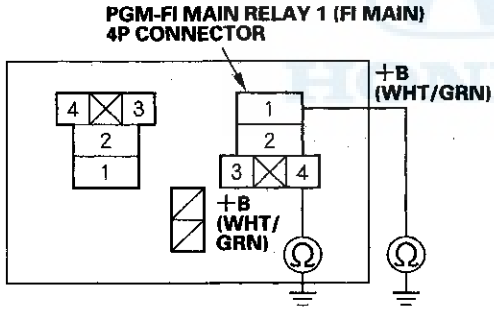
DLC Circuit Troubleshooting (cont'd)

39. Remove the blown No. 46 ACGS (15 A) fuse in the under-hood fuse/relay box.

40. Remove PGM-FI main relay 1 (FI MAIN) (A).



41. Check for continuity between body ground and PGM-FI main relay 1 (FI MAIN) 4P connector terminals No. 1 and No. 4 individually.



Wire side of female terminals

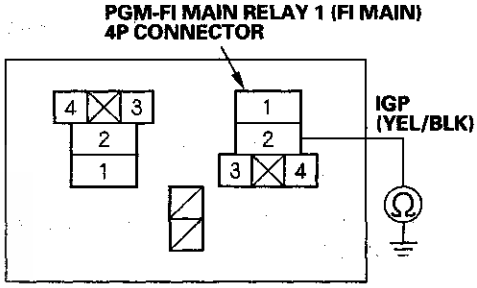
Is there continuity?

YES—Repair short in the wire between the No. 46 ACGS (15 A) fuse and PGM-FI main relay 1 (FI MAIN). Also replace the No. 46 ACGS (15 A) fuse. ■

NO—Go to step 42.

42. Disconnect each of the components or the connectors below, one at a time, and check for continuity between PGM-FI main relay 1 (FI MAIN) 4P connector terminal No. 2 and body ground.

- PGM-FI main relay 2 (FUEL PUMP)
- ECM connector A (31P)
- Each injector 2P connector
- Camshaft position (CMP) sensor 3P connector
- Crankshaft position (CKP) sensor 3P connector



Wire side of female terminals

Does continuity go away when one of the above components is disconnected?

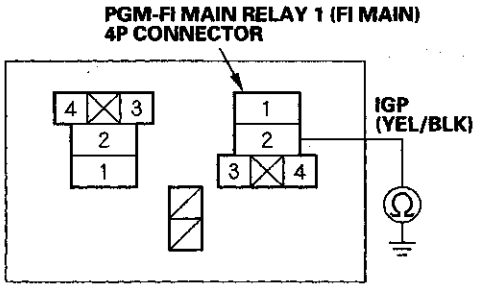
YES—Replace the part that made continuity to body ground go away when disconnected. If the item is the ECM, update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389).
Also replace the No. 46 ACGS (15 A) fuse. ■

NO—Go to step 43.

43. Disconnect the connectors from these components:

- PGM-FI main relay 2 (FUEL PUMP)
- ECM connector A (31P)
- Injectors
- CMP sensor
- CKP sensor

44. Check for continuity between PGM-FI main relay 1 (FI MAIN) 4P connector terminal No. 2 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between PGM-FI main relay 1 (FI MAIN) and each item. Also replace the No. 46 ACGS (15 A) fuse.■

NO—Replace PGM-FI main relay 1 (FI MAIN). Also replace the No. 46 ACGS (15 A) fuse or the fuse.■

45. Inspect the No. 2 FUEL PUMP SRS (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 58.

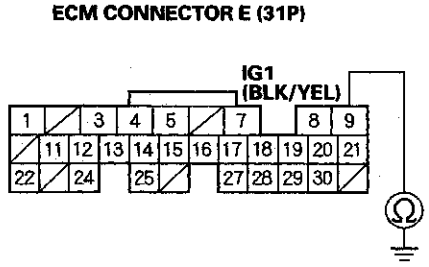
NO—Go to step 46.

46. Remove the blown No. 2 FUEL PUMP SRS (15 A) fuse in the under-dash fuse/relay box.

47. Jump the SCS line with the HDS.

48. Disconnect ECM connector E (31P).

49. Check for continuity between ECM connector terminal E9 and body ground.



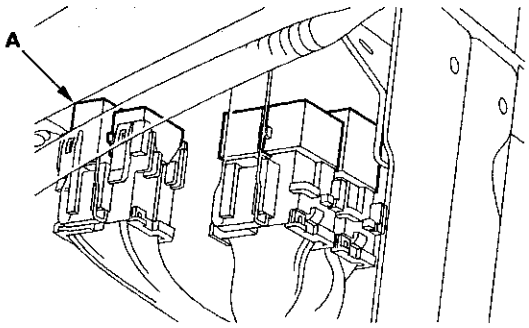
Wire side of female terminals

Is there continuity?

YES—Go to step 50.

NO—Replace the No. 2 FUEL PUMP SRS (15 A) fuse, and update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389).■

50. Remove PGM-FI main relay 2 (FUEL PUMP) (A).

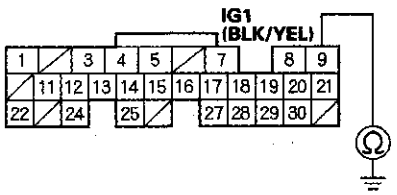


(cont'd)

DLC Circuit Troubleshooting (cont'd)

51. Check for continuity between ECM connector terminal E9 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the No. 2 FUEL PUMP SRS (15 A) fuse, the ECM (E9), and PGM-FI main relay 2 (FUEL PUMP). Also replace the No. 2 FUEL PUMP (15 A) fuse.■

NO—Go to step 52.

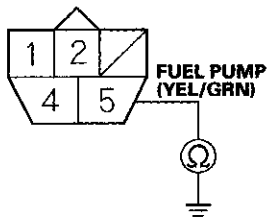
52. Remove the rear tray (see page 20-73).

53. Remove the access panel from the floor.

54. Disconnect the fuel pump 5P connector.

55. Check for continuity between fuel pump 5P connector terminal No. 5 and body ground.

FUEL PUMP 5P CONNECTOR



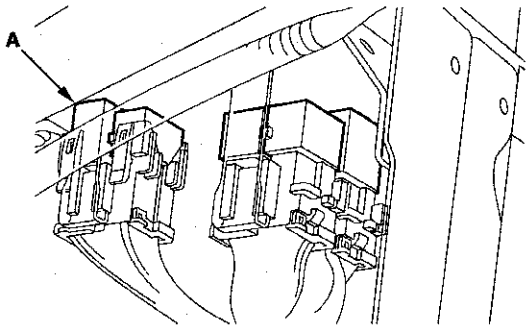
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the fuel pump and PGM-FI main relay 2 (FUEL PUMP). Also replace the No. 2 FUEL PUMP SRS (15 A) fuse.■

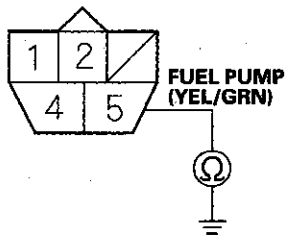
NO—Go to step 56.

56. Reinstall PGM-FI main relay 2 (FUEL PUMP) (A).



57. Check for continuity between fuel pump 5P connector terminal No. 5 and body ground.

FUEL PUMP 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace PGM-FI main relay 2 (FUEL PUMP). Also replace the No. 2 FUEL PUMP SRS (15 A) fuse.■

NO—Check the fuel pump, and replace it if necessary. Also replace the No. 2 FUEL PUMP SRS (15 A) fuse.■

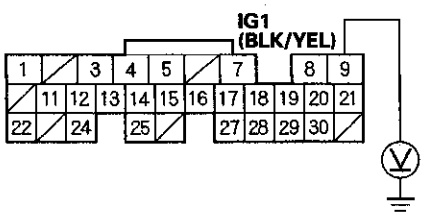
58. Jump the SCS line with the HDS.

59. Disconnect ECM connector E (31P).

60. Turn the ignition switch ON (II).

61. Measure voltage between ECM connector terminal E9 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

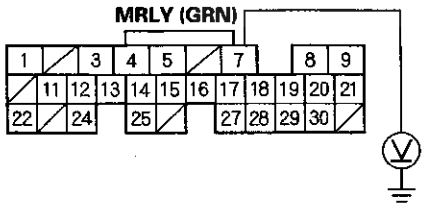
Is there battery voltage?

YES—Go to step 62.

NO—Repair open in the wire between the No. 2 FUEL PUMP SRS (15 A) fuse and the ECM (E9).■

62. Measure voltage between ECM connector terminal E7 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

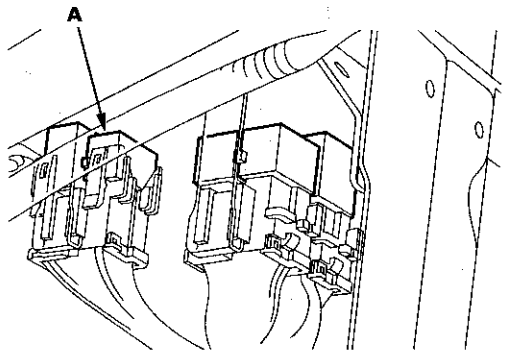
Is there battery voltage?

YES—Go to step 67.

NO—Go to step 63.

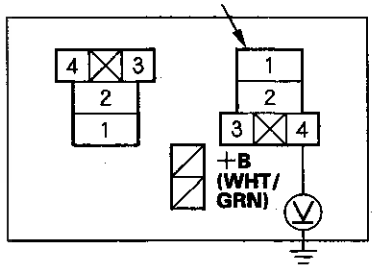
63. Turn the ignition switch OFF.

64. Remove PGM-FI main relay 1 (FI MAIN) (A).



65. Measure voltage between PGM-FI main relay 1 (FI MAIN) 4P connector terminal No. 4 and body ground.

PGM-FI MAIN RELAY 1 (FI MAIN) 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

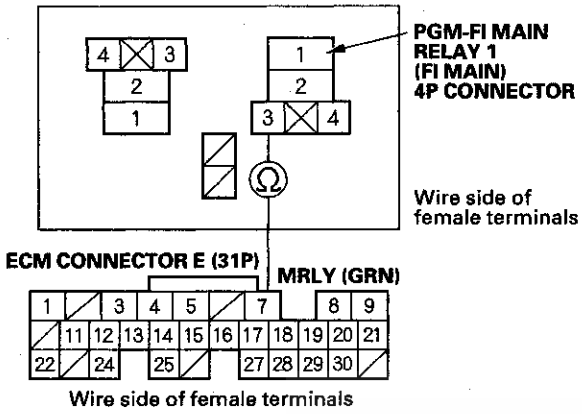
YES—Go to step 66.

NO—Repair open in the wire between the No. 46 ACGS (15 A) fuse and PGM-FI main relay 1 (FI MAIN).■

(cont'd)

DLC Circuit Troubleshooting (cont'd)

66. Check for continuity between PGM-FI main relay 1 (FI MAIN) 4P connector terminal No. 3 and ECM connector terminal E7.



Is there continuity?

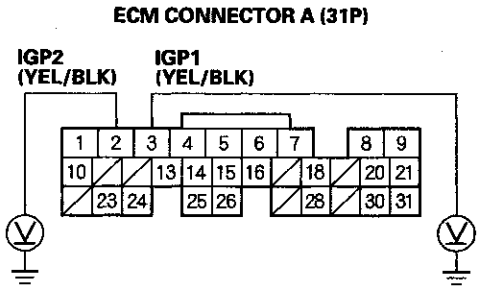
YES—Test PGM-FI main relay 1 (FI MAIN) (see page 22-48). If the relay is OK, update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

NO—Repair open in the wire between PGM-FI main relay 1 (FI MAIN) and the ECM (E7). ■

67. Reconnect ECM connector E (31P).

68. Turn the ignition switch ON (II).

69. Measure voltage between body ground and ECM connector terminals A2 and A3 individually.



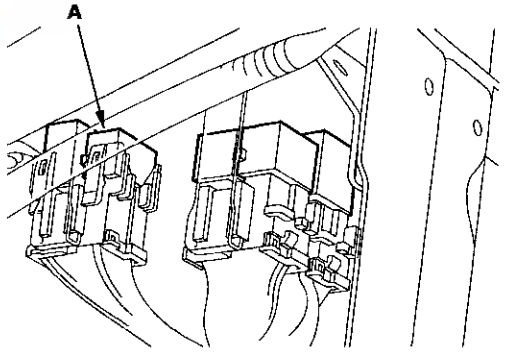
Is there battery voltage?

YES—Go to step 76.

NO—Go to step 70.

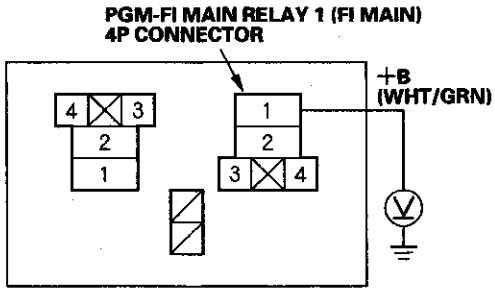
70. Turn the ignition switch OFF.

71. Remove PGM-FI main relay 1 (FI MAIN) (A).



72. Turn the ignition switch ON (II).

73. Measure voltage between PGM-FI main relay 1 (FI MAIN) 4P connector terminal No. 1 and body ground.



Wire side of female terminals

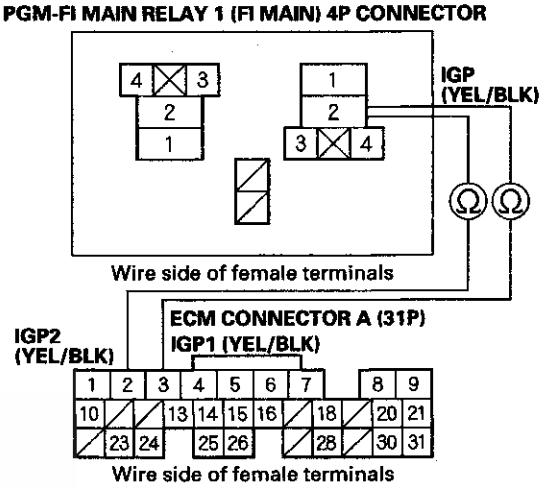
Is there battery voltage?

YES—Go to step 74.

NO—Repair open in the wire between the No. 46 ACGS (15 A) fuse and PGM-FI main relay 1 (FI MAIN).■

74. Turn the ignition switch OFF.

75. Check for continuity between PGM-FI main relay 1 (FI MAIN) 4P connector terminal No. 2 and ECM connector terminals A2 and A3 individually.



Is there continuity?

YES—Replace PGM-FI main relay 1 (FI MAIN).■

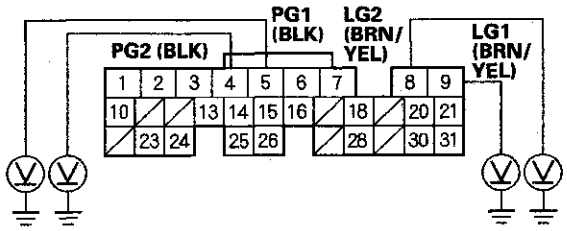
NO—Repair open in the wire between PGM-FI main relay 1 (FI MAIN) and the ECM (A2, A3).■

(cont'd)

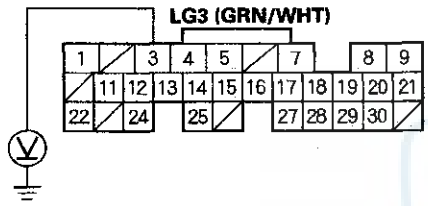
DLC Circuit Troubleshooting (cont'd)

76. Measure voltage between body ground and ECM connector terminals A4, A5, A8, A9, and E3 individually.

ECM CONNECTOR A (31P)



ECM CONNECTOR E (31P)



Wire side of female terminals

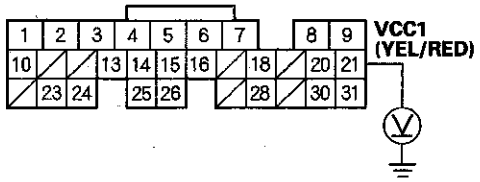
Is there less than 1.0 V?

YES—Go to step 77.

NO—Repair open in the wire(s) that had more than 1.0 V between G101 and the ECM (A4, A5, A8, A9, E3). ■

77. Measure voltage between body ground and ECM connector terminal A21.

ECM CONNECTOR A (31P)



Wire side of female terminals

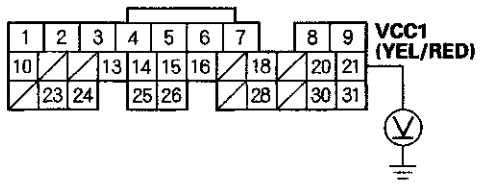
Is there about 5 V?

YES—Go to step 83.

NO—Go to step 78.

78. Disconnect the MAP sensor 3P connector, and measure voltage between body ground and ECM connector terminal A21 with the ignition switch ON (II).

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Replace the MAP sensor (see page 11-384). ■

NO—Go to step 79.

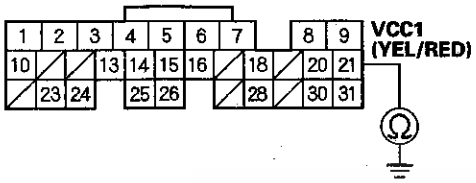
79. Turn the ignition switch OFF.

80. Jump the SCS line with the HDS.

81. Disconnect ECM connector A (31P).

82. Check for continuity between ECM connector terminal A21 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

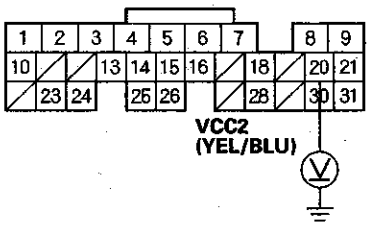
Is there continuity?

YES—Repair short in the wire between the ECM (A21) and the MAP sensor. ■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

83. Measure voltage between body ground and ECM connector terminal A20.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Go to step 91.

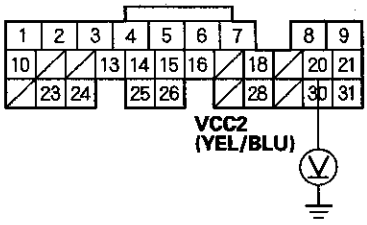
NO—Go to step 84.

84. Turn the ignition switch OFF.

85. Disconnect the connector from each of these sensors, one at a time, and measure voltage between body ground and ECM connector terminal A20 with the ignition switch ON (II).

- Accelerator pedal position (APP) sensor A
- Output shaft (countershaft) speed sensor

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Replace the sensor that restored 5 V when disconnected. ■

NO—Go to step 86.

(cont'd)

DLC Circuit Troubleshooting (cont'd)

86. Turn the ignition switch OFF.

87. Jump the SCS line with the HDS.

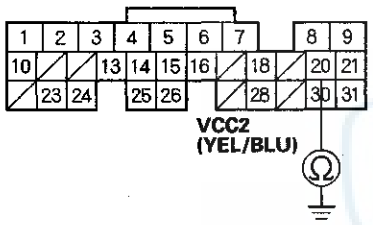
88. Disconnect the connector from these sensors:

    - Accelerator pedal position (APP) sensor A
    - Output shaft (countershaft) speed sensor

89. Disconnect ECM connector A (31P).

90. Check for continuity between ECM connector terminal A20 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

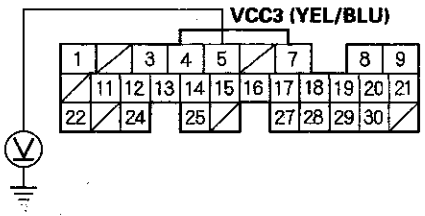
Is there continuity?

YES—Repair short in the wire between the ECM (A20) and APP sensor A or output shaft (countershaft) speed sensor. ■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

91. Measure voltage between body ground and ECM connector terminal E5.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

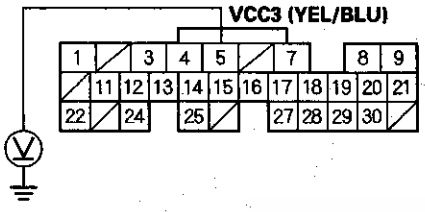
NO—Go to step 92.

92. Turn the ignition switch OFF.

93. Disconnect the connector from each of these sensors, one at time, and measure voltage between body ground and ECM connector terminal E5 with the ignition switch ON (II).

    • Fuel tank pressure (FTP) sensor
    • Accelerator pedal position (APP) sensor B

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Replace the sensor that restored 5 V when disconnected. ■

NO—Go to step 94.

94. Turn the ignition switch OFF.

95. Jump the SCS line with the HDS.

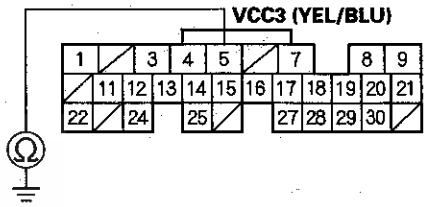
96. Disconnect the connector from these sensors:

    • Fuel tank pressure (FTP) sensor
    • Accelerator pedal position (APP) sensor B

97. Disconnect ECM connector E (31P).

98. Check for continuity between ECM connector terminal E5 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

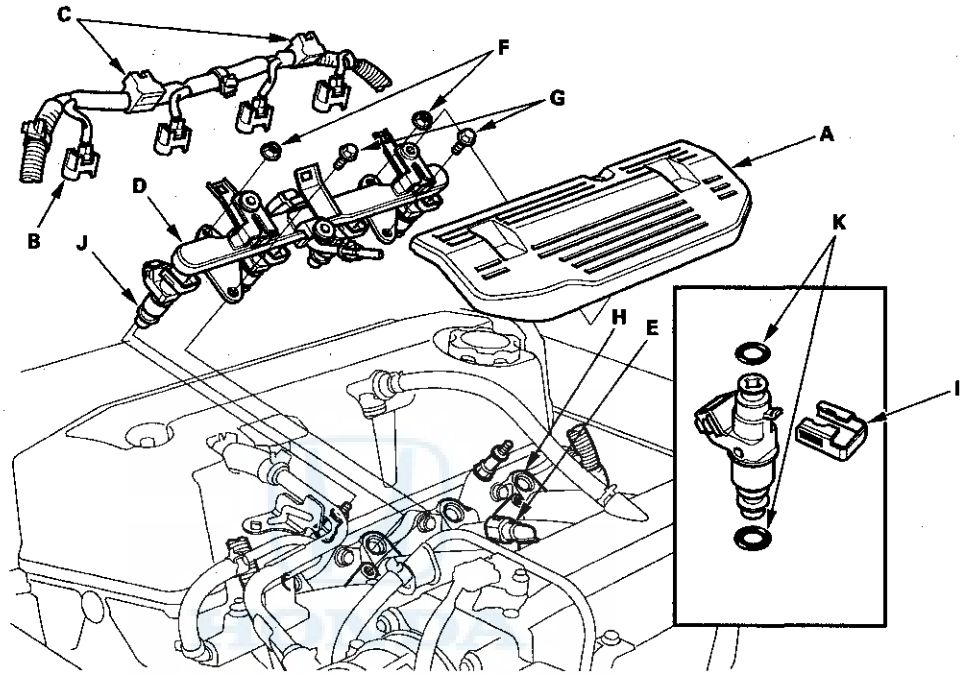
Is there continuity?

YES—Repair short in the wire between the ECM (E5) and the FTP sensor or APP sensor B. ■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

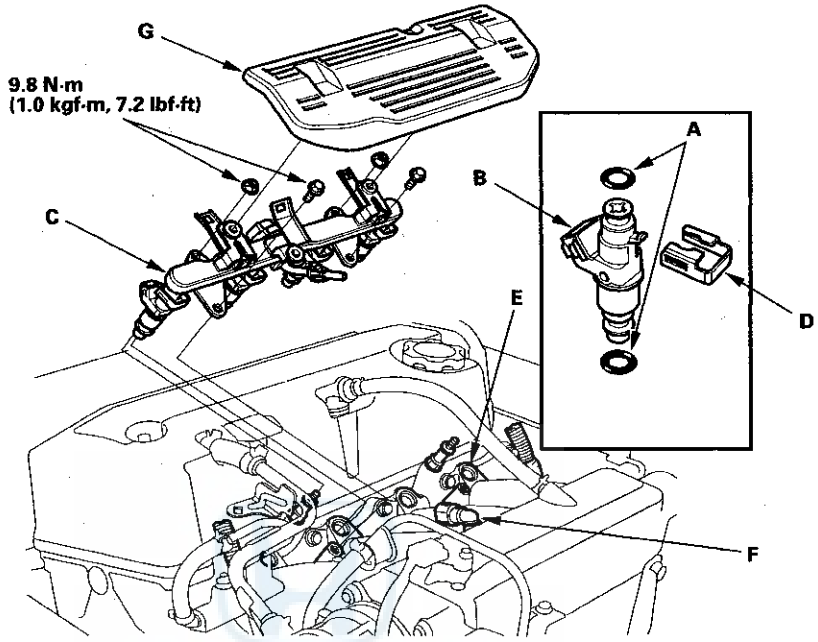
Injector Replacement

1. Relieve the fuel pressure (see page 11-474).
2. Remove the fuel rail cover (A).



3. Disconnect the connectors (B) from the injectors, then remove the harness holder (C) from the fuel rail (D).
4. Disconnect the quick-connect fitting (E) from the fuel rail.
5. Remove the retainer nuts (F) and bolts (G) from the fuel rail.
6. Disconnect the fuel rail from the intake manifold (H).
7. Remove the injector clips (I) from the fuel rail.
8. Remove the injectors (J) from the fuel rail.
9. Remove the O-rings (K) from the injector.

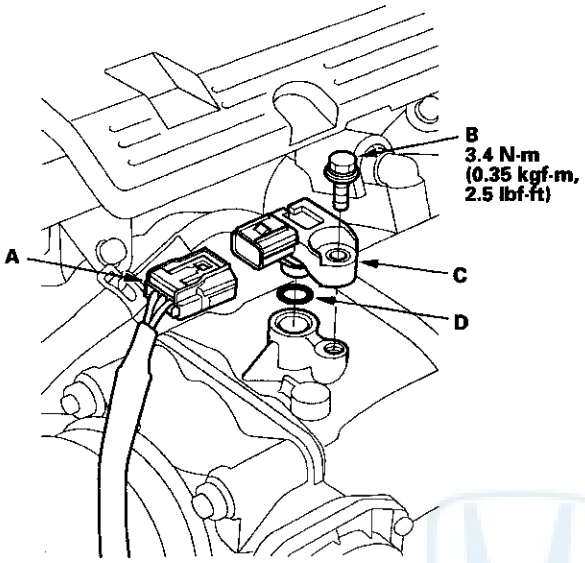
10. Coat new O-rings (A) with clean engine oil, and put them on the injectors (B).



11. Insert the injectors into the fuel rail (C).
12. Install the injector clips (D).
13. Install the injectors in the intake manifold (E).
14. Install and tighten the retainer nuts and bolts.
15. Connect the quick-connect fitting (F) (see page 11-483).
16. Connect the injector connectors and the harness holder.
17. Install the injector cover (G).
18. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel pressure in the fuel line rises. Repeat this 2 or 3 times, then check for fuel leakage.

MAP Sensor Replacement

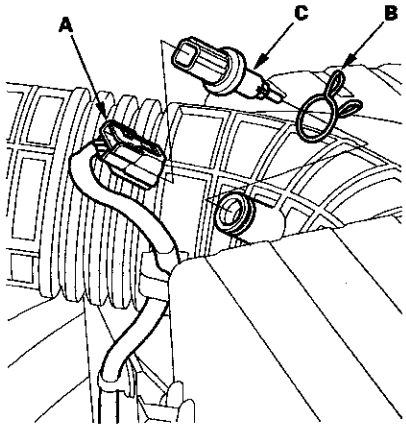
1. Disconnect the MAP sensor 3P connector (A).



2. Remove the bolt (B).
3. Remove the MAP sensor (C).
4. Install the parts in the reverse order of removal with a new O-ring (D).

IAT Sensor Replacement

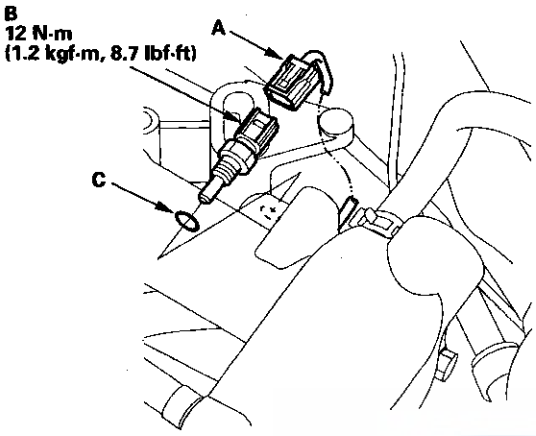
1. Disconnect the IAT sensor 2P connector (A).



2. Remove the clip (B) and the IAT sensor (C).
3. Install the parts in the reverse order of removal.

ECT Sensor 1 Replacement

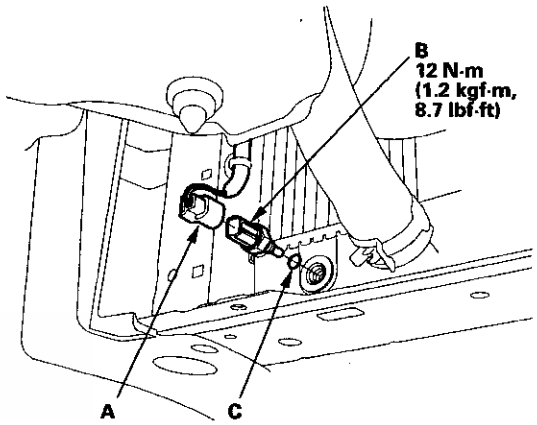
1. Drain the engine coolant (see page 10-9).
2. Disconnect the ECT sensor 1 2P connector (A).



3. Remove ECT sensor 1 (B).
4. Install the parts in the reverse order of removal with a new O-ring (C).
5. Refill the radiator with engine coolant (see page 10-9).

ECT Sensor 2 Replacement

1. Drain the engine coolant (see page 10-9).
2. Remove the splash shield.
3. Disconnect the ECT sensor 2 2P connector (A), then remove ECT sensor 2 (B).

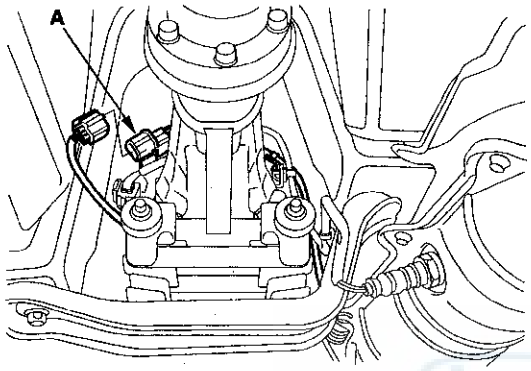


4. Install ECT sensor 2 with a new O-ring (C).
5. Install the splash shield.
6. Refill the radiator with engine coolant (see page 10-9).

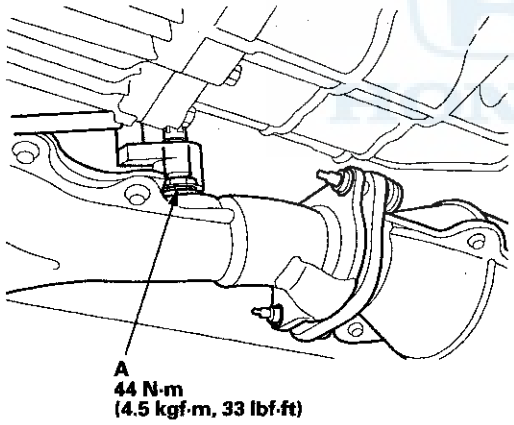
A/F Sensor Replacement

Special Tools Required
O2 sensor wrench, Snap-on YA8875 or SWR2, or equivalent, commercially available

1. Disconnect the A/F sensor (Sensor 1) 4P connector (A).



2. Remove the A/F sensor (Sensor 1) (A).

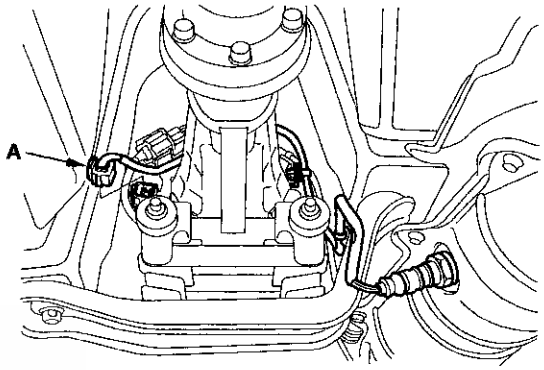


3. Install the parts in the reverse order of removal.

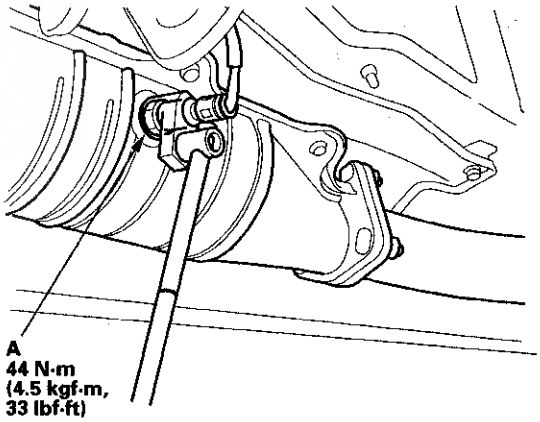
Secondary HO2S Replacement

Special Tools Required
O2 sensor wrench, Snap-on YA8875 or SWR2, or equivalent, commercially available

1. Disconnect the secondary HO2S (Sensor 2) 4P connector (A).



2. Remove the secondary HO2S (Sensor 2) (A).

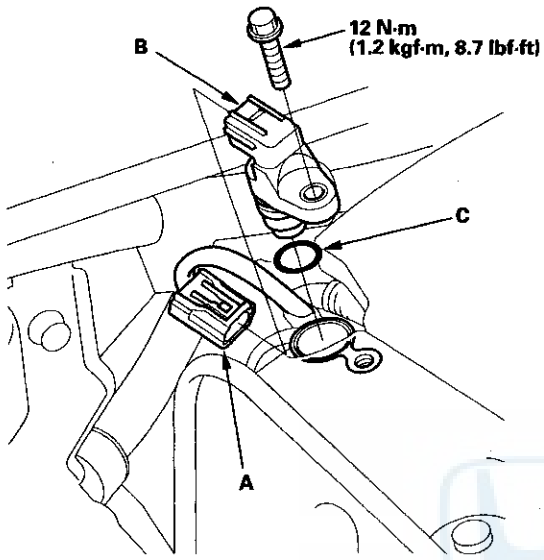


3. Install the parts in the reverse order of removal.

CMP Sensor Replacement

NOTE: The CMP sensor is on the exhaust side of the cylinder head.

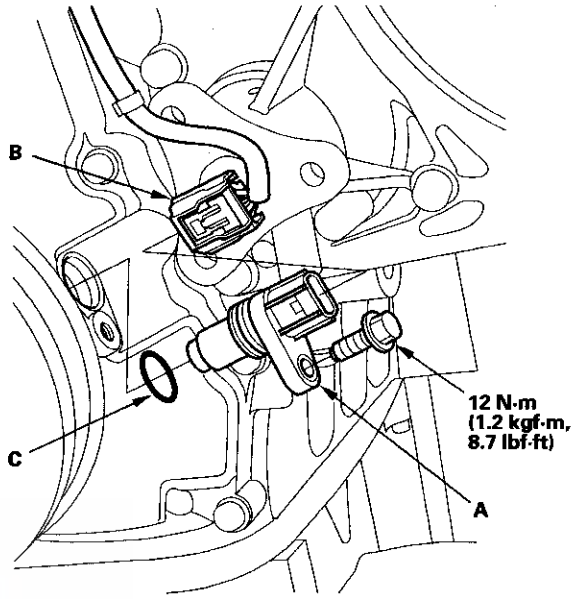
1. Disconnect the CMP sensor 3P connector (A).



2. Remove the CMP sensor (B) from the exhaust camshaft side of the cylinder head.
3. Install the parts in the reverse order of removal with a new O-ring (C).

CKP Sensor Replacement

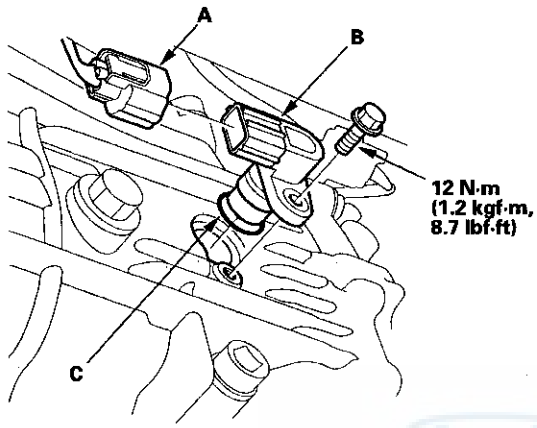
1. Remove the CKP sensor (A).



2. Disconnect the CKP sensor 3P connector (B).
3. Install the parts in the reverse order of removal with a new O-ring (C).
4. Do the crank (CKP) pattern clear/pattern learn procedure (see page 11-214).

Output Shaft (Countershaft) Speed Sensor Replacement

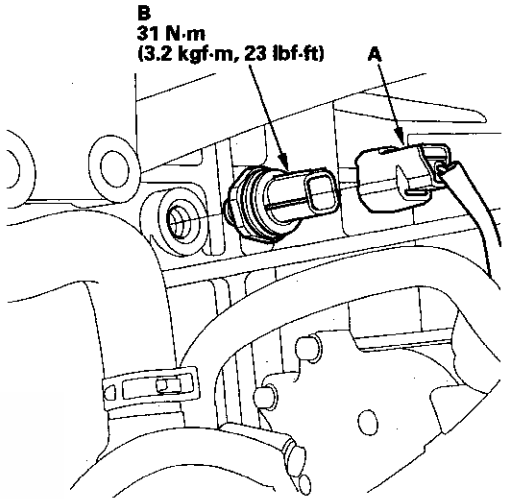
1. Disconnect the output shaft (countershaft) speed sensor 3P connector (A).



2. Remove the output shaft (countershaft) speed sensor (B).
3. Install the parts in the reverse order of removal with a new O-ring (C).

Knock Sensor Replacement

1. Remove the intake manifold (see page 9-3).
2. Disconnect the knock sensor 1P connector (A).



3. Remove the knock sensor (B).
4. Install the parts in the reverse order of removal.

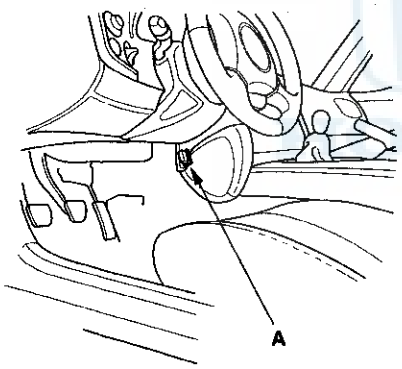
ECM Replacement

Special Tools Required
- Honda diagnostic system (HDS) tablet tester
- Honda interface module (HIM) and an iN workstation with HDS and CM update software
- HDS pocket tester
- GNA-600 and an iN workstation with HDS and CM update software

Use any one of these update tools.

NOTE:
- Make sure the HDS is loaded with the latest software version.
- If you are replacing the ECM after substituting a known-good ECM, reinstall the original ECM, then do this procedure.
- During the procedure, if any READ DATA, WRITE DATA, or other data checks fail, note the failure, then continue.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of front console.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the ECM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367). If you are returning from DLC circuit troubleshooting, skip steps 4 through 7, 17 through 19, and 22 through 23, and do this after replacing the ECM:
   - Replace the engine oil (see page 8-6) and the engine oil filter (see page 8-7).
   - Clean the throttle body (see page 11-499).
4. Select the PGM-FI system with the HDS.
5. Select the INSPECTION MENU with the HDS.
6. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

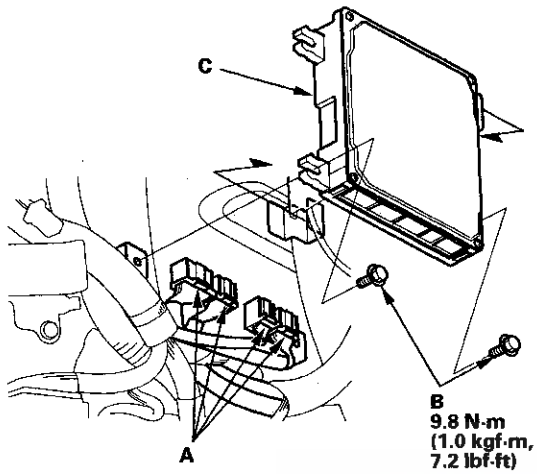
   NOTE: If the TP POSITION CHECK indicates FAILED, continue with this procedure.
7. Select the REPLACE ECM MENU, then select READ DATA, and follow the screen prompts.

   NOTE:
   - Doing this step copies (READS) the engine oil life data from the original ECM so you can later download (WRITES) it into the new ECM.
   - If READ DATA indicates FAILED, continue with this procedure.
8. Turn the ignition switch OFF.
9. Jump the SCS line with the HDS.
10. Remove the left side kick panel (see page 20-71) to expose the ECM.

(cont'd)

ECM Replacement (cont'd)

11. Disconnect the ECM connectors (A).



12. Remove the bolts (B) then remove the ECM (C).
13. Install the ECM in the reverse order of removal.
14. Open the SCS with the HDS.
15. Turn the ignition switch ON (II).
16. Manually input the VIN to the ECM with the HDS.

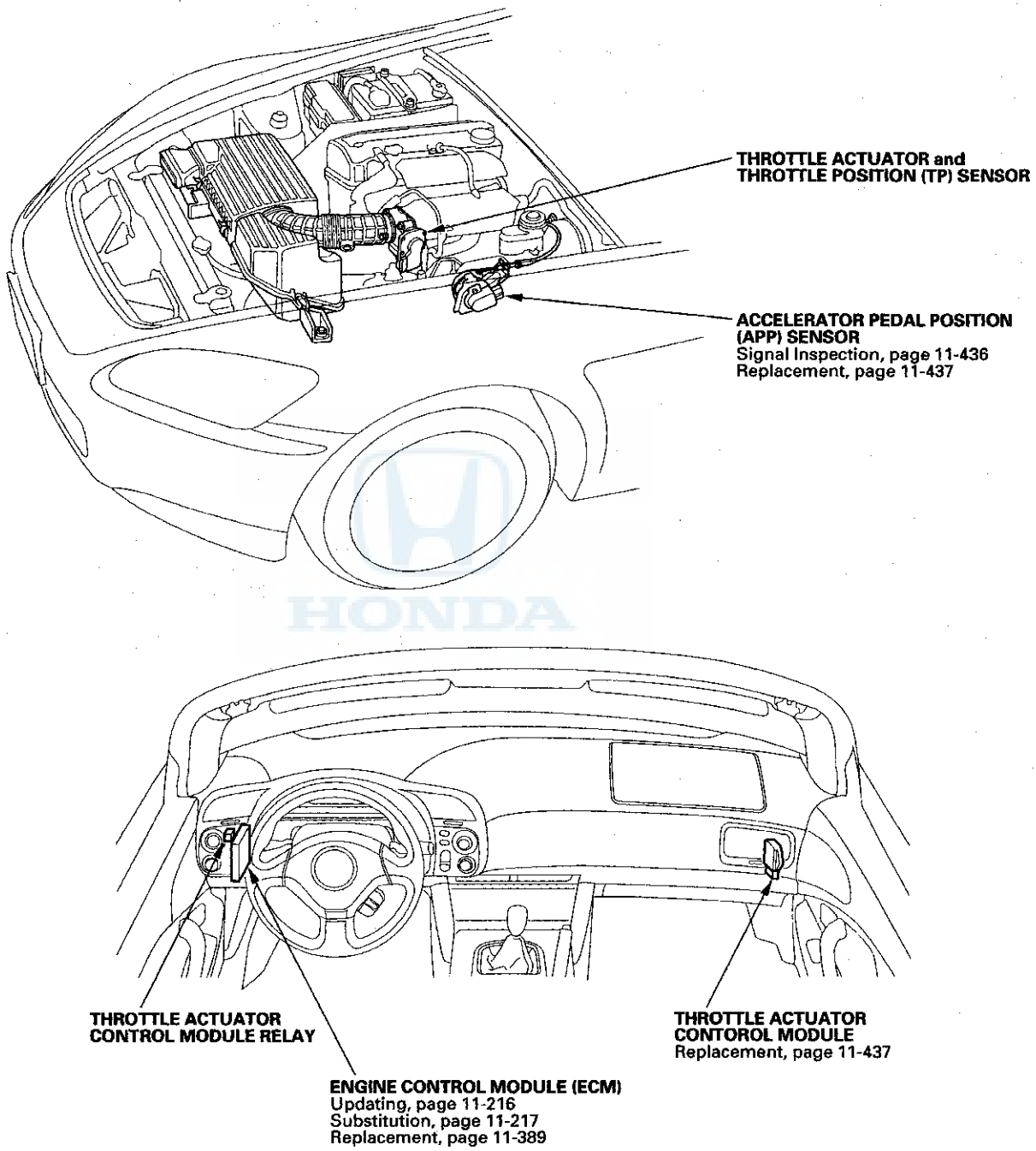
    NOTE: DTC P0630 "VIN Not Programmed or Mismatch" may be stored because the VIN has not been programmed into the ECM; ignore it, and continue this procedure.

17. If READ DATA failed in step 7, go to step 20, otherwise to step 18.
18. Select the PGM-FI system with the HDS.
19. Select the REPLACE ECM MENU, then select WRITE DATA, and follow the screen prompts.

    NOTE: If the WRITE DATA indicates FAILED, continue with this procedure.

20. Select the IMMOBI system with the HDS.
21. Enter the immobilizer code with the ECM replacement procedure in the HDS; it allows you to start the engine.
22. If the TP POSITION CHECK failed in step 6 clean the throttle body (see page 11-499), then go to step 23.
23. If the READ DATA failed in step 7 or the WRITE DATA failed in step 19, replace the engine oil (see page 8-6) and engine oil filter (see page 8-7), then go to step 24.
24. Select the PGM-FI system, and reset the ECM with the HDS.
25. Update the ECM if it does not have the latest software (see page 11-216).
26. Do the ECM idle learn procedure (see page 11-462).
27. Do the CKP pattern learn procedure (see page 11-214).

Component Location Index



DTC Troubleshooting

DTC P0122: TP Sensor A Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.3 V or less?

   YES—Go to step 4.

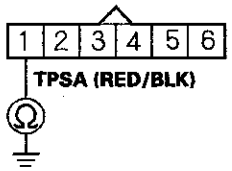
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?

   YES—Go to step 9.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Disconnect the throttle actuator control module 16P connector.
8. Check for continuity between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

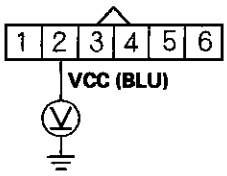
Is there continuity?

YES—Repair short in the wire between the throttle body and the throttle actuator control module (TPSA line), then go to step 17.

NO—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 17 and recheck. If DTC P0122 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 17. If DTC P0122 is indicated, go to step 15.

9. Measure voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

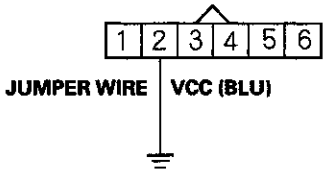
Is there about 5 V?

YES—Go to step 15.

NO—Go to step 10.

10. Turn the ignition switch OFF.
11. Disconnect the throttle actuator control module 16P connector (see page 11-437).
12. Disconnect the throttle body 6P connector.
13. Connect throttle body 6P connector terminal No. 2 to body ground with a jumper wire.

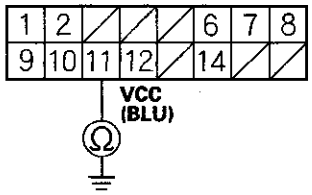
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

14. Check for continuity between throttle actuator control module 16P connector terminal No. 11 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 17 and recheck. If DTC P0122 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 17. If DTC P0122 is indicated, go to step 15.

NO—Repair open in the wire between the throttle body and the throttle actuator control module (VCC line), then go to step 17.

(cont'd)

DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF.
16. Replace the throttle body (see page 11-500).
17. Reconnect all connectors.
18. Turn the ignition switch ON (II).
19. Reset the ECM with the HDS.
20. Do the ECM idle learn procedure (see page 11-462).
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0122 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0123: TP Sensor A Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

   Is there about 4.8 V or more?

   YES—Go to step 4.

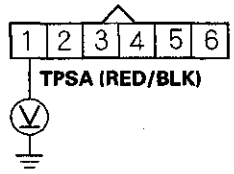
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?

   YES—Go to step 13.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

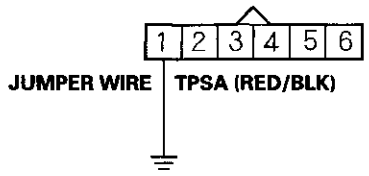
Is there about 5 V?

YES—Go to step 18.

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Disconnect the throttle actuator control module 16P connector (see page 11-437).
11. Connect throttle body 6P connector terminal No. 1 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



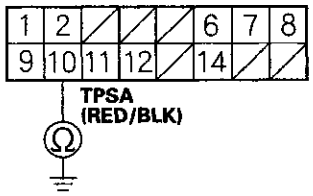
Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

12. Check for continuity between throttle actuator control module 16P connector terminal No. 10 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 18 and recheck. If DTC P0123 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 20. If DTC P0123 is indicated, go to step 18.

NO—Repair open in the wire between the throttle body and the throttle actuator control module (TPSA line), then go to step 20.

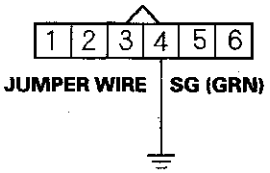
13. Turn the ignition switch OFF.

14. Disconnect the throttle body 6P connector.

15. Disconnect the throttle actuator control module 16P connector (see page 11-437).

16. Connect throttle body 6P connector terminal No. 4 to body ground with a jumper wire.

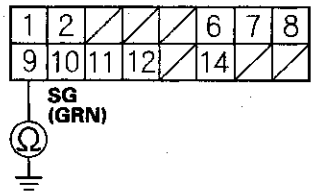
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

17. Check for continuity between throttle actuator control module 16P connector terminal No. 9 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 20 and recheck. If DTC P0123 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 20. If DTC P0123 is indicated, go to step 18.

NO—Repair open in the wire between the throttle body and the throttle actuator control module (SG line), then go to step 20.

18. Turn the ignition switch OFF.
19. Replace the throttle body (see page 11-500).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the ECM with the HDS.
23. Do the ECM idle learn procedure (see page 11-462).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0123 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P0222: TP Sensor B Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.3 V or less?

   YES—Go to step 4.

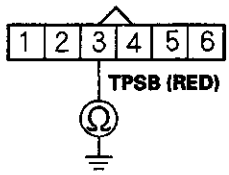
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module.■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0122 and P0222 indicated at the same time?

   YES—Go to step 9.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Disconnect the throttle actuator control module 16P connector (see page 11-437).
8. Check for continuity between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

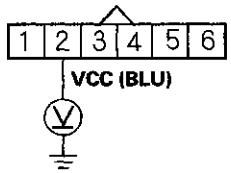
Is there continuity?

YES—Repair short in the wire between the throttle body and the throttle actuator control module (TPSB line), then go to step 17.

NO—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 17 and recheck. If DTC P0222 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 17. If DTC P0222 is indicated, go to step 15.

9. Measure voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

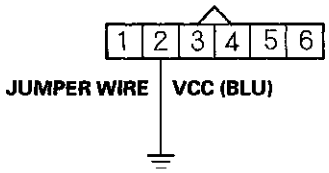
Is there about 5 V?

YES—Go to step 15.

NO—Go to step 10.

10. Turn the ignition switch OFF.
11. Disconnect the throttle actuator control module 16P connector (see page 11-437).
12. Disconnect the throttle body 6P connector.
13. Connect throttle body 6P connector terminal No. 2 to body ground with a jumper wire.

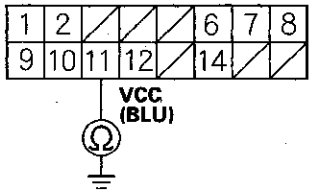
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

14. Check for continuity between throttle actuator control module 16P connector terminal No. 11 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 17 and recheck. If DTC P0222 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 17. If DTC P0222 is indicated, go to step 15.

NO—Repair open in the wire between the throttle body and the throttle actuator control module (VCC line), then go to step 17.

(cont'd)

DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF.
16. Replace the throttle body (see page 11-500).
17. Reconnect all connectors.
18. Turn the ignition switch ON (II).
19. Reset the ECM with the HDS.
20. Do the ECM idle learn procedure (see page 11-462).
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0222 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0223: TP Sensor B Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

   Is there about 4.8 V or more?

   YES—Go to step 4.

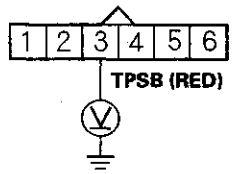
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module. ■
4. Check for Temporary DTCs or DTCs with the HDS.

   Are DTC P0123 and P0223 indicated at the same time?

   YES—Go to step 13.

   NO—Go to step 5.
5. Turn the ignition switch OFF.
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

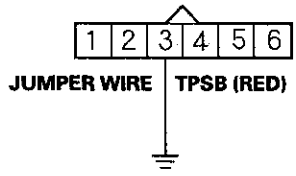
Is there about 5 V?

YES—Go to step 18.

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Disconnect the throttle actuator control module 16P connector (see page 11-437).
11. Connect throttle body 6P connector terminal No. 3 to body ground with a jumper wire.

THROTTLE BODY 6P CONNECTOR



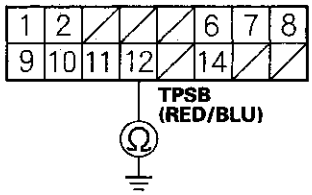
Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

12. Check for continuity between throttle actuator control module 16P connector terminal No. 12 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 20 and recheck. If DTC P0223 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 20. If DTC P0223 is indicated, go to step 18.

NO—Repair open in the wire between the throttle body and the throttle actuator control module (TPSB line), then go to step 20.

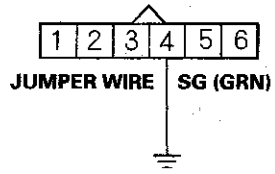
13. Turn the ignition switch OFF.

14. Disconnect the throttle body 6P connector.

15. Disconnect the throttle actuator control module 16P connector (see page 11-437).

16. Connect throttle body 6P connector terminal No. 4 to body ground with a jumper wire.

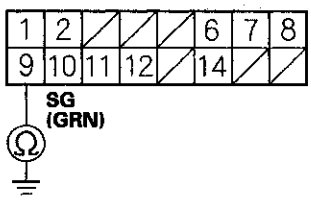
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

17. Check for continuity between throttle actuator control module 16P connector terminal No. 9 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 20 and recheck. If DTC P0223 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 20. If DTC P0223 is indicated, go to step 18.

NO—Repair open in the wire between the throttle body and the throttle actuator control module (SG line), then go to step 20.

18. Turn the ignition switch OFF.
19. Replace the throttle body (see page 11-500).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the ECM with the HDS.
23. Do the ECM idle learn procedure (see page 11-462).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0223 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P1683: Throttle Valve Default Position Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

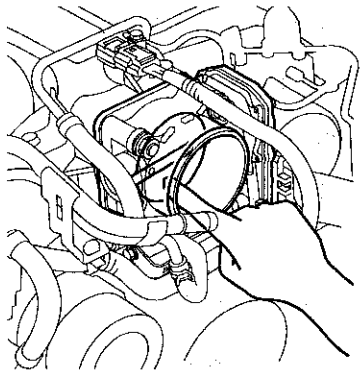
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch OFF, and wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1683 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module.■
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Push the throttle valve to closed as shown.



10. Release the throttle valve.

    Does the throttle valve return?

    YES—Clean the throttle body (see page 11-499), then go to step 13 and recheck. If DTC P1683 is indicated, go to step 11.

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Replace the throttle body (see page 11-500).
13. Turn the ignition switch ON (II).
14. Reset the ECM with the HDS.
15. Do the ECM idle learn procedure (see page 11-462).
16. Turn the ignition switch OFF, and wait 10 seconds.
17. Turn the ignition switch ON (II).
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1683 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P1684: Throttle Valve Return Spring Performance Problem

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

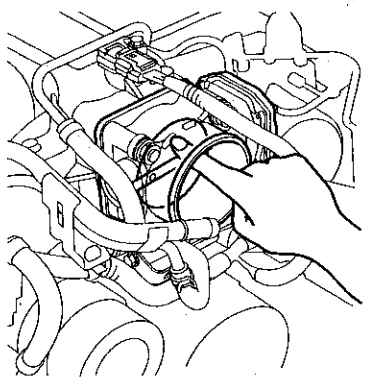
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch OFF, and wait 10 seconds.
5. Turn the ignition switch ON (II).
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P1684 indicated?

   YES—Go to step 7.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module.■
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Push the throttle valve open as shown.



10. Release the throttle valve.

    Does the throttle valve return?

    YES—Clean the throttle body (see page 11-499), then go to step 13 and recheck. If DTC P1684 is indicated, go to step 11.

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Replace the throttle body (see page 11-500).
13. Turn the ignition switch ON (II).
14. Reset the ECM with the HDS.
15. Do the ECM idle learn procedure (see page 11-462).
16. Turn the ignition switch OFF, and wait 10 seconds.
17. Turn the ignition switch ON (II).
18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1684 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting (cont'd)

DTC P2101: Throttle Actuator System Malfunction

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?

   YES—Go to step 7.

   NO—Go to step 5.
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

   • ENGINE SPEED
   • VSS
   • APP SENSOR
6. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2101 indicated?

   YES—Go to step 7.

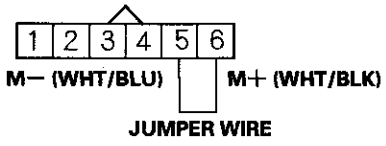
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then clean the throttle body (see page 11-499). ■
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Turn the ignition switch ON (II).
10. Clear the DTC with the HDS.
11. Visually check the throttle valve operation while doing the ETCS TEST in the INSPECTION MENU with the HDS.

    Does the throttle valve operate smoothly?

    YES—Clean the throttle body (see page 11-499), then go to step 19 and recheck. If DTC P2101 is indicated, then go to step 17.

    NO—Go to step 12.
12. Turn the ignition switch OFF.
13. Disconnect the throttle body 6P connector.
14. Disconnect the throttle actuator control module 16P connector (see page 11-437).
15. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

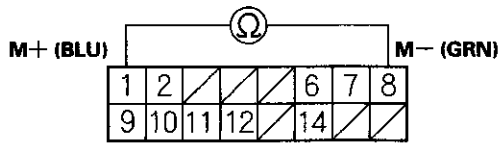
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

16. Check for continuity between throttle actuator control module 16P connector terminals No. 1 and No. 8.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 19 and recheck. If DTC P2101 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 19. If DTC P2101 is indicated, go to step 17.

NO—Repair open in the wires between the throttle body and the throttle actuator control module (motor drive lines), then go to step 19.

17. Turn the ignition switch OFF.
18. Replace the throttle body (see page 11-500).
19. Reconnect all connectors.
20. Turn the ignition switch ON (II).
21. Reset the ECM with the HDS.
22. Do the ECM idle learn procedure (see page 11-462).
23. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

    - ENGINE SPEED
    - VSS
    - APP SENSOR

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2101 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, clean the throttle body (see page 11-499), then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P2108: Throttle Actuator Control Module Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Turn the ignition switch ON (II).
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2108 indicated?

   YES—Substitute a known-good throttle actuator control module (see page 11-437), and recheck. If DTC P2108 is not indicated, replace the original throttle actuator control module (see page 11-437). ■

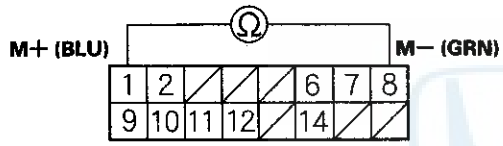
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body, the throttle actuator control module, and the ECM. ■

DTC P2118: Throttle Actuator Current Range/ Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Disconnect the throttle actuator control module 16P connector (see page 11-437).
2. Measure resistance between throttle actuator control module 16P connector terminals No. 1 and No. 8.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

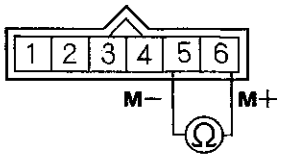
Is there about 1.0 Ω or less?

YES—Go to step 3.

NO—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 6 and recheck. If DTC P2118 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 6.

3. Disconnect the throttle body 6P connector.
4. At throttle body side, measure resistance between throttle body 6P connector terminals No. 5 and No. 6 with the throttle fully closed.

THROTTLE BODY 6P CONNECTOR



Terminal side of male terminals

Is there about 1.0 Ω or less?

YES—Go to step 5.

NO—Repair short in the wires between the throttle body and the throttle actuator control module (motor drive lines), then go to step 6.

5. Replace the throttle body (see page 11-500).
6. Reconnect all connectors.
7. Turn the ignition switch ON (II).
8. Reset the ECM with the HDS.
9. Do the ECM idle learn procedure (see page 11-462).
10. Turn the ignition switch OFF.
11. Turn the ignition switch ON (II).
12. Slowly press the accelerator pedal to the floor.

(cont'd)

DTC Troubleshooting (cont'd)

13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2118 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2122: APP Sensor A (TP Sensor D) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

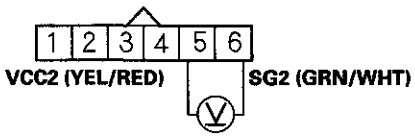
1. Turn the ignition switch ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 0.1 V or less?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

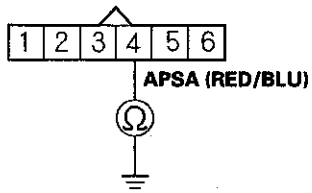
Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector A (31P).
10. Check for continuity between APP sensor 6P connector terminal No. 4 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

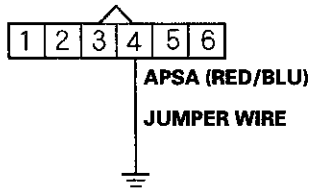
Is there continuity?

YES—Repair short in the wire between APP sensor A and the ECM (A26), then go to step 20.

NO—Go to step 11.

11. Connect APP sensor 6P connector terminal No. 4 to body ground with a jumper wire.

APP SENSOR 6P CONNECTOR



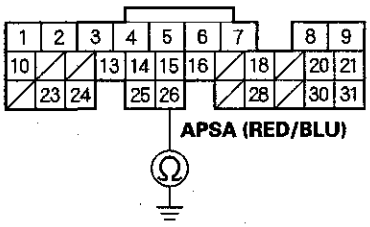
Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

12. Check for continuity between ECM connector terminal A26 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

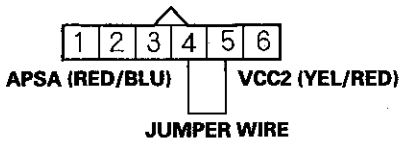
YES—Go to step 13.

NO—Repair open in the wire between APP sensor A and the ECM (A26), then go to step 20.

13. Reconnect ECM connector A (31P).

14. Connect APP sensor 6P connector terminals No. 4 and No. 5 with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

15. Turn the ignition switch ON (II).

16. Check APP SENSOR A in the DATA LIST with the HDS.

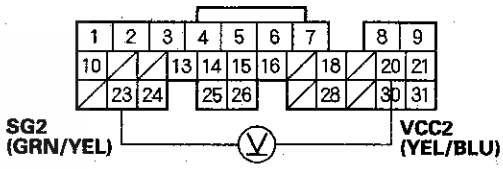
Is there about 0.1 V or less?

YES—Go to step 25.

NO—Go to step 18.

17. Measure voltage between ECM connector terminals A20 and A23.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between APP sensor A and the ECM (A20), then go to step 20.

NO—Go to step 25.

18. Turn the ignition switch OFF.

19. Replace the APP sensor (see page 11-437).

20. Reconnect all connectors.

21. Turn the ignition switch ON (II).

22. Reset the ECM with the HDS.

23. Do the ECM idle learn procedure (see page 11-462).

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2122 indicated?

    YES—Check for poor connections or loose terminals at APP sensor A and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

25. Turn the ignition switch OFF.

26. Reconnect all connectors.

27. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2122 indicated?

    YES—Check for poor connections or loose terminals at APP sensor A and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC Troubleshooting (cont'd)

DTC P2123: APP Sensor A (Throttle Position Sensor D) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

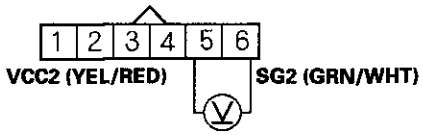
1. Turn the ignition switch ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

   Is there about 4.85 V or more?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the APP sensor and the ECM.■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 5 and No. 6.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

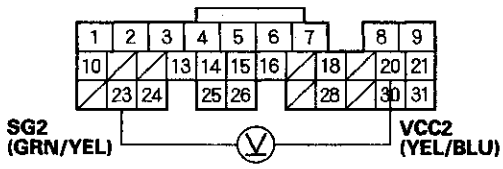
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 7.

7. Measure voltage between ECM connector terminals A20 and A23.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (A23) and the APP sensor, then go to step 10.

NO—Go to step 15.

8. Turn the ignition switch OFF.
9. Replace the APP sensor (see page 11-437).
10. Reconnect all connectors.
11. Turn the ignition switch ON (II).
12. Reset the ECM with the HDS.
13. Do the ECM idle learn procedure (see page 11-462).
14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?

    YES—Check for poor connections or loose terminals at the APP sensor and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

15. Turn the ignition switch OFF.

16. Reconnect all connectors.

17. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2123 indicated?

    YES—Check for poor connections or loose terminals at the APP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC P2127: APP Sensor B (TP Sensor E) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

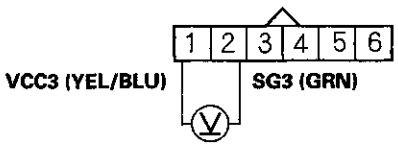
1. Turn the ignition switch ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 0.1 V or less?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor B and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 1 and No. 2.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

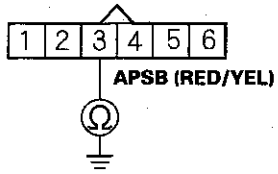
Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch OFF.
8. Jump the SCS line with the HDS.
9. Disconnect ECM connector A (31P).
10. Check for continuity between APP sensor 6P connector terminal No. 3 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

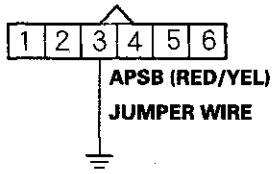
Is there continuity?

YES—Repair short in the wire between APP sensor B and the ECM (A25), then go to step 20.

NO—Go to step 11.

11. Connect APP sensor 6P connector terminal No. 3 to body ground with a jumper wire.

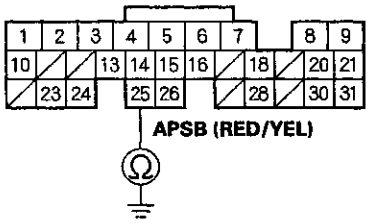
APP SENSOR 6P CONNECTOR



Wire side of female terminals

12. Check for continuity between ECM connector terminal A25 and body ground.

ECM CONNECTOR A (31P)



Wire side of female terminals

Is there continuity?

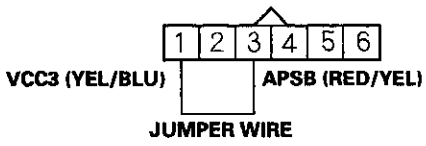
YES—Go to step 13.

NO—Repair open in the wire between APP sensor B and the ECM (A25), then go to step 20.

13. Reconnect ECM connector A (31P).

14. Connect APP sensor 6P connector terminals No. 1 and No. 3 with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

15. Turn the ignition switch ON (II).

16. Check APP SENSOR B in the DATA LIST with the HDS.

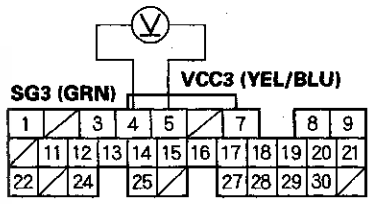
Is there about 0.1 V or less?

YES—Go to step 25.

NO—Go to step 18.

17. Measure voltage between ECM connector terminals E4 and E5.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between APP sensor B and the ECM (E5), then go to step 20.

NO—Go to step 25.

(cont'd)

DTC Troubleshooting (cont'd)

18. Turn the ignition switch OFF.
19. Replace the APP sensor (see page 11-437).
20. Reconnect all connectors.
21. Turn the ignition switch ON (II).
22. Reset the ECM with the HDS.
23. Do the ECM idle learn procedure (see page 11-462).
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2127 indicated?

    YES—Check for poor connections or loose terminals at APP sensor B and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
25. Turn the ignition switch OFF.
26. Reconnect all connectors.
27. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2127 indicated?

    YES—Check for poor connections or loose terminals at APP sensor B and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2128: APP Sensor B (Throttle Position Sensor E) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

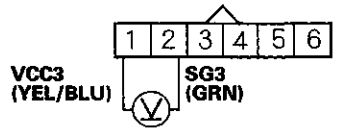
1. Turn the ignition switch ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

   Is there about 4.0 V or higher?

   YES—Go to step 3.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor B and the ECM. ■
3. Turn the ignition switch OFF.
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch ON (II).
6. Measure voltage between APP sensor 6P connector terminals No. 1 and No. 2.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

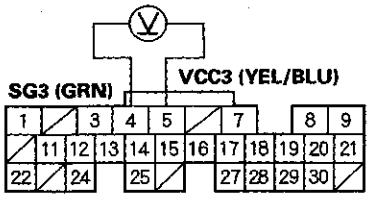
Is there about 5 V?

YES—Go to step 8.

NO—Go to step 7.

7. Measure voltage between ECM connector terminals E4 and E5.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V?

YES—Repair open in the wire between the ECM (E4) and the APP sensor, then go to step 10.

NO—Go to step 15.

8. Turn the ignition switch OFF.
9. Replace the APP sensor (see page 11-437).
10. Reconnect all connectors.
11. Turn the ignition switch ON (II).
12. Reset the ECM with the HDS.
13. Do the ECM idle learn procedure (see page 11-462).
14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2128 indicated?

    YES—Check for poor connections or loose terminals at APP sensor B and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

DTC Troubleshooting (cont'd)

15. Turn the ignition switch OFF.

16. Reconnect all connectors.

17. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

18. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2128 indicated?

    YES—Check for poor connections or loose terminals at the APP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P2135: TP Sensor A/B Incorrect Voltage Correlation

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2135 indicated?

   YES—Go to step 5.

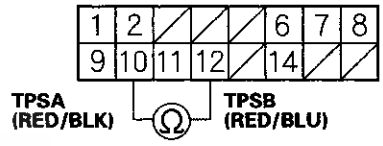
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module.■
5. Turn the ignition switch OFF.
6. Disconnect the intake air duct from the throttle body.
7. Turn the ignition switch ON (II).
8. Visually check the throttle valve operation while you clean the DTC with the HDS.

   Does the valve temporarily move to the fully closed position?

   YES—Go to step 14.

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Disconnect the throttle actuator control module 16P connector (see page 11-437).
11. Check for continuity between throttle actuator control module 16P connector terminals No. 10 and No. 12.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

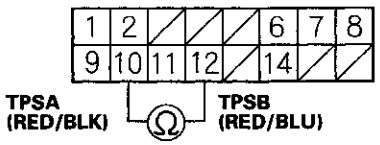
NO—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 16 and recheck. If DTC P2135 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 16.

(cont'd)

DTC Troubleshooting (cont'd)

12. Disconnect the throttle body 6P connector.
13. Check for continuity between throttle actuator control module 16P connector terminals No. 10 and No. 12.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the TPSA line and the TPSB line, then go to step 16.

NO—Go to step 14.

14. Turn the ignition switch OFF.
15. Replace the throttle body (see page 11-500).
16. Reconnect all connectors.
17. Turn the ignition switch ON (II).
18. Reset the ECM with the HDS.
19. Do the ECM idle learn procedure (see page 11-462).
20. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2135 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2138: APP Sensor A/B (TP Sensor D/E) Incorrect Voltage Correlation

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Press the accelerator pedal to the floor.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2138 indicated?

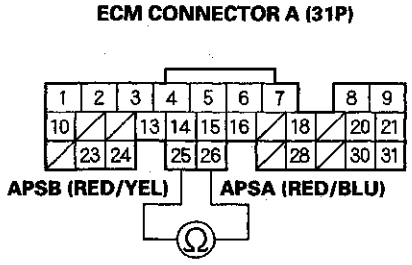
   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the APP sensor and the ECM.■
5. Check APP SENSOR A and APP SENSOR B in the DATA LIST with the HDS.

   Are they the same voltage?

   YES—Go to step 6.

   NO—Go to step 11.
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect the APP sensor 6P connector.
9. Disconnect ECM connector A (31P).
10. Check for continuity between ECM connector terminals A25 and A26.



Wire side of female terminals

   Is there continuity?

   YES—Repair short in the wire between the ECM terminals (A25, A26), then go to step 13.

   NO—Go to step 21.
11. Turn the ignition switch OFF.
12. Replace the APP sensor (see page 11-437).
13. Reconnect all connectors.
14. Turn the ignition switch ON (II).
15. Reset the ECM with the HDS.
16. Do the ECM idle learn procedure (see page 11-462).
17. Turn the ignition switch OFF.
18. Turn the ignition switch ON (II).
19. Press the accelerator pedal to the floor.

(cont'd)

DTC Troubleshooting (cont'd)

20. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2138 indicated?

    YES—Check for poor connections or loose terminals at the APP sensor and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

21. Reconnect all connectors.

22. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

23. Turn the ignition switch OFF.

24. Turn the ignition switch ON (II).

25. Press the accelerator pedal to the floor.

26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2138 indicated?

    YES—Check for poor connections or loose terminals at the APP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 23. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P2176: Throttle Actuator Control System Idle Position Not Learned

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P2135 is stored at the same time as DTC P2176, troubleshoot DTC P2135 first, then recheck for DTC P2176.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Turn the ignition switch ON (II), and wait 10 seconds.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2176 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, then clean the throttle body (see page 11-499).■
6. Turn the ignition switch OFF.
7. Disconnect the intake air duct from the throttle body.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS.
10. Visually check the throttle valve operation while performing the ETCS TEST in the INSPECTION MENU with the HDS.

    Does the throttle valve move to its fully closed position?

    YES—Go to step 11.

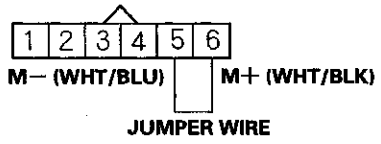
    NO—Go to step 12.
11. Check for sludge or carbon on the throttle valve.

    Is there sludge or carbon on the throttle valve?

    YES—Clean the throttle body (see page 11-499), then go to step 20 and recheck.

    NO—Go to step 19.
12. Turn the ignition switch OFF.
13. Disconnect the throttle body 6P connector.
14. Disconnect the throttle actuator control module 16P connector (see page 11-437).
15. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

THROTTLE BODY 6P CONNECTOR



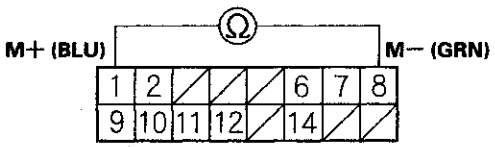
Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

16. Check for continuity between throttle actuator control module 16P connector terminals No. 1 and No. 8.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 19 and recheck. If DTC P2176 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 19.

NO—Repair open in the wires between the throttle body and the throttle actuator control module (motor drive lines), then go to step 19.

17. Turn the ignition switch OFF.
18. Replace the throttle body (see page 11-500).
19. Reconnect all connectors.
20. Turn the ignition switch ON (II).
21. Reset the ECM with the HDS.
22. Do the ECM idle learn procedure (see page 11-462).
23. Turn the ignition switch OFF.
24. Turn the ignition switch ON (II), and wait 10 seconds.
25. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2176 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the throttle actuator control module, clean the throttle body (see page 11-499), then go to step 1.

NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2552: Throttle Actuator Control Module Relay Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

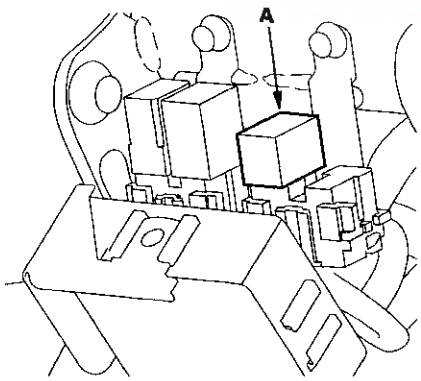
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.

   Is the RELAY circuit OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle actuator control module relay, the throttle actuator control module, and the ECM. ■

   NO—Go to step 4.

4. Turn the ignition switch OFF.
5. Remove the throttle actuator control module relay (A).



6. Test the throttle actuator control module relay (see page 22-48).

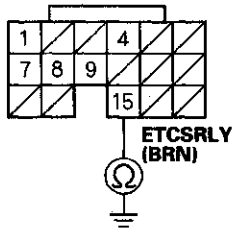
   Is the relay OK?

   YES—Go to step 7.

   NO—Replace the throttle actuator control module relay, then go to step 10.

7. Jump the SCS line with the HDS.
8. Disconnect ECM connector D (17P).
9. Check for continuity between ECM connector terminal D15 and body ground.

ECM CONNECTOR D (17P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the throttle actuator control module relay and the ECM (D15), then go to step 10.

NO—Go to step 17.

(cont'd)

DTC Troubleshooting (cont'd)

10. Reconnect ECM connector D (17P).
11. Turn the ignition switch ON (II).
12. Reset the ECM with the HDS.
13. Do the ECM idle learn procedure (see page 11-462).
14. Turn the ignition switch OFF.
15. Turn the ignition switch ON (II), and wait 10 seconds.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2552 indicated?

    YES—Check for poor connections or loose terminals at the throttle actuator control module relay, the throttle actuator control module, and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■
17. Reconnect all connectors.
18. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
19. Turn the ignition switch OFF.
20. Turn the ignition switch ON (II), and wait 10 seconds.
21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2552 indicated?

    YES—Check for poor connections or loose terminals at the throttle actuator control module relay, the throttle actuator control module, and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 19. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U0107: Lost Communication With Throttle Actuator Control Module

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0107 indicated?

   YES—Check for poor connections or loose terminals at the throttle body, the throttle actuator control module, and the ECM, then go to step 50. If the connections are OK, go to step 6.

   NO—Go to step 4.
4. Start the engine.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC U0107 indicated?

   YES—Go to step 46.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator control module, and the ECM. ■
6. Clear the DTC with the HDS.
7. Turn the ignition switch OFF.
8. Disconnect the intake air duct from the throttle body.
9. Press the accelerator pedal to the floor.
10. Turn the ignition switch ON (II).
11. Check the throttle valve operation.

    Does it open after it closes?

    YES—Go to step 12.

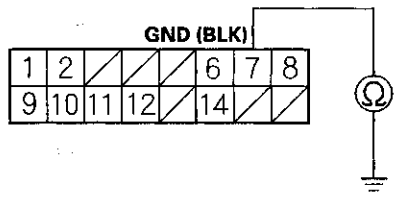
    NO—Go to step 13.
12. Check the throttle valve again.

    Does the throttle valve open fully?

    YES—Go to step 40.

    NO—Go to step 34.
13. Turn the ignition switch OFF.
14. Disconnect the throttle actuator control module 16P connector.
15. Check for continuity between throttle actuator control module 16P connector terminal No. 7 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

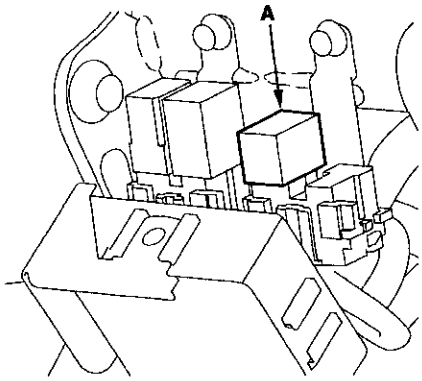
YES—Go to step 16.

NO—Repair open in the wire between the throttle body, the throttle actuator control module, and G101, then go to step 50.

(cont'd)

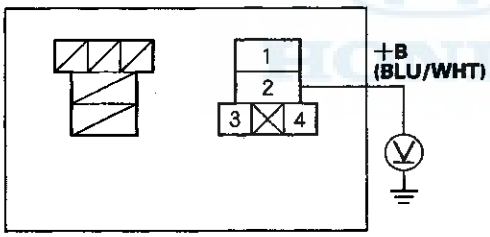
DTC Troubleshooting (cont'd)

16. Remove the throttle actuator control module relay (A).



17. Measure voltage between throttle actuator control module relay 4P connector terminal No. 2 and body ground.

THROTTLE ACTUATOR CONTROL MODULE RELAY 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 19.

NO—Go to step 18.

18. Check the No. 14 DBW (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Repair open in the wire between the throttle actuator control module relay (+B line) and the No. 14 DBW (15 A) fuse, then go to step 50.

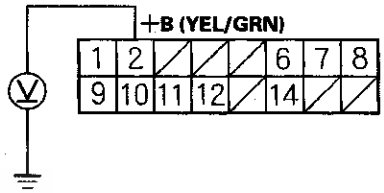
NO—Repair short in the wire between the throttle actuator control module relay (+B line) and the No. 14 DBW (15 A) fuse. Also replace the fuse, then go to step 50.

19. Install the throttle actuator control module relay.

20. Turn the ignition switch ON (II).

21. Measure voltage between throttle actuator control module 16P connector terminal No. 2 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

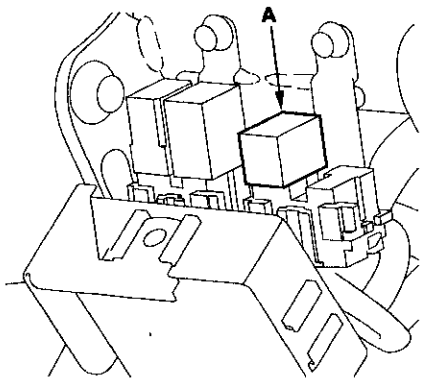
Is there battery voltage for about 2 seconds?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 50 and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 50.

NO—Go to step 22.

22. Turn the ignition switch OFF.

23. Remove the throttle actuator control module relay (A).



24. Check the throttle actuator control module relay (see page 22-48).

Is the throttle actuator control module relay OK?

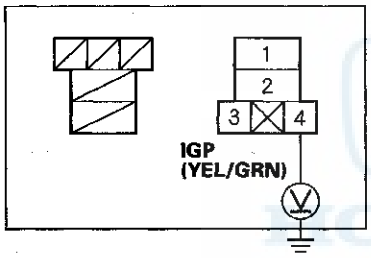
YES—Go to step 25.

NO—Replace the throttle actuator control module relay, then go to step 50.

25. Turn the ignition switch ON (II).

26. Measure voltage between throttle actuator control module relay 4P connector terminal No. 4 and body ground.

THROTTLE ACTUATOR CONTROL MODULE RELAY 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 27.

NO—Repair open in the wire between the throttle actuator control module relay and PGM-FI main relay 1 (FI MAIN), then go to step 50.

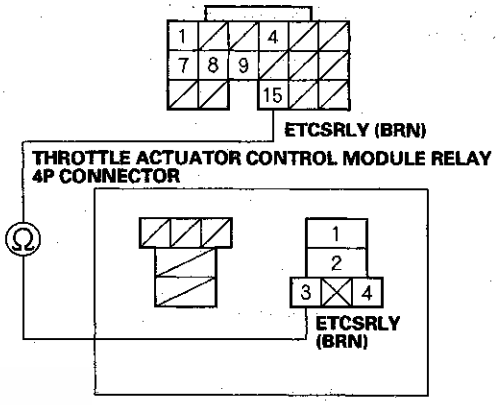
27. Turn the ignition switch OFF.

28. Jump the SCS line with the HDS.

29. Disconnect ECM connector D (17P).

30. Check for continuity between ECM connector terminal D15 and throttle actuator control module relay 4P connector terminal No. 3.

ECM CONNECTOR D (17P)



Wire side of female terminals

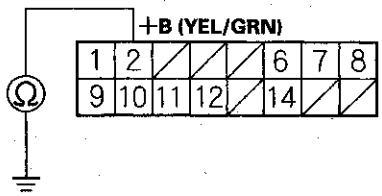
Is there continuity?

YES—Go to step 31.

NO—Repair open in the wire between the ECM (D15) and the throttle actuator control module relay, then go to step 50.

31. Check for continuity between throttle actuator control module 16P connector terminal No. 2 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the throttle actuator control module and the throttle actuator control module relay (+B line), then go to step 50.

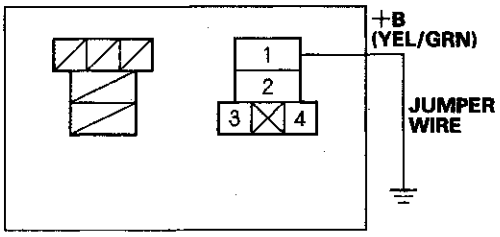
NO—Go to step 32.

(cont'd)

DTC Troubleshooting (cont'd)

32. Connect throttle actuator control module relay 4P connector terminal No. 1 to body ground with a jumper wire.

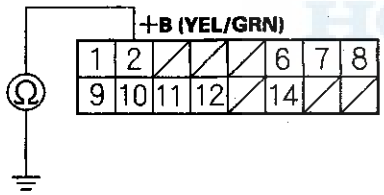
THROTTLE ACTUATOR CONTROL MODULE RELAY 4P CONNECTOR



Wire side of female terminals

33. Check for continuity between throttle actuator control module 16P connector terminal No. 2 and body ground.

THROTTLE ACTUATOR CONTROL MODULE 16P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 56.

NO—Repair open in the wire between the throttle actuator control module and the throttle actuator control module relay (+B line), then go to step 50.

34. Turn the ignition switch OFF.

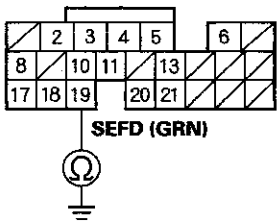
35. Jump the SCS line with the HDS.

36. Disconnect the throttle actuator control module 16P connector (see page 11-437).

37. Disconnect ECM connector B (24P).

38. Check for continuity between ECM connector terminal B19 and body ground.

ECM CONNECTOR B (24P)



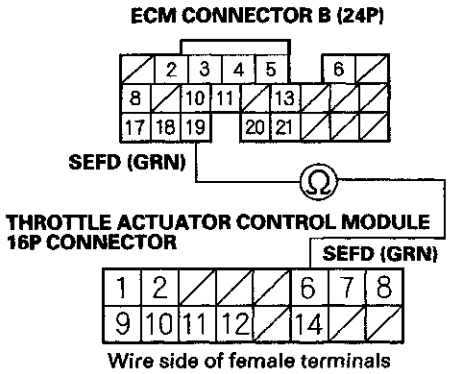
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (B19) and the throttle actuator control module, then go to step 50.

NO—Go to step 39.

39. Check for continuity between ECM connector terminal B19 and throttle actuator control module 16P connector terminal No. 6.



Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 50 and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 50. If DTC U0107 is indicated, go to step 56.

NO—Repair open in the wire between the ECM (B19) and the throttle actuator control module, then go to step 50.

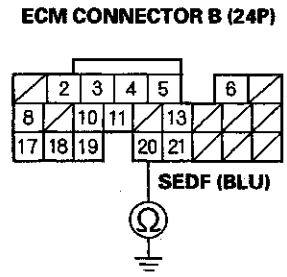
40. Turn the ignition switch OFF.

41. Jump the SCS line with the HDS.

42. Disconnect the throttle actuator control module 16P connector.

43. Disconnect ECM connector B (24P).

44. Check for continuity between ECM connector terminal B20 and body ground.



Is there continuity?

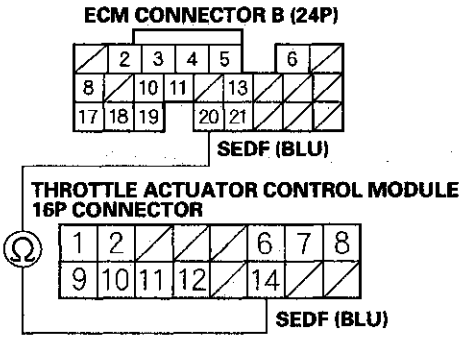
YES—Repair short in the wire between the ECM (B20) and the throttle actuator control module, then go to step 50.

NO—Go to step 45.

(cont'd)

DTC Troubleshooting (cont'd)

45. Check for continuity between ECM connector terminal B20 and throttle actuator control module 16P connector terminal No. 14.



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good throttle actuator control module (see page 11-437), then go to step 50 and recheck. If DTC U0107 is not indicated, replace the original throttle actuator control module (see page 11-437), then go to step 50. If DTC U0107 is indicated, go to step 56.

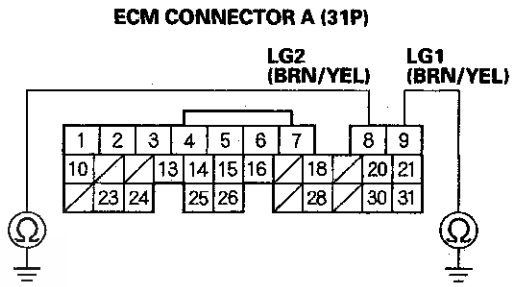
NO—Repair open in the wire between the ECM (B20) and the throttle actuator control module, then go to step 50.

46. Turn the ignition switch OFF.

47. Jump the SCS line with the HDS.

48. Disconnect ECM connector A (31P).

49. Check for continuity between body ground and ECM connector terminals A8 and A9 individually.



Wire side of female terminals

Is there continuity?

YES—Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator control module, and the ECM, then go to step 1.

NO—Repair open in the wire between the ECM (A8, A9) and G101, then go to step 50.

50. Turn the ignition switch OFF.

51. Reconnect all connectors.

52. Turn the ignition switch ON (II).

53. Reset the ECM with the HDS.

54. Do the ECM idle learn procedure (see page 11-462).

55. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0107 indicated?

    YES—Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator control module, and the ECM, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

56. Reconnect all connectors.

57. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

58. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC U0107 indicated?

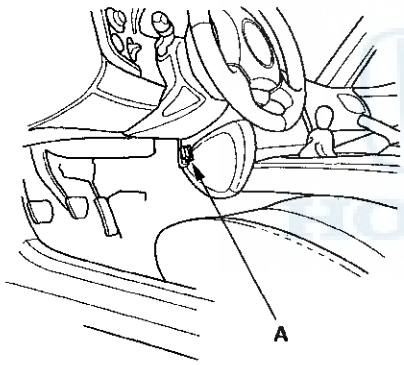
    YES—Check for poor connections or loose terminals at the throttle body, the throttle actuator control module relay, the throttle actuator control module, and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

APP Sensor Signal Inspection

NOTE:
- This procedure checks the APP sensor in its fully closed position. In any other position, the APP sensor stores DTCs which are covered in other troubleshooting procedures.
- Check for Temporary DTCs or DTCs with the HDS before doing this procedure. If any DTCs are indicated, troubleshoot them first, then do this procedure.
- Press the accelerator pedal several times to check its operation. If it does not operate properly, check the pedal, the throttle cable, and the APP sensor individually. If you find a problem in one of them, replace the part(s) that caused the problem.

1. Connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



2. Turn the ignition switch ON (II).

3. Make sure the HDS communicates with the ECM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367).

4. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.

   - If it is below 2 %, the APP sensor is OK.
   - If it is above 2 %, adjust the throttle cable (see page 11-504), then go to step 5.

5. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.

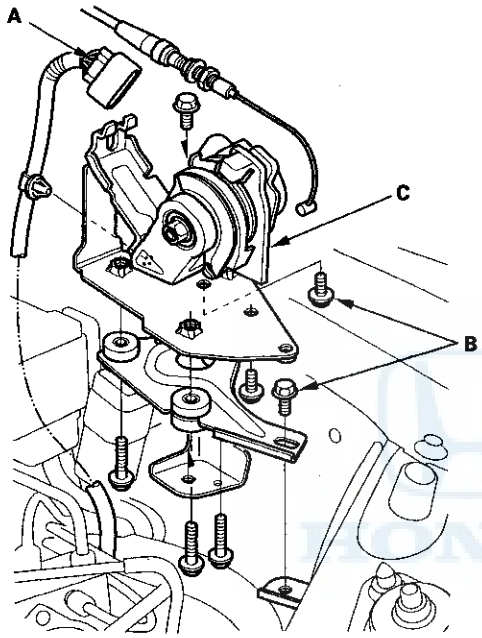
   - If it is below 2 %, the APP sensor is OK.
   - If it is above 2 %, update the ECM if it does not have the latest software, or substitute a known-good ECM (see page 11-217), then go to step 6.

6. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS.

   - If it is below 2 %, the APP sensor is OK.
   - If it is above 2 %, replace the APP sensor (see page 11-437), then go to step 1.

APP Sensor Replacement

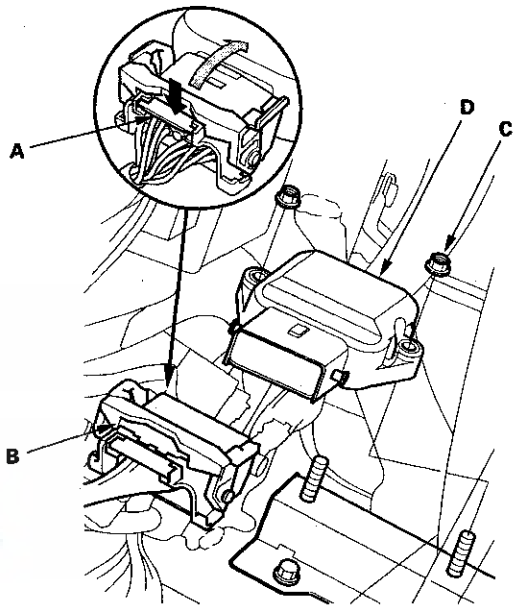
1. Remove the throttle cable cover (see page 11-504).
2. Remove the throttle cable (see page 11-503).
3. Disconnect the accelerator pedal position (APP) sensor 6P connector (A).



4. Remove the bolts (B) and the APP sensor (C).
5. Install the parts in the reverse order of removal.

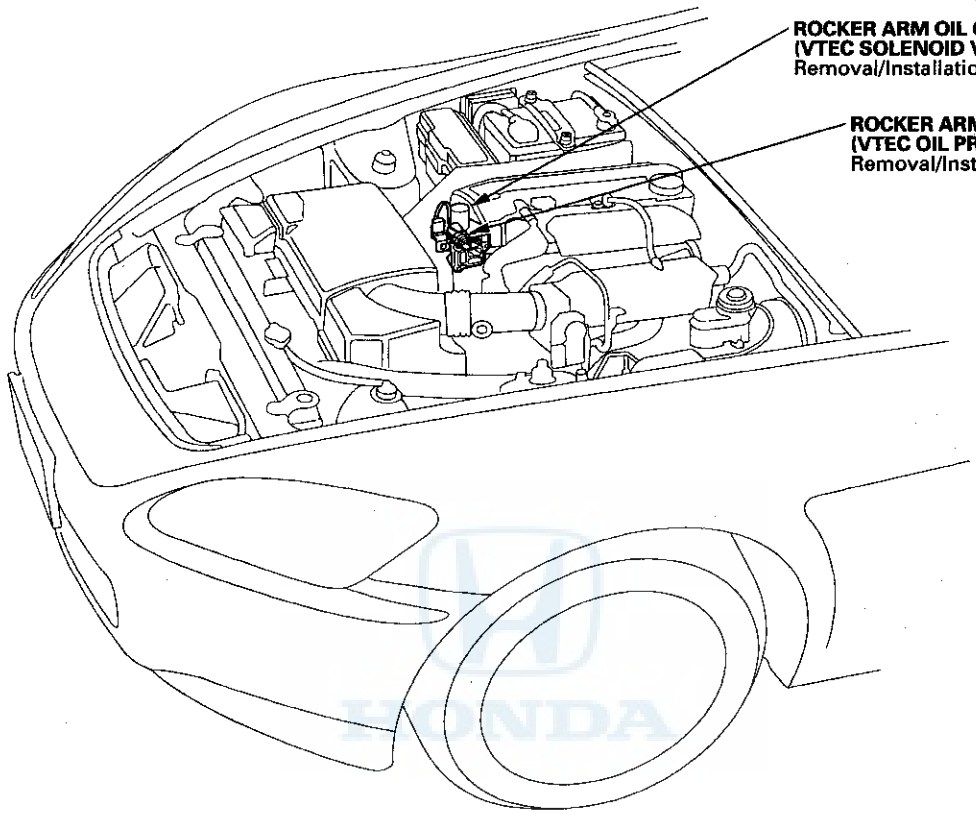
Throttle Actuator Control Module Replacement

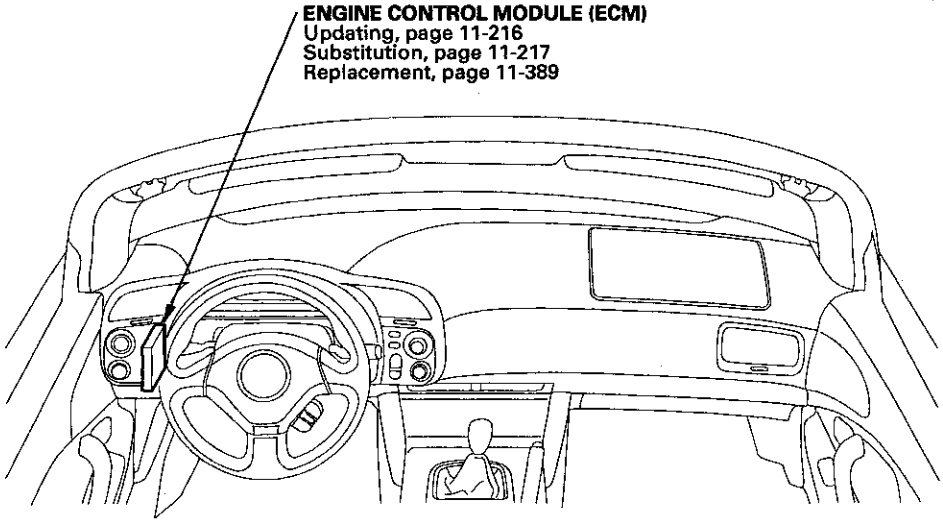
1. Remove the passenger's dashboard lower cover (see page 20-86).
2. Push the tab (A), and disconnect the throttle actuator control module 16P connector (B).



3. Remove the nuts (C) and the throttle actuator control module (D).
4. Install the parts in the reverse order of removal.

Component Location Index





DTC Troubleshooting

DTC P2646: Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit Low Voltage

Special Tools Required
- Pressure gauge adapter 07NAJ-P07010A
- A/T low pressure gauge w/panel 07406-0070301
- A/T pressure hose 07406-0020201
- A/T pressure hose, 2,210 mm 07MAJ-PY4011A
- A/T pressure hose, adapter 07MAJ-PY40120

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Check the engine oil level.

   Is the engine oil level OK?

   YES—Go to step 2.

   NO—Adjust the engine oil to the proper level, then go to step 21.

2. Turn the ignition switch ON (II).
3. Clear the DTC with the HDS.
4. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch), the rocker arm oil control solenoid (VTEC solenoid valve), and the ECM.■

   NO—Go to step 5.

5. Turn the ignition switch OFF.
6. Disconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.
7. Turn the ignition switch ON (II).
8. Check the VTEC PRES SW in the DATA LIST with the HDS.

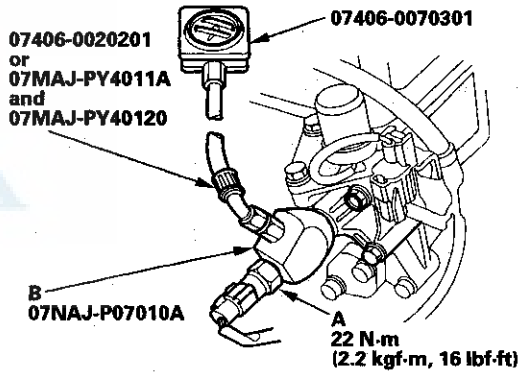
   Is switch ON indicated?

   YES—Go to step 15.

   NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Remove the rocker arm oil pressure switch (VTEC oil pressure switch) (A) and install the special tools as shown, then install the rocker arm oil pressure switch (VTEC oil pressure switch) (A) to the oil pressure gauge adapter (B).

    NOTE: Install the parts in the reverse order of removal with a new O-ring.



11. Reconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.

(cont'd)

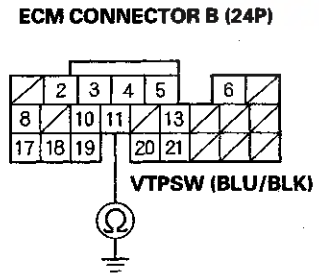
DTC Troubleshooting (cont'd)

12. Start the engine.
13. Do the VTEC TEST in the INSPECTION MENU with the HDS.
14. Check the VETC oil pressure.

    Does the oil pressure increase at least 392 kPa (4.0 kgf/cm², 56.9 psi)?

    YES—Replace the rocker arm oil pressure switch (VTEC oil pressure switch) (see page 11-449), then go to step 20.

    NO—Inspect the VTEC system. If is OK, replace the rocker arm oil control valve (VTEC solenoid valve) (see page 11-449), then go to step 20.
15. Turn the ignition switch OFF.
16. Jump the SCS line with the HDS.
17. Disconnect ECM connector B (24P).
18. Check for continuity between ECM connector terminal B11 and body ground.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (B11) and the rocker arm oil pressure switch (VTEC oil pressure switch), then go to step 19.

NO—Go to step 27.

19. Reconnect all connectors.
20. Turn the ignition switch ON (II).
21. Reset the ECM with the HDS.
22. Do the ECM idle learn procedure (see page 11-462).
23. Do the VTEC TEST in the INSPECTION MENU with the HDS.
24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2646 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch), the rocker arm oil control solenoid (VTEC solenoid valve), and the ECM.

    NO—Go to step 25.
25. Monitor the OBD STATUS for DTC P2646 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch), the rocker arm oil control solenoid (VTEC solenoid valve), and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 23.

    Inspect the following items. If they are OK, replace the rocker arm oil control valve (see page 11-449), then go to step 19.

    - VTEC system's oil line
    - Operation of the rocker arm (see page 6-8)

26. Reconnect all connectors.

27. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

28. Do the VTEC TEST in the INSPECTION MENU with the HDS.

29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2646 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch), the rocker arm oil control solenoid (VTEC solenoid valve), and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 28. If the ECM was substituted, go to step 1.

    NO—Go to step 30.

30. Monitor the OBD STATUS for DTC P2646 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 29, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch), the rocker arm oil control solenoid (VTEC solenoid valve), and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 28. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 28.

DTC Troubleshooting (cont'd)

DTC P2647: Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Check the engine oil level.

   Is the engine oil level OK?

   YES—Go to step 2.

   NO—Adjust the engine oil to the proper level, then go to step 14.

2. Turn the ignition switch ON (II).

3. Clear the DTC with the HDS.

4. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch) and the ECM. ■

   NO—Go to step 5.

5. Check the result of step 4.

   - VTEC Switch Failure
   - VTEC Switch Open
   - VTEC Switch SIG Line Open
   - VTEC Switch GND Line Open

   Is the test result any of these?

   YES—Go to step 6.

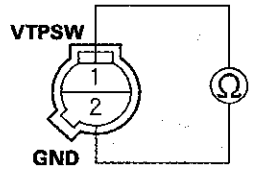
   NO—Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch). If it is OK, replace the rocker arm oil control valve (VTEC solenoid valve) (see page 11-449), then go to step 14.

6. Turn the ignition switch OFF.

7. Disconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.

8. At the rocker arm oil pressure switch (VTEC oil pressure switch) side, check for continuity between rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Terminal side of male terminals

Is there continuity?

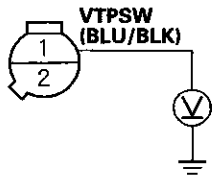
YES—Go to step 9.

NO—Replace the rocker arm oil pressure switch (VTEC oil pressure switch) (see page 11-449), then go to step 13.

9. Turn the ignition switch ON (II).

10. Measure voltage between rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector terminal No. 1 and body ground.

ROCKER ARM OIL PRESSURE SWITCH (VTEC OIL PRESSURE SWITCH) 2P CONNECTOR



Wire side of female terminals

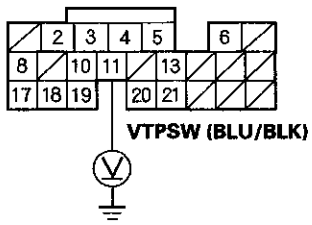
Is there battery voltage?

YES—Repair open in the wire between the rocker arm oil pressure switch (VTEC oil pressure switch) and G101, then go to step 12.

NO—Go to step 11.

11. Measure voltage between ECM connector terminal B11 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there battery voltage?

YES—Repair open in the wire between the ECM (B11) and the rocker arm oil pressure switch (VTEC oil pressure switch), then go to step 12.

NO—Go to step 19.

12. Turn the ignition switch OFF.

13. Reconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.

14. Turn the ignition switch ON (II).

15. Reset the ECM with the HDS.

16. Do the ECM idle learn procedure (see page 11-462).

17. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P2647 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch) and the ECM, then go to step 1.

NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P2647 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 16 and recheck.

(cont'd)

DTC Troubleshooting (cont'd)

19. Turn the ignition switch OFF.

20. Reconnect all connectors.

21. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

22. Start the engine, and let it idle.

23. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2647 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 22. If the ECM was substituted, go to step 1.

    NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P2647 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil pressure switch (VTEC oil pressure switch) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 22. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2648: Rocker Arm Oil Control Solenoid (VTEC Solenoid Valve) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

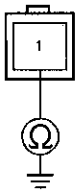
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the VTEC TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM.■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Disconnect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector.
6. At the valve side, measure resistance between the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector terminal and body ground.

ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) 1P CONNECTOR



Terminal side of male terminals

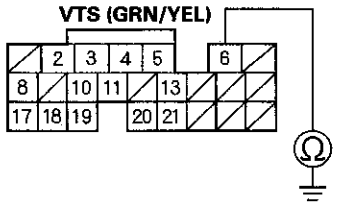
Is there 14—30 Ω at room temperature?

YES—Go to step 7.

NO—Go to step 10.

7. Jump the SCS line with the HDS.
8. Disconnect ECM connector B (24P).
9. Check for continuity between ECM connector terminal B6 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (B6) and the rocker arm oil control solenoid (VTEC solenoid valve), then go to step 11.

NO—Go to step 18.

10. Replace the rocker arm oil control valve (VTEC solenoid valve) (see page 11-449).
11. Reconnect all connectors.
12. Turn the ignition switch ON (II).
13. Reset the ECM with the HDS.
14. Do the ECM idle learn procedure (see page 11-462).
15. Do the VTEC TEST in the INSPECTION MENU with the HDS.
16. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2648 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM, then go to step 1.

    NO—Go to step 17.

(cont'd)

DTC Troubleshooting (cont'd)

17. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 15.

18. Reconnect all connectors.

19. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

20. Do the VTEC TEST in the INSPECTION MENU with the HDS.

21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2648 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 20. If the ECM was substituted, go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 20. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 20.

DTC P2649: Rocker Arm Oil Control Solenoid (VTEC Solenoid Valve) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

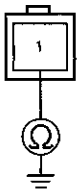
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2649 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM. ■
5. Turn the ignition switch OFF.
6. Disconnect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector.
7. At the valve side, measure resistance between the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector terminal and body ground.

ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) 1P CONNECTOR



Terminal side of male terminals

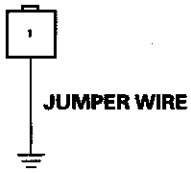
Is there 14– 30 Ω at room temperature?

YES—Go to step 8.

NO—Go to step 12.

8. Jump the SCS line with the HDS.
9. Disconnect ECM connector B (24P).
10. Connect the rocker arm oil control solenoid (VTEC solenoid valve) 1P connector terminal to body ground with a jumper wire.

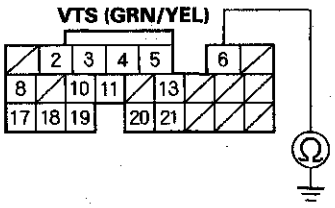
ROCKER ARM OIL CONTROL SOLENOID (VTEC SOLENOID VALVE) 1P CONNECTOR



Wire side of female terminals

11. Check for continuity between ECM connector terminal B6 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wire between the ECM (B6) and the rocker arm oil control solenoid (VTEC solenoid valve), then go to step 13.

(cont'd)

DTC Troubleshooting (cont'd)

12. Replace the rocker arm oil control valve (VTEC solenoid valve) (see page 11-449).

13. Reconnect all connectors.

14. Turn the ignition switch ON (II).

15. Reset the ECM with the HDS.

16. Do the ECM idle learn procedure (see page 11-462).

17. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2649 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM, then go to step 1.

    NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

19. Reconnect all connectors.

20. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

21. Start the engine, and let it idle.

22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P2649 indicated?

    YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 21. If the ECM was substituted, go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

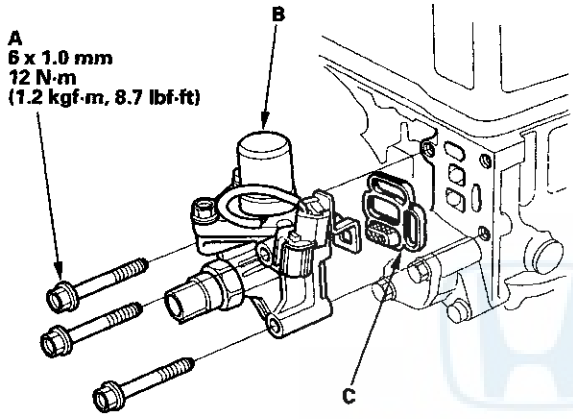
    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 22, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid (VTEC solenoid valve) and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 21. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

Rocker Arm Oil Control Valve (VTEC Solenoid Valve) Removal/ Installation

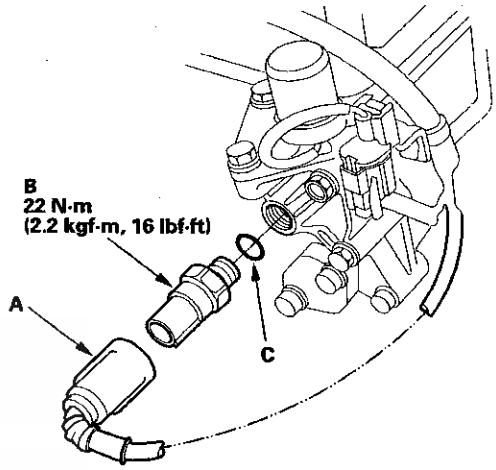
1. Disconnect the rocker arm oil control valve (VTEC solenoid valve) 1P connector and rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector.
2. Remove the bolts (A).



3. Remove the rocker arm oil control valve (VTEC solenoid valve) (B).
4. Install the parts in the reverse order of removal with a new filter (C).

Rocker Arm Oil Pressure Switch (VTEC Oil Pressure Switch) Removal/Installation

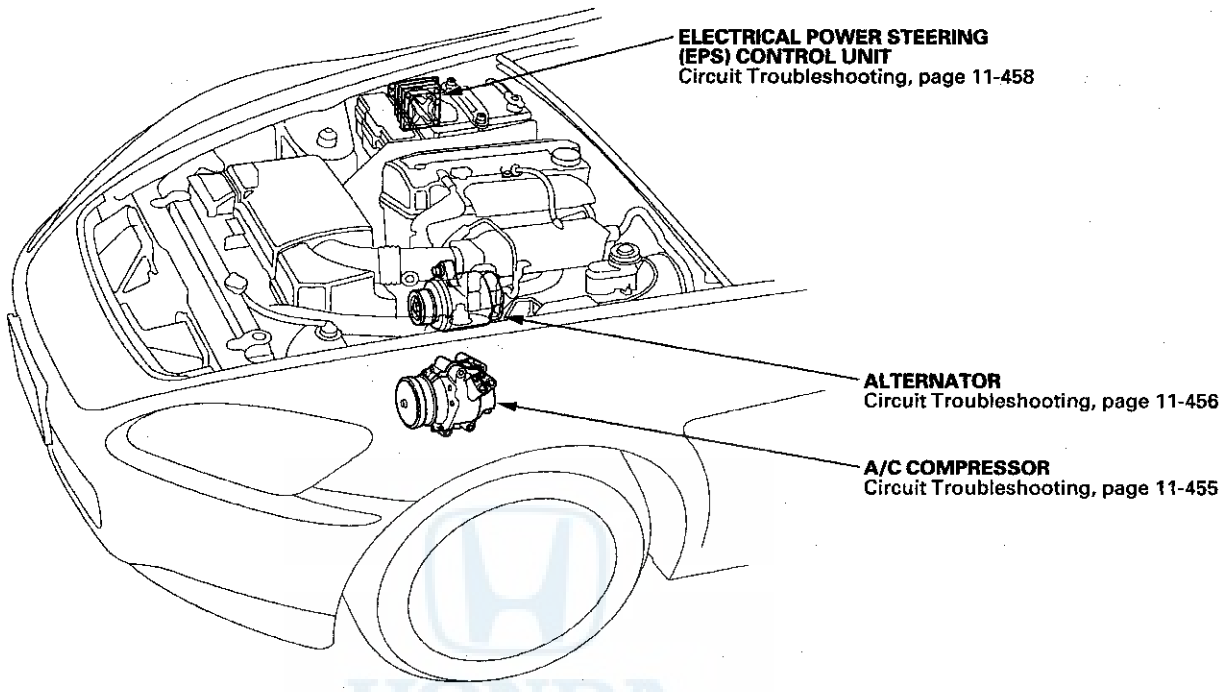
1. Disconnect the rocker arm oil pressure switch (VTEC oil pressure switch) 2P connector (A).

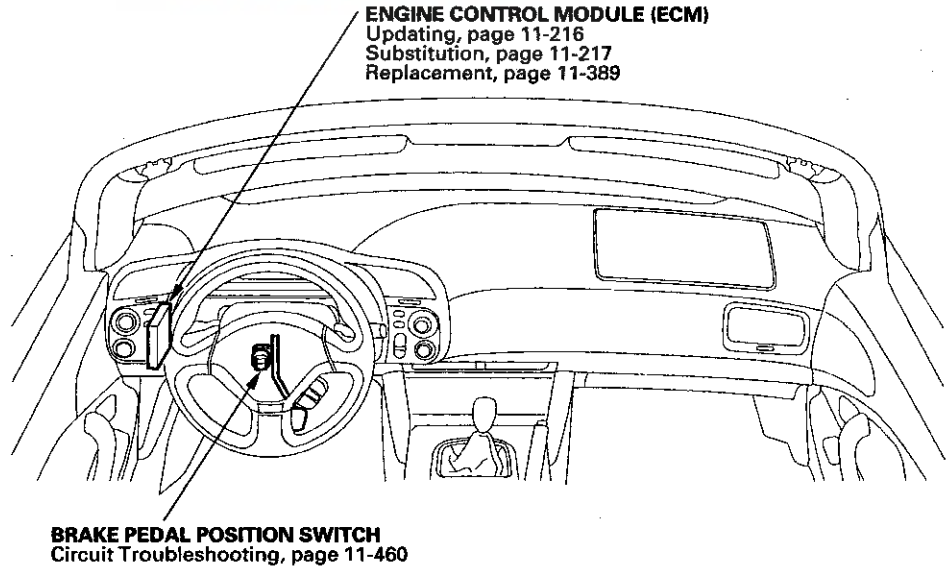


2. Remove the rocker arm oil pressure switch (VTEC oil pressure switch) (B).
3. Install the parts in the reverse order of removal with a new O-ring (C).

Idle Control System

Component Location Index





DTC Troubleshooting

DTC P0506: Idle Control System RPM Lower Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Check this data in the DATA LIST with the HDS.
   - ECT SENSOR 1 above 158 °F (70° C)
   - IAT SENSOR above 32 °F (0 °C)
   - VSS is 0 mph (0 km/h)
   - ST FUEL TRIM between 0.69 and 1.47
   - FSS is CLOSED
5. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 6.

   NO—If the screen indicates PASSED, go to step 15. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, go to step 4 and recheck.
6. Remove the intake air duct from the throttle body.
7. Check for dirt, carbon, or damage in the throttle bore.

   Is there dirt, carbon, or damage in the throttle bore?

   YES—If there is dirt or carbon, clean the throttle body (see page 11-499). Also check for damage at the air cleaner element (see page 11-505), then go to step 9. If there is damage in the throttle bore, go to step 8.

   NO—Check the A/C system or power steering system, then go to step 17.
8. Replace the throttle body (see page 11-500).
9. Reset the ECM with the HDS.
10. Do the ECM idle learn procedure (see page 11-462).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
12. Check this data in the DATA LIST with the HDS.
    - ECT SENSOR 1 above 158 °F (70 °C)
    - IAT SENSOR above 32 °F (0 °C)
    - VSS is 0 mph (0 km/h)
    - ST FUEL TRIM between 0.69 and 1.47
    - FSS is CLOSED
13. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0506 indicated?

    YES—Go to step 19.

    NO—Go to step 14.

(cont'd)

DTC Troubleshooting (cont'd)

14. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 13, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check the A/C system and/or power steering system, then go to step 19. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

15. Remove the intake air duct from the throttle body.

16. Check for dirt, carbon, or damage in the throttle bore.

    Is there dirt, carbon, or damage in the throttle bore?

    YES—If there is dirt or carbon, clean the throttle body (see page 11-499). Also check for damage at the air cleaner element (see page 11-505), then go to step 9. If there is damage in the throttle bore, go to step 8.

    NO—Go to step 17.

17. Recheck with different load conditions (turn on the headlights, blower motor, rear window defogger and/or A/C, changing the gear position, etc.).

18. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Intermittent failure, the system is OK at this time.■

    NO—If the screen indicates FAILED, check the A/C system and/or power steering system, then go to step 1. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, go to step 12.

19. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

20. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

21. Check the data in the DATA LIST with the HDS.

    - ECT SENSOR 1 above 156 °F (70 °C)
    - IAT SENSOR above 32 °F (0 °C)
    - VSS is 0 mph (0 km/h)
    - ST FUEL TRIM between 0.69 and 1.47
    - FSS is CLOSED

22. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0506 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 20. If the ECM was substituted, go to step 1.

    NO—Go to step 23.

23. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 22, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the throttle body and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 20. If the ECM was substituted, go to step 1. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, go to step 20.

DTC P0507: Idle Control System RPM Higher Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Monitor the OBD STATUS for DTC P0507 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 5.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, recheck with different load conditions (turn on the headlights, blower motor, or A/C; change the gear position, etc.), then go to step 3.

5. Check for vacuum leaks at these parts:

   - PCV valve
   - PCV hose
   - EVAP canister purge valve
   - Throttle body
   - Intake manifold
   - Brake booster hose

   Are there any leaks?

   YES—Repair or replace faulty parts, then go to step 6.

   NO—Go to step 6.

6. Turn the ignition switch ON (II).
7. Reset the ECM with the HDS.
8. Do the ECM idle learn procedure (see page 11-462).
9. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0507 indicated?

    YES—Go to step 12.

    NO—Go to step 11.

11. Monitor the OBD STATUS for DTC P0507 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 10, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, go to step 12. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, recheck with different load conditions (turn on the headlights, blower motor, or A/C; change the gear position, etc.), then go to step 9.

(cont'd)

DTC Troubleshooting (cont'd)

12. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

13. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

14. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0507 indicated?

    YES—Check for poor connections or loose terminals at the throttle body and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 13. If the ECM was substituted, go to step 1.

    NO—Go to step 15.

15. Monitor the OBD STATUS for DTC P0507 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the throttle body and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 13. If the ECM was substituted, go to step 1. If the screen indicates EXECUTING, keep idling until a result comes on. If the screen indicates OUT OF CONDITION, go to step 13.

A/C Signal Circuit Troubleshooting

1. Start the engine, and let it idle.
2. Turn the blower switch on.
3. Turn the A/C switch on.
4. Check the A/C CLUTCH in the DATA LIST with the HDS.

   Does it indicate ON?

   YES—Go to step 5.

   NO—Go to the A/C pressure switch circuit troubleshooting (see page 21-58). ■
5. Check the A/C system.

   Does the A/C system operate?

   YES—The air conditioning system circuit is OK. ■

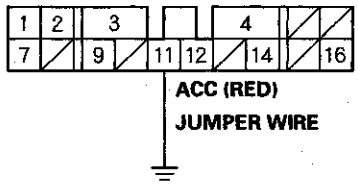
   NO—Go to step 6.
6. Turn the ignition switch OFF.
7. Turn the ignition switch ON (II).
8. Activate the A/C CLUTCH in the INSPECTION MENU with the HDS.

   Is there a clicking noise from the A/C compressor clutch?

   YES—Do the A/C system test (see page 21-77). ■

   NO—Go to step 9.
9. Momentarily connect under-hood fuse/relay box 16P connector terminal No. 11 to body ground with a jumper wire several times.

UNDER-HOOD FUSE/RELAY BOX CONNECTOR (16P)



Wire side of female terminals

Is there clicking noise from the A/C compressor clutch?

YES—Repair open in the wire between the ECM (E18) and the A/C clutch relay. ■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

Idle Control System

Alternator FR Signal Circuit Troubleshooting

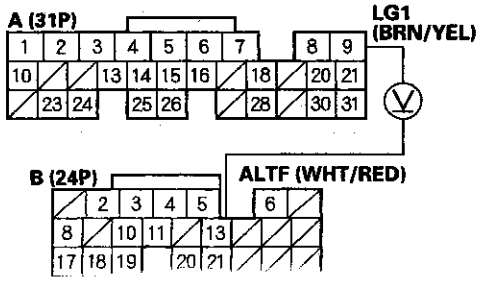
1. Start the engine, and let it idle.
2. Monitor the ALTERNATOR in the DATA LIST with the HDS.
3. Check if the indicated percentage varies when the headlight switch is turned on.

   Does the percentage vary?

   YES—The alternator signal circuit is OK. ■

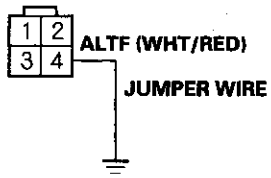
   NO—Go to step 4.
4. Turn the headlight switch and ignition switch OFF.
5. Disconnect the alternator 4P connector.
6. Turn the ignition switch ON (II).
7. Measure voltage between ECM connector terminals A9 and B13.

ECM CONNECTORS



8. Turn the ignition switch OFF.
9. Jump the SCS line with the HDS.
10. Disconnect ECM connector B (24P).
11. Connect alternator 4P connector terminal No. 4 to body ground with a jumper wire.

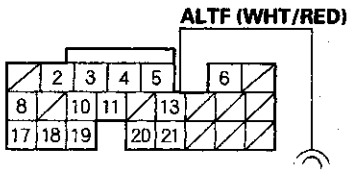
ALTERNATOR 4P CONNECTOR



Wire side of female terminals

12. Check for continuity between body ground and ECM connector terminal B13.

ECM CONNECTOR B (24P)

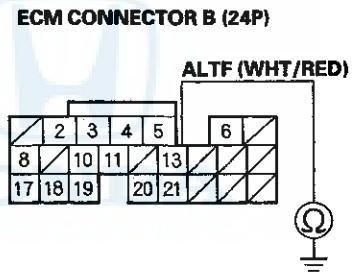


13. Turn the ignition switch OFF.

14. Jump the SCS line with the HDS.

15. Disconnect ECM connector B (24P).

16. Check for continuity between body ground and ECM connector terminal B13.



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (B13) and the alternator. ■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389). ■

Electrical Power Steering (EPS) Signal Circuit Troubleshooting

1. Start the engine, and let it idle.
2. Align the steering wheel straight ahead.
3. Check the EPS SIGNAL in the DATA LIST with the HDS.

   Does it indicate LOW?

   YES—Go to step 4.

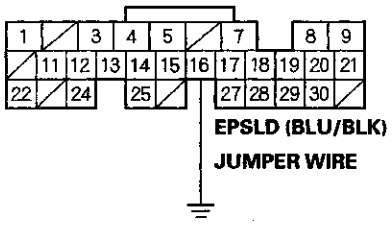
   NO—Go to step 6.
4. Turn the steering wheel quickly to the full lock position.
5. Check the EPS SIGNAL in the DATA LIST with the HDS.

   Does it change to HIGH?

   YES—The EPS signal circuit is OK. ■

   NO—Go to step 12.
6. Turn the ignition switch OFF.
7. Jump the SCS line with the HDS.
8. Disconnect ECM connector E (31P).
9. Disconnect the EPS control unit 14P connector.
10. Connect ECM connector terminal E16 to body ground with a jumper wire.

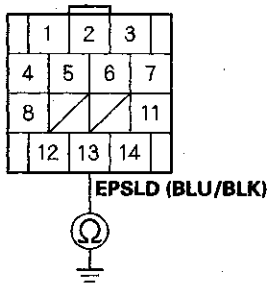
ECM CONNECTOR E (31P)



Wire side of female terminals

11. Check for continuity between EPS control unit 14P connector terminal No. 13 and body ground.

EPS CONTROL UNIT 14P CONNECTOR



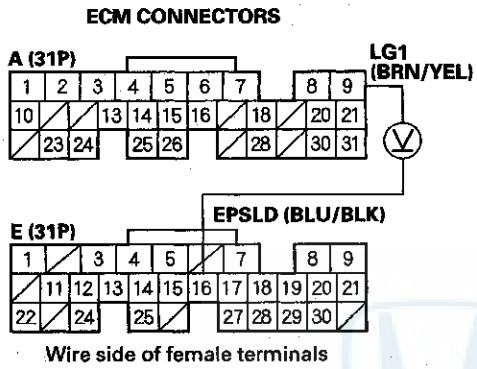
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good EPS control unit (see page 17-62), and recheck. ■

NO—Repair open in the wire between the ECM (E17) and the EPS control unit. ■

12. Turn the ignition switch OFF.
13. Disconnect the EPS control unit 14P connector.
14. Turn the ignition switch ON (II).
15. Measure voltage between ECM connector terminals A9 and E16.

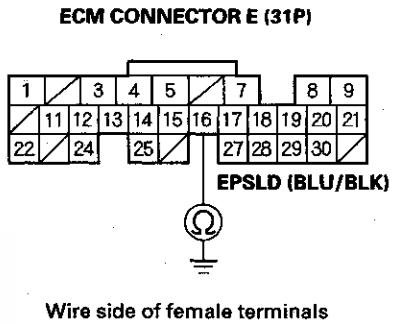


Is there battery voltage?

YES—Substitute a known-good EPS control unit (see page 17-62), and recheck.■

NO—Go to step 16.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect ECM connector E (31P).
19. Check for continuity between ECM connector terminal E16 and body ground.



Is there continuity?

YES—Repair short in the wire between the ECM (E16) and the EPS control unit.■

NO—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389).■

Brake Pedal Position Switch Signal Circuit Troubleshooting

1. Turn the ignition switch ON (II).
2. Check the BRAKE SWITCH in the DATA LIST with the HDS.

   Does it indicate OFF?

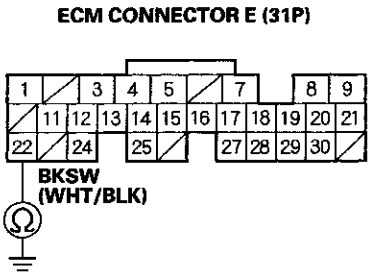
   YES—Go to step 3.

   NO—Inspect the brake pedal position switch (see page 22-144). ■
3. Press the brake pedal, and check the BRAKE SWITCH in the DATA LIST with the HDS.

   Does it change to ON?

   YES—The brake pedal position switch signal circuit (BKSW line) is OK. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Jump the SCS line with the HDS.
6. Disconnect the brake pedal position switch 4P connector.
7. Disconnect ECM connector E (31P).
8. Check for continuity between ECM connector terminal E22 and body ground.



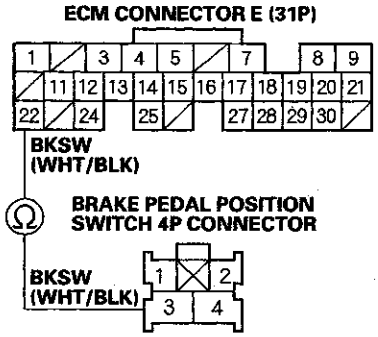
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E22) and the brake pedal position switch. ■

NO—Go to step 9.

9. Check for continuity between ECM connector terminal E22 and brake pedal position switch 4P connector terminal No. 3.



Wire side of female terminals

Is there continuity?

YES—Repair open in the wire between the brake pedal position switch and the No. 47 STOP (15 A) fuse. Inspect the brake pedal position switch (see page 22-144). ■

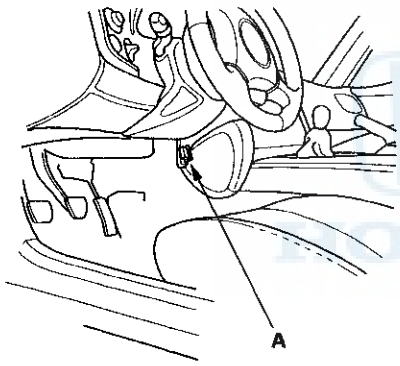
NO—Repair open in the wire between the ECM (E22) and the brake pedal position switch. ■

Idle Speed Inspection

NOTE:
- Before checking the idle speed, check these items:
  - The malfunction indicator lamp (MIL) has not been reported on.
  - Ignition timing
  - Spark plugs
  - Air cleaner
  - PCV system
- Apply the parking brake, and the make sure the headlights are off.

1. Disconnect the evaporative emission (EVAP) canister purge valve connector.

2. Connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



3. Turn the ignition switch ON (II).

4. Make sure the HDS communicates with the ECM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367).

5. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

6. Check the idle speed without load conditions: headlights, blower fan, radiator fan, and air conditioner off.

   Idle speed should be: 900±50 rpm

7. Let the engine idle for 1 minute with high electric load (A/C switch ON, temperature set to max cool, blower fan on high, rear window defogger ON, and headlights on high beam).

   Idle speed should be: 900±50 rpm

   NOTE: If the idle speed is not within specification, do the ECM idle learn procedure (see page 11-462). If the idle is still out of specification, go to the symptom troubleshooting.

8. Reconnect the EVAP canister purge valve connector.

ECM Idle Learn Procedure

The idle learn procedure must be done so the ECM can learn the engine idle characteristics.

Do the idle learn procedure whenever you do any of these actions:

- Replace the ECM.
- Reset the ECM.
- Update the ECM.
- Replace or clean the throttle body.

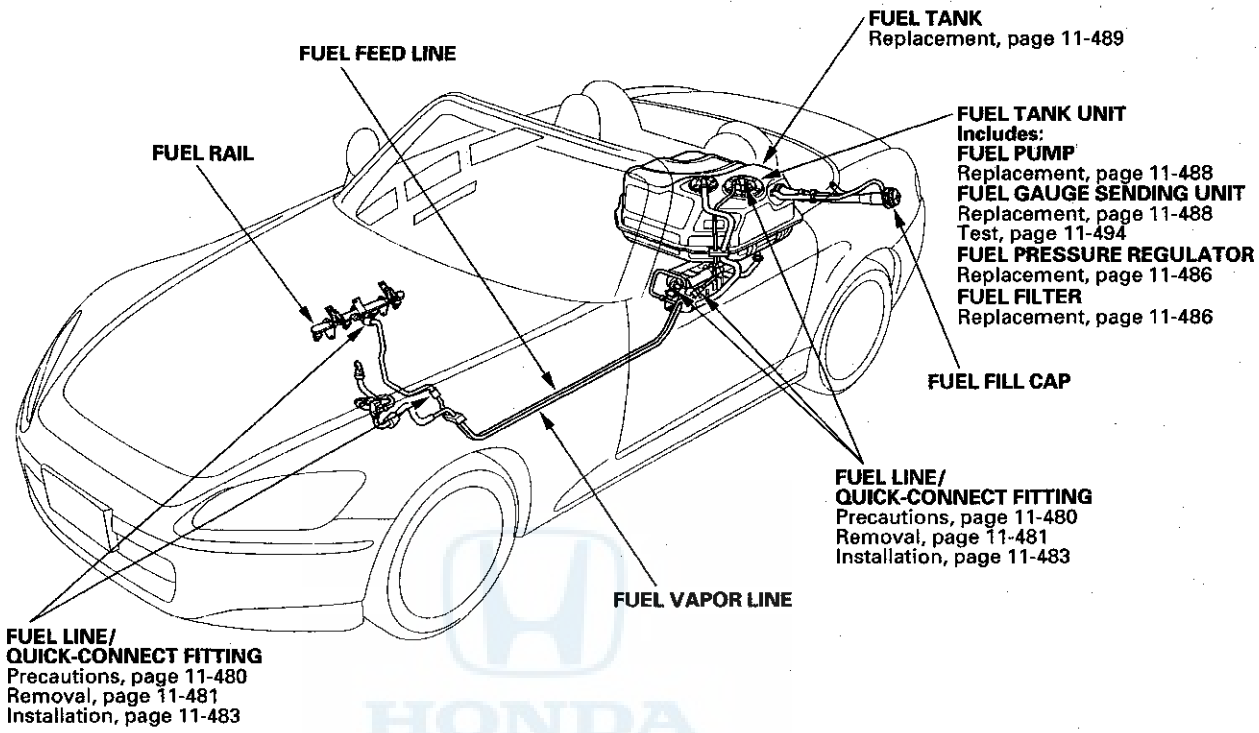
NOTE: Erasing DTCs with the HDS does not require you to do the idle learn procedure.

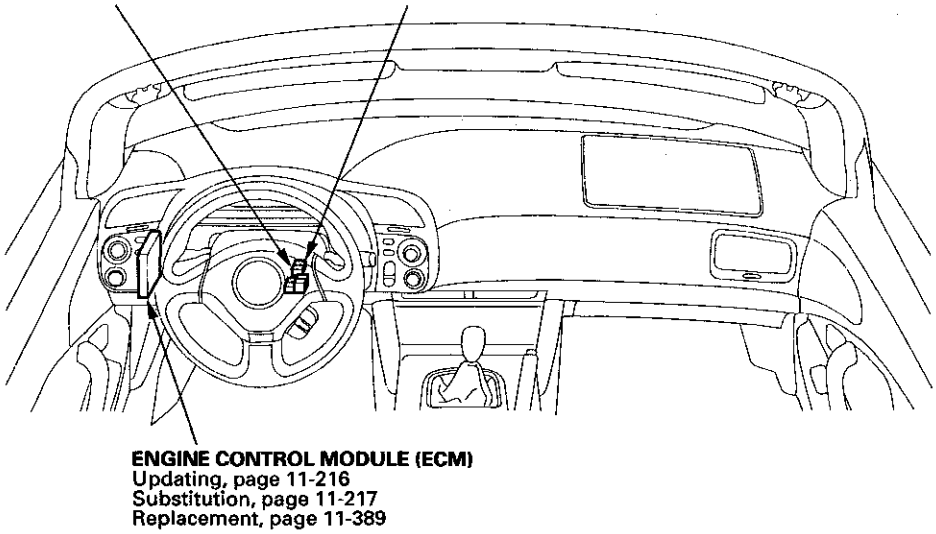
Procedure

1. Make sure all electrical items (A/C, audio, rear window defogger, lights, etc.) are off.
2. Reset the ECM with the HDS.
3. Turn the ignition switch ON (II), and wait 2 seconds.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, or until the engine coolant temperature reaches 194 °F (90 °C).
5. Let the engine idle about 5 minutes with the throttle fully closed.

   NOTE: If the radiator fan comes on, do not include its running time in the 5 minutes.

Component Location Index





DTC Troubleshooting

DTC P0461: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Range/Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- Because it requires 162 miles (260 km) of driving without refueling to complete this diagnosis, DTC P0461 cannot be duplicated during this troubleshooting.

1. Test the fuel gauge sending unit (see page 11-494).

   Is the fuel gauge sending unit OK?

   YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge assembly. ■

   NO—Replace the fuel gauge sending unit (see page 11-488), then go to step 2.

2. Turn the ignition switch ON (II).

3. Reset the ECM with the HDS.

4. Do the ECM idle learn procedure (see page 11-462).

5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0461 indicated?

   YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge assembly, then go to step 1.

   NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0462: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0462 indicated?

   YES—Go to step 4.

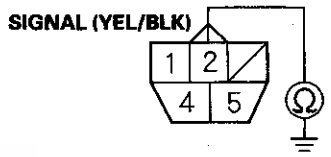
   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit.■
4. Turn the ignition switch OFF.
5. Remove the rear tray (see page 20-73).
6. Remove the access panel from the floor.
7. Disconnect the fuel tank unit 5P connector.
8. Turn the ignition switch ON (II).
9. Clear the DTC with the HDS, and wait 5 seconds.
10. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0463 indicated?

    YES—Replace the fuel gauge sending unit (see page 11-488), then go to step 22.

    NO—Go to step 11.
11. Turn the ignition switch OFF.
12. Remove gauge assembly (see page 22-89).
13. Disconnect gauge assembly B 30P connector.
14. Check for continuity between fuel tank unit 5P connector terminal No. 2 and body ground.

FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between gauge assembly (signal line) and the fuel gauge sending unit, then go to step 23.

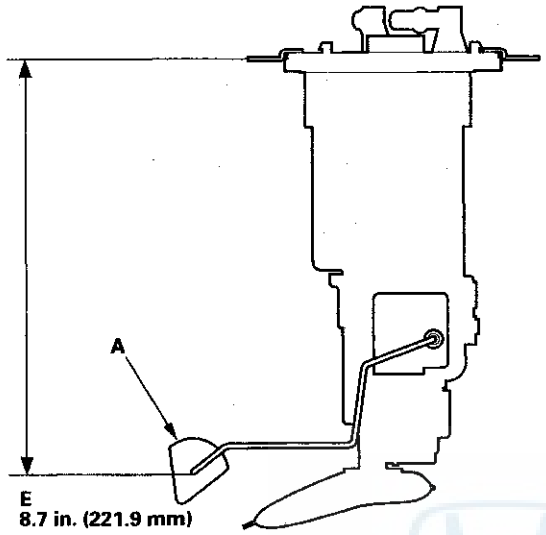
NO—Go to step 15.

15. Reconnect the gauge assembly B 30P connector.
16. Remove the fuel tank unit (see page 11-487).
17. Connect the fuel tank unit 5P connector.
18. Turn the ignition switch ON (II).
19. Clear the DTC with the HDS.

(cont'd)

DTC Troubleshooting (cont'd)

20. Set the float (A) to the E position.



21. Check the fuel gauge.

    Does the gauge move to the empty position?

    YES—Go to step 29.

    NO—Replace the gauge assembly (see page 22-89), then go to step 22.

22. Turn the ignition switch OFF.

23. Reconnect all connectors.

24. Install the parts in the reverse order of removal.

25. Turn the ignition switch ON (II).

26. Reset the ECM with the HDS.

27. Do the ECM idle learn procedure (see page 11-462).

28. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0462 indicated?

    YES—Check for poor connections or loose terminals at the gauge assembly and the fuel gauge sending unit, then go to step 1.

    NO—Troubleshooting is complete. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

29. Install the parts in the reverse order of removal.

30. Reconnect all connectors.

31. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0462 indicated?

    YES—Check for poor connections or loose terminals at the gauge assembly and the fuel gauge sending unit, then go to step 1. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P0463: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

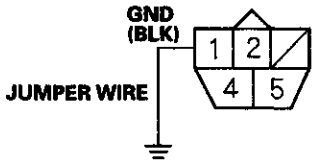
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0463 indicated?

   YES—Go to step 4.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge assembly and the fuel gauge sending unit. ■
4. Turn the ignition switch OFF.
5. Remove the rear tray (see page 20-73).
6. Remove the access panel from the floor.
7. Disconnect the fuel tank unit 5P connector.
8. Connect fuel tank unit 5P connector terminal No. 1 to body ground with a jumper wire.

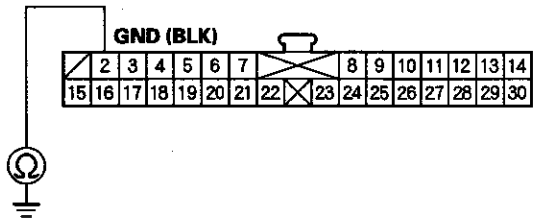
FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

9. Remove the gauge assembly (see page 22-89).
10. Disconnect the gauge assembly connector B (30P).
11. Check for continuity between gauge assembly connector B (30P) terminal No. 2 and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

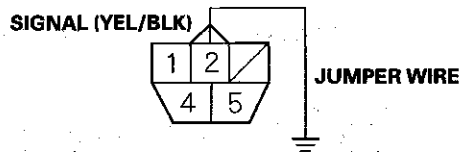
NO—Repair open in the wire between the gauge assembly (GND line) and the fuel gauge sending unit, then go to step 24.

(cont'd)

DTC Troubleshooting (cont'd)

12. Connect fuel tank unit 5P connector terminal No. 2 to body ground with a jumper wire.

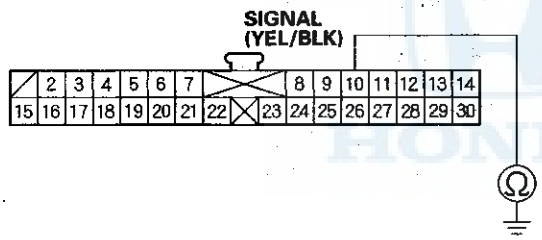
FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

13. Check for continuity between gauge assembly connector B (30P) terminal No. 10 and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the gauge assembly (signal line) and the fuel gauge sending unit, then go to step 24.

14. Remove the jumper wire from the fuel tank unit 5P connector.
15. Remove the fuel tank unit (see page 11-487).
16. Test the fuel gauge sending unit (see page 11-494).

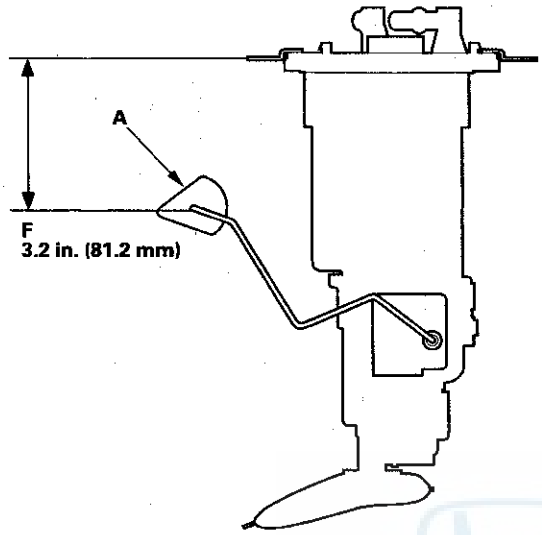
Is the fuel gauge sending unit OK?

YES—Go to step 17.

NO—Replace the fuel gauge sending unit (see page 11-488), then go to step 23.

17. Connect the fuel tank unit 5P connector.
18. Reconnect the gauge assembly connector B (30P).
19. Turn the ignition switch ON (II).
20. Clear the DTC with the HDS.

21. Set the float (A) to the F position.



22. Check the fuel gauge.

    Does the gauge move to the full position?

    YES—Go to step 30.

    NO—Replace the gauge assembly (see page 22-89), then go to step 23.

23. Turn the ignition switch OFF.

24. Reconnect all connectors.

25. Install the parts in the reverse order of removal.

26. Turn the ignition switch ON (II).

27. Reset the ECM with the HDS.

28. Do the ECM idle learn procedure (see page 11-462).

29. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0463 indicated?

    YES—Check for poor connections or loose terminals at the gauge assembly and the fuel gauge sending unit, then go to step 1. If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting.

    NO—Troubleshooting is complete. ■

30. Install the parts in the reverse order of removal.

31. Reconnect all connectors.

32. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

33. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0463 indicated?

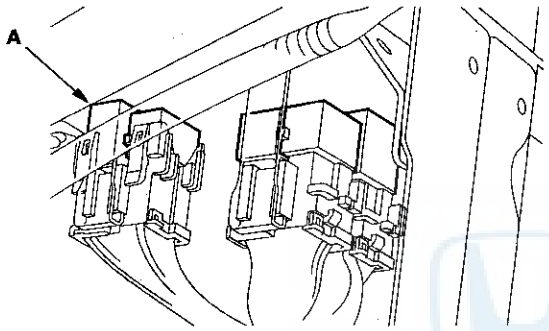
    YES—Check for poor connections or loose terminals at the gauge assembly and the fuel gauge sending unit. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1.

    NO—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs are indicated, go to the indicated DTC's troubleshooting. ■

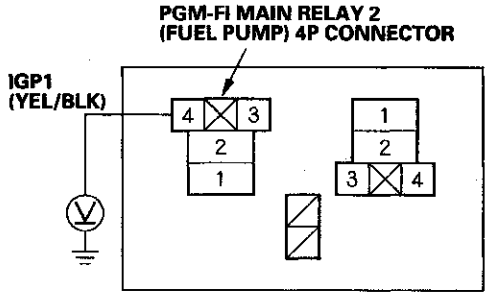
Fuel Pump Circuit Troubleshooting

If you suspect a problem with the fuel pump, check that the fuel pump actually runs; when it is on, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on. If the fuel pump does not make noise, check as follows:

1. Turn the ignition switch OFF.
2. Remove PGM-FI main relay 2 (FUEL PUMP) (A).



3. Turn the ignition switch ON (II).
4. Measure voltage between PGM-FI main relay 2 (FUEL PUMP) 4P connector terminal No. 4 and body ground.



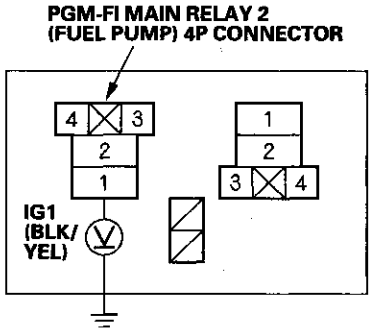
Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between PGM-FI main relay 1 (FI MAIN) and PGM-FI main relay 2 (FUEL PUMP).

5. Measure voltage between PGM-FI main relay 2 (FUEL PUMP) 4P connector terminal No. 1 and body ground.



Wire side of female terminals

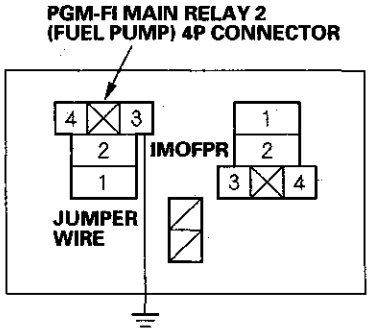
Is there battery voltage?

YES—Go to step 6.

NO—
- Replace the No. 2 FUEL PUMP SRS (15 A) fuse in the under-dash fuse/relay box.■
- If needed, replace the under-dash fuse/relay box.■

6. Turn the ignition switch OFF.

7. Connect PGM-FI main relay 2 (FUEL PUMP) 4P connector terminal No. 3 to body ground with a jumper wire.



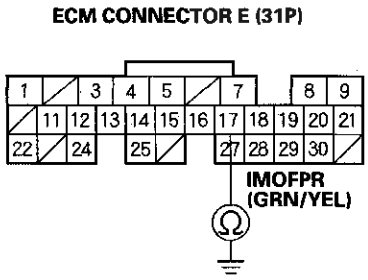
Wire side of female terminals

8. Turn the ignition switch OFF.

9. Jump the SCS line with the HDS.

10. Disconnect ECM connector E (31P).

11. Check for continuity between body ground and ECM connector terminal E17.



Wire side of female terminals

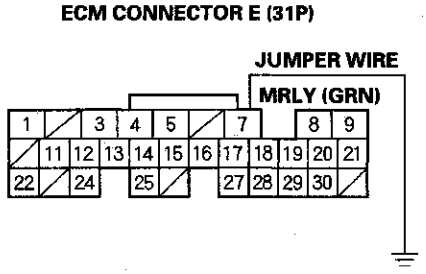
Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between PGM-FI main relay 2 (FUEL PUMP) and the ECM (E17).■

12. Reinstall PGM-FI main relay 2 (FUEL PUMP).

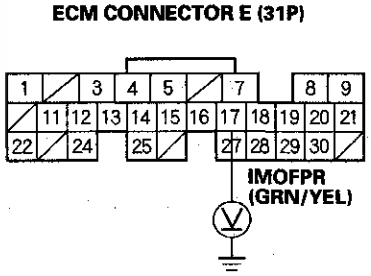
13. Connect ECM connector terminal E7 to body ground with a jumper wire.



Wire side of female terminals

14. Turn the ignition switch ON (II).

15. Measure voltage between ECM connector terminal E17 and body ground.



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

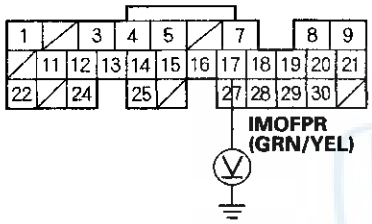
NO—Replace PGM-FI main relay 2 (FUEL PUMP).■

(cont'd)

Fuel Pump Circuit Troubleshooting (cont'd)

16. Turn the ignition switch OFF.
17. Reconnect ECM connector E (31P), and disconnect the jumper wire.
18. Open the SCS line with the HDS.
19. Turn the ignition switch OFF.
20. Turn the ignition switch ON (II), and measure voltage between ECM connector terminal E17 and body ground within 2 seconds.

ECM CONNECTOR E (31P)



Wire side of female terminals

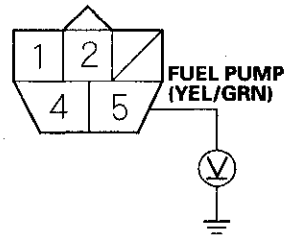
Is there battery voltage?

YES—Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217), then recheck. If the symptom/indication goes away with a known-good ECM, replace the original ECM (see page 11-389), then go to step 21.

NO—Go to step 21.

21. Turn the ignition switch OFF.
22. Remove the rear tray (see page 20-73).
23. Remove the access panel from the floor (see page 11-487).
24. Turn the ignition switch ON (II), and measure voltage between fuel tank unit 5P connector terminal No. 5 and body ground within 2 seconds.

FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

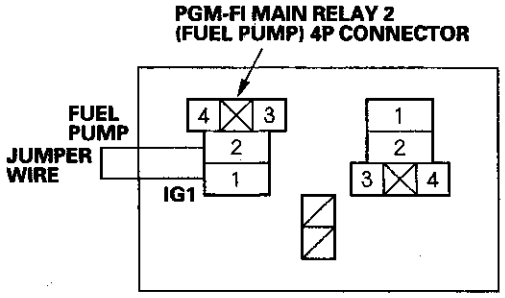
Is there battery voltage?

YES—Go to step 29.

NO—Go to step 25.

25. Turn the ignition switch OFF.
26. Remove PGM-FI main relay 2 (FUEL PUMP).

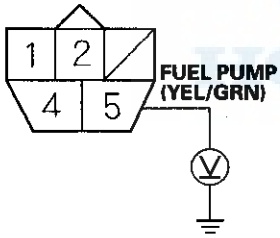
27. Connect PGM-FI main relay 2 (FUEL PUMP) 4P connector terminals No. 1 and No. 2 with a jumper wire.



Wire side of female terminals

28. Turn the ignition switch ON (II), and measure voltage between fuel tank unit 5P connector terminal No. 5 and body ground.

FUEL TANK UNIT 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

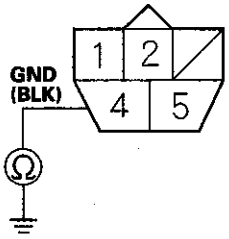
YES—Replace PGM-FI main relay 2 (FUEL PUMP).■

NO—Repair open in the wire between PGM-FI main relay 2 (FUEL PUMP) and the fuel tank unit 5P connector.■

29. Turn the ignition switch OFF.

30. Check for continuity between fuel tank unit 5P connector terminal No. 4 and body ground.

FUEL TANK UNIT CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the fuel pump.■

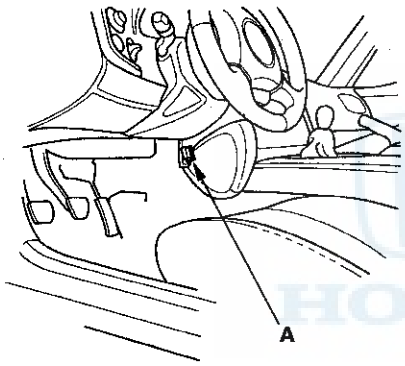
NO—Repair open in the wire between the fuel tank unit 5P connector and G601.■

Fuel Pressure Relieving

Before disconnecting fuel lines or hoses, relieve pressure from the system by disabling the fuel pump and then disconnecting the fuel tube/quick-connect fitting in the engine compartment.

With the HDS

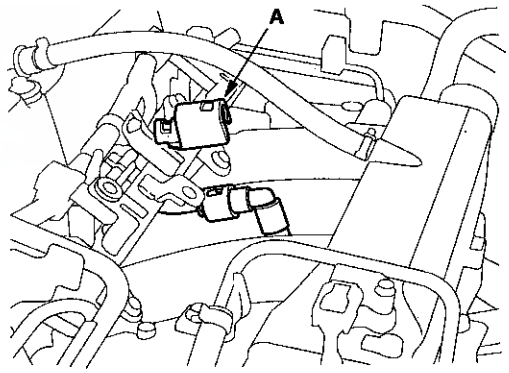
1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Turn the ignition switch OFF.
3. Connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



4. Turn the ignition switch ON (II).
5. Make sure the HDS communicates with the ECM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367).
6. Turn the ignition switch OFF.
7. Remove the fuel fill cap to relieve the pressure in the fuel tank.
8. Turn the ignition switch ON (II).
9. From the INSPECTION MENU of the HDS, select Fuel Pump OFF, then start the engine, and let it idle until it stalls.

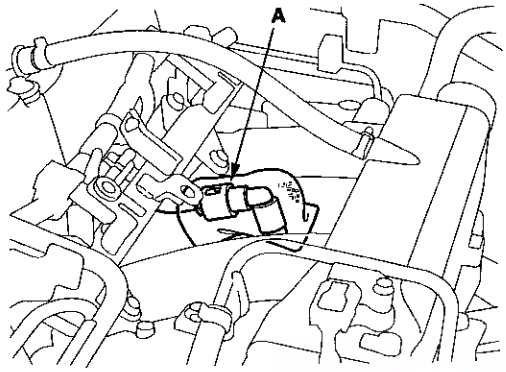
   NOTE:
   - Do not allow the engine to idle above 1,000 rpm or the ECM will continue to operate the fuel pump.
   - A DTC or a Temporary DTC may be set during this procedure. Check for DTCs, and clear them as needed (see page 11-214).

10. Turn the ignition switch OFF.
11. Disconnect the negative cable from the battery.
12. Remove the quick-connect fitting cover (A).



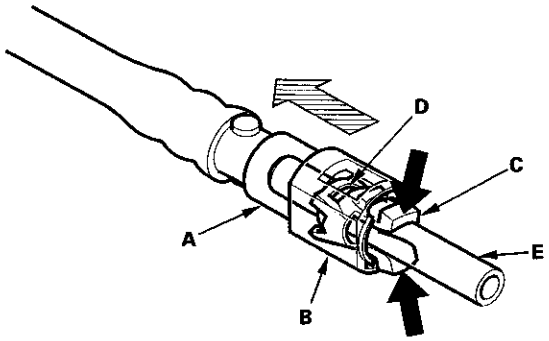
13. Check the fuel quick-connect fitting for dirt, and clean it if needed.

14. Place a rag or shop towel over the quick-connect fitting (A).



15. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

    NOTE:
    - Be careful not to damage the line (E) or other parts.
    - Do not use tools.
    - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
    - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



16. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4 on page 11-482).

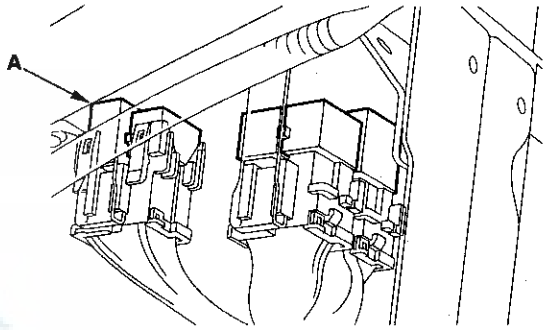
17. Reconnect the negative cable to the battery.

18. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Without the HDS

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

2. Remove PGM-FI main relay 2 (FUEL PUMP) (A).



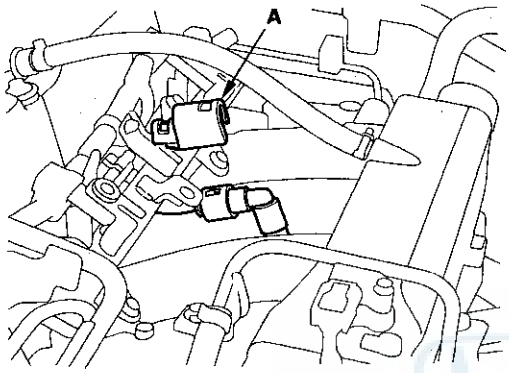
3. Start the engine, and let it idle until it stalls.

    NOTE: If any DTCs are stored, clear and ignore them.

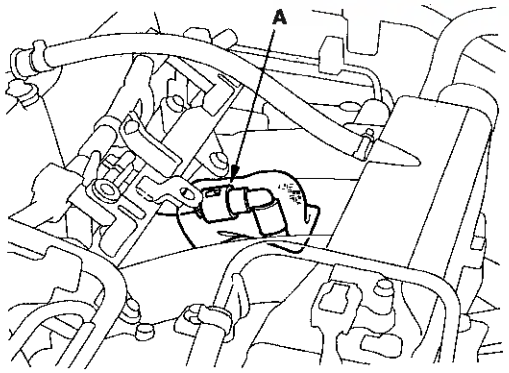
(cont'd)

Fuel Pressure Relieving (cont'd)

4. Turn the ignition switch OFF.
5. Remove the fuel fill cap.
6. Disconnect the negative cable from the battery.
7. Remove the quick-connect fitting cover (A).

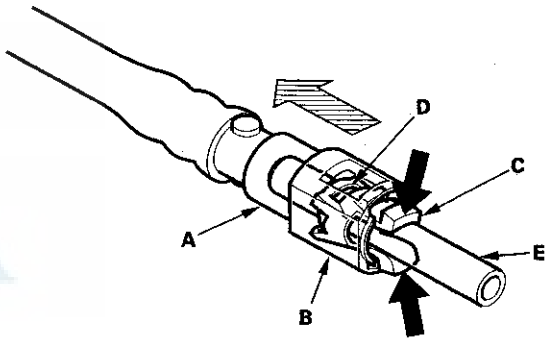


8. Check the fuel quick-connect fitting for dirt, and clean it if needed.
9. Place a rag or shop towel over the quick-connect fitting (A).



10. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

NOTE:
- Be careful not to damage the line (E) or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
- Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



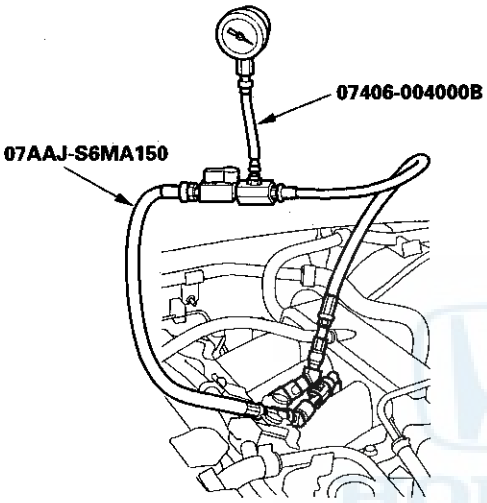
11. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4 on page 11-482).
12. Reconnect the negative cable to the battery.
13. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Fuel Pressure Test

Special Tools Required
- Fuel pressure gauge 07406-004000B
- Fuel pressure gauge attachment set 07AAJ-S6MA150

1. Relieve the fuel pressure (see page 11-474).

2. Disconnect the quick-connect fitting. Attach the fuel pressure gauge set and the fuel pressure gauge.



3. Start the engine, and let it idle.

   - If the engine starts, go to step 5.
   - If the engine does not start, go to step 4.

4. Check to see if the fuel pump is running: listen to the fuel filler port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned on.

   - If the pump runs, go to step 5.
   - If the pump does not run, do the fuel pump circuit troubleshooting (see page 11-470).

5. Read the fuel pressure gauge. The pressure should be 380—430 kPa (3.9—4.4 kgf/cm², 55—63 psi).

   - If the pressure is OK, the test is complete.
   - If the pressure is out of specification, replace the fuel pressure regulator (see page 11-486) and the fuel filter (see page 11-486), then recheck the fuel pressure.

Fuel Tank Draining

1. Remove the fuel tank unit (see page 11-487).

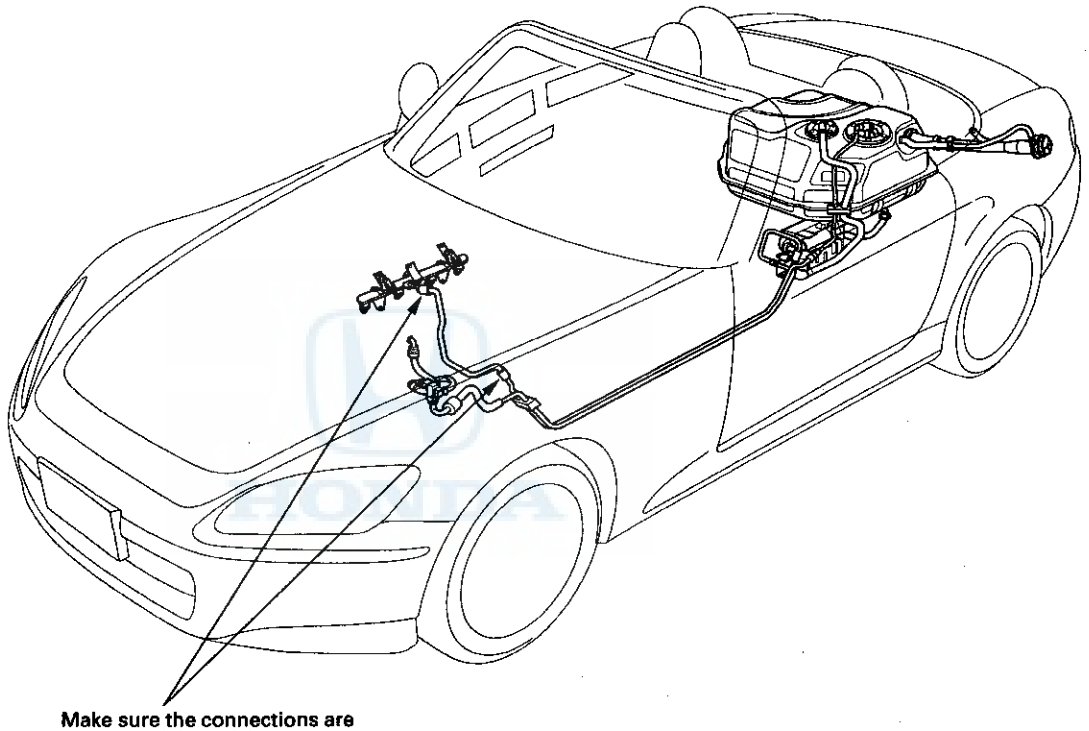
2. Using a hand pump, a hose, and a container suitable for fuel, draw the fuel from the fuel tank.

3. Install the fuel tank unit (see page 11-487).

Fuel Supply System

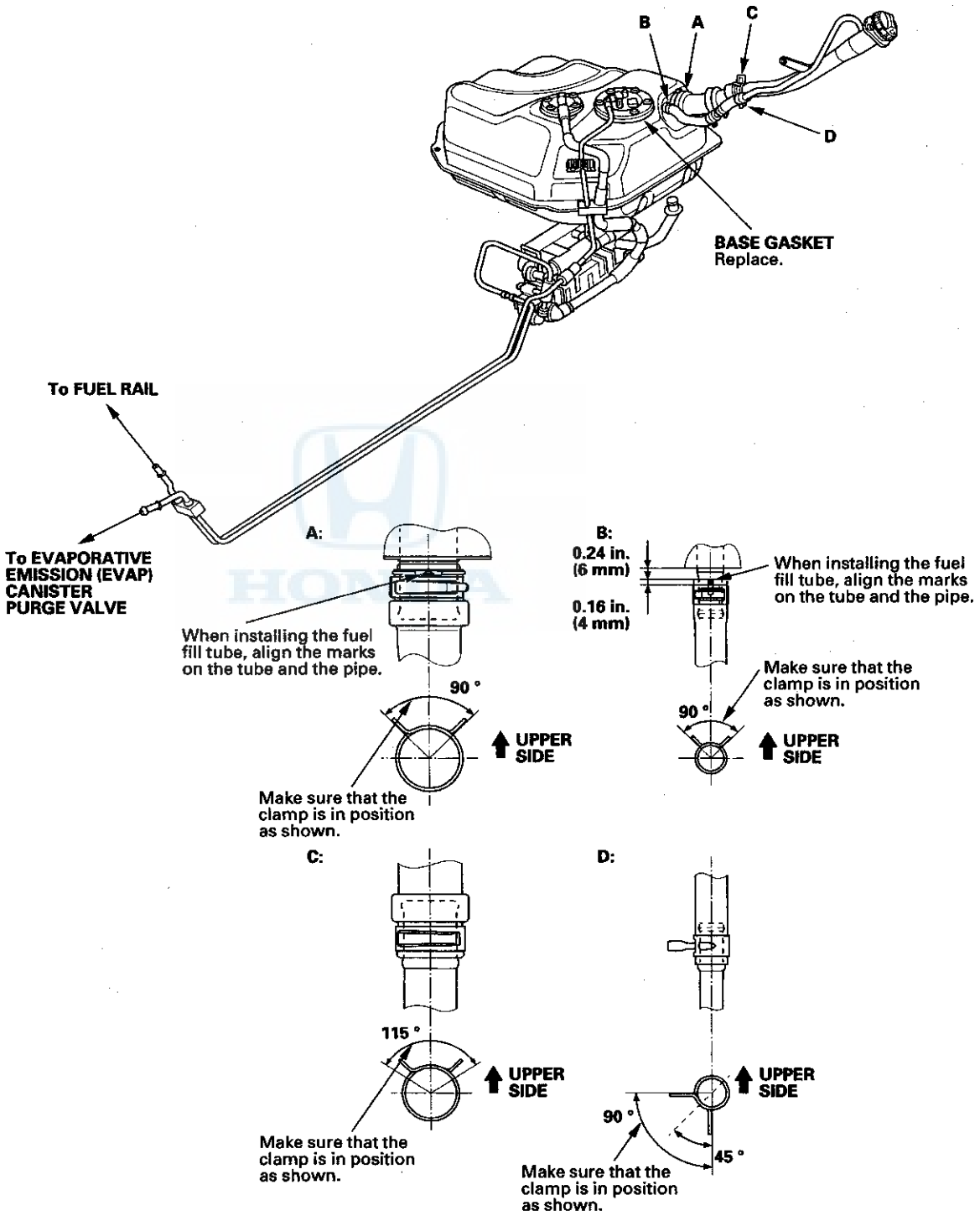
Fuel Line Inspection

Check the fuel system lines and hoses for damage, leaks, and deterioration. Replace any damaged parts.



Make sure the connections are secure and the quick-connect fitting covers are firmly locked in place.

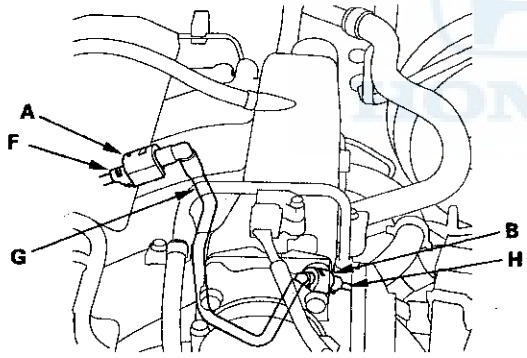
Check all clamps, and retighten any if necessary.

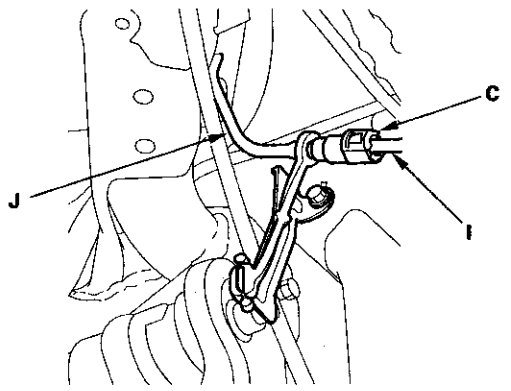


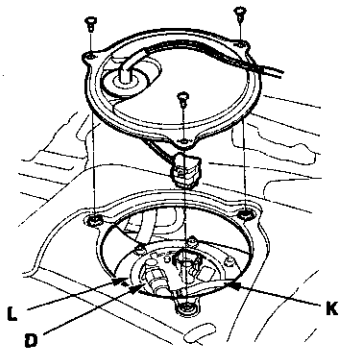
Fuel Line/Quick-Connect Fitting Precautions

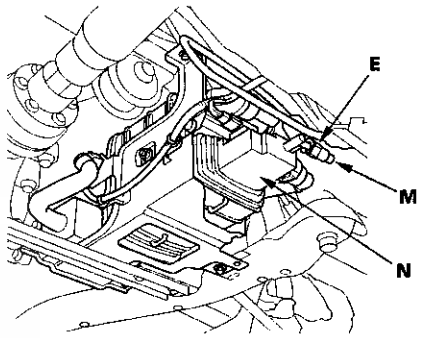
The fuel tube/quick-connect fittings (A), (B), (C), (D), (E) connect the fuel rail (F) to fuel feed hose (G), the fuel feed hose to the fuel line (H), the fuel line (I) to the fuel feed hose (J), the fuel feed hose (K) to the fuel tank unit (L), and fuel vapor line (M) to the EVAP canister (N). When removing or installing the fuel feed hose, the fuel tank unit or the fuel tank, it is necessary to disconnect or connect the quick-connect fittings.
Pay attention to the following:

- The fuel feed hose, fuel line and quick-connect fittings are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel feed hose, fuel line and quick-connect fittings are not acid-proof; do not touch them with a shop towel which was used for wiping battery electrolyte. Replace them if they came into contact with electrolyte or something similar.
- When connecting or disconnecting the fuel feed hose, fuel line and quick-connect fittings, be careful not to bend or twist them excessively. Replace them if damaged.









A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the pipe. Replace the retainer when:

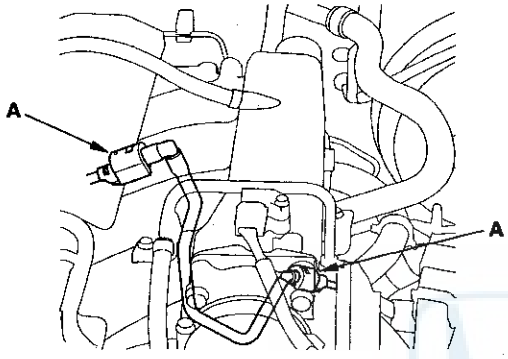
- replacing the fuel rail.
- replacing the fuel line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the EVAP canister.
- it has been removed from the line.
- it is damaged.

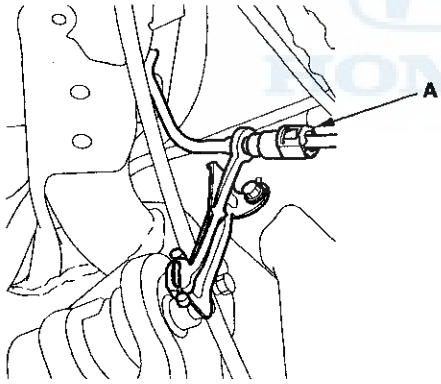
Retainer location	Manufacturer	Retainer Color	Line diameter
A	Tokai	Blue green	0.3 in. (8.0 mm)
B	Tokai	Blue green	0.3 in. (8.0 mm)
C	Sanoh	White	0.3 in. (8.0 mm)
D	Sanoh	White	0.4 in. (9.5 mm)
E	Sanoh	White	0.4 in. (9.5 mm)

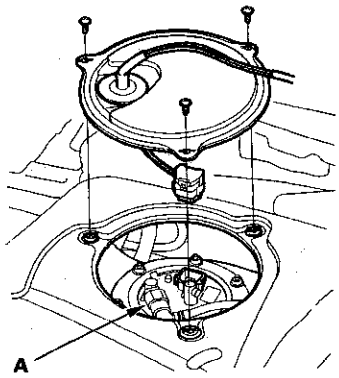
Fuel Line/Quick-Connect Fitting Removal

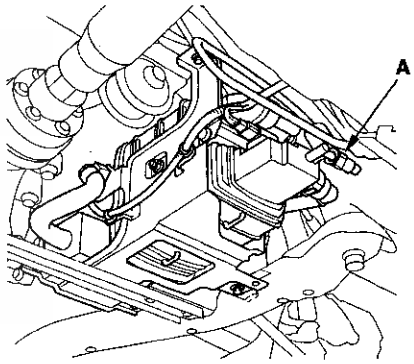
NOTE: Before you work on the fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see page 11-480).

1. Relieve fuel pressure (see page 11-474).
2. Check the fuel quick-connect fittings (A) for dirt, and clean if needed.







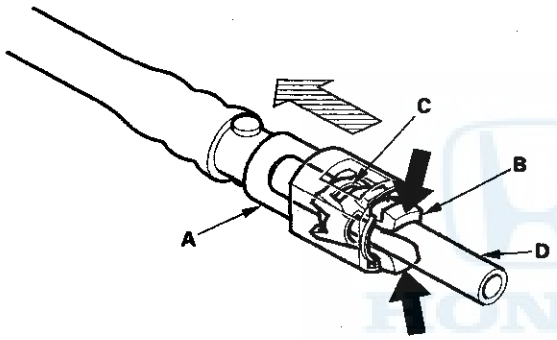


(cont'd)

Fuel Line/Quick-Connect Fitting Removal (cont'd)

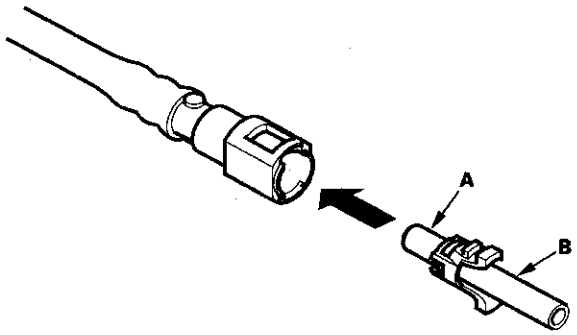
3. Hold the connector (A) with one hand and squeeze the retainer tabs (B) with the other hand to release them from the locking pawls (C). Pull the connector off.

   NOTE:
   - Be careful not to damage the line (D) or other parts. Do not use tools.
   - If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
   - Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.



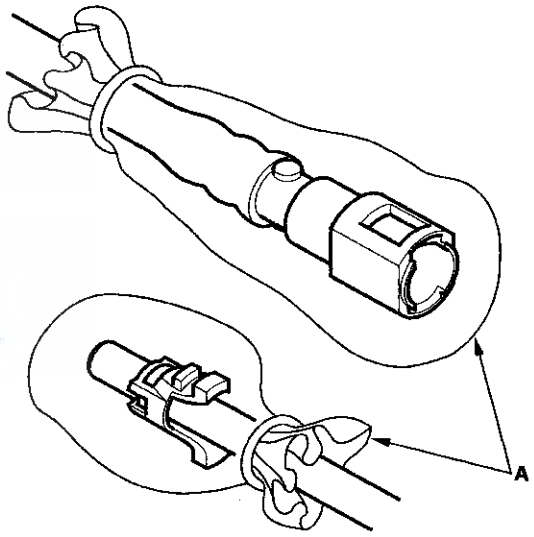
4. Check the contact area (A) of the line (B) for dirt and damage.

   - If it is dirty, clean it.
   - If it is rusty or damaged, replace the fuel pump, fuel filter, or fuel feed line.



5. To prevent damage and keep foreign matter out, cover the disconnected connector and line end with plastic bags (A).

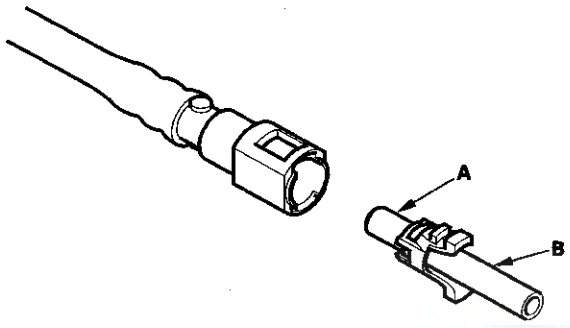
   NOTE: The retainer cannot be reused once it has been removed from the line.
   Replace the retainer when:
   - replacing the fuel rail.
   - replacing the fuel feed line.
   - replacing the fuel pump.
   - replacing the fuel filter.
   - replacing the EVAP canister
   - it has been removed from the line.
   - it is damaged.



Fuel Line/Quick-Connect Fitting Installation

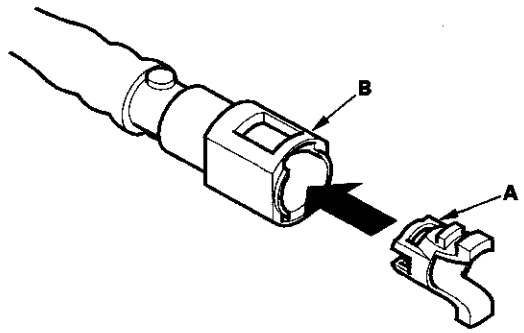
NOTE: Before you work on the fuel lines and fittings, read the "Fuel Line/Quick-Connect Fitting Precautions" (see page 11-480).

1. Check the contact area (A) of the line (B) for dirt and damage, and clean if necessary.

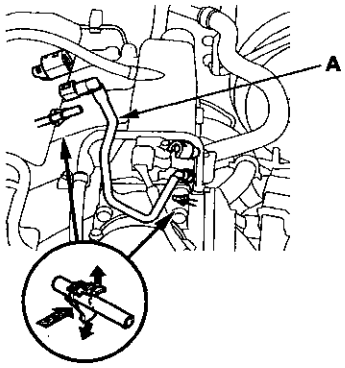


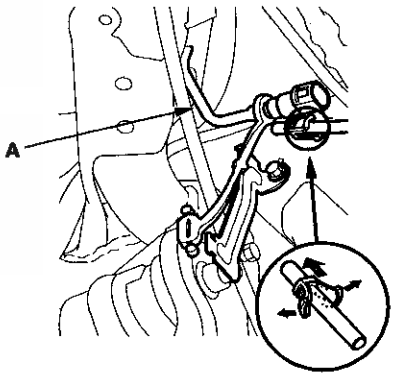
2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:

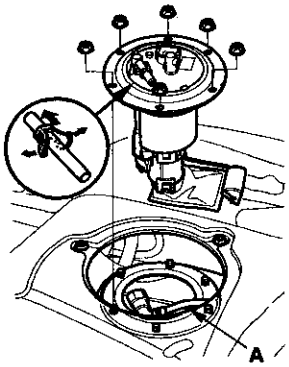
- replacing the fuel rail.
- replacing the fuel feed line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the EVAP canister
- removing the retainer from the line.



3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer from the mating line.

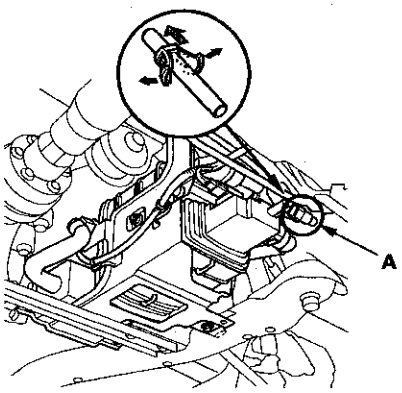






(cont'd)

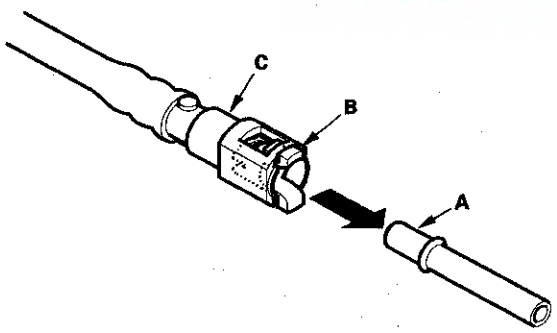
Fuel Line/Quick-Connect Fitting Installation (cont'd)



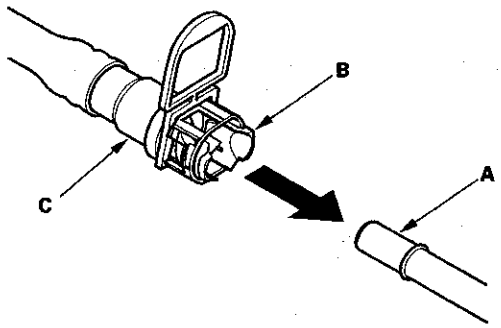
4. Align the quick-connect fittings with the line (A), and align the retainer locking tabs (B) with the connector grooves (C). Then press the quick-connect fittings onto the line until both retainer tabs lock with a clicking sound.

   NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

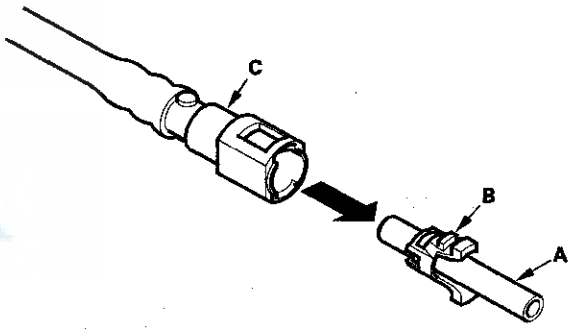
Connection with new retainer



Connection to new fuel feed line



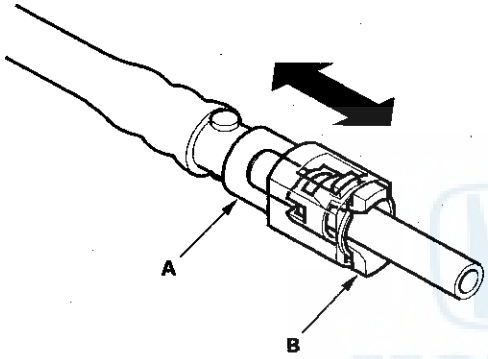
Reconnection to existing retainer



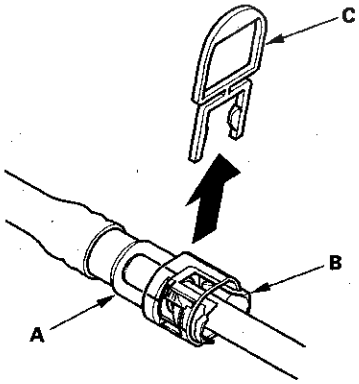
5. When you reconnect the connector (A) with the old retainer, make sure the connection is secure and the tabs (B) are firmly locked into place; check visually and also by pulling the connector.
When you replace the fuel line with a new one, make sure you remove the ring pull (C) upwards after you confirm the connection is secure.

NOTE: Before you remove the ring pull, make sure the fuel line connection is secure. If the connection is not secure, the ring pull could break when you try to remove it.

Reconnection to existing retainer



Connection to new fuel feed line

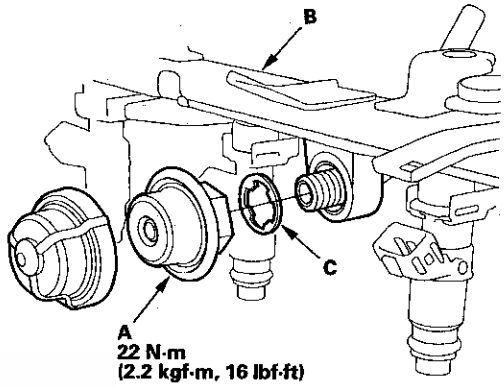


6. Reconnect the negative cable to the battery, and turn the ignition switch ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat two or three times, and check for leakage in the fuel supply system.

Fuel Pulsation Damper Replacement

1. Remove the fuel rail (see page 11-382).

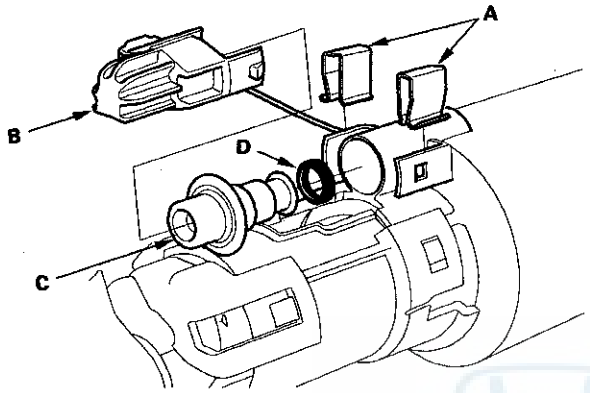
2. Remove the fuel pulsation damper (A) from the fuel rail (B).



3. Install the parts in the reverse order of removal with a new washer (C).

Fuel Pressure Regulator Replacement

1. Remove the fuel tank unit (see page 11-487).
2. Remove the clips (A).



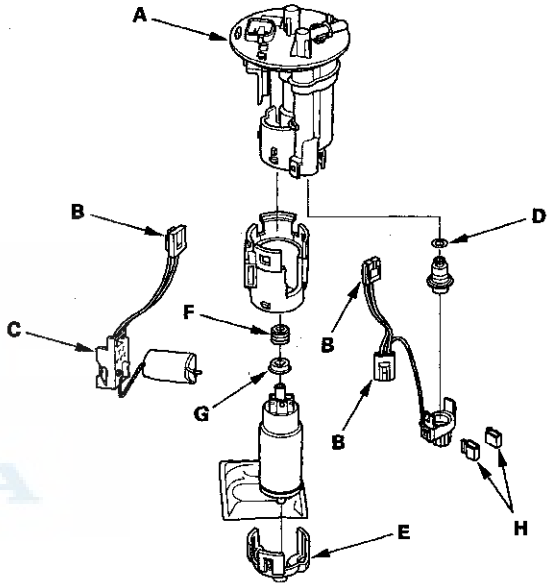
3. Remove the holder (B).
4. Remove the fuel pressure regulator (C).
5. Install the parts in the reverse order of removal with a new O-ring (D) and new clips.

   NOTE: Coat the O-ring with clean engine oil.

Fuel Filter Replacement

The fuel filter should be replaced whenever the fuel pressure drops below the specified value (see page 11-477), after making sure that the fuel pump and the fuel pressure regulator are OK.

1. Remove the fuel tank unit (see page 11-487).
2. Remove the fuel filter (A).



3. Check these items before installing the fuel tank unit:

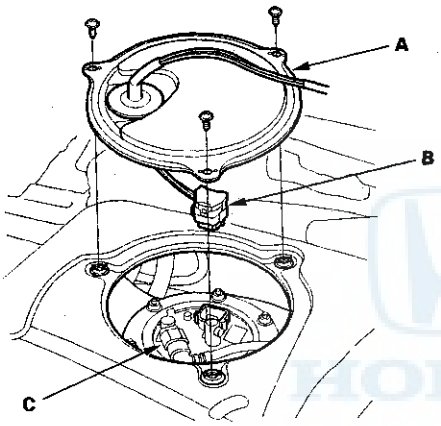
   - When connecting the wire harness, make sure the connection is secure and the connectors (B) are firmly locked into place.
   - When installing the fuel gauge sending unit (C), make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

4. Install the parts in the reverse order of removal with a new O-rings (D), new bracket (E), new spacer (F), new grommet (G), and new clips (H). Then installing the fuel tank unit (see page 11-487).
5. Install the fuel tank unit (see page 11-487).

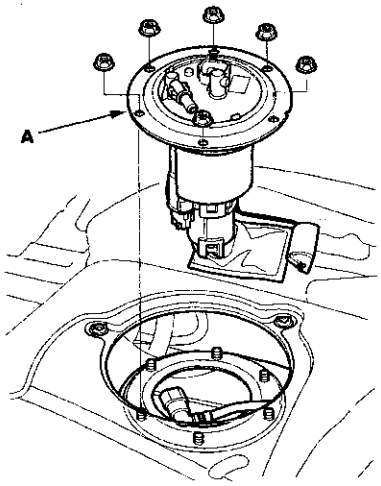
Fuel Tank Unit Removal and Installation

Removal

1. Relieve the fuel pressure (see page 11-474).
2. Remove the fuel fill cap.
3. Remove the rear tray (see page 20-73).
4. Remove the left trunk side trim panel (see page 20-77).
5. Remove the access panel (A) from the floor.



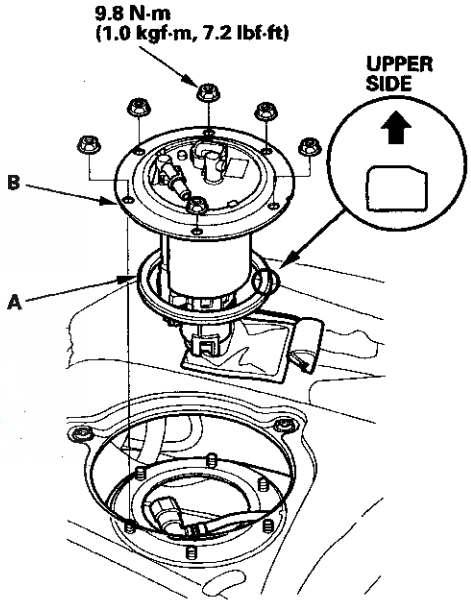
6. Disconnect the tank fuel unit 5P connector (B).
7. Disconnect the quick-connect fitting (C) from the fuel tank unit.
8. Remove the fuel tank unit (A).



Installation

1. Attach a new base gasket (A) and new plate (B) to the fuel tank unit, then install the fuel tank unit into the fuel tank.

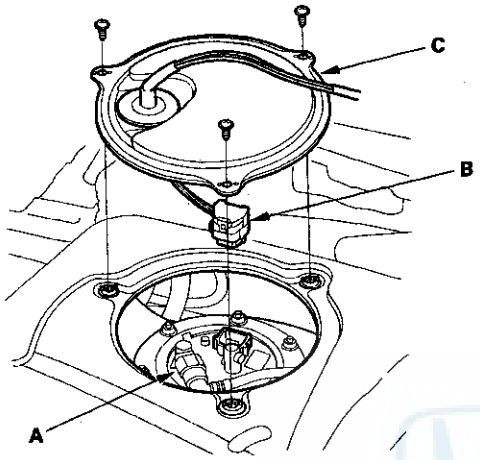
NOTE:
- Be careful not to damage the new base gasket.
- Be careful not to bend the fuel gauge sending unit.
- Do not coat the base gasket with oil.



(cont'd)

Fuel Tank Unit Removal and Installation (cont'd)

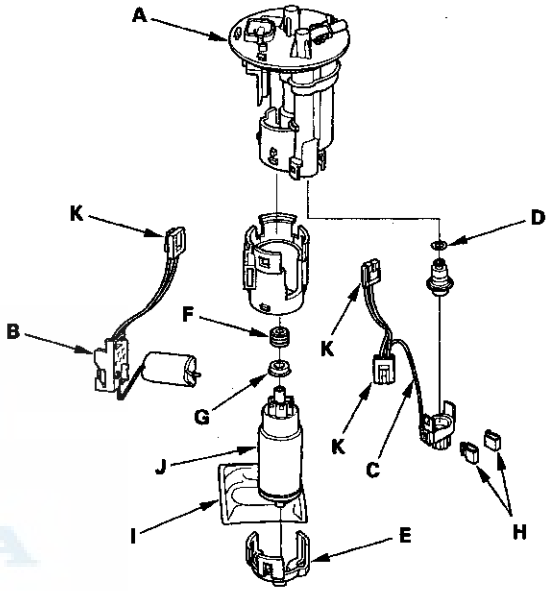
2. Connect the quick-connect fitting (A) from the fuel tank unit.



3. Connect the fuel tank unit 5P connector (B).
4. Reconnect the negative cable to the battery, and turn the ignition switch ON (II) (but do not operate the starter motor). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat this two or three times, then check that there is no leakage in the fuel supply system.
5. Install the access panel (C).
6. Install the left trunk side trim panel (see page 20-77).
7. Remove the rear tray (see page 20-73).
8. Install the fuel fill cap.

Fuel Pump/Fuel Gauge Sending Unit Replacement

1. Remove the fuel tank unit (see page 11-487).
2. Remove the fuel filter (A), the fuel gauge sending unit (B), and the wire harness (C).



3. Install the parts in the reverse order of removal with a new O-ring (D), new bracket (E), new spacer (F), new grommet (G), and new clips (H), then check these items:
   - Make sure the connection is secure and the suction filter (I) is firmly connected to the fuel pump (J).
   - When connecting the wire harness, make sure the connection is secure and the connectors (K) are firmly locked into place.
   - When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.

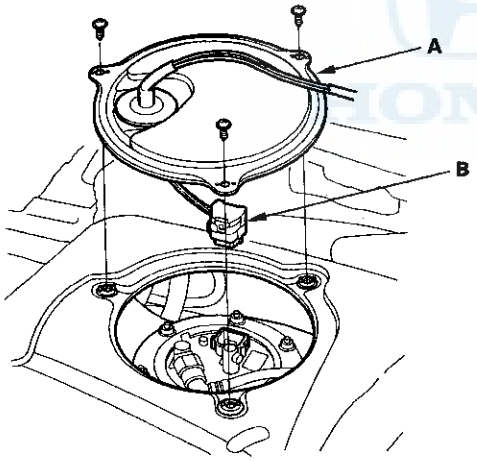
Fuel Tank Replacement

Removal

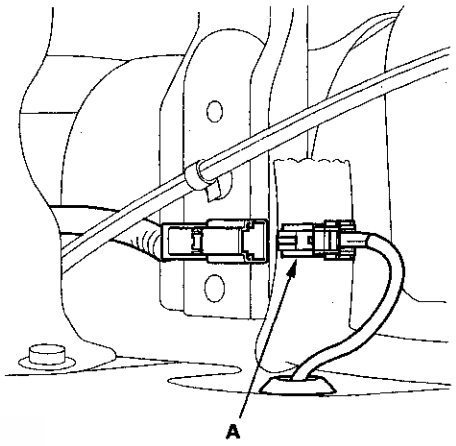
1. Remove the fuel fill cap.
2. Relieve the fuel pressure (see page 11-474).
3. Remove the rear tray (see page 20-73).
4. Remove the left trunk side trim panel (see page 20-77).
5. Drain the fuel tank (see page 11-477).
6. Remove the brake fluid from the master cylinder reservoir with a syringe.

   NOTE: Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.

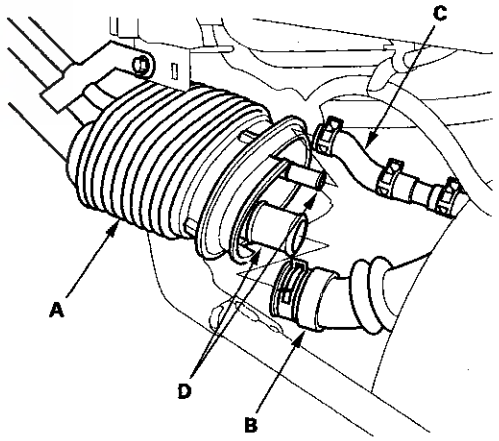
7. Remove the access panel (A) from the floor, and disconnect the fuel tank unit 5P connector (B).



8. Disconnect both ABS rear wheel speed sensors 2P connectors (A), and push the connectors out.



9. Remove the fuel pipe cover (A), and disconnect the fuel fill neck tube (B), the fuel tank vapor recirculation tube (C) from the fuel fill pipes (D).

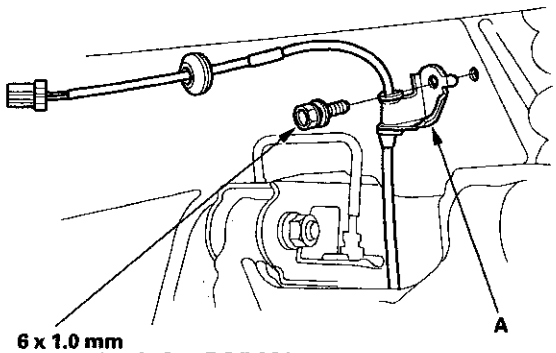


10. Loosen the rear wheel nuts slightly, then raise the vehicle and make sure it is securely supported.
11. Remove the rear wheels.

(cont'd)

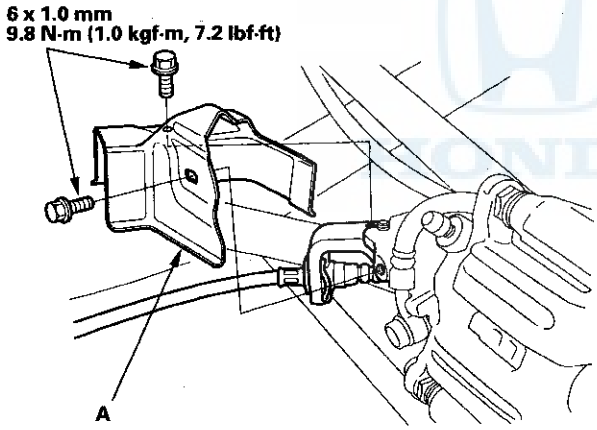
Fuel Tank Replacement (cont'd)

12. Remove the bolts from both ABS rear wheel speed sensor harness brackets (A).



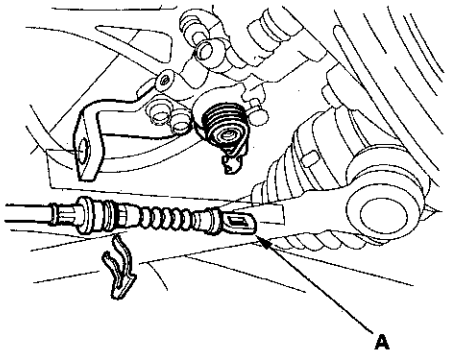
*: This illustration shows the left side of the vehicle.

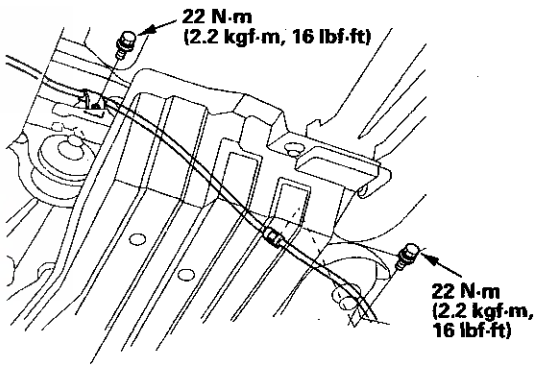
13. Remove both caliper shields (A).



*: This illustration shows the left side of the vehicle.

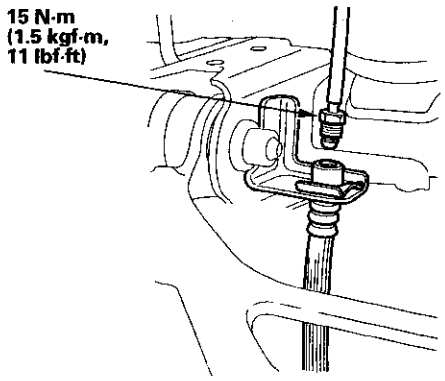
14. Disconnect both parking brake cables (A), and move them out of the way.





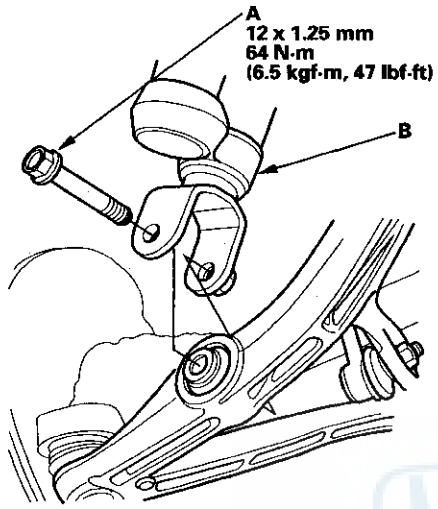
*: This illustration shows the left side of the vehicle.

15. Disconnect the brake hoses from both rear brake lines using a 10 mm flare-nut wrench.



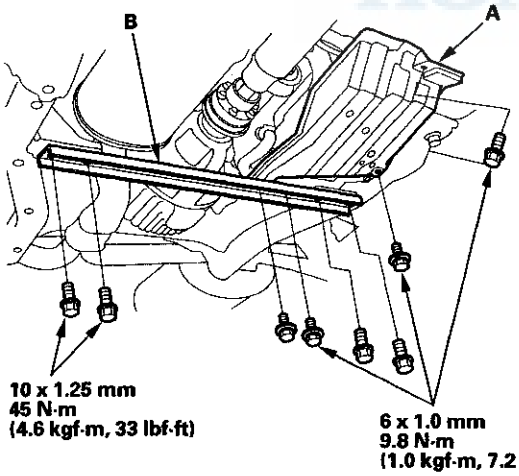
*: This illustration shows the left side of the vehicle.

16. Remove the flange bolt (A) from both rear dampers (B).



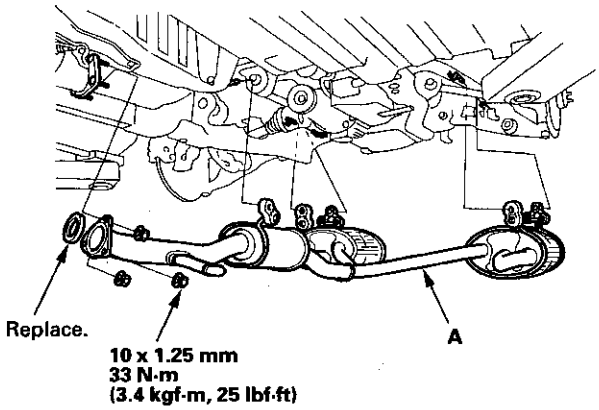
*: This illustration shows the left side of the vehicle.

17. Remove the canister cover (A) and the rear suspension stiffener (B).

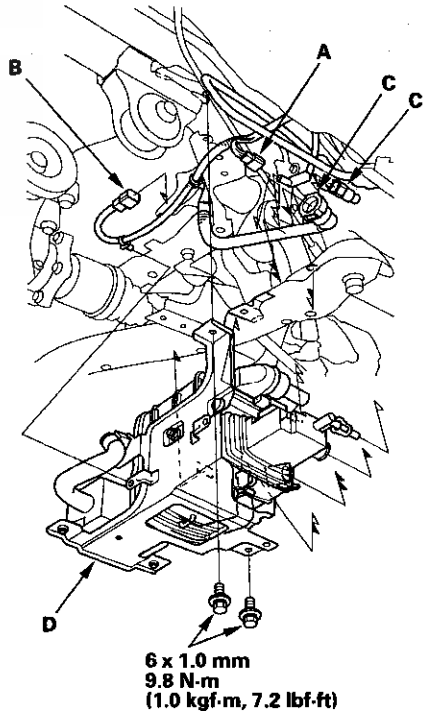


18. Remove the propeller shaft (see page 16-18).

19. Remove the muffler (A).



20. Disconnect the FTP sensor 3P connector (A), the EVAP canister vent shut valve 2P connector (B), and the vapor line (C).

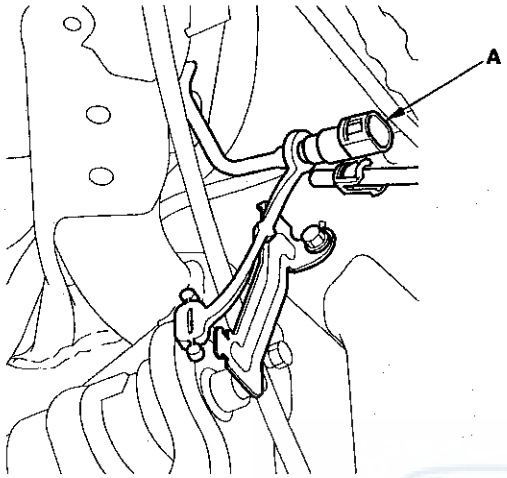


21. Remove the EVAP canister (D).

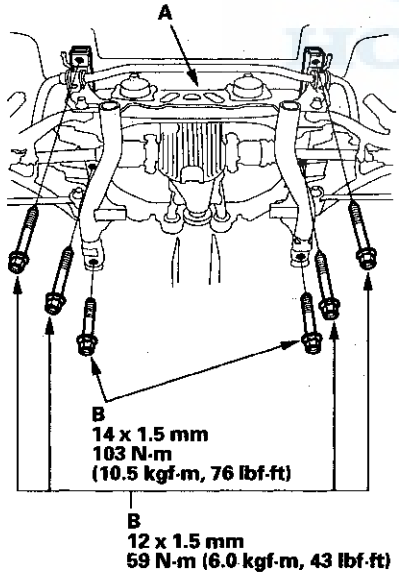
(cont'd)

Fuel Tank Replacement (cont'd)

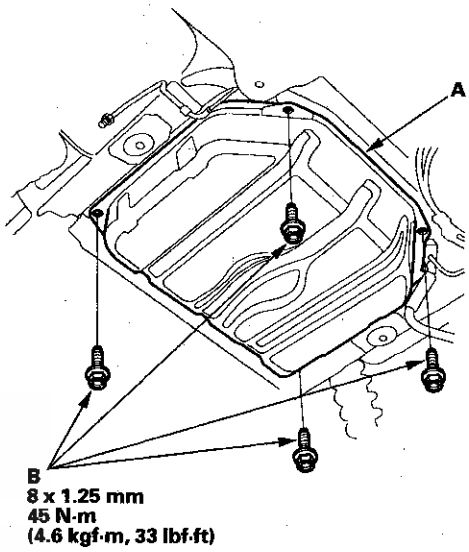
22. Disconnect the quick-connect fitting (A) (see page 11-481).



23. Place a jack or other support under the rear suspension subframe (A). Remove the mounting bolts (B) and the rear suspension subframe (A).



24. Place the jack or support under the fuel tank (A), then remove the mounting bolts (B) and the fuel tank.



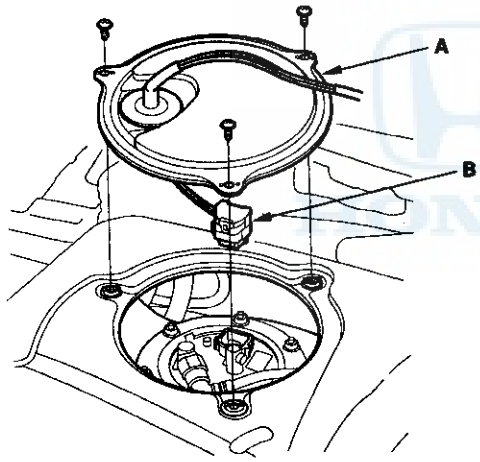
Installation

1. Install the parts in the reverse order of removal.
2. After installing the fuel tank, bleed the brake system (see page 19-9), and adjust the wheel alignment (see page 18-7).
3. Turn the ignition switch ON (II), but do not operate the starter. After the fuel pump runs 2 seconds, the fuel pressure in the fuel line rises. Repeat this 2 or 3 times, then check for fuel leakage.

Fuel Gauge Sending Unit Test

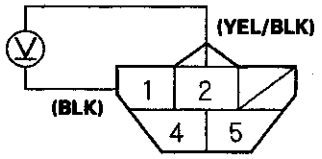
NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram (see page 22-63).

1. Check the No. 5 INSTRUMENT LIGHT BACK UP LIGHT (7.5 A) fuse in the under-dash fuse/relay box before testing.
2. Do the DTC troubleshooting (see page 22-6).
   - If no problem is found, go to step 3.
   - If DTC B1175 or B1176 is indicated, go to the indicated DTC's troubleshooting.
3. Turn the ignition switch OFF.
4. Remove the rear tray (see page 20-73).
5. Remove the access panel (A) from the floor.



6. Disconnect the fuel tank unit 5P connector (B).
7. Measure voltage between fuel tank unit 5P connector terminals No. 1 and No. 2 with the ignition switch ON (II). There should be battery voltage.
   - If the voltage is OK, go to step 8.
   - If the voltage is not as specified, check for:
     – a short in the YEL/BLK wire to ground.
     – an open in the YEL/BLK or BLK wire.

FUEL TANK UNIT 5P CONNECTOR

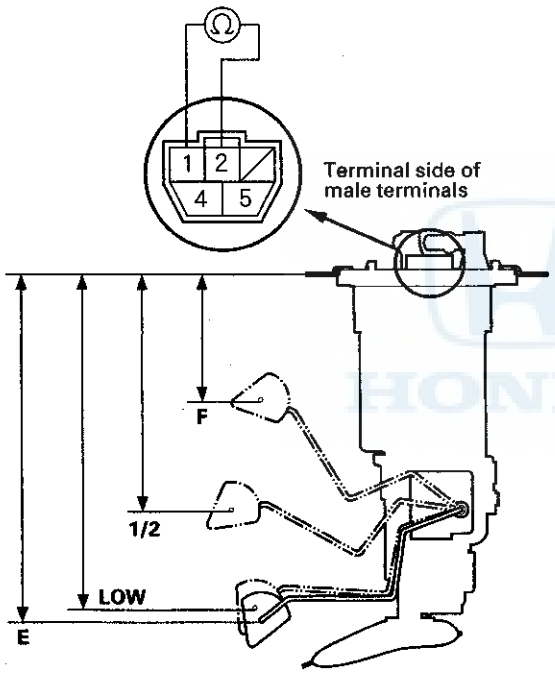


Wire side of female terminals

8. Turn the ignition switch OFF.
9. Remove the fuel tank unit from the fuel tank (see page 11-487).

10. Measure resistance between fuel tank unit 5P connector terminals No. 1 and No. 2 with the float at E (EMPTY), LOW (LOW FUEL INDICATOR), 1/2 (HALF FULL), and F (FULL) positions.
If you do not get the following readings, replace the fuel gauge sending unit (see page 11-488).

Float Position	F 3.2 in. (81.2 mm)	1/2 6.0 in. (152 mm)	LOW 8.4 in. (214.3 mm)	E 8.7 in. (221.9 mm)
Resistance (Ω)	11 to 13	52 to 58	114.4 to 120.4	130 to 132



11. Reconnect the fuel tank unit 5P connector.

12. Remove the No. 2 FUEL PUMP (15 A) fuse from the under-hood fuse/relay box for at least 10 seconds, then reinstall it.

13. Turn the ignition switch ON (II).

14. Check that the pointer of the fuel gauge indicates "F" with the float at F.

    - If the pointer of the fuel gauge does not indicate "F" replace the gauge assembly.
    - If the gauge is OK, the test is complete.

    NOTE:
    - The pointer of the fuel gauge returns to the bottom of the gauge dial when the ignition switch is OFF, regardless of the fuel level.
    - Remove the No. 2 FUEL PUMP (15 A) fuse from the under-hood fuse/relay box for at least 10 seconds after completing troubleshooting, otherwise it may take up to 20 minutes for the fuel gauge to indicate the correct fuel level.

Low Fuel Indicator Test

1. Do the fuel gauge sending unit test (see page 11-494).

   - If the system is OK, go to step 2.
   - If the system has any malfunction, repair it.

2. Turn the ignition switch OFF. Remove the No. 25 BACK UP (7.5 A) fuse from the under-dash fuse/relay box for at least 30 seconds, then reinstall it.

3. Turn the ignition switch ON (II) with the float at the E (EMPTY) position.

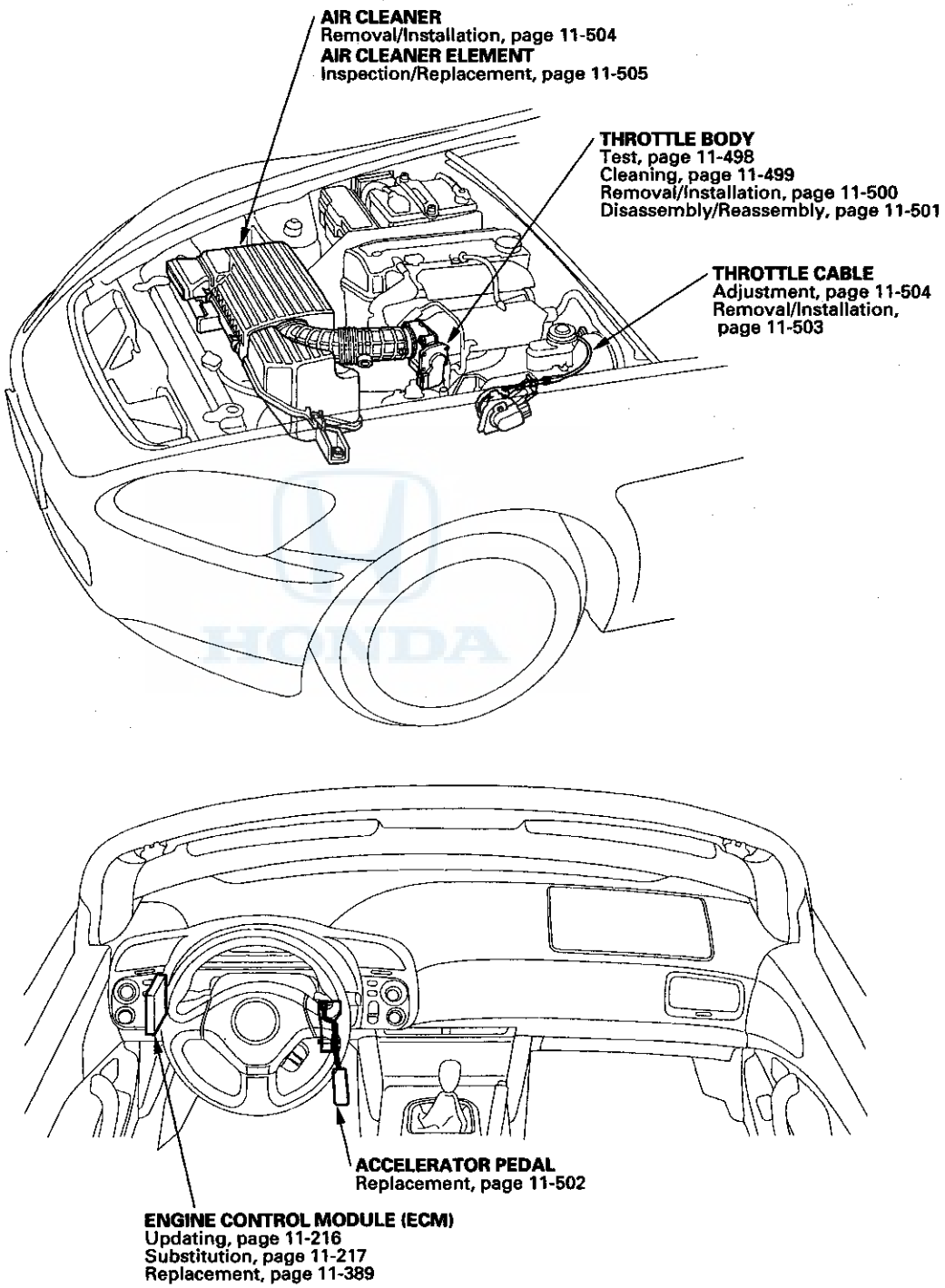
   - If the low fuel indicator is on, go to step 4.
   - If the low fuel indicator is not on, refer to the low fuel indicator Circuit Diagram (see page 22-73), and check the circuit.

4. Turn the ignition switch OFF. Remove the No. 25 BACK UP (7.5 A) fuse from the under-dash fuse/relay box for at least 30 seconds, then reinstall it.

5. Lift the float above the LOW position.

   - If the low fuel indicator goes off, the system is OK.
   - If the low fuel indicator is still on, refer to the low fuel indicator Circuit Diagram (see page 22-73), and check the circuit.

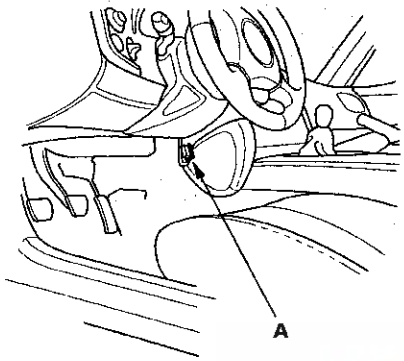
Component Location Index



Throttle Body Test

Carbon Accumulation Check

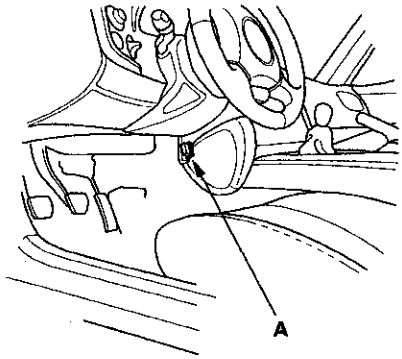
1. Connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the ECM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367).
4. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
5. Check the REL TP SENSOR in the DATA LIST the HDS. The reading should be below 2.46 deg. If it is not, clean the throttle body (see page 11-499).

Throttle Position Learning Check

1. Connect the HDS to the data link connector (DLC) (A) located behind the driver's side of the front console.



2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the ECM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-367).
4. Select the INSPECTION MENU with the HDS.
5. Do the TP LEARNING CHECK in the ETCS TEST. If needed, clean the throttle body (see page 11-499).

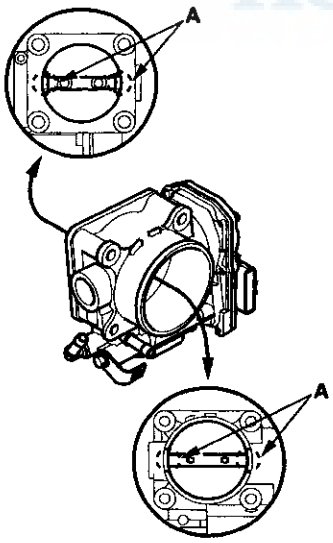
Throttle Body Cleaning

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

1. Check for damage to the air cleaner. If the air cleaner is damaged, replace it (see page 11-505).
2. Remove the throttle body (see page 11-500).
3. Wipe off the carbon from the throttle valve and inside the throttle body with a paper towel soaked in throttle plate and induction cleaner.

   NOTE:
   - Remove the throttle body to clean it.
   - To avoid removing the molybdenum coating, do not clean the bearing area of the throttle shaft (A).
   - Do not spray the cleaner directly on the throttle body.
   - Use Honda genuine throttle plate and induction cleaner.



4. Install the throttle body (see page 11-500).
5. Reset the ECM with the HDS.
6. Turn the ignition switch ON (II), and wait 2 seconds.
7. Do the ECM idle learn procedure (see page 11-462).

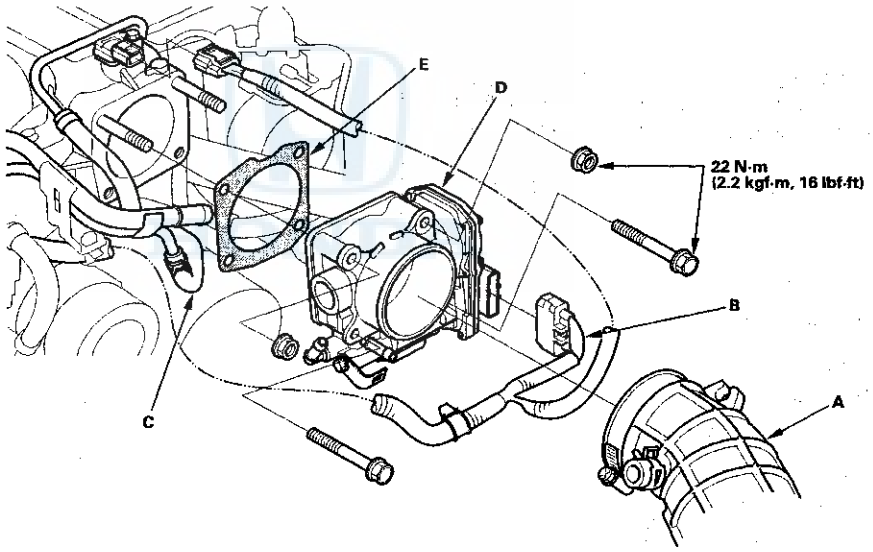
Throttle Body Removal/Installation

⚠CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch ON (II) or while the ignition switch is ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

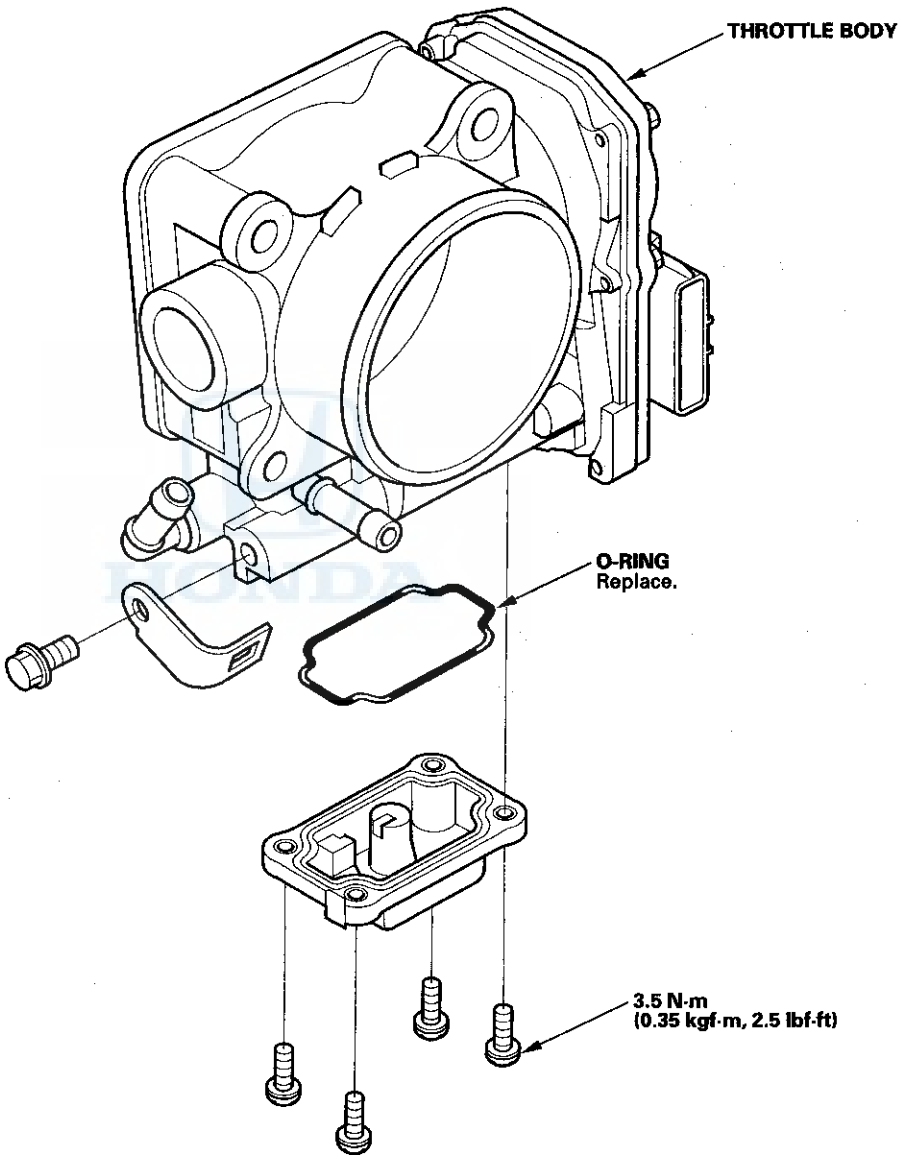
NOTE: If you are replacing the throttle body, begin at step 1. If you are removing the throttle body, begin at step 4.

1. Connect the HDS while the engine is stopped.
2. Select the INSPECTION MENU with the HDS.
3. Do the TP POSITION CHECK in the ETCS TEST.
4. Turn the ignition switch OFF.
5. Remove the intake air duct (A).



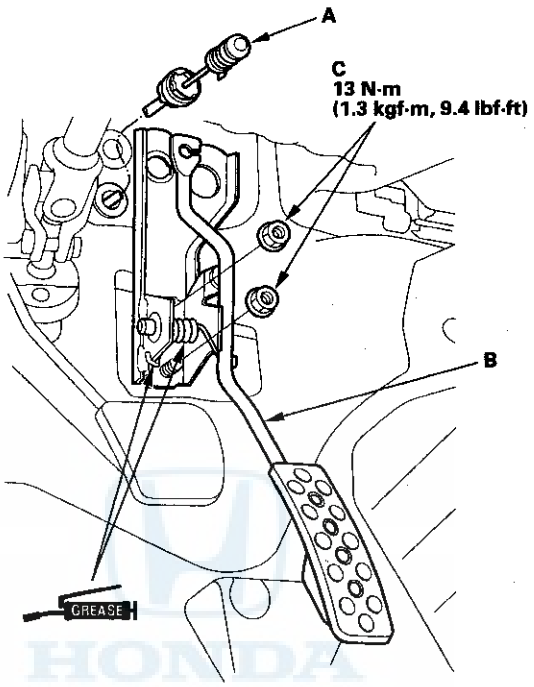
6. Disconnect the throttle body connector (B).
7. Disconnect the water bypass hoses (C), and plug them.
8. Remove the throttle body (D).
9. Install the parts in the reverse order of removal with a new gasket (E), then do this:
   - Do the ECM idle learn procedure (see page 11-462).
   - Refill the radiator with engine coolant (see page 10-9).

Throttle Body Disassembly/Reassembly



Accelerator Pedal Replacement

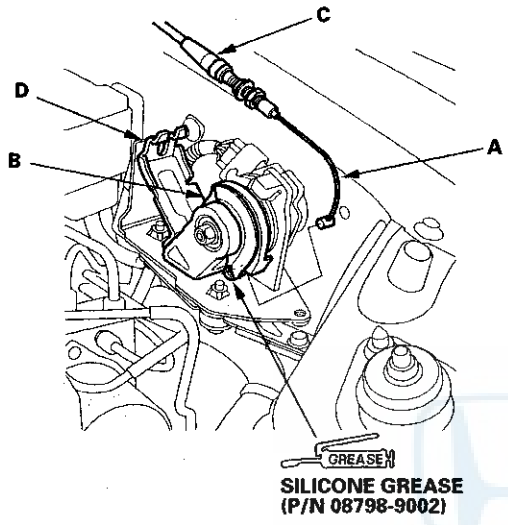
1. Remove the throttle cable (A) from the accelerator pedal (B).



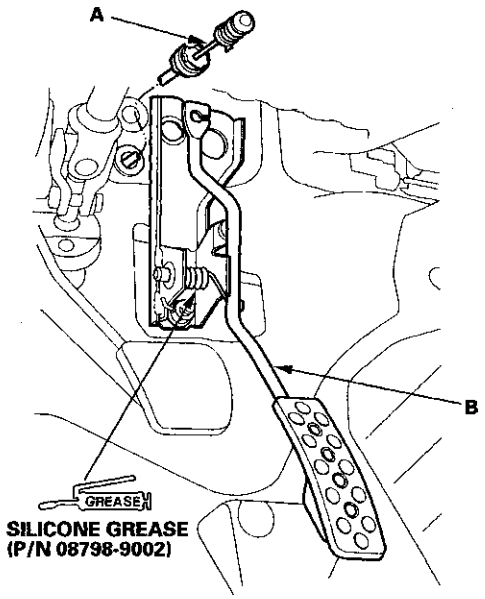
2. Remove the nuts (C) and the accelerator pedal.
3. Install the parts in the reverse order of removal.

Throttle Cable Removal/Installation

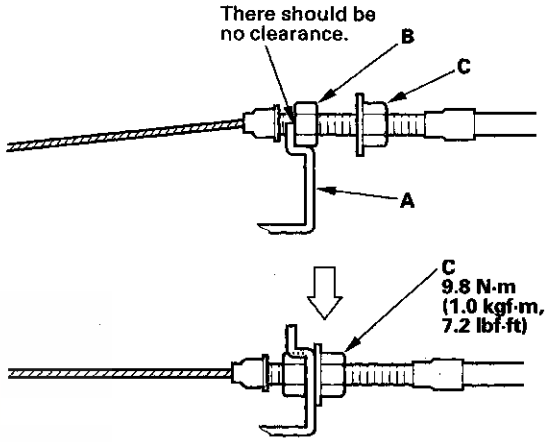
1. Remove the throttle cable cover (see page 11-504).
2. Fully open the throttle valve, then remove the throttle cable (A) from the throttle link (B).



3. Remove the cable housing (C) from the cable bracket (D).
4. Remove the throttle cable (A) from the accelerator pedal (B).



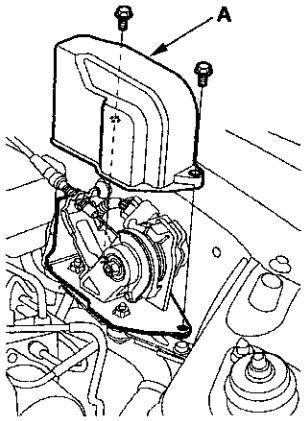
5. Install the parts in the reverse order of removal.
6. Hold the cable, removing all slack from it.
7. Set the cable on the bracket (A). Turn the adjusting nut (B) so that its free play is 0 mm.



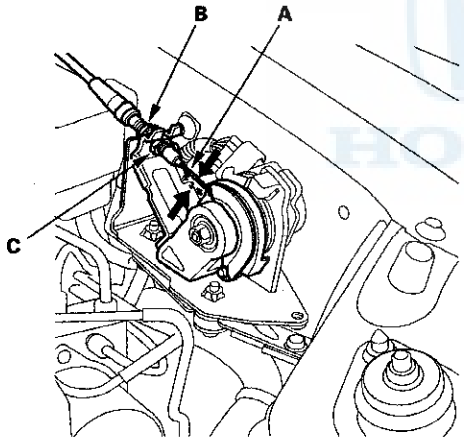
8. Position the adjusting nut on the other side of the bracket, then tighten the locknut (C).
9. Check the throttle cable free play (see page 11-504).
10. With the cable properly adjusted, check the throttle link to be sure it opens fully when you push the accelerator pedal to the floor. Also check the throttle link to be sure it returns whenever you release the accelerator pedal.

Throttle Cable Adjustment

1. Remove the throttle cable cover (A).



2. Check cable free play at the throttle linkage. Cable free play (A) should be 0.59—0.71 in. (15—18 mm).



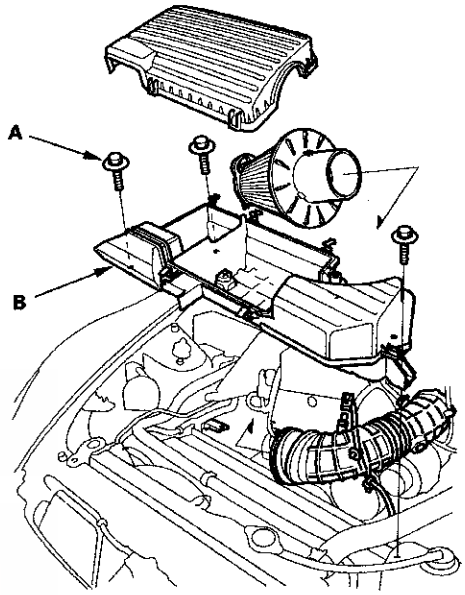
3. If the free play is not within spec (0.59—0.71 in., 15—18 mm), loosen the locknut (B), turn the adjusting nut (C) until the deflection is as specified, then retighten the locknut.

4. With the cable properly adjusted, check the throttle link to be sure it opens fully when you push the accelerator pedal to the floor. Also check the throttle link to be sure it returns whenever you release the accelerator pedal.

Air Cleaner Removal/Installation

1. Remove the air cleaner element (see page 11-505).

2. Remove the bolts (A).

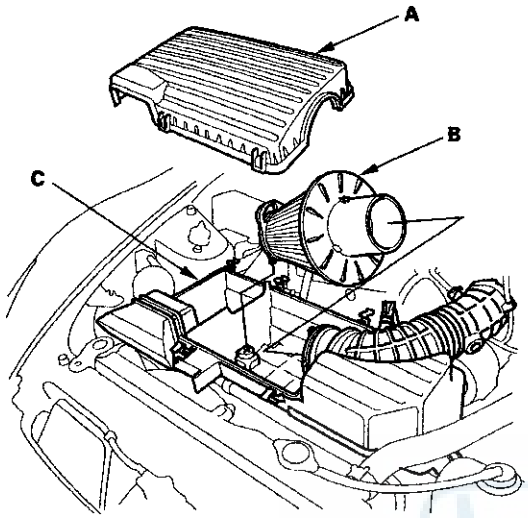


3. Remove the air cleaner (B).

4. Install the parts in the reverse order of removal.

Air Cleaner Element Inspection/Replacement

1. Remove the air cleaner housing cover (A).

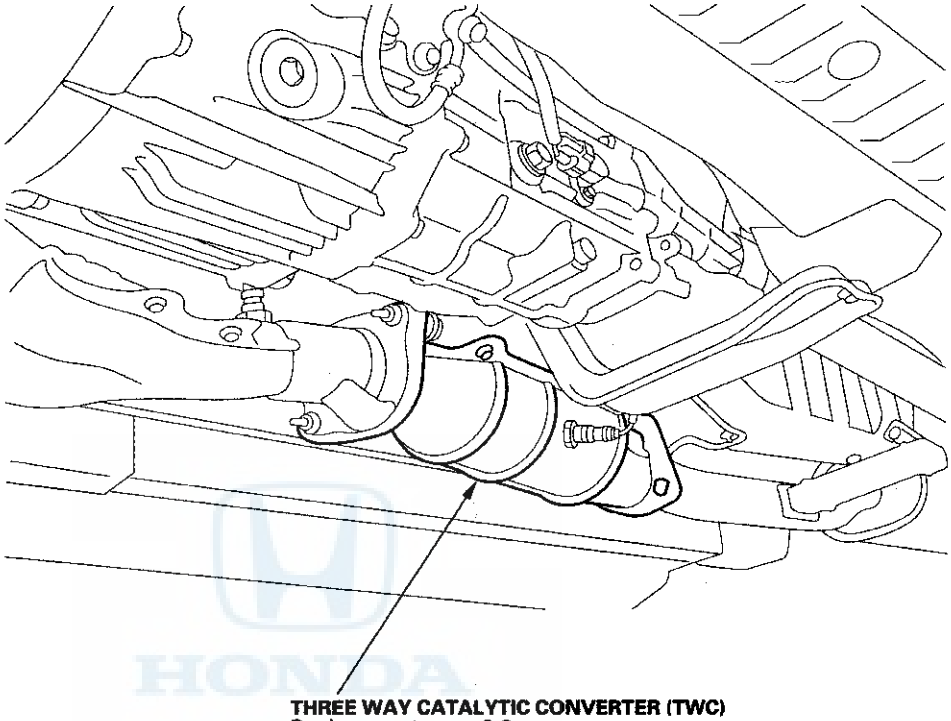


2. Remove the air cleaner element (B) from the air cleaner housing (C).
3. Check the air cleaner element for damage or clogging. If it is damaged or clogged, replace it.

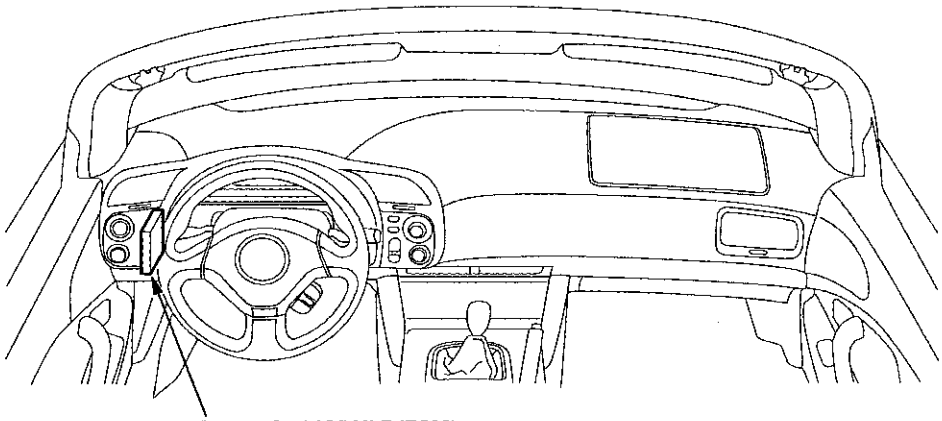
   NOTE: Do not use compressed air to clean the air cleaner element.
4. Clean and remove any debris from inside the air cleaner housing.
5. Install the parts in the reverse order of removal.
6. Reset the maintenance minder, if needed (see page 3-27).
7. Reset the ECM with the HDS.
8. Do the ECM idle learn procedure (see page 11-462).

Catalytic Converter System

Component Location Index



THREE WAY CATALYTIC CONVERTER (TWC)
Replacement, page 9-6



ENGINE CONTROL MODULE (ECM)
Updating, page 11-216
Substitution, page 11-217
Replacement, page 11-389

DTC Troubleshooting

DTC P0420: Catalyst System Efficiency Below Threshold

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If some of the DTCs listed below are stored at the same time as DTC P0420, troubleshoot them first, then recheck for DTC P0420.
  P0137, P0138: Secondary HO2S (Sensor 2)
  P0141: Secondary HO2S (Sensor 2) heater
- Poor quality fuel may cause this DTC.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
   - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
   - Transmission in 5th gear
   - Vehicle speed between 45—75 mph (72—120 km/h) for 5 minutes or more
   - Vehicle speed 25 mph (40 km/h) or more for 1 minute with cruise control set
5. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

   Does the screen indicate EXECUTING?

   YES—Go to step 6.

   NO—If the screen indicates OUT OF CONDITION, go to step 4 and recheck. If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates FAILED, go to step 8.
6. Continue test driving until a result comes on.
7. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 8.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 4 and recheck.
8. Turn the ignition switch OFF.
9. Replace the three way catalytic converter (TWC) (see page 9-6).
10. Turn the ignition switch ON (II).
11. Reset the ECM with the HDS.
12. Do the ECM idle learn procedure (see page 11-462).
13. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
14. Test-drive for about 10 minutes, varying the vehicle speed.
15. Check the CATA MONITOR CONDITION in the DATA LIST with the HDS.

    Is the temperature OK?

    YES—Go to step 16.

    NO—Go to step 13 and recheck.
16. Test-drive under these conditions:
    - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
    - Transmission in 5th gear
    - Vehicle speed between 45—75 mph (72—120 km/h) for 5 minutes or more
    - Vehicle speed 25 mph (40 km/h) or more for 1 minute with cruise control set

(cont'd)

DTC Troubleshooting (cont'd)

17. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

    Does the screen indicate EXECUTING?

    YES—Go to step 18.

    NO—Go to step 16 and recheck.

18. Continue test driving until a result comes on.

19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0420 indicated?

    YES—Check the fuel quality, then go to step 1.

    NO—Go to step 20.

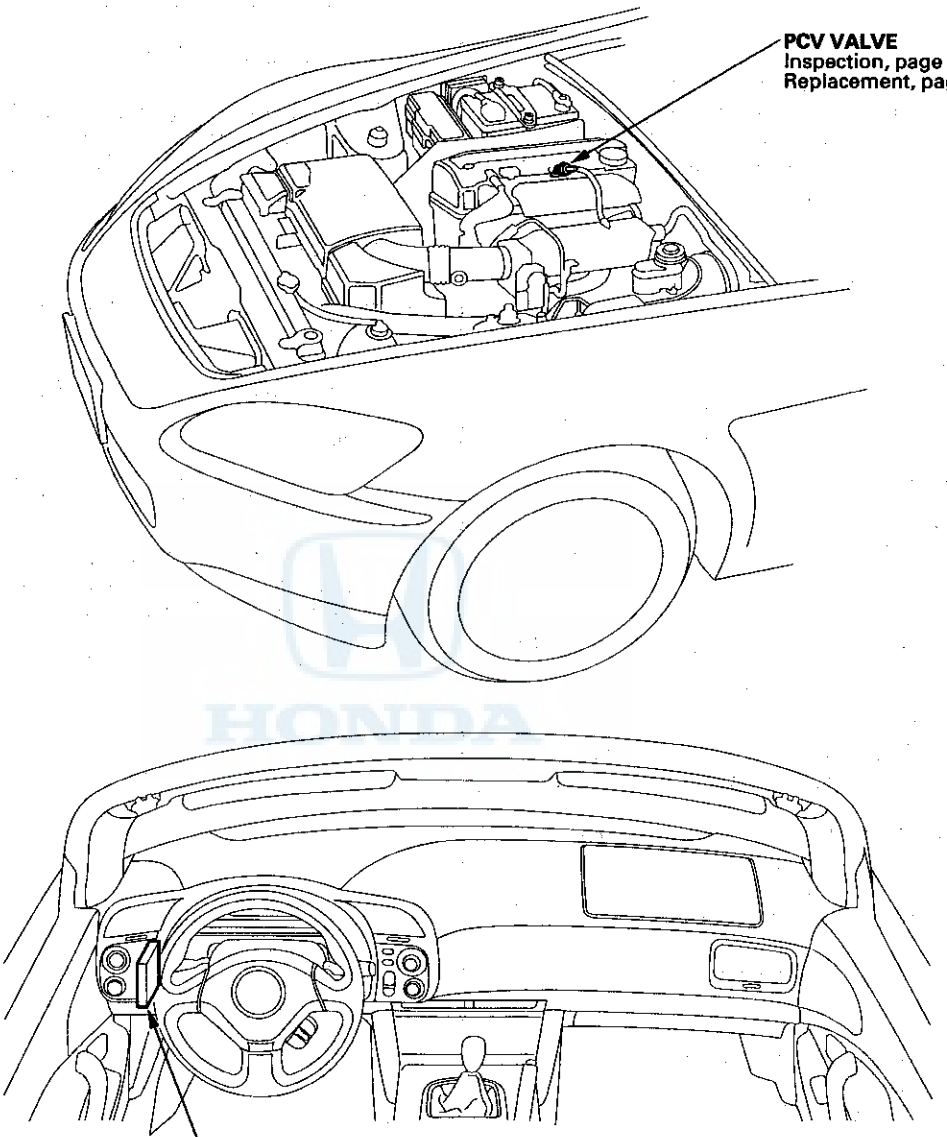
20. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (sensor 2) and the ECM. If the screen indicates EXECUTING, keep driving until a result comes on. If the screen indicates OUT OF CONDITION, go to step 13.

Component Location Index



DTC Troubleshooting

DTC P2279: Intake Air System Leak

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P0443 is stored at the same time as DTC P2279, troubleshoot DTC P0443 first, then recheck for DTC P2279.

1. Check for vacuum leaks at these parts:

   - PCV valve
   - PCV hose
   - Purge (PCS) line
   - Throttle body
   - Brake booster
   - Brake booster hose

   Are the parts OK?

   YES—Go to step 2.

   NO—Repair or replace the leaking part(s), then go to step 4.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle 1 minute.

3. Monitor the OBD STATUS for DTC P2279 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Check the camshaft timing (see page 6-15), then go to step 4.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. If the screen indicates NOT COMPLETED, go to step 2 and recheck.

4. Reset the ECM with the HDS.

5. Do the ECM idle learn procedure (see page 11-462).

6. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle 1 minute.

7. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P2279 indicated?

   YES—Check for vacuum leaks at the PCV valve, the PCV hose, the purge (PCS) line, the throttle body, the brake booster, or the brake booster hose, then go to step 4.

   NO—Go to step 8.

8. Monitor the OBD STATUS for DTC P2279 in the DTCs MENU with the HDS.

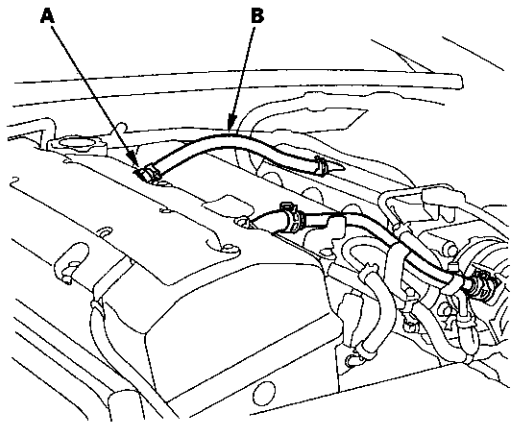
   Does the screen indicate PASSED?

   YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 7, go to the indicated DTC's troubleshooting. ■

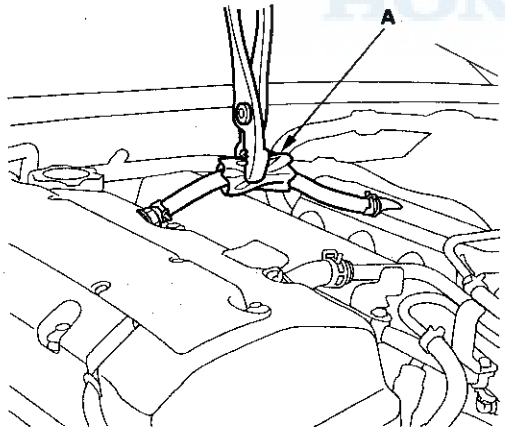
   NO—If the screen indicates FAILED, go to step 1 and recheck. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

PCV Valve Inspection

1. Check the PCV valve (A), hoses (B), and connections for leaks or restrictions.

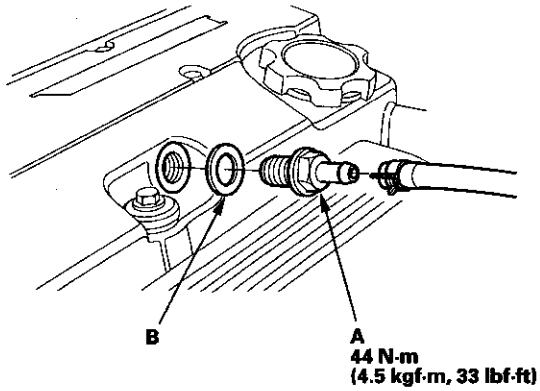


2. At idle, make sure there is a clicking sound from the PCV valve when the hose between the PCV valve and intake manifold is lightly pinched (A) with your fingers or pliers.
   If there is no clicking sound, check the hose for cracks or damage. If the hose is OK, replace the PCV valve and recheck.



PCV Valve Replacement

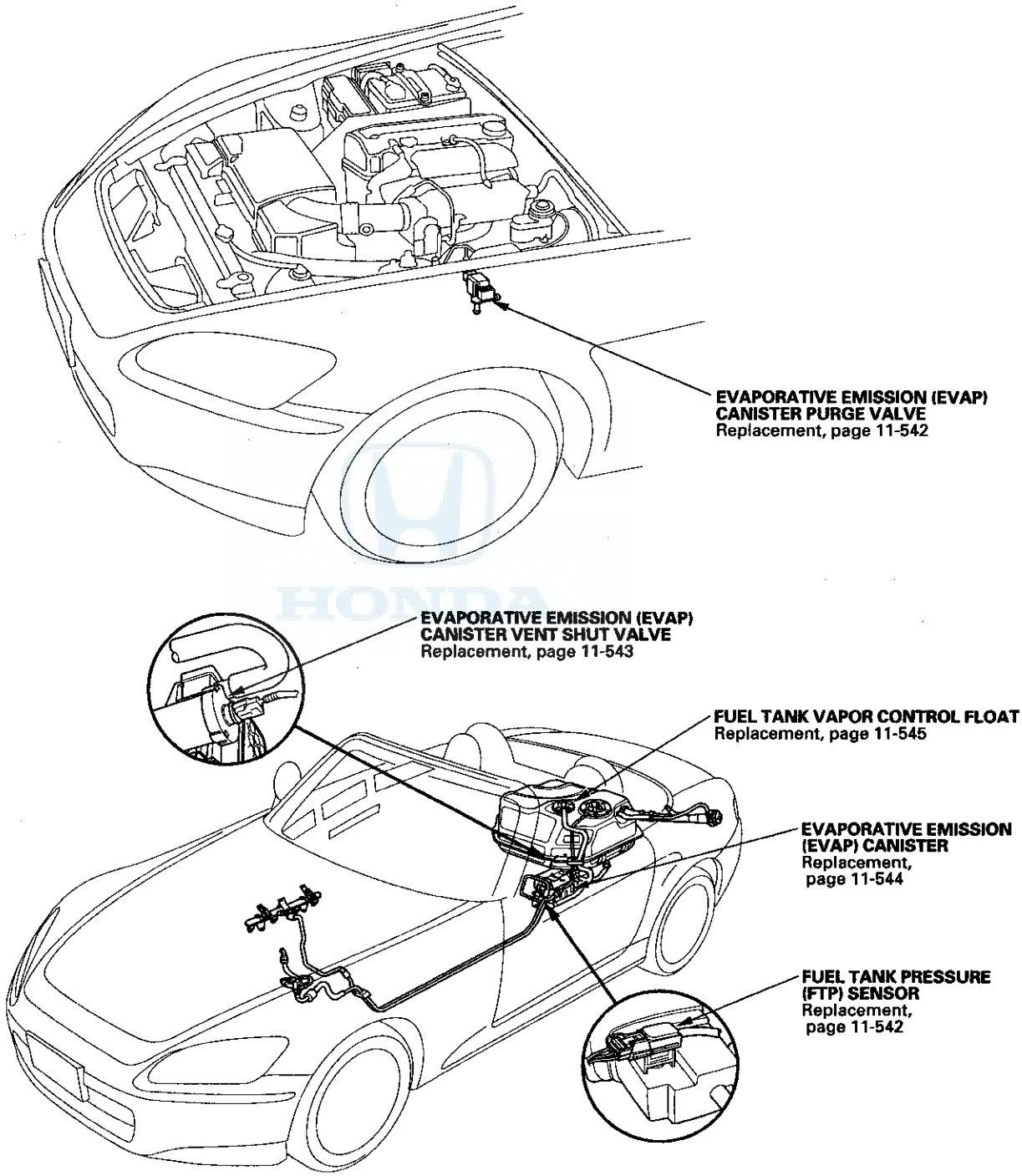
1. Disconnect the PCV hose.
2. Remove the PCV valve (A).

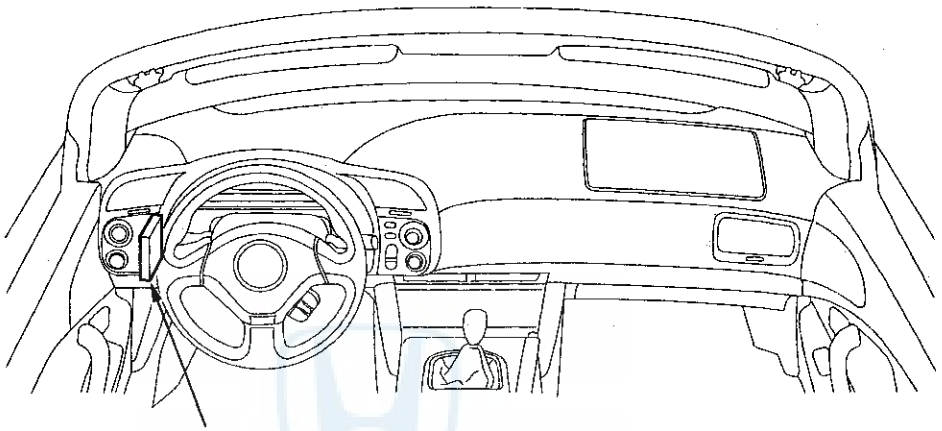


3. Install the parts in the reverse order of removal with a new washer (B).

EVAP System

Component Location Index





ENGINE CONTROL MODULE (ECM)
Updating, page 11-216
Substitution, page 11-217
Replacement, page 11-389

DTC Troubleshooting

DTC P0443: EVAP Canister Purge Valve Circuit Malfunction

Special Tools Required
Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

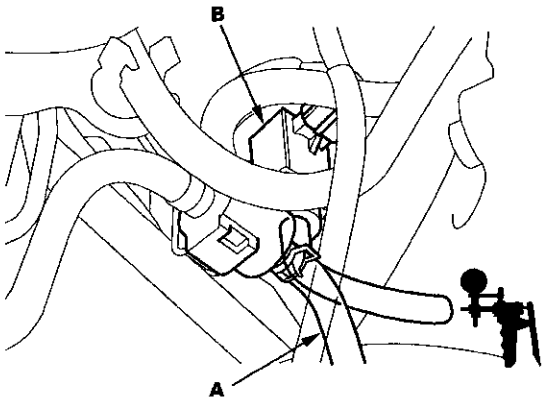
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0443 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM. ■
5. Turn the ignition switch OFF, and allow the engine to cool below 149 °F (65 °C).
6. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) in the engine compartment, and connect a vacuum pump/gauge, 0—30 in.Hg, to the EVAP canister purge valve.



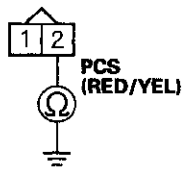
7. Start the engine, and let it idle.

   Is there vacuum?

   YES—Go to step 8.

   NO—Go to step 14.
8. Turn the ignition switch OFF.
9. Disconnect the EVAP canister purge valve 2P connector.
10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

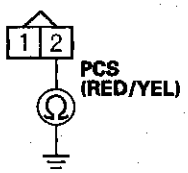
   Is there continuity?

   YES—Go to step 11.

   NO—Go to step 24.
11. Jump the SCS line with the HDS.
12. Disconnect ECM connector B (24P).

13. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

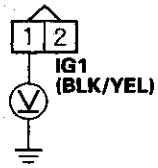
Is there continuity?

YES—Repair short in the wire between the EVAP canister purge valve and the ECM (B21), then go to step 25.

NO—Go to step 31.

14. Turn the ignition switch OFF.
15. Disconnect the EVAP canister purge valve 2P connector.
16. Turn the ignition switch ON (II).
17. Measure voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

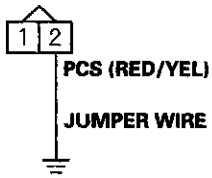
Is there battery voltage?

YES—Go to step 18.

NO—Repair open in the wire between the EVAP canister purge valve and the No. 6 ACG (15 A) fuse in the under-dash fuse/relay box, then go to step 25.

18. Turn the ignition switch OFF.
19. Jump the SCS line with the HDS.
20. Disconnect ECM connector B (24P).
21. Connect EVAP canister purge valve 2P connector terminal No. 2 to body ground with a jumper wire.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



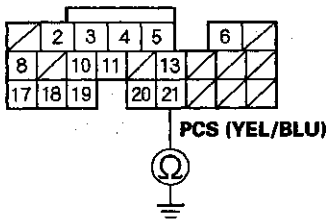
Wire side of female terminals

(cont'd)

DTC Troubleshooting (cont'd)

22. Check for continuity between ECM connector terminal B21 and body ground.

ECM CONNECTOR B (24P)



Wire side of female terminals

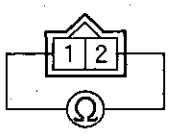
Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the EVAP canister purge valve and the ECM (B21), then go to step 25.

23. At the purge valve side, measure resistance between EVAP canister purge valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Terminal side of male terminals

Is there about 33 Ω at room temperature?

YES—Go to step 31.

NO—Go to step 24.

24. Replace the EVAP canister purge valve (see page 11-542).

25. Reconnect all connectors.

26. Turn the ignition switch ON (II).

27. Reset the ECM with the HDS.

28. Do the ECM idle learn procedure (see page 11-462).

29. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0443 indicated?

YES—Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM, then go to step 1.

NO—Go to step 30.

30. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 29, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM, then go to step 1. If the screen indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

31. Reconnect all connectors.

32. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

33. Start the engine, and let it idle.

34. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0443 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 33. If the ECM was substituted, go to step 1.

    NO—Go to step 35.

35. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 34, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then recheck. If the ECM was substituted, go to step 1. If the screen indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

DTC Troubleshooting (cont'd)

DTC P0451: FTP Sensor Circuit Range/ Performance Problem

NOTE:
- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- If DTC P2422 is stored at the same time as DTC P0451, troubleshoot DTC P2422 first, then recheck for DTC P0451.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle.
4. Monitor the OBD STATUS for DTC P0451 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 5.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the ECM. If the screen indicates NOT COMPLETED, keep idling until a result comes on.
5. Turn the ignition switch OFF.
6. Replace the FTP sensor (see page 11-542).
7. Turn the ignition switch ON (II).
8. Reset the ECM with the HDS.
9. Do the ECM idle learn procedure (see page 11-462).
10. Start the engine, and let it idle.
11. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0451 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the ECM, then go to step 1.

    NO—Go to step 12.
12. Monitor the OBD STATUS for DTC P0451 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0452: FTP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Remove the fuel fill cap.
5. Turn the ignition switch ON (II).
6. Check the FTP SENSOR in the DATA LIST with the HDS.

   Is about −7.3 kPa (−2.16 in.Hg, −55 mmHg), or 0.3 V or less indicated?

   YES—Go to step 10.

   NO—Go to step 7.
7. Install the fuel fill cap.
8. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
9. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

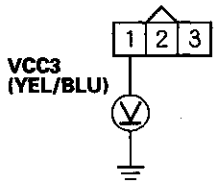
   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the ECM. If the screen indicates NOT COMPLETED, go to step 4 and recheck.
10. Turn the ignition switch OFF.
11. Disconnect the FTP sensor 3P connector.
12. Turn the ignition switch ON (II).
13. Check the FTP SENSOR in the DATA LIST with the HDS.

    Is about −7.3 kPa (−2.16 in.Hg, −55 mmHg), or 4.90 V indicated?

    YES—Go to step 14.

    NO—Go to step 20.
14. Measure voltage between FTP sensor 3P connector terminal No. 1 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 16.

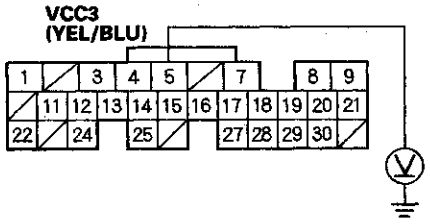
NO—Go to step 15.

(cont'd)

DTC Troubleshooting (cont'd)

15. Measure voltage between ECM connector terminal E5 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

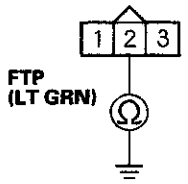
Is there 5 V?

YES—Repair open in the wire between the ECM (E5) and the FTP sensor, then go to step 22.

NO—Go to step 28.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect ECM connector E (31P).
19. Check for continuity between FTP sensor 3P connector terminal No. 2 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the ECM (E14) and the FTP sensor, then go to step 22.

NO—Go to step 29.

20. Turn the ignition switch OFF.
21. Replace the FTP sensor (see page 11-542).
22. Reconnect all connectors.
23. Turn the ignition switch ON (II).
24. Reset the ECM with the HDS.
25. Do the ECM idle learn procedure (see page 11-462).
26. Check for Temporary DTCs or DTCs with the HDS.

Is DTC P0452 indicated?

YES—Check for poor connections or loose terminals at the FTP sensor and the ECM, then go to step 1.

NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

28. Turn the ignition switch OFF.

29. Reconnect all connectors.

30. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

31. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.

32. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0452 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 31. If the ECM was substituted, go to step 1.

    NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 32, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 31. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC Troubleshooting (cont'd)

DTC P0453: FTP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Remove the fuel fill cap.
5. Turn the ignition switch ON (II).
6. Check the FTP SENSOR in the DATA LIST with the HDS.

   Is about 7.3 kPa (2.16 in.Hg, 55 mmHg), or 4.7 V or more indicated?

   YES—Go to step 10.

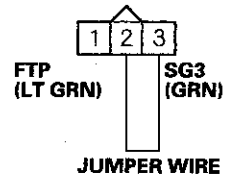
   NO—Go to step 7.
7. Install the fuel fill cap.
8. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
9. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and ECM. If the screen indicates NOT COMPLETED, go to step 6 and recheck.
10. Turn the ignition switch OFF.
11. Disconnect the FTP sensor 3P connector.
12. Connect FTP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

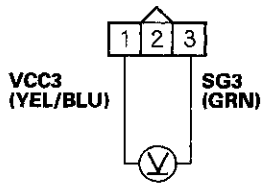
13. Turn the ignition switch ON (II).
14. Check the FTP SENSOR in the DATA LIST with the HDS.

    Is about 7.3 kPa (2.16 in.Hg, 55 mmHg), or 4.7 V or more indicated?

    YES—Go to step 15.

    NO—Go to step 25.
15. Measure voltage between FTP sensor 3P connector terminals No. 1 and No. 3.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

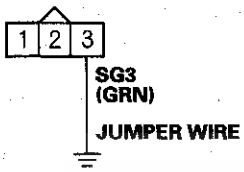
Is there about 5 V?

YES—Go to step 21.

NO—Go to step 16.

16. Turn the ignition switch OFF.
17. Jump the SCS line with the HDS.
18. Disconnect ECM connector E (31P).
19. Connect FTP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

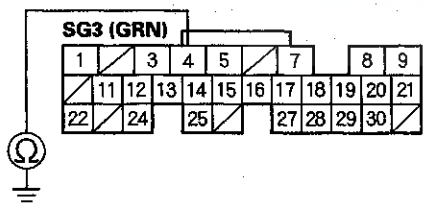
FTP SENSOR 3P CONNECTOR



Wire side of female terminals

20. Check for continuity between ECM connector terminal E4 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

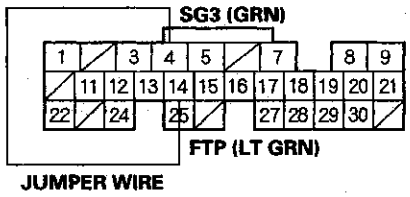
Is there continuity?

YES—Go to step 34.

NO—Repair open in the wire between the ECM (E4) and the FTP sensor, then go to step 27.

21. Turn the ignition switch OFF.
22. Connect ECM connector terminals E4 and E14 with a jumper wire.

ECM CONNECTOR E (31P)



Wire side of female terminals

23. Turn the ignition switch ON (II).
24. Check the FTP SENSOR in the DATA LIST with the HDS.

Is about 7.3 kPa (2.16 in.Hg, 55 mmHg), or 4.7 V or more indicated?

YES—Go to step 33.

NO—Repair open in the wire between the ECM (E14) and the FTP sensor, then go to step 27.

25. Turn the ignition switch OFF.
26. Replace the FTP sensor (see page 11-542).
27. Reconnect all connectors.

(cont'd)

DTC Troubleshooting (cont'd)

28. Turn the ignition switch ON (II).
29. Reset the ECM with the HDS.
30. Do the ECM idle learn procedure (see page 11-462).
31. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0453 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the ECM, then go to step 1.

    NO—Go to step 32.

32. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 31, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

33. Turn the ignition switch OFF.
34. Reconnect all connectors.
35. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).
36. Start the engine, and let it idle without load (in neutral) until the radiator fan comes on.
37. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0453 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 36. If the ECM was substituted, go to step 1.

    NO—Go to step 38.

38. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 37, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 36. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0455: EVAP System Large Leak Detected

DTC P0456: EVAP System Very Small Leak Detected

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests as indicated in these procedures. Excessive pressure/vacuum would damage the EVAP components or cause eventual fuel tank failure.

Special Tools Required

Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).
- Fresh fuel has a higher volatility that will create greater pressure/vacuum. The optimum condition for testing is less than a full tank of fresh fuel. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank) just before starting these procedures.

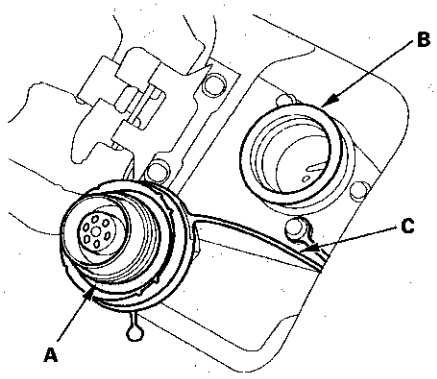
1. Check the fuel fill cap (the cap must say "TIGHTEN TO CLICK"). It should turn 1/4 turn after it's tight, then it clicks.

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap, then go to step 22.

2. Check the fuel fill cap seal (A) and the fuel fill pipe mating surface (B). Verify that the fuel fill cap tether cord (C) is not caught under the cap.



   Is the fuel fill cap seal missing or damaged, is the fuel fill pipe damaged, or is the tether cord caught under the cap?

   YES—Replace the fuel fill cap or the fuel fill pipe, then go to step 22.

   NO—Go to step 3.

3. Turn the ignition switch ON (II).

4. Clear the DTC with the HDS.

5. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, or the EVAP canister vent shut valve and the ECM. ■

   NO—Go to step 6.

(cont'd)

DTC Troubleshooting (cont'd)

6. Turn the ignition switch OFF.

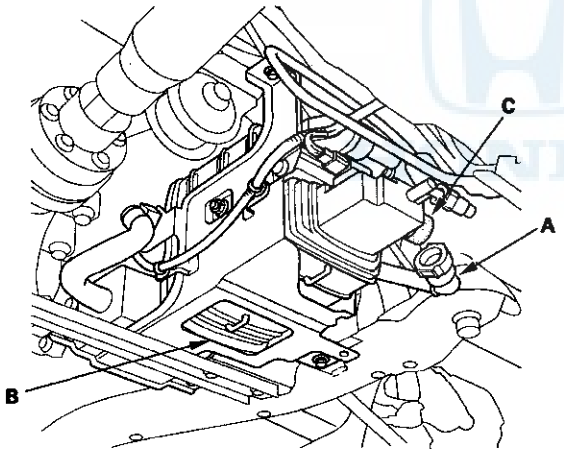
7. Check for a poor connection or damage at the fuel tank vapor recirculation tube and fuel tank vapor control float (see page 11-545).

   Is the tube OK?

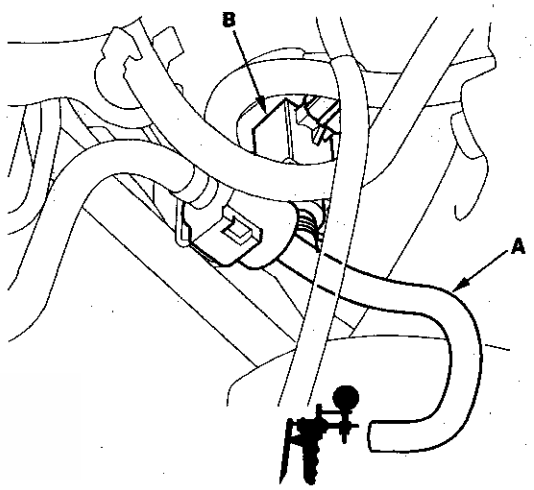
   YES—Go to step 8.

   NO—
   - Replace the fuel tank vapor control float (see page 11-545), then go to step 22.
   - If necessary, replace the fuel tank (see page 11-489), then go to step 22.

8. Disconnect the fuel tank vapor recirculation tube (A) from the EVAP canister (B), and plug the EVAP canister port (C).



9. Disconnect the vacuum hose (purge line) (A) from the EVAP canister purge valve (B) in the engine compartment, and the vacuum pump/gauge, 0—30 in.Hg, to the hose as shown.



10. Turn the ignition switch ON (II).

11. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

12. Apply vacuum to the hose until the FTP reads 1.90 V (—0.59 in.Hg, —15.1 mmHg).

    NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.

13. Monitor the FTP SENSOR in the DATA LIST for 1 minute with the HDS.

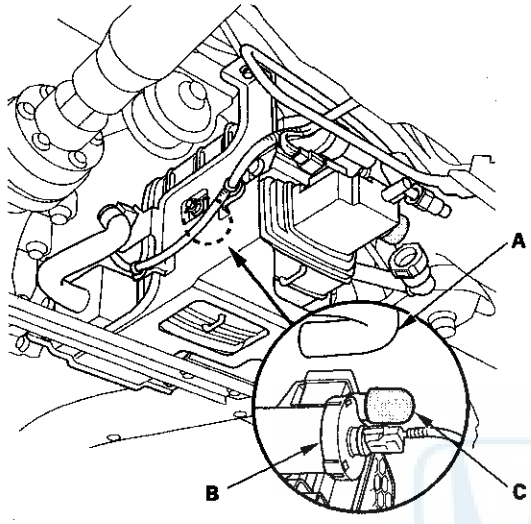
    Does the voltage increase more than 0.2 V (0.1 in.Hg, 2.5 mmHg)?

    YES—Go to step 14.

    NO—Go to step 19.

14. Select EVAP CVS OFF in the INSPECTION MENU with the HDS.

15. Disconnect the fresh air hoses (A) from the EVAP canister vent shut valve (B), and plug the EVAP canister vent shut valve ports (C).



16. Apply vacuum to the hose (disconnected in step 9) until the FTP reads 1.90 V (−0.59 in.Hg, −15.1 mmHg).

    NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.

17. Monitor the FTP SENSOR in the DATA LIST for 1 minute with the HDS.

    Does the voltage increase more than 0.2 V (0.1 in.Hg, 2.5 mmHg)?

    YES—Go to step 18.

    NO—Replace the EVAP canister vent shut valve (see page 11-543), then go to step 21.

18. Check for a loose or damaged EVAP canister purge line between the EVAP canister and the EVAP canister purge valve.

    Is the line OK?

    YES—Replace the following parts, then go to step 21.

    - FTP sensor O-ring (see page 11-542)
    - EVAP canister vent shut valve case and O-ring (see page 11-543)
    - EVAP canister (see page 11-544)

    NO—Reconnect or repair the EVAP canister purge hose, then go to step 21.

19. Select EVAP CVS OFF in the INSPECTION MENU with the HDS.

20. Check these parts for looseness or damage:

    - Fuel fill pipe
    - Fuel vapor return pipe

    Are the parts OK?

    YES—Check the fuel pump base gasket (see page 11-487), and check the fuel tank, then go to step 21.

    NO—Repair or replace the damaged parts, then go to step 21.

21. Reconnect all hoses and connectors.

22. Turn the ignition switch ON (II).

23. Reset the ECM with the HDS.

24. Do the ECM idle learn procedure (see page 11-462).

25. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Troubleshooting is complete.■

    NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, or the EVAP canister vent shut valve and the ECM, then go to step 1.

DTC Troubleshooting (cont'd)

DTC P0457: EVAP System Leak Detected/Fuel Fill Cap Loose or Missing

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

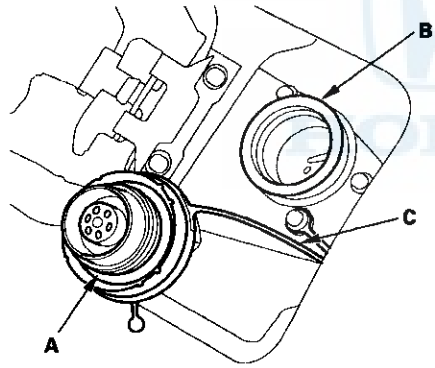
1. Check the fuel fill cap (the cap must say "TIGHTEN TO CLICK"). It should turn 1/4 turn after it's tight, then it clicks.

   Is the correct fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Replace or tighten the cap, then go to step 19.

2. Check the fuel fill cap seal (A) and the fuel fill pipe mating surface (B). Verify that the fuel fill cap tether cord (C) is not caught under the cap.



   Is the fuel fill cap seal missing or damaged, is the fuel fill pipe damaged, or is the tether cord caught under the cap?

   YES—Replace the fuel fill cap or the fuel fill pipe, then go to step 19.

   NO—Go to step 3.

3. Turn the ignition switch ON (II).

4. Clear the DTC with the HDS.

5. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor or the EVAP canister vent shut valve and the ECM. ■

   NO—Go to step 6.

6. Turn the ignition switch OFF.

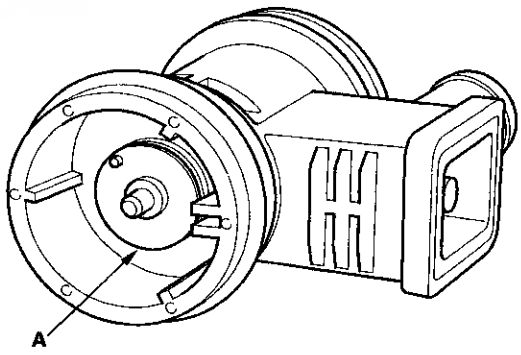
7. Remove the EVAP canister vent shut valve from the EVAP canister (see page 11-543).

8. Connect the 2P connector to the EVAP canister vent shut valve.

9. Turn the ignition switch ON (II).

10. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

11. Check the EVAP canister vent shut valve (A) operation.



   Does the valve operate?

   YES—Check the routing of the EVAP canister vent tube, then go to step 18.

   NO—Go to step 12.

12. Turn the ignition switch OFF.

13. Replace the EVAP canister vent shut valve (see page 11-543).

14. Turn the ignition switch ON (II).

15. Reset the ECM with the HDS.

16. Do the ECM idle learn procedure (see page 11-462).

17. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Troubleshooting is complete. ■

    NO—Check for poor connections or loose terminals at the FTP sensor or the EVAP canister vent shut valve and the ECM, then go to step 1.

18. Reinstall the EVAP canister vent shut valve (see page 11-543).

19. Turn the ignition switch ON (II).

20. Reset the ECM with the HDS.

21. Do the ECM idle learn procedure (see page 11-462).

22. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Troubleshooting is complete. ■

    NO—Check for poor connections or loose terminals at the FTP sensor or the EVAP canister vent shut valve and the ECM, then go to step 1.

DTC Troubleshooting (cont'd)

DTC P0496: EVAP System High Purge Flow Detected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, or the EVAP canister vent shut valve and the ECM. ■

   NO—Go to step 4.
4. Turn the ignition switch OFF.
5. Replace the EVAP canister purge valve (see page 11-542).
6. Turn the ignition switch ON (II).
7. Reset the ECM with the HDS.
8. Do the ECM idle learn procedure (see page 11-462).
9. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Troubleshooting is complete. ■

   NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, or the EVAP canister vent shut valve and the ECM, then go to step 1.

DTC P0497: EVAP System Low Purge Flow Detected

Special Tools Required
- Vacuum/pressure gauge, 0—4 in.Hg, 07JAZ-001000B
- Vacuum pump/gauge, 0—30 in.Hg, Snap-on YA4000A or equivalent, commercially available
- Fuel pressure gauge attachment set 07AAJ-S6MA150

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Check the fuel fill cap installation (the cap must say "TIGHTEN TO CLICK". The cap should tighten 1/4 turn after it is tight.).

   Is the fuel fill cap installed and properly tightened?

   YES—Go to step 2.

   NO—Properly install the fuel fill cap, then go to step 23.

2. Turn the ignition switch ON (II).

3. Clear the DTC with the HDS.

4. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

   Is the result OK?

   YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, or the EVAP canister vent shut valve and the ECM. ■

   NO—Go to step 5.

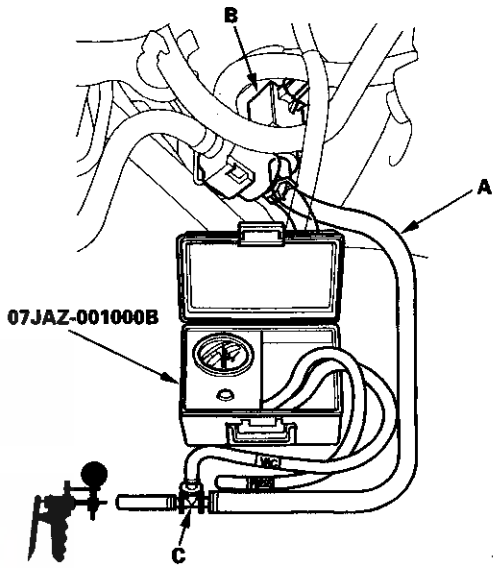
5. Check for a loose or damaged EVAP canister purge line between the intake manifold and the EVAP canister purge valve.

   Is the line OK?

   YES—Go to step 6.

   NO—Reconnect or repair the EVAP canister purge line, then go to step 23.

6. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) in the engine compartment, and connect a T-fitting (C) from the vacuum gauge and the vacuum pump/gauge, 0—30 in.Hg, to the EVAP canister purge valve as shown.



7. Select EVAP PCS ON in the INSPECTION MENU with the HDS.

8. Slowly apply about 2 kPa (0.6 in.Hg, 15 mmHg) of vacuum to the hose.

   Does it hold vacuum?

   YES—Check for blockage in the EVAP canister purge line between the intake manifold and the EVAP canister purge valve. If the vacuum hose is OK, replace the EVAP canister purge valve, then go to step 22.

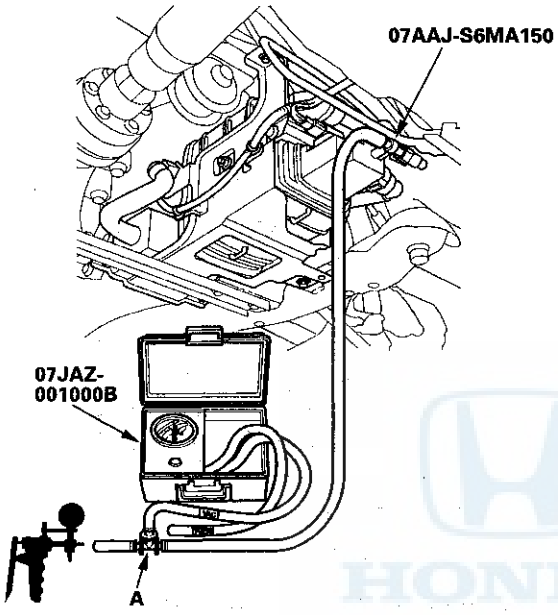
   NO—Go to step 9.

9. Reconnect the vacuum hose to the EVAP canister purge valve.

(cont'd)

DTC Troubleshooting (cont'd)

10. Disconnect the vacuum hose from the EVAP canister purge line (EVAP canister side), and connect a T-fitting (A) from the vacuum gauge and the vacuum pump/gauge, 0—30 in.Hg, to the hose as shown.



11. Select EVAP PCS ON in the INSPECTION MENU with the HDS.

12. Slowly apply about 2 kPa (0.6 in.Hg, 15 mmHg) of vacuum to the hose.

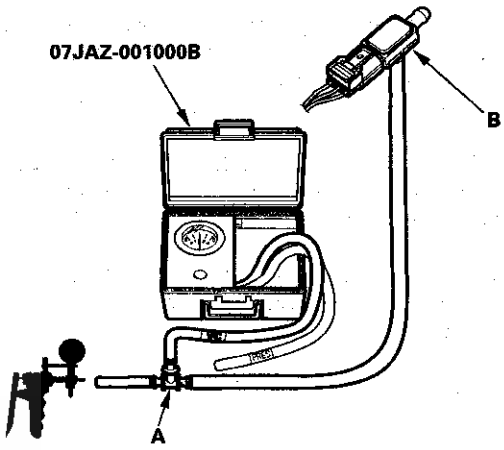
    Does it hold vacuum?

    YES—Check for a restricted in the EVAP canister purge line between the EVAP canister purge valve and the EVAP canister, then go to step 22.

    NO—Go to step 13.

13. Remove the FTP sensor with its connector connected (see page 11-542).

14. Connect a T-fitting (A) from the vacuum gauge and the commercially available vacuum pump/gauge, 0—30 in.Hg, to the FTP sensor (B) as shown.



15. Check and record the FTP SENSOR reading in the DATA LIST with the HDS.

16. Slowly apply about 1.3 kPa (0.4 in.Hg, 10 mmHg) of vacuum to the hose.

17. Check the FTP SENSOR in the DATA LIST with the HDS.

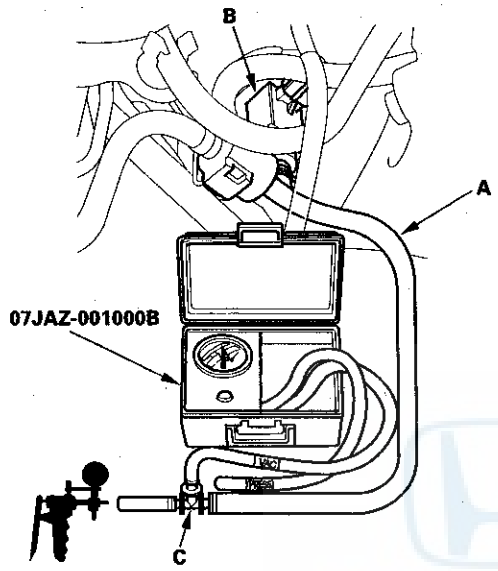
    Is the difference more than 1.1 kPa (0.31 in.Hg, 8 mmHg) before and after applying vacuum?

    YES—Go to step 18.

    NO—Replace the FTP sensor (see page 11-542), then go to step 22.

18. Reconnect the vacuum hose to the EVAP canister purge line (EVAP canister side), and reinstall the FTP sensor.

19. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B), and connect a T-fitting (C) from the vacuum gauge and the vacuum pump/gauge, 0—30 in.Hg, to the hose as shown.



20. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

21. Slowly apply about 2 kPa (0.6 in.Hg, 15 mmHg) of vacuum to the hose.

    Does the hose hold vacuum?

    YES—Check for blockage at the EVAP canister port, then go to step 22.

    NO—Replace the EVAP canister vent shut valve, then go to step 22.

22. Reconnect all hoses.

23. Turn the ignition switch ON (II).

24. Reset the ECM with the HDS.

25. Do the ECM idle learn procedure (see page 11-462).

26. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

    Is the result OK?

    YES—Troubleshooting is complete.■

    NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, or the EVAP canister vent shut valve and the ECM, then go to step 1.

DTC Troubleshooting (cont'd)

DTC P0498: EVAP Canister Vent Shut Valve Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS, then wait 5 seconds.
3. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0498 indicated?

   YES—Go to step 6.

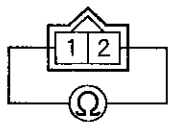
   NO—Go to step 4.
4. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
5. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0498 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM.■
6. Turn the ignition switch OFF.
7. Disconnect the EVAP canister vent shut valve 2P connector.
8. At the valve side, measure resistance between EVAP canister vent shut valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Terminal side of male terminals

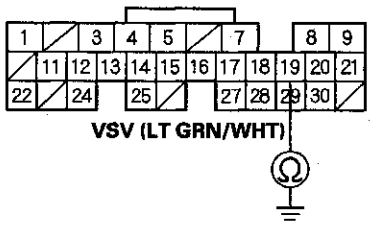
Is there about 25—30 Ω at room temperature?

YES—Go to step 9.

NO—Go to step 12.

9. Jump the SCS line with the HDS.
10. Disconnect ECM connector E (31P).
11. Check for continuity between ECM connector terminal E19 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the EVAP canister vent shut valve and the ECM (E19), then go to step 13.

NO—Go to step 21.

12. Replace the EVAP canister vent shut valve (see page 11-543).

13. Reconnect ECM connector E (31P).

14. Reconnect the EVAP canister vent shut valve 2P connector.

15. Turn the ignition switch ON (II).

16. Reset the ECM with the HDS.

17. Do the ECM idle learn procedure (see page 11-462).

18. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

19. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0498 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM, then go to step 1.

    NO—Go to step 20.

20. Monitor the OBD STATUS for DTC P0498 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 19, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 18.

21. Reconnect all connectors.

22. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

23. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

24. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0498 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 23. If the ECM was substituted, go to step 1.

    NO—Go to step 24.

25. Monitor the OBD STATUS for DTC P0498 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 24, go to the indicated DTC's troubleshooting.■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 23. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 23.

DTC Troubleshooting (cont'd)

DTC P0499: EVAP Canister Vent Shut Valve Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

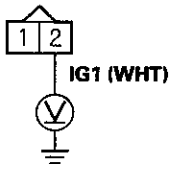
1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS, then wait 5 seconds.
3. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
4. Check for Temporary DTCs or DTCs with the HDS.

   Is DTC P0499 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM.■
5. Turn the ignition switch OFF.
6. Disconnect the EVAP canister vent shut valve 2P connector.
7. Turn the ignition switch ON (II).
8. Measure voltage between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

   EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

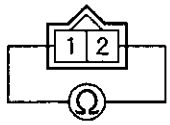
   Is there battery voltage?

   YES—Go to step 9.

   NO—Repair open in the wire between the EVAP canister vent shut valve and the A/F sensor relay (LAF), then go to step 16.
9. Turn the ignition switch OFF.

10. At the valve side, measure resistance between EVAP canister vent shut valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Terminal side of male terminals

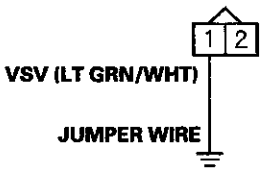
Is there about 25—30 Ω at room temperature?

YES—Go to step 11.

NO—Go to step 15.

11. Jump the SCS line with the HDS.
12. Disconnect ECM connector E (31P).
13. Connect EVAP canister vent shut valve 2P connector terminal No. 1 to body ground with a jumper wire.

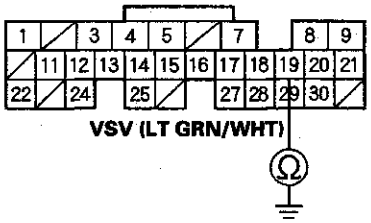
EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

14. Check for continuity between ECM connector terminal E19 and body ground.

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there continuity?

YES—Go to step 23.

NO—Repair open in the wire between the EVAP canister vent shut valve and the ECM (E19), then go to step 16.

15. Replace the EVAP canister vent shut valve (see page 11-543).
16. Reconnect all connectors.
17. Turn the ignition switch ON (II).
18. Reset the ECM with the HDS.
19. Do the ECM idle learn procedure (see page 11-462).
20. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

(cont'd)

DTC Troubleshooting (cont'd)

21. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0499 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM, then go to step 1.

    NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P0499 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 21, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, go to step 20.

23. Reconnect all connectors.

24. Update the ECM if it does not have the latest software (see page 11-216), or substitute a known-good ECM (see page 11-217).

25. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

26. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P0499 indicated?

    YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 25. If the ECM was substituted, go to step 1.

    NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P0499 in the DTCs MENU with the HDS.

    Does the screen indicate PASSED?

    YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-389). If any other Temporary DTCs or DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

    NO—If the screen indicates FAILED, check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-217), then go to step 25. If the ECM was substituted, go to step 1. If the screen indicates NOT COMPLETED, go to step 25.

DTC P1454: FTP Sensor Range/Performance Problem

DTC P2422: EVAP Canister Vent Shut Valve Stuck Closed Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-213).

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF.
4. Remove the fuel fill cap, and wait 1 minute.
5. Check the FTP SENSOR in the DATA LIST with the HDS.

   Is it between −0.67 kPa and 0.67 kPa (−0.2 and 0.2 in.Hg, −5 and 5 mmHg), or 2.4−2.6 V?

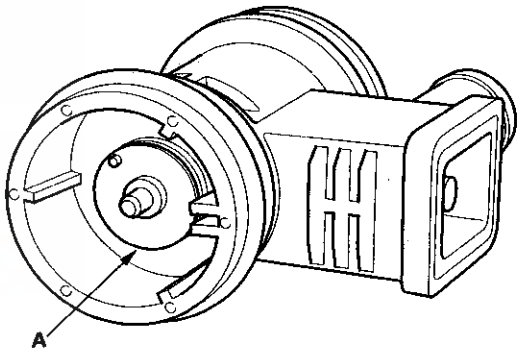
   YES—Go to step 6.

   NO—Go to step 17.
6. Install the fuel fill cap.
7. Clear the DTC with the HDS.
8. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
9. Monitor the OBD STATUS for DTC P1454 in the DTCs MENU with the HDS.

   Does the screen indicate FAILED?

   YES—Go to step 10.

   NO—If the screen indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor or the EVAP canister vent shut valve and the ECM. Also check for a blockage in the canister filter, vent hoses, and drain joint. If the screen indicates NOT COMPLETED, go to step 8 and recheck.
10. Clear the DTC with the HDS.
11. Turn the ignition switch OFF.
12. Remove the EVAP canister vent shut valve from the EVAP canister (see page 11-543).
13. Connect the 2P connector to the EVAP canister vent shut valve.
14. Turn the ignition switch ON (II).
15. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
16. Check the EVAP canister vent shut valve (A) operation.



Does the valve operate?

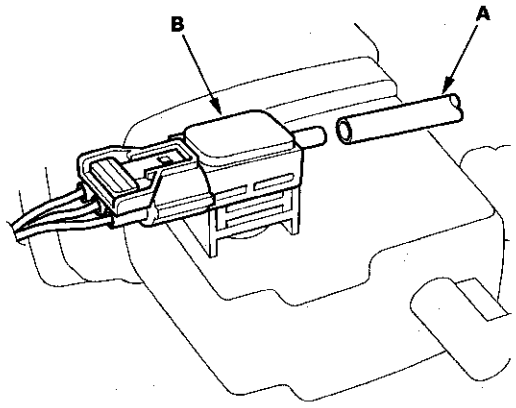
YES—Check for a blockage in the EVAP canister, canister filter, vent hoses, and drain joint, then install the EVAP canister vent shut valve, and go to step 23.

NO—Replace the EVAP canister vent shut valve (see page 11-543), then go to step 23.

(cont'd)

DTC Troubleshooting (cont'd)

17. Disconnect the air tube (A) from the FTP sensor (B).



18. Check the FTP SENSOR in the DATA LIST with the HDS.

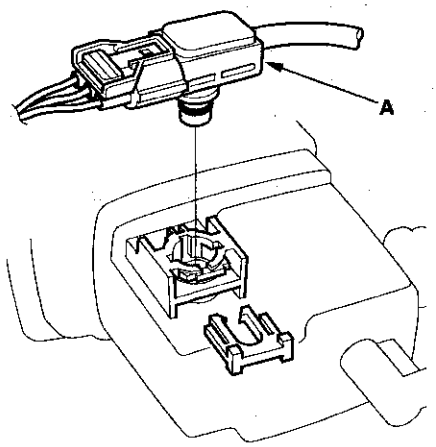
    Is it between −0.67 kPa and 0.67 kPa (−0.2 and 0.2 in.Hg, −5 and 5 mmHg), or 2.4−2.6 V?

    YES—Check for a blockage in the FTP sensor air tube, then go to step 23.

    NO—Go to step 19.

19. Turn the ignition switch OFF.

20. Remove the FTP sensor (A) from the EVAP canister with its connector connected (see page 11-542).



21. Turn the ignition switch ON (II).

22. Check the FTP SENSOR in the DATA LIST with the HDS.

    Is it between −0.67 kPa and 0.67 kPa (−0.2 and 0.2 in.Hg, −5 and 5 mmHg), or 2.4−2.6 V?

    YES—Check for debris or clogging at the EVAP canister and the FTP sensor port, then go to step 23.

    NO—Replace the FTP sensor (see page 11-542), then go to step 23.

23. Turn the ignition switch ON (II).

24. Reset the ECM with the HDS.

25. Do the ECM idle learn procedure (see page 11-462).

26. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.

27. Check for Temporary DTCs or DTCs with the HDS.

    Is DTC P1454 and/or P2422 indicated?

    YES—Check for poor connections or loose terminals at the FTP sensor or the EVAP canister vent shut valve and the ECM, then go to step 1.

    NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P1454 in the DTCs MENU with the HDS.

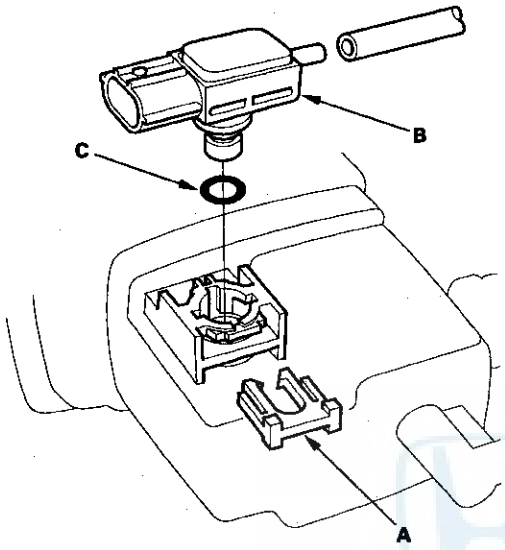
Does the screen indicate PASSED?

YES—Troubleshooting is complete. If any other Temporary DTCs or DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the screen indicates FAILED, check for poor connections or loose terminals at the FTP sensor, or the EVAP canister vent shut valve and the ECM, then go to step 1. If the screen indicates NOT COMPLETED, keep idling until a result comes on.

FTP Sensor Replacement

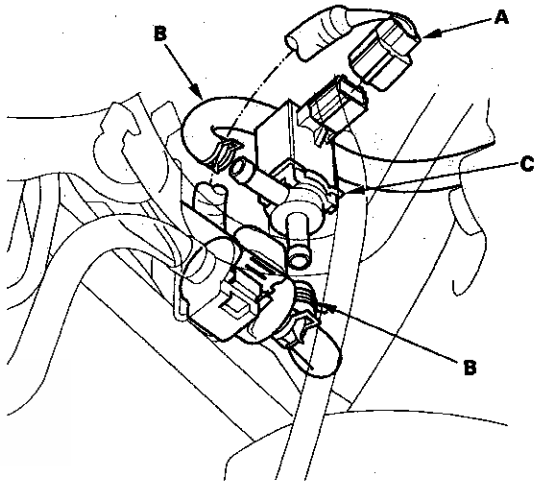
1. Remove the EVAP canister (see page 11-544).
2. Remove the retaining clip (A).



3. Remove the FTP sensor (B).
4. Install the parts in the reverse order of removal with a new O-ring (C).

EVAP Canister Purge Valve Replacement

1. Disconnect the EVAP canister purge valve 2P connector (A) and hoses (B).

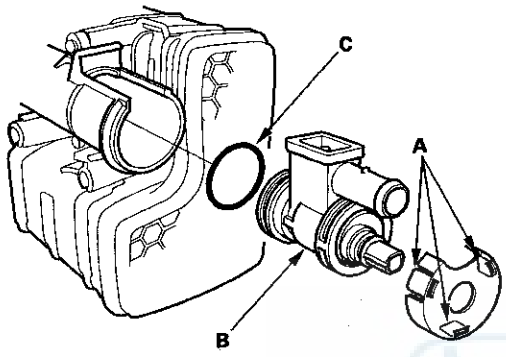


2. Remove the EVAP canister purge valve (C).
3. Install the parts in the reverse order of removal.

EVAP Canister Vent Shut Valve Replacement

1. Remove the EVAP canister (see page 11-544).
2. Pry the lock tabs (A) outward, and remove the EVAP canister vent shut valve (B).

   NOTE: Be careful not to damage the lock tabs.

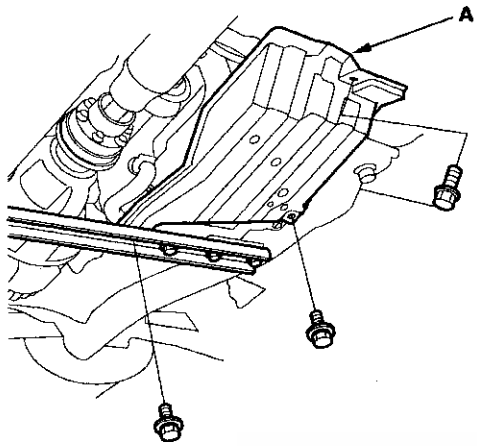


3. Install the parts in the reverse order of removal with a new O-ring (C).

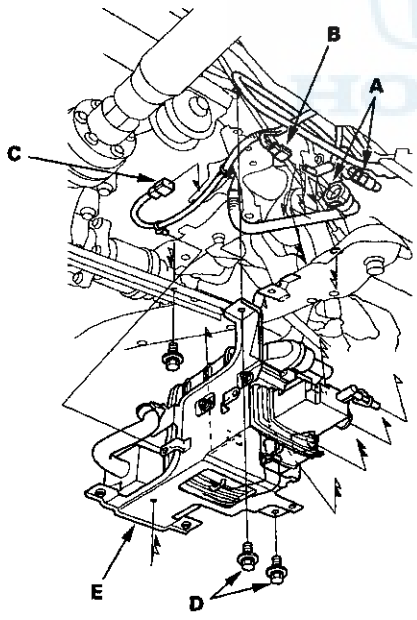
   NOTE: Do not coat the O-ring with oil, etc.

EVAP Canister Replacement

1. Remove the EVAP canister cover (A).



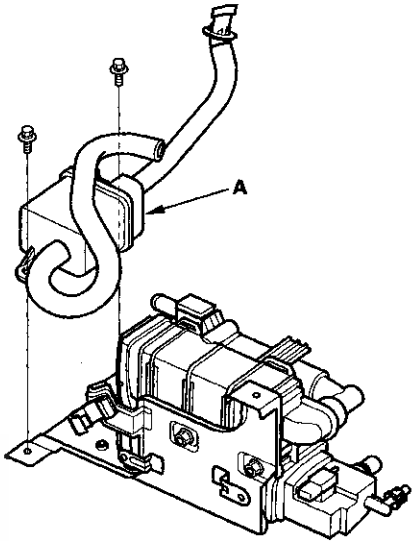
2. Remove the hoses (A), the FTP sensor 3P connector (B), and the EVAP canister vent shut valve 2P connector (C).



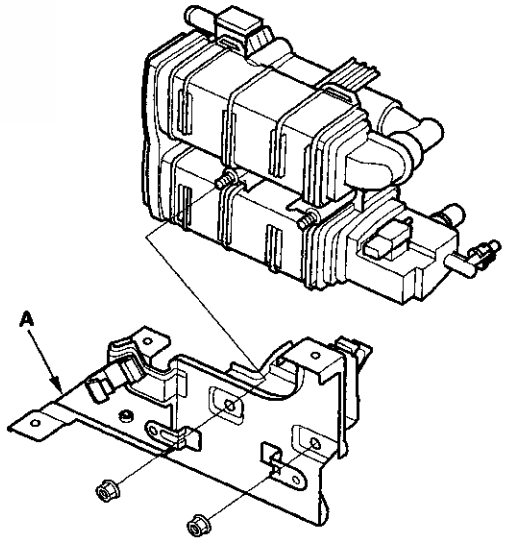
3. Remove the bolts (D).

4. Remove the EVAP canister assembly (E).

5. Remove the canister filter (A).



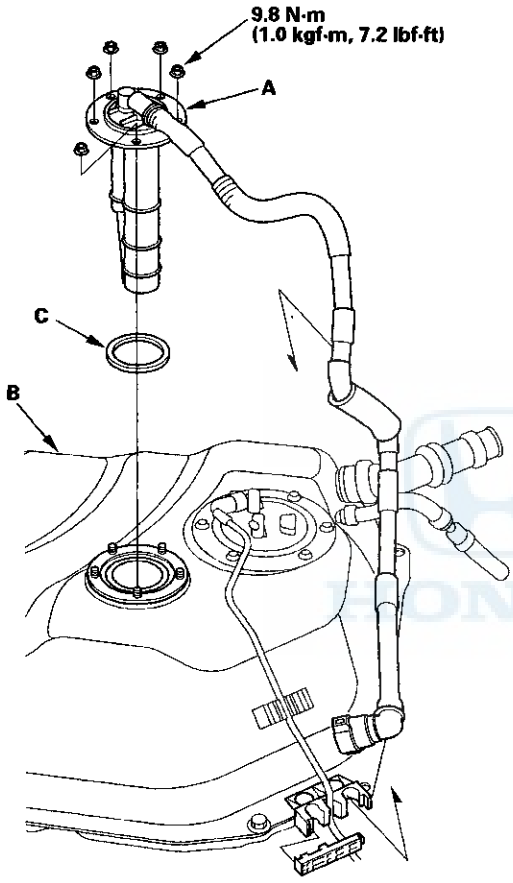
6. Remove the EVAP canister bracket (A).



7. Install the parts in the reverse order of removal.

Fuel Tank Vapor Control Float Replacement

1. Remove the fuel tank (see page 11-489).
2. Remove the fuel tank vapor control float (A) from the fuel tank (B).



3. Install the parts in the reverse order of removal with a new packing (C).

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

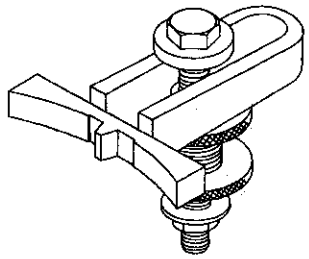
Transaxle

HONDA

Clutch

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07LAB-PV00100 or 07924-PD20003	Ring Gear Holder	1
②	07LAF-PT00110	Clutch Alignment Shaft	1
③	07746-0010200	Attachment, 32 x 37 mm	1
④	07749-0010000	Driver	1
⑤	07936-3710100	Remover Handle	1



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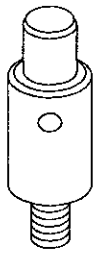

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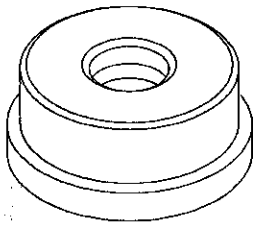

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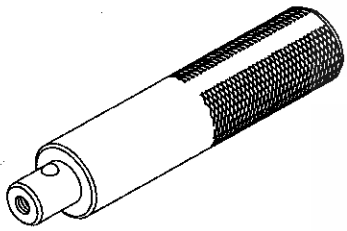

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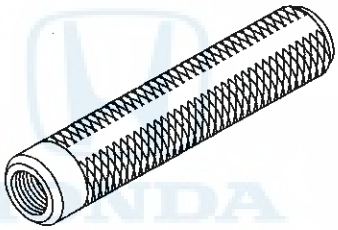
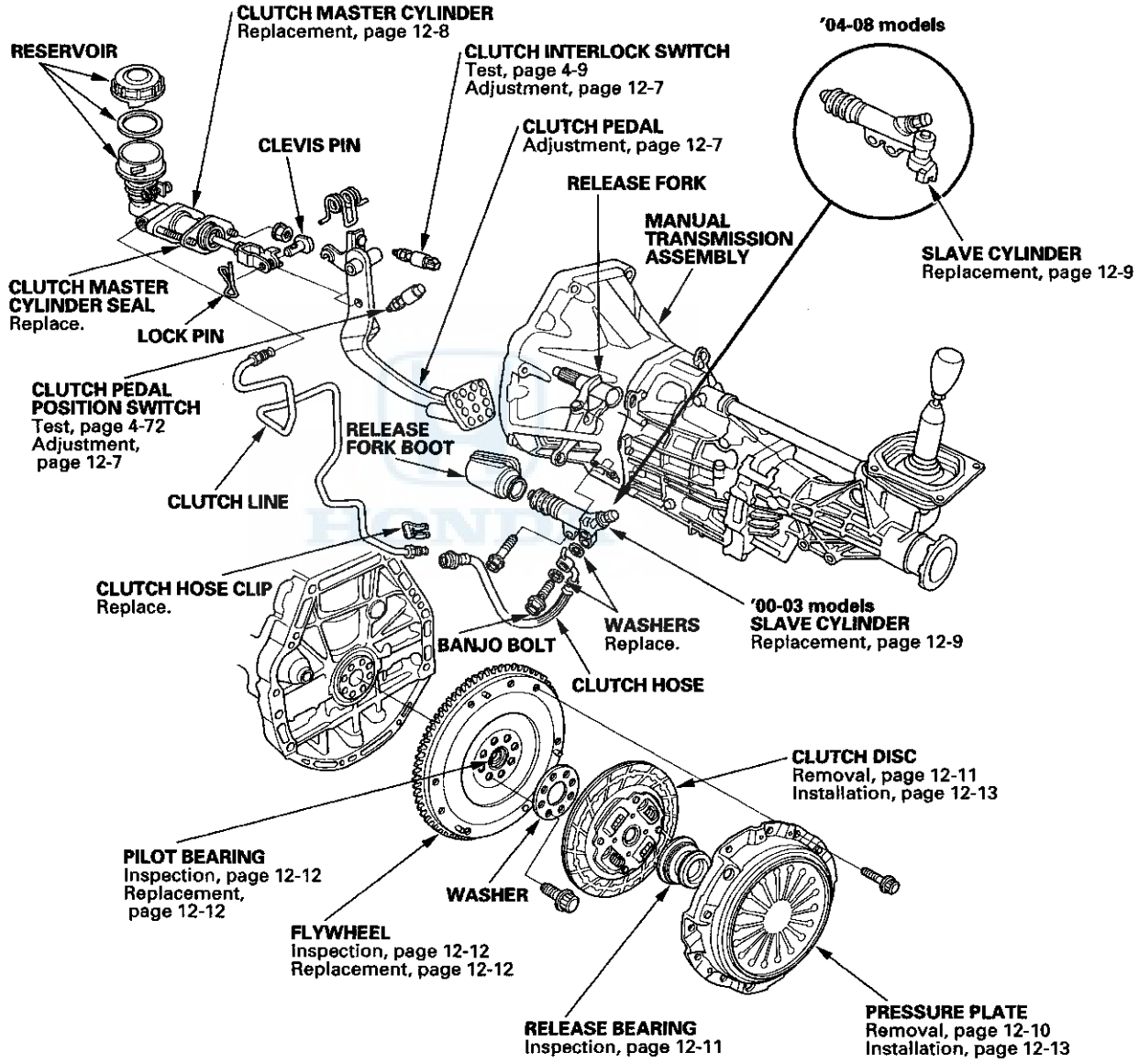


⑤

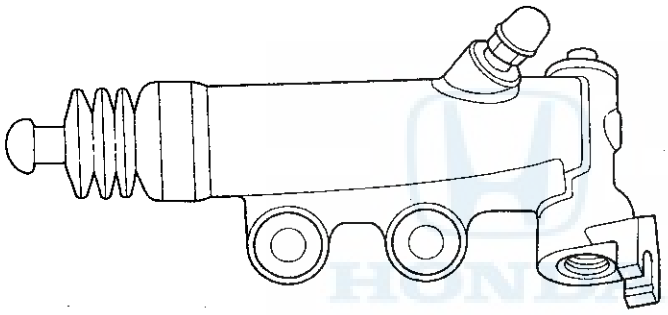
Component Location Index

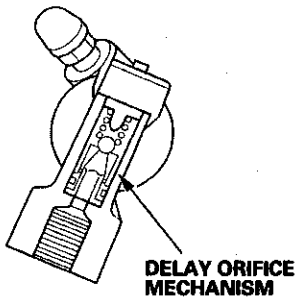


System Description

Delay Orifice Mechanism ('04-08 models)

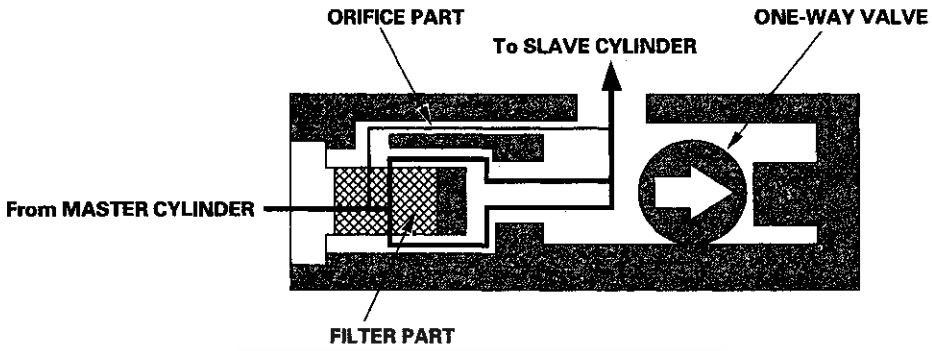
Function
The delay orifice mechanism improves clutch operation by delaying the slave cylinder release speed when the clutch pedal is suddenly released. The delay orifice mechanism is built into the slave cylinder.



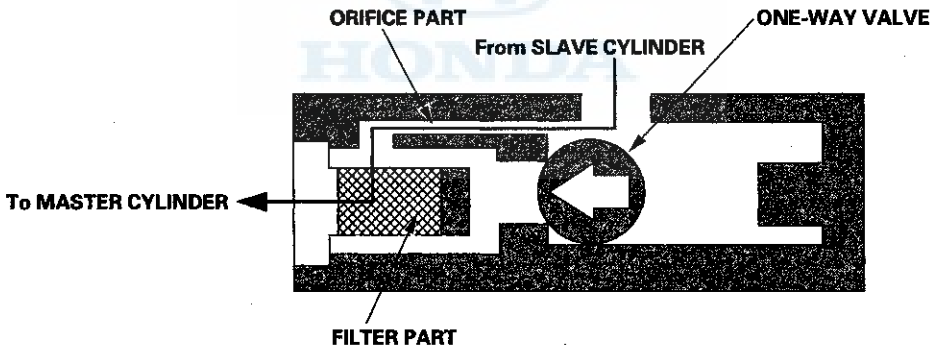


Operation

When the clutch pedal is pressed, the fluid pressure from the master cylinder moves the one-way valve in the direction shown in the illustration. The fluid flows through two passages: the orifice part and the filter part. It then flows out to the slave cylinder to release the pressure plate and clutch disc joint.



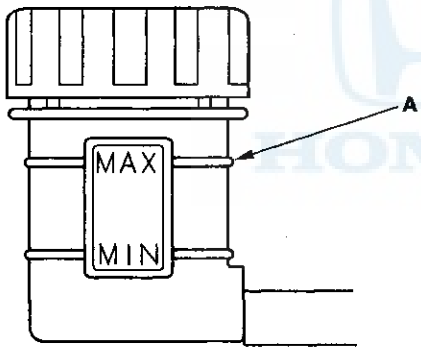
When the clutch pedal is released, the fluid pressure from the slave cylinder moves the one-way valve in the direction shown in the illustration. The one-way valve blocks the filter part passage and delays the clutch release speed by returning the fluid to the master cylinder through only the orifice part passage.



Clutch Hydraulic System Bleeding

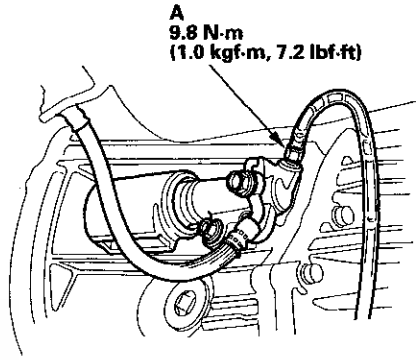
NOTE:
- Do not reuse the drained fluid. Always use Honda DOT 3 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid; they may not be compatible.
- Make sure dirt or other foreign matter is not allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid does contact the paint, wash it off immediately with water.
- If may be necessary to limit the movement of the release fork with a block of wood to remove all the air from the system.
- Use fender covers to avoid damaging painted surfaces.

1. Make sure the brake fluid level in the reservoir is at the MAX (upper) level line (A).

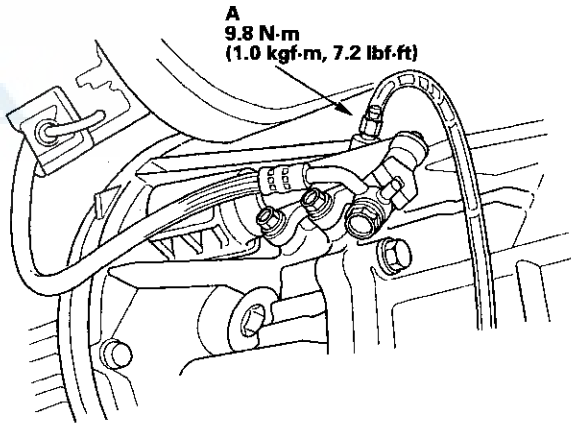


2. Attach one end of clear tube to the bleeder screw (A), and the other end to the container of brake fluid. Loosen the bleeder screw to allow air to escape from the system.

'00-03 models



'04-08 models

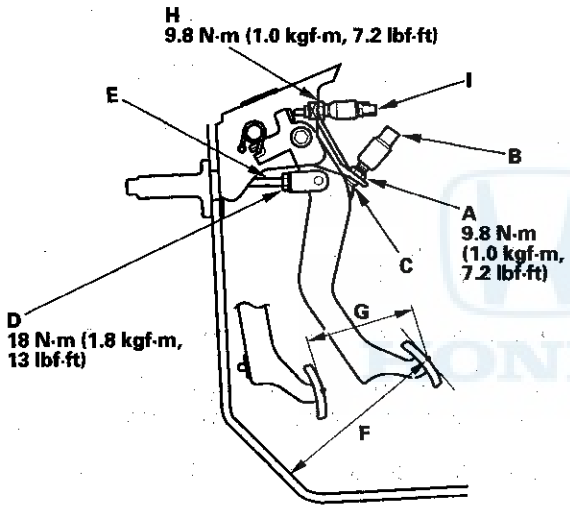


3. Make sure there is an adequate supply of fluid in the reservoir, then slowly pump the clutch pedal until no more bubbles appear at the clear tube.
4. Tighten the bleeder screw securely.
5. Refill the brake fluid in the reservoir to the MAX (upper) level line.

Clutch Pedal, Clutch Pedal Position Switch, and Clutch Interlock Switch Adjustment

NOTE:
- Check the clutch pedal position switch (see page 4-72).
- Check the clutch interlock switch (see page 4-9).
- The clutch is self-adjusting to compensate for wear.
- If there is no clearance between the master cylinder piston and pushrod, the release bearing will be held against the diaphragm spring, which can result in clutch slippage or other clutch problems.

1. Loosen the clutch pedal position switch locknut (A), and back off the clutch pedal position switch (B) until it no longer touches the clutch pedal (C).



2. Loosen the clutch pushrod locknut (D), and turn the pushrod (E) in or out to get the specified height (F) and stroke (G) at the clutch pedal.

   Clutch Pedal Stroke:
   115—125 mm (4.53—4.92 in.)
   Clutch Pedal Height:
   189 mm (7.44 in.)

3. Tighten the clutch pushrod locknut.

4. With the clutch pedal released, turn in the clutch pedal position switch until it contacts the clutch pedal.

5. Turn in the clutch pedal position switch an additional 3/4 to 1 turn.

6. Tighten the clutch pedal position switch locknut.

7. Loosen the clutch interlock switch locknut (H) and the clutch interlock switch (I).

8. Press the clutch pedal to the floor.

9. Release the clutch pedal 15—20 mm (0.59—0.79 in.) from the fully pressed position, and hold it there. Adjust the position of the clutch interlock switch so the engine will start with the clutch pedal in this position.

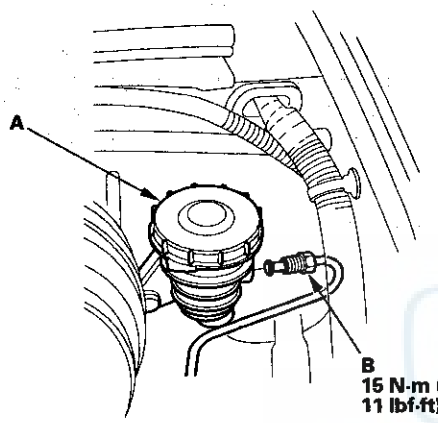
10. Tighten the clutch interlock switch locknut.

11. Check the clutch operation.

Clutch Master Cylinder Replacement

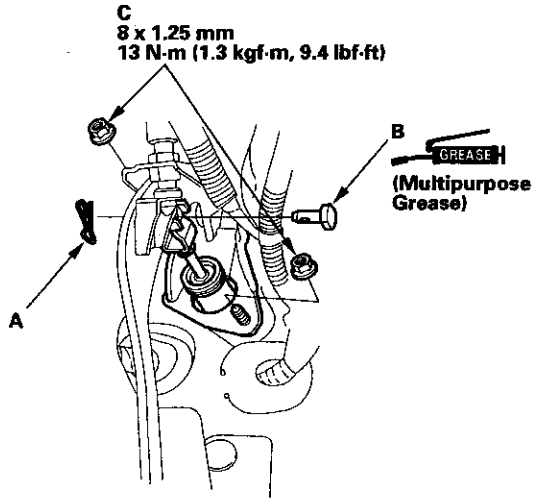
NOTE:
- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid does contact the paint, wash it off immediately with water.

1. Remove the brake fluid from the clutch master cylinder reservoir (A) with a syringe.

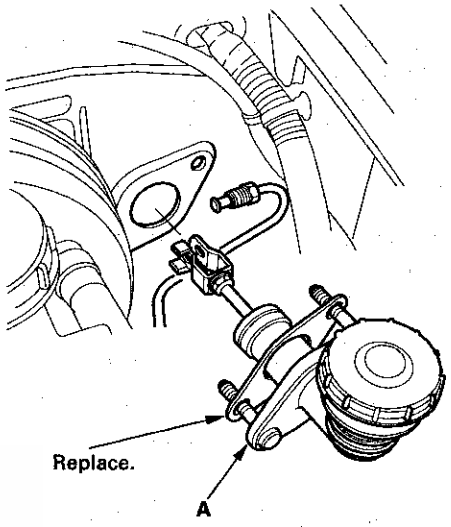


2. Disconnect the clutch line (B) from the clutch master cylinder. Plug or wrap the end of the clutch line with a shop towel to prevent brake fluid from coming out.

3. Pry out the lock pin (A), and pull the clevis pin (B) out of the yoke. Remove the master cylinder mounting nuts (C).



4. Remove the clutch master cylinder (A).



5. Install the clutch master cylinder in the reverse order of removal.

6. Bleed the clutch hydraulic system (see page 12-6).

7. Adjust the clutch pedal, clutch pedal position switch, and clutch interlock switch (see page 12-7).

8. Check the clutch operation and check for leaks.

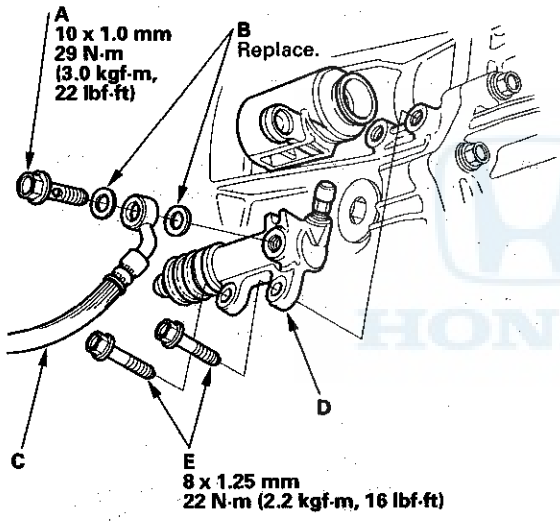
9. Test-drive the vehicle.

Slave Cylinder Replacement

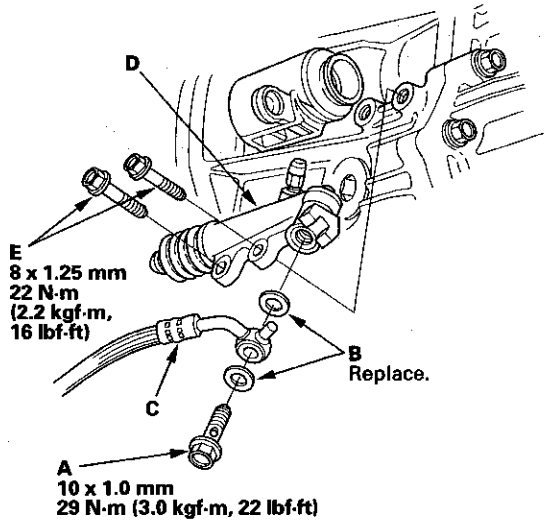
NOTE:
- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid does contact the paint, wash it off immediately with water.

1. Remove the banjo bolt (A) and washers (B), then disconnect the clutch hose (C) from the slave cylinder (D). Plug or wrap the end of the clutch hose with a shop towel to prevent brake fluid from coming out.

'00-03 models

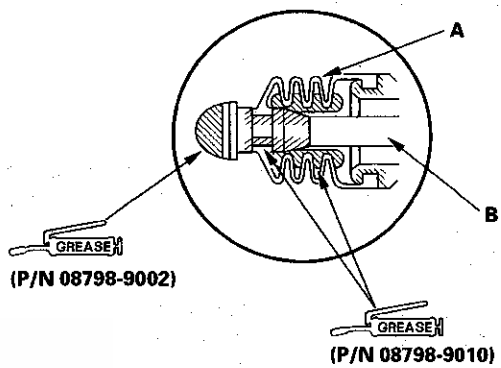


'04-08 models



2. Remove the two bolts (E) and slave cylinder.

3. Pull back the boot (A), and apply M-77 assembly paste (P/N 08798-9010) or equivalent rubber grease to the boot and slave cylinder rod (B). Reinstall the boot.



4. Apply super high temp urea grease (P/N 08798-9002) to the tip of the slave cylinder rod.

5. Install the slave cylinder in the reverse order of removal. Use new banjo bolt washers.

   NOTE: Make sure the boot is installed on the slave cylinder.

6. Bleed the clutch hydraulic system (see page 12-6).

7. Check the clutch operation and check for leaks.

8. Test-drive the vehicle.

Clutch Replacement

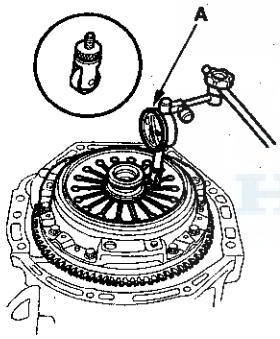
Special Tools Required
- Ring gear holder 07LAB-PV00100 or 07924-PD20003
- Clutch alignment shaft 07LAF-PT00110
- Attachment, 32 x 37 mm 07746-0010200
- Driver 07749-0010000
- Remover handle 07936-3710100

Pressure Plate Removal and Inspection

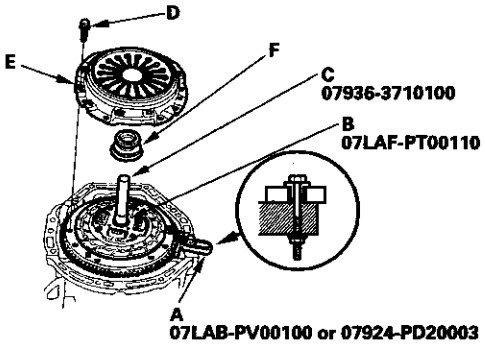
1. Transmission removal (see page 13-6).

2. Check the height-variation of the diaphragm spring fingers using the dial indicator (A). If the variation is more than the service limit, replace the pressure plate.

   Standard (New): **0.4 mm (0.016 in.) max.**
   Service Limit: **0.6 mm (0.024 in.)**



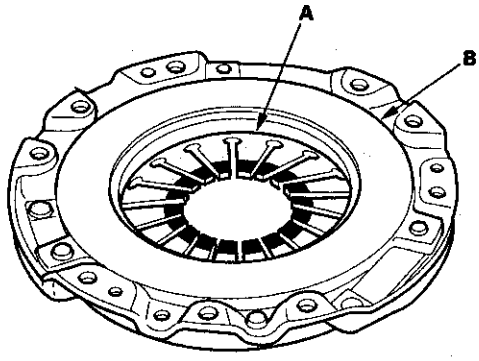
3. Install the ring gear holder (A), clutch alignment shaft (B), and remover handle (C).



4. To prevent warping, remove the pressure plate mounting bolts (D) in a crisscross pattern in several steps, then remove the pressure plate (E).

5. Remove the release bearing (F) from the pressure plate.

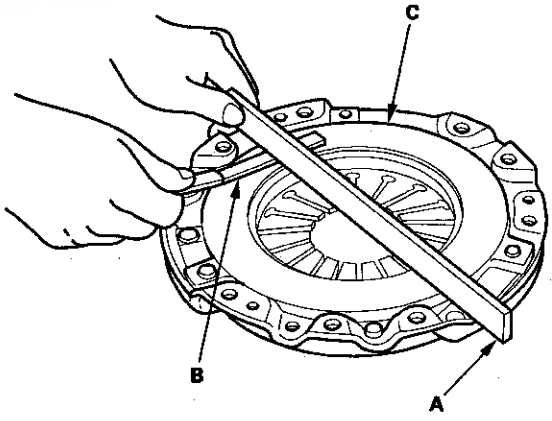
6. Inspect the fingers of the diaphragm spring (A) for wear at the release bearing contact area.



7. Inspect the surface of the pressure (B) plate for wear, cracks, and burning.

8. Inspect for warpage using a straight edge (A) and feeler gauge (B). Measure across the pressure plate (C). If the warpage is more than the service limit, replace the pressure plate.

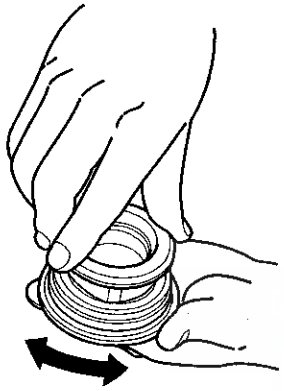
   Standard (New): **0.03 mm (0.001 in.) max.**
   Service Limit: **0.15 mm (0.006 in.)**



Release Bearing Inspection

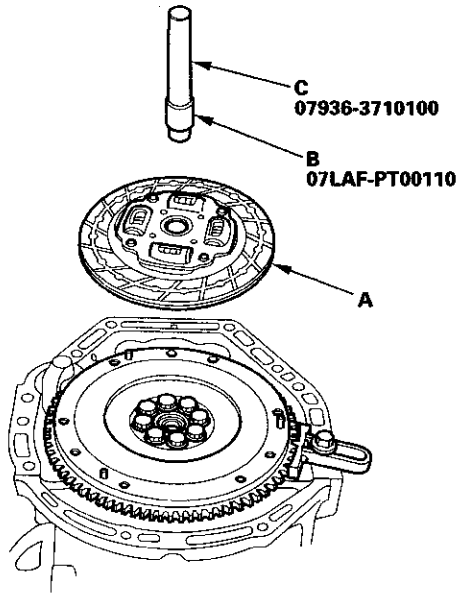
9. Check the play of the release bearing by spinning it with your hand, if there is excessive play or noise, replace the release bearing.

   NOTE: The release bearing is packed with grease. Do not wash it in solvent.



Clutch Disc Removal and Inspection

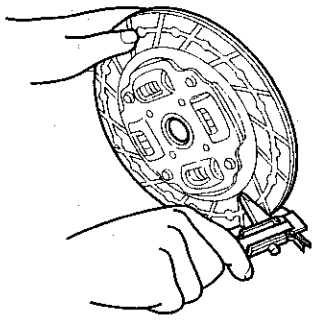
10. Remove the clutch disc (A), clutch alignment shaft (B), and remover handle (C).



11. Inspect the lining of the clutch disc for signs of slipping or oil. If the clutch disc looks burnt or is soaked with, oil replace it. If the clutch disc is oil soaked, find and repair the source of the oil leak.

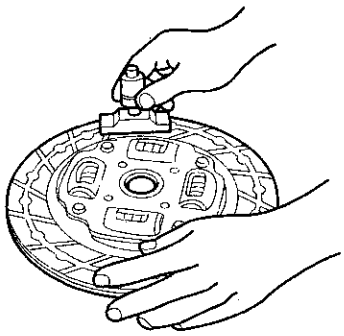
12. Measure the clutch disc thickness. If the thickness is less than the service limit, replace the clutch disc.

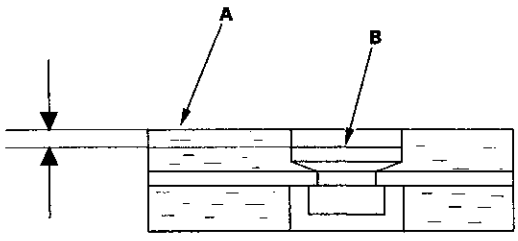
Standard (New): 8.2—8.9 mm (0.32—0.35 in.)
Service Limit: 6.0 mm (0.24 in.)



13. Measure the rivet depth from the clutch disc lining surface (A) to the rivets (B), on both sides. If the rivet depth is less than the service limit, replace the clutch disc.

Standard (New): 1.2—1.7 mm (0.047—0.067 in.)
Service Limit: 0.2 mm (0.008 in.)





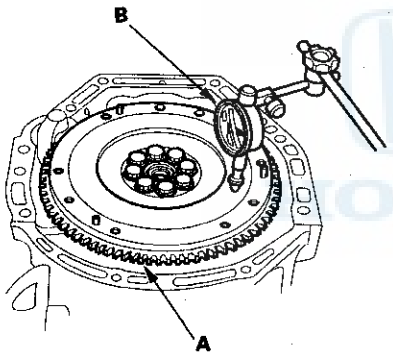
(cont'd)

Clutch Replacement (cont'd)

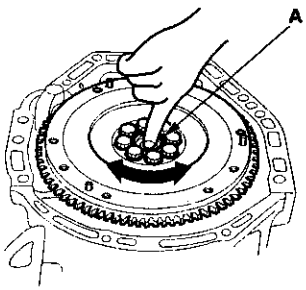
Flywheel and Pilot Bearing Inspection

14. Remove the ring gear holder.
15. Inspect the ring gear teeth for wear and damage.
16. Inspect the clutch disc mating surface on the flywheel for wear, cracks, and burning.
17. Measure the flywheel (A) runout using a dial indicator (B) through at least two full turns with pushing against the flywheel each time you turn it to take up the crankshaft thrust washer clearance. If the runout is more than the service limit, replace the flywheel, and recheck the runout, go to step 19.

Standard (New): **0.05 mm (0.002 in.) max.**
Service Limit: **0.15 mm (0.006 in.)**

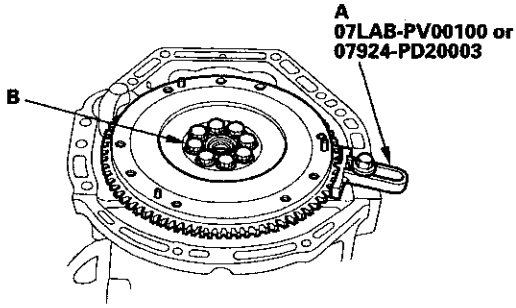


18. Turn the inner race of the pilot bearing (A) with your finger. The pilot bearing should turn smoothly and quietly. Make sure the pilot bearing outer race fits tightly in the flywheel. If the race does not turn smoothly, quietly, or fit tight in the flywheel, replace the pilot bearing, go to step 19.

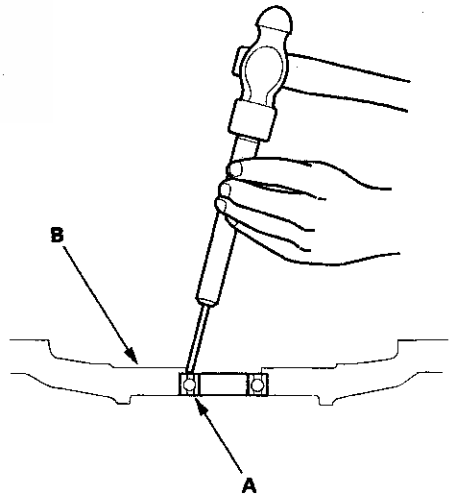


Flywheel and Pilot Bearing Replacement

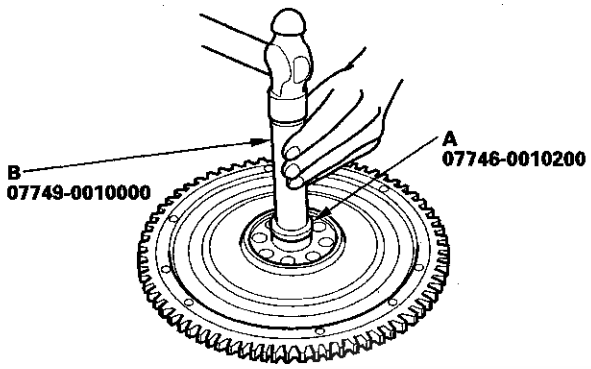
19. Install the ring gear holder (A).



20. Remove the flywheel mounting bolts (B) in a crisscross pattern in several steps, then remove the flywheel and ring gear holder.
21. Remove the pilot bearing (A) from the flywheel (B).

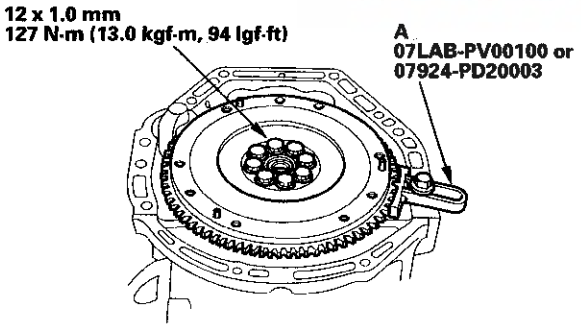


22. Install the new pilot bearing into the flywheel using the 32 x 37 mm attachment (A) and driver (B) as shown. Apply a light coat of engine oil to the bearing surface.



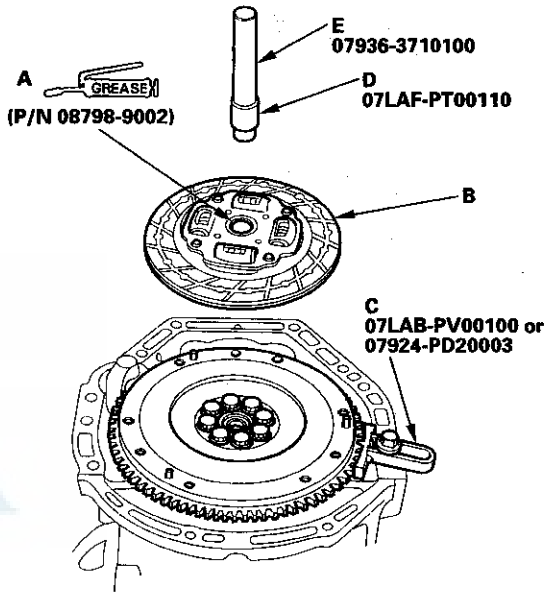
23. Align the hole in the flywheel with the crankshaft dowel pin, and install the flywheel. Install the washer and mounting bolts, finger-tight.

24. Install the ring gear holder (A), then torque the flywheel mounting bolts in a crisscross pattern in several steps.



Clutch Disc and Pressure Plate Installation

25. Apply a thin, uniform coat of super high temp urea grease (P/N 08798-9002) to the splines (A) of the clutch disc (B).Temporary install the clutch disc onto the splines of the transmission mainshaft. Make sure the clutch disc slides freely on the mainshaft, and remove extra overflow grease.



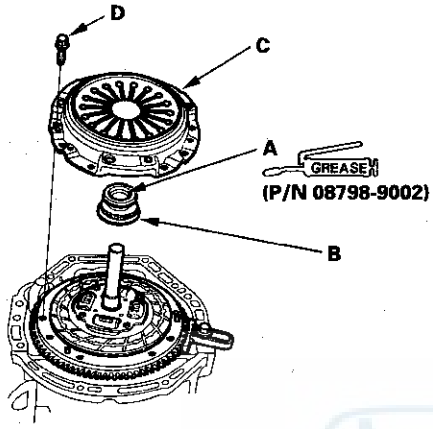
26. Install the ring gear holder (C).

27. Install the clutch disc using the clutch alignment shaft (D) and remover handle (E).

(cont'd)

Clutch Replacement (cont'd)

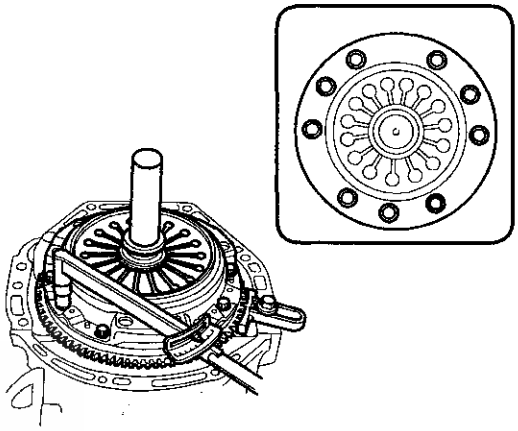
28. Apply super high temp urea grease (P/N 08798-9002) into the groove (A) of the release bearing (B), then install the release bearing on the pressure plate (C).



29. Install the pressure plate and the mounting bolts (D), finger-tight. Make sure the release bearing does not come off.

30. Torque the mounting bolts in a crisscross pattern in several steps to prevent warping the diaphragm spring.

Specified Torque: 25 N·m (2.6 kgf·m, 19 lbf·ft)



31. Remove the ring gear holder, clutch alignment shaft, and remover handle.

32. Make sure the diaphragm spring fingers are all the same height.

33. Transmission installation (see page 13-67).

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If manual transmission maintenance is required)

The S2000 SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, and seat belt tensioners in the seat belt retractors. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

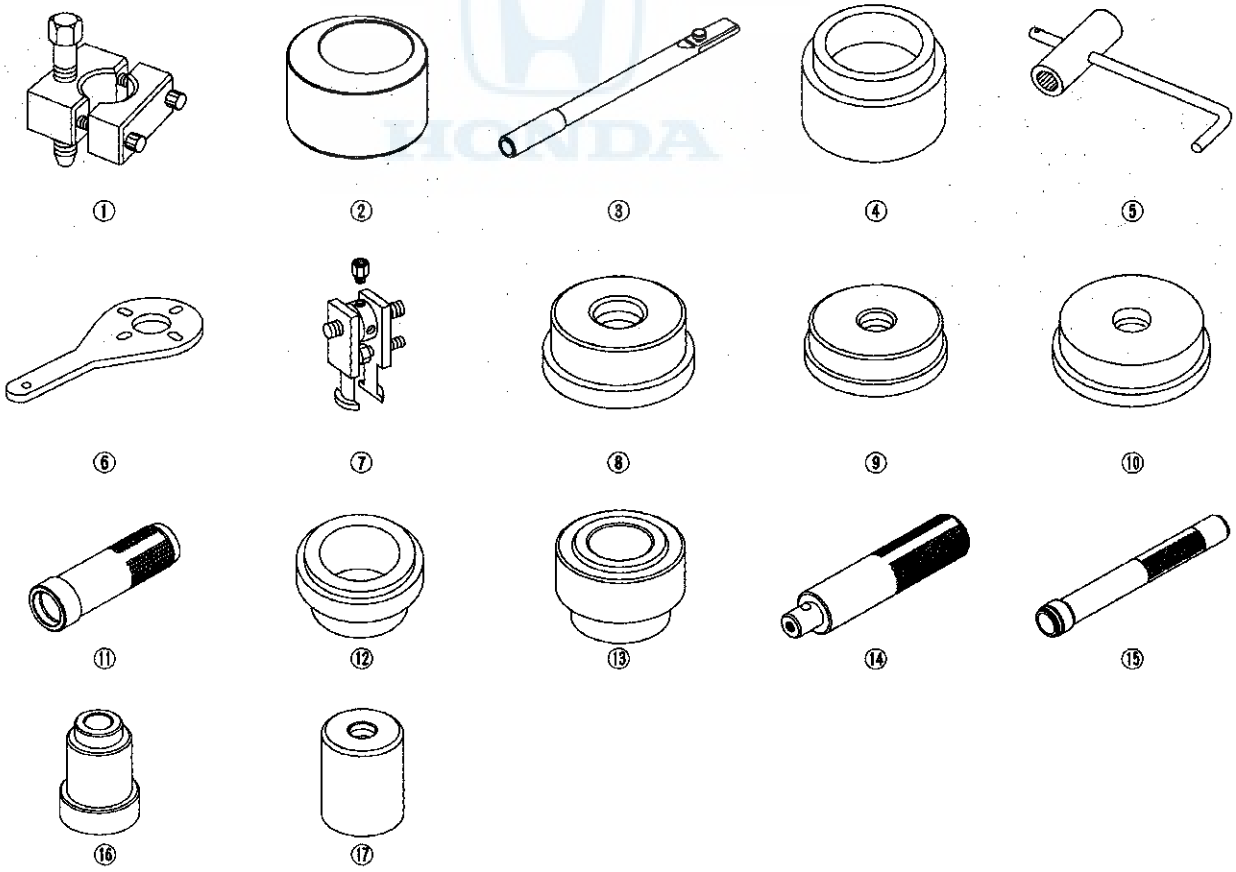
- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional activation of the airbags and seat belt tensioners.
- Do not bump or impact the SRS unit, or front impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, console, dashboard, dashboard lower panel, in the dashboard above the glove box. Do not use electrical test equipment on these circuits.

Manual Transmission

Special Tools

Ref. No.	Tool Number	Description	Qty
**①*	07GAJ-PG20110	Mainshaft Holder	1
**②	07GAJ-PG20130	Mainshaft Base	1
③	07JAB-001020A	Holder Handle	1
④	07LAD-PW50601	Attachment, 40 x 50 mm I.D.	1
⑤	07PAB-001A300	Mainshaft Holder	1
⑥	07RAB-TB4010B	Companion Flange Holder	1
*⑦	07736-A01000B	Adjustable Bearing Puller, 20—40 mm	1
⑧	07746-0010300	Attachment, 42 x 47 mm	1
⑨	07746-0010500	Attachment, 62 x 68 mm	1
⑩	07746-0010600	Attachment, 72 x 75 mm	1
⑪	07746-0030100	Driver Handle	1
⑫	07746-0030300	Attachment, 30 mm I.D.	1
⑬	07746-0030400	Attachment, 35 mm I.D.	1
⑭	07749-0010000	Driver	1
⑮	07946-MB00000	Driver, 30 mm I.D.	1
⑯	07947-6890300	Attachment, 45 mm	1
⑰	07965-SA50500	Attachment, 35 mm I.D.	1

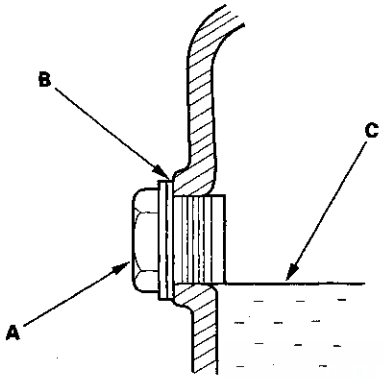
* Must be used with commercially available 3/8"- 16 UNF slide hammer.
* * Part of Mainshaft Inspection Tool Set, 07GAJ-PG2010A.



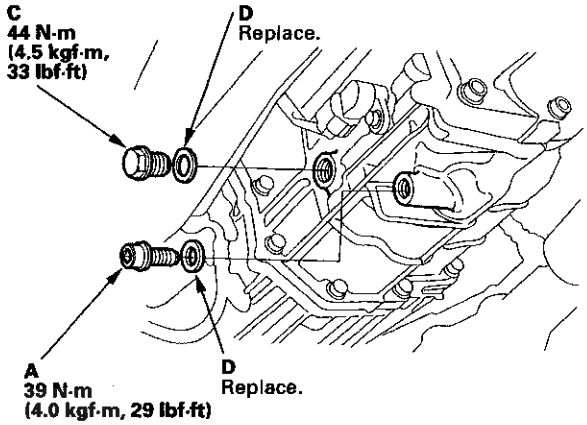
Transmission Fluid Inspection and Replacement

1. Raise the vehicle on a lift.

2. Remove the filler plug (A) and the sealing washer (B), check the condition of the fluid, and make sure it is at the proper level (C).



3. If the fluid is dirty, remove the drain plug (A) and drain the fluid.



4. Install the drain plug with a new sealing washer (B), and refill the transmission fluid to the proper level.

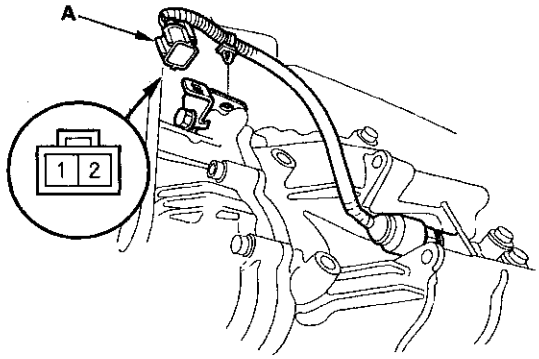
   Fluid Capacity:
   1.48 L (1.56 US qt) at fluid change
   1.62 L (1.71 US qt) at overhaul

   Always use Honda manual transmission fluid (MTF). Using engine oil can cause stiff shifting because it does not contain the proper additives.

5. Install the filler plug (C) with a new sealing washer (D).

Back-up Light Switch Test and Replacement

1. Disconnect the back-up light switch 2P connector (A).



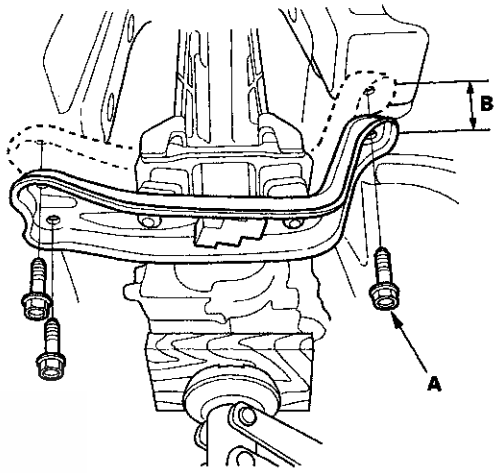
2. Check for the continuity between the back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the shift lever is only in reverse. If there is no continuity, go to step 3 to replace the back-up light switch.

3. Remove the shift lever knob, boot holder, shift boot, shift lever, and shift lever spring (see page 13-6).

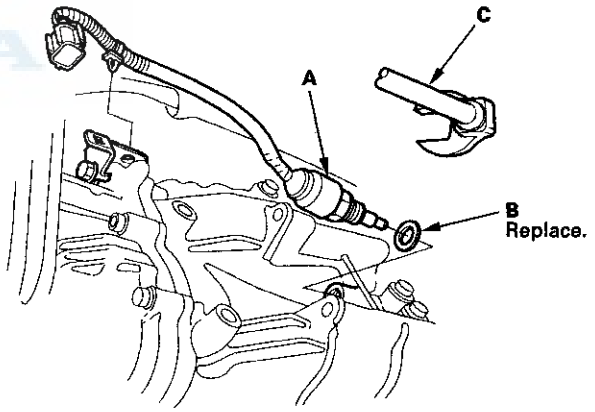
4. Remove the three way catalytic converter (TWC) (see step 30 on page 13-11).

5. Remove the propeller shaft (see page 16-18).

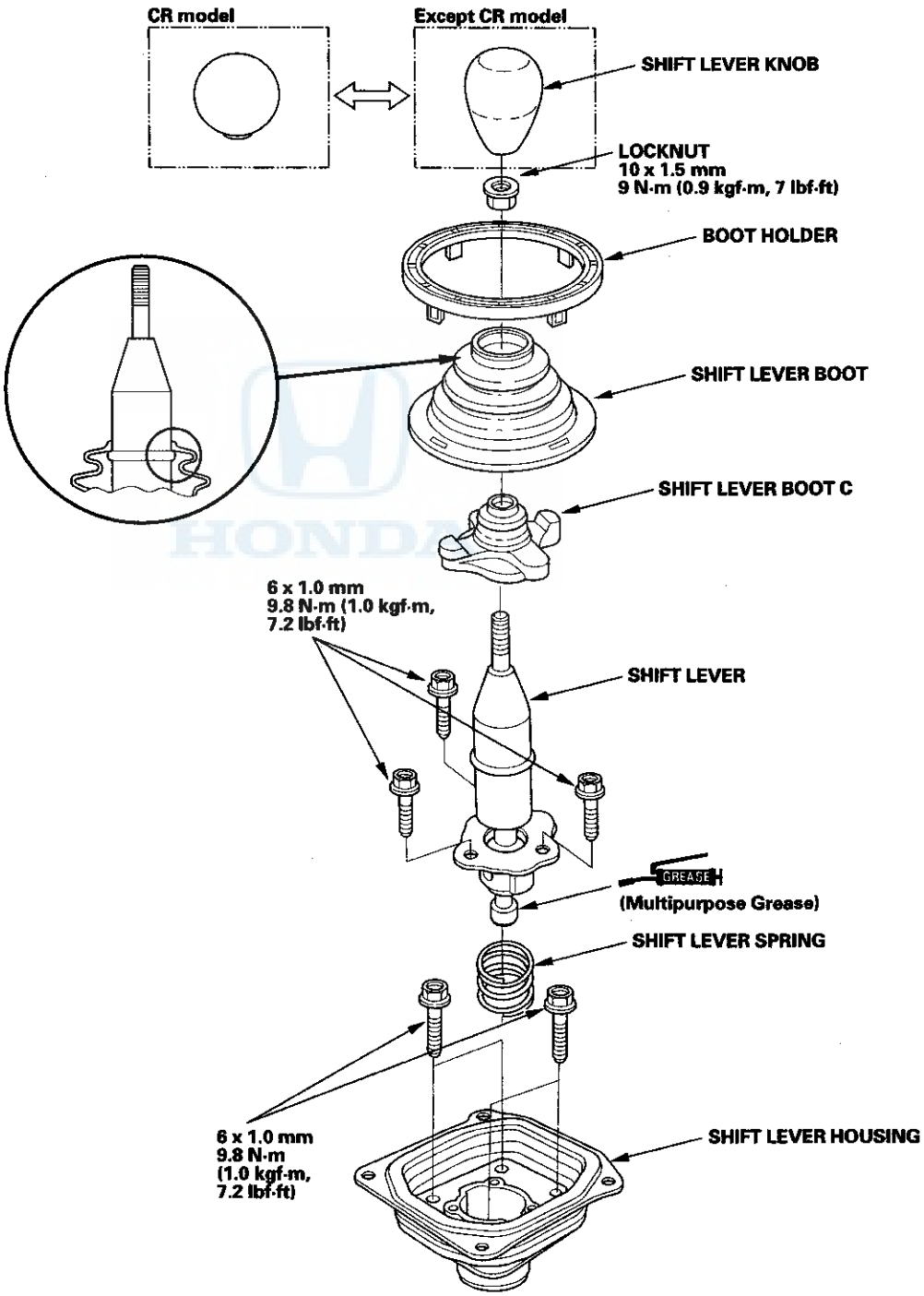
6. Place the floor jack under the transmission, and remove the three transmission rear mount bolts (A), and then lower the transmission (B) 65 mm (2.56 in.).



7. Replace the back-up light switch (A) and the new washer (B) by the 3/8" crow foot wrench (19 mm) (C).



Gearshift Mechanism Replacement



Transmission Removal

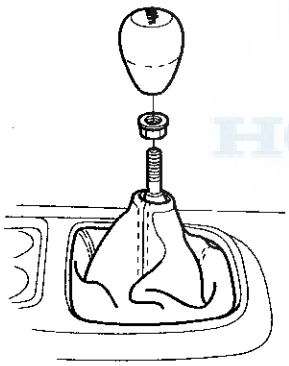
NOTE: Use fender covers to avoid damaging painted surfaces.

SRS components are located in this area. Review the SRS component locations for the appropriate model:

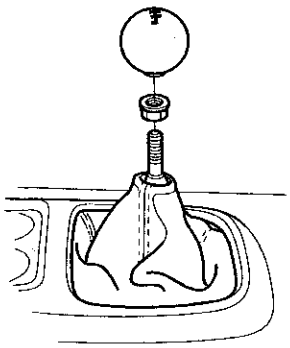
- '00-05 models (see page 23-11)
- '06-08 models (see page 23-12)

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Disconnect the negative cable from the battery, then disconnect the positive cable.
3. Remove the battery.
4. Loosen the locknut, then remove the shift lever knob.

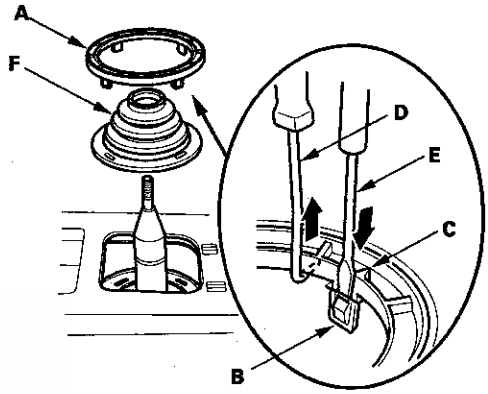
except CR model



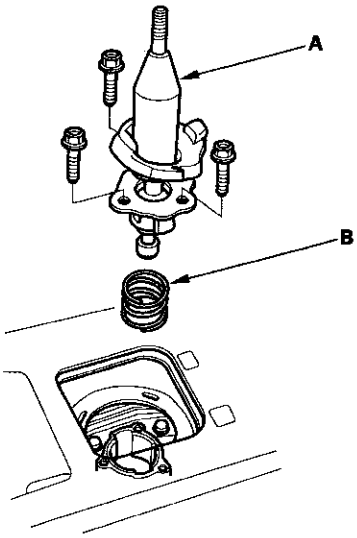
CR model



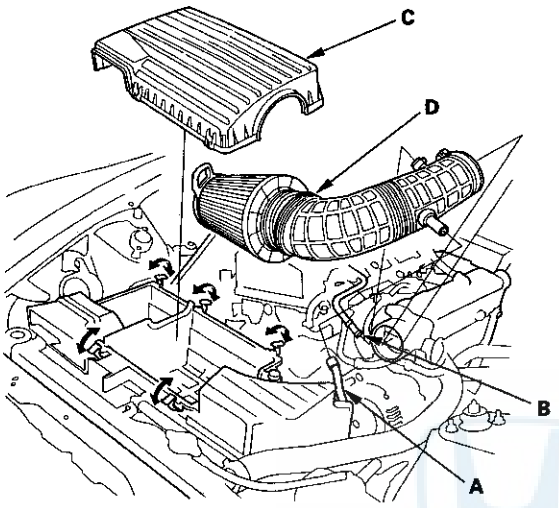
5. Remove the center console (see page 20-80).
6. Remove the boot holder (A) by releasing the lock tabs (B) indicated by the arrowheads (C). Insert a hook-shaped tool (D) underneath the boot holder, and lift slightly while releasing the lock tabs with a flat-tip screwdriver (E).



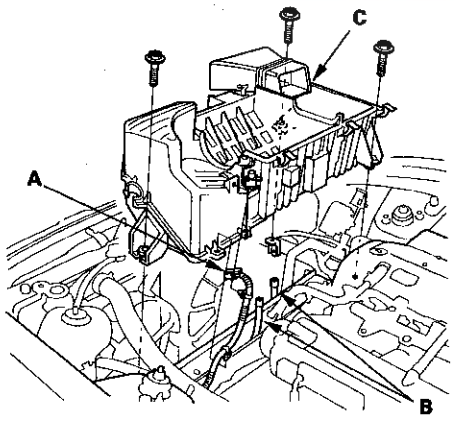
7. Pull up and remove the boot holder and the shift lever boot (F).
8. Remove the three bolts, then remove the shift lever (A) and the shift lever spring (B).



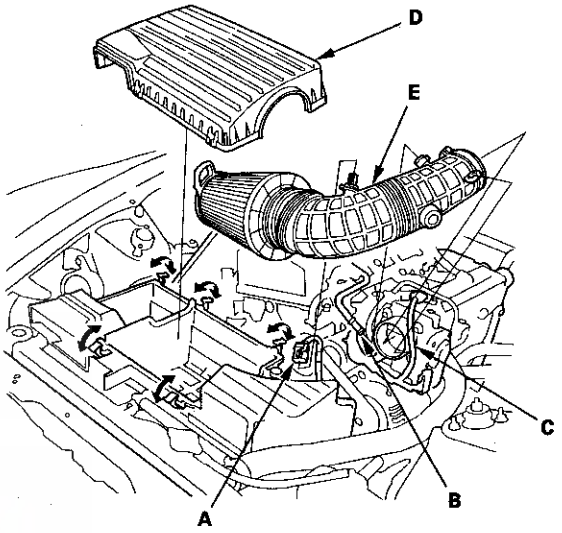
9. '00-05 models: Disconnect the air hose (A) and breather pipe (B), then remove the air cleaner housing cover (C) and air cleaner element assembly (D).



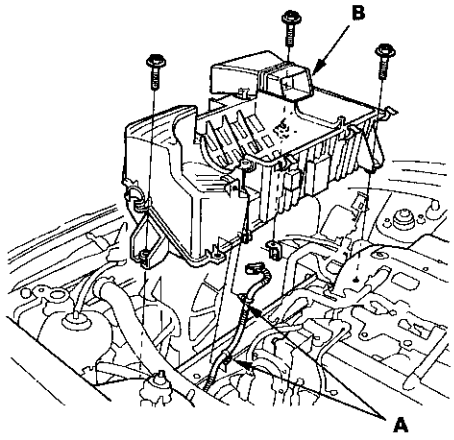
10. '00-05 models: Disconnect the air control valve vacuum control solenoid valve connector (A) and vacuum hoses (B), then remove the air cleaner housing (C).



11. '06-08 models: Disconnect the intake air temperature (IAT) sensor connector (A) and breather pipe (B), remove the manifold absolute pressure (MAP) sensor harness (C) from the holder, then remove the air cleaner housing cover (D) and air cleaner element assembly (E).



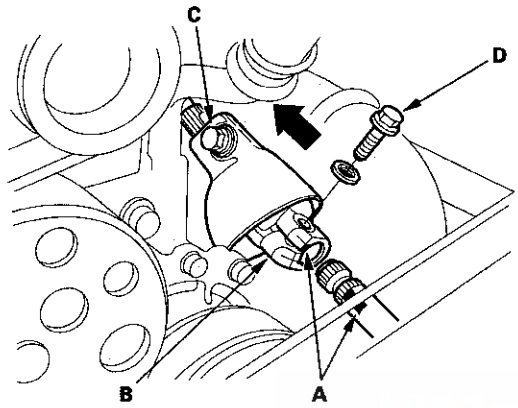
12. '06-08 models: Remove IAT sensor harness clamps (A), then remove the air cleaner housing (B).



(cont'd)

Transmission Removal (cont'd)

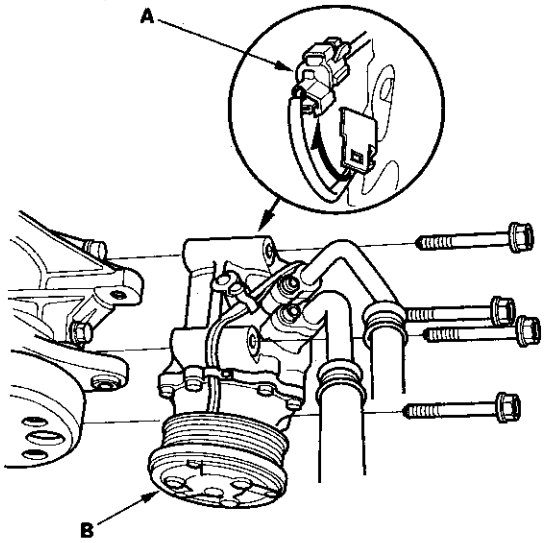
13. Turn the steering wheel to the straight-ahead position, then remove the key from the ignition switch and lock the steering column. Make reference marks (A) across the steering joint (B).



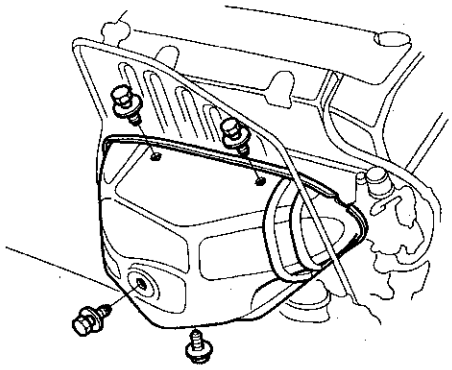
14. Loosen the upper steering joint bolt (C), and remove the lower steering joint bolt (D). Disconnect the steering joint from the gear box.

15. Remove the alternator-compressor belt and the alternator (see page 4-45).

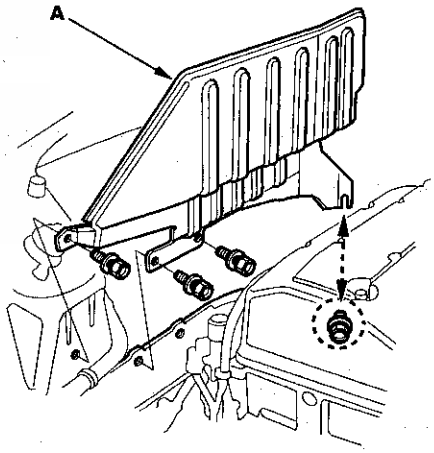
16. Disconnect the 1P connector (A), then remove the four mounting bolts and the A/C compressor (B). Hang the A/C compressor from the body with a piece of wire.



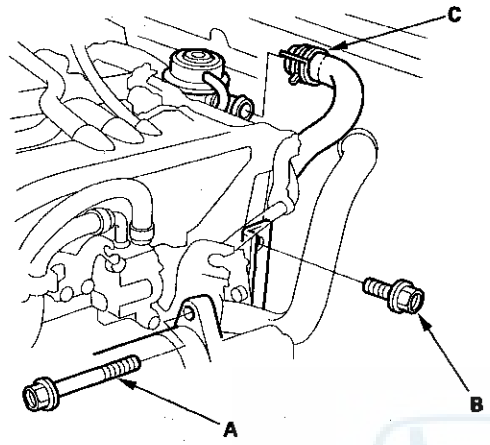
17. Remove the four exhaust manifold cover mounting bolts.



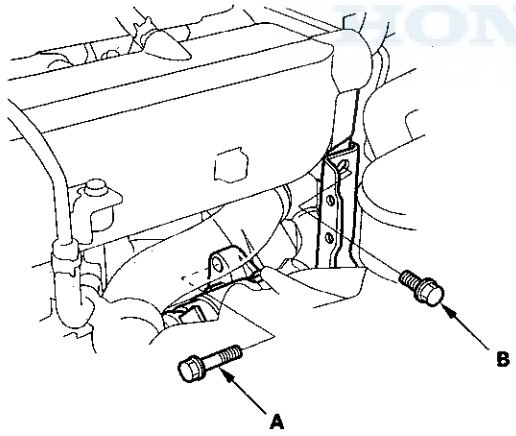
18. Remove the heat shield (A), then remove the exhaust manifold cover.



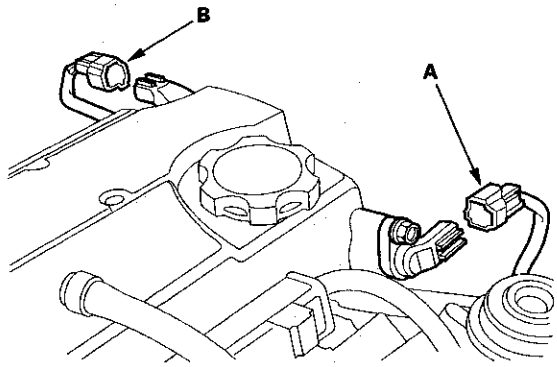
19. '00-05 models: Remove the upper starter motor mounting bolt (A) and upper intake manifold bracket mounting bolt (B). Disconnect the hose (C) from the suction valve.



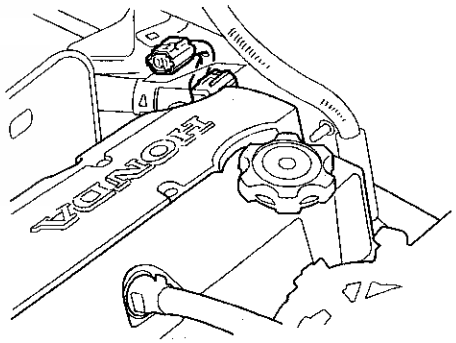
20. '06-08 models: Remove the upper starter motor mounting bolt (A) and upper intake manifold bracket mounting bolt (B).



21. '00-05 models: Disconnect camshaft position (CMP) sensor A (top dead center (TDC) sensor 1) and CMP sensor B (TDC sensor 2) connectors.



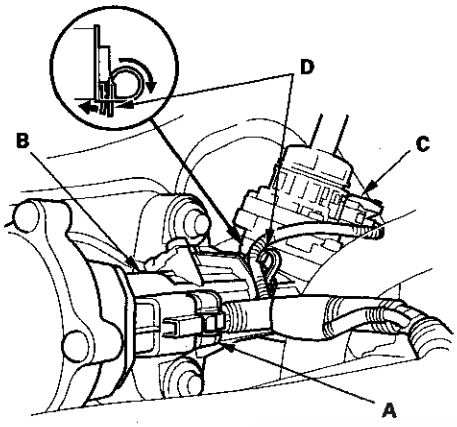
22. '06-08 models: Disconnect the camshaft position (CMP) sensor connector.



(cont'd)

Transmission Removal (cont'd)

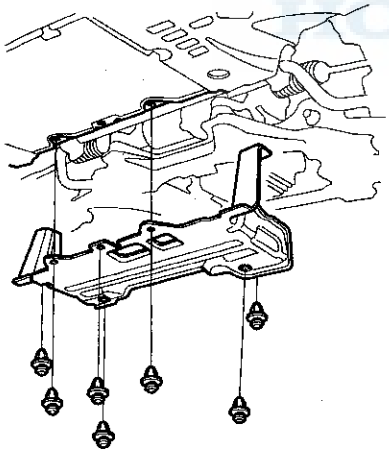
23. Disconnect the 2P connector (A) from the steering gearbox (B).



24. Disconnect the torque sensor 3P connector (C), and remove the wire harness clamp (D).

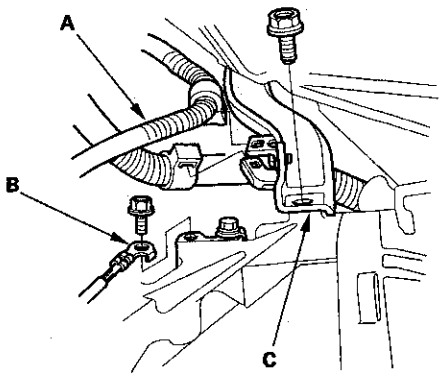
25. Raise the vehicle on a lift.

26. Remove the splash shield.

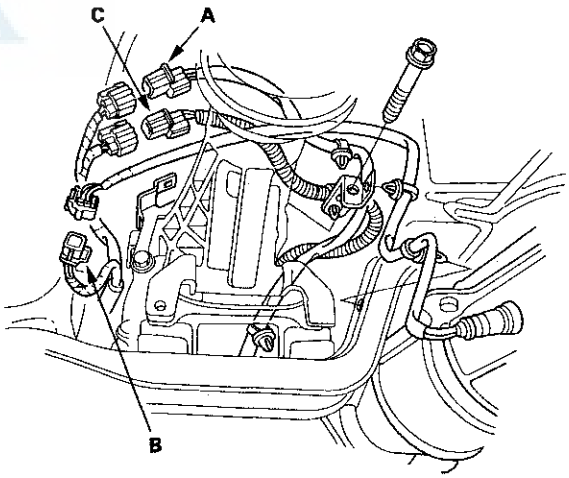


27. Drain the transmission fluid. Install the drain plug with a new washer (see page 13-3).

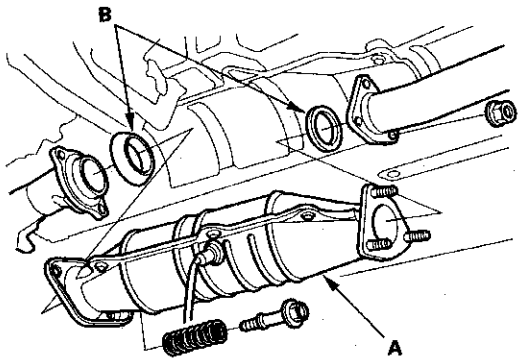
28. Remove the wire harness (A), ground cable (B), and lower intake manifold bracket mounting bolt, then remove the intake manifold bracket (C).



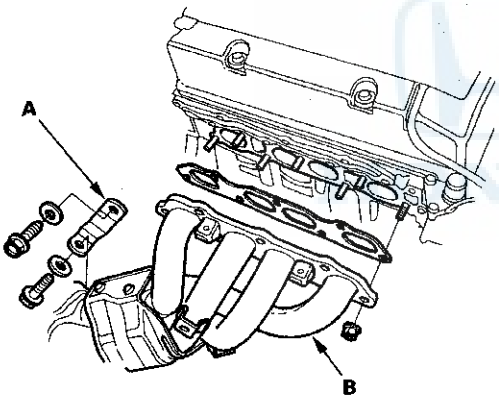
29. Disconnect the primary heated oxygen sensor (primary HO2S) (sensor 1) ('00-05 models) or the air fuel ratio (A/F) sensor (sensor 1) ('06-08 models) (A), secondary heated oxygen sensor (secondary HO2S) (sensor 2) (B), and the back-up light switch (C) connectors, then remove the wire harness from the transmission.



30. Remove the three way catalytic converter (TWC) (A) and gaskets (B).

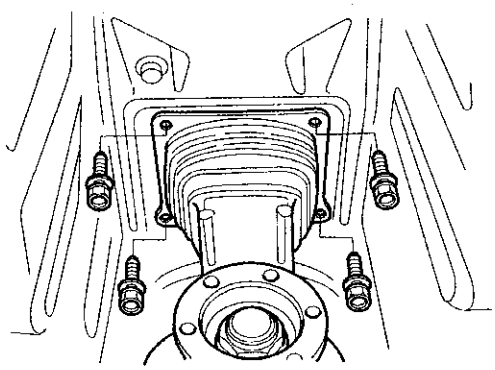


31. Remove the exhaust manifold bracket (A) and the exhaust manifold (B).



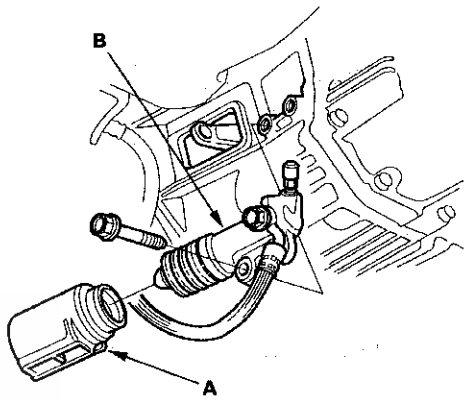
32. Remove the propeller shaft (see page 16-18).

33. Remove the four shift boot holder mounting bolts.

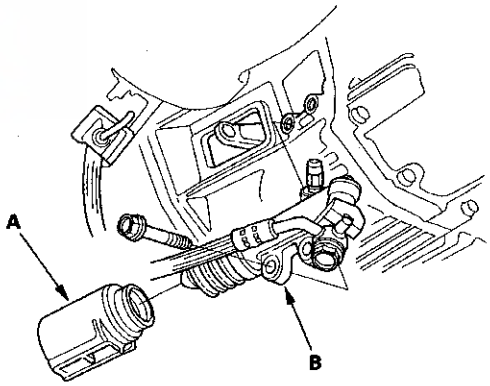


34. Remove the release fork boot (A), then carefully remove the slave cylinder (B). Do not press the clutch pedal after the slave cylinder has been removed.

'00-03 models



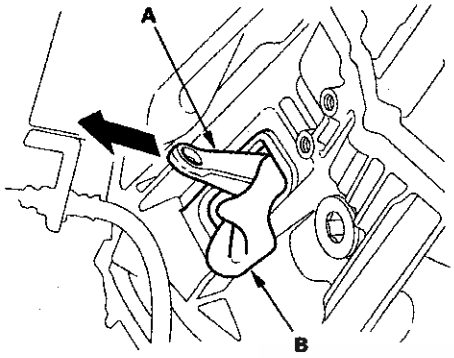
'04-08 models



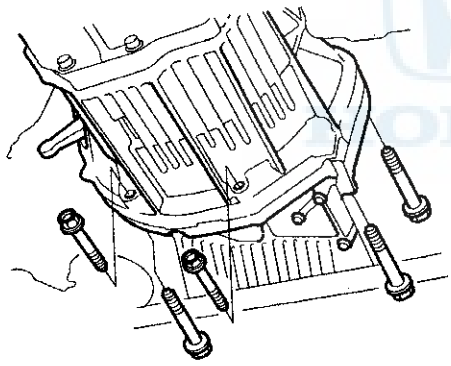
(cont'd)

Transmission Removal (cont'd)

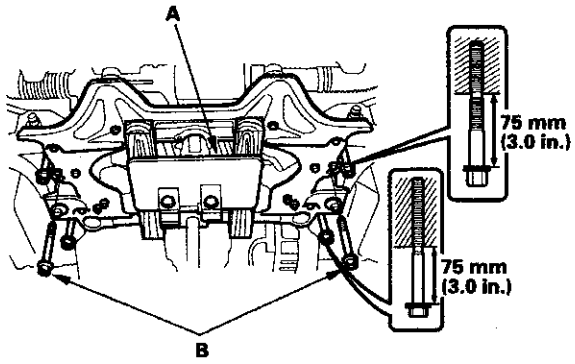
35. Pull out the release fork (A) from the release fork hanger. Wedge a shop towel (B) between the opening in the clutch housing and the release fork to hold the release fork in place.



36. Remove the five lower transmission mounting bolts.



37. Place a transmission jack (A) under the front subframe and the engine mounting stiffener.

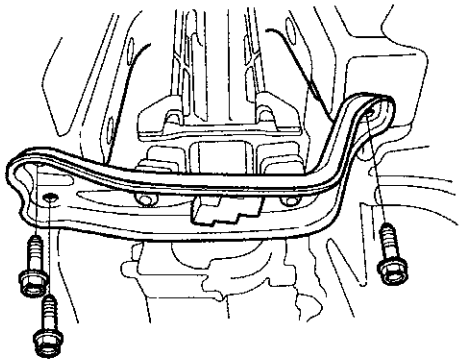


38. Remove the two center mounting bolts (B).

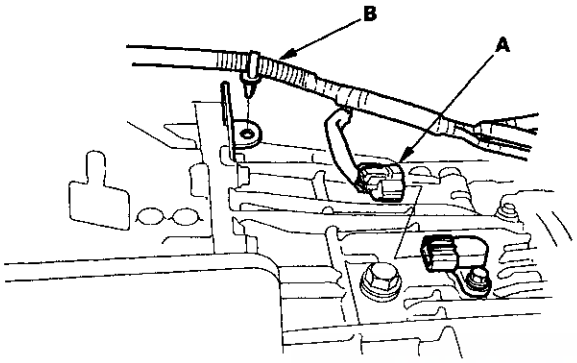
39. Loosen the four mounting bolts 75 mm (3.0 in.) as shown.

40. Lower the front subframe in until it touches the four loosened mounting bolts.

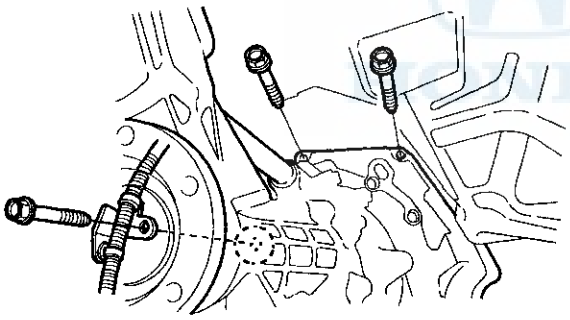
41. Support the transmission with a transmission jack, and remove the three transmission rear mount bolts.



42. Lower the transmission. Disconnect the vehicle speed sensor (VSS) ('00-05 models) or the output shaft (countershaft) speed sensor ('06-08 models) connector (A), then remove the wire harness (B) from the transmission.



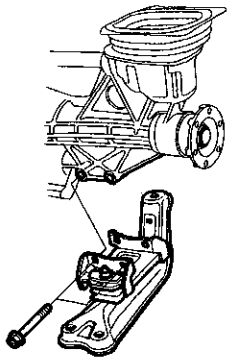
43. Remove the three upper transmission mounting bolts.



44. Pull the transmission away from the engine until it clears the mainshaft.

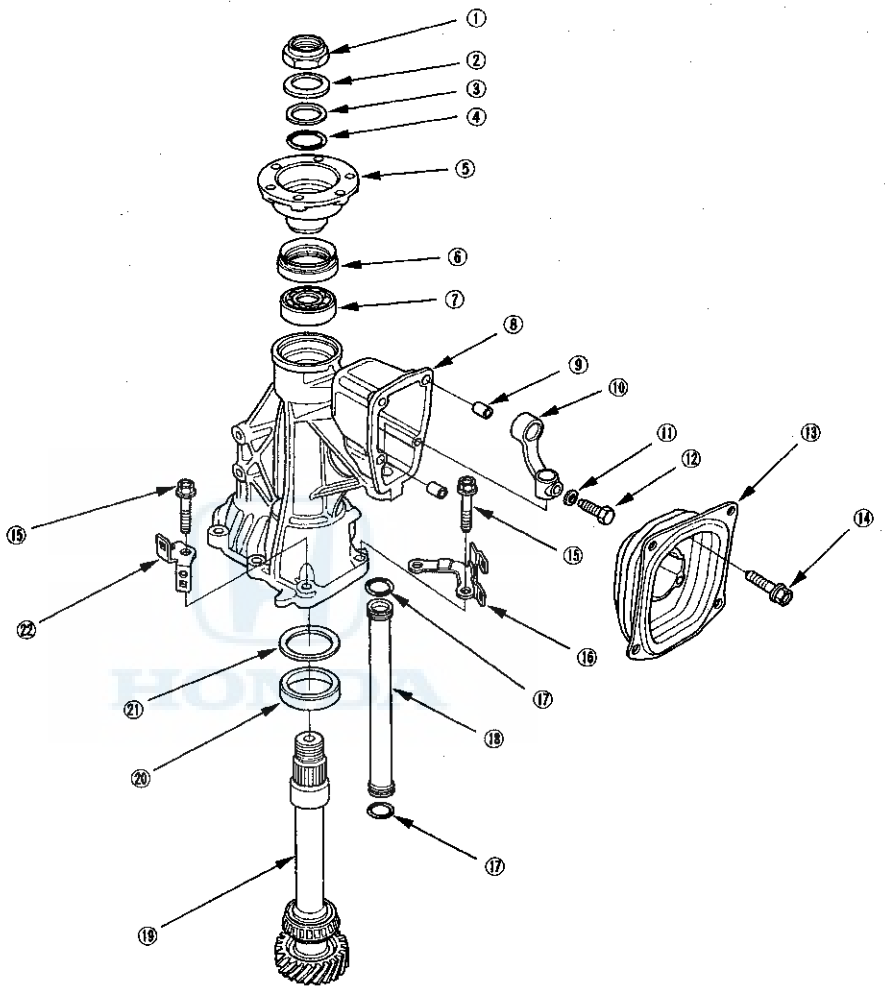
45. Slowly lower the transmission about 150 mm (6 in.). Check once again that all hoses and electrical wiring are disconnected and free from the transmission, then lower it all the way.

46. Remove the transmission rear mount from the transmission.



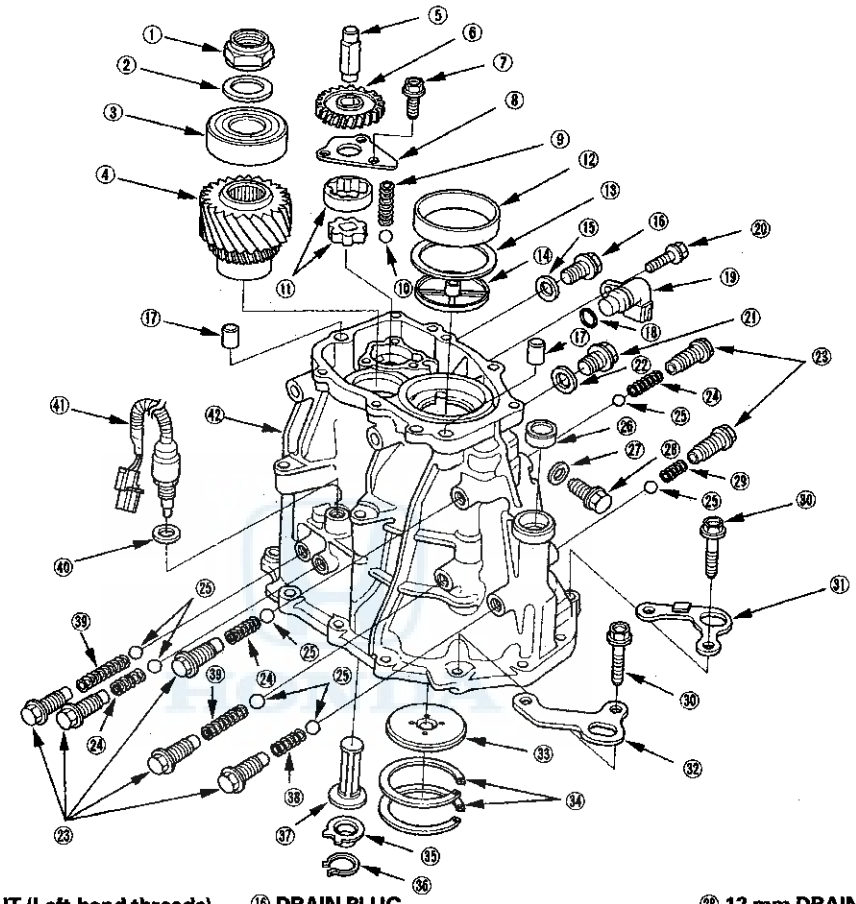
Transmission Disassembly

Exploded View-Rear Cover



① 27 mm LOCKNUT
162 → 0 → 162 N·m (16.5 → 0 → 16.5 kgf·m, 119 → 0 → 119 lbf·ft)
Replace.
② 27 mm SPRING WASHER
③ BACK-UP RING
④ O-RING
Replace.
⑤ COMPANION FLANGE
⑥ 40 x 60 x 9 mm OIL SEAL
Replace.
⑦ BALL BEARING
Replace.
⑧ REAR COVER
⑨ 8 mm DOWEL PIN
⑩ SHIFT ARM B
⑪ CONICAL SPRING WASHER
Replace.
⑫ 8 mm SPECIAL BOLT
31 N·m (3.2 kgf·m, 23 lbf·ft)
⑬ SHIFT LEVER HOUSING
⑭ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)
⑮ 8 mm FLANGE BOLT
27 N·m (2.8 kgf·m, 20 lbf·ft)
⑯ HARNESS BRACKET
⑰ O-RING
Replace.
⑱ SHIFT ROD TUBE
⑲ SECONDARY SHAFT ASSEMBLY
⑳ BEARING OUTER RACE
㉑ 68 mm SHIM
㉒ HARNESS CLAMP

Exploded View-Transmission Housing



① 29 mm LOCKNUT (Left-hand threads)
172 → 0 → 172 N·m
(17.5 → 0 → 17.5 kgf·m,
127 → 0 → 127 lbf·ft)
Replace.

② 29 mm SPRING WASHER

③ 30 x 64 x 20 mm NEEDLE BEARING

④ SECONDARY DRIVE GEAR

⑤ OIL PUMP GEAR SHAFT

⑥ OIL PUMP GEAR

⑦ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

⑧ OIL PUMP PLATE

⑨ SPRING L. 19.1 mm (0.75 in.)

⑩ STEEL BALL

⑪ OIL PUMP ROTOR

⑫ BEARING OUTER RACE

⑬ 82 mm SHIM
Selection.

⑭ OIL GUIDE PLATE S

⑮ WASHER
Replace.

⑯ DRAIN PLUG
39 N·m (4.0 kgf·m, 29 lbf·ft)

⑰ 14 x 20 mm DOWEL PIN

⑱ O-RING
Replace.

⑲ VEHICLE SPEED SENSOR (VSS)
('00-05 models)
OUTPUT SHAFT (COUNTERSHAFT)
SPEED SENSOR ('06-08 models)

⑳ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

㉑ FILLER PLUG
44 N·m (4.5 kgf·m, 33 lbf·ft)

㉒ WASHER
Replace.

㉓ SET SCREW

㉔ SPRING L. 27.4 mm (1.08 in.)

㉕ STEEL BALL

㉖ 16 x 26 x 7 mm OIL SEAL
Replace.

㉗ 12 mm WASHER
Replace.

㉘ 12 mm DRAIN PLUG
39 N·m (4.0 kgf·m, 29 lbf·ft)

㉙ SPRING L. 23 mm (0.91 in.) (BLACK)

㉚ 8 mm FLANGE BOLT
27 N·m (2.8 kgf·m, 20 lbf·ft)

㉛ TRANSMISSION HANGER A

㉜ TRANSMISSION HANGER

㉝ OIL GUIDE PLATE M

㉞ 82 mm SHIM
Selection.

㉟ SUCTION GUIDE

㊱ CIRCLIP

㊲ OIL PUMP STRAINER

㊳ SPRING L. 23 mm (0.91 in.) (SILVER)

㊴ SPRING L. 32 mm (1.26 in.)

㊵ WASHER
Replace.

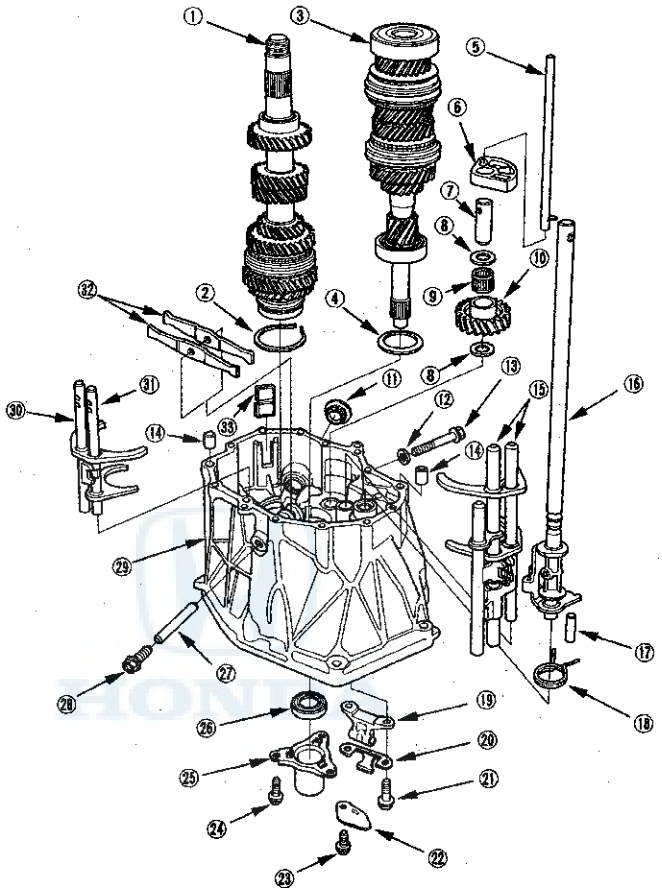
㊶ BACK-UP LIGHT SWITCH

㊷ TRANSMISSION HOUSING

(cont'd)

Transmission Disassembly (cont'd)

Exploded View-Clutch Housing



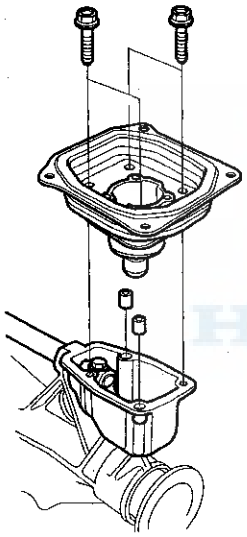
① COUNTERSHAFT ASSEMBLY
② 68 mm SNAP RING
③ MAINSHAFT ASSEMBLY
④ 64 mm SPRING WASHER
⑤ OIL GUIDE PIPE
⑥ REVERSE SHAFT HOLDER
⑦ REVERSE GEAR SHAFT
⑧ THRUST WASHER
⑨ 20 x 25 x 26.5 mm NEEDLE BEARING
⑩ REVERSE IDLER GEAR
⑪ 34 mm SEALING BOLT
69 N·m (7.0 kgf·m, 51 lbf·ft)
⑫ 8 mm WASHER
Replace.
⑬ 8 mm FLANGE BOLT
'00-03 models: 34 N·m (3.5 kgf·m, 25 lbf·ft)
'04-08 models: 27 N·m (2.8 kgf·m, 20 lbf·ft)
⑭ 14 x 20 mm DOWEL PIN
⑮ SHIFT FORK ASSEMBLY
⑯ SHIFT ARM ROD ASSEMBLY
⑰ 8 x 40 mm PIN
⑱ SELECT RETURN SPRING
⑲ CLUTCH RELEASE HANGER
⑳ RELEASE HANGER SPRING
㉑ 8 mm SPECIAL BOLT
27 N·m (2.8 kgf·m, 20 lbf·ft)
㉒ BREATHER PLATE
㉓ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)
㉔ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)
㉕ RELEASE BEARING GUIDE
㉖ 28 x 43 x 7 mm OIL SEAL
Replace.
㉗ 8 x 63 mm PIN
㉘ 10 mm FLANGE BOLT
44 N·m (4.5 kgf·m, 33 lbf·ft)
㉙ CLUTCH HOUSING
㉚ 1-2 SHIFT FORK
㉛ REVERSE SHIFT FORK
㉜ 1-2 SHIFT LEVER
㉝ MAGNET

Special Tools Required
- Holder handle 07JAB-001020A
- Mainshaft holder 07PAB-001A300
- Companion flange holder 07RAB-TB4010B
- Adjustable bearing puller, 20—40 mm 07736-A01000B

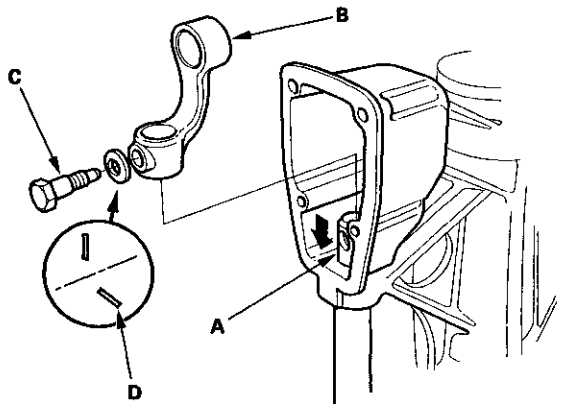
Rear Cover Removal

NOTE: Place the clutch housing on two piece of wood thick enough to keep the mainshaft from hitting the workbench.

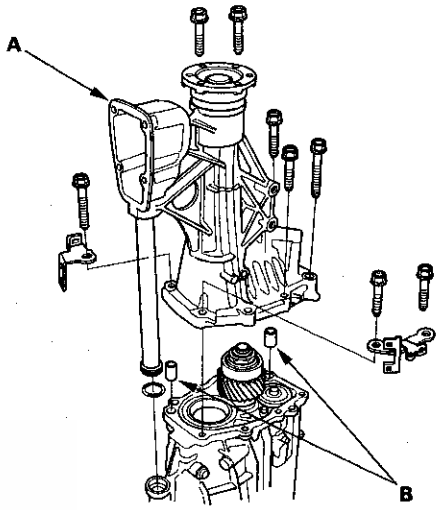
1. Remove the four bolts, and remove the shift lever housing.



2. Lower the shift rod (A), then remove the 8 mm special bolt (C), the conical spring washer (D), and shift arm B.

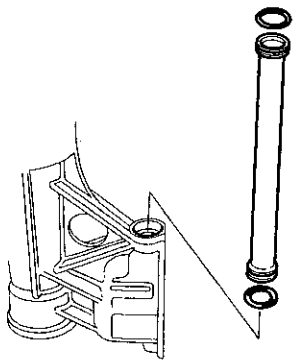


3. Remove the 8 mm flange bolts in a crisscross pattern in several steps.



4. Remove the rear cover (A) and the 14 x 20 mm dowel pins (B).

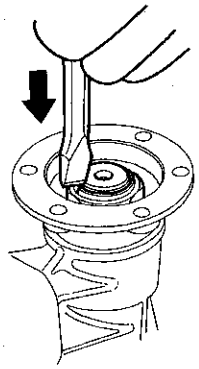
5. Remove the shift rod tube and the O-rings from the rear cover.



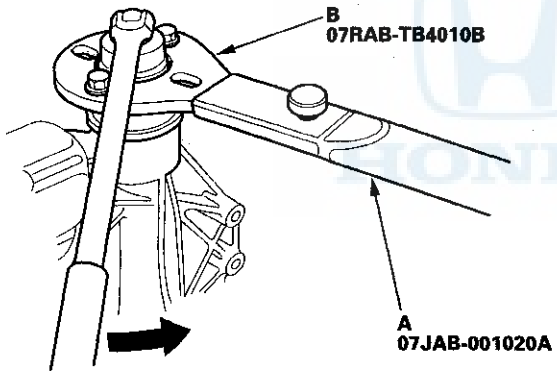
(cont'd)

Transmission Disassembly (cont'd)

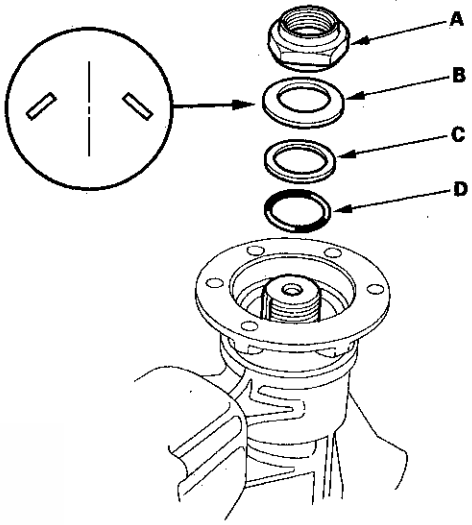
6. Raise the 27 mm locknut tab from the groove in the secondary shaft.



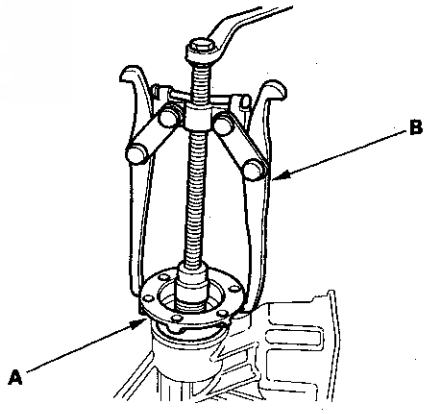
7. Install the holder handle (A) and companion flange holder (B) onto the companion flange, and loosen the 27 mm locknut.



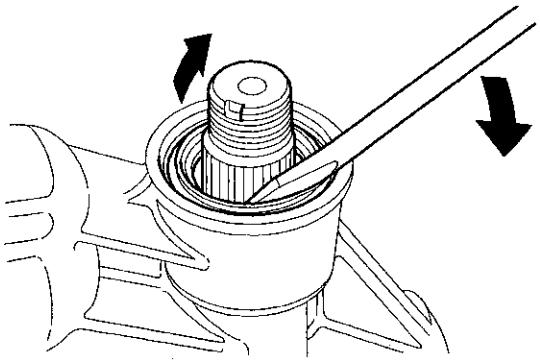
8. Remove the 27 mm locknut (A), the spring washer (B), the back-up ring (C), and the O-ring (D).



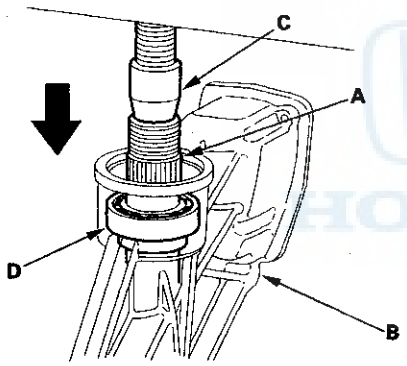
9. Remove the companion flange (A) using commercially available bearing puller (B) as shown.



10. Remove the oil seal from the rear cover.

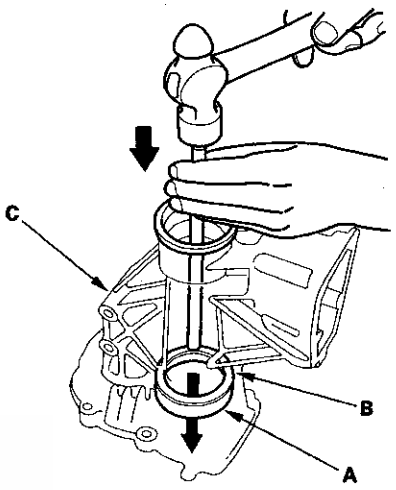


11. Remove the secondary shaft (A) from the rear cover (B) using a press (C) as shown.

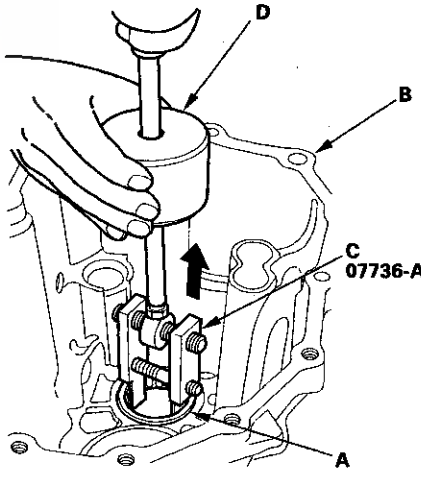


12. Remove the ball bearing (D) from the rear cover.

13. Remove the bearing outer race (A) and the shim (B) from the rear cover (C).



14. Remove the bearing outer race (A) from the rear cover (B) using the 20—40 mm adjustable bearing puller (C) and commercially available 3/8"-16 UNF slide hammer (D).



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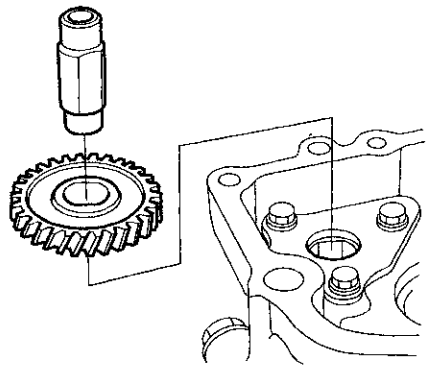
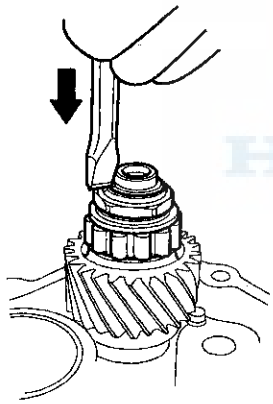
Transmission Disassembly (cont'd)

Transmission Housing Removal

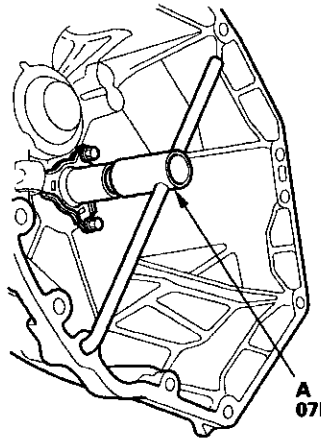
1. Remove the oil pump gear shaft and oil pump gear.



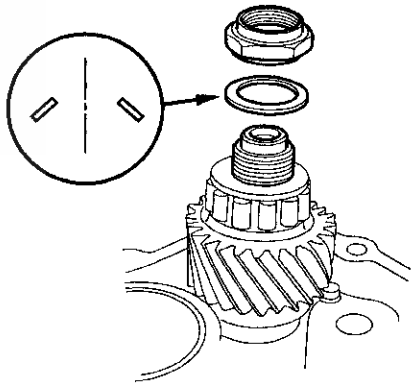
2. Raise the 29 mm locknut tab from the groove in the countershaft.



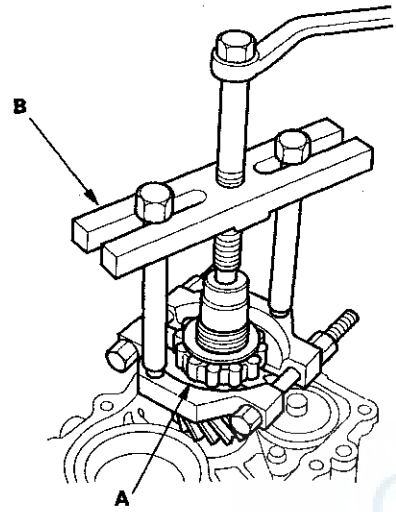
3. Install the mainshaft holder (A) onto the mainshaft spline, and loosen the 29 mm locknut (left-hand threads).



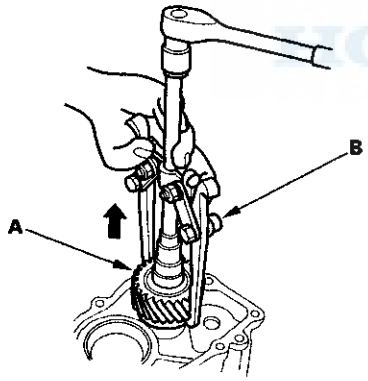
4. Remove the 29 mm locknut and spring washer.



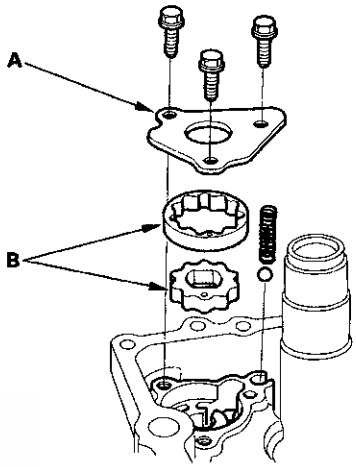
5. Remove the needle bearing (A) using a commercially available bearing puller (B) as shown.



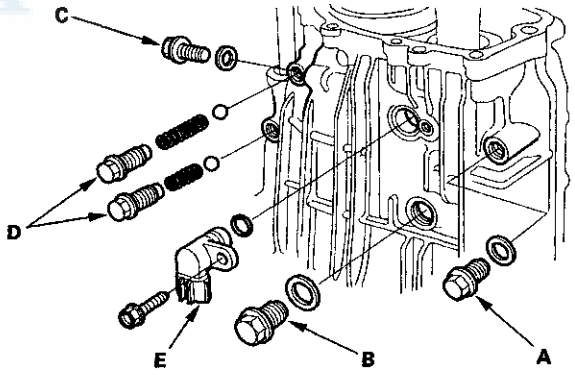
6. Remove the secondary drive gear (A) using a commercially available bearing puller (B) as shown.



7. Remove the 6 mm flange bolts, then remove the oil pump plate (A), spring, steel ball, and oil pump rotors (B).



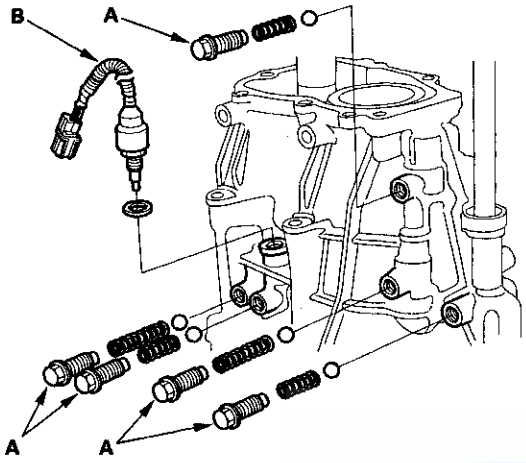
8. Remove the drain plug (A), the filler plug (B), the 12 mm drain plug (C), washers, the set screws (D), springs, steel balls, and the vehicle speed sensor (VSS) ('00-05 models) or the output shaft (countershaft) speed sensor ('06-08 models) (E).



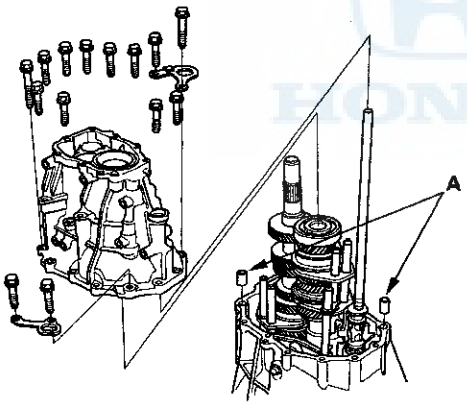
(cont'd)

Transmission Disassembly (cont'd)

9. Remove the set screws (A), springs, steel balls, the back-up light switch (B), and washer.

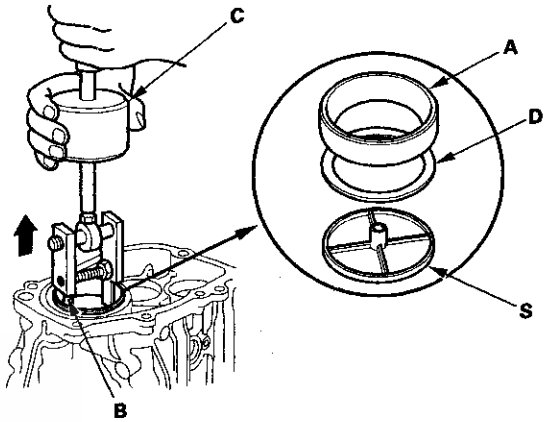


10. Remove the 8 mm flange bolts in a crisscross pattern in several steps.

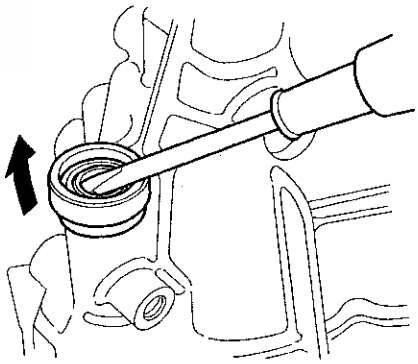


11. Remove the transmission housing and the 14 x 20 mm dowel pins (A).

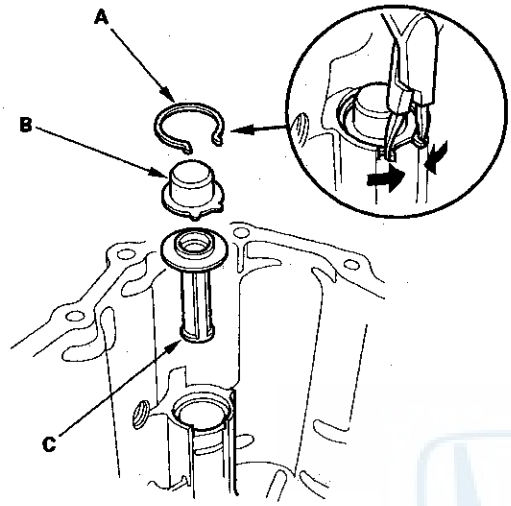
12. Remove the bearing outer race (A) using the 20—40 mm adjustable bearing puller (B) and commercially available 3/8"-16 UNF slide hammer (C), then remove 82 mm shim (D) and oil guide plate S.



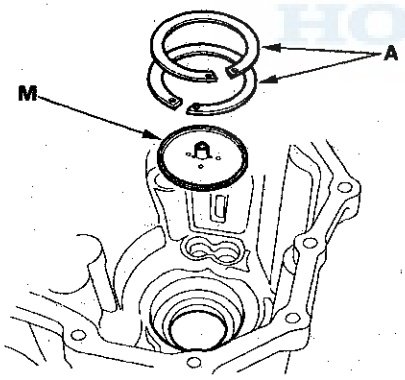
13. Remove the 16 x 26 x 7 mm oil seal from the transmission housing.



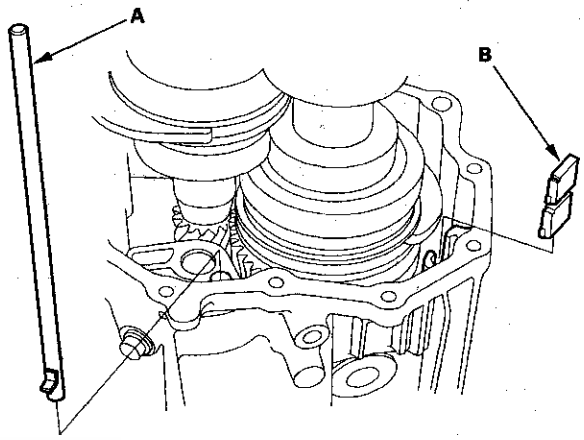
14. Remove the circlip (A), then remove the suction guide (B) and the oil pump strainer (C) from the transmission housing.



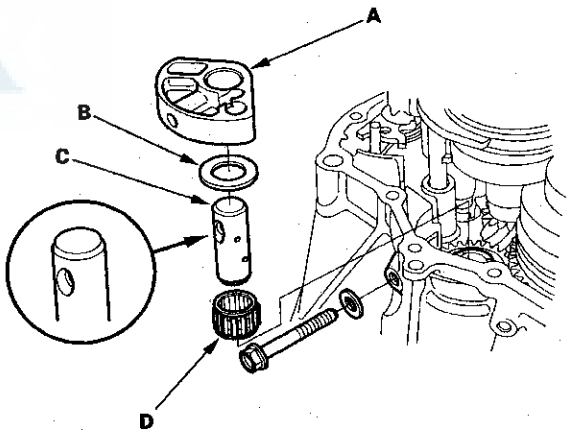
15. Remove the 82 mm shim(s) (A) and oil guide plate M.



16. Remove the oil guide pipe (A) and the magnet (B).



17. Remove the 8 mm flange bolt and washer, then remove the reverse shaft holder (A), the thrust washer (B), the reverse gear shaft (C), and the needle bearing (D).



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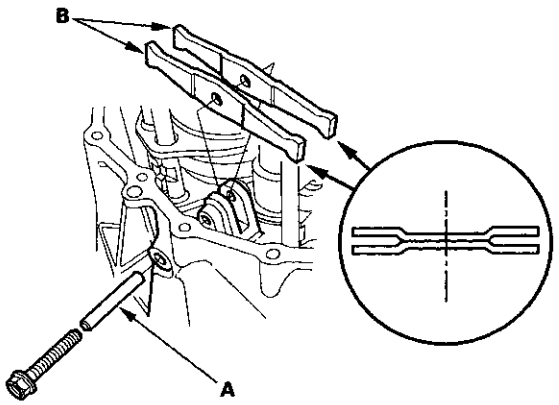
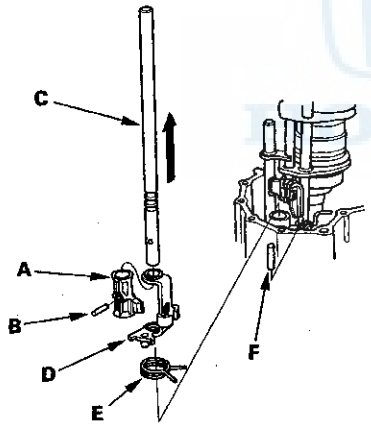
Transmission Disassembly (cont'd)

18. Remove the 10 mm flange bolt, then remove the 8 x 63 mm pin (A) and the 1-2 shift levers (B).

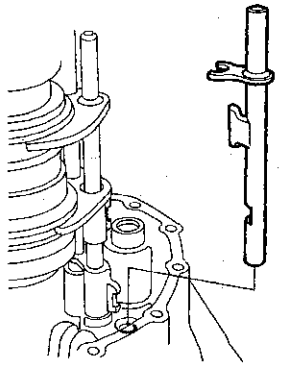


19. Remove the 5 x 25 mm spring pin (B) from shift arm A with a 5 mm pin driver, then remove the shift rod (C).

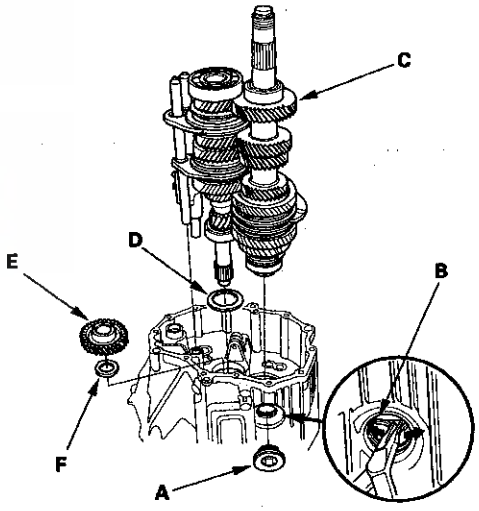


20. Remove shift arm A from the interlock (D), then remove the select return spring (E) and the 8 x 40 mm pin (F).

21. Remove the 1-2 shift piece.



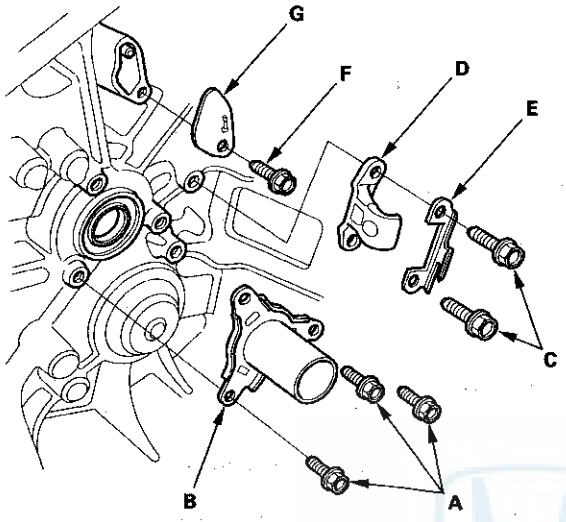
22. Remove the 34 mm sealing bolt (A) from the clutch housing.



23. Expand the 68 mm snap ring (B) on the countershaft ball bearing, and remove it from the groove using a pair of snap ring pliers.

24. Remove the mainshaft, countershaft, and the shift forks assembly (C), and remove the 64 mm spring washer (D), the reverse idler gear (E), and thrust washer (F).

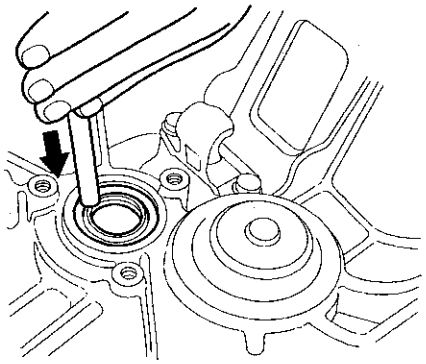
25. Remove the 6 mm flange bolts (A) and the release bearing guide (B).



26. Remove the 8 mm special bolts (C), the clutch release hanger (D), and the release hanger spring (E).

27. Remove the 6 mm flange bolt (F) and the breather plate (G).

28. Remove the oil seal from the clutch housing.



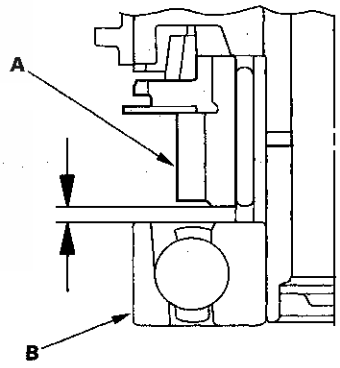
Mainshaft Assembly Clearance Inspection

NOTE:
- If replacement is required, always replace the synchro sleeve and synchro hub as a set.
- Support the bearing inner race, and push down on the mainshaft.

1. Measure the clearance between 3rd gear (A) and the ball bearing (B) with a feeler gauge.

   - If the clearance is more than the service limit, go to step 2.
   - If the clearance is within the service limit, go to step 4.

Standard: **0.06—0.19 mm (0.002—0.007 in.)**
Service Limit: **0.3 mm (0.012 in.)**



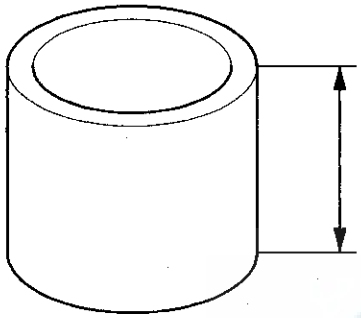
(cont'd)

Mainshaft Assembly Clearance Inspection (cont'd)

2. Measure the length of the distance collar.

   - If the length is not within the standard, replace the distance collar.
   - If the length is within the standard, go to step 3.

   Standard: 35.23—35.28 mm (1.387—1.389 in.)

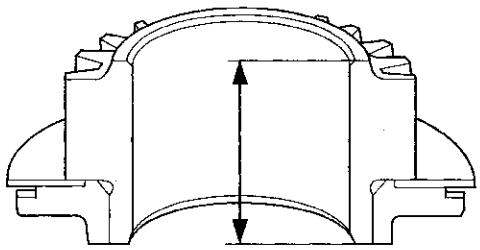


3. Measure the thickness of 3rd gear.

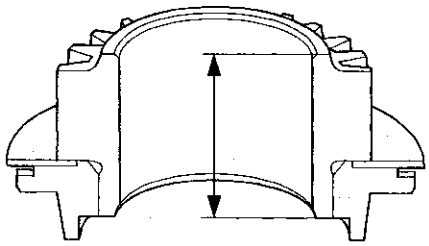
   - If the thickness is less than the service limit, replace 3rd gear.
   - If the thickness is within the service limit, replace the 3rd/4th synchro hub and 3rd/4th synchro sleeve as a set.

   Standard: 35.09—35.17 mm (1.381—1.385 in.)
   Service Limit: 34.97 mm (1.377 in.)

   '00-03 models



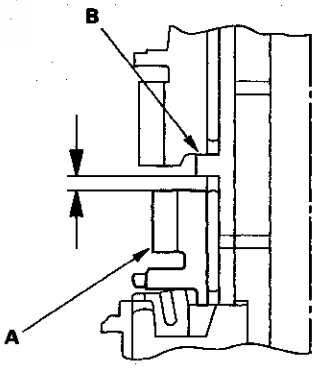
   '04-08 models



4. Measure the clearance between 4th gear (A) and the distance collar (B) with a feeler gauge.

   - If the clearance is more than the service limit, go to step 5.
   - If the clearance is within the service limit, go to step 7.

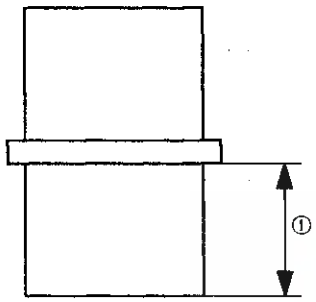
   Standard: 0.06—0.19 mm (0.002—0.007 in.)
   Service Limit: 0.3 mm (0.012 in.)



5. Measure the length ① of the distance collar as shown.

   - If the length ① is not within the standard, replace the distance collar.
   - If the length ① is within the standard, go to step 6.

   Standard: 32.03—32.08 mm (1.261—1.263 in.)

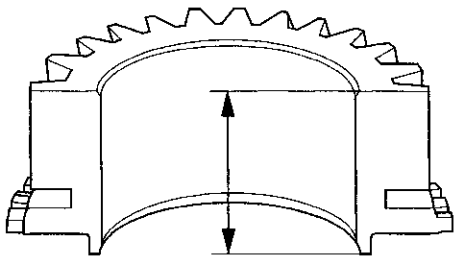


6. Measure the thickness of 4th gear.

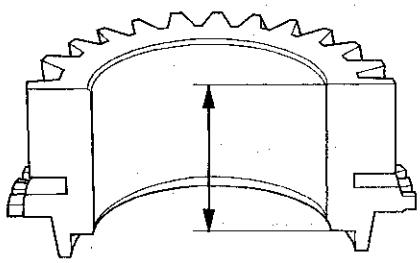
   - If the thickness is less than service limit, replace 4th gear.
   - If the thickness is within the service limit, replace the 3rd/4th synchro hub and 3rd/4th synchro sleeve as a set.

   Standard: 31.89—31.97 mm (1.256—1.259 in.)
   Service Limit: 31.77 mm (1.251 in.)

   '00-03 models



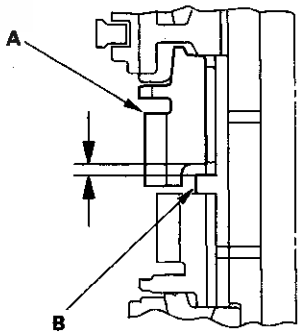
   '04-08 models



7. Measure the clearance between 5th gear (A) and the distance collar (B) with a dial indicator.

   - If the clearance is more than the service limit, go to step 8.
   - If the clearance is within the service limit, go to step 10.

   Standard: 0.06—0.19 mm (0.002—0.007 in.)
   Service Limit: 0.3 mm (0.012 in.)



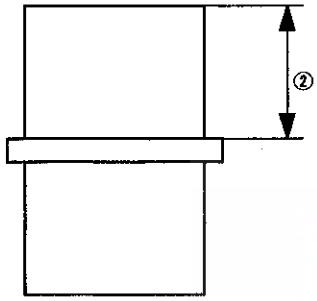
(cont'd)

Mainshaft Assembly Clearance Inspection (cont'd)

8. Measure the length ② of the distance collar as shown.

   - If the length ② is not within the standard, replace the distance collar.
   - If the length ② is within the standard, go to step 9.

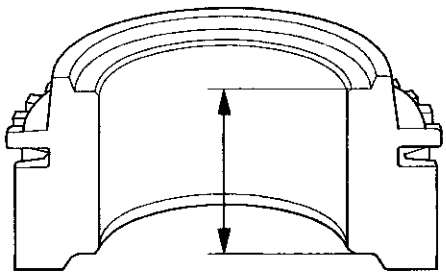
   Standard: 32.03—32.08 mm (1.261—1.263 in.)



9. Measure the thickness of 5th gear.

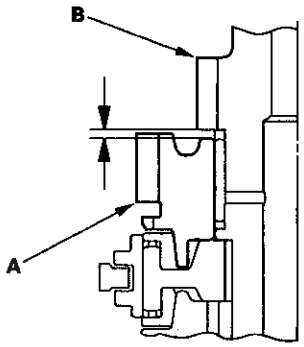
   - If the thickness is less than the service limit, replace 5th gear.
   - If the thickness is within the service limit, replace the 5th/6th synchro hub and 5th/6th synchro sleeve as a set.

   Standard: 31.89—31.97 mm (1.256—1.259 in.)
   Service Limit: 31.77 mm (1.251 in.)



10. Measure the clearance between 6th gear (A) and the mainshaft (B) with a dial indicator. If the clearance is more than the service limit, go to step 11.

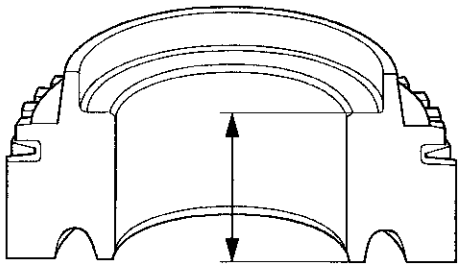
    Standard: 0.06—0.19 mm (0.002—0.007 in.)
    Service Limit: 0.3 mm (0.012 in.)



11. Measure the thickness of 6th gear.

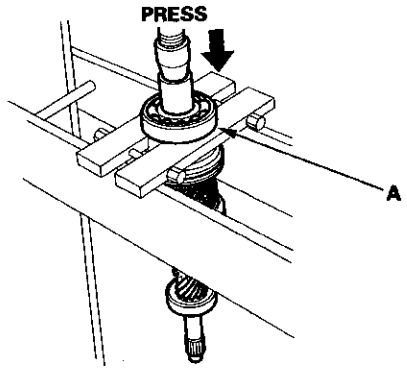
    - If the thickness is less than the service limit, replace 6th gear.
    - If the thickness is within the service limit, replace the 5th/6th synchro hub and 5th/6th synchro sleeve as a set.

    Standard: 28.89—28.97 mm (1.137—1.141 in.)
    Service Limit: 28.77 mm (1.133 in.)

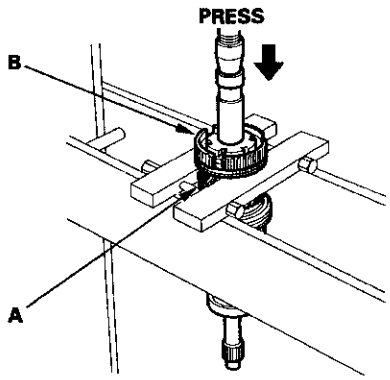


Mainshaft Disassembly

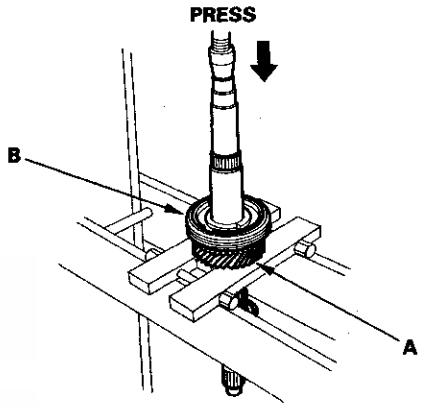
1. Support the ball bearing (A) with a commercially available bearing separator, and remove the ball bearing using a press as shown.



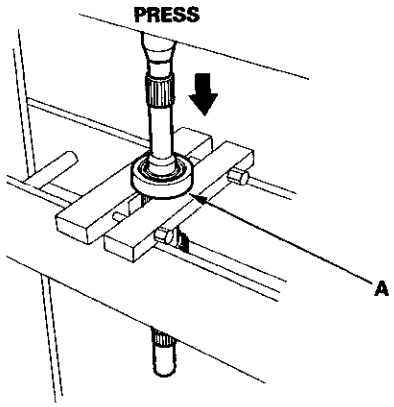
2. Remove 3rd gear, the 35 x 40 x 35 mm needle bearing, the distance collar.
3. '00-03 models: Remove the double cone synchro, the synchro spring, and the 3rd/4th synchro sleeve.
4. '04-08 models: Remove the synchro ring, the synchro spring, and the 3rd/4th synchro sleeve.
5. Support 4th gear (A) with a commercially available bearing separator, and remove the 3rd/4th synchro hub (B) and 4th gear.



6. '00-03 models: Remove the synchro spring and the double cone synchro.
7. '04-08 models: Remove the synchro spring and the synchro ring.
8. Remove the 42 x 47 x 30.5 mm needle bearings, the distance collar, 5th gear, the synchro ring, and the synchro spring.
9. Support 6th gear (A) with a commercially available bearing separator, and remove the 5th/6th synchro hub/sleeve (B), synchro ring, synchro spring, and 6th gear using a press as shown.



10. Remove the 39 x 44 x 26 mm needle bearing.
11. Support the ball bearing (A) with a commercially available bearing separator, and remove the ball bearing using a press as shown.

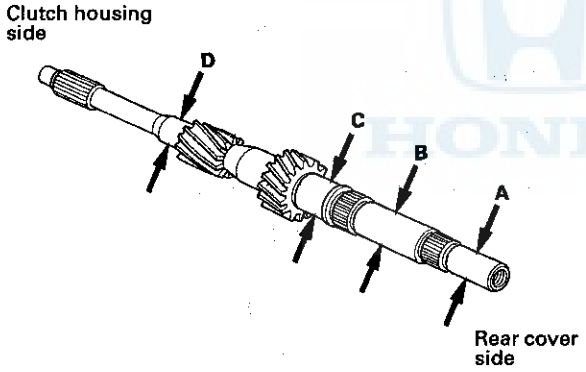


Mainshaft Inspection

1. Inspect the gear and bearing contact areas for wear and damage.

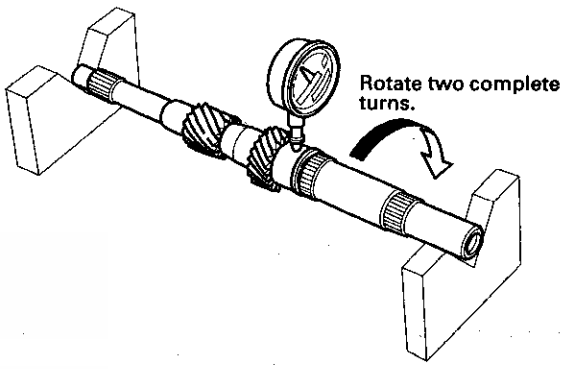
2. Measure the mainshaft at points A, B, C, and D. If any part of the mainshaft is less than the service limit, replace it.

   Standard:
   A Rear cover side ball bearing contact area:
   27.987—28.000 mm (1.1018—1.1024 in.)
   B 4th/5th gears contact area:
   34.987—35.000 mm (1.3774—1.3780 in.)
   C 6th gear contact area:
   38.984—39.000 mm (1.5348—1.5354 in.)
   D Clutch housing side ball bearing contact area:
   28.002—28.015 mm (1.1024—1.1030 in.)
   Service Limit:
   A: 27.94 mm (1.100 in.)
   B: 34.94 mm (1.376 in.)
   C: 38.94 mm (1.533 in.)
   D: 27.95 mm (1.100 in.)



3. Inspect for runout by supporting both ends of mainshaft. Then rotate the mainshaft two complete turns while measuring with a dial gauge. If the runout is more than the service limit, replace the mainshaft.

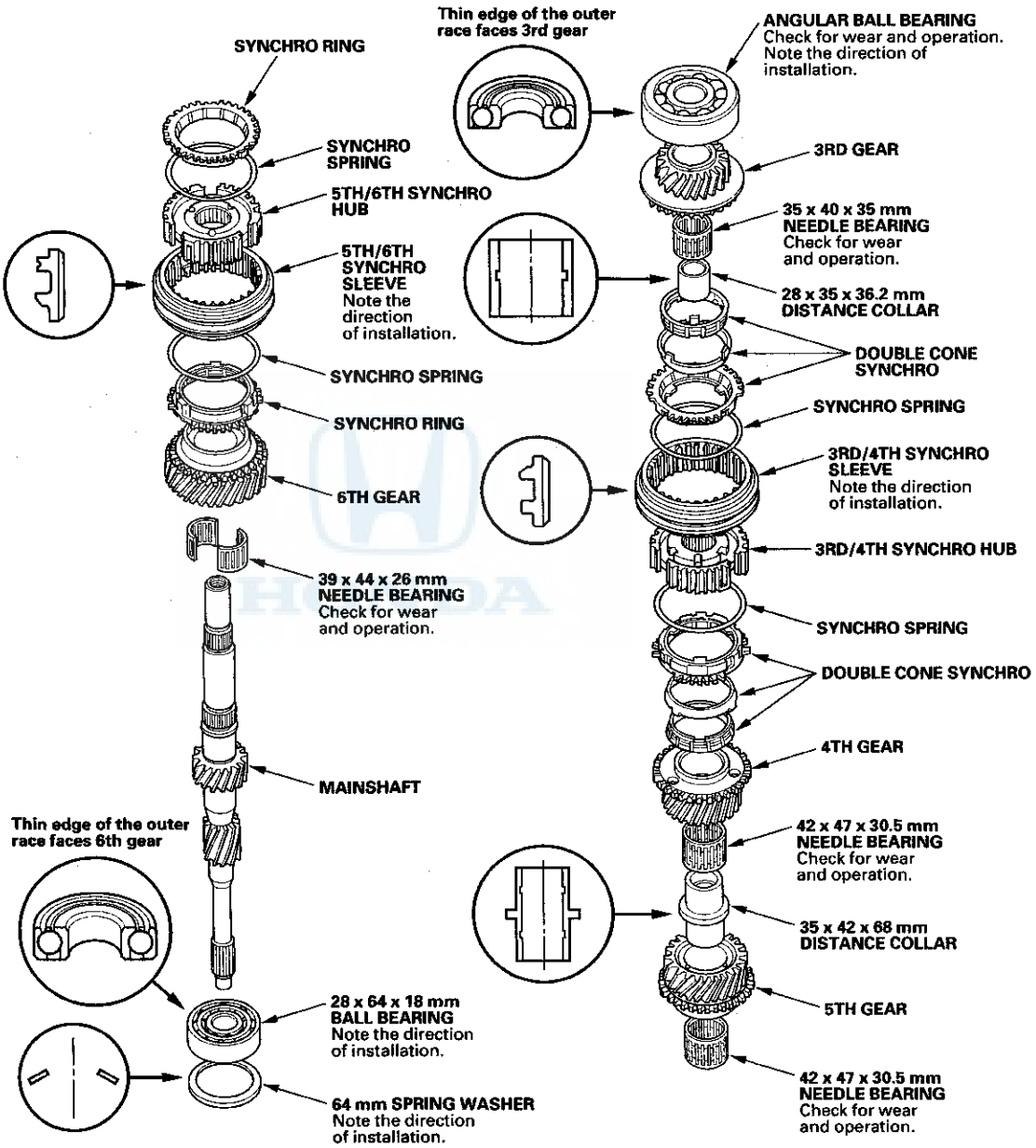
   Standard: 0.02 mm (0.001 in.) max.
   Service Limit: 0.05 mm (0.002 in.)



Mainshaft Reassembly

Exploded View

'00-03 models

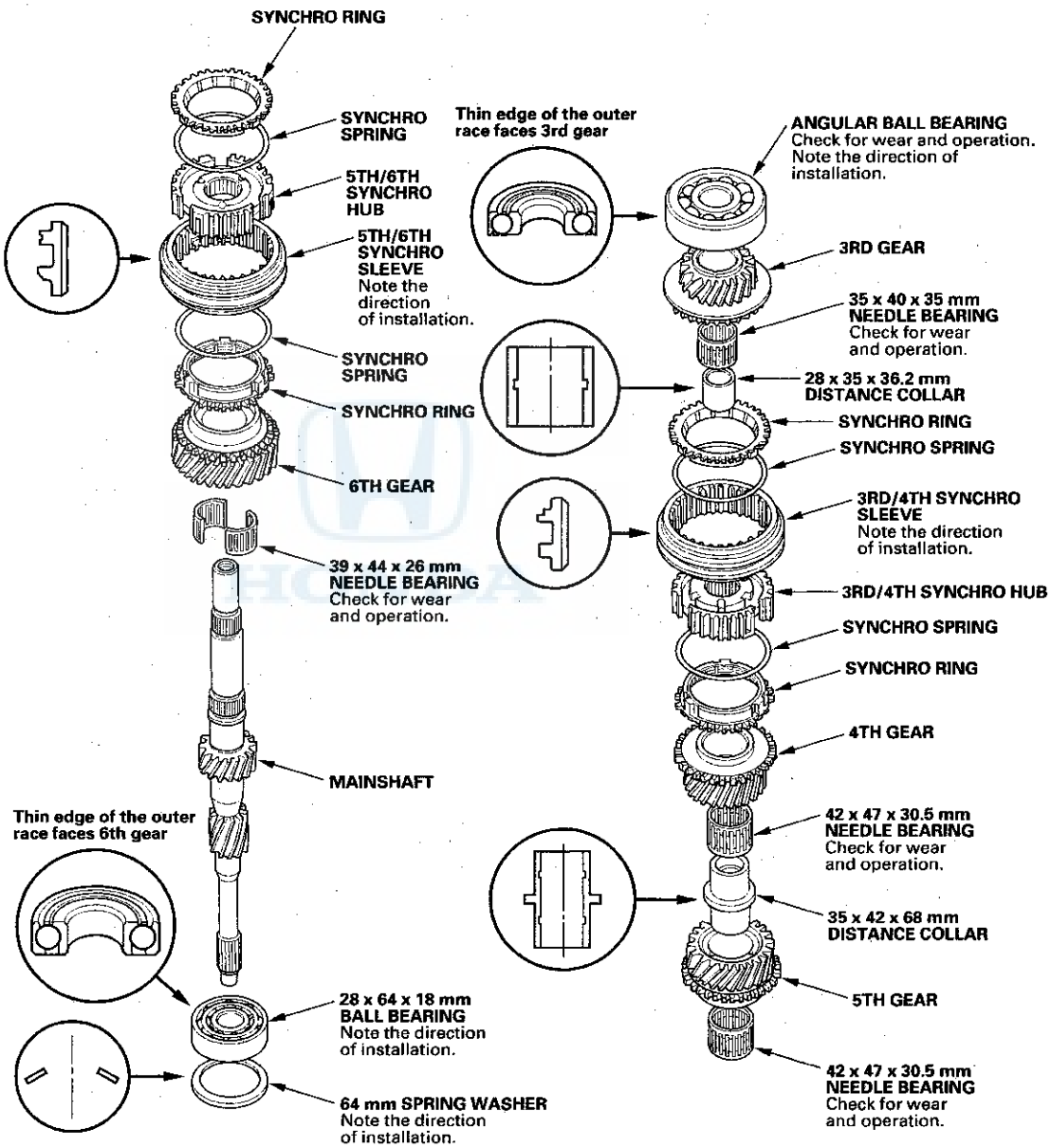


(cont'd)

Mainshaft Reassembly (cont'd)

Exploded View

'04-08 models

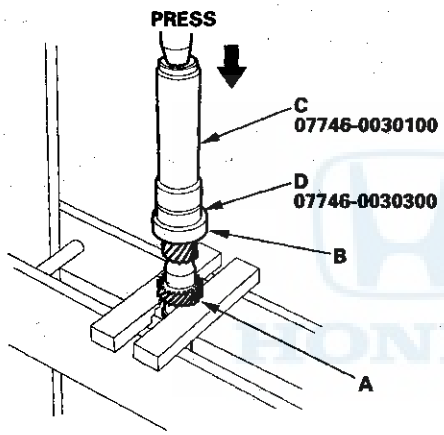


Special Tools Required
- Driver handle 07746-0030100
- Attachment, 30 mm I.D. 07746-0030300

NOTE: Refer to the Exploded View, as needed, during this procedure.

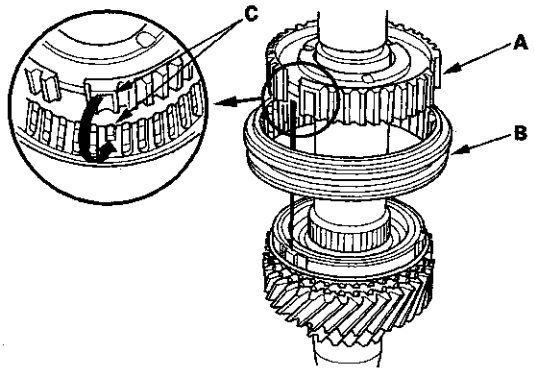
1. Support 2nd gear (A) on steel blocks, then install the ball bearing (B) using the driver handle (C), 30 mm I.D. attachment (D), and a press as shown.

   NOTE: The thin edge of the outer race faces 6th gear.

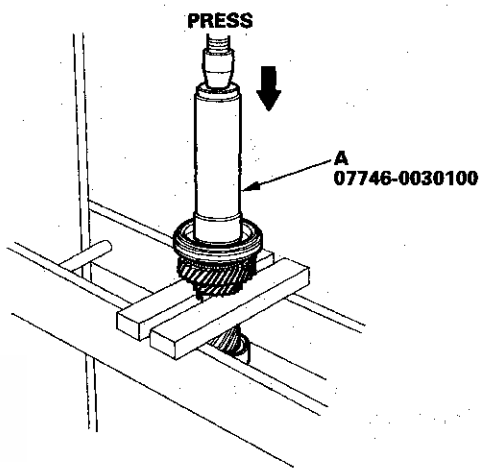


2. Install the 39 x 44 x 26 mm needle bearing, 6th gear, synchro ring, and synchro spring.

3. Install the 5th/6th synchro hub (A) and the 5th/6th synchro sleeve (B) by aligning the stops (C).



4. Press the 5th/6th synchro hub using the driver handle (A) as shown. After installing, check the operation of the 5th/6th synchro hub and 5th/6th synchro sleeve.

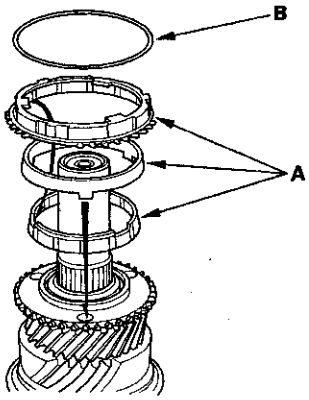


5. Install the synchro spring, synchro ring, 42 x 47 x 30.5 mm needle bearings, 5th gear, distance collar, and 4th gear.

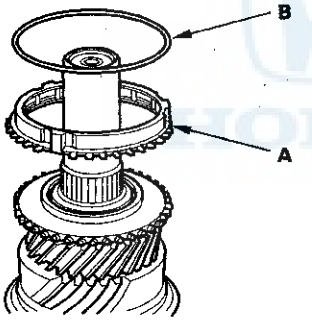
(cont'd)

Mainshaft Reassembly (cont'd)

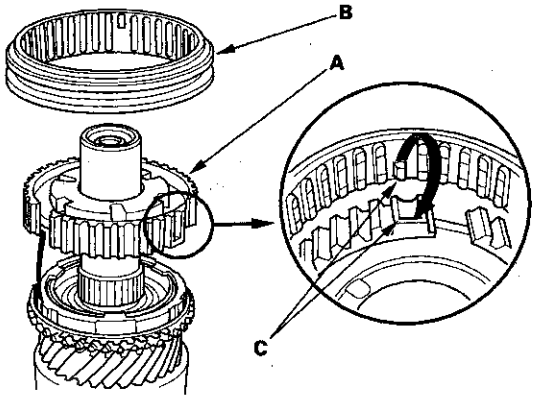
6. '00-03 models: Install the double cone synchro (A) and synchro ring (B).



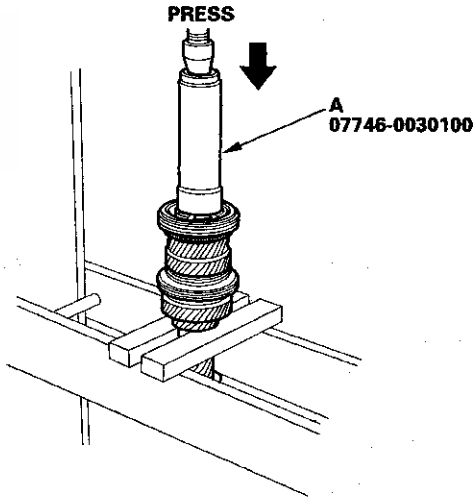
7. '04-08 models: Install the synchro ring (A) and synchro spring (B).



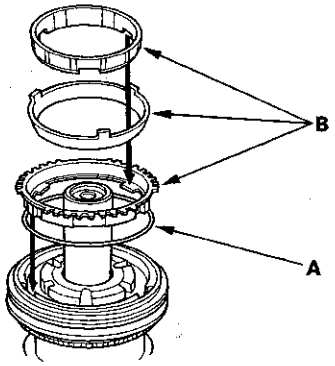
8. Install the 3rd/4th synchro hub (A) and the 3rd/4th synchro sleeve (B) by aligning the stops (C).



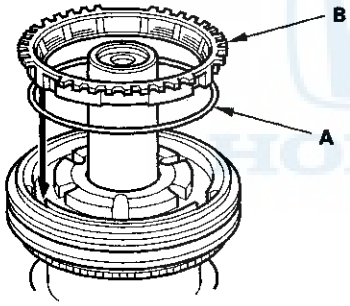
9. Press the 3rd/4th synchro hub using the driver handle (A) as shown. After installing, check the operation of the 3rd/4th synchro hub and sleeve.



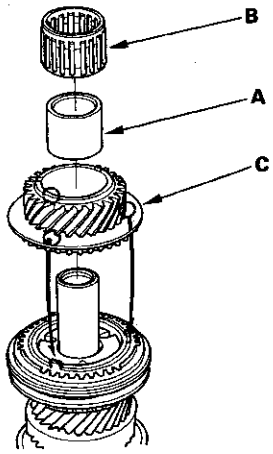
10. '00-03 models: Install the synchro spring (A) and double cone synchro (B).



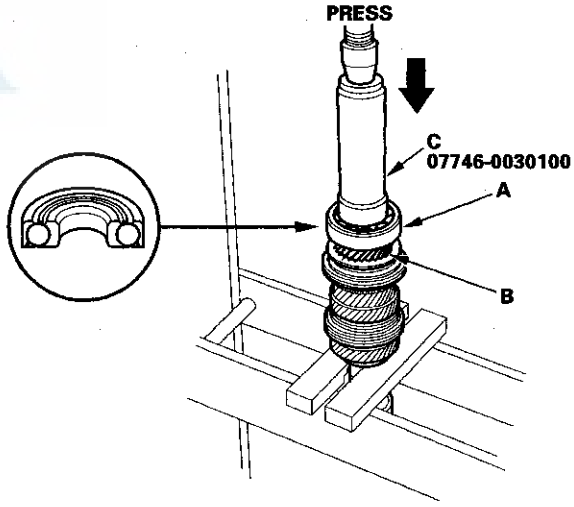
11. '04-08 models: Install the synchro spring (A) and synchro ring (B).



12. Install the distance collar (A), the 35 x 40 x 35 mm needle bearing (B), and 3rd gear (C).

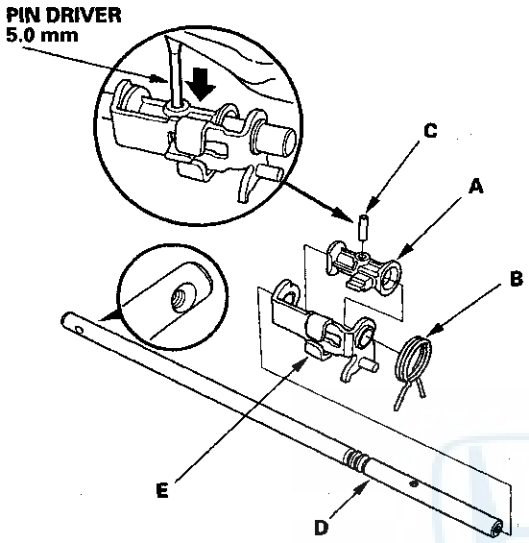


13. Install the angular ball bearing (A) with the thin edge of the outer race facing 3rd gear (B). Use the driver handle (C) and a press.



Shift Arm Rod Assembly Disassembly/Reassembly

1. Remove the select return spring (B).



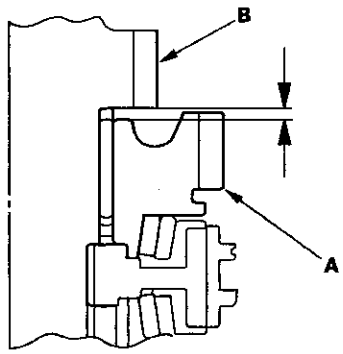
2. Remove the 5 x 25 spring pin (C) from shift arm A with a 5 mm pin driver, then remove the shift rod (D).
3. Remove shift arm A from the interlock (E).
4. Clean all the parts in solvent, dry them, and apply MTF to any contact surfaces.
5. Install shift arm A to the interlock.
6. Install the shift rod and the new 5 x 25 spring pin.
7. Install the select return spring.

Countershaft Assembly Clearance Inspection

NOTE: If replacement is required, always replace the synchro sleeve and synchro hub as a set.

1. Measure the clearance between 2nd gear (A) and the 3rd gear (B) with a dial indicator.
   - If the clearance is more than the service limit, go to step 2.
   - If the clearance is within the service limit, go to step 3.

Standard: 0.04—0.17 mm (0.002—0.007 in.)
Service Limit: 0.3 mm (0.012 in.)

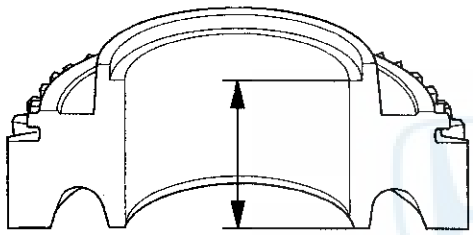


2. Measure the thickness of 2nd gear.

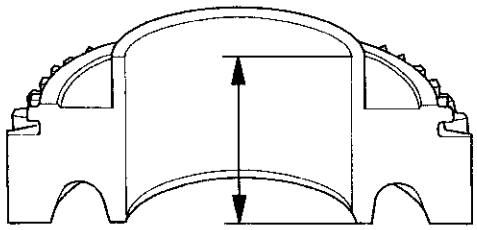
   - If the thickness is less than the service limit, replace 2nd gear.
   - If the thickness is within the service limit, replace the 1st/2nd synchro hub and 1st/2nd synchro sleeve as a set.

Standard: 32.88—32.96 mm (1.294—1.298 in.)
Service Limit: 32.76 mm (1.290 in.)

'00-03 models



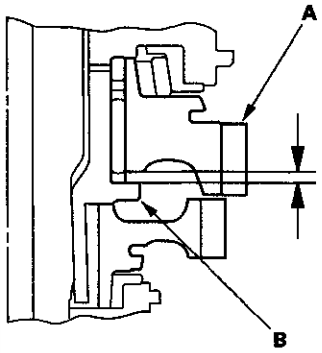
'04-08 models



3. Measure the clearance between 1st gear (A) and the distance collar (B) with a dial indicator.

   - If the clearance is more than the service limit, go to step 4.
   - If the clearance is within the service limit, go to step 6.

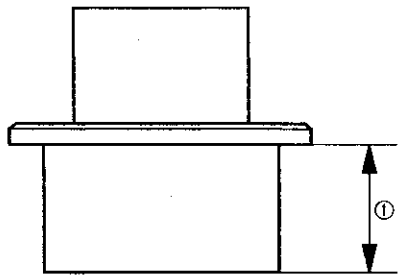
Standard:
'00-03 models: 0.04—0.22 mm (0.002—0.009 in.)
'04-08 models: 0.04—0.17 mm (0.002—0.007 in.)
Service Limit: 0.3 mm (0.012 in.)



4. Measure the length ① of the distance collar as shown.

   - If the length ① is not within the standard, replace the distance collar.
   - If the length ① is within the standard, go to step 5.

Standard: 28.03—28.08 mm (1.104—1.106 in.)



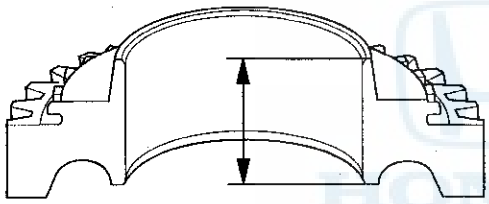
(cont'd)

Countershaft Assembly Clearance Inspection (cont'd)

5. Measure the thickness of 1st gear.

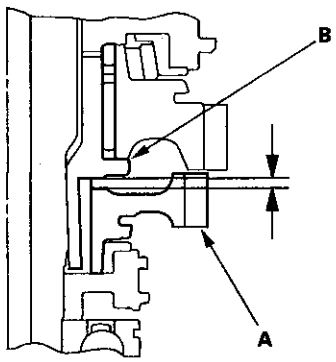
   - If the thickness is less than the service limit, replace 1st gear.
   - If the thickness is within the service limit, replace the 1st/2nd synchro hub and 1st/2nd synchro sleeve as a set.

Standard:
'00-03 models: 31.18—31.26 mm (1.228—1.231 in.)
'04-08 models: 27.88—27.96 mm (1.098—1.101 in.)
Service Limit:
'00-03 models: 31.06 mm (1.223 in.)
'04-08 models: 27.76 mm (1.093 in.)



6. Measure the clearance between reverse gear (A) and the distance collar (B) with a dial indicator. If the clearance is more than the service limit, go to step 7.

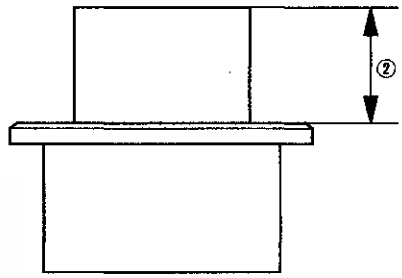
Standard: 0.04—0.22 mm (0.002—0.009 in.)
Service Limit: 0.3 mm (0.012 in.)



7. Measure the length ② of the distance collar as shown.

   - If the length ② is not within the standard, replace the distance collar.
   - If the length ② is within the standard, go to step 8.

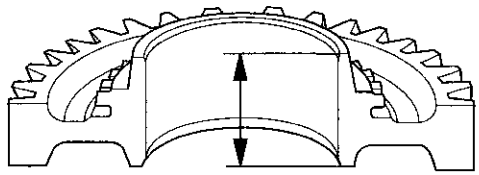
Standard: 25.53—25.58 mm (1.005—1.007 in.)



8. Measure the thickness of reverse gear.

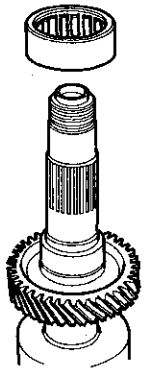
   - If the thickness is less than the service limit, replace reverse gear.
   - If the thickness is within the service limit, replace the reverse synchro hub and reverse synchro sleeve as a set.

Standard: 26.38—26.46 mm (1.039—1.042 in.)
Service Limit: 26.26 mm (1.034 in.)

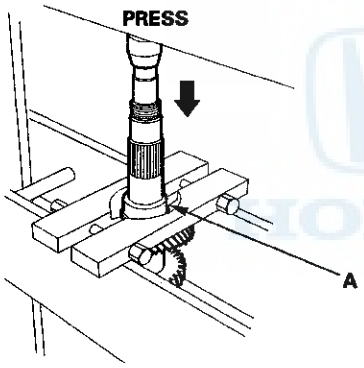


Countershaft Disassembly

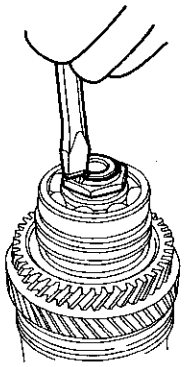
1. Remove the needle bearing.



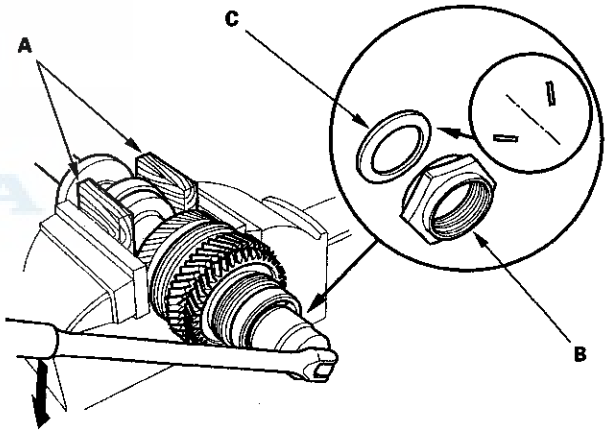
2. Remove the inner race (A) using a commercially available bearing separator and a press as shown.



3. Raise the 27 mm locknut tab from the groove in the countershaft.



4. Securely clamp 4th and 5th gears in a bench vise with wood blocks (A).

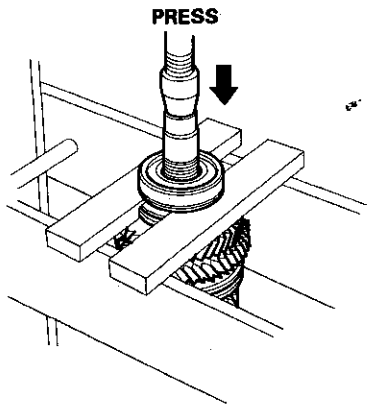


5. Remove the 27 mm locknut (B) and the spring washer (C).

(cont'd)

Countershaft Disassembly (cont'd)

6. Remove the ball bearing using a press as shown.



7. Remove the remaining parts from the countershaft.

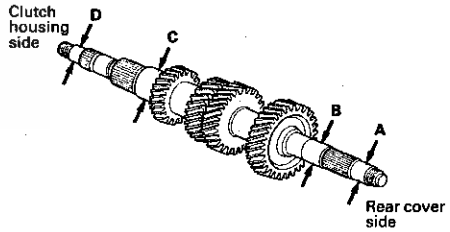
Countershaft Inspection

1. Inspect the gear and bearing contact areas for wear and damage.

2. Measure the countershaft at points A, B, C, and D. If any part of the countershaft is less than the service limit, replace it.

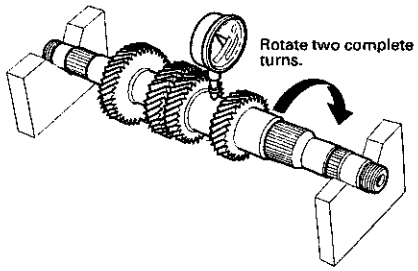
Standard:
- **A Rear cover side needle bearing contact area: 30.020—30.029 mm (1.1819—1.1822 in.)**
- **B Transmission housing side needle bearing contact area: 34.002—34.018 mm (1.3387—1.3393 in)**
- **C 2nd gear contact area: 43.984—44.000 mm (1.7317—1.7323 in.)**
- **D Clutch housing side ball bearing contact area: 28.002—28.015 mm (1.1024—1.1030 in.)**

Service Limit:
- **A: 29.97 mm (1.180 in.)**
- **B: 33.95 mm (1.337 in.)**
- **C: 43.93 mm (1.730 in.)**
- **D: 27.95 mm (1.100 in.)**



3. Inspect for runout by supporting both ends of countershaft. Then rotate the countershaft two complete turns while measuring with a dial gauge. If the runout is more than the service limit, replace the countershaft.

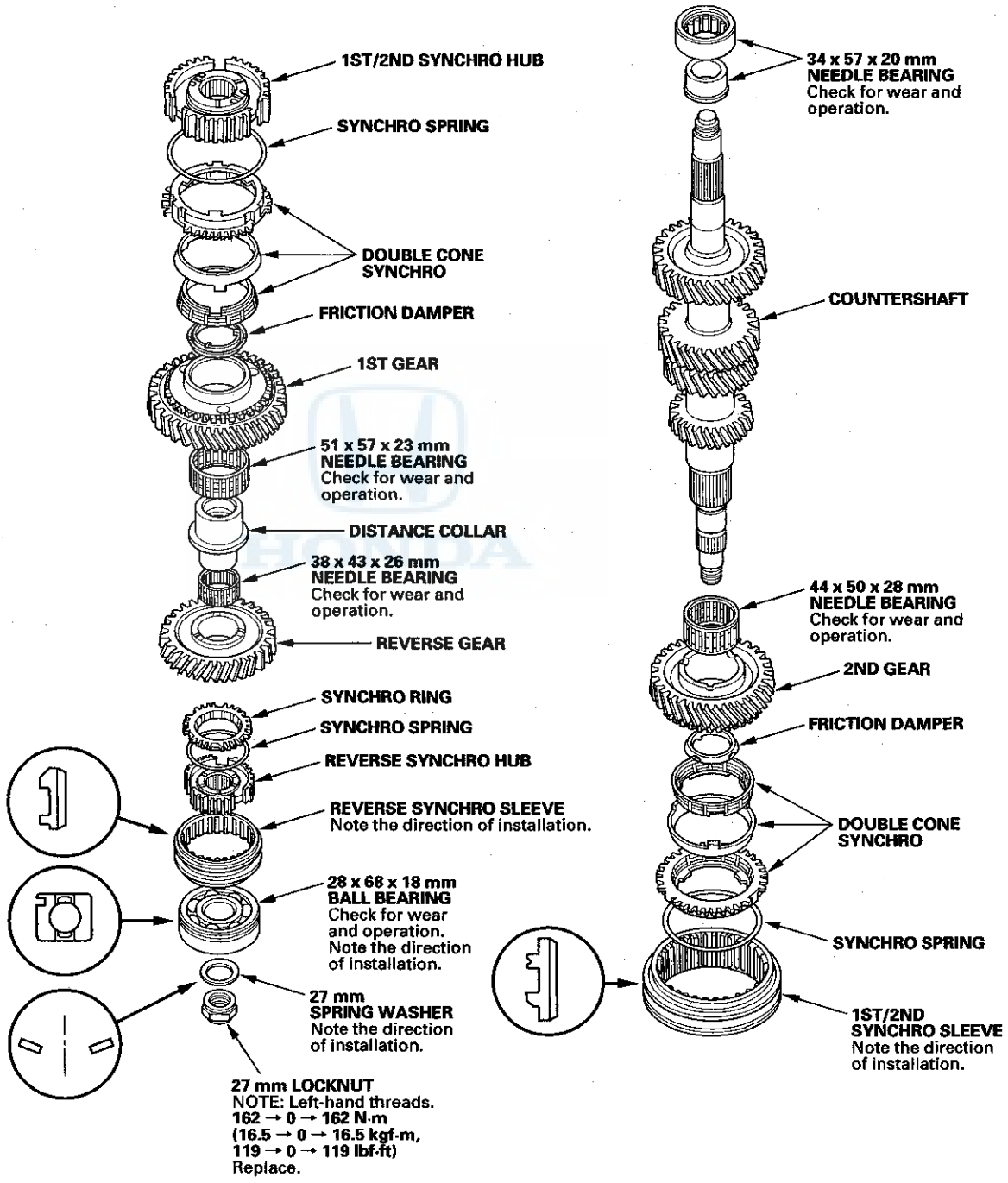
Standard: 0.02 mm (0.001 in.) max.
Service Limit: 0.05 mm (0.002 in.)



Countershaft Reassembly

Exploded View

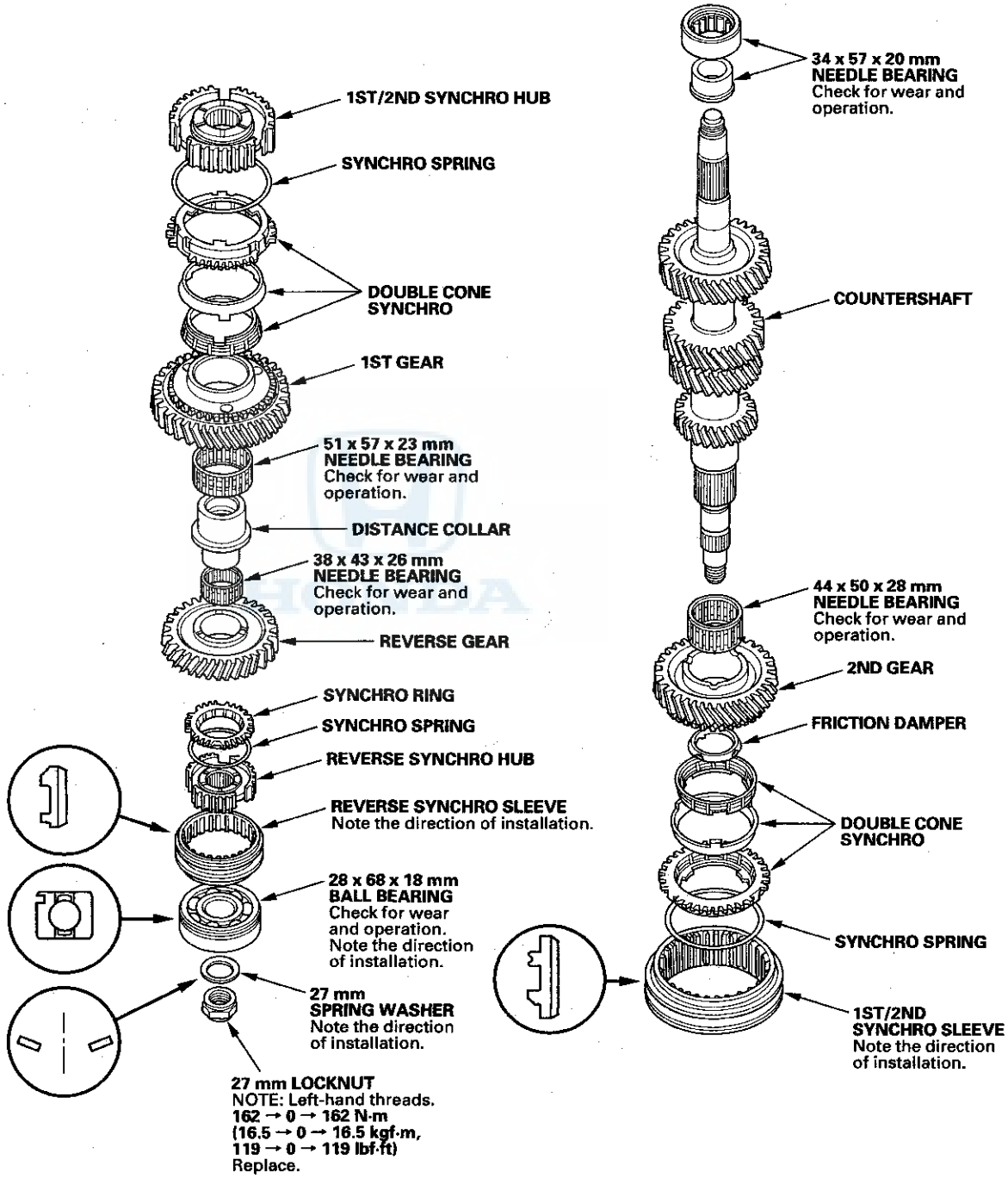
'00-03 models



(cont'd)

Countershaft Reassembly (cont'd)

'04-08 models

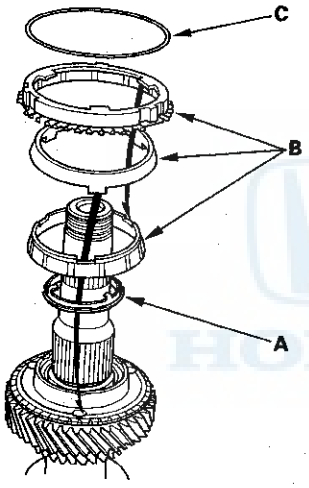


Special Tools Required
- Driver handle 07746-0030100
- Attachment, 30 mm I.D. 07746-0030300
- Attachment, 35 mm I.D. 07746-0030400

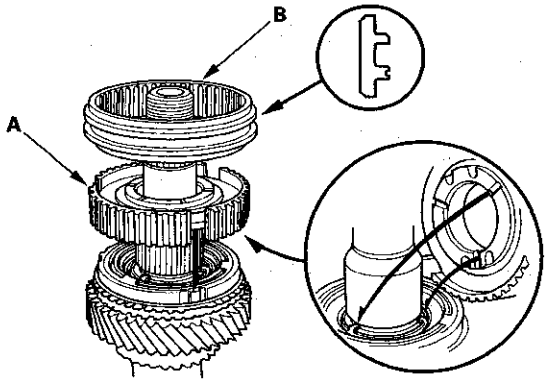
NOTE: Refer to the Exploded View, as needed, during this procedure.

1. Install the 44 x 50 x 28 mm needle bearing and 2nd gear.

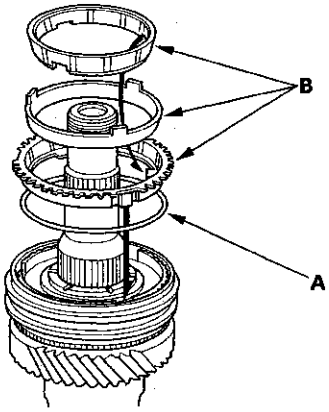
2. Install the friction damper (A), the double cone synchro (B), and the synchro spring (C) as shown.



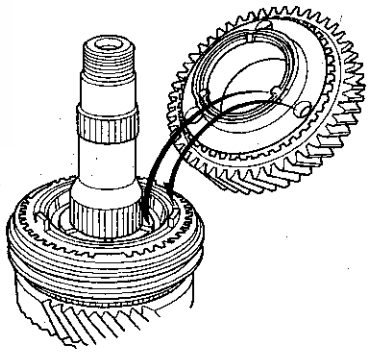
3. Install the 1st/2nd synchro hub (A) and the 1st/2nd synchro sleeve (B) as shown.



4. Install the synchro spring (A) and the double cone synchro (B) as shown.



5. Install the friction damper ('00-03 models) on 1st gear, then install 1st gear by aligning the grooves as shown.

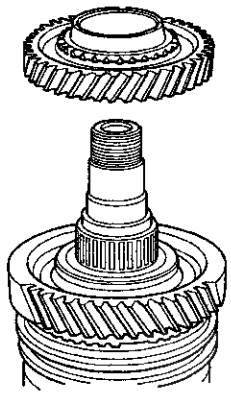


(cont'd)

Countershaft Reassembly (cont'd)

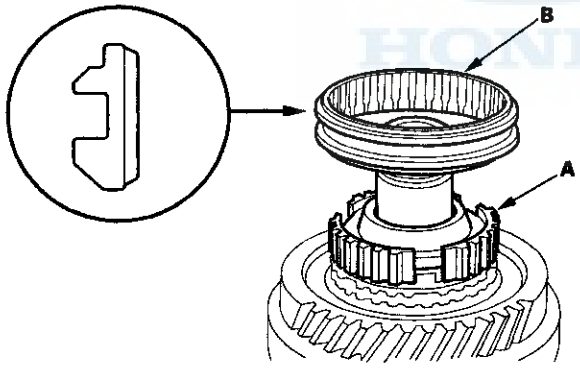
6. Install the 51 x 57 x 23 mm needle bearing, distance collar, and 38 x 43 x 26 mm needle bearing.

7. Install the reverse gear.

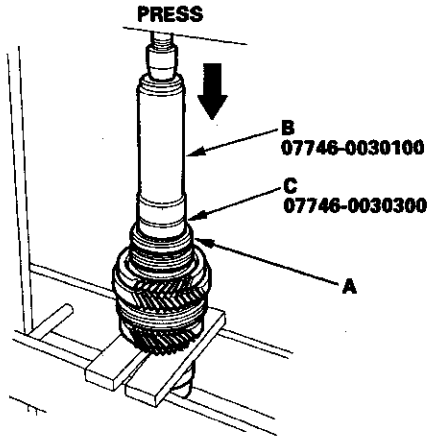


8. Install the synchro ring and synchro spring.

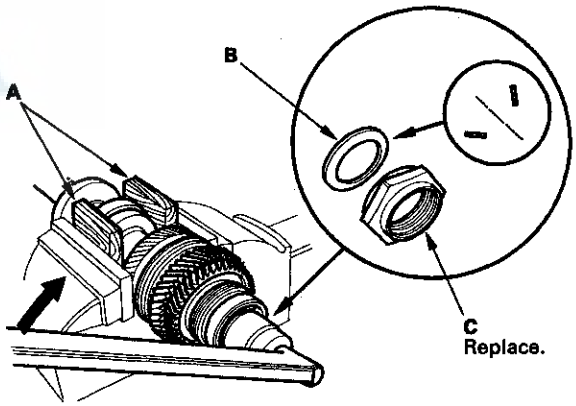
9. Install the reverse synchro hub (A) and the reverse synchro sleeve (B).



10. Install the ball bearing (A) using the driver handle (B), 30 mm I.D. attachment (C), and a press as shown.



11. Securely clamp 4th and 5th gears in a bench vise with wood blocks (A).

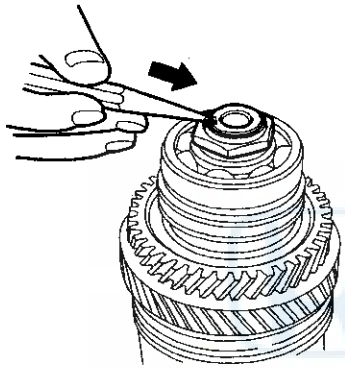


12. Install the spring washer (B) and the new 27 mm locknut (C).

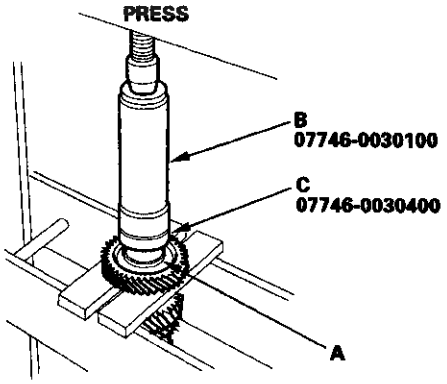
13. Tighten the 27 mm locknut to the specified value.

Torque: 162 → 0 → 162 N·m
(16.5 → 0 → 16.5 kgf·m,
119 → 0 → 119 lbf·ft)

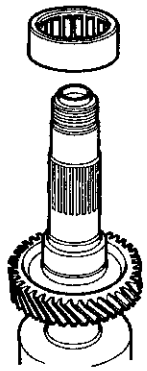
14. Stake the locknut tab into the groove.



15. Install the needle bearing inner race (A) using the driver handle (B), 35 mm I.D. attachment (C), and a press as shown.

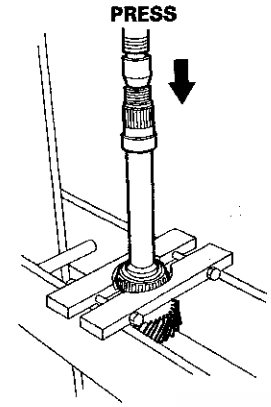


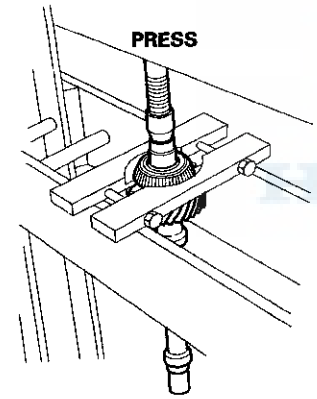
16. Install the needle bearing.



Secondary Shaft Disassembly

1. Remove the tapered roller bearings using a commercially available bearing separator and a press as shown.





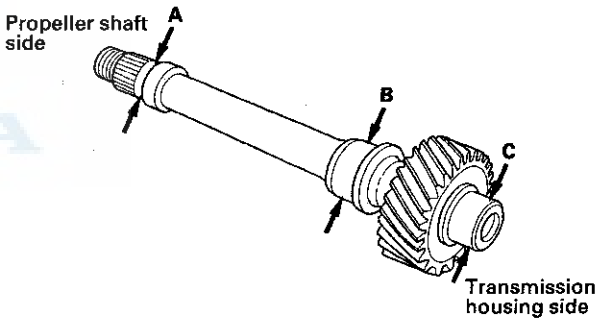
Secondary Shaft Inspection

1. Inspect the gear and bearing contact areas for wear and damage.

2. Measure the countershaft at points A, B, and C. If any part of the secondary shaft is less than the service limit, replace it.

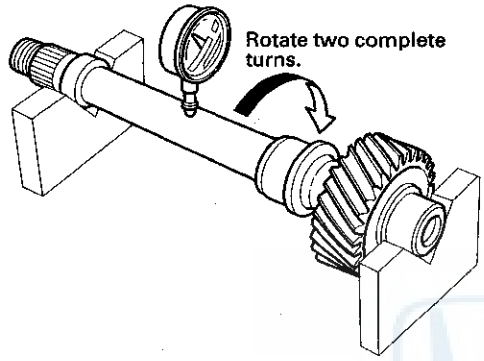
Standard:
- **A Ball bearing contact area: 31.002—31.013 mm (1.2206—1.2210 in.)**
- **B Propeller shaft side tapered roller bearing contact area: 41.002—41.018 mm (1.6143—1.6149 in.)**
- **C Transmission housing side tapered roller bearing contact area: 35.009—35.025 mm (1.3783—1.3790 in.)**

Service Limit:
- **A: 30.95 mm (1.219 in.)**
- **B: 40.95 mm (1.612 in.)**
- **C: 34.96 mm (1.376 in.)**



3. Inspect for runout by supporting both ends of secondary shaft. Then rotate the secondary shaft two complete turns while measuring with a dial gauge. If the runout is more than the service limit, replace the secondary shaft.

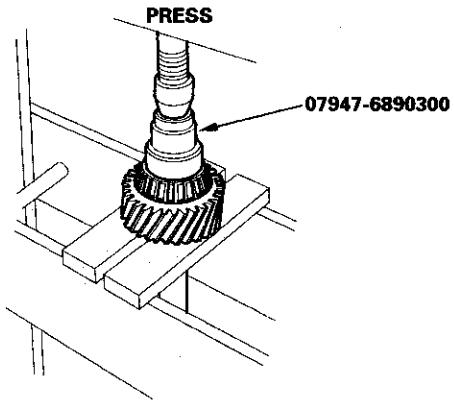
Standard: 0.02 mm (0.001 in.) max.
Service Limit: 0.05 mm (0.002 in.)

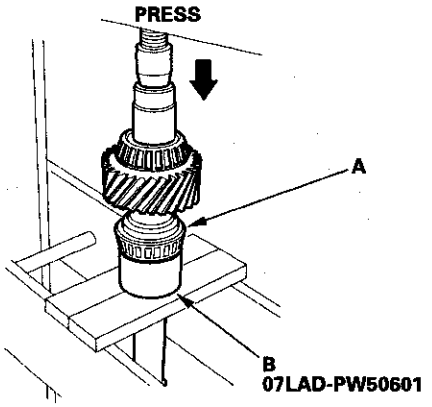


Secondary Shaft Reassembly

Special Tools Required
- Attachment, 40 x 50 mm I.D. 07LAD-PW50601
- Attachment, 45 mm 07947-6890300

1. Install the tapered roller bearings (A) using the 40 x 50 mm I.D. attachment (B) and a press as shown.



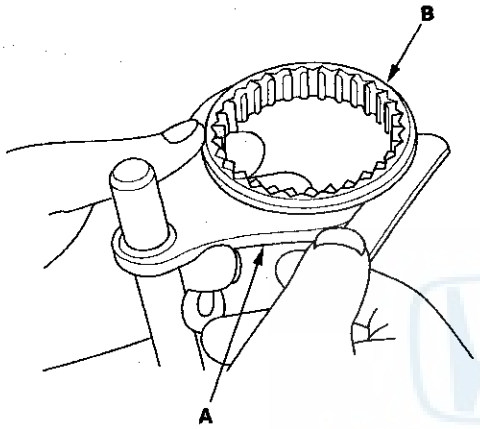


Shift Fork Clearance Inspection

NOTE: If replacement is required, always replace the synchro sleeve and synchro hub as a set.

1. Measure the clearance between each shift fork (A) and its matching synchro sleeve (B). If the clearance exceeds the service limit, go to step 2.

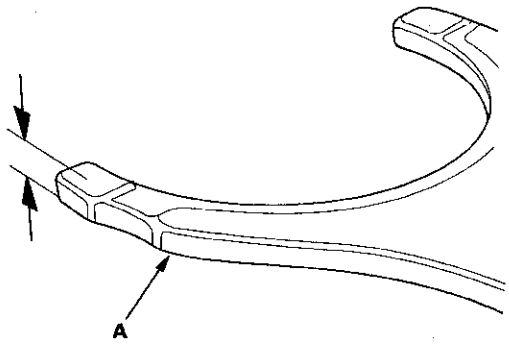
Standard: **0.35—0.65 mm (0.014—0.026 in.)**
Service Limit: **1.00 mm (0.039 in.)**



2. Measure the thickness of the shift fork fingers (A).

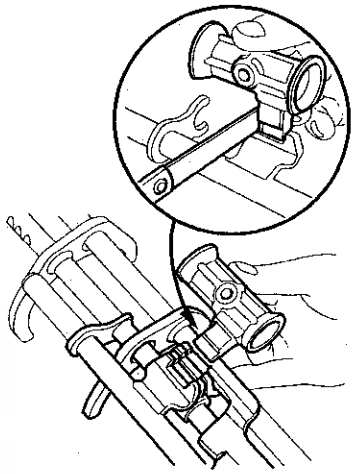
- If the thickness is less than the standard, replace the shift fork.
- If the thickness is within the standard, replace the synchro sleeve and synchro hub as a set.
- If one arm of the shift fork shows more wear than the others, the fork may be bent and needs to be relaced.

Standard:
1-2 Shift Fork: 7.4—7.6 mm (0.29—0.30 in.)
3-4, 5-6, Reverse Shift Fork:
6.2—6.4 mm (0.24—0.25 in.)



3. Measure the clearance between each shift fork, reverse shift piece, and shift arm A. If the clearance exceeds the service limit, go to step 4.

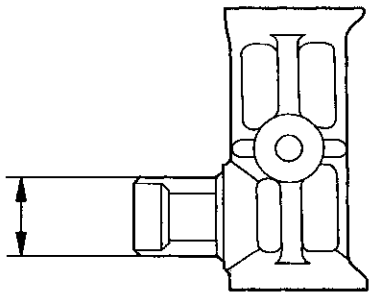
Standard: **0.2—0.6 mm (0.008—0.024 in.)**
Service Limit: **0.7 mm (0.028 in.)**



4. Measure the width of shift arm A.

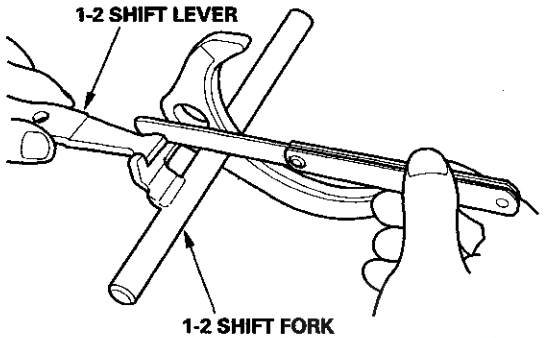
- If the width is less than the service limit, replace shift arm A.
- If the width is within the service limit, replace the shift fork or the reverse shift piece.

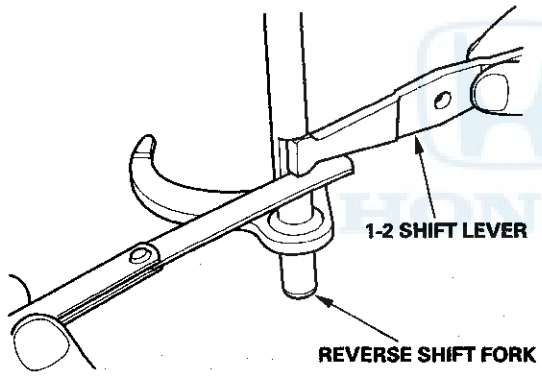
Standard: **16.8—17.0 mm (0.661—0.669 in.)**
Service Limit: **16.7 mm (0.657 in.)**

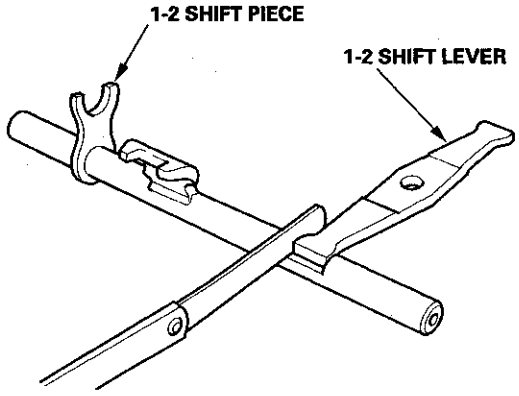


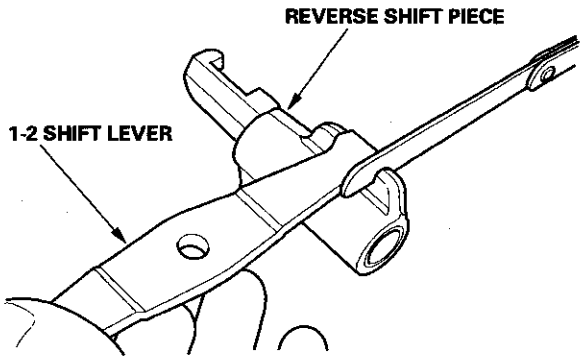
5. Measure the clearance between the 1-2 shift lever and each shift fork and shift piece. If the clearance exceeds the service limit, go to step 6.

Standard: 0—0.4 mm (0—0.016 in.)
Service Limit: 0.5 mm (0.020 in.)





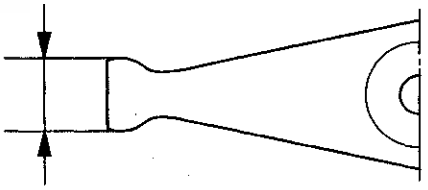




6. Measure the width of the 1-2 shift lever.

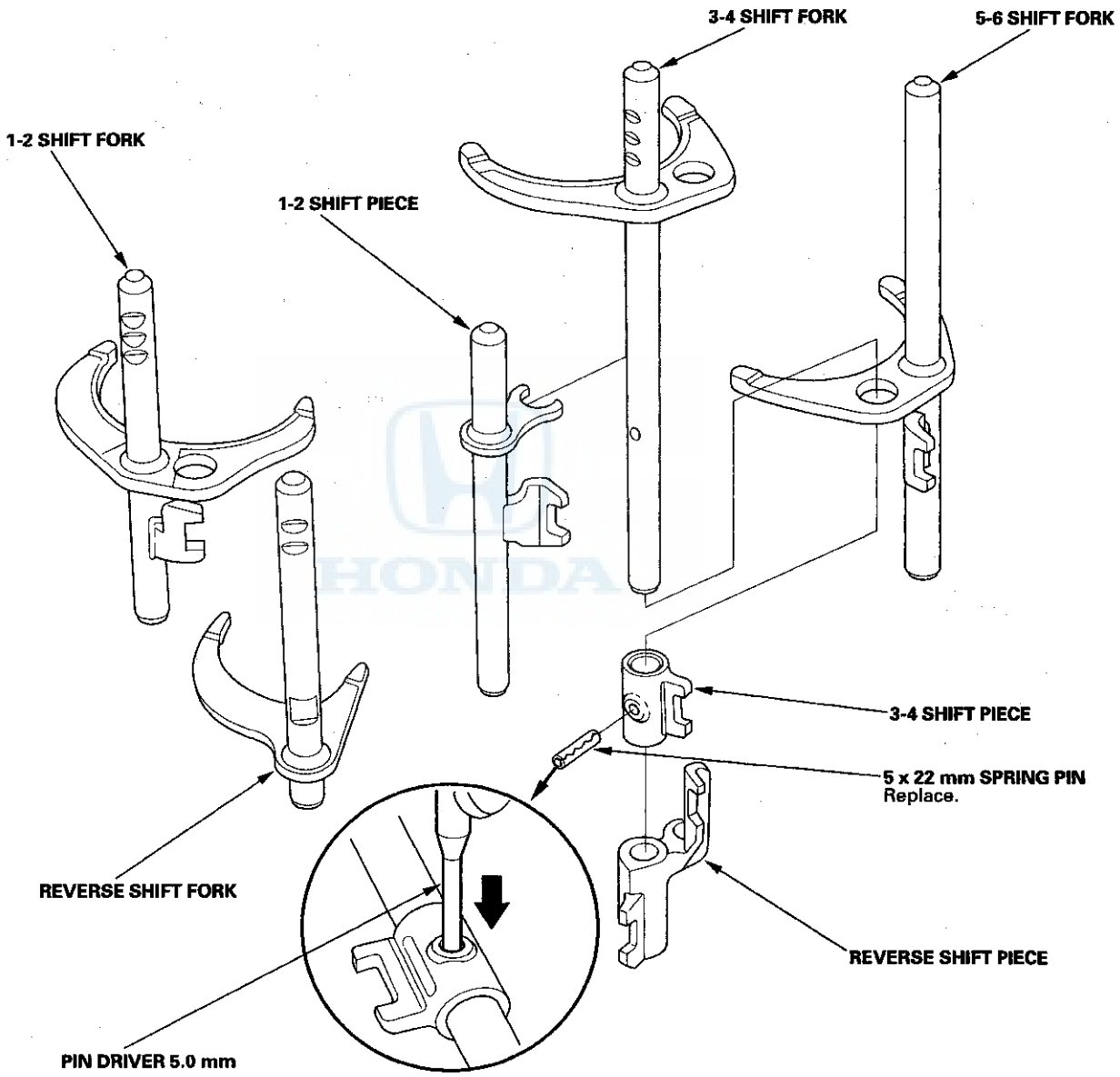
- If the width is less than the service limit, replace the 1-2 shift lever.
- If the width is within the service limit, replace the shift fork or shift piece.

Standard: 17.0—17.2 mm (0.669—0.677 in.)
Service Limit: 16.9 mm (0.665 in.)



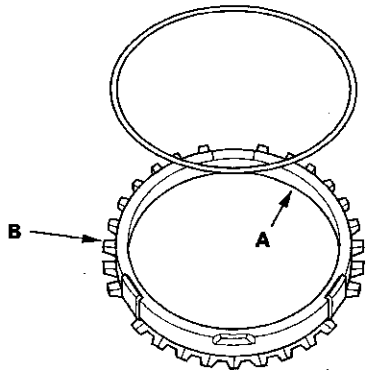
Shift Fork Disassembly/Reassembly

Prior to reassembling, clean all the parts in solvent, dry them, and apply MTF to all contact surfaces.



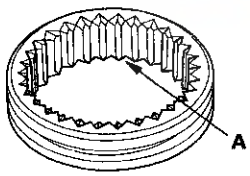
Synchro Ring and Gear Inspection

1. Inspect the inside of each synchro ring (A) for wear. Inspect the teeth (B) on each synchro ring for wear (rounded off).



Example of synchro ring teeth

2. Inspect the teeth (A) on each synchro sleeve and matching teeth on each gear for wear (rounded off).

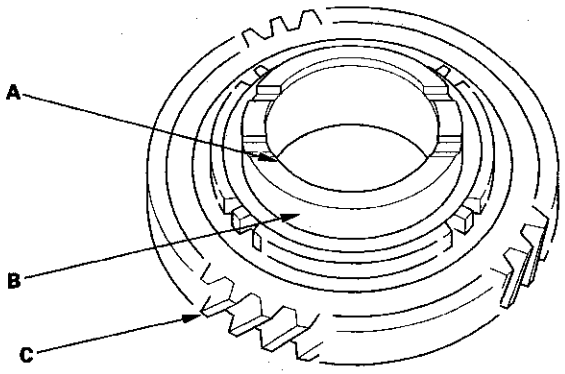


Example of synchro sleeve teeth and gear teeth

Except '06-08 models countershaft 2nd gear teeth:

'06-08 models countershaft 2nd gear teeth:

3. Inspect the gear hub thrust surface (A) for wear.



4. Inspect the cone surface (B) for wear and roughness.

5. Inspect the teeth on all gears (C) for uneven wear, scoring, and cracks.

6. Coat the cone surface of each gear with MTF, and place the synchro ring on it. Rotate the synchro ring, making sure that it does not slip.

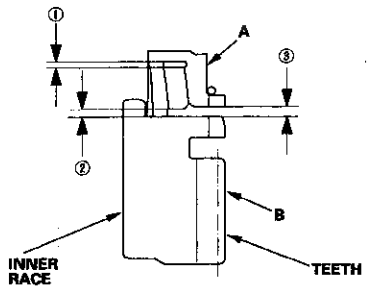
7. Measure the clearance between each synchro ring (A) and gear (B) all the way around. Hold the synchro ring against the gear evenly while measuring the clearance. If the clearance is less than the service limit, replace the synchro ring and gear.

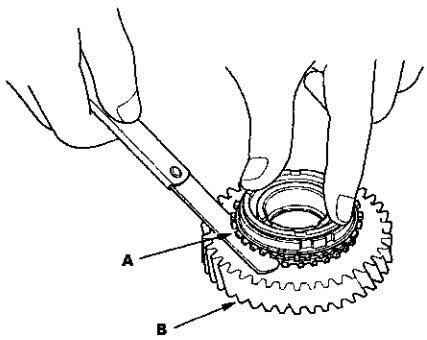
Synchro Ring-to-Gear Clearance
Standard:
'00-03 models 5th, 6th gear:
0.75—1.00 mm (0.030—0.039 in.)
'04-08 models 3rd, 4th, 5th, and 6th gear:
0.85—1.10 mm (0.033—0.043 in.)
Reverse gear: 0.85—1.10 mm (0.033—0.043 in.)
Service Limit: 0.4 mm (0.016 in.)

(cont'd)

Synchro Ring and Gear Inspection (cont'd)

Double Cone Synchro-to-Gear Clearance
Standard:
①: Outer Synchro Ring to Synchro Cone
'00-03 models 1st and 2nd gear:
0.70—1.09 mm (0.028—0.043 in.)
'00-03 models 3rd and 4th gear:
0.90—1.39 mm (0.035—0.055 in.)
'04-08 models 1st and 2nd gear:
0.58—1.09 mm (0.023—0.043 in.)
②: Synchro Cone to Gear
'00-03 models 1st, 3rd, and 4th gear:
0.50—1.04 mm (0.020—0.041 in.)
'00-03 models 2nd gear:
0.65—1.78 mm (0.026—0.070 in.)
'04-08 models 1st and 2nd gear:
0.33—1.04 mm (0.013—0.041 in.)
③: Outer Synchro Ring to Gear
'00-03 models 1st, 3rd, and 4th gears:
0.95—1.68 mm (0.037—0.066 in.)
'00-03 models 2nd gear:
0.70—1.82 mm (0.028—0.072 in.)
'04-08 models 1st and 2nd gear:
0.95—1.35 mm (0.037—0.053 in.)
Service Limit:
①: 0.3 mm (0.012 in.)
②: 0.3 mm (0.012 in.)
③: 0.6 mm (0.024 in.)



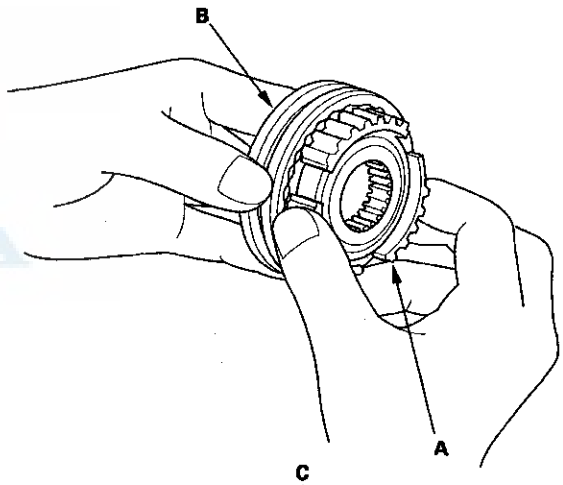


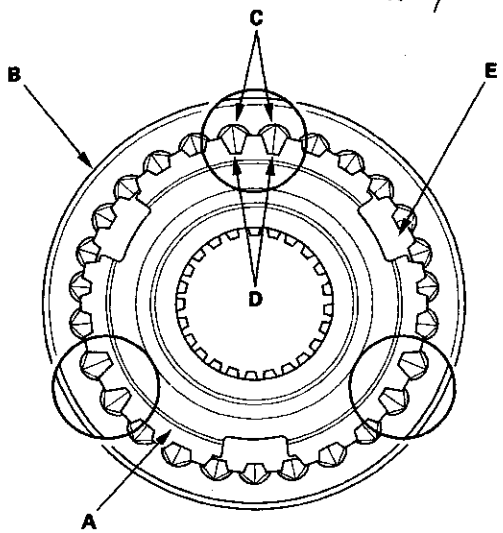
Synchro Sleeve and Hub Inspection and Reassembly

1. Inspect gear teeth on all synchro hubs and synchro sleeves for wear (rounded off corners).

2. Install each synchro hub (A) in its mating synchro sleeve (B), and check for free movement. Make sure to match the three sets of longer teeth (C) (120 degrees apart) on the synchro sleeve with the three sets of deeper grooves (D) in the synchro hub.

   NOTE:
   - If replacement is required, always replace the synchro sleeve and the synchro hub as a set.
   - Do not install the synchro sleeve with its longer teeth in the 1st/2nd synchro hub slots (E) because it will damage the spring ring.

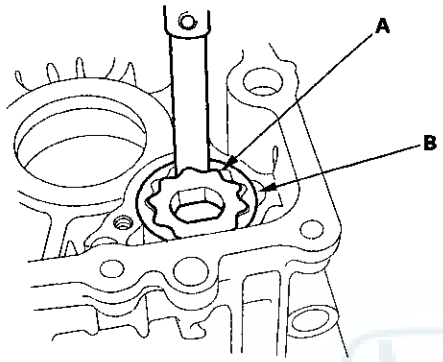




Oil Pump Clearance Inspection

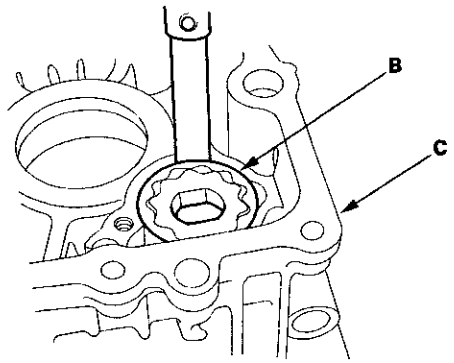
1. Measure the radial clearance between the inner rotor (A) and the outer rotor (B) with a feeler gauge. If the clearance exceeds the service limit, replace the oil pump outer and inner rotors.

   Standard: 0.14 mm (0.006 in.) max.
   Service Limit: 0.20 mm (0.008 in.)



2. Measure the radial clearance between the outer rotor (B) and the transmission housing (C) with a feeler gauge. If the clearance exceeds the service limit, replace the oil pump outer and inner rotors.

   Standard: 0.1—0.2 mm (0.004—0.008 in.)
   Service Limit: 0.22 mm (0.009 in.)

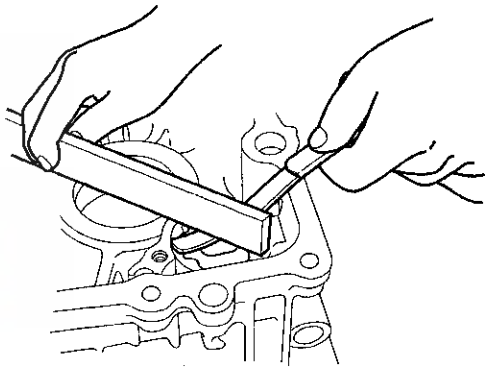


3. Measure the axial clearance on the pump rotor. If the clearance exceeds the standard, select the appropriate rotor for the correct clearance from the chart as shown.

   Rotor-to-Transmission Housing Axial Clearance
   Standard: 0.03—0.07 mm (0.001—0.003 in.)

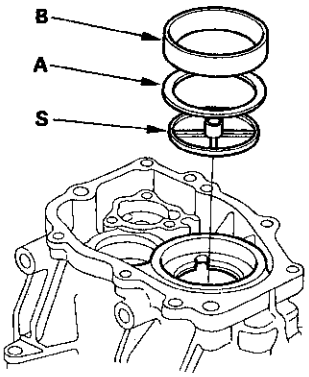
   Outer and Inner Rotor Set

	Part Number	Thickness
A	21168-PCY-0000	9.95—9.97 mm (0.392—0.393 in.)
B	21169-PCY-0000	9.93—9.95 mm (0.391—0.392 in.)
C	21170-PCY-0000	9.91—9.93 mm (0.390—0.391 in.)



Secondary Shaft Preload Adjustment

1. Install oil guide plate S, the 68 mm shim (A) and the bearing outer race (B) on the transmission housing (see step 17 on page 13-59).



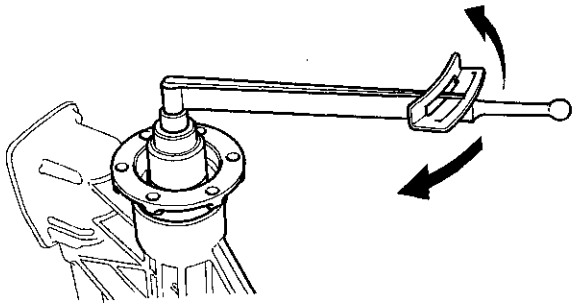
2. Install the rear cover, then tighten the 8 mm flange bolts in a crisscross pattern in several steps.

   Specified Torque:
   8 x 1.25 mm
   27 N·m (2.8 kgf·m, 20 lbf·ft)

3. Rotate the secondary shaft in both directions to seat the tapered roller bearing.

4. Measure the turning torque of the secondary shaft by rotating it in both directions with a torque wrench.

   Standard: 1.86—2.84 N·m
   (19—29 kgf·cm, 16.5—25.2 lbf·in)



5. If the preload is not within the standard, select a 68 mm shim that will provide correct preload.

68 mm Shim

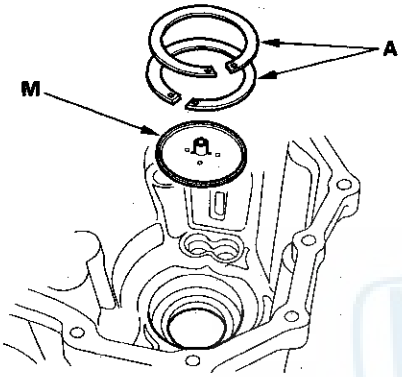
	Part Number	Thickness
A	41381-PCY-0000	0.90 mm (0.0354 in.)
B	41382-PCY-0000	0.93 mm (0.0366 in.)
C	41383-PCY-0000	0.96 mm (0.0378 in.)
D	41384-PCY-0000	0.99 mm (0.0390 in.)
E	41385-PCY-0000	1.02 mm (0.0402 in.)
F	41386-PCY-0000	1.05 mm (0.0413 in.)
G	41387-PCY-0000	1.08 mm (0.0425 in.)
H	41388-PCY-0000	1.11 mm (0.0437 in.)
I	41389-PCY-0000	1.14 mm (0.0449 in.)
J	41390-PCY-0000	1.17 mm (0.0461 in.)
K	41391-PCY-0000	1.20 mm (0.0472 in.)
L	41392-PCY-0000	1.23 mm (0.0484 in.)
M	41393-PCY-0000	1.26 mm (0.0496 in.)
N	41394-PCY-0000	1.29 mm (0.0508 in.)
O	41395-PCY-0000	1.32 mm (0.0520 in.)
P	41396-PCY-0000	1.35 mm (0.0531 in.)
Q	41397-PCY-0000	1.38 mm (0.0543 in.)
R	41398-PCY-0000	1.41 mm (0.0555 in.)
S	41399-PCY-0000	1.44 mm (0.0567 in.)
T	41400-PCY-0000	1.47 mm (0.0579 in.)

Mainshaft Thrust Clearance Adjustment

Special Tools Required
- Mainshaft holder 07GAJ-PG20110
- Mainshaft base 07GAJ-PG20130

1. Install the mainshaft assembly in the clutch housing.

2. Install oil guide plate M and 82 mm shim(s) (A) into the transmission housing.

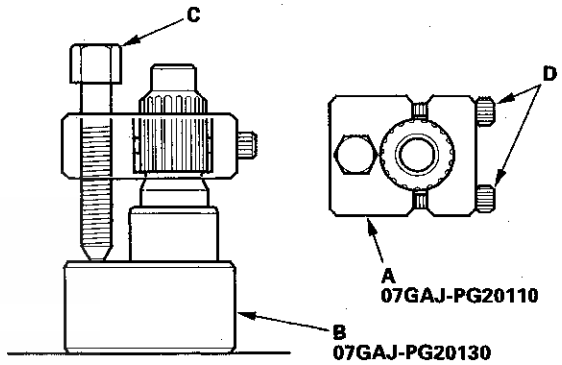


3. Install the transmission housing onto the clutch housing, then tighten the 8 mm flange bolts in a crisscross pattern in several steps.

   Specified Torque:
   8 x 1.25 mm
   27 N·m (2.8 kgf·m, 20 lbf·ft)

4. Attach the mainshaft holder (A) and mainshaft base (B) to the mainshaft as follows:

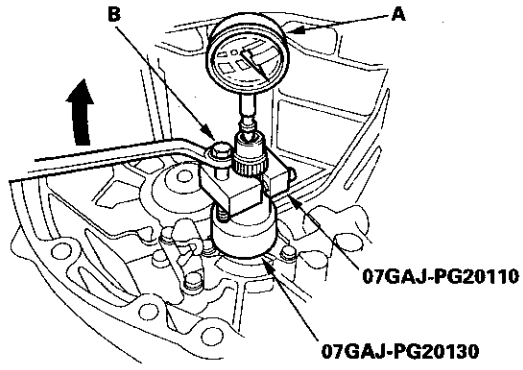
   - Backout the mainshaft holder bolt (C), and loosen the two hex bolts (D).
   - Fit the holder over the mainshaft so its lip is towards the transmission.
   - Align the mainshaft holder's lip around the groove at the inside of the mainshaft splines, then tighten the hex bolts.



5. Fully seat the mainshaft by tapping its end with a plastic hammer.

6. Thread the mainshaft holder bolt in until it just contacts the wide surface of the mainshaft base.

7. Zero a dial gauge (A) on the end of the mainshaft.



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Mainshaft Thrust Clearance Adjustment (cont'd)

8. Turn the mainshaft holder bolt (B) clockwise; stop turning when the dial gauge has reached its maximum movement. The reading on the dial gauge is the amount of mainshaft end play.

   NOTE: Do not turn the mainshaft holder bolt more than 60 degrees after the needle of the dial gauge stops moving. Applying more pressure with the mainshaft holder bolt may damage the transmission.

9. If the reading is within the standard, the clearance is correct. If the reading is not within the standard, select the appropriate shim needed from the table, and recheck the shim thickness.

   Standard: 0.14—0.21 mm (0.006—0.008 in.)

82 mm Shim

	Parts Number	Thickness
A	23931-PR8-F000	0.60 mm (0.0236 in.)
B	23932-PR8-F000	0.63 mm (0.0248 in.)
C	23933-PR8-F000	0.66 mm (0.0260 in.)
D	23934-PR8-F000	0.69 mm (0.0271 in.)
E	23935-PR8-F000	0.72 mm (0.0283 in.)
F	23936-PR8-F000	0.75 mm (0.0295 in.)
G	23937-PR8-F000	0.78 mm (0.0307 in.)
H	23938-PR8-F000	0.81 mm (0.0319 in.)
I	23939-PR8-F000	0.84 mm (0.0331 in.)
J	23940-PR8-F000	0.87 mm (0.0343 in.)
K	23941-PR8-F000	0.90 mm (0.0354 in.)
L	23942-PR8-F000	0.93 mm (0.0366 in.)
M	23943-PR8-F000	0.96 mm (0.0378 in.)
N	23944-PR8-F000	0.99 mm (0.0390 in.)
O	23945-PR8-F000	1.02 mm (0.0402 in.)
P	23946-PR8-F000	1.05 mm (0.0413 in.)
Q	23947-PR8-F000	1.08 mm (0.0425 in.)
R	23948-PR8-F000	1.11 mm (0.0437 in.)
S	23949-PR8-F000	1.14 mm (0.0449 in.)
T	23950-PR8-F000	1.17 mm (0.0461 in.)
U	23951-PR8-F000	1.20 mm (0.0472 in.)

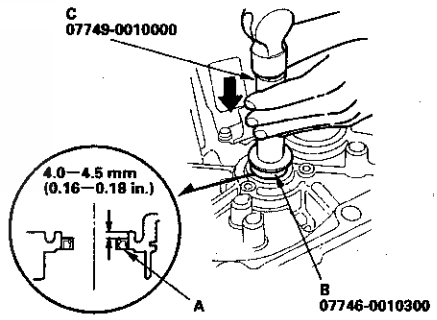
Transmission Reassembly

Special Tools Required
- Holder handle 07JAB-001020A
- Attachment, 40 x 50 mm I.D. 07LAD-PW50601
- Mainshaft holder 07PAB-001A300
- Companion flange holder 07RAB-TB4010B
- Attachment, 42 x 47 mm 07746-0010300
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600
- Driver handle 07746-0030100
- Driver 07749-0010000
- Driver, 30 mm I.D. 07946-MB00000
- Attachment, 35 mm I.D. 07965-SA50500

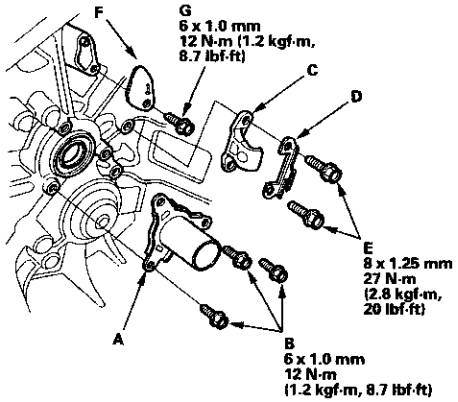
Transmission Housing Installation

NOTE: Prior to reassembling, clean all the parts in solvent, dry them, and apply MTF to any contact surfaces.

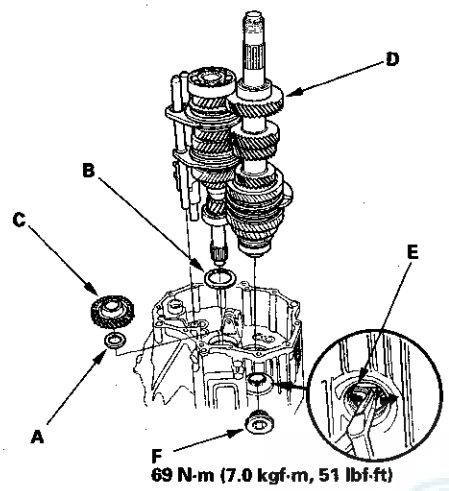
1. Install the oil seal (A) using the 42 x 47 mm attachment (B) and driver (C).

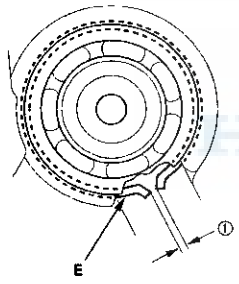


2. Install the release bearing guide (A) with three bolts (B), the clutch release hanger (C), the release hanger spring (D) with two bolts (E), and the breather plate (F) with a bolt (G).



3. Install the thrust washer (A) and the 64 mm spring washer (B).





4. Install the reverse idler gear (C), mainshaft, countershaft, and the shift forks assembly (D) with the snap ring pliers, and set the 68 mm snap ring (E) into the groove of the countershaft bearing.

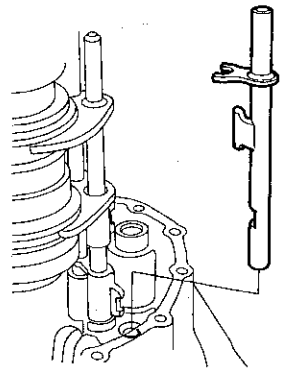
   NOTE: Check that the snap ring is securely seated in the groove of the countershaft bearing.

   Dimension ① as installed: 0—6.93 mm (0—0.273 in.)

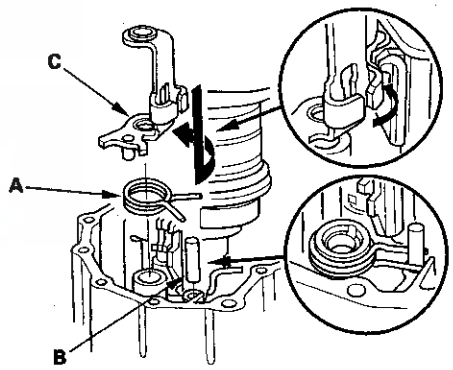
5. Apply liquid gasket, P/N 08718-0001, evenly to the mating surface of the threads of the 34 mm sealing bolt (F) and the transmission housing. Install the component within 5 minutes of applying the liquid gasket.

   NOTE:
   - If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
   - If too much time has passed after applying the liquid gasket, remove the old gasket and residue, then reapply new liquid gasket.

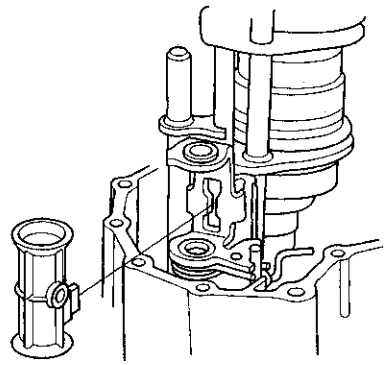
6. Install the 1-2 shift piece.



7. Install the select return spring (A) and the 8 x 40 pin (B) onto the clutch housing, then install the interlock (C).



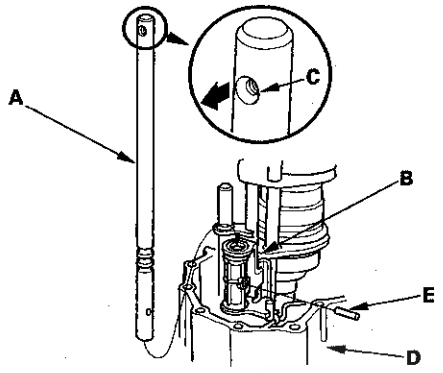
8. Install shift arm A by aligning the interlock finger and the shift fork grooves.



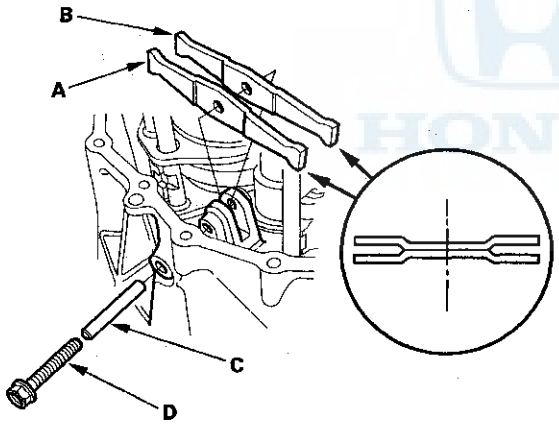
(cont'd)

Transmission Reassembly (cont'd)

9. Install the shift rod (A) into the interlock assembly (B) with the recessed hole (C) toward the top of the clutch housing (D), then install the 5 x 25 spring pin (E).

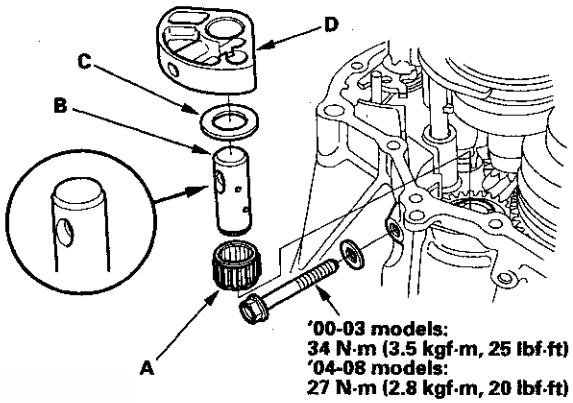


10. Install the outer side 1-2 shift lever (A) first, then install the inner side 1-2 shift lever (B).

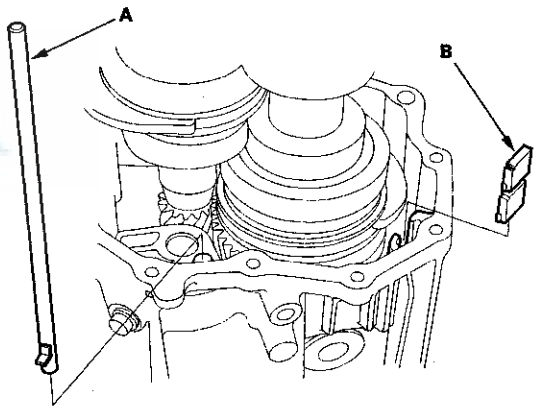


11. Install the 8 x 63 pin (C), then tighten the 10 mm flange bolt (D).

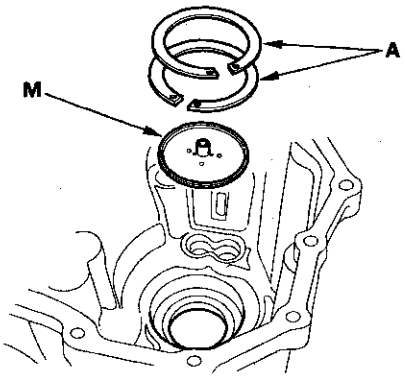
12. Install the needle bearing (A), the reverse gear shaft (B), the thrust washer (C), and the reverse shaft holder (D), then install the washer and 8 mm flange bolt.



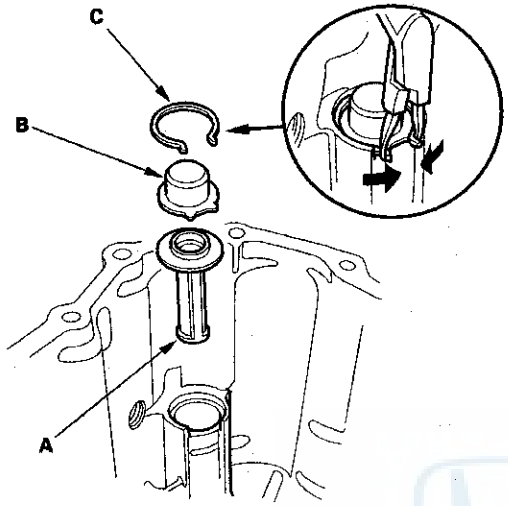
13. Install the oil guide pipe (A) and the magnet (B).



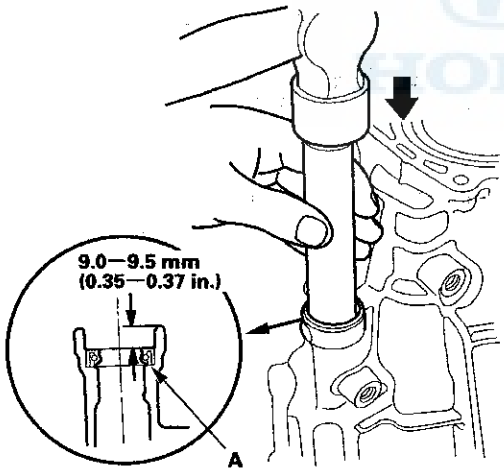
14. Install oil guide plate M and the 82 mm shim(s) (A).



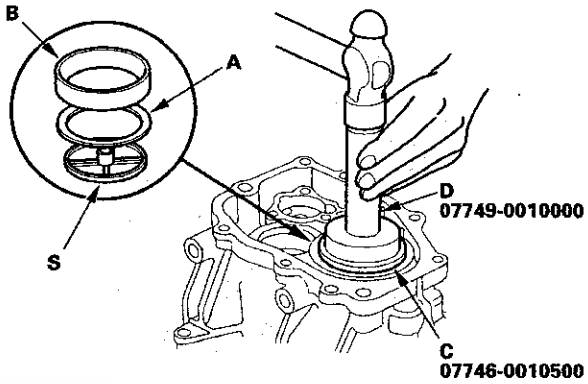
15. Install the oil pump strainer (A), the suction guide (B), and the circlip (C).



16. Install the 16 x 26 x 7 mm oil seal (A) as shown.

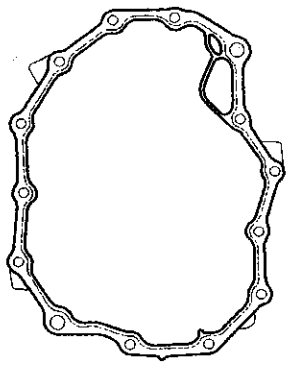


17. Install oil guide plate S and the 68 mm shim (A), then install the bearing outer race (B) using the 62 x 68 mm attachment (C) and driver (D) as shown.



18. Clean any dirt or oil from the transmission housing mating surface. Apply liquid gasket, P/N 08718-0001 evenly to the mating surface of the transmission housing and the clutch housing. Install the component within 5 minutes of applying the liquid gasket.

NOTE:
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.
- Allow it to cure at least 20 minutes after assembly before filling the transmission with MTF.

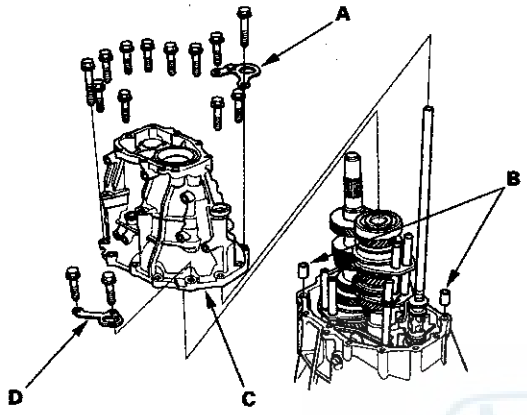


Liquid gasket

(cont'd)

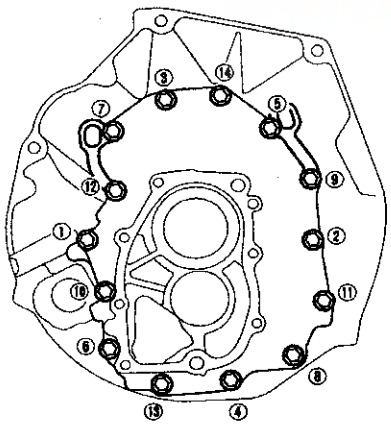
Transmission Reassembly (cont'd)

19. Install the 14 x 20 dowel pins (B), the transmission housing (C), 8 mm flange bolts, the transmission hanger (D), and transmission hanger A.



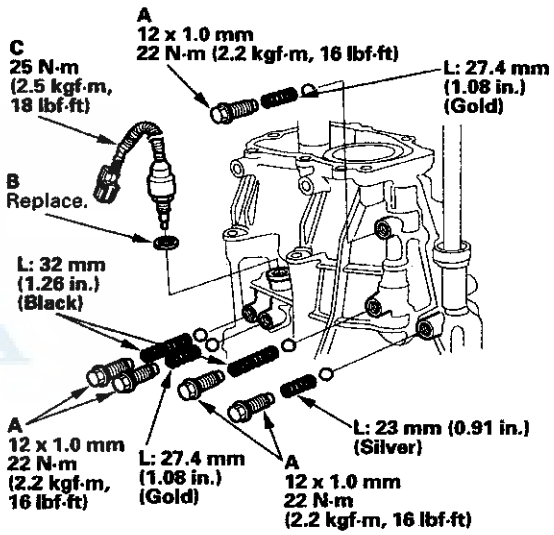
20. Tighten the 8 mm flange bolts in a crisscross pattern in several steps as shown.

Specified Torque:
8 x 1.25 mm
27 N·m (2.8 kgf·m, 20 lbf·ft)



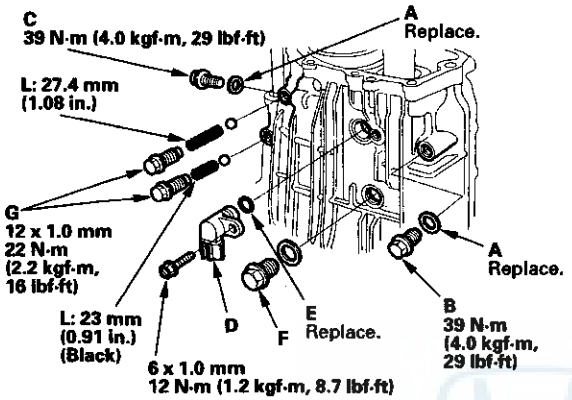
21. Apply liquid gasket, P/N 08718-0001, evenly to the mating surface of the threads of the set screws (A), then install the set screws, the steel balls, and springs. Install the component within 5 minutes of applying the liquid gasket.

NOTE:
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



22. Install the new washer (B) and the back-up light switch (C).

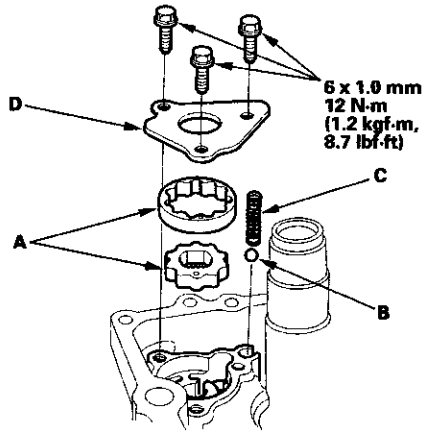
23. Install the new washers (A), the drain plug (B), the 12 mm drain plug (C), and the vehicle speed sensor (VSS) ('00-05 models) or the output shaft (countershaft) speed sensor ('06-08 models) (D) with a new O-ring (E). Install the filler plug (F) finger-tight.



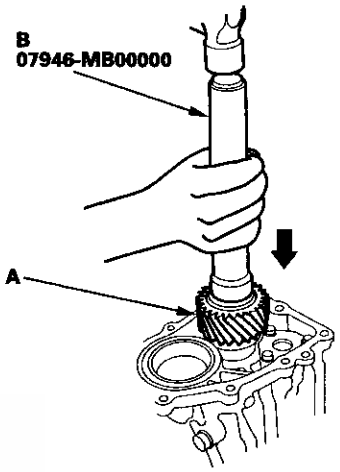
24. Apply liquid gasket, P/N 08718-0001, evenly to the mating surface of the threads of the set screws (G), then install the set screws, the steel balls, and springs. Install the component within 5 minutes of applying the liquid gasket.

    NOTE:
    - If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
    - If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.

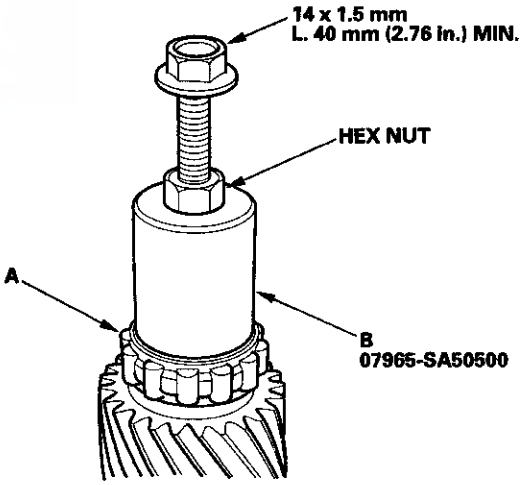
25. Install the oil pump inner and outer rotors (A), the steel ball (B), the spring (C), and the oil pump plate (D).



26. Install the secondary drive gear (A) on the countershaft using the 30 mm I.D. driver (B) as shown.



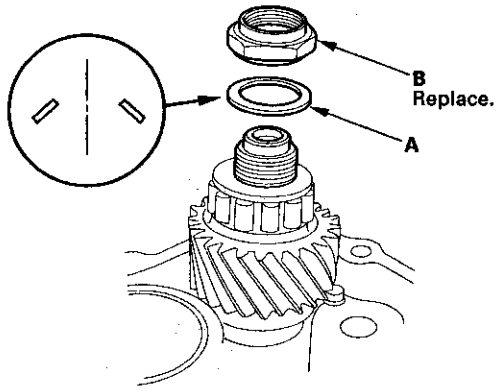
27. Install the needle bearing (A) on the countershaft using the 35 mm I.D. attachment (B) as shown.



(cont'd)

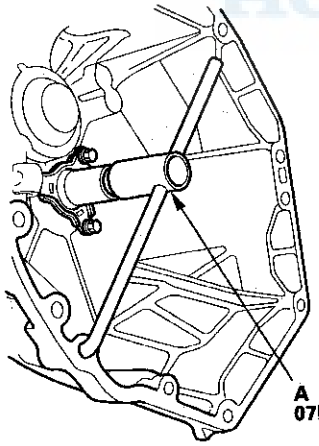
Transmission Reassembly (cont'd)

28. Install the spring washer (A) and the new 29 mm locknut (B) finger-tight (left-hand threads).

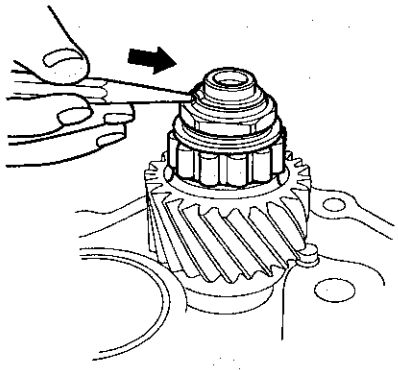


29. Install the mainshaft holder (A) on the mainshaft, then tighten the 29 mm locknut (left-hand threads) to the specified value.

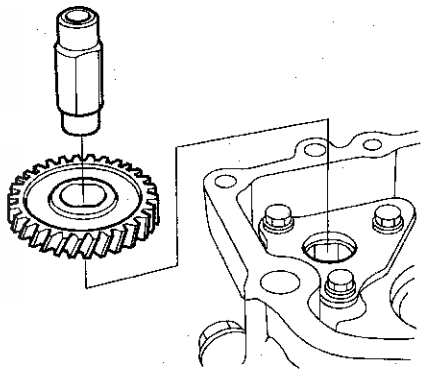
Torque:
172→ 0 → 172 N·m
(17.5→ 0 → 17.5 kgf·m,
127→ 0 → 127 lbf·ft)



30. Stake the 29 mm locknut tab into the groove.



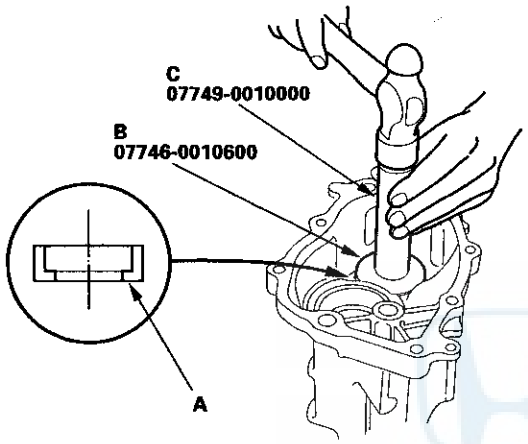
31. Install the oil pump gear and oil pump gear shaft.



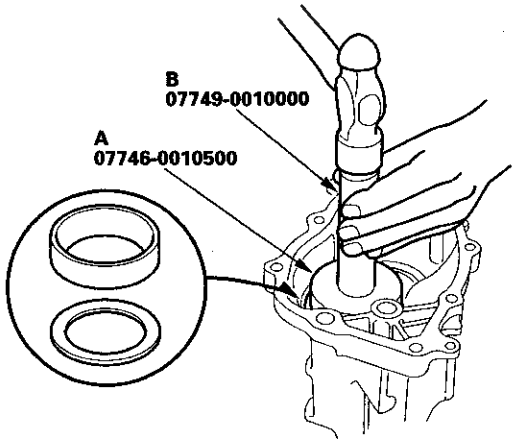
Rear Cover Installation

NOTE: Prior to reassembling, clean all the parts in solvent, dry them, and apply MTF to any contact surfaces.

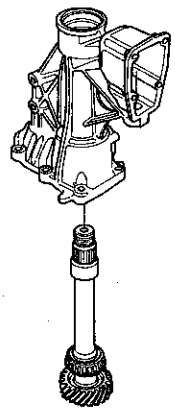
1. Install the bearing outer race (A) using the 72 x 75 mm attachment (B) and driver (C) as shown.



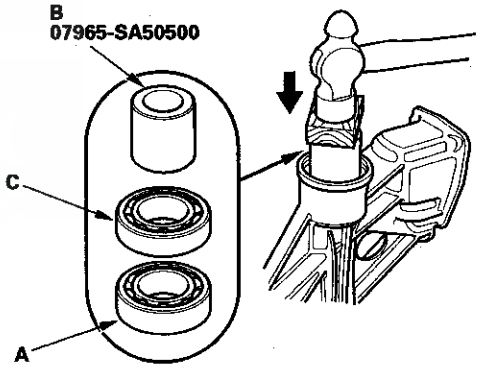
2. Install the shim and the bearing outer race into the rear cover using the 62 x 68 mm attachment (A) and driver (B) as shown.



3. Install the secondary shaft assembly into the rear cover.



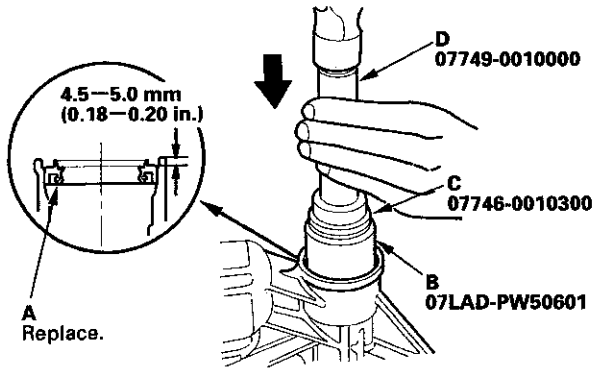
4. Install the new ball bearing (A) using the 35 mm I.D. attachment (B) and the old bearing (C).



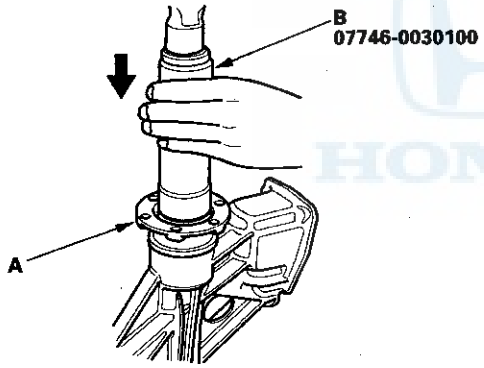
(cont'd)

Transmission Reassembly (cont'd)

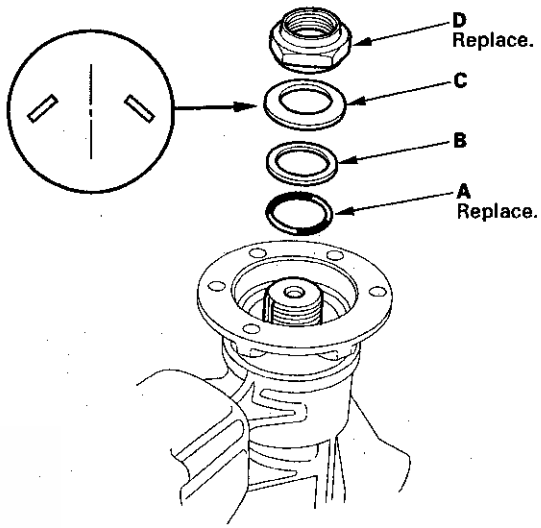
5. Install the new oil seal (A) using the 40 x 50 mm I.D. attachment (B), 42 x 47 mm attachment (C), and driver (D).



6. Install the companion flange (A) using the driver handle (B) as shown.

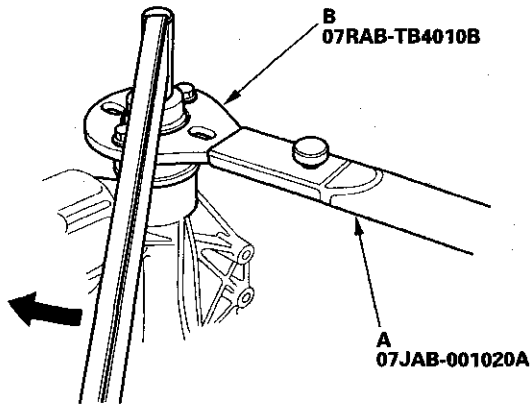


7. Install the new O-ring (A), the back-up ring (B), the spring washer (C), and the new 27 mm locknut (D).

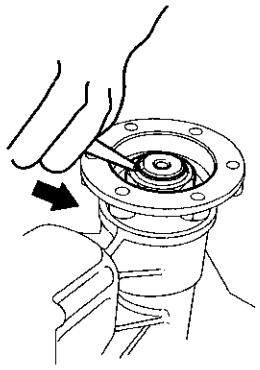


8. Install the holder handle (A) and companion flange holder (B) on the companion flange, then tighten the 27 mm locknut the to the specified value.

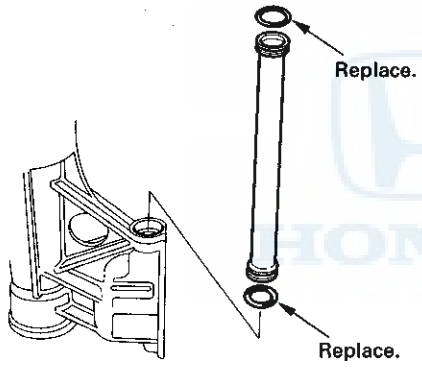
Torque:
162→ 0 → 162 N·m
(16.5→ 0 → 16.5 kgf·m,
119→ 0 → 119 lbf·ft)



9. Stake the 27 mm locknut tab into the groove.

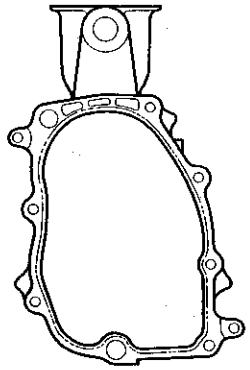


10. Install the shift rod tube and new O-rings.



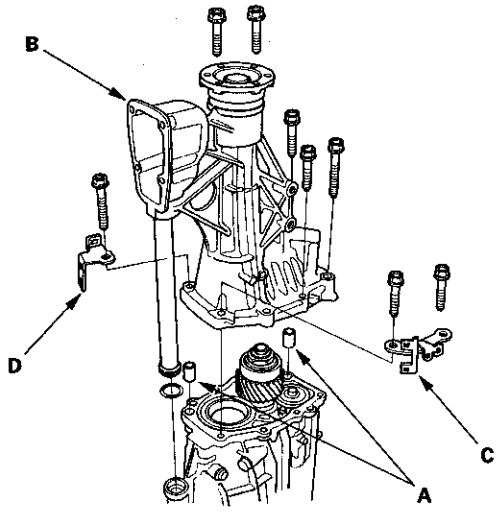
11. Clean any dirt or oil from the rear cover mating surface. Apply liquid gasket, P/N 08718-0001, evenly to the mating surface of the rear cover and transmission housing. Install the component within 5 minutes of applying the liquid gasket.

NOTE:
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



—·—·— **Liquid gasket**

12. Install the 14 x 20 dowel pins (A), rear cover assembly (B), harness bracket (C), harness clamp (D), and 8 mm flange bolts.

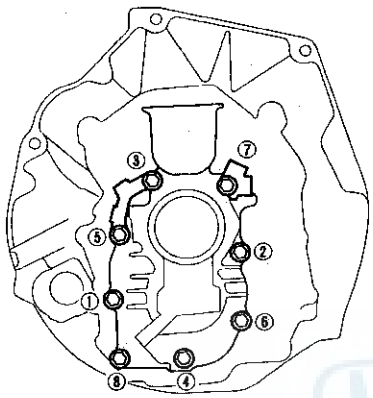


(cont'd)

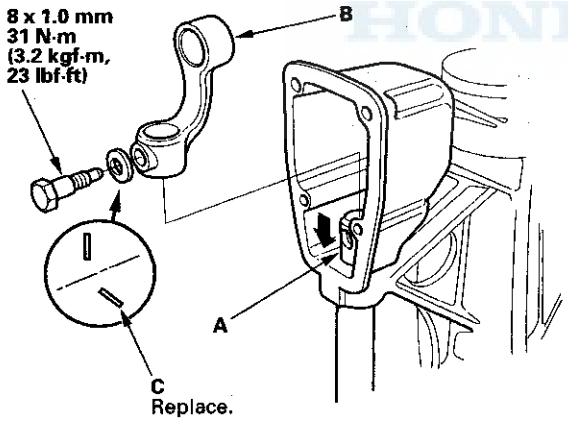
Transmission Reassembly (cont'd)

13. Tighten the 8 mm flange bolts in a crisscross pattern in several steps.

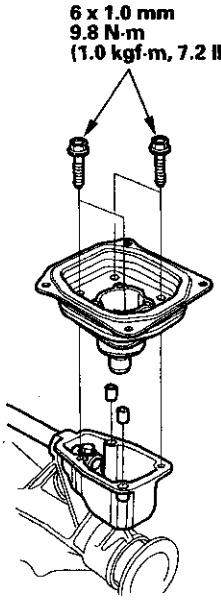
Specified Torque:
8 x 1.25 mm
27 N·m (2.8 kgf·m, 20 lbf·ft)



14. Lower the shift rod (A), then install the shift arm B, the new conical spring washer (C), and 8 mm special bolt.



15. Install the shift lever housing and the dowl pins.



Transmission Installation

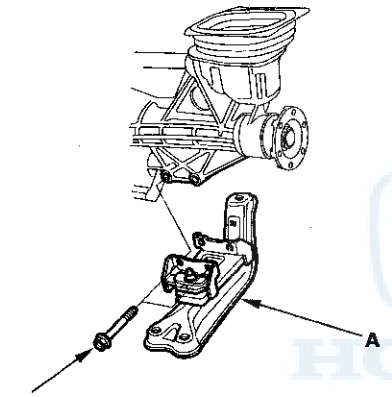
NOTE: Use fender covers to avoid damaging painted surfaces.

SRS components are located in this area. Review the SRS component locations for the appropriate model:

- '00-05 models (see page 23-11)
- '06-08 models (see page 23-12)

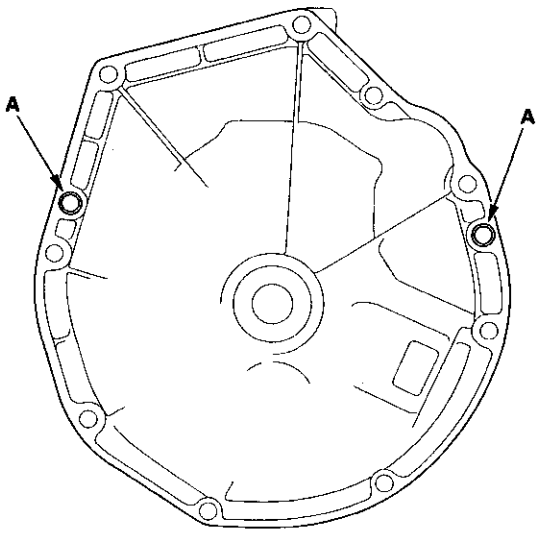
Also review the precaution and procedures (see page 23-13) before doing repairs or service.

1. Install the transmission rear mount (A).

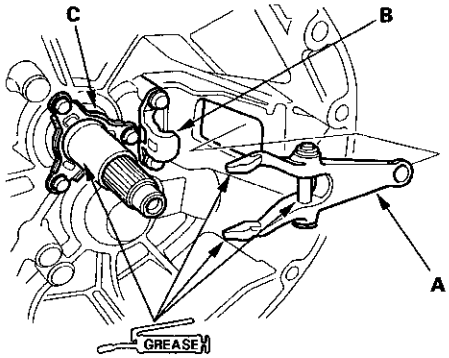


10 x 1.25 mm
38 N·m (3.9 kgf·m, 28 lbf·ft)

2. Check that the two dowel pins (A) are installed in the clutch housing.

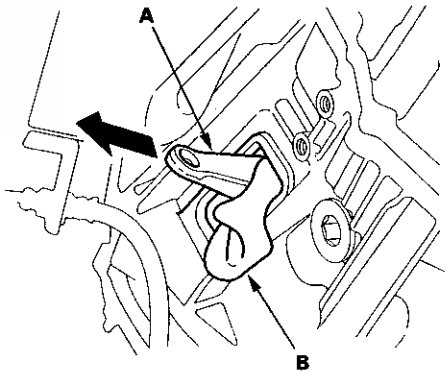


3. Apply super high temp urea grease (P/N 08798-9002) to the release fork (A), the release hanger (B), and the release bearing guide (C). Install the release fork into the opening in the clutch housing.



(P/N 08798-9002)

4. Pull the release fork (A) out until it stops, then wedge a shop towel (B) between the release fork and clutch housing to hold the release fork in place.

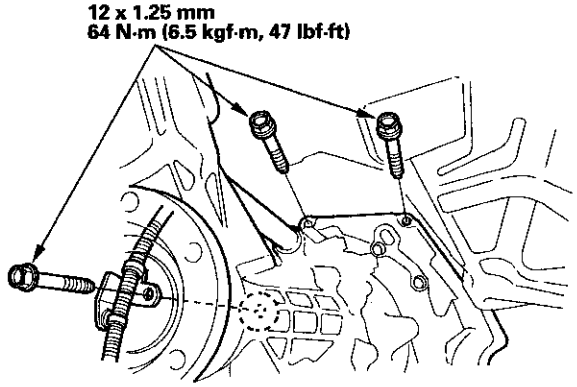


5. Place the transmission on a transmission jack, and raise it to the engine level.

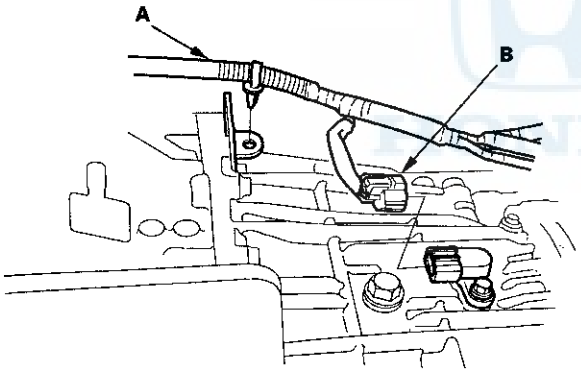
(cont'd)

Transmission Installation (cont'd)

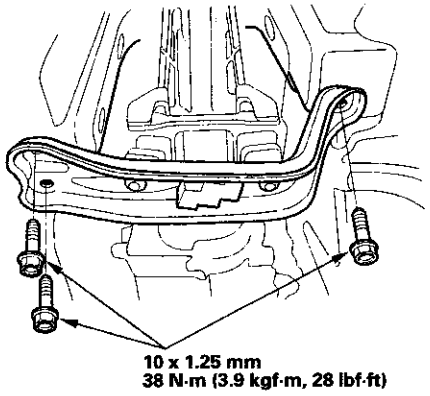
6. Install the three upper transmission mounting bolts.



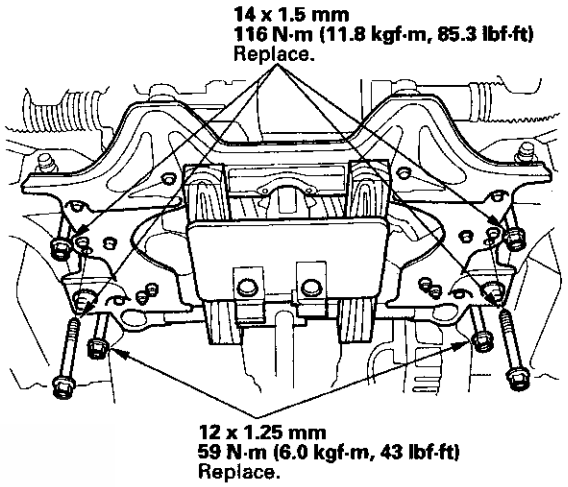
7. Install the wire harness (A) to the transmission, then connect the vehicle speed sensor (VSS) ('00-05 models) or the output shaft (countershaft) speed sensor ('06-08 models) connector (B).



8. Raise the transmission, then install the three transmission rear mount bolts.

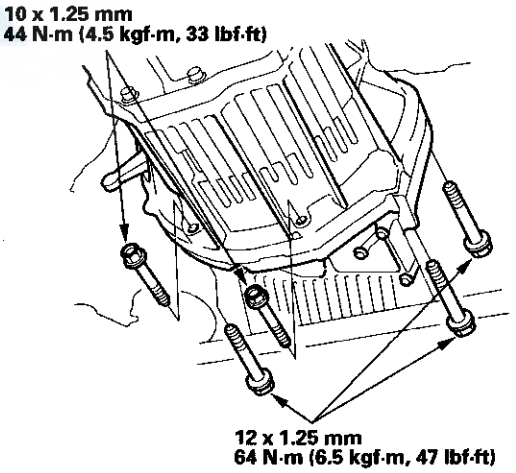


9. Place a floor jack under the front subframe and the engine mounting stiffener, and raise it to the frame.



10. Tighten the four mounting bolts, and install the two center mounting bolts.

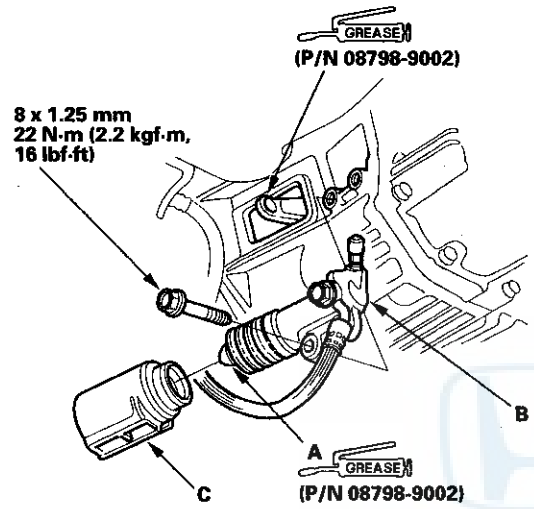
11. Install the five lower transmission mounting bolts.



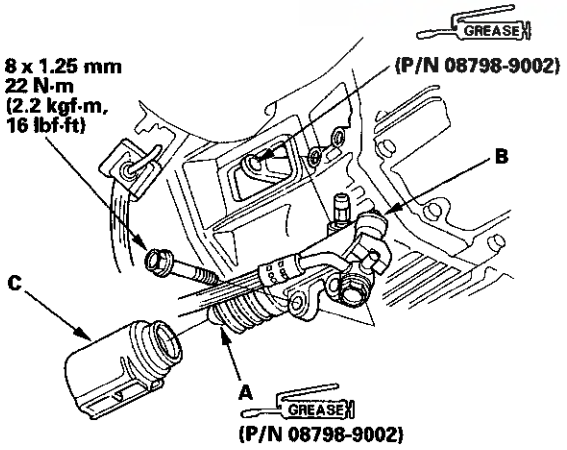
12. Remove the shop towel, and install the release fork onto the release hanger.

13. Apply super high temp urea grease (P/N 08798-9002) to the end of the slave cylinder pushrod (A). Install the slave cylinder (B) with two bolts, and the release fork boot (C).

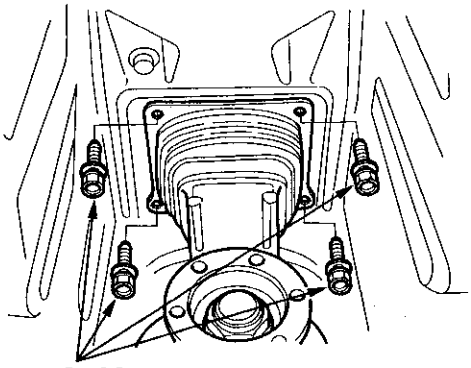
'00-03 models



'04-08 models

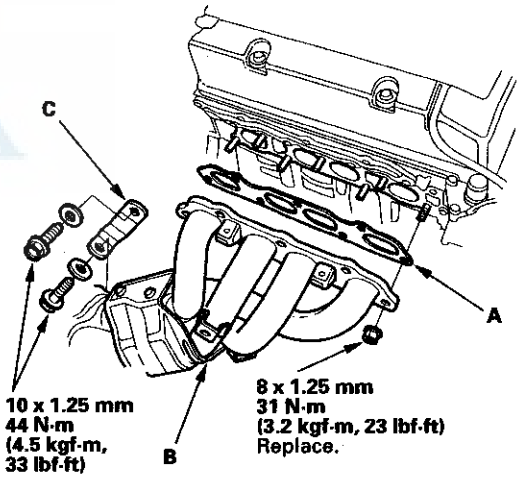


14. Install the four shift boot holder mounting bolts.



15. Install the propeller shaft (see page 16-19).

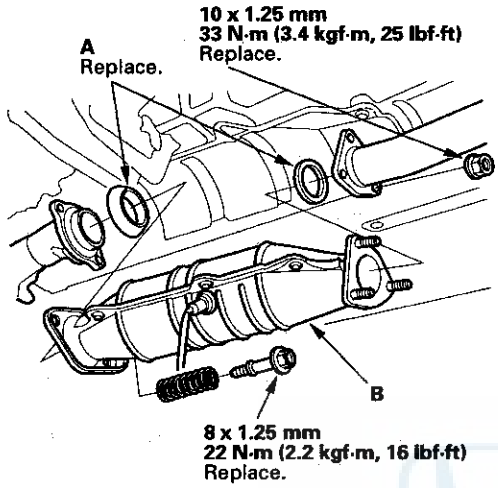
16. Install the gasket (A), exhaust manifold (B), and the exhaust manifold bracket (C).



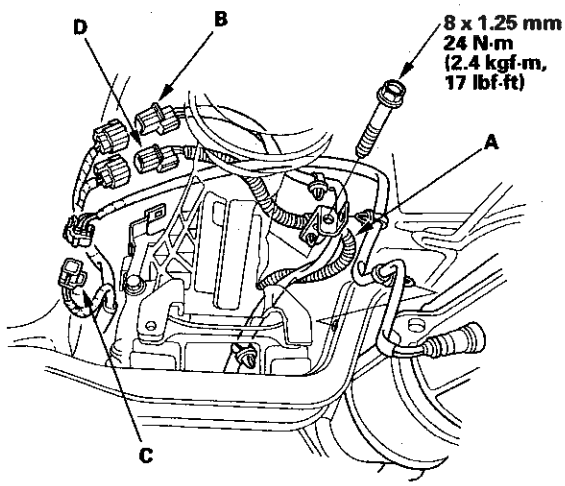
(cont'd)

Transmission Installation (cont'd)

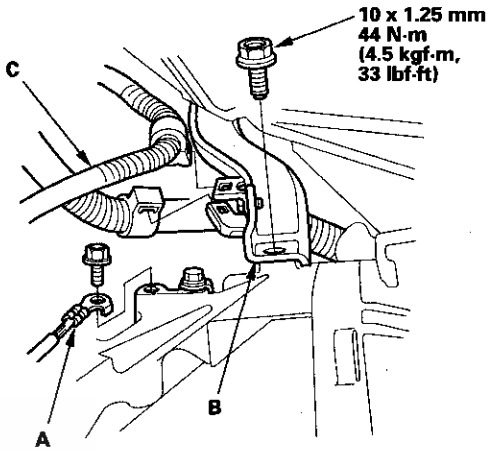
17. Install the new gaskets (A) with new nuts, and three way catalytic converter (TWC) (B) with new bolts and new springs.



18. Install the wire harness (A) onto the transmission, then connect the primary heated oxygen sensor (primary HO2S) (sensor 1) ('00-05 models), the air fuel ratio (A/F) sensor (sensor 1) ('06-08 models) (B), secondary heated oxygen sensor (secondary HO2S) (sensor 2) (C), and the back-up light switch (D) connectors.

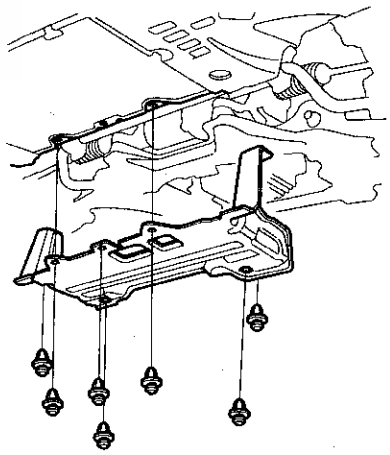


19. Install ground cable (A) the intake manifold bracket (B), and lower mounting bolt, then install the wire harness (C) on the intake manifold bracket.



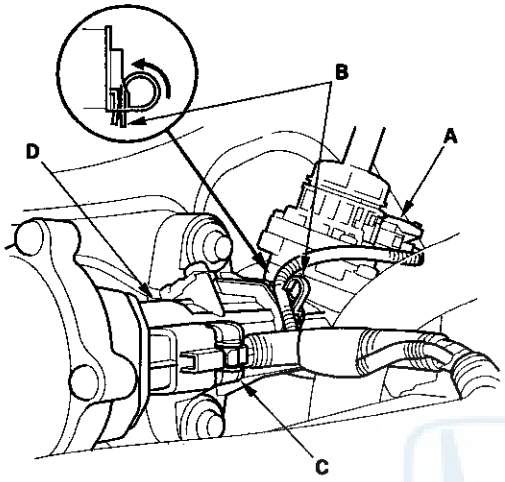
20. Refill the transmission with the recommended fluid (see step 4 on page 13-3).

21. Install the splash shield.



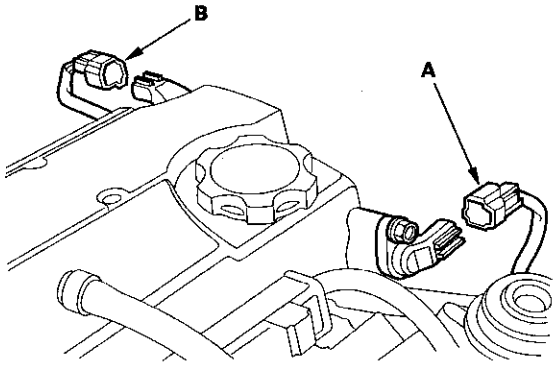
22. Lower the vehicle on the lift.

23. Connect the torque sensor 3P connector (A), and install the wire harness clamp (B).

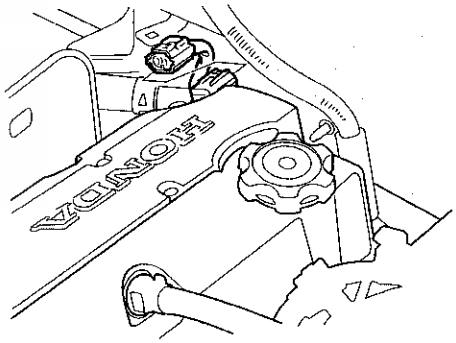


24. Reconnect the 2P connector (C) to the steering gearbox (D).

25. '00-05 models: Connect the camshaft position (CMP) sensor A (top dead center (TDC) sensor 1) and CMP sensor B (TDC sensor 2) connectors.



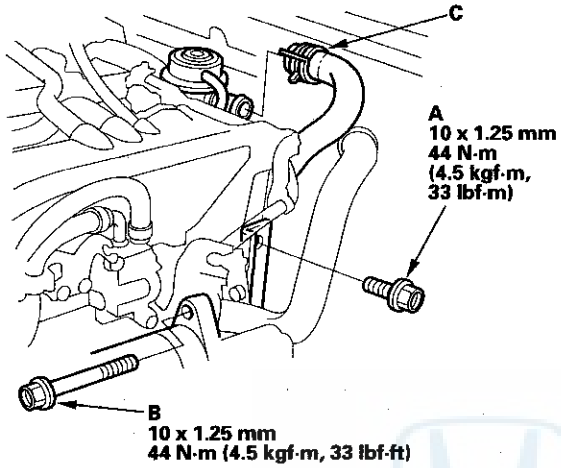
26. '06-08 models: Connect the camshaft position (CMP) sensor connector.



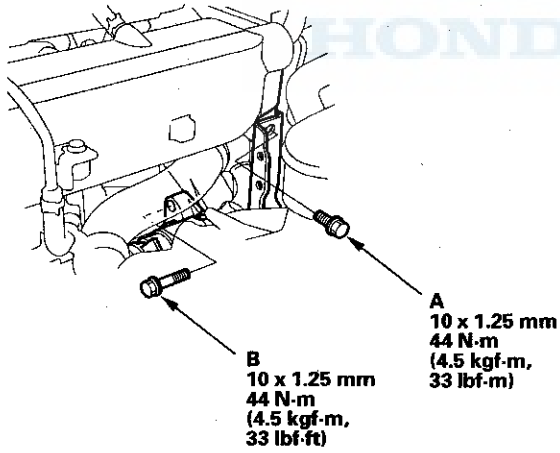
(cont'd)

Transmission Installation (cont'd)

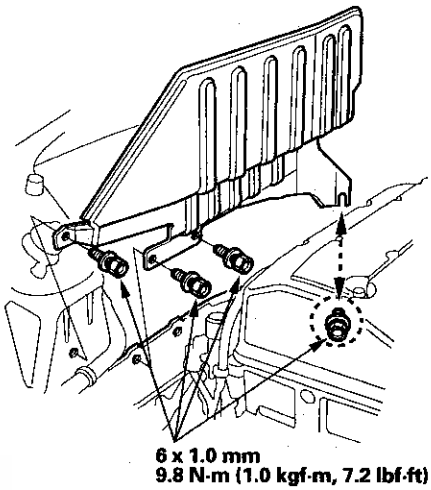
27. '00-05 models: Install the upper intake manifold bracket mounting bolt (A) and upper starter motor mounting bolt (B). Connect the hose (C) to the suction valve.



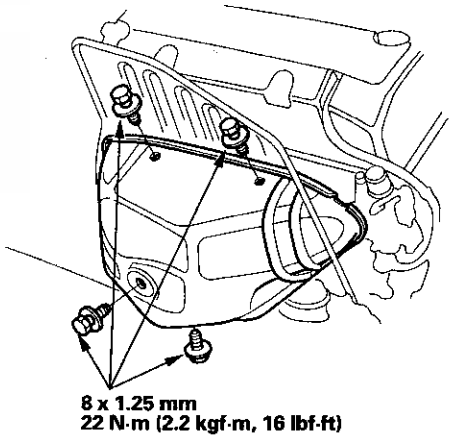
28. '06-08 models: Install the upper intake manifold bracket mounting bolt (A) and upper starter motor mounting bolt (B).



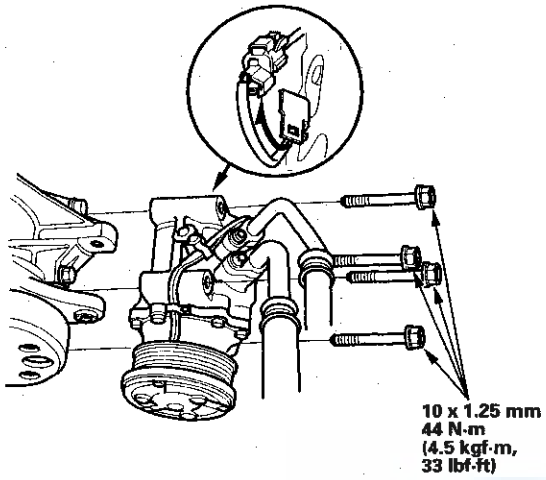
29. Install the heat shield with bolts.



30. Install the exhaust manifold cover with bolts.



31. Install the A/C compressor with bolts, then connect the 1P connector.



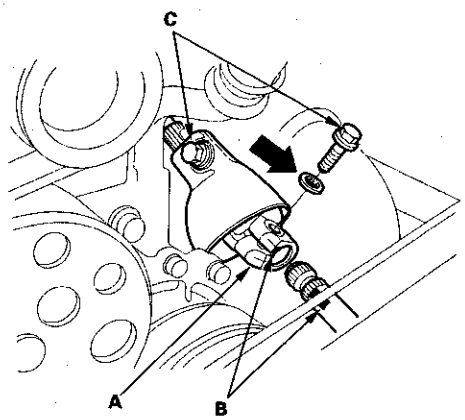
32. Install the alternator and the alternator-compressor belt (see page 4-45).

33. Connect the steering joint (A) by aligning the reference marks (B) you made, and tighten the bolts (C) to the specified torque.

U.S.A. models: VIN JHMAP114 * YT000001 through VIN JHMAP114 * YT008411
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Canada models: VIN JHMAP114 * YT800001 through VIN JHMAP114 * YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

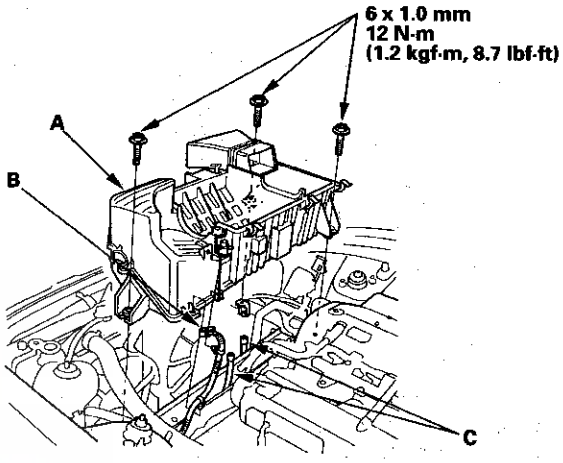
Other models:
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)



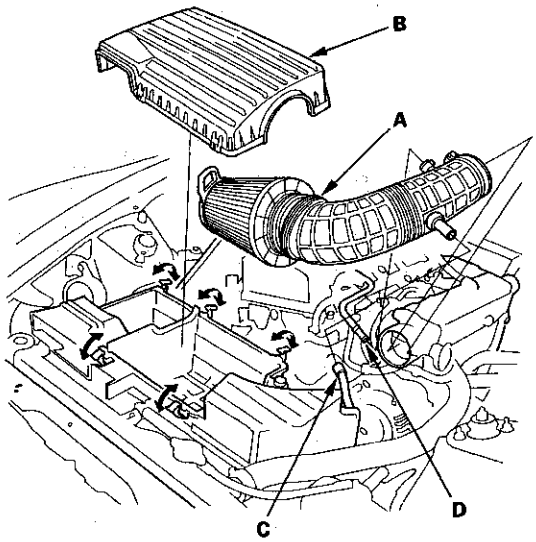
34. Remove the steering wheel (see page 17-6).

35. Center the cable reel, and reinstall the steering wheel (see page 17-8).

36. '00-05 models: Install the air cleaner housing (A) with bolts, then connect the air control solenoid valve connector (B) and vacuum hoses (C).



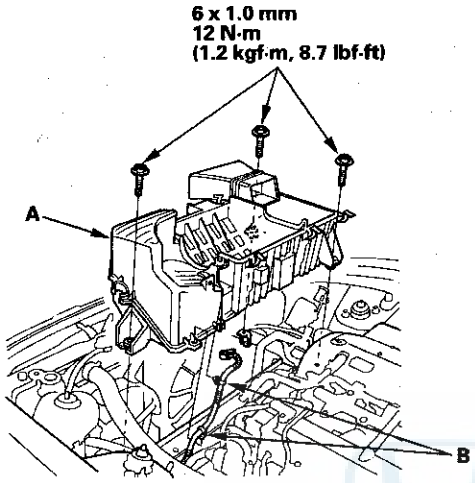
37. '00-05 models: Install the air cleaner element assembly (A) and the air cleaner housing cover (B), then connect the air hose (C) and the breather pipe (D).



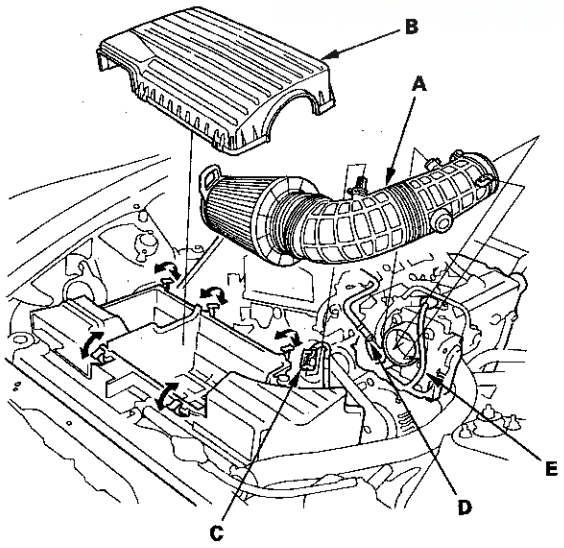
(cont'd)

Transmission Installation (cont'd)

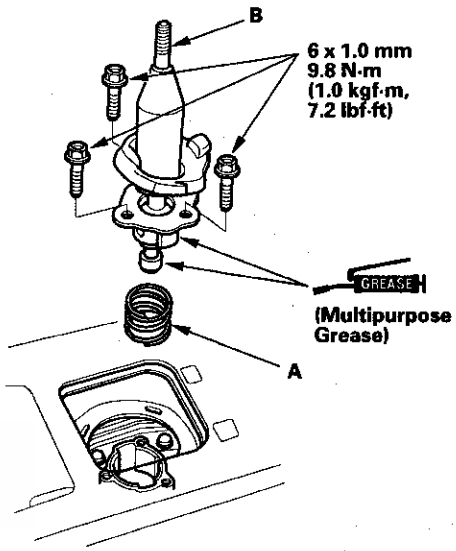
38. '06-08 models: Install the air cleaner housing (A) with bolts, then install the intake air temperature (IAT) sensor harness clamps (B).



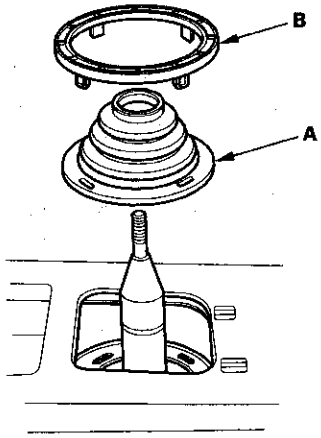
39. '06-08 models: Install the air cleaner element assembly (A) and the air cleaner housing cover (B), then connect the IAT sensor connector (C) and breather pipe (D), install the manifold absolute pressure (MAP) sensor harness (E) to the holder.



40. Apply multipurpose grease as shown. Install the shift lever spring (A) and the shift lever (B).



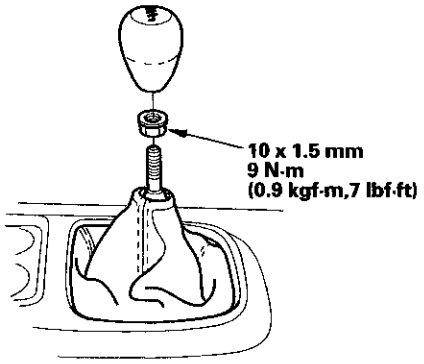
41. Install the shift lever boot (A) and the boot holder (B).



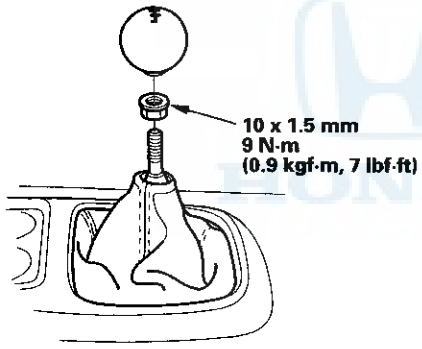
42. Install the center console (see page 20-80).

43. Install the shift lever knob, and tighten the locknut.

except CR model



CR model



44. Install the battery. Clean the battery posts and cable terminals. Connect the positive cable to the battery, then connect the negative cable, and apply grease to prevent corrosion.

45. Check the front wheel alignment (see page 18-7).

46. Check the shift lever and clutch operation.

47. '00-05 models: Do the ECM idle learn procedure (see page 11-140).

48. Test-drive the vehicle.

49. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

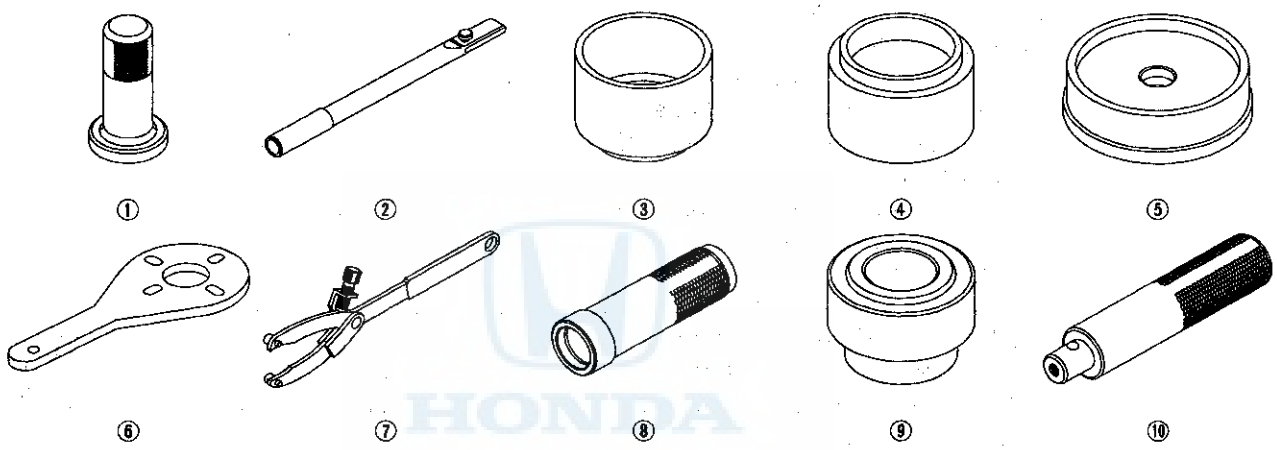
HONDA

Rear Differential

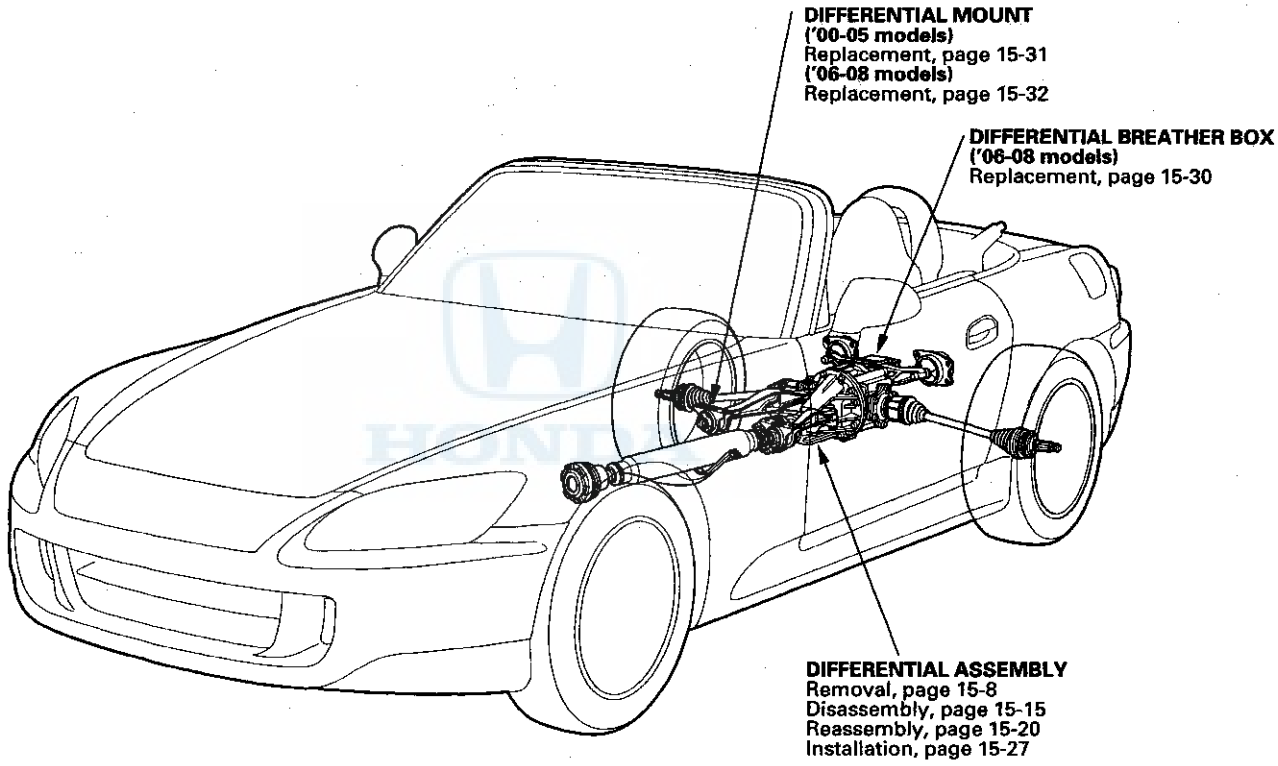
Rear Differential

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07JAD-PL90100	Oil Seal Driver	1
②	07JAB-001020A	Holder Handle	1
③	07LAD-PW50601	Attachment, 40 x 50 mm I.D.	1
④	07MAD-PR90100	Attachment, 45 x 55 mm I.D.	1
⑤	07NAD-PX40100	Attachment, 78 x 80 mm	1
⑥	07RAB-TB4010B	Companion Flange Holder	1
⑦	07725-0030000	Universal Holder	1
⑧	07746-0030100	Driver, 40 mm I.D.	1
⑨	07746-0030300	Attachment, 30 mm I.D.	1
⑩	07749-0010000	Driver	1



Component Location Index



Precautions for Torsen Type Limited-slip Differential (LSD)

- The Torsen differentials are mechanical limited-slip differential which delivers the available power to the wheels and driveshafts with the most grip or resistance as the engine torque output increases.
- Do not do repair procedures that require the engine running with one rear wheel raised; such as an on-car wheel balancer.
- Do not tow the vehicle with the rear wheels on the ground.
- Never dismantle any part of the differential other than right and left tapered roller bearings.
- To optimize the Torsen differential, equip your vehicle with rear tires of the same brand, the same size, and with even wear.

Torsen Type Limited-slip Differential (LSD) Operational Check

The Torsen type limited-slip differential (LSD) distributes optimum power between the two driving driveshafts according to the difference in torque demanded by the driving wheels. Under no circumstances should the engine be started with either wheel raised off the ground, such as using an on-car wheel balancer or when transporting the vehicle in the event of an accident.

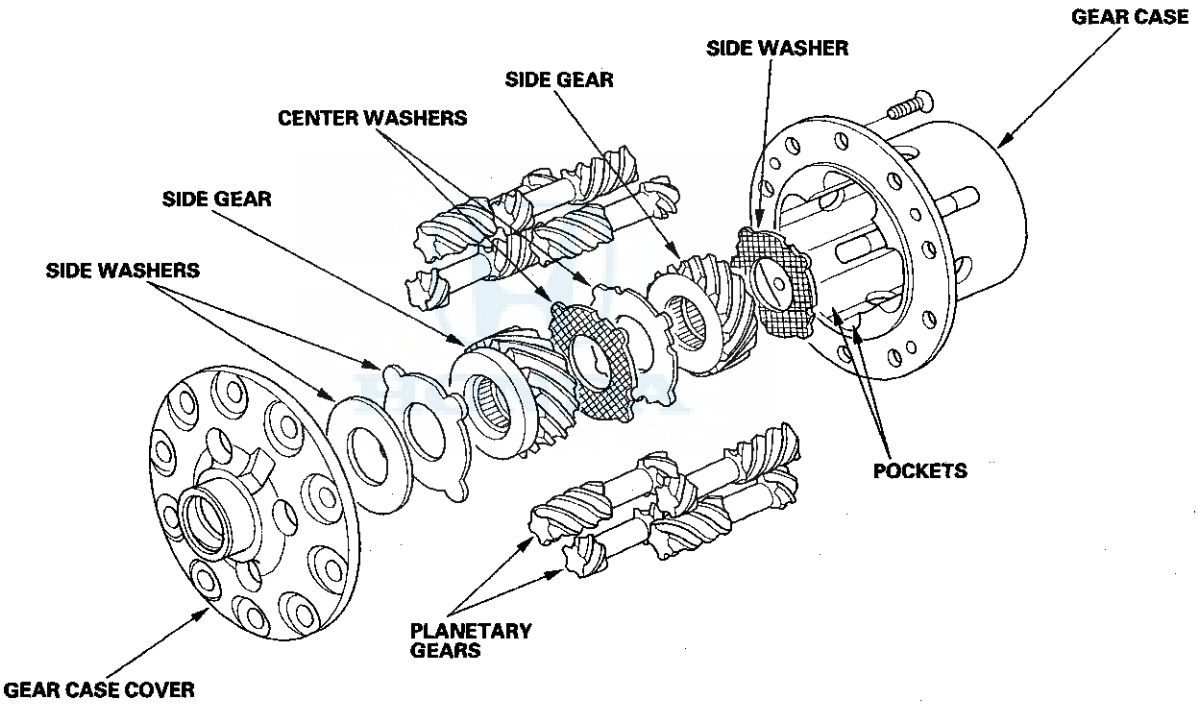
1. Raise the vehicle on a lift.
2. Rotate either rear wheel by hand, and check that the other wheel rotates in the opposite direction. Check both wheels.
3. If the opposite rear wheel does not rotate, or if you can not spin the rear wheels at all, and the brakes are not binding, the limited-slip differential is faulty and should be replaced.

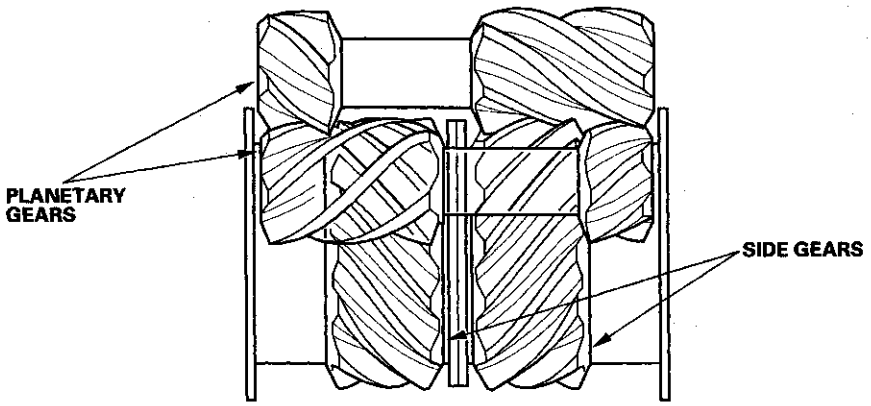
System Description

The vehicle uses the Torsen type limited-slip differential (LSD) which is rubber-mounted to the subframe.

Construction

- The Torsen type LSD assembly consists of the two side gears, eight planetary gears, three side washers, two center washers, a gear case cover and a gear case.
- The planetary gear consists of the short and long planetary gears, and the long planetary gear meshes horizontally with the side gear. The two planetary gears mesh with the side gears at both ends.
- The planetary gears are housed in the pockets of the gear case.
- The left and right output shafts are engaged with the side gears.
- The Torsen type LSD assembly is a non-serviceable part except the tapered roller bearings. If the Torsen type (LSD) assembly is faulty, it must be replaced as an assembly.





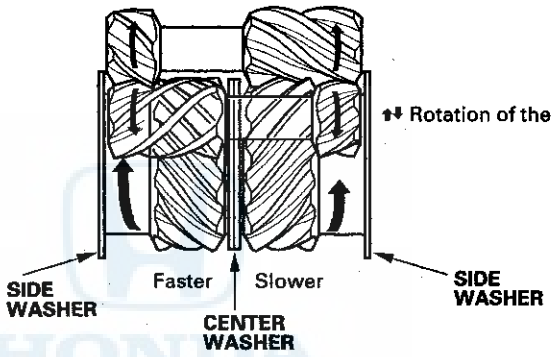
(cont'd)

System Description (cont'd)

Operation

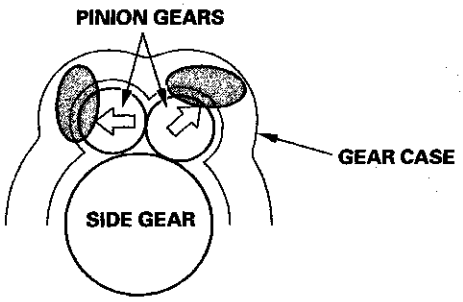
- Straight-road driving
  The differential carrier and gears rotate together as a unit when both wheels rotate at the same speed. Turning effort from the ring gear is directly transmitted to both wheels.

- When rounding a curve
  When the vehicle rounds a curve, the differential allows the outer wheel to rotate a little faster than the inner wheel. When this takes place, the short and long pinion gears rotate, and walk around the side gears in the directions shown. If, for example, the right shaft is rotated in a counterclockwise direction with the differential carrier held stationary, the force is transmitted through the right side gear, short pinion gears and long pinion gears to the left side gear, causing the left shaft to rotate in a clockwise direction. This allows the outer wheel to turn more times than the inner wheel when the vehicle goes around a turn.

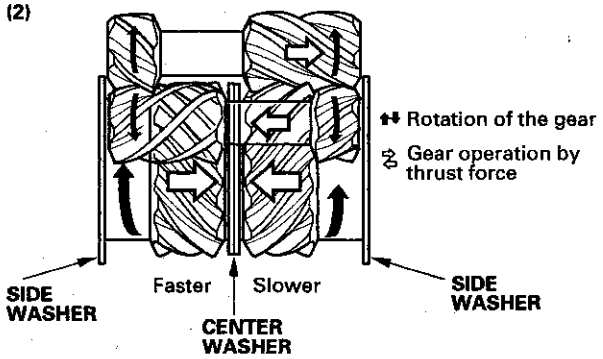


- When limiting differential action
  The limited-slip differential acts to limit the differential action when either wheel slips on ice or snow or on turns. This is done by using the friction created between pinion gears and the gear case:
  (1) The pinions are forced against the gear case by the force as they are rotated and repelled outward.
  (2) The ends of the pinion gears are held firmly against the gear case due to the thrust force from the helical gears.

(1)



(2)

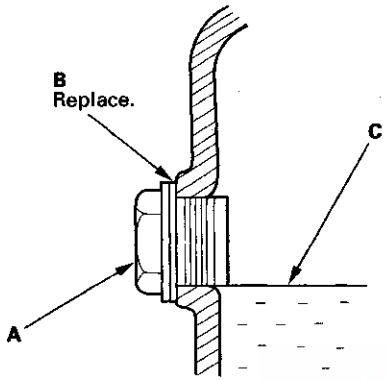


With the pinion gears locked, the torque applied to the slipping wheel is reduced and the torque applied to the other wheel is increased.

Differential Fluid Inspection and Replacement

1. Raise the vehicle on a lift.

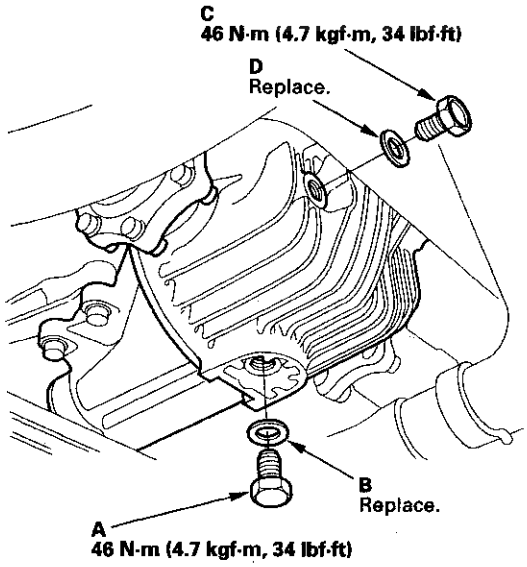
2. Remove the filler plug (A) and the sealing washer (B), then check the condition of the fluid, and make sure the fluid is at the proper level (C).



3. The fluid level must be up to the fill hole. If it is below the hole, add the recommended fluid until it runs out.

   - If the fluid is dirty, go to step 4.
   - If the fluid is not dirty, reinstall the filler plug with a new sealing washer.

4. Remove the drain plug (A), and drain the fluid.



5. Clean the drain plug, then reinstall it with a new sealing washer (B), and refill the differential with the recommended fluid to the proper level.

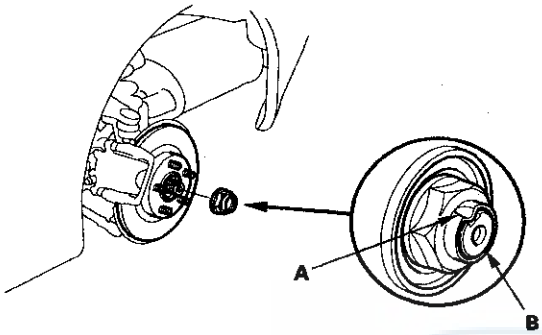
   Fluid capacity
   0.74 L (0.78 US qt), at fluid change
   0.77 L (0.81 US qt), at overhaul

   Recommended fluid
   Hypoid gear oil
   API Classification: GL5 or GL6
   Viscosity: SAE 90

6. Reinstall the filler plug (C) with a new sealing washer (D).

Differential Removal

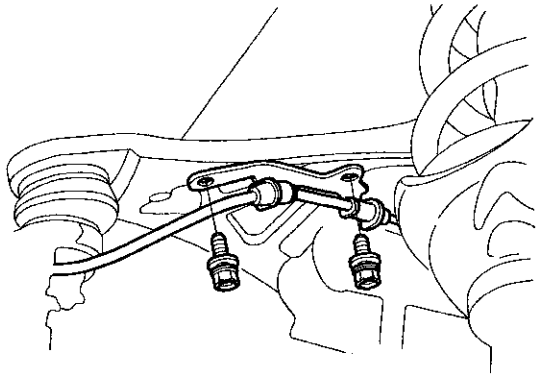
1. Raise the vehicle on a lift.
2. Remove the rear wheels.
3. Lift up the locking tab (A) on the spindle nut (B), then remove the nut.



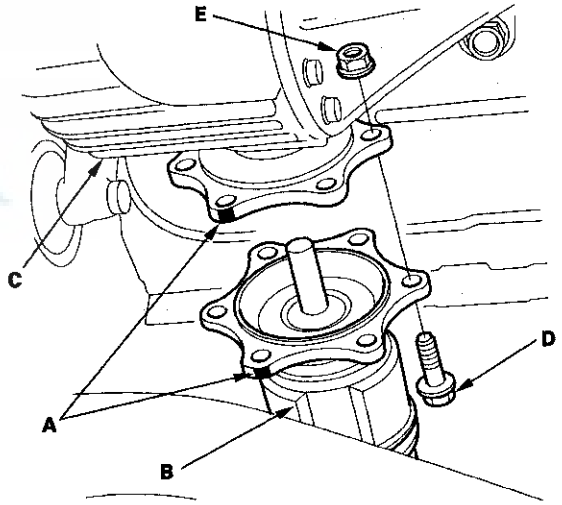
4. Remove the cotter pin from the lower arm ball joint castle nut, then remove the castle nut. Then separate the ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see step 12 on page 18-34).

   NOTE:
   - To avoid damaging the ball joint, install the ball joint thread protector onto the threads of the ball joint.
   - Be careful not to damage the ball joint boot when installing the remover.

5. Remove the wheel speed sensor harness from the upper arm.

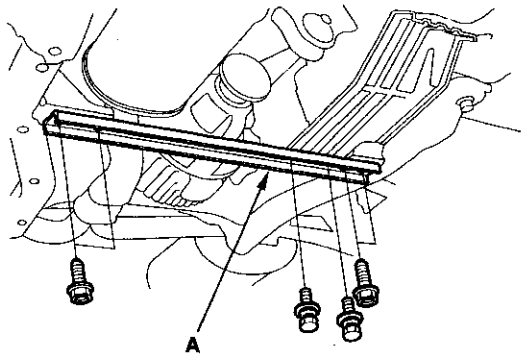


6. Make reference marks (A) across the inboard joint (B) and the rear differential (C).



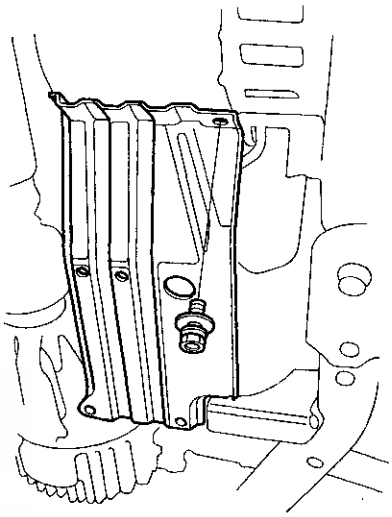
7. Remove the six inboard joint mounting bolts (D) and nuts (E), then remove the inboard joint from the rear differential.
8. Drain the differential fluid (see page 15-7).
9. Remove the propeller shaft (see page 16-18).

10. Remove the rear suspension stiffener (A).

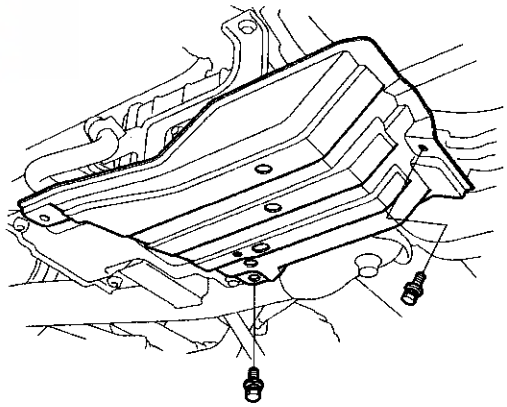


11. Remove the evaporative emission (EVAP) canister cover.

'00-05 models



'06-08 models

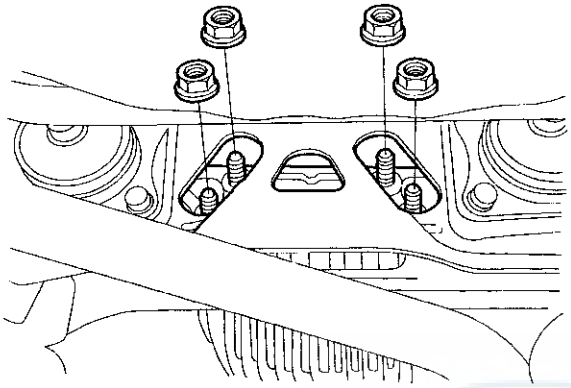


12. Place a transmission jack under the rear differential.

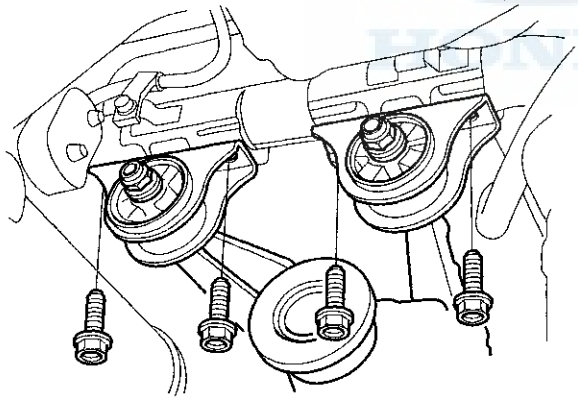
(cont'd)

Differential Removal (cont'd)

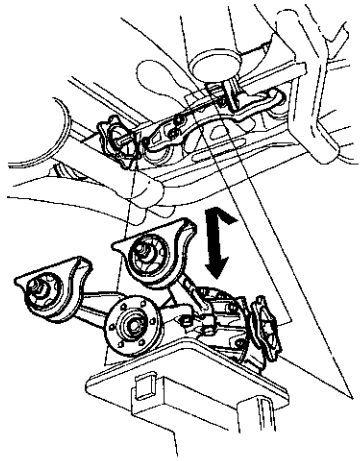
13. '00-05 models: Remove the four differential mount bracket B mounting nuts.
'06-08 models: Remove the four differential mount bracket B mounting nuts. Then remove the differential breather box (see page 15-30).



14. Remove the four differential mount bracket A mounting bolts.



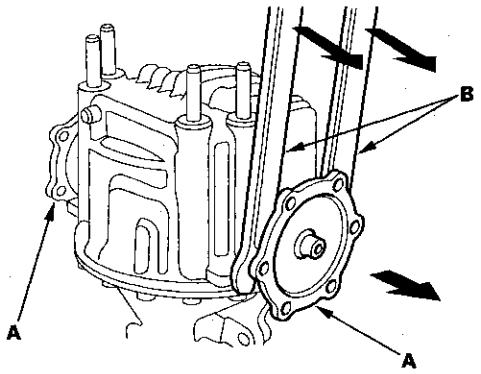
15. Lower the rear differential on the transmission jack.



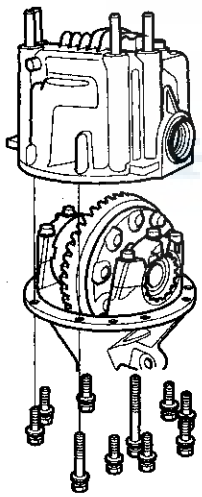
16. Remove right and left differential mount bracket A from the differential; '00-05 models (see page 15-31), '06-08 models (see page 15-32).

Differential Case Assembly Removal and Installation

1. Remove the output shafts (A) from the differential using the pry bars (B).

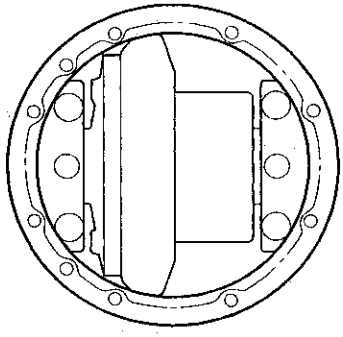


2. Remove the ten mounting bolts in a crisscross pattern in several steps, then remove the differential case.



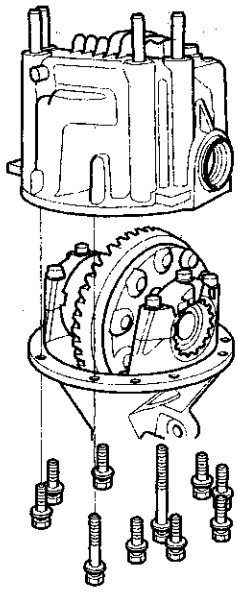
3. Clean the dirt and oil from the mating surfaces. Apply liquid gasket, P/N 08718-0001 evenly to the mating surface of the differential case and the differential carrier. Install the component within 5 minutes of applying the liquid gasket.

NOTE:
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.
- Allow it to cure at least 30 minutes after assembly before filling the differential with the recommended fluid.



—— Liquid gasket

4. Install the differential case.

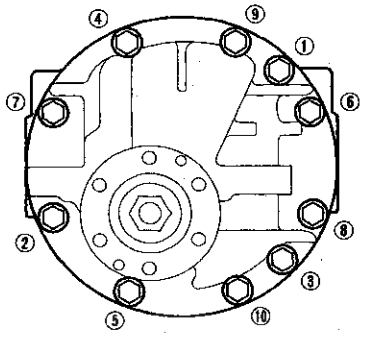


(cont'd)

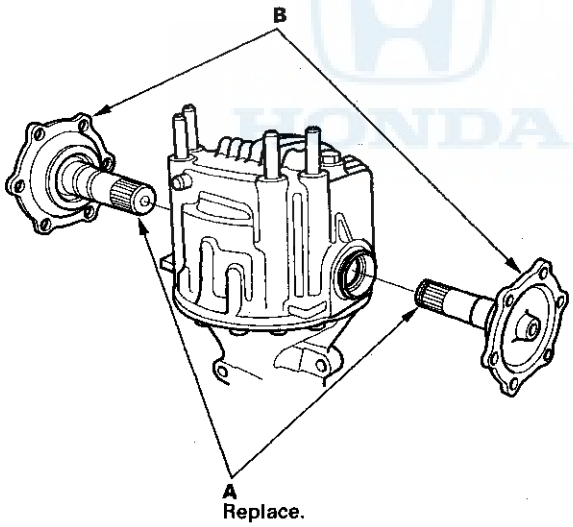
Differential Case Assembly Removal and Installation (cont'd)

5. Tighten the ten mounting bolts in a crisscross pattern in several steps.

   24 N·m (2.4 kgf·m, 17 lbf·ft)



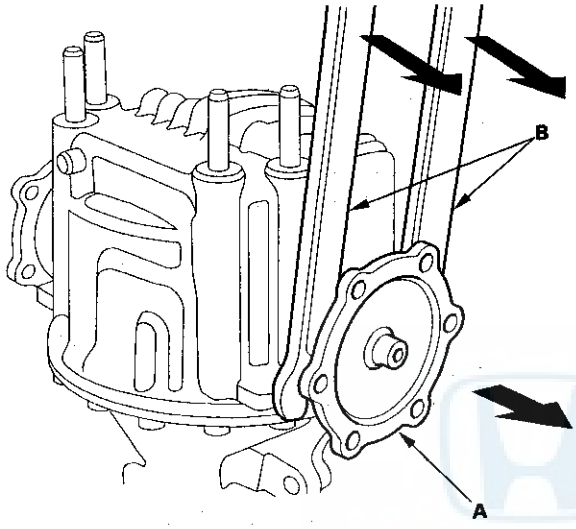
6. Install the new clips (A) on the output shafts, then install the output shafts (B).



Oil Seal Replacement

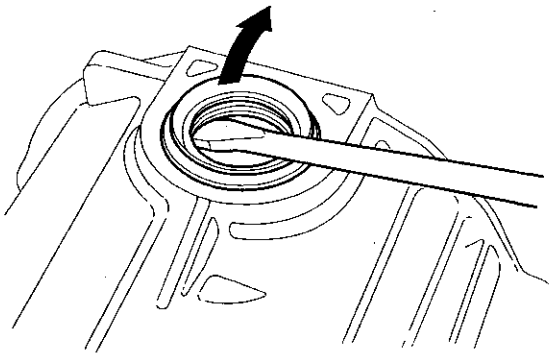
Special Tools Required
Oil seal driver 07JAD-PL90100

1. Remove the output shaft (A) from the differential using the pry bars (B).

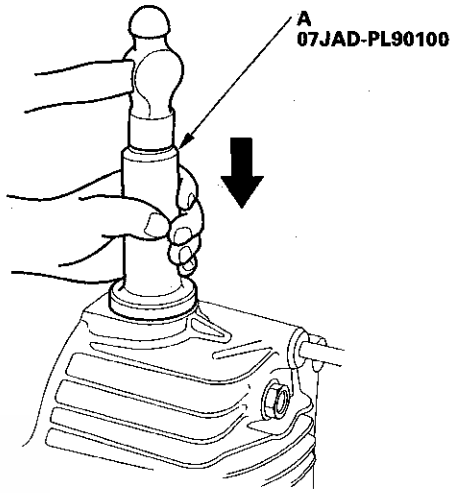


2. Remove the oil seal.

   NOTE: Be careful not to damage the differential case while prying out the seal.

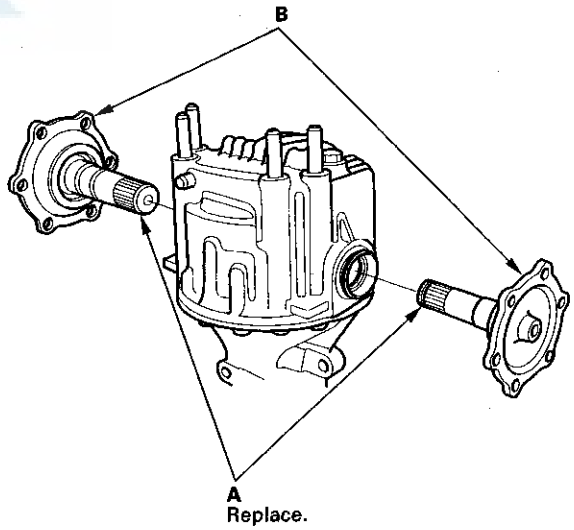


3. Install the oil seal using the oil seal driver (A) as shown.



4. Repeat steps 1 through 3 for the other side.

5. Install the new clips (A) on the output shafts, then install the output shafts (B).



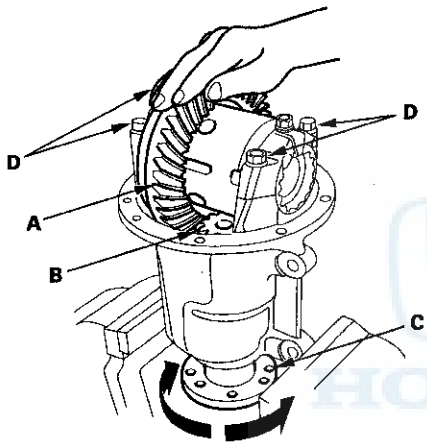
Backlash Inspection

Special Tools Required
Universal holder 07725-0030000

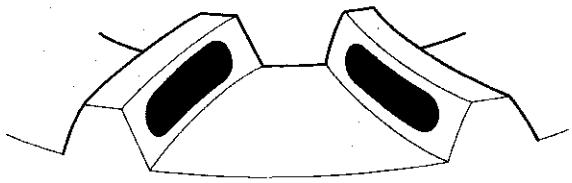
1. Remove the output shafts and differential case (see page 15-11).

2. Securely clamp the differential carrier assembly in a bench vise with wood blocks.

3. Thoroughly clean the ring gear teeth (A) and drive pinion gear teeth (B), and paint the ring gear teeth with Prussian Blue lightly and evenly.



Good contact pattern



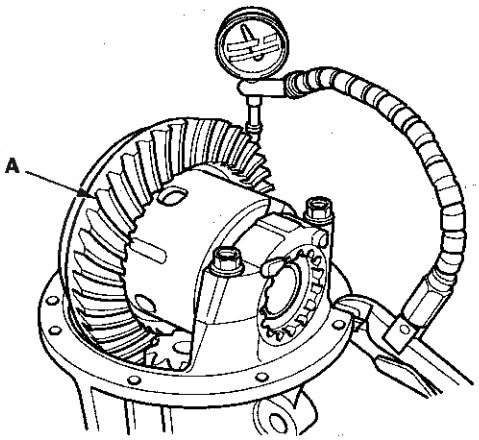
4. Rotate the companion flange (C) three full turns forward and then backward to produce a contact pattern on the ring gear.

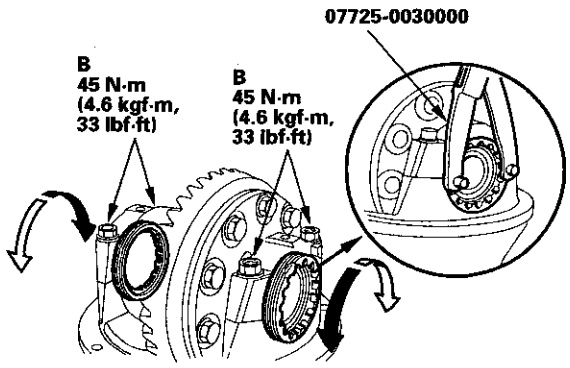
5. Loosen the bearing cap mounting bolts (D).

6. Measure the backlash of the ring gear (A).

- Set the dial gauge tip at a right angle to the ring gear teeth.
- Measure four points on the ring gear 90 degrees apart.
- Backlash will be within the standard if at one point the ring gear backlash is within the standard, minimum measurement of 0.05 mm (0.0020 in.) or above and the difference between the maximum and minimum measurements do not exceed 0.07 mm (0.0028 in.).
- Both adjustment screws must be adjusted. For example, if you turn one adjustment screw one notch clockwise, you must turn the other adjustment screw one notch counterclockwise.

Backlash:
Standard: 0.09—0.11 mm (0.0035—0.0043 in.)
Minimum: 0.05 mm (0.0020 in.)
Difference range: 0.07 mm (0.0028 in.)

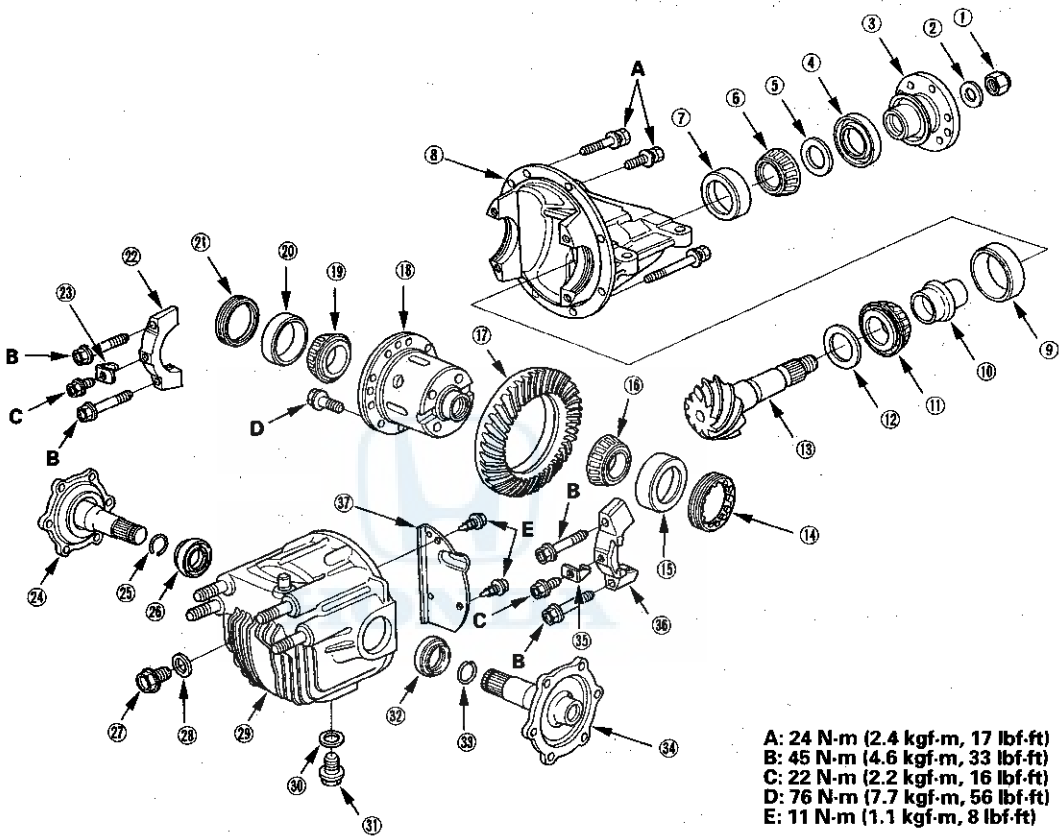




7. Tighten the bearing cap mounting bolts (B).

Differential Disassembly

Exploded View



A: 24 N·m (2.4 kgf·m, 17 lbf·ft)
B: 45 N·m (4.6 kgf·m, 33 lbf·ft)
C: 22 N·m (2.2 kgf·m, 16 lbf·ft)
D: 76 N·m (7.7 kgf·m, 56 lbf·ft)
E: 11 N·m (1.1 kgf·m, 8 lbf·ft)

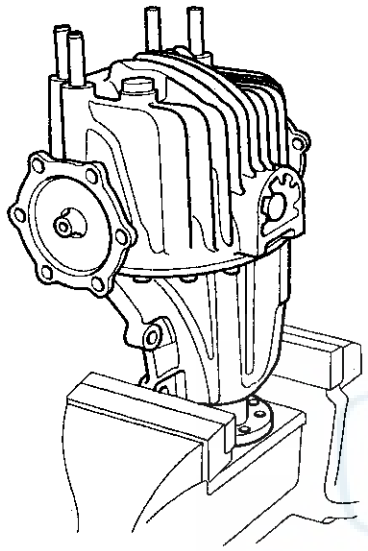
① LOCKNUT
127—284 N·m
(13.0—29.0 kgf·m,
94—210 lbf·ft)
Replace.
② DRIVE PINION WASHER
③ COMPANION FLANGE
④ OIL SEAL
Replace.
⑤ SPACER
⑥ TAPERED ROLLER BEARING
⑦ BEARING OUTER RACE
⑧ DIFFERENTIAL CARRIER
⑨ BEARING OUTER RACE
⑩ PINION SPACER
Replace.
⑪ TAPERED ROLLER BEARING
⑫ THRUST WASHER
⑬ DRIVE PINION GEAR
⑭ ADJUSTMENT SCREW
⑮ BEARING OUTER RACE
⑯ TAPERED ROLLER BEARING
⑰ RING GEAR
⑱ TORSEN LSD ASSEMBLY
⑲ TAPERED ROLLER BEARING
⑳ BEARING OUTER RACE
㉑ ADJUSTMENT SCREW
㉒ BEARING CAP
㉓ LOCK PLATE
㉔ OUTPUT SHAFT
㉕ CLIP
Replace.
㉖ OIL SEAL
Replace.
㉗ FILLER PLUG
46 N·m (4.7 kgf·m, 34 lbf·ft)
㉘ SEALING WASHER
Replace.
㉙ DIFFERENTIAL CASE
㉚ SEALING WASHER
Replace.
㉛ DRAIN PLUG
46 N·m (4.7 kgf·m, 34 lbf·ft)
㉜ OIL SEAL
Replace.
㉝ CLIP
Replace.
㉞ OUTPUT SHAFT
㉟ LOCK PLATE
㊱ BEARING CAP
㊲ BREATHER PLATE

(cont'd)

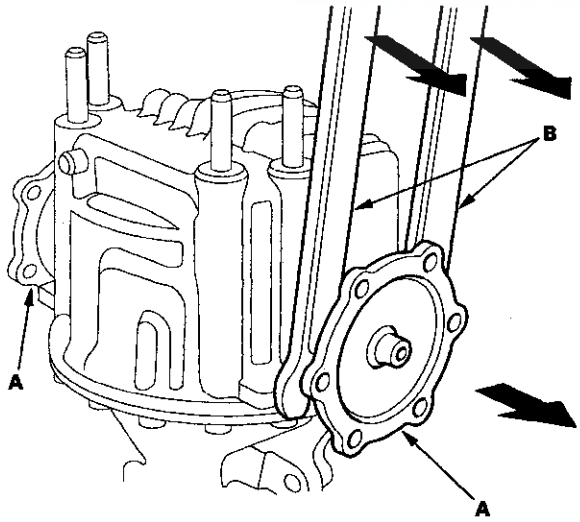
Differential Disassembly (cont'd)

Special Tools Required
- Holder handle 07JAB-001020A
- Companion flange holder 07RAB-TB4010B

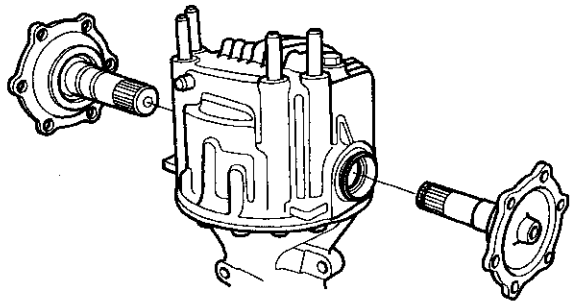
1. Carefully clamp the rear differential in a bench vise.



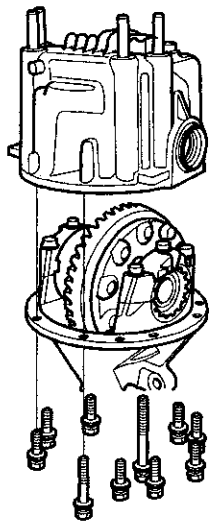
2. Pry out the output shafts (A) with the pry bars (B).



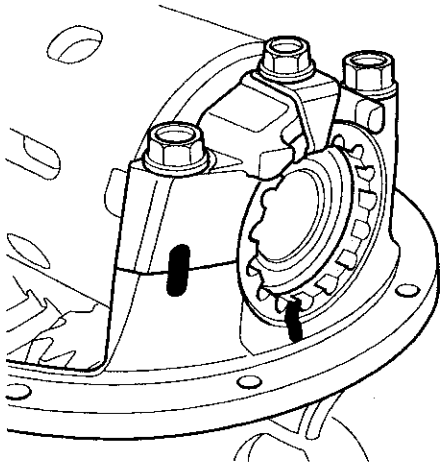
3. Remove the output shafts.



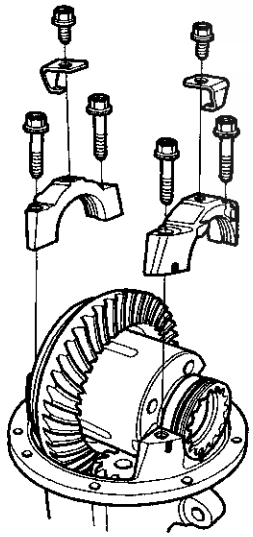
4. Remove the ten mounting bolts in a crisscross pattern in several steps, then remove the differential case.



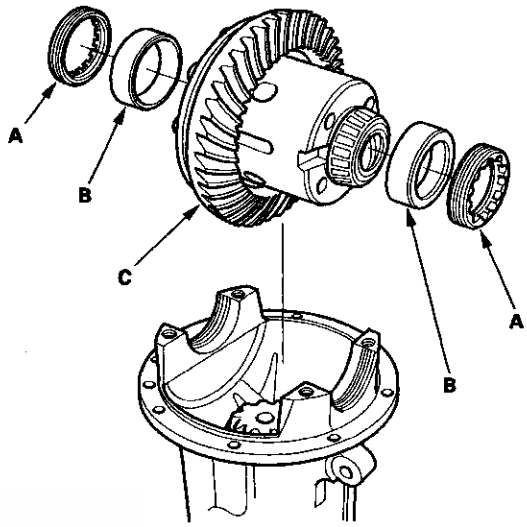
5. Make marks on the bearing cap, adjustment screw, and differential carrier.



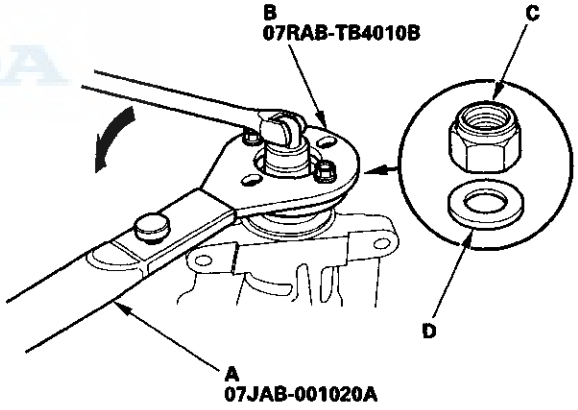
6. Remove the lock plates and bearing caps.



7. Remove the adjustment screws (A), bearing outer races (B), and Torsen LSD assembly (C).



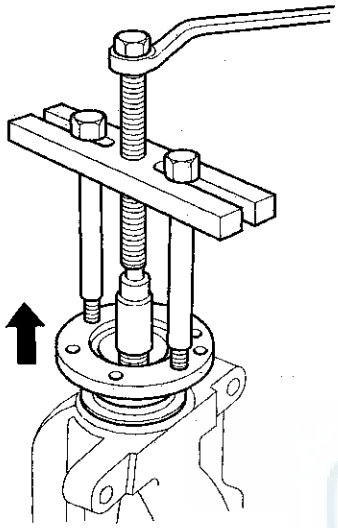
8. Install the holder handle (A) and companion flange holder (B) on the companion flange, then remove the locknut (C) and pinion washer (D).



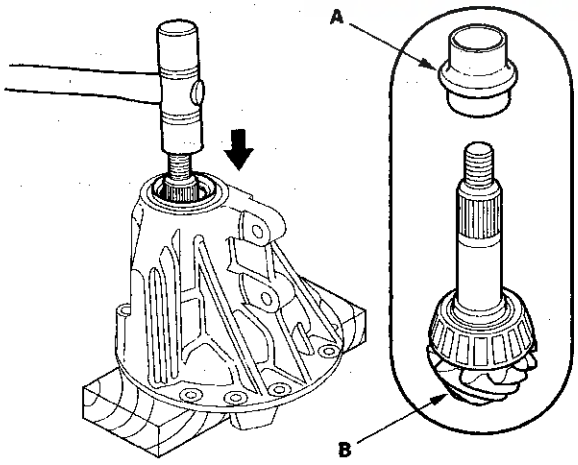
(cont'd)

Differential Disassembly (cont'd)

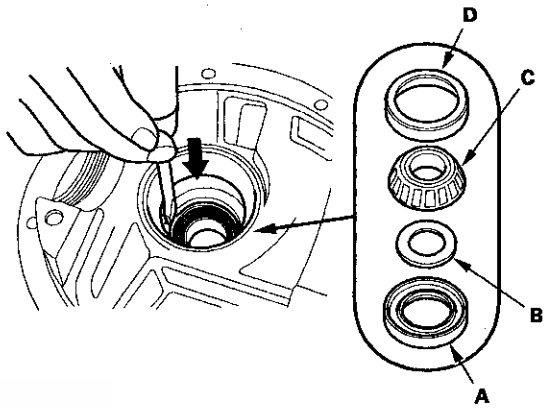
9. Remove the companion flange using a commercially available bearing puller as shown.



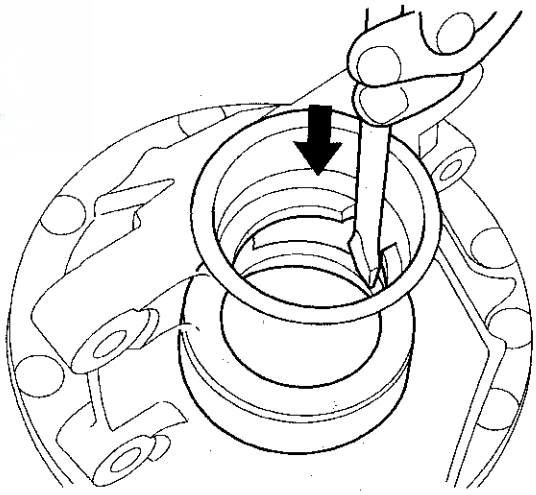
10. Remove the pinion spacer (A) and the drive pinion gear (B) by tapping on the drive pinion with a plastic hammer. Support the differential carrier with a wood block under the driver pinion gear.



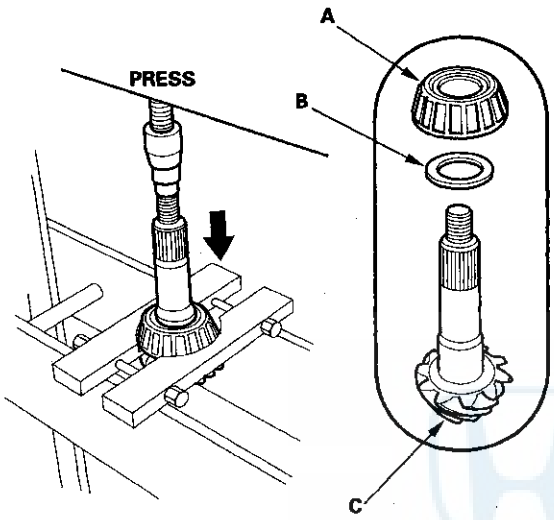
11. Remove the oil seal (A), spacer (B), tapered roller bearing (C), and bearing outer race (D) from the differential carrier.



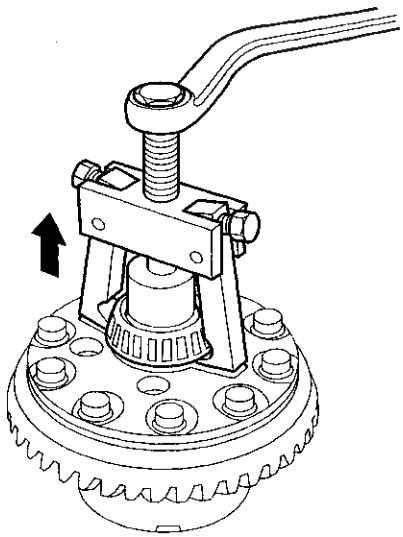
12. Remove the bearing outer race from the differential carrier.



13. Remove the tapered roller bearing (A) and thrust washer (B) from the drive pinion (C) using a commercially available bearing separator and a press as shown.

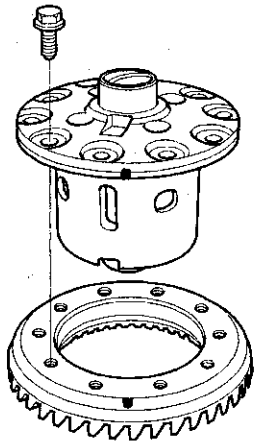


14. Remove the tapered roller bearings from the Torsen LSD assembly using a commercially available bearing puller as shown.

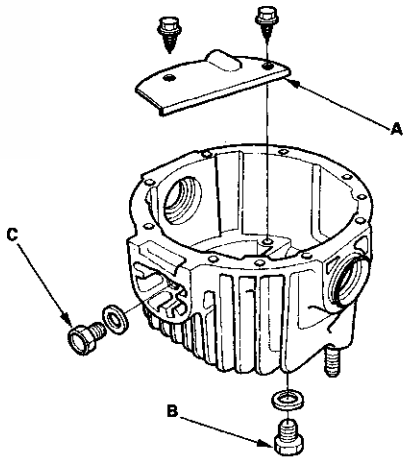


15. Make marks on the Torsen LSD assembly and ring gear.

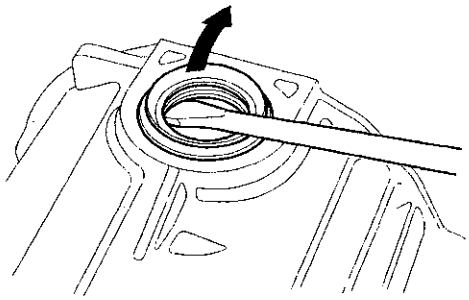
16. Remove the ten mounting bolts in a crisscross pattern in several steps, then remove the ring gear.



17. Remove the breather plate (A), filler plug (B), drain plug (C), and sealing washers.



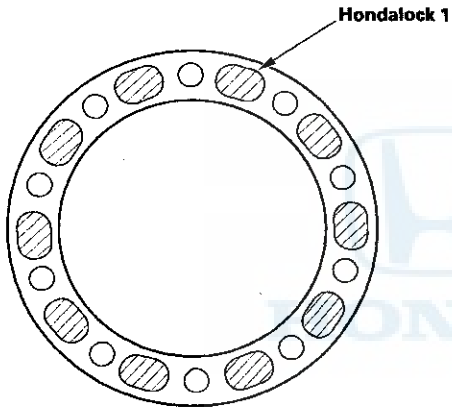
18. Remove the oil seals.



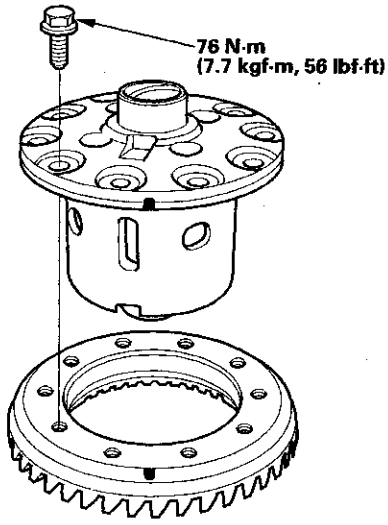
Differential Reassembly

Special Tools Required
- Oil seal driver 07JAD-PL90100
- Holder handle 07JAB-001020A
- Attachment, 40 x 50 mm I.D. 07LAD-PW50601
- Attachment, 45 x 55 mm I.D. 07MAD-PR90100
- Attachment, 78 x 80 mm 07NAD-PX40100
- Companion flange holder 07RAB-TB4010B
- Universal holder 07725-0030000
- Driver, 40 mm I.D. 07746-0030100
- Attachment, 30 mm I.D. 07746-0030300
- Driver 07749-0010000

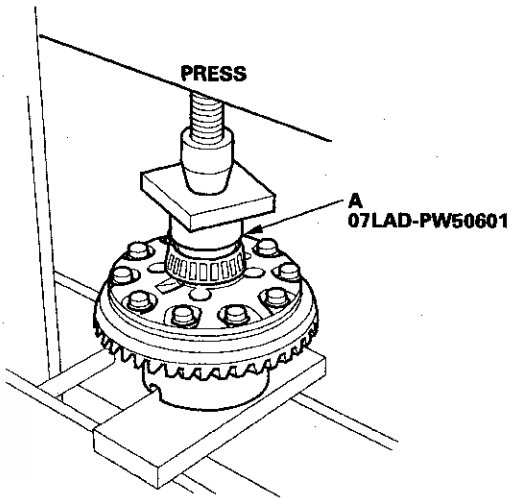
1. Apply Hondalock 1 (P/N 08713-0001) to the surface of the ring gear and ten mounting bolts.



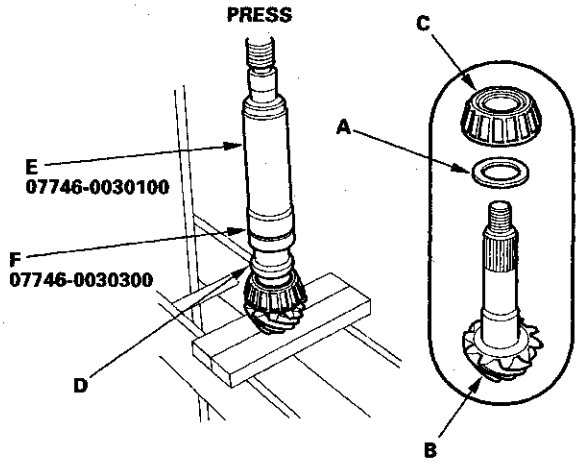
2. Install the ring gear, then tighten the ten mounting bolts in a crisscross pattern in several steps.



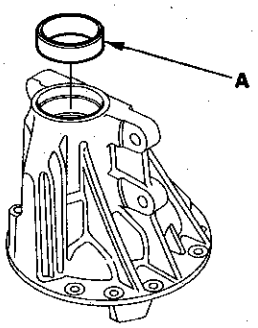
3. Install the tapered roller bearing using the 40 x 50 mm I.D. attachment (A) and a press as shown.

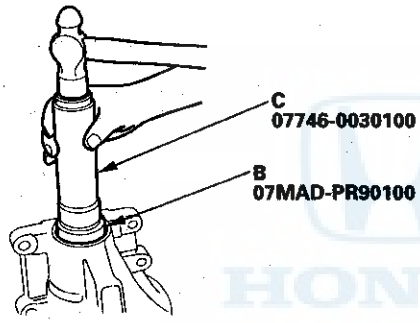


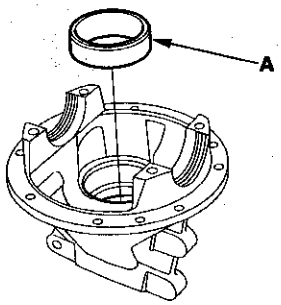
4. Install the standard thrust washer 3.47 mm (0.1366 in.) (A) onto the drive pinion gear (B). Then install the tapered roller bearing (C) using the old pinion spacer (D), 40 mm I.D. driver (E), and 30 mm I.D. attachment (F) as shown.

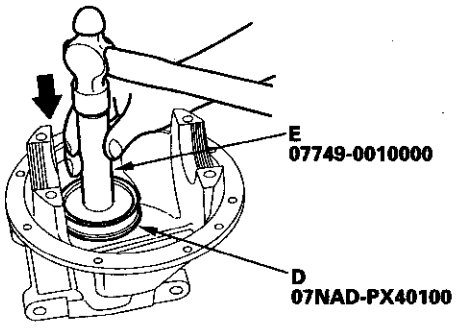


5. Install the bearing outer races (A) into the differential carrier using the 45 x 55 mm I.D. attachment (B), 40 mm I.D. driver (C), 78 x 80 mm attachment (D), and driver (E) as shown.

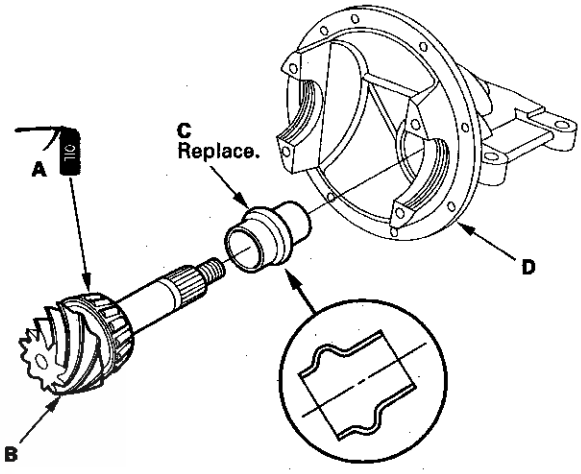




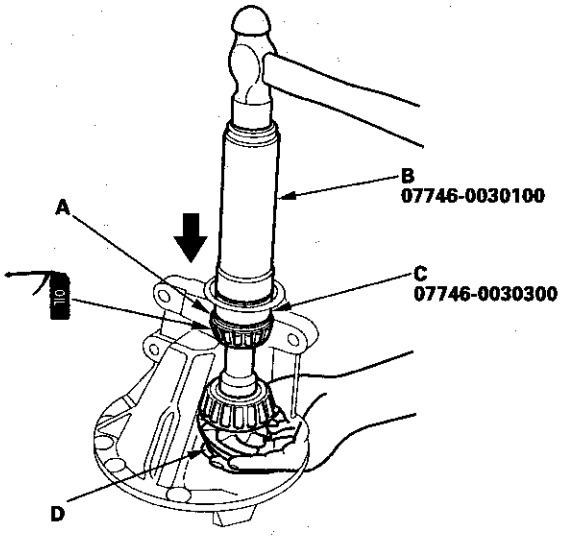




6. Apply the recommended fluid to the tapered roller bearing (A), then install the drive pinion gear (B) and new pinion spacer (C) into the differential carrier (D).



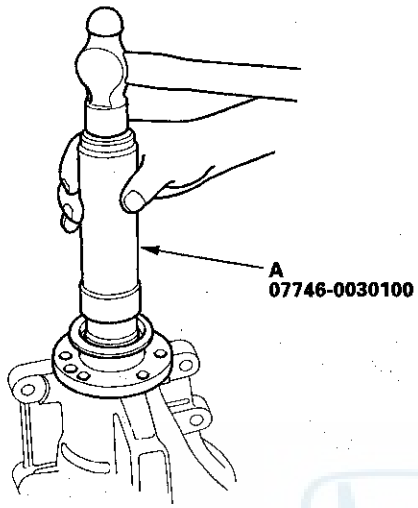
7. Apply the recommended fluid to the tapered roller bearing, then install the tapered roller bearing and spacer (A) using the 40 mm I.D. driver (B) and 30 mm I.D. attachment (C) while holding the drive pinion gear (D).



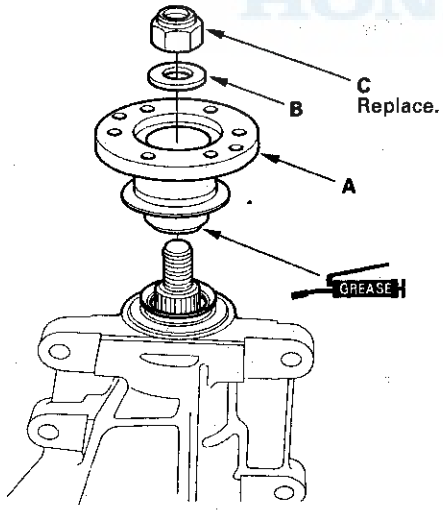
(cont'd)

Differential Reassembly (cont'd)

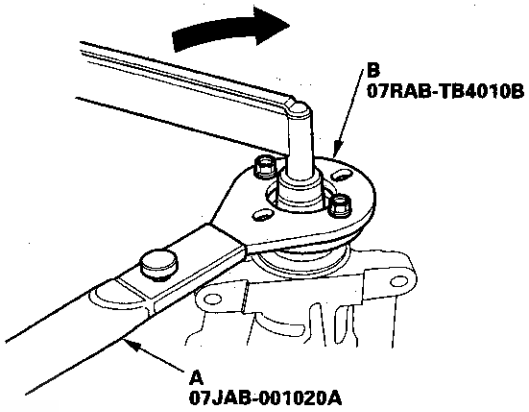
8. Install the new oil seal using the companion flange and 40 mm I.D. driver (A) as shown.



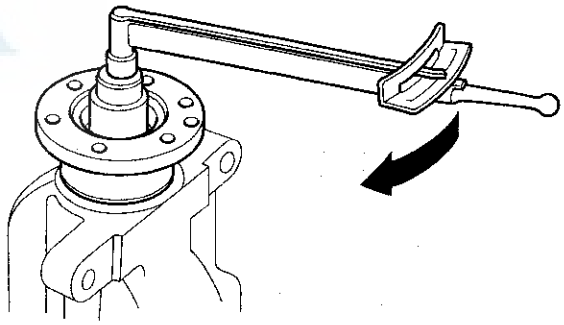
9. Apply molybdenum grease to the surface end of the companion flange, then install the companion flange (A), drive pinion washer (B), and new locknut (C).



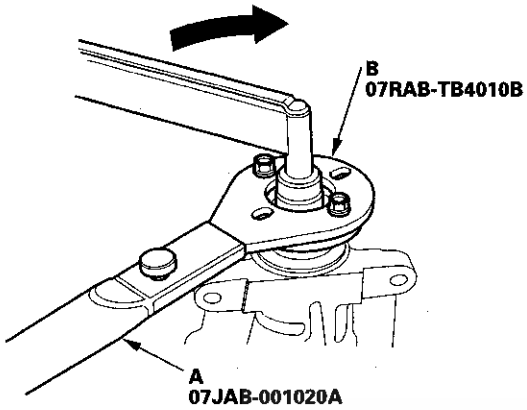
10. Install the holder handle (A) and companion flange holder (B) to the companion flange, then tighten the locknut to 20 N·m (2.0 kgf·m, 14 lbf·ft).



11. Rotate the drive pinion several times to ensure proper tapered roller bearing contact. Measure the drive pinion turning torque before tightening the locknut to the specified torque.



12. Tighten the locknut to 127 N·m (13.0 kgf·m, 94 lbf·ft), then remove the holder handle (A) and companion flange holder (B).

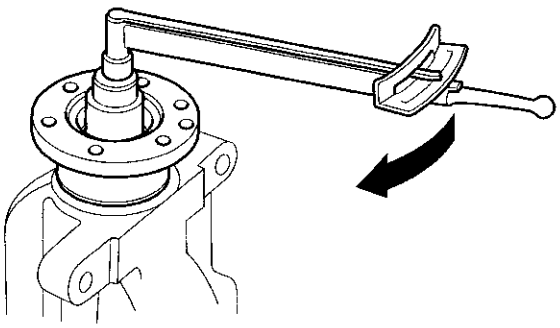


13. Rotate the drive pinion several times to assure proper tapered roller bearing contact. Measure the drive pinion turning torque.

    - If the drive pinion turning torque exceeds the standard, replace the pinion spacer.
    - If the drive pinion turning torque is less than the standard, adjust by tightening the locknut a little at a time, but keep the torque within 127—284 N·m (13.0—29.0 kgf·m, 94—210 lbf·ft). If this is not possible, replace the pinion spacer.

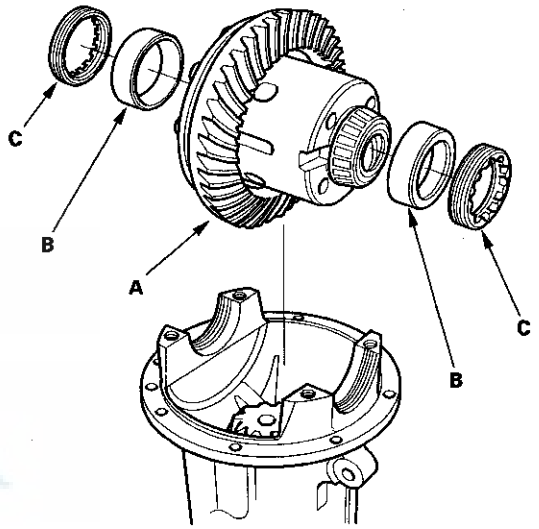
    Turning Torque:
    0.88—1.37 N·m (9.0—14.0 kgf·cm, 7.8—12.1 lbf·in) + Tp (from step 11)

    Tp: Actual measurement of drive pinion turning torque

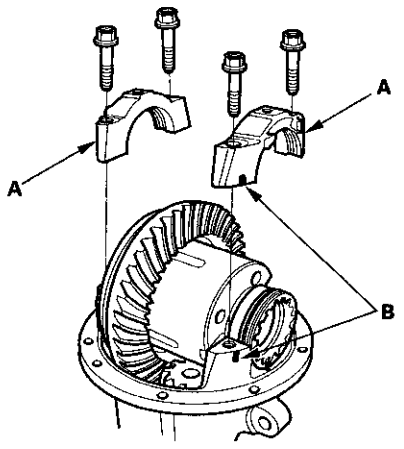


14. Install the Torsen LSD assembly (A), bearing outer races (B), and adjustment screws (C) onto the differential carrier.

    NOTE:
    - Reinstall the adjustment screws in their original position on the differential carrier.
    - Align the threads of the adjustment screws and differential carrier housing.



15. Install the bearing caps (A) while aligning both the marks (B) on the threads of the adjustment screws and bearing caps, then install the mounting bolts finger-tight.

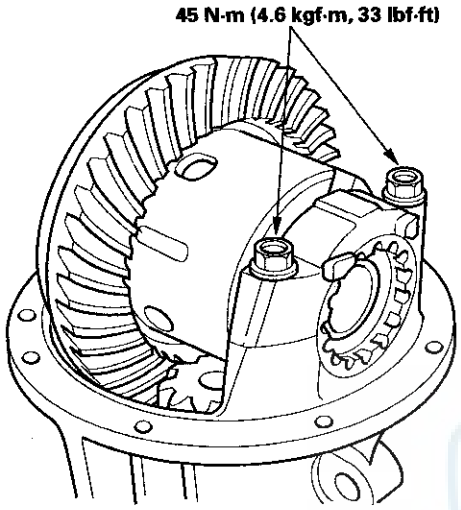


(cont'd)

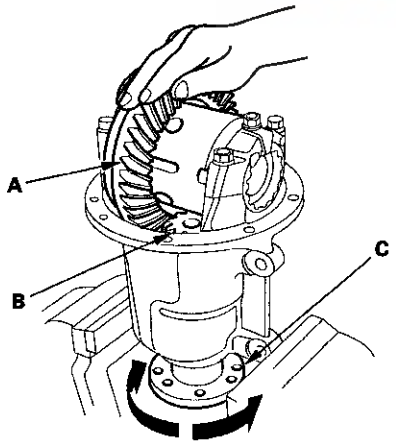
Differential Reassembly (cont'd)

16. Measure the backlash of the ring gear (see page 15-14).

17. Tighten the bearing cap mounting bolts.



18. Thoroughly clean the ring gear teeth (A) and drive pinion gear teeth, and paint the ring gear teeth (B) with Prussian Blue lightly and evenly.

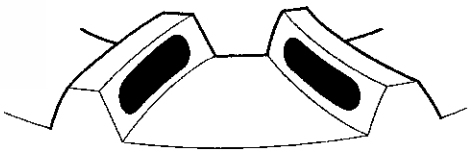


19. Rotate the companion flange (C) three full turns forward and then backward to produce a contact pattern on the ring gear. During this operation, resistance should be applied to the ring gear.

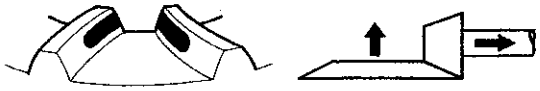
20. Check the tooth contact pattern and adjust it if needed.

- Toe Contact: Use a thinner thrust washer to move the drive pinion gear away from the ring gear.
- Heel Contact: Use a thicker thrust washer to move the drive pinion gear toward from the ring gear.
- Flank Contact: To move the ring gear away from the drive pinion gear, tighten the adjustment screw on the drive pinion gear side and loosen the adjustment screw on the ring gear side. Recheck backlash after adjusting the adjustment screws. If out of specification, adjust as described under Toe Contact.
- Face Contact: To move the ring gear toward the drive pinion gear, tighten the adjustment screw on the ring gear side, and loosen the adjustment screw on the drive pinion gear side. Recheck backlash after adjusting the adjustment screws. If out of specification, adjust as described under Heel Contact.

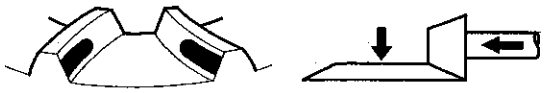
Correct Tooth Contact



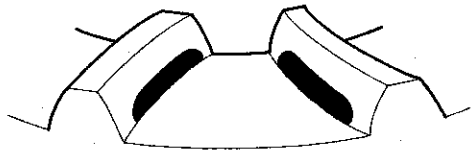
Toe Contact



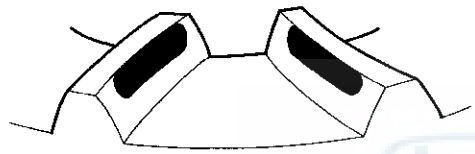
Heel Contact



Flank Contact



Face Contact



Thrust Washer

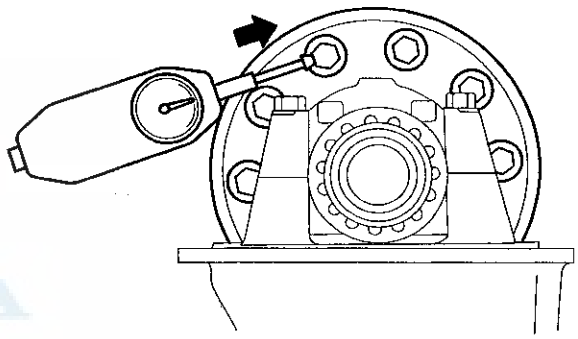
	Part Number	Thickness
A	41361-PCZ-003	3.08 mm (0.1213 in.)
B	41362-PCZ-003	3.11 mm (0.1224 in.)
C	41363-PCZ-003	3.14 mm (0.1236 in.)
D	41364-PCZ-003	3.17 mm (0.1248 in.)
E	41365-PCZ-003	3.20 mm (0.1260 in.)
F	41366-PCZ-003	3.23 mm (0.1272 in.)
G	41367-PCZ-003	3.26 mm (0.1283 in.)
H	41368-PCZ-003	3.29 mm (0.1295 in.)
I	41369-PCZ-003	3.32 mm (0.1307 in.)
J	41370-PCZ-003	3.35 mm (0.1319 in.)
K	41371-PCZ-003	3.38 mm (0.1331 in.)
L	41372-PCZ-003	3.41 mm (0.1343 in.)
M	41373-PCZ-003	3.44 mm (0.1354 in.)
N*	41374-PCZ-003	3.47 mm (0.1366 in.)
O	41375-PCZ-003	3.095 mm (0.1219 in.)
P	41376-PCZ-003	3.125 mm (0.1230 in.)
Q	41377-PCZ-003	3.155 mm (0.1242 in.)
R	41378-PCZ-003	3.185 mm (0.1254 in.)
S	41379-PCZ-003	3.215 mm (0.1266 in.)
T	41380-PCZ-003	3.245 mm (0.1278 in.)
AA	41381-PCZ-003	3.275 mm (0.1289 in.)
AO	41382-PCZ-003	3.305 mm (0.1301 in.)
AP	41383-PCZ-003	3.335 mm (0.1313 in.)
AQ	41384-PCZ-003	3.365 mm (0.1325 in.)
AR	41385-PCZ-003	3.395 mm (0.1337 in.)
AS	41386-PCZ-003	3.425 mm (0.1348 in.)
AT	41387-PCZ-003	3.455 mm (0.1360 in.)

*: Standard

21. Rotate the Torsen LSD assembly several times to ensure proper tapered roller bearing contact. Measure the Torsen LSD assembly preload using the push/pull gauge.

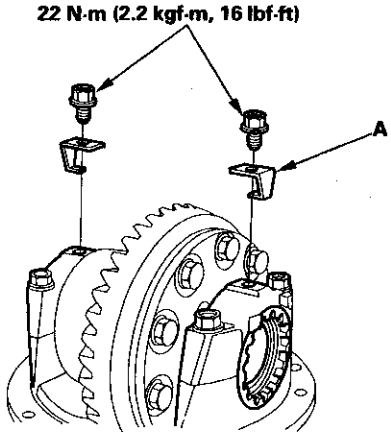
    - If the Torsen LSD assembly preload exceeds the standard, adjust by loosening the adjustment screws a notch at a time.
    - If the Torsen LSD assembly preload is less than the standard, adjust by tightening the adjustment screws a notch at a time.

    Standard: 14—30 N
    (1.4—3.1 kgf, 3.1—6.8 lbf)



22. Install the lock plates (A).

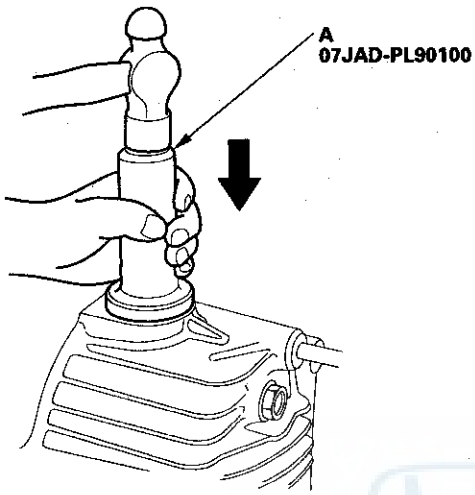
22 N·m (2.2 kgf·m, 16 lbf·ft)



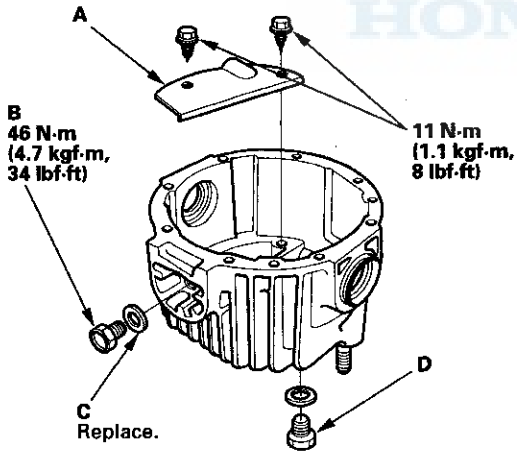
(cont'd)

Differential Reassembly (cont'd)

23. Install the new oil seal using the oil seal driver (A) as shown.

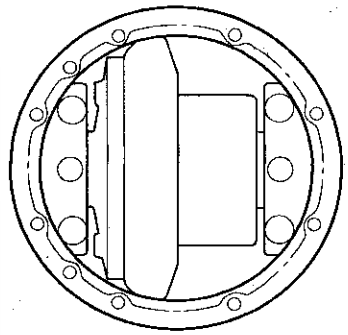


24. Install the breather plate (A), drain plug (B), and new sealing washers (C). Install the filler plug (D) finger-tight.



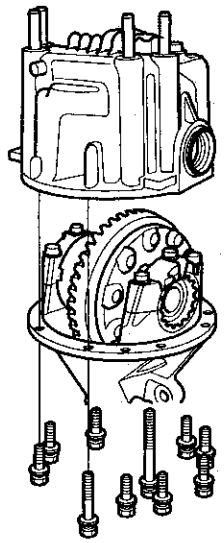
25. Clean the dirt and oil from the mating surfaces. Apply liquid gasket, P/N 08718-0001 evenly to the mating surface of the differential case and the differential carrier. Install the component within 5 minutes of applying the liquid gasket.

NOTE:
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.
- Allow it to cure at least 30 minutes after assembly before filling the differential with the recommended fluid.



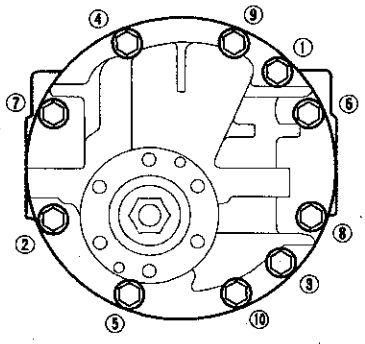
—·—·— Liquid gasket

26. Install the differential case.

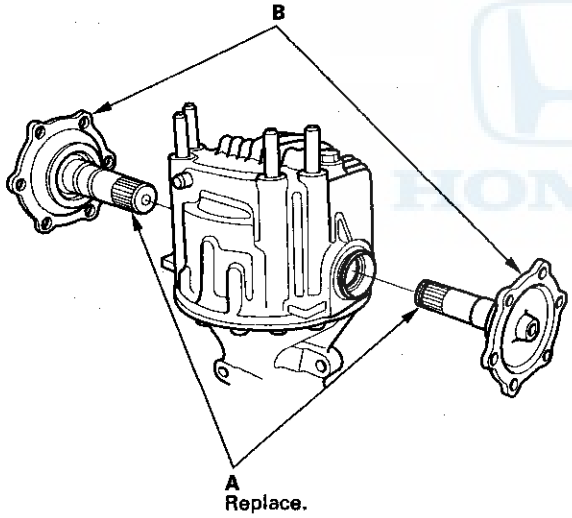


27. Tighten the ten mounting bolts in a crisscross pattern in several steps.

24 N·m (2.4 kgf·m, 17 lbf·ft)



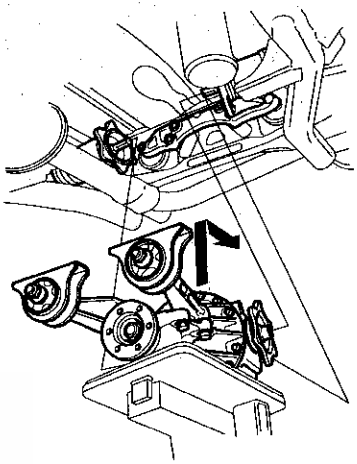
28. Install the new clips (A) on the output shafts, then install the output shafts (B).



Differential Installation

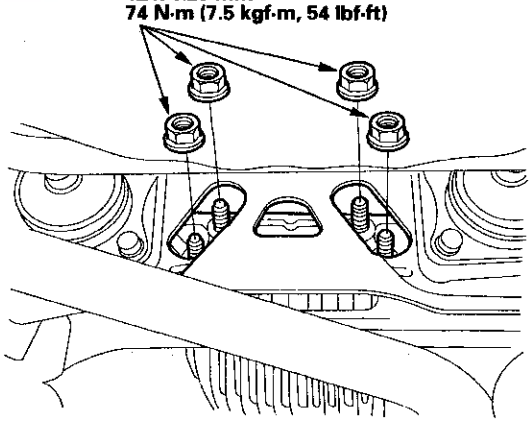
1. Install right and left differential mount bracket A to the rear differential; '00-05 models (see page 15-31), '06-08 models (see page 15-32).

2. Place the rear differential on the transmission jack, and raise it to the mounting level.



3. '00-05 models: Install four differential mount bracket B mounting nuts.
'06-08 models: Install the differential breather box (see page 15-30). Then install four differential mount bracket B mounting nuts.

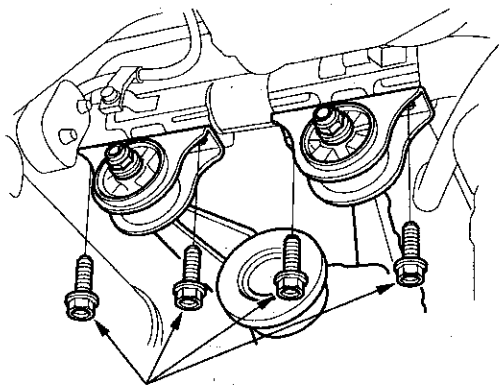
12 x 1.25 mm
74 N·m (7.5 kgf·m, 54 lbf·ft)



(cont'd)

Differential Installation (cont'd)

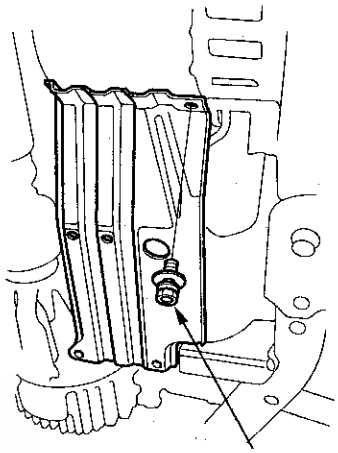
4. Install the right and left differential mount bracket A mounting bolts.



10 x 1.25 mm
45 N·m (4.6 kgf·m, 33 lbf·ft)

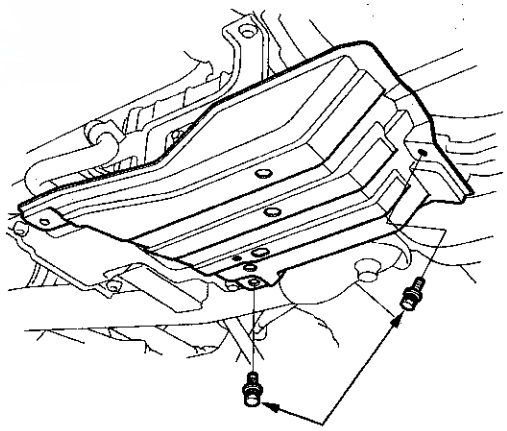
5. Install the evaporative emission (EVAP) canister cover.

'00-05 models



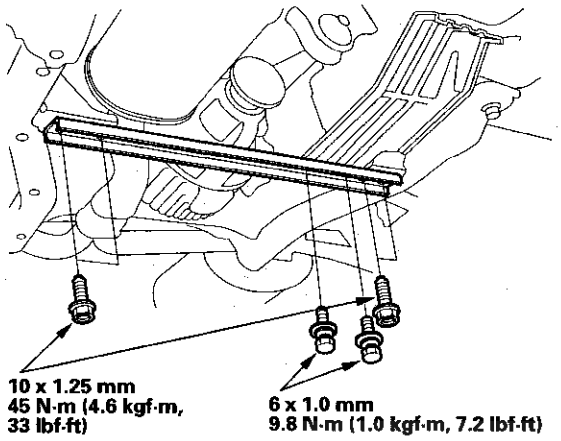
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

'06-08 models

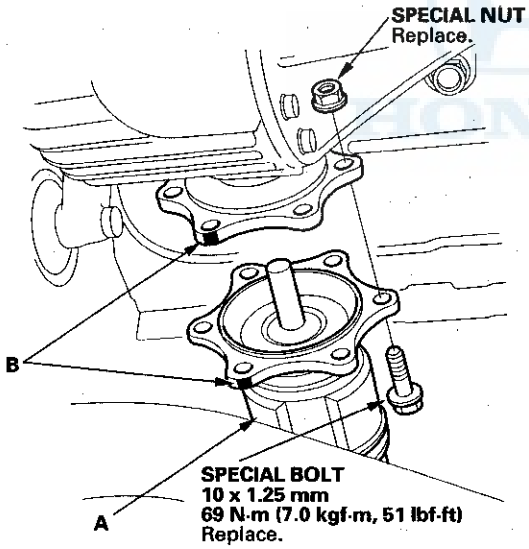


6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)

6. Install the rear suspension stiffener.

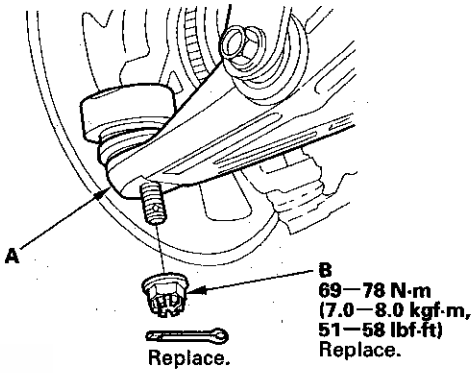


7. Install the inboard joints (A) onto the rear differential by aligning the reference marks (B) you made.

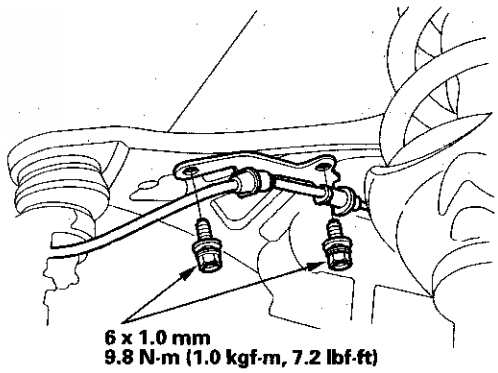


8. Install the ball joints onto the lower arms (A), then install the new castle nuts (B) and new cotter pins.

NOTE: Make sure the ball joint boots are not damage or cracked.



9. Install the wheel speed sensor harness onto the upper arm.



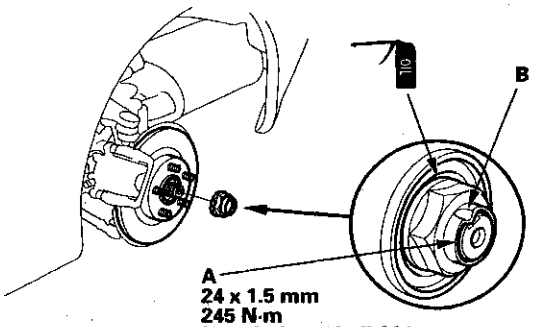
10. Install the propeller shaft to the transmission and the rear differential by aligning the reference marks you made (see page 16-19).

(cont'd)

Differential Installation (cont'd)

11. Refill the differential fluid (see page 15-7).

12. Apply a small amount of engine oil to the seating surface of the new spindle nut (A).



13. Install a new spindle nut, then tighten the nut. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.

14. Clean the mating surfaces of the brake disc and the rear wheel, then install the rear wheels.

15. Turn the rear wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.

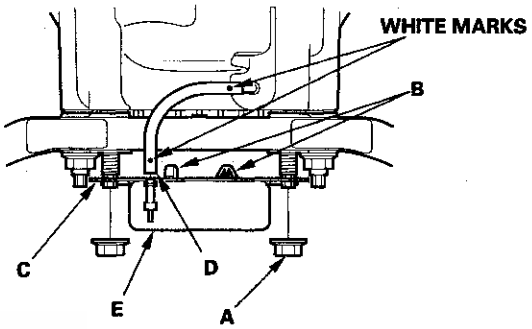
16. Check the rear wheel alignment, and adjust it if necessary (see page 18-7).

17. Test-drive the vehicle.

Differential Breather Box Replacement

'06-08 models

1. Remove the two differential mount bracket B mounting nuts (A).



2. Remove the clips (B), then remove the differential breather box from the differential breather box bracket (C). Then remove the breather box stay.

3. Disconnect the breather box tube (D) from the differential breather box (E) side.

4. Remove the differential breather box tube from the rear differential.

5. Install the differential breather box tube to the rear differential.

6. Install the differential breather box bracket.

7. Connect the differential breather box tube. Make sure the white marks on the tube come upside.

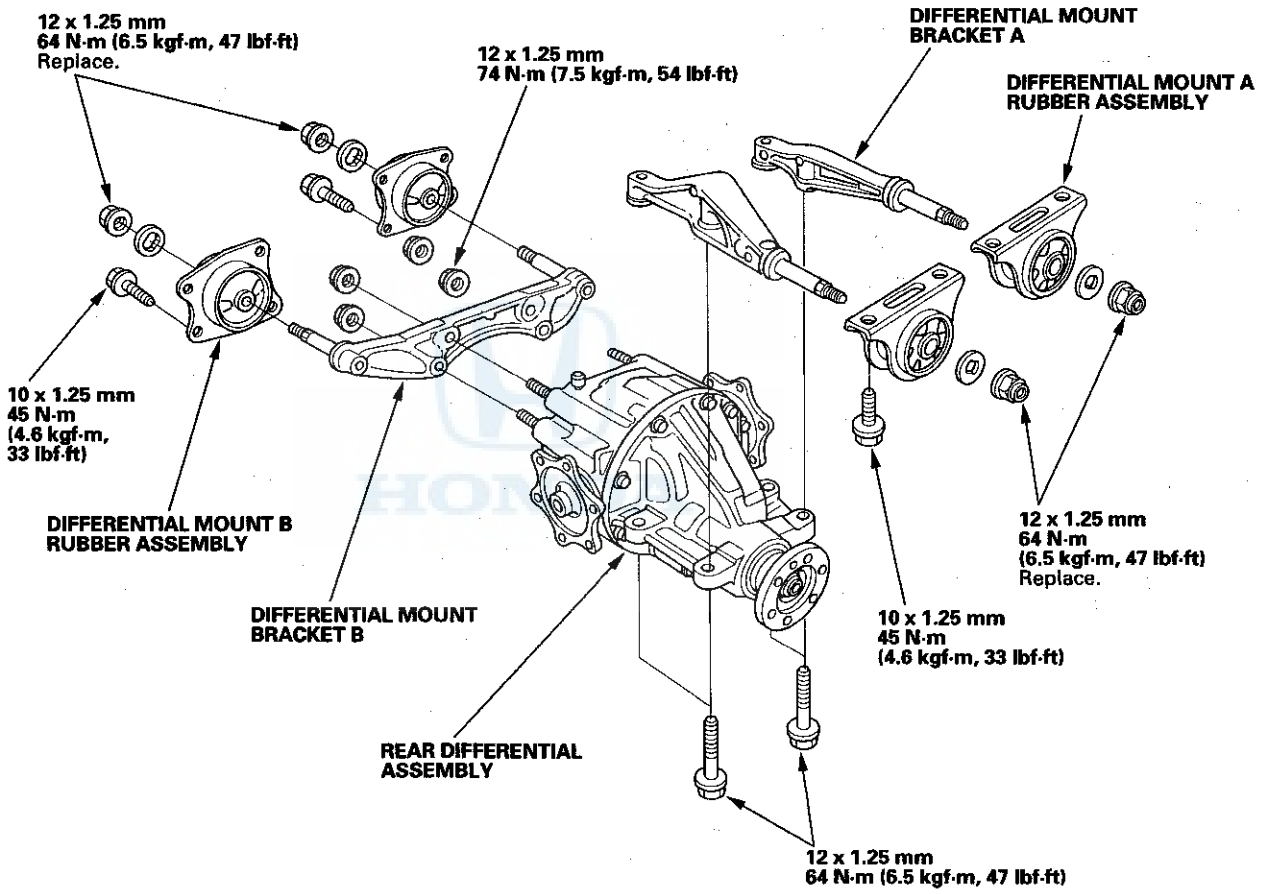
8. Install the differential breather box.

9. Install the two differential mount bracket B mounting nuts.

Differential Mount Replacement

NOTE: If installing the rear differential and mount assemblies, tighten the differential mount bracket B mounting nuts first, then tighten the differential mount bracket A mounting bolts.

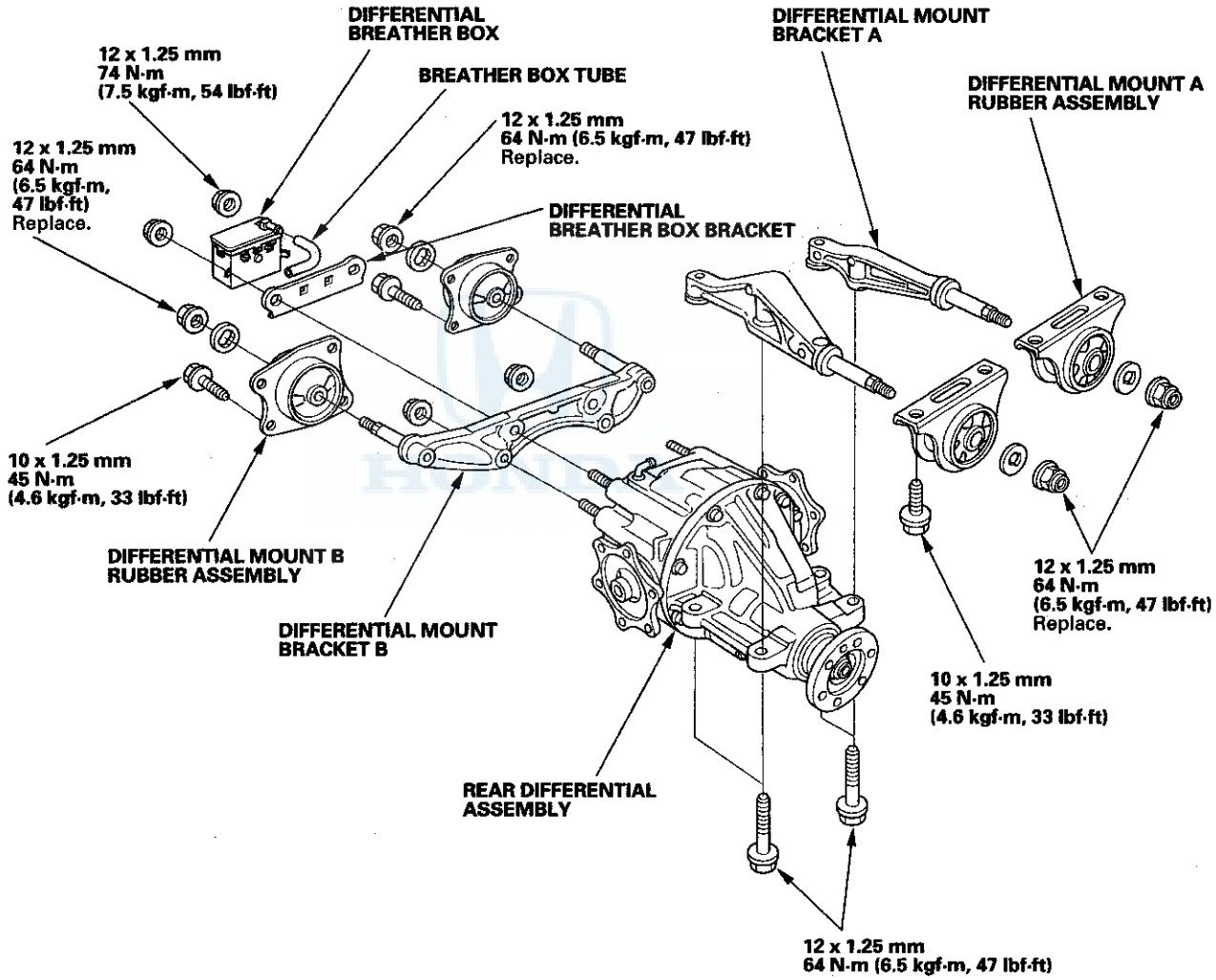
'00-05 models



Differential Mount Replacement (cont'd)

NOTE: If installing the rear differential and mount assemblies, tighten the differential mount bracket B mounting nuts first, then tighten the differential mount bracket A mounting bolts.

'06-08 models

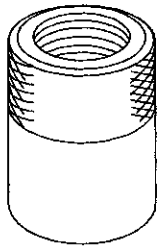


Driveline/Axle

Driveline/Axle

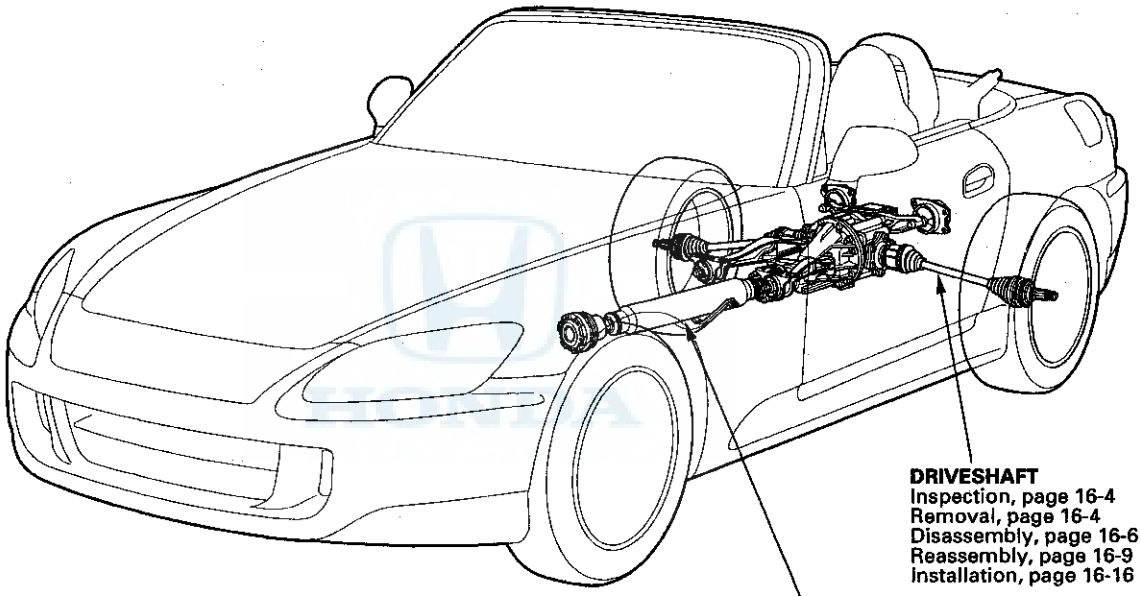
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07XAC-001020A	Threaded Adapter, 24 x 1.5 mm	1



①

Component Location Index

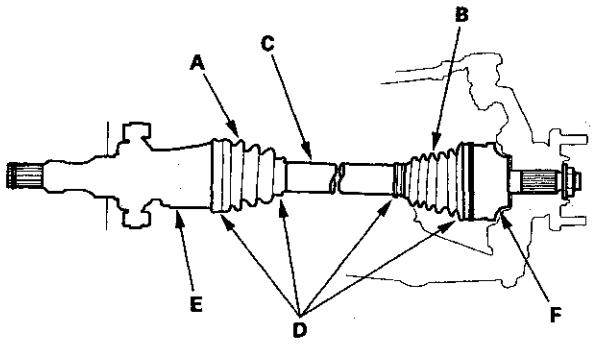


DRIVESHAFT
Inspection, page 16-4
Removal, page 16-4
Disassembly, page 16-6
Reassembly, page 16-9
Installation, page 16-16

PROPELLER SHAFT
Inspection, page 16-17
Removal, page 16-18
Installation, page 16-19

Driveshaft Inspection

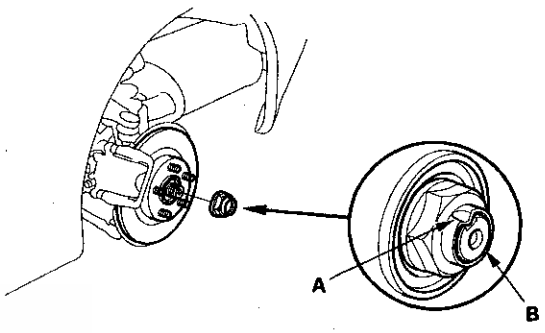
1. Check the inboard boot (A) and outboard boot (B) on the driveshaft (C) for cracks, damage, leaking grease, and loose boot bands (D). If any damage is found, replace the boot and boot bands.



2. Check the driveshaft for cracks and damage. If any damage is found, replace the driveshaft.
3. Check the inboard joint (E) and the outboard joint (F) for cracks and damage. If any damage is found, replace the inboard joint or the outboard joint as an assembly.
4. Hold the inboard joint and turn the rear wheel by hand, then make sure the joint is not excessively loose. If necessary, replace the inboard joint or the outboard joint as an assembly.

Driveshaft Removal

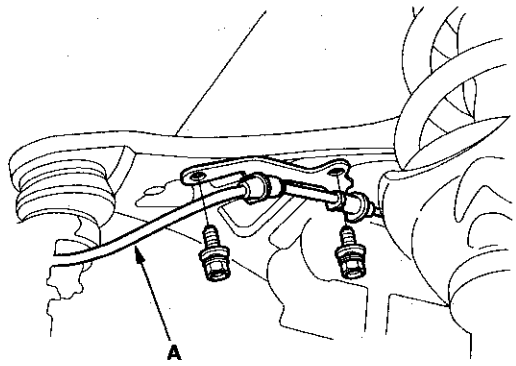
1. Raise the vehicle on a lift.
2. Remove the rear wheels.
3. Lift up the locking tab (A) on the spindle nut (B), then remove the nut.



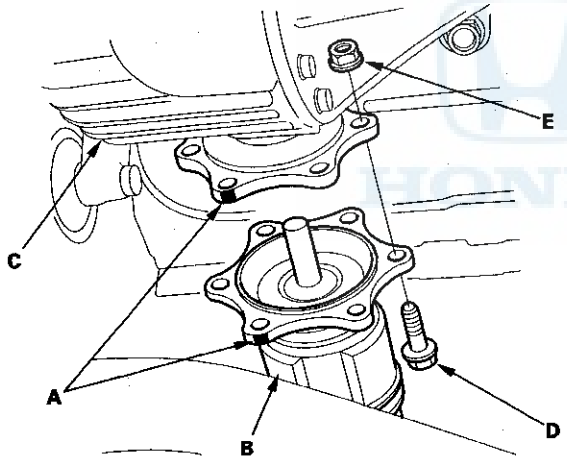
4. Remove the cotter pin from the lower arm ball joint castle nut, then remove the castle nut, then separate the ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see step 12 on page 18-34).

NOTE:
- To avoid damaging the ball joint, install ball joint thread protector onto the threads of the ball joint.
- Be careful not to damage the ball joint boot when installing the remover (see page 18-13).

5. Remove the wheel speed sensor harness (A) from the upper arm.



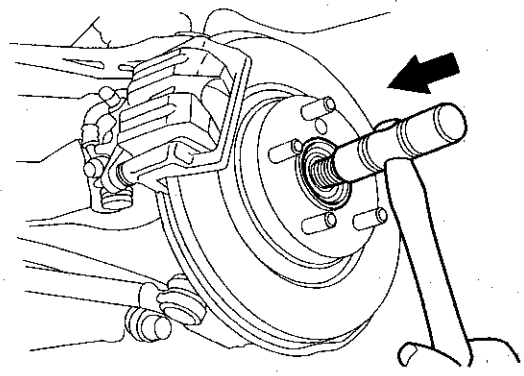
6. Make reference marks (A) across the inboard joint (B) and the rear differential (C).



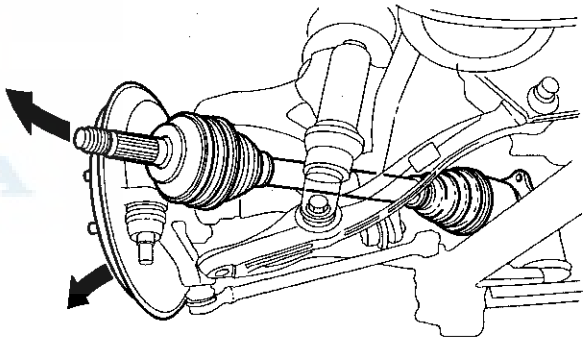
7. Remove the six inboard joint mounting bolts (D) and nuts (E), then remove the inboard joint from the rear differential.

8. Pull the knuckle outward, and remove the inboard joint from the rear differential.

9. Pull the knuckle outward, and separate the driveshaft outboard joint from the rear hub using a plastic hammer.



10. Remove the driveshaft.



Driveshaft Disassembly

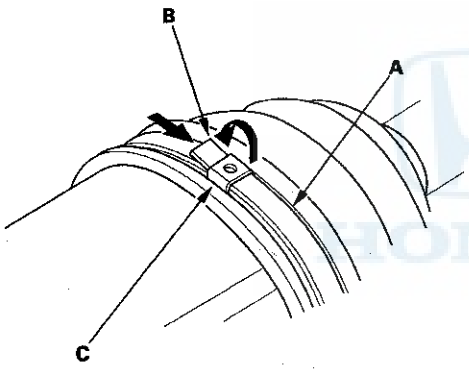
Special Tools Required
- Threaded adapter, 24 x 1.5 mm 07XAC-001020A
- Slide hammer, 5/8"-18 UNF, commercially available
- Bearing remover, UNF, commercially available

Inboard Joint Side

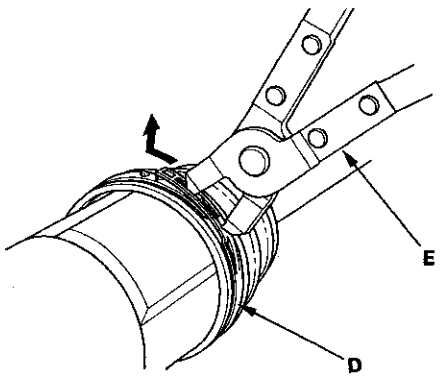
1. Remove the boot bands. Be careful not to damage the boot.

   - If the boot band is a double loop type (A), lift up the band end (B), and push it into the clip (C).
   - If the boot band is a low profile type (D), pinch the boot band using commercially available boot band pliers (E).

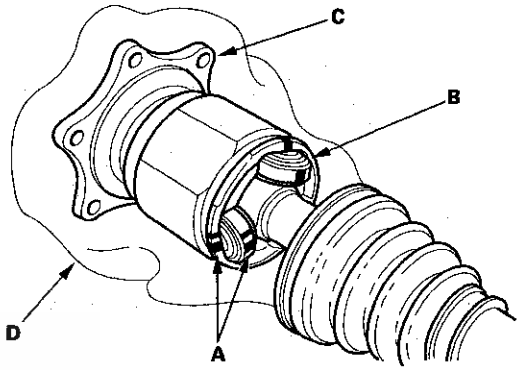
Double loop type



Low profile type

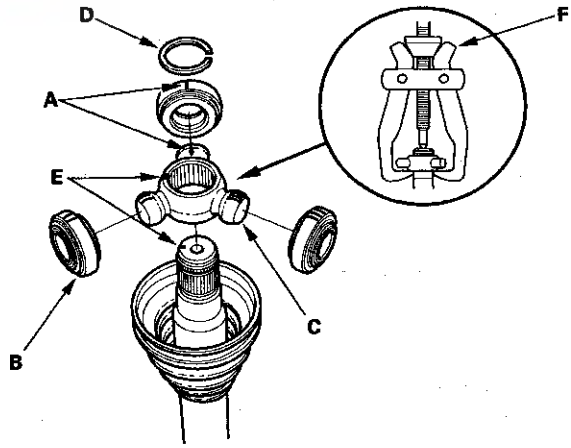


2. Make marks (A) on each roller (B) and inboard joint (C) to identify the locations of rollers and grooves in the inboard joint. Then remove the inboard joint on a shop towel (D). Be careful not to drop the rollers when separating them from the inboard joint.



3. Make marks (A) on the rollers (B) and spider (C) to identify the locations of rollers on the spider, then remove the rollers.

   NOTE: Do not engrave or scribe marks on the rolling surface.

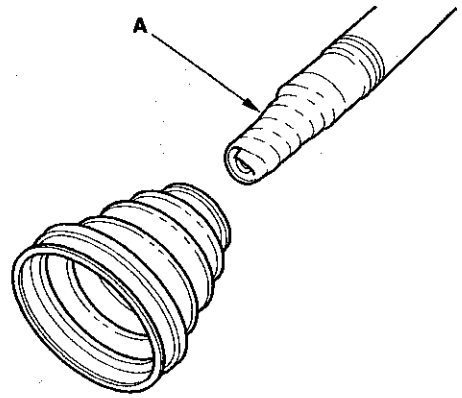


4. Remove the circlip (D).

5. Make marks (E) on the spider and driveshaft to identify the position of the spider on the shaft.

6. Remove the spider using commercially available bearing remover (F).

7. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damage to the boot.

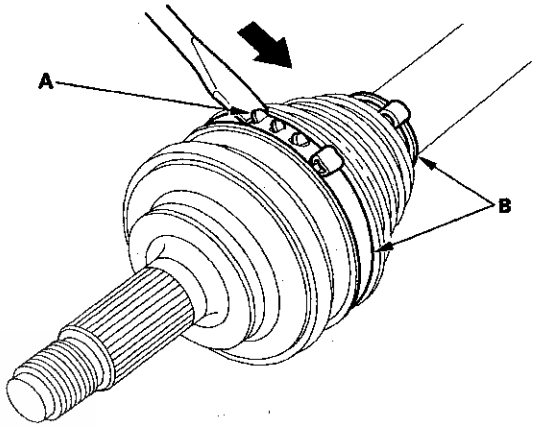


8. Remove the inboard boot. Be careful not to damage the boot.

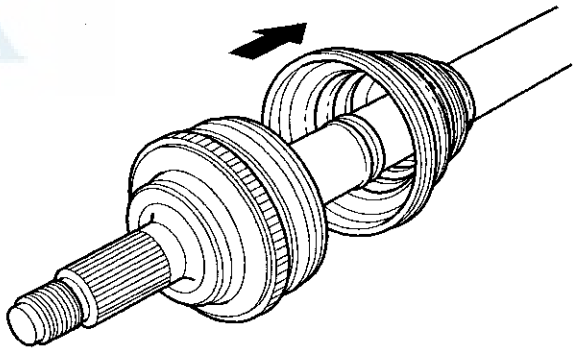
9. Remove the vinyl tape.

Outboard Joint Side

1. Lift up the three tabs (A) with a screwdriver, then remove the boot bands (B). Be careful not to damage the boot.



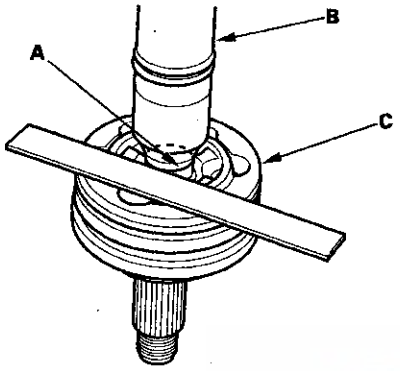
2. Slide the outboard boot partially to the inboard joint side. Be careful not to damage the boot.



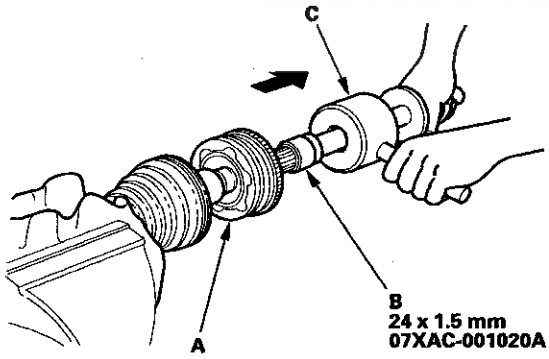
(cont'd)

Driveshaft Disassembly (cont'd)

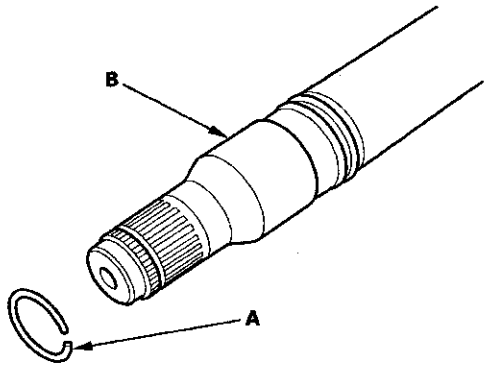
3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.
4. Make a mark (A) on the driveshaft (B) at the same level as the outboard joint rim (C).



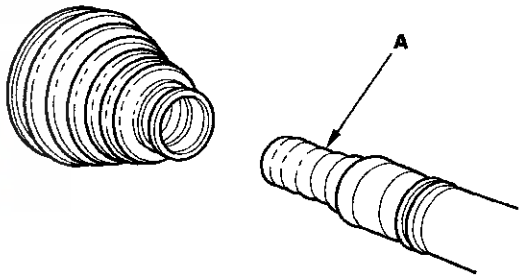
5. Securely clamp the driveshaft in a bench vise with a shop towel.
6. Remove the outboard joint (A) using the 24 x 1.5 mm threaded adapter (B) and a commercially available 5/8"-18 UNF slide hammer (C).



7. Remove the driveshaft from the bench vise.
8. Remove the stop ring (A) from the driveshaft (B).



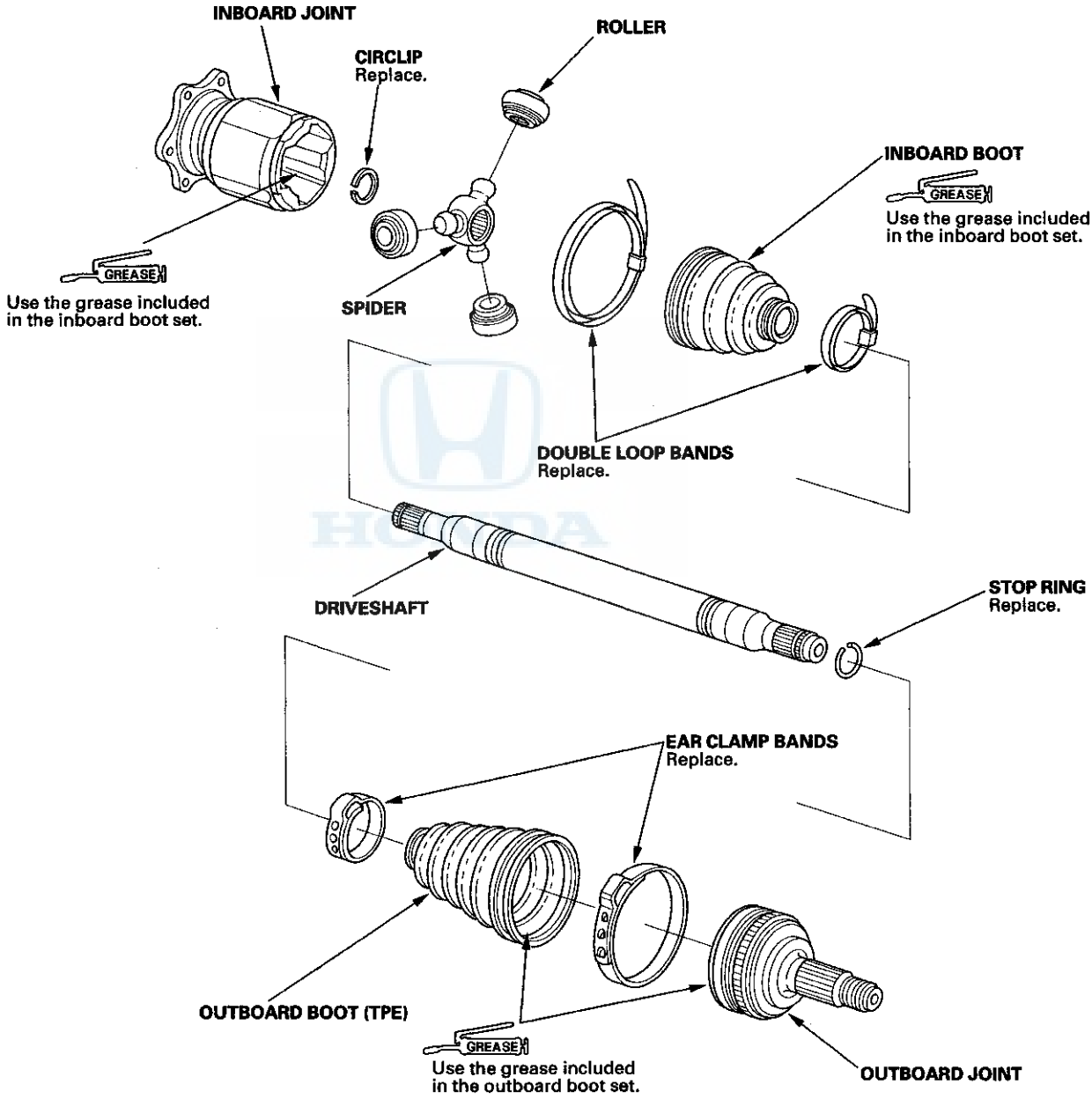
9. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the boot.



10. Remove the outboard boot. Be careful not to damage the boot.
11. Remove the vinyl tape.

Driveshaft Reassembly

Exploded View



(cont'd)

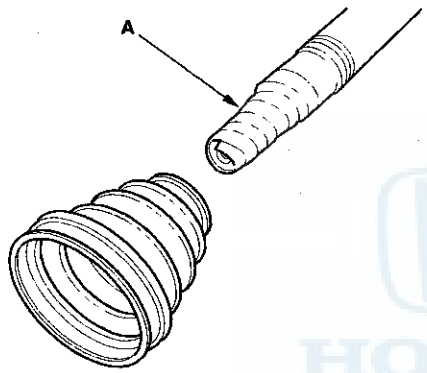
Driveshaft Reassembly (cont'd)

Special Tools Required
- Boot band tool, KD-3191 or equivalent, commercially available
- Boot band pliers, Kent-Moore J-35910 or equivalent, commercially available

NOTE: Refer to the Exploded View, as needed, during this procedure.

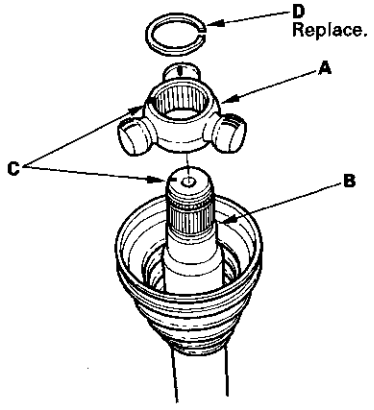
Inboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damage to the inboard boot.



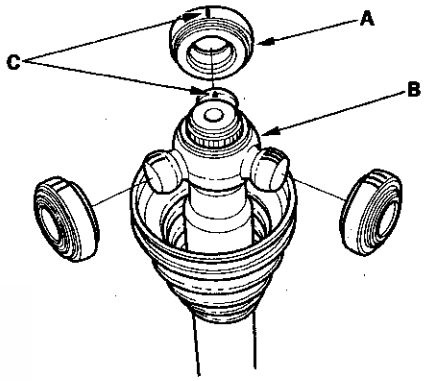
2. Install the inboard boot onto the driveshaft, then remove the vinyl tape. Be careful not to damage the inboard boot.

3. Install the spider (A) onto the driveshaft (B) by aligning the marks (C) you made on the spider, and the end of the driveshaft.



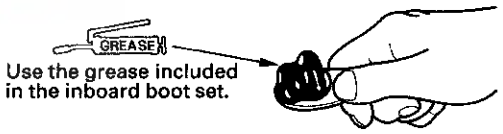
4. Install the new circlip (D) into the driveshaft groove. Always rotate the circlip in its groove to make sure it is fully seated.

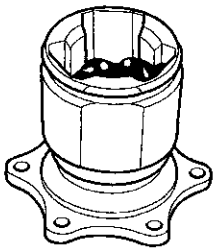
5. Fit the rollers (A) onto the spider (B) as shown, and note these items:
   - Reinstall the rollers in their original positions on the spider by aligning the marks (C) you made.
   - Hold the driveshaft pointed up to prevent the rollers from falling off.



6. Pack the inboard joint with the joint grease included in the new inboard boot set.

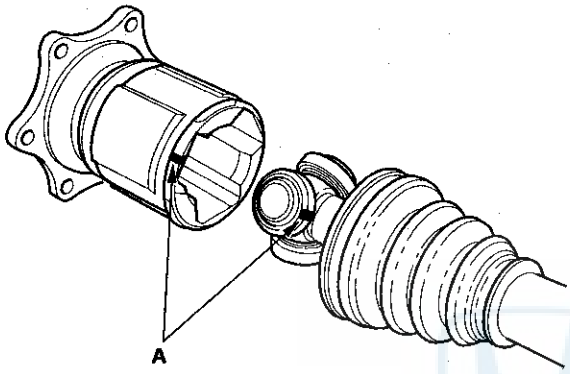
Grease quantity
Inboard joint: 150—160 g (5.3—5.6 oz)





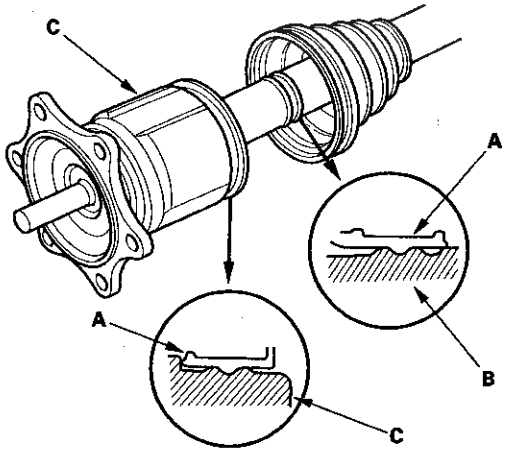
7. Fit the inboard joint onto the driveshaft and note these items:

   - Reinstall the inboard joint onto the driveshaft by aligning the marks (A) you made on the inboard joint and the rollers.
   - Hold the driveshaft so the inboard joint is pointing up to prevent it from falling off.



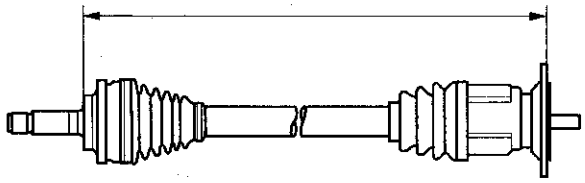
8. Adjust the inboard joint until the rollers are in the middle of the joint.

9. Fit the boot (A) ends onto the driveshaft (B) and the inboard joint (C).



10. Adjust the length of the driveshafts to the dimensions shown, then adjust the boots to halfway between full compression and full extension. Doing this prevents a vacuum or too much air in the boot, preventing it from compressing or extending properly.

With outboard joint:
Right driveshaft: 579.0—584.0 mm (22.8—23.0 in.)
Left driveshaft: 624.0—629.0 mm (24.6—24.8 in.)

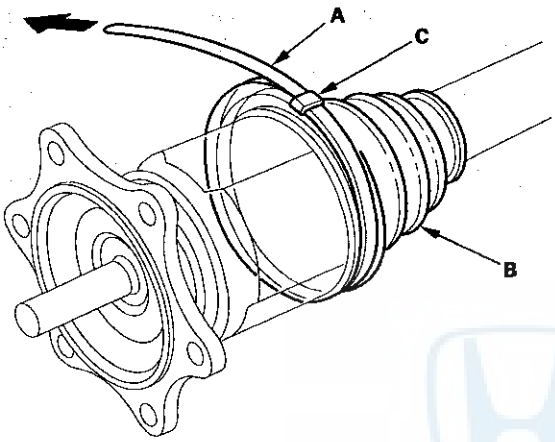


(cont'd)

Driveshaft Reassembly (cont'd)

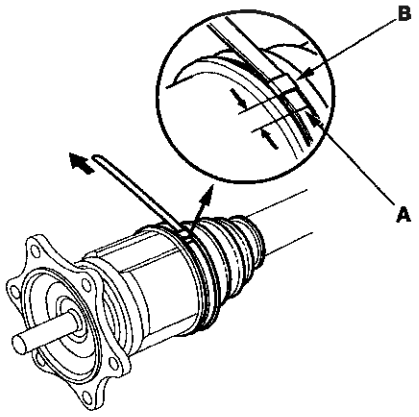
11. Fit the boot ends onto the driveshaft and the inboard joint, then install the new double loop band (A) onto the boot (B).

    NOTE: Pass the end of the new double loop band through the clip (C) twice in the direction of the forward rotation of the driveshaft.

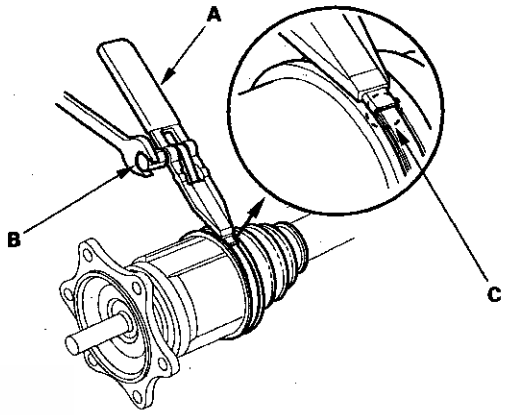


12. Pull up the slack in the band by hand.

13. Mark a position (A) on the band 10—14 mm (0.4—0.6 in.) from the clip (B).

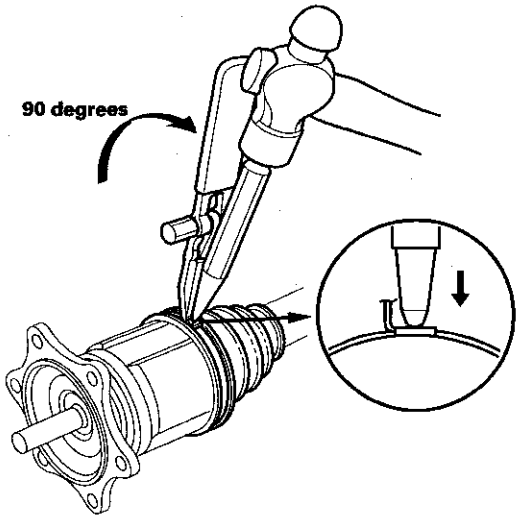


14. Thread the free end of the band through the nose section of the commercially available boot band tool KD-3191 or equivalent (A), and into the slot on the winding mandrel (B).

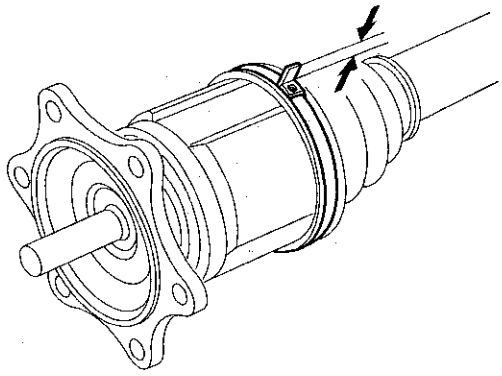


15. Using a wrench on the winding mandrel of the boot band tool, to tighten the band until the marked spot (C) on the band meets the edge of the clip.

16. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center-punch the clip, then fold over the remaining tail onto the clip.

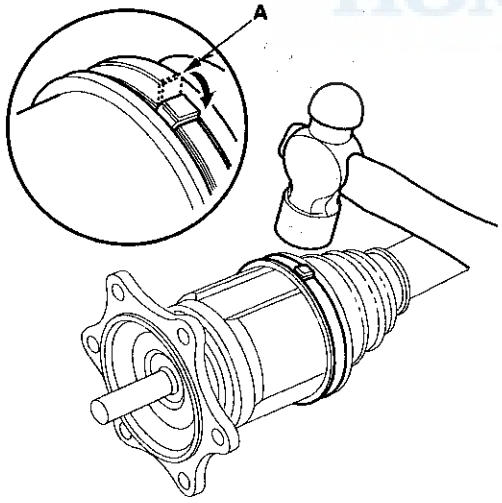


17. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5—10 mm (0.2—0.4 in.) tail protruding from the clip.



18. Bend the band end (A) by tapping it down with a hammer.

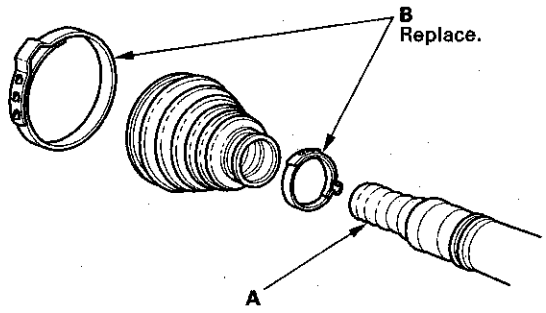
NOTE:
- Make sure the band and clip do not interfere with anything, and the band does not move.
- Remove any grease remaining on the surrounding surfaces.



19. Repeat steps 11 through 18 for the band on the other end of the boot.

Outboard Joint Side

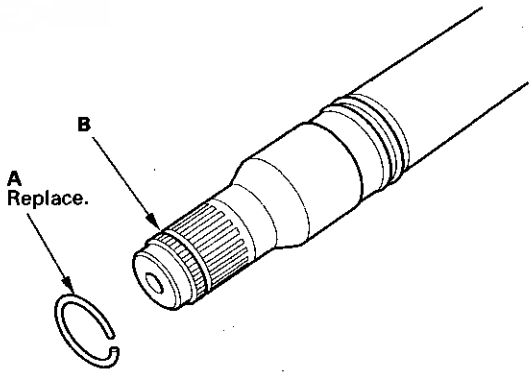
1. Wrap the splines with vinyl tape (A) to prevent damaging the outboard boot.



2. Install the new ear clamp bands (B) and the outboard boot. Be careful not to damage the outboard boot.

3. Remove the vinyl tape.

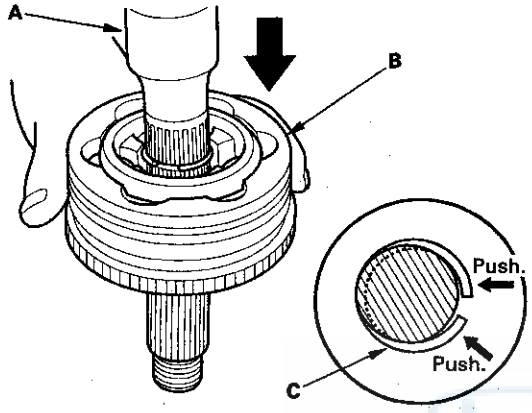
4. Install the new stop ring (A) into the driveshaft groove (B).



(cont'd)

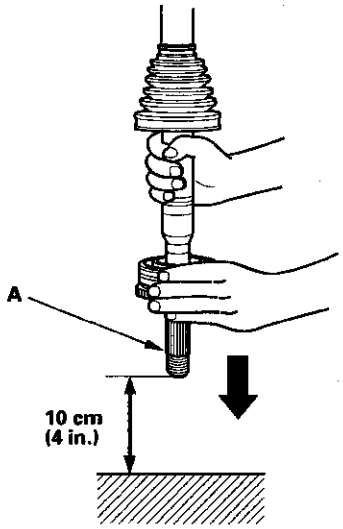
Driveshaft Reassembly (cont'd)

5. Pack about 35 g (1.2 oz) grease included in the new outboard boot set into the driveshaft hole in the outboard joint. Insert the driveshaft (A) into the outboard joint (B) until the stop ring (C) is closed to the joint.

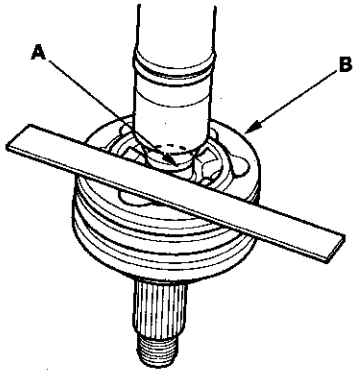


6. To completely seat the outboard joint, pick up the driveshaft and joint, and tap or hit them from a height of about 10 cm (4 in.) onto a hard surface.

   NOTE: Do not use a hammer as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.

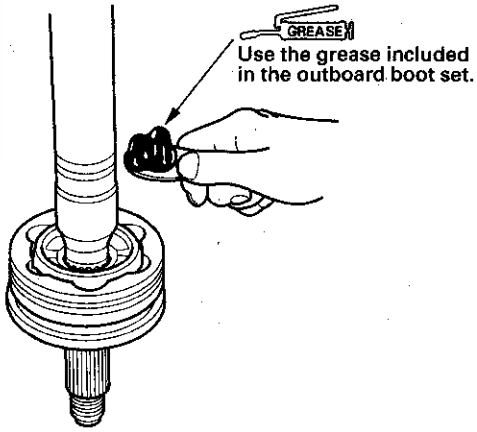


7. Check the alignment of the paint mark (A) you made with the outboard joint rim (B).

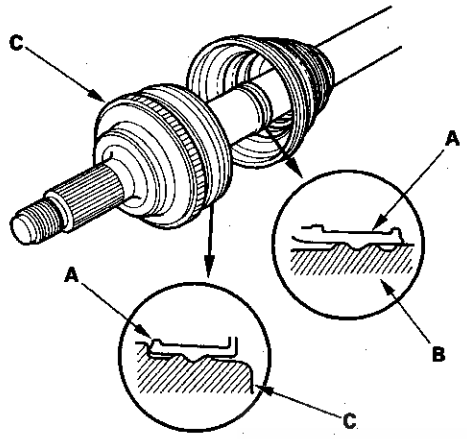


8. Pack the outboard joint with the remaining joint grease included in the new outboard boot set.

   Total grease quantity
   Outboard joint: 119—129 g (4.2—4.6 oz)

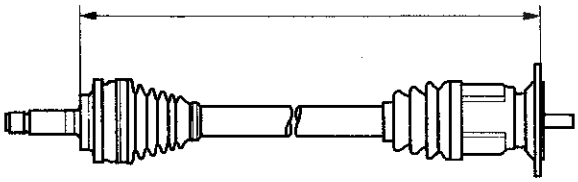


9. Fit the boot ends (A) onto the driveshaft (B) and outboard joint (C).

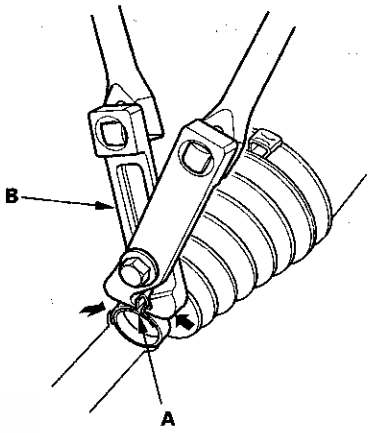


10. Adjust the length of the driveshafts to the dimensions shown, then adjust the boots to halfway between full compression and full extension. Doing this prevents a vacuum or too much air in the boot, preventing it from compressing or extending properly.

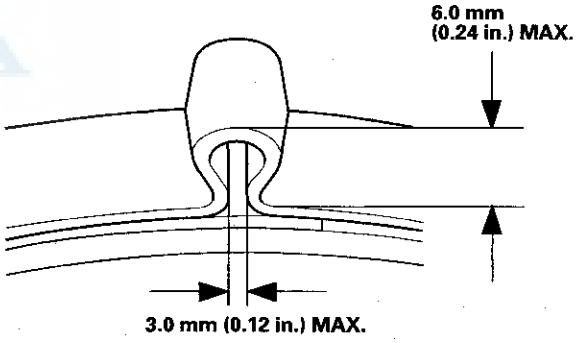
With outboard joint:
Right driveshaft: 579.0—584.0 mm (22.8—23.0 in.)
Left driveshaft: 624.0—629.0 mm (24.6—24.8 in.)



11. Close the ear portion (A) of the band with commercially available boot band pliers Kent-Moore J-35910 or equivalent (B).



12. Check the clearance between the closed ear portion of the band. If the clearance is not within the standard, close the ear portion of the band tighter.

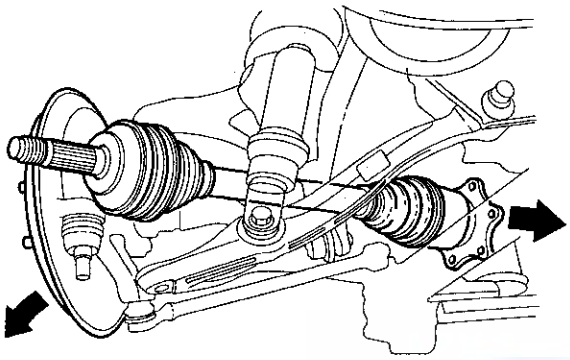


13. Repeat steps 11 and 12 for the band on the other end of the boot.

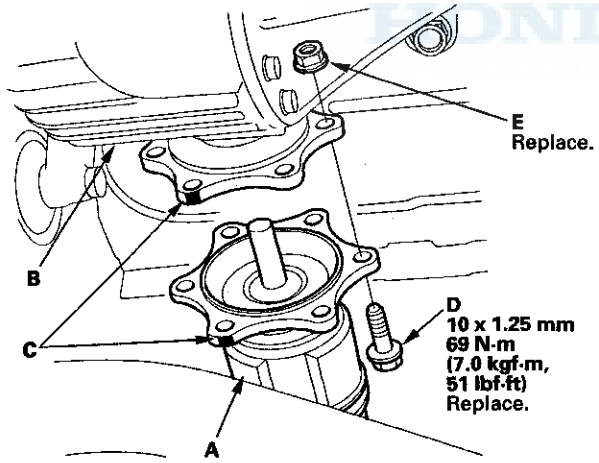
Driveshaft Installation

NOTE: Before starting installation, make sure the mating surfaces of the joint and the splined section are not dusty or dirty.

1. Pull the knuckle outward, and install the outboard joint into the rear hub.

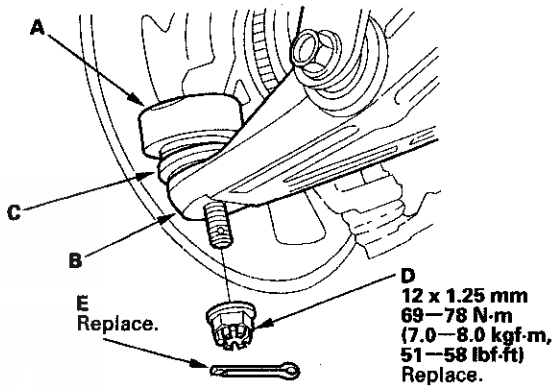


2. Install the inboard joint (A) into the rear differential (B) by aligning the reference marks (C) you made, then install the new six inboard joint mounting bolts (D) and new nuts (E).



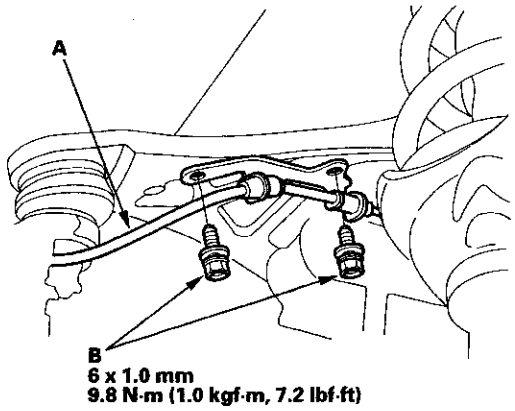
3. Install the knuckle (A) onto the lower arm (B). Be careful not to damage the ball joint boot (C). Wipe off the grease before tightening the nut at the ball joint. Torque the new castle nut (D) to the lower torque specification, then tighten it only far enough to align the slot with the pin hole.

NOTE:
- Make sure the ball joint boot is not damaged or cracked.
- Do not align the nut by loosening it.

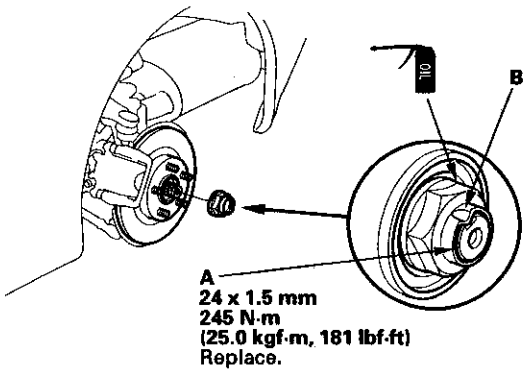


4. Install the new cotter pin (E) into the pin hole, and bend it.

5. Install the wheel speed sensor harness (A) and flange bolts (B) on the upper arm.



6. Apply a small amount of engine oil to the seating surface of the new spindle nut (A).



7. Install the new spindle nut, then tighten the nut. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.

8. Clean the mating surfaces of the brake disc and the rear wheel, then install the rear wheel.

9. Turn the rear wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.

10. Lower the vehicle on the lift.

11. Check the rear wheel alignment, and adjust it if necessary (see page 18-7).

12. Test-drive the vehicle.

Propeller Shaft Inspection

Universal Joint

1. Shift the transmission to neutral.

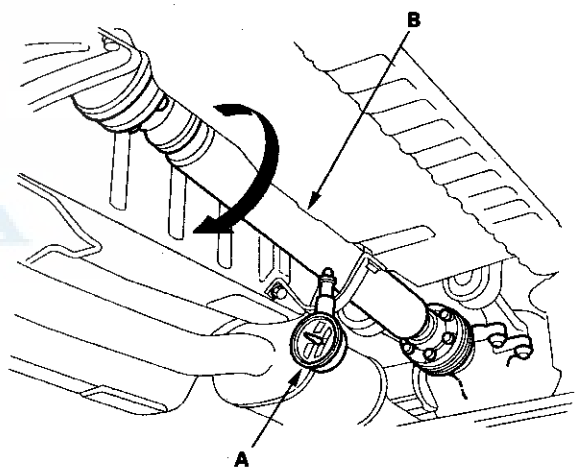
2. Raise the vehicle on a lift.

3. Check the universal joint boots for damage and deterioration. If the boots are damaged or deteriorated, replace the propeller shaft.

4. Check the universal joints for excessive play or rattle. If the universal joints have excessive play or rattle, replace the propeller shaft.

Propeller Shaft Runout

5. Install a dial indicator (A) with its needle on the center of the propeller shaft (B).

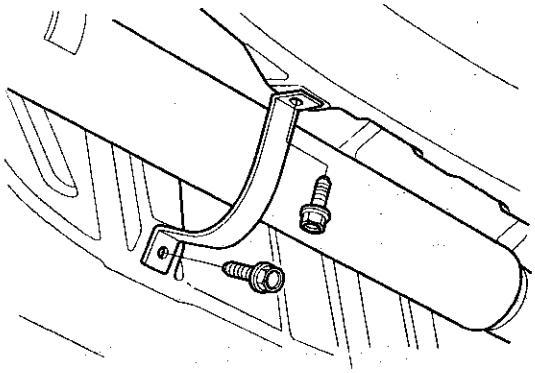


6. Turn the propeller shaft slowly, and check the runout. If the runout exceeds the service limit, replace the propeller shaft.

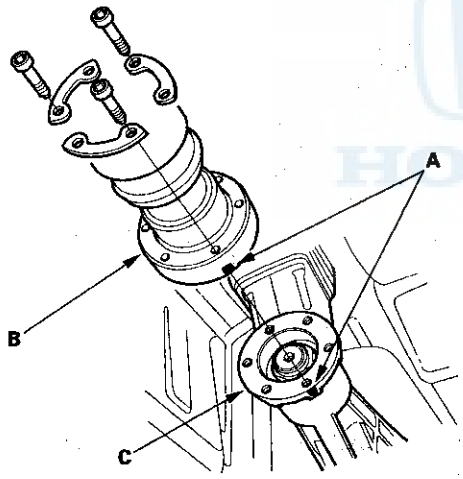
Runout
Service Limit: 1.5 mm (0.06 in.)

Propeller Shaft Removal

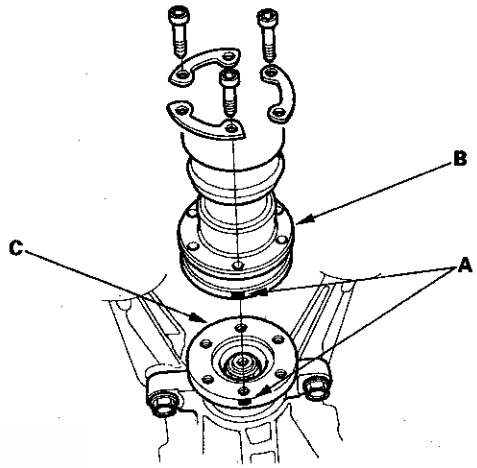
1. Raise the vehicle on a lift.
2. Remove the propeller shaft protector.



3. Make reference marks (A) across the propeller shaft (B) and the transmission companion flange (C).



4. Separate the propeller shaft from the transmission.
5. Make reference marks (A) across the propeller shaft (B) and the rear differential companion flange (C).

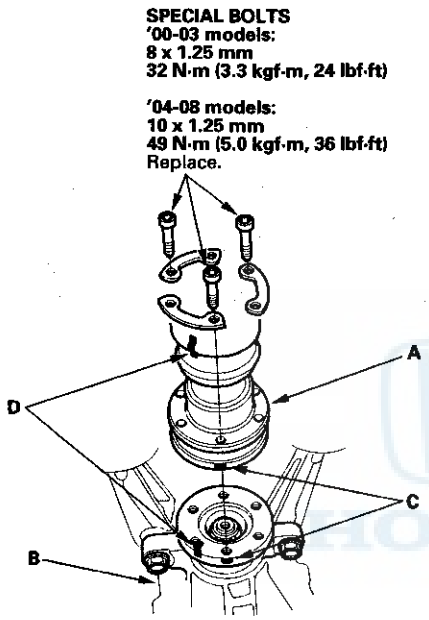


6. Separate the propeller shaft from the rear differential, then remove the propeller shaft.

Propeller Shaft Installation

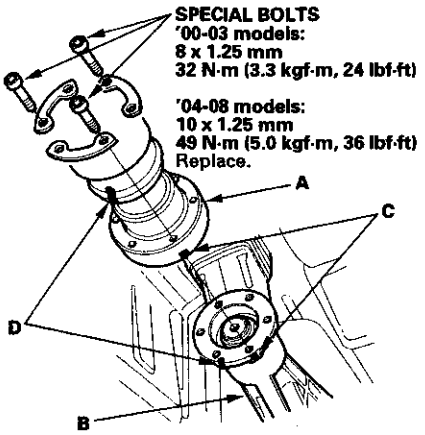
1. Install the propeller shaft (A) onto the rear differential (B) by aligning the reference marks (C) you made.

   NOTE: When the propeller shaft is replaced, align the white marks (D) on the new propeller shaft with the white mark on the differential.

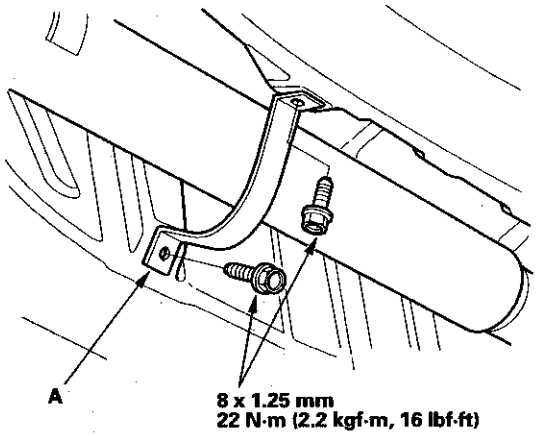


2. Install the propeller shaft (A) onto the transmission (B) by aligning the reference marks (C) you made.

   NOTE: When the propeller shaft is replaced, align the white marks (D) on the new propeller shaft with the white mark on the transmission.



3. Install the propeller shaft protector (A).



4. Test-drive the vehicle.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If steering maintenance is required)

The S2000 SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, and seat belt tensioners in the seat belt retractors. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

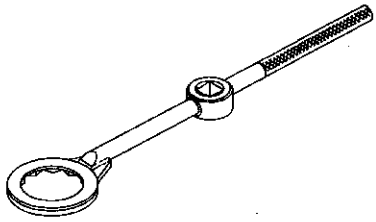
- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional activation of the airbags and seat belt tensioners.
- Do not bump or impact the SRS unit, or front impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, console, dashboard, dashboard lower panel, in the dashboard above the glove box. Do not use electrical test equipment on these circuits.

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Steering

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07MAA-SL0020A	Locknut Wrench, 43 mm	1
②	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
③	07746-0010100	Attachment, 32 x 35 mm	1
④	07749-0010000	Driver	1
⑤	07974-6790000	Oil Seal Driver	1



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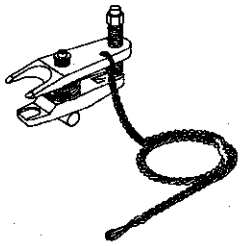

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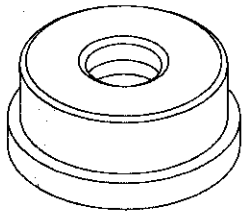

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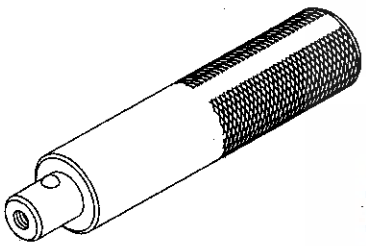

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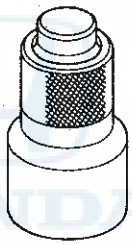
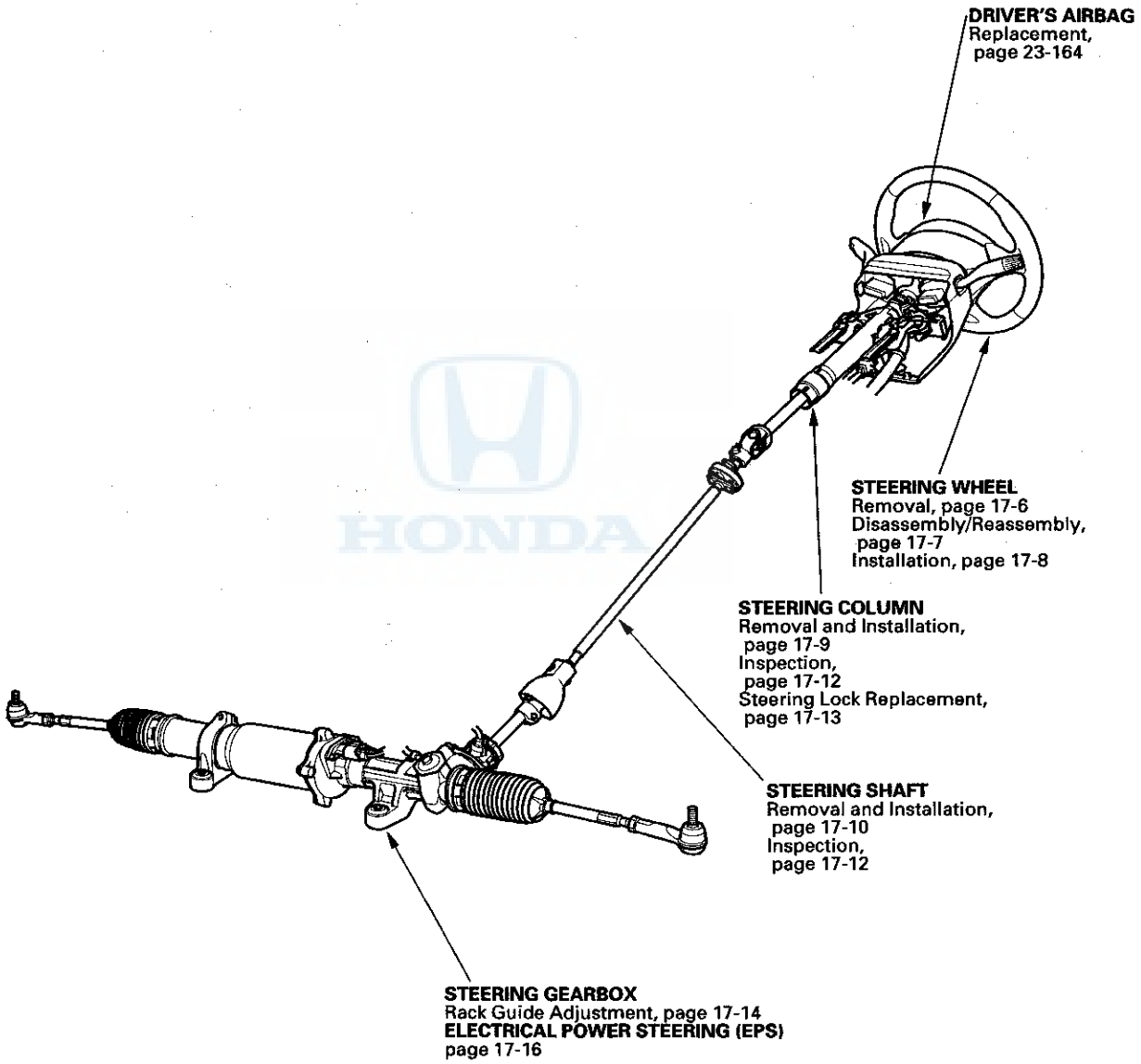


⑤

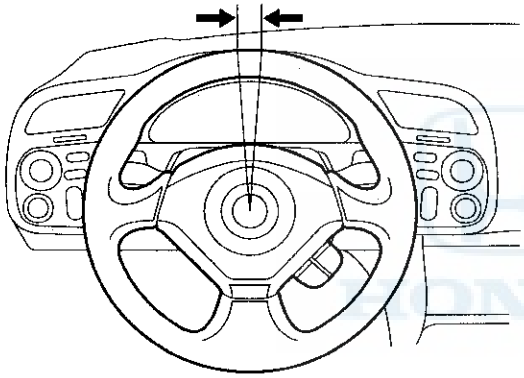
Component Location Index



Steering Wheel Rotational Play Check

1. Turn the front wheels to the straight ahead position.
2. Measure how far you can turn the steering wheel left and right without moving the front wheels.
   - If the play is within the limit, the gearbox and linkage are OK.
   - If the play exceeds the limit, adjust the rack guide (see page 17-14). If the play is still excessive after rack guide adjustment, inspect the steering linkage and gearbox (see page 17-5).

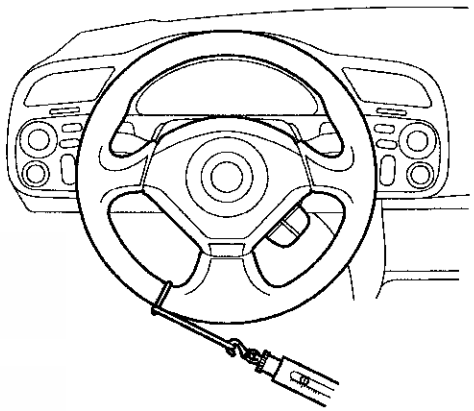
Rotational play: 0—10 mm (0—0.39 in.)



Power Assist Check

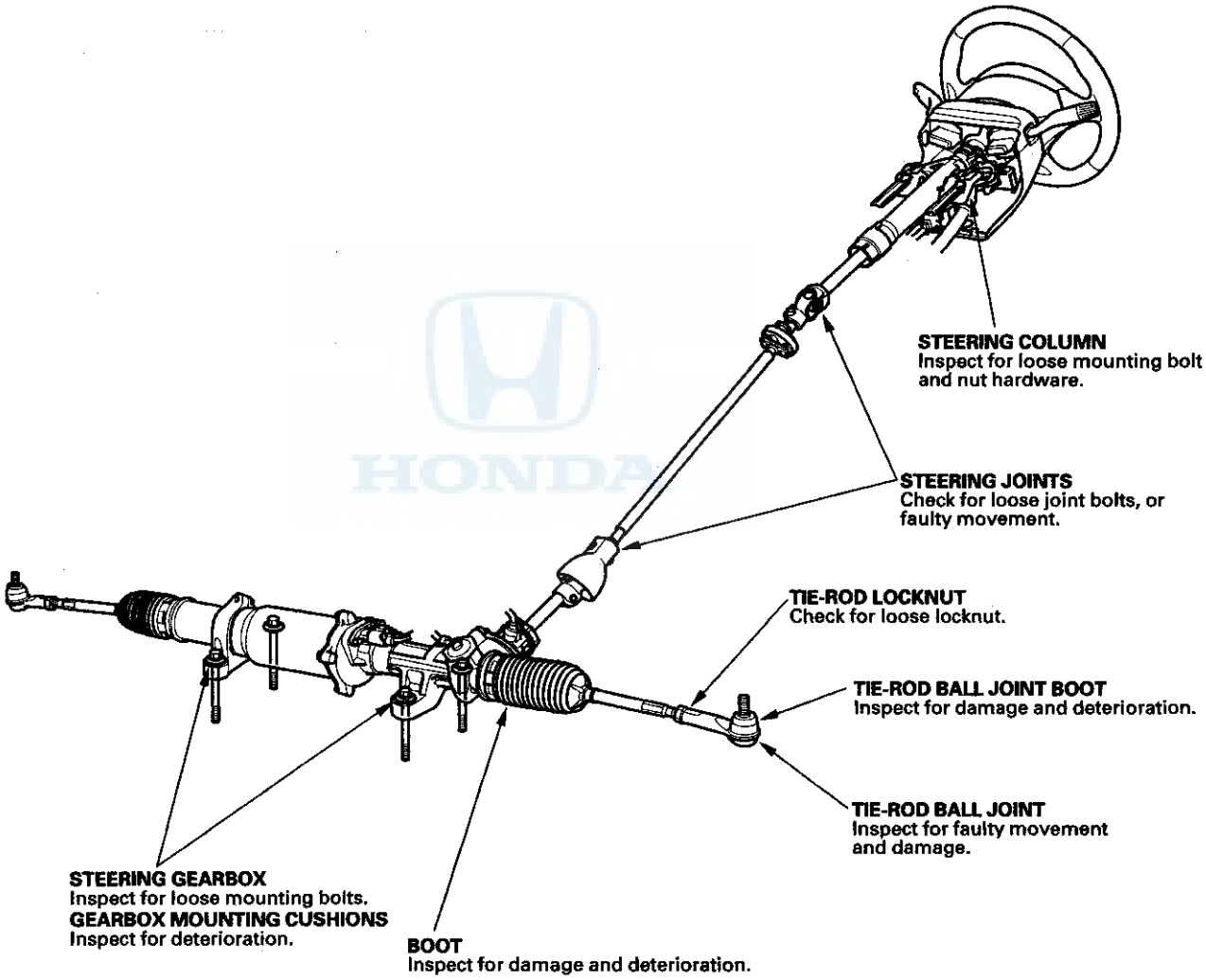
NOTE: This test should be done with original equipment tires and wheels at the correct tire pressure.

1. Start the engine and let it idle.
2. Attach a commercially available spring scale to the steering wheel. With the engine idling and the vehicle on a clean, dry floor, pull the scale as shown and read it as soon as the tires begin to turn.



3. If the scale reads no more than 34 N (3.5 kgf, 7.7 lbf), the power assist is OK. If it reads more, check these items:
   - Steering linkage (see page 17-5).
   - Rack guide adjustment (see page 17-14).
   - EPS system (see page 17-17).

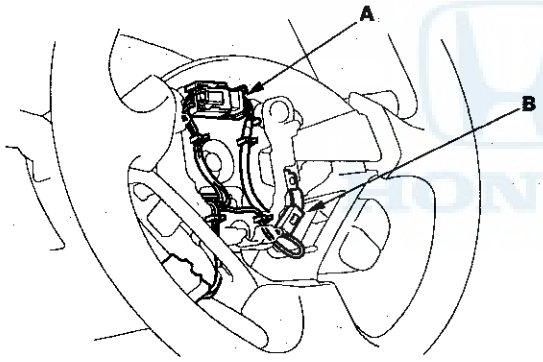
Steering Linkage and Gearbox Inspection



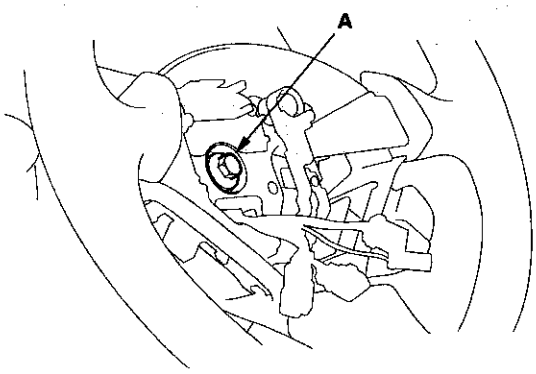
Steering Wheel Removal

SRS components are located in this area. Review the SRS component location: '00-05 models (see page 23-11), '06-08 models (see page 23-12), and precaution, and procedures (see page 23-13) before doing repairs or service.

1. Make sure you have the anti-theft code for the audio, then write down the audio presets.
2. Make sure the ignition switch is OFF, then disconnect the negative battery cable from the battery.
3. Align the front wheels straight ahead, then remove the driver's airbag from the steering wheel (see page 23-164).
4. Disconnect the cruise control switch connector (A) and horn switch connector (B).



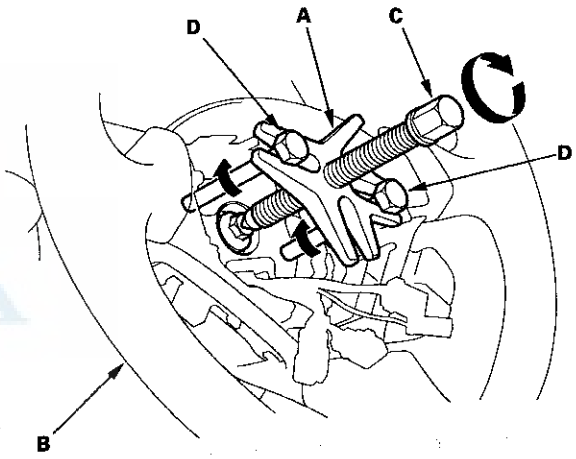
5. Loosen the steering wheel bolt (A).



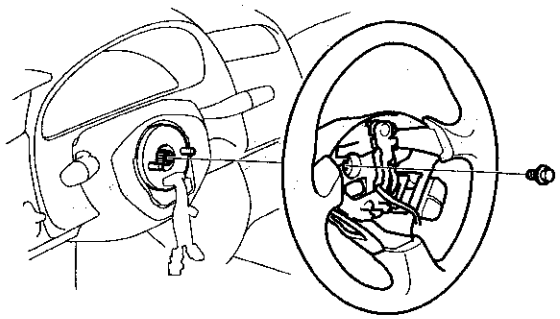
6. Install a commercially available steering wheel puller (A) on the steering wheel (B). Free the steering wheel from the steering column shaft by turning the pressure bolt (C) of the puller.

   Note these items when removing the steering wheel:

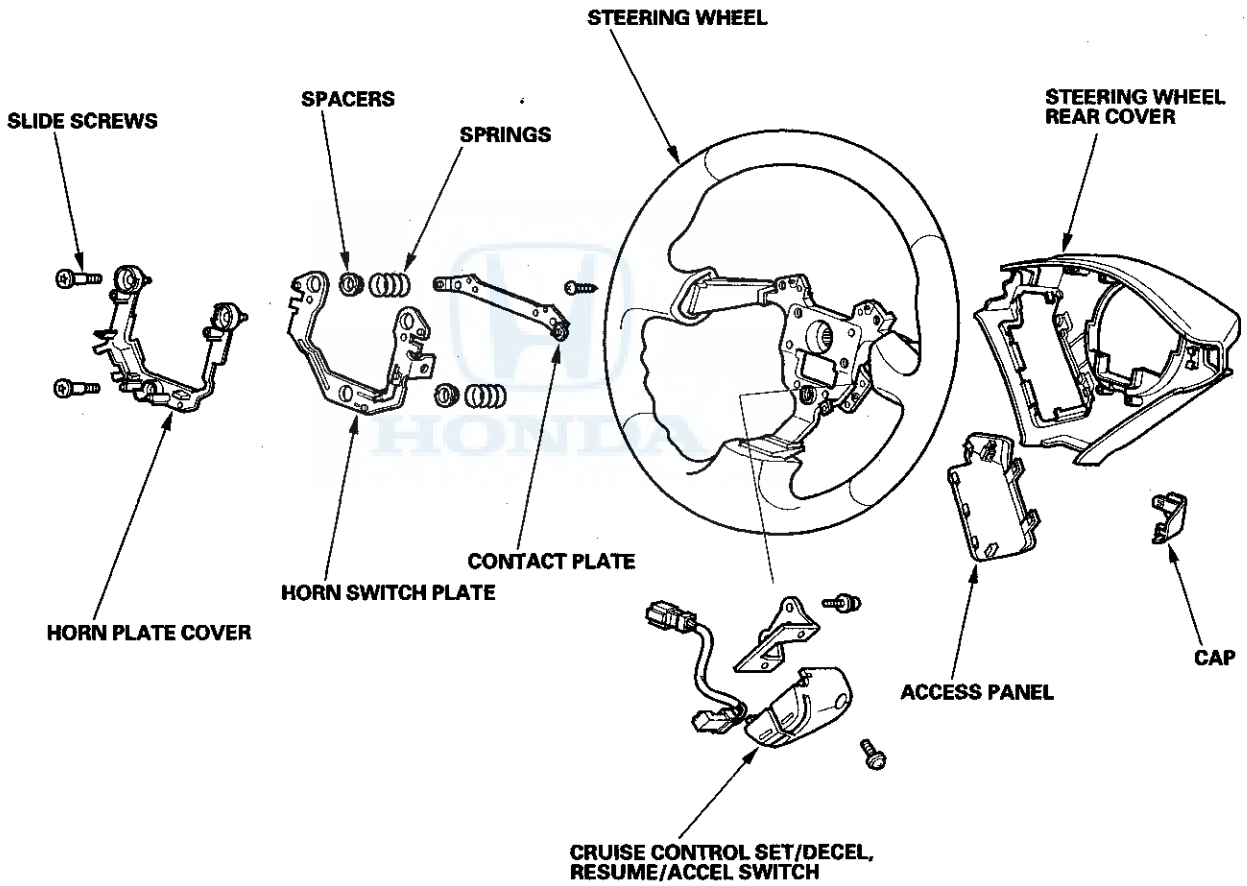
   - Do not tap on the steering wheel or the steering column shaft when removing the steering wheel.
   - If you thread the puller bolts (D) into the wheel hub more than five threads, the bolts will hit the cable reel and damage it. To prevent this, install a pair of jam nuts five threads up on each puller bolt.



7. Remove the steering wheel puller, then remove the steering wheel bolt and steering wheel from the steering column.

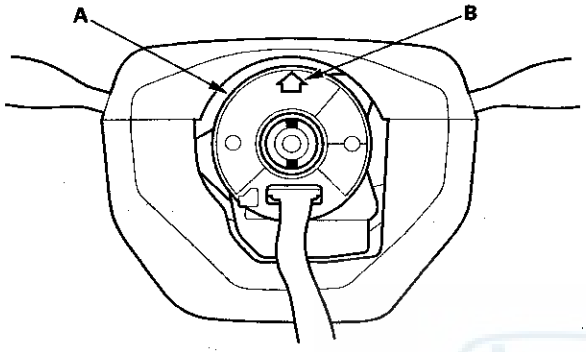


Steering Wheel Disassembly/Reassembly

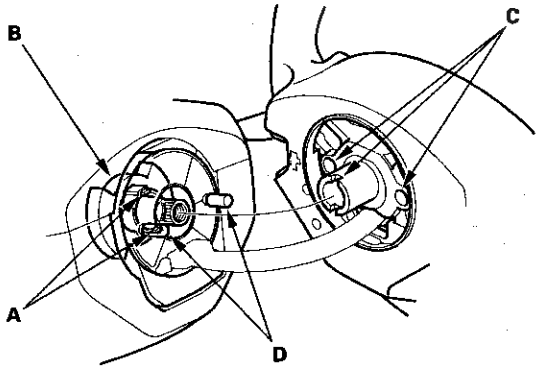


Steering Wheel Installation

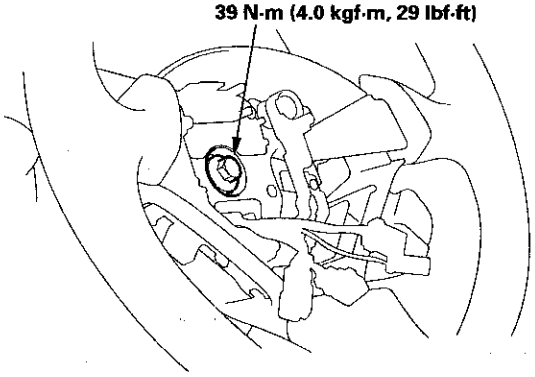
1. Before installing the steering wheel, make sure the front wheels are pointing straight ahead, then center the cable reel (A). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise about two and half turns. The arrow mark (B) on the cable reel label point should point straight up.



2. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown. Install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the turn signal canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



3. Install the steering wheel bolt and tighten it to the specified torque.



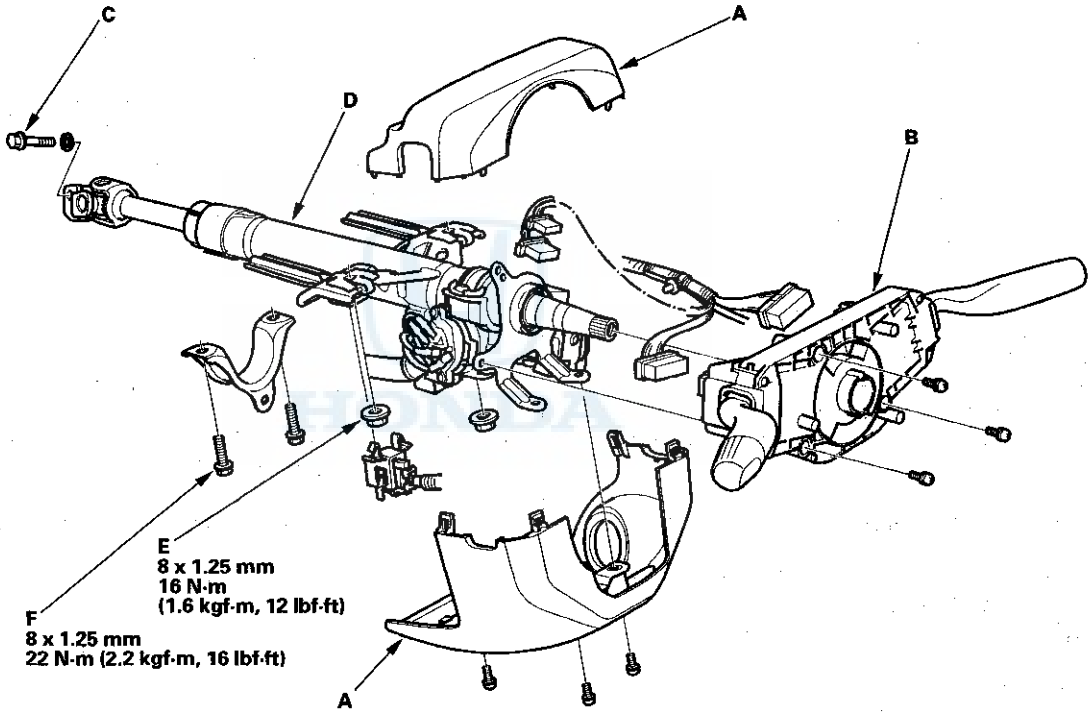
4. Connect the horn switch connector and cruise control switch connector.
5. Install the driver's airbag, and confirm that the system is operating properly (see page 23-165).
6. Reconnect the negative battery cable to the battery.
7. Check the horn, cruise control set/resume switch, and turn signal canceling for proper operation.
8. Enter the anti-theft code for the audio, then enter the audio presets.
9. For '01-08 models; reset the clock.
10. For '00-05 models; do the ECM idle learn procedure (see page 11-140).

Steering Column Removal and Installation

SRS components are located in this area. Review the SRS component location: '00-05 models (see page 23-11), '06-08 models (see page 23-12), and precaution, and procedures (see page 23-13) before doing repairs or service.

Removal

1. Make sure you have the anti-theft code for the audio, then write down the audio preset, and disconnect the negative battery cable from the battery.
2. Remove the driver's airbag assembly (see page 23-164), steering wheel, and the cable reel (see page 23-173).
3. Remove the column covers (A).



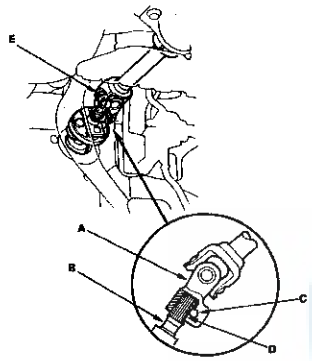
4. Remove the combination switch assembly (B) from the steering column shaft by disconnecting the connectors and removing the screws.
5. Disconnect the ignition switch connectors from the under-dash fuse/relay box.
6. Remove the steering joint bolt (C).
7. Remove the steering column (D) by removing the attaching nuts (E) and bolts (F).

(cont'd)

Steering Column Removal and Installation (cont'd)

Installation

1. Install the steering column, and make sure the wires are not caught or pinched by any parts.
2. Insert the lower end of the steering joint (A) onto the steering shaft (B) (line up the bolt hole (C) with the flat portion (D) on the shaft).



3. Pull on the steering joint to make sure that the steering joint is fully seated, but do not pull excessively on the joint. Then install the steering joint bolt (E) and tighten it to the specified torque.

'00 model:
U.S.A. models VIN JHMAP 114-YT000001 thru VIN JHMAP 114-YT008411
Canada models VIN JHMAP 114-YT800001 thru VIN JHMAP 114-YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

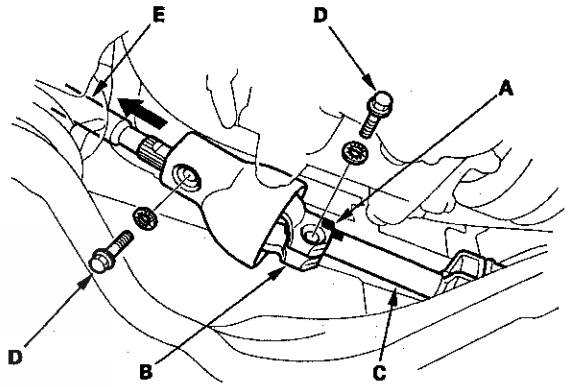
Other models:
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)

4. Finish the installation, and note these items:
   - Make sure the wire harness is routed and fastened properly.
   - Make sure the connectors are properly connected.
   - Reinstall the steering wheel (see page 17-8).
   - Reconnect the negative battery cable to the battery.
     - Enter the anti-theft code for the audio, then enter the audio presets.
     - For '01-08 models; set the clock.
     - For '00-05 models; do the ECM idle learn procedure (see page 11-140).
   - Verify cruise control, horn, and turn signal switch operation.
   - Check wheel alignment (see page 18-7).

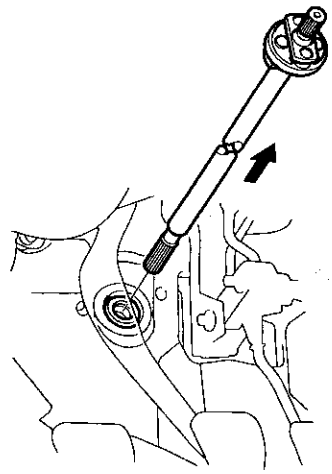
Steering Shaft Removal and Installation

Removal

1. Remove the steering column (see page 17-9).
2. Mark (A) the steering joint (B) and pinion shaft (C) to identify the position of the joint on the pinion shaft.

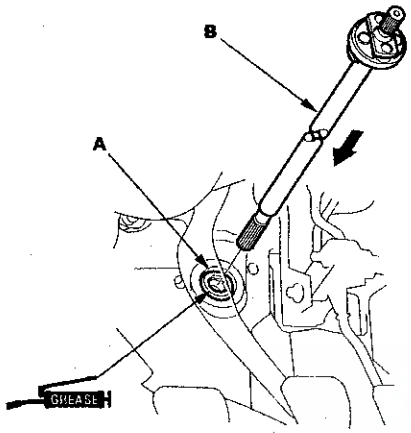


3. Remove the steering joint bolts (D).
4. Disconnect the steering joint from the pinion shaft by pulling the steering shaft (E).
5. Remove the steering joint from the steering shaft.
6. Remove the steering shaft.



Installation

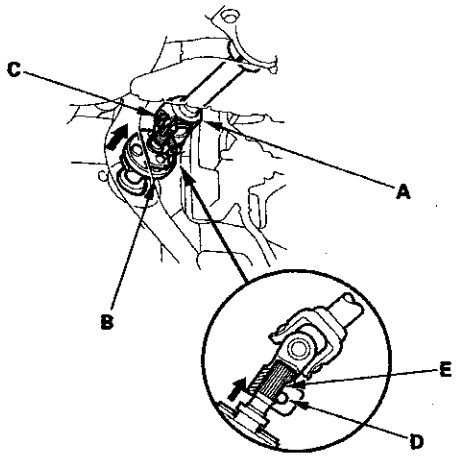
1. Apply multipurpose grease to the inside surface of the pinion dust seal (A).



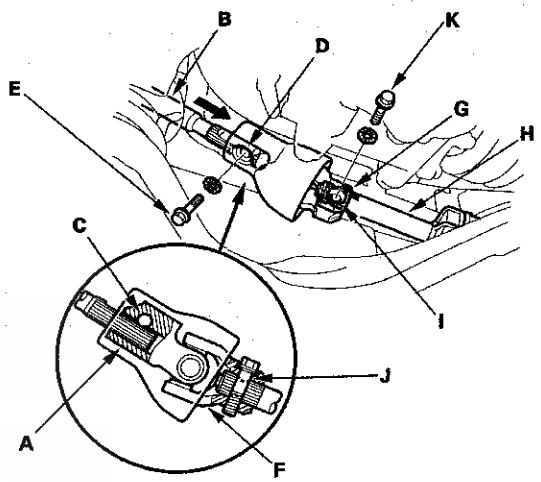
2. Insert the steering shaft (B) into the engine compartment carefully to avoid damaging the pinion dust seal. Make sure the shaft comes out of the frame hole.

3. Install the steering column with the column mounting nuts and column holder (see page 17-9).

4. Slip the joint (A) of the column shaft onto the steering shaft (B), then loosely install the joint bolt (C) (line up the bolt hole (D) with the flat portion (E) of the shaft). Pull the steering shaft toward the column.



5. Slip the upper end (A) of the steering joint onto the steering shaft (B) (from the engine compartment). Be sure the steering joint and steering shaft are aligned with the serrations; the joint should slip on freely. If not, reposition the serration of the steering joint.



6. Line up the bolt hole (C) with the flat portion (D) of the steering shaft, and loosely install the upper joint bolt (E). Pull the steering joint to make sure that the joint is fully seated.

7. Slip on the lower end (F) of the steering joint by aligning the marks (G) on the pinion shaft (H) and joint. Line up the bolt hole (I) with groove around (J) the pinion shaft, and install the lower joint bolt (K) and tighten it by hand. Don't torque the bolt yet. Pull the steering joint to make sure that the joint is fully seated.

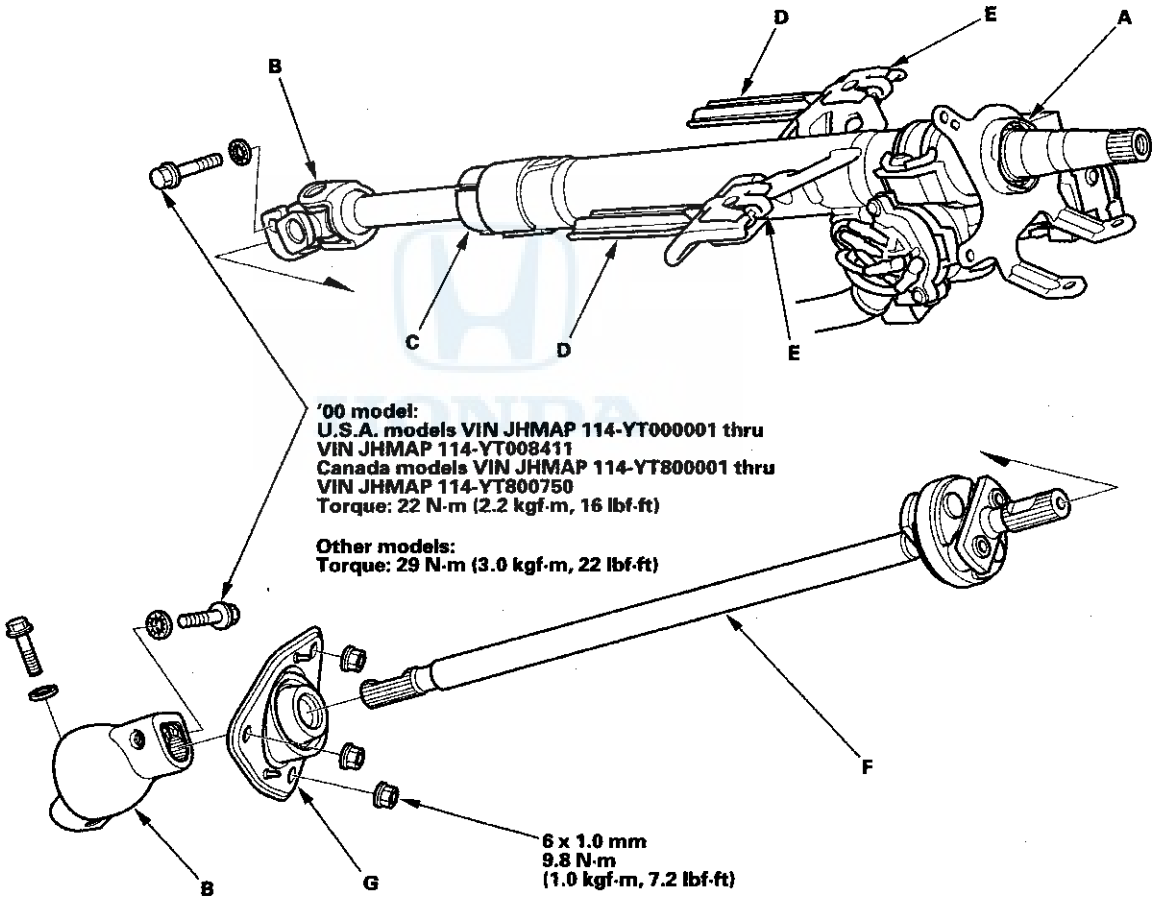
8. Pull the steering shaft toward the pinion shaft. Then tighten the upper joint bolt, the lower joint bolt (both in the engine compartment), and the joint bolt on column shaft (under the dashboard) to the specified torque.

'00 model:
U.S.A. models VIN JHMAP 114-YT000001 thru VIN JHMAP 114-YT008411
Canada models VIN JHMAP 114-YT800001 thru VIN JHMAP 114-YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Other models:
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)

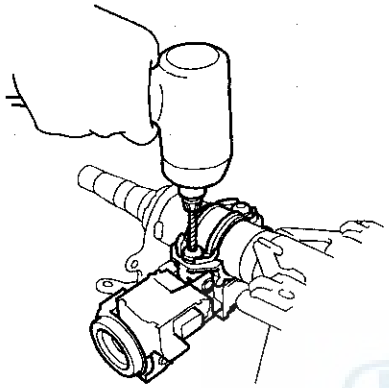
Steering Column/Steering Shaft Inspection

- Check the steering column ball bearing (A) and the steering joint bearings (B) for play and proper movement. If any bearing is noisy or has excessive play, replace the steering column as an assembly.
- Check the retaining collar (C) for damage. If it is damaged, replace the steering column as an assembly.
- Check the absorbing plates (D) for distortion or breakage. If there is distortion or breakage, replace the steering column as an assembly.
- Check the sliding capsules (E) for distortion or breakage. If there is distortion or breakage, replace the steering column as an assembly.
- Check the steering shaft (F) for bending and damage.
- Check the joint dust seal (G) for deterioration and damage.

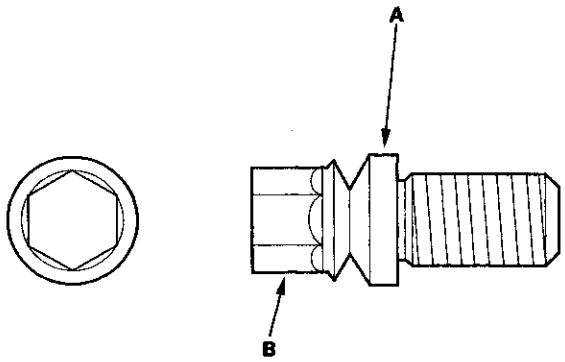


Steering Lock Replacement

1. Remove the steering column (see page 17-9).
2. Center punch each of the two shear bolts, and drill their heads off with a 5 mm (3/16 in.) drill bit. Be careful not to damage the switch body when removing the shear bolts.



3. Remove the shear bolts from the switch body.
4. Install the switch body without the key inserted.
5. Loosely tighten the new shear bolts.
6. Insert the ignition key, and make sure the steering wheel lock works properly and that the ignition key turns freely.
7. Tighten the shear bolts (A) until the hex heads (B) twist off.

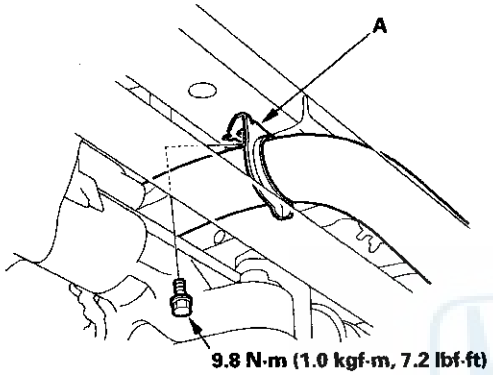


8. Install the steering column (see page 17-10).
9. Register the immobilizer control unit-receiver with the HDS, and make sure the immobilizer system works properly.

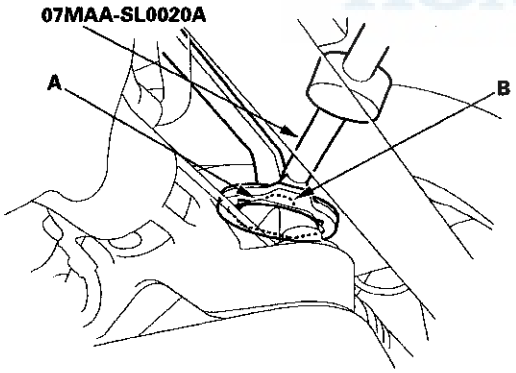
Rack Guide Adjustment

Special Tools Required
Locknut wrench, 43 mm 07MAA-SL0020A

1. Set the wheels in the straight ahead position.
2. Remove the splash shield.
3. Remove the lower radiator hose bracket (A).



4. Loosen the rack guide screw locknut (A) with the locknut wrench, then loosen the rack guide screw (B).



5. Tighten the rack guide screw to 25 N·m (2.5 kgf·m, 18 lbf·ft), then loosen it.
6. Retighten the rack guide screw to 3.9 N·m (0.4 kgf·m, 2.9 lbf·ft) then back it off to the specified angle.

   Specified return angle: 10 ° to 20 °

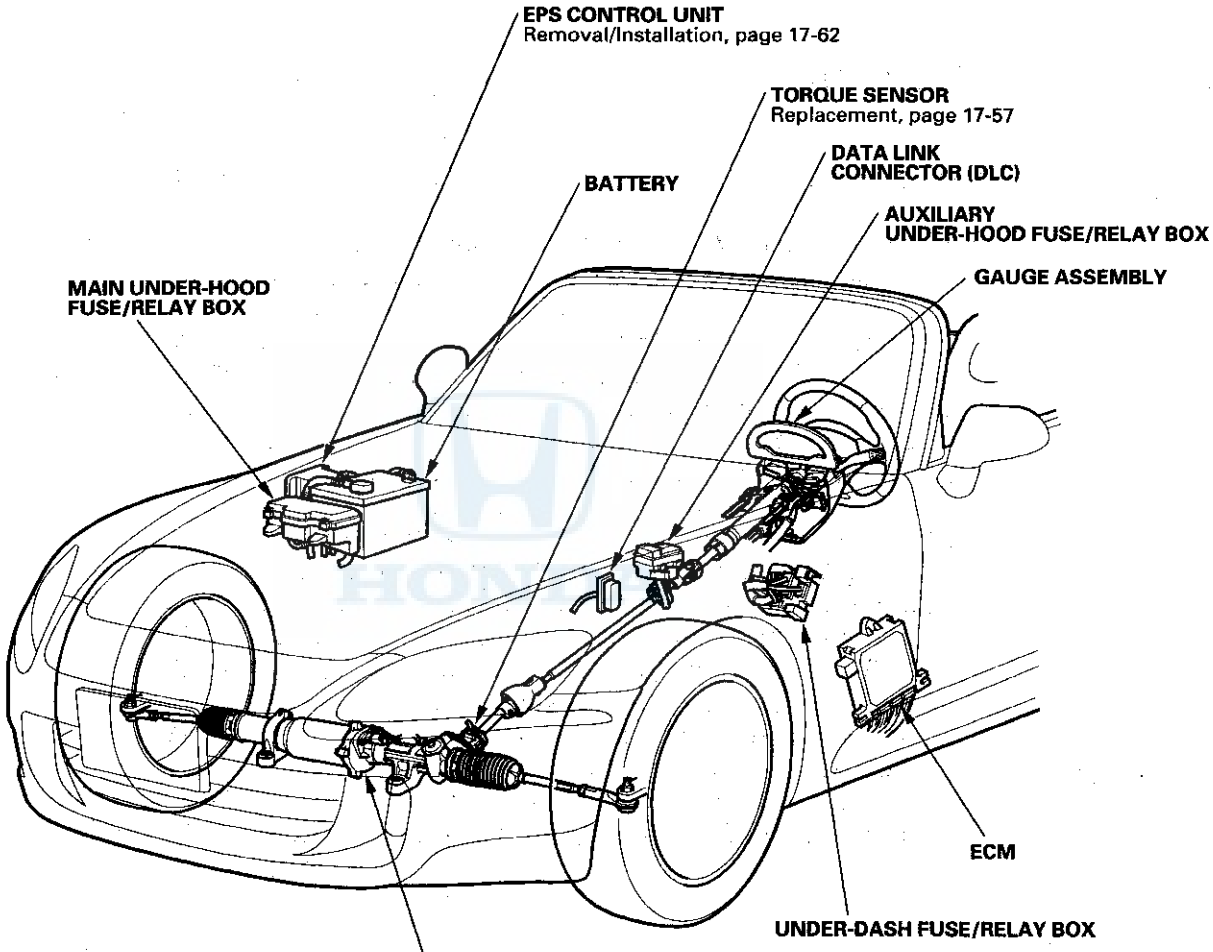
7. Tighten the locknut to 25 N·m (2.5 kgf·m, 18 lbf·ft) while holding the rack guide screw.
8. Install the lower radiator hose bracket.
9. Install the splash shield.
10. Check for tight or loose steering from lock to lock.
11. Do these inspections:
    - Steering wheel rotational play (see page 17-4).
    - Power assist with vehicle parked (see page 17-4).

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Steering

EPS Components

Component Location Index



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Removal and Installation, page 17-49
Overhaul, page 17-56
Rack Guide Removal/Installation, page 17-57
Rack End Removal and Installation, page 17-58
Gearbox Bracket Removal/Installation, page 17-61
Tie-rod Ball Joint Boot Replacement, page 17-61
Gearbox Mount Cushion Replacement, page 17-62

General Troubleshooting Information

EPS Indicator

Under normal conditions, the EPS indicator comes on when the ignition switch is turned to ON (II) position, then if goes off after the engine is started. This indicates that the bulb and its circuit are operating correctly.
If there is a failure in the system after the engine is started, the EPS indicator will stay on, and the power assist is turned off or restricted.
When the EPS indicator comes on, the control unit memorizes the DTC. In this case, the control unit will not activate the EPS system after the engine starts again, but it keeps the EPS indicator on.
When DTC 11, 12, or 13 are stored in the control unit, the EPS indicator will stay on until the DTC is erased.
Even though the system is operating normally, the EPS indicator will come on under these conditions:

- When the vehicle is barely moving, 1 mph (1 km/h) or stopped, and the engine speed is 2,000 rpm or more for about 3 minutes.
- When the engine speed is 500 rpm or less, and the vehicle is traveling at a speed of 6.2 mph (10 km/h) or more for about 3 minutes.

To determine the actual cause of the problem, question the customer about the conditions during which the problem occurred, taking the above conditions into consideration.

Diagnostic Trouble Code (DTC)

- If the CPU cannot be activated, or if it fails, the EPS indicator comes on, but the DTC is not memorized.
- The memory can hold a large number of DTCs. However, when the same DTC is detected more than once, the most recent DTC is written over the prior DTC; therefore only one occurrence is memorized.
- The lowest DTC is indicated first. The DTCs are indicated in ascending order, not in the order that they occurred.
- The DTCs are memorized in the EEPROM (non-volatile memory), therefore the memorized DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear DTCs.

Self-diagnosis

Self-diagnosis can be classified into two categories:

- Initial diagnosis: Done right after the engine starts and until the EPS indicator goes off.
- Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).

The EPS control unit does the following functions when a problem is detected by self-diagnosis:

1. Turns on the EPS indicator.
2. Memorizes the DTC.
3. Stops power assist and manual steering operation resumes.

NOTE:
- When DTC 23 (a problem with the circuit for engine speed signal) is stored, the power assist will return to normal when the control unit detects the engine speed signal and the vehicle speed is 6.2 mph (10 km/h) or above.
- For DTCs 21, 22, and 23 the EPS indicator will go off automatically, and the system returns to normal.

Restriction on Power Assist Operation

Repeated extreme steering force, such as turning the steering wheel continuously back-and-forth with the vehicle stopped, causes an increase of power consumption in the EPS motor. The increase of electric current causes the motor to heat up. Because this heat adversely affects the system, the control unit monitors the electric current of the motor.

When the control unit detects heat build-up in the motor, it reduces the electric current to the motor gradually to protect the system, and it restricts the power assist operation. The EPS indicator does not come on during this function.

When steering torque is not applied to the steering wheel, or when the ignition is turned to LOCK (0), the control unit will restore the power assist gradually until it's fully restored (after about 8 minutes).

EPS Control Unit Noise

A relay sound or "click" can be heard from the EPS control unit about 30 seconds after the ignition switch is turned to LOCK (0). This sound is normal.

(cont'd)

General Troubleshooting Information (cont'd)

Torque Sensor Neutral Position

The EPS control unit stores the torque sensor neutral position in the EEPROM. Memorize the torque sensor neutral position whenever the gearbox is removed and installed, or when the torque sensor or EPS control unit is replaced.

NOTE: The torque sensor neutral position is not effected when erasing the DTCs.

How to Troubleshoot DTCs

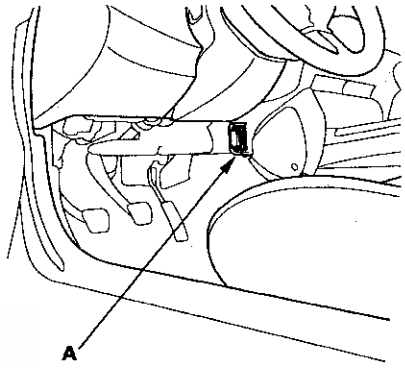
The troubleshooting flowchart procedures assume that the cause of the problem is still present and the EPS indicator is still on. Following the flowchart when the EPS indicator does not come on can result in an incorrect diagnosis.

The connector illustrations show the female terminal connectors with a single outline and the male terminal connectors with a double outline.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the EPS indicator came on, such as while turning after turning, when the vehicle was at a certain speed, on start up, etc.
2. When the EPS indicator does not come on during the test drive, but troubleshooting is done based on the DTC, check for loose connectors, poor terminal contact, etc., before you start troubleshooting.
3. After troubleshooting, clear the DTC and test-drive the vehicle. Be sure the EPS indicator does not come on.

How to Retrieve DTCs Using the HDS (Honda Diagnostic System)

1. With the ignition switch to LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

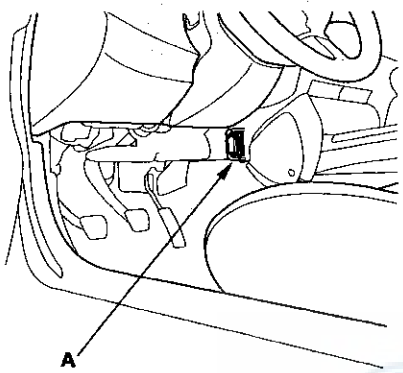


2. Turn the ignition switch to ON (II).
3. For '06-08 models; make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC Troubleshooting.

   NOTE: See the HDS Help menu for specific instructions.

How to Retrieve DTCs (Service Check Signal Circuit Method (Flash codes))

1. With the ignition switch to LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

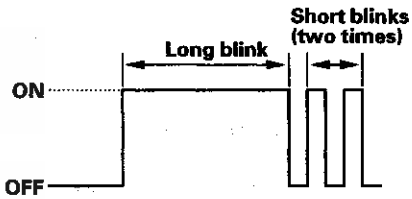


2. Turn the ignition switch to ON (II).
3. For '06-08 models; make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Turn the ignition switch to LOCK (0).
5. Short the SCS circuit to body ground using the HDS.
6. Turn the ignition switch to ON (II).
7. The blinking frequency indicates the DTC. DTCs are indicated by a series of long and short blinks. Add the long and short blinks together to determine the DTC. After determining the DTC, refer to the DTC troubleshooting.

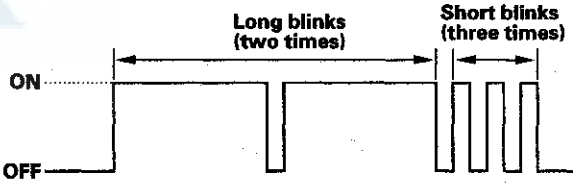
   The system will not indicate the DTC unless these conditions are met:

   - Set the front wheels in the straight ahead driving position.
   - The ignition switch is turned to ON (II).
   - The engine is stopped.
   - The SCS circuit is shorted to body ground before the ignition switch is turned to ON (II).

Example of DTC 12



Example of DTC 23



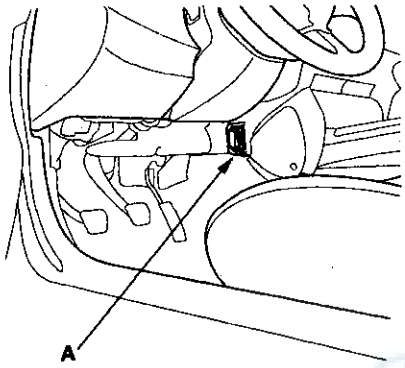
8. Turn the ignition switch to LOCK (0).
9. Disconnect the HDS from the DLC.

(cont'd)

General Troubleshooting Information (cont'd)

How to Clear DTCs Using the HDS (Honda Diagnostic System)

1. With the ignition switch to LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



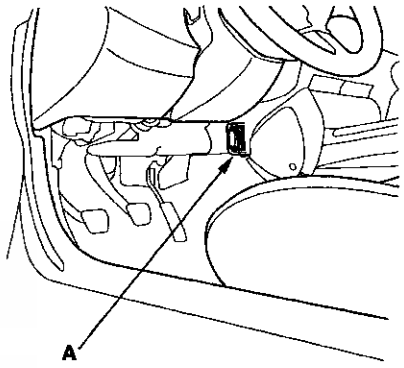
2. Turn the ignition switch to ON (II).
3. For '06-08 models; make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Clear the DTC(s) by following the screen prompts on the HDS.

   NOTE: See the HDS Help menu for specific instructions.

How to Clear DTCs Using the Service Check Signal Circuit Method

NOTE: Use this procedure when the HDS software does not match the year/model vehicle you are working on.

1. With the ignition switch to LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. With the vehicle on the ground, set the front wheels in the straight ahead driving position.
3. Short the SCS circuit to body ground using the HDS.
4. Turn the steering wheel 45 degrees to the left from the straight ahead driving position, and hold the steering wheel in that position.
5. Turn the ignition switch to ON (II). The EPS indicator comes on, then it goes off after 4 seconds.
6. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position and release the steering wheel. The EPS indicator comes on again 4 seconds after releasing the steering wheel.
7. Within 4 seconds after the EPS indicator comes on, turn the steering wheel 45 degrees to the left again and hold it in that position.
   The EPS indicator goes off after 4 seconds.

8. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position again and release the steering wheel. The EPS indicator blinks twice 4 seconds after releasing the steering wheel, indicating that the DTC was erased.

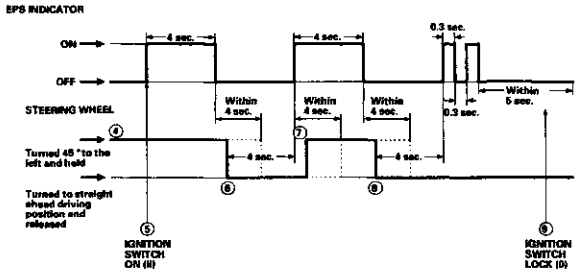
   NOTE: If the EPS indicator does not blink twice, an error was made in the procedure and the DTC was not erased. Turn the ignition switch to LOCK (0), and repeat the operation from step 3.

9. Turn the ignition switch to LOCK (0) within 5 seconds after the EPS indicator blinks twice.

   NOTE: If the ignition switch is not turned to LOCK (0) within 5 seconds after the EPS indicator blinks, the system will go to the memorizing mode of the torque sensor neutral position. To avoid this, turn the steering wheel 45 degrees to left from the straight ahead driving position and turn the ignition switch to LOCK (0). This will return the system to the alert mode.

10. Disconnect the HDS from the DLC.

11. Recheck for the DTC to be sure it has been erased.



EPS Components

DTC Troubleshooting Index

DTC	Detection Item	Note
1	Power Relay Stuck ON	(see page 17-30)
2	Fail-safe Relay Stuck ON	(see page 17-30)
3	Lower FET Stuck ON	(see page 17-30)
4	Upper FET Stuck ON	(see page 17-31)
5	Open in the Motor Circuit	(see page 17-32)
11	Torque Sensor	(see page 17-34)
12	Torque Sensor PVF	(see page 17-35)
13	Torque Sensor	(see page 17-34)
14	Torque Sensor (Resistance)	(see page 17-36)
21	Voltage for IG1	(see page 17-37)
22	Vehicle Speed Signal	(see page 17-38)
23	Engine Speed Signal Circuit	(see page 17-38)
30	Submicrocomputer	(see page 17-41)
31	Motor Current Sensor	(see page 17-41)
32	Motor Current Sensor	(see page 17-41)
33	Motor Current Sensor	(see page 17-41)
34	EPS Control Unit Internal Circuit	(see page 17-42)
35	EPS Control Unit Internal Circuit	(see page 17-42)
36	Incorrect Motor Voltage	(see page 17-42)
37	No Motor Voltage	(see page 17-43)
50 to 62	Central Processing Unit (CPU)	(see page 17-45)

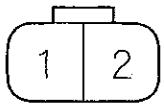
Symptom Troubleshooting Index

Symptom	Diagnostic procedure
HDS does not communicate with the EPS control unit or the vehicle ('06-08 models)	Troubleshoot the DLC circuit (see page 11-367)
EPS indicator does not come on	Symptom Troubleshooting (see page 17-45)
EPS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 17-45)
EPS indicator does not come on, and no DTCs are stored, but there is no power assist	1. Check the RED wire between the EPS control unit and the motor for a short to body ground. Repair as needed. 2. If the RED wire is OK, replace the steering gearbox (see page 17-49) (short in the motor).

EPS Components

System Description

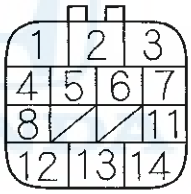
EPS Control Unit Inputs and Outputs for Connector A (2P)



Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Signal		
				Terminals	Conditions	Voltage
1	GRN	MOTOR− (Motor minus)	Drives the actuator motor	—	—	—
2	RED	MOTOR+ (Motor plus)	Drives the actuator motor	—	—	—

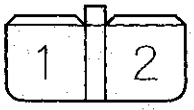
EPS Control Unit Inputs and Outputs for Connector B (14P)



Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Signal		
				Terminals	Conditions	Voltage
1	YEL	IG1 (Ignition 1)	Power source for activating the system	1—GND	Ignition switch ON (II)	Battery voltage
					Ignition switch LOCK (0)	0 V
2	WHT/BLK	VSP (Vehicle speed pulse)	Detects vehicle speed signal from the speedometer	2—GND	Depending on vehicle speed	About 5—0 V
3	PNK	VS1 (Voltage sensor 1)	Detects torque sensor signal	—	—	—
4	BLK	GND2 (Ground 2)	Ground for the EPS control unit	—	—	—
5	BLU	NEP (Engine pulse)	Detects tachometer signal	5—GND	With engine running	Pulses
6	BLK	GND1 (Ground 1)	Ground for the EPS control unit	—	—	—
7	BLU/RED	PVF (Voltage fade)	Drives the torque sensor	—	—	—
8	BRN	SCS (Service check signal)	Detects service check connector signal	—	—	—
11	WHT/GRN	VS2 (Voltage sensor 2)	Detects torque sensor signal	—	—	—
12	YEL/BLU	WLP (Warning)	Drives the EPS indicator light	12—GND	With engine running	Battery voltage
13	BLU/BLK	EPSLD (Electrical P/S load detect)	Provides idle speed-up signal to the ECM	13—GND	Start the engine and turn the steering wheel to full lock	Battery voltage for 1 second
14	LT BLU	DIAG-H (Diagonosis-H)	Communicates with HDS	—	—	—

EPS Control Unit Inputs and Outputs for Connector C (2P)



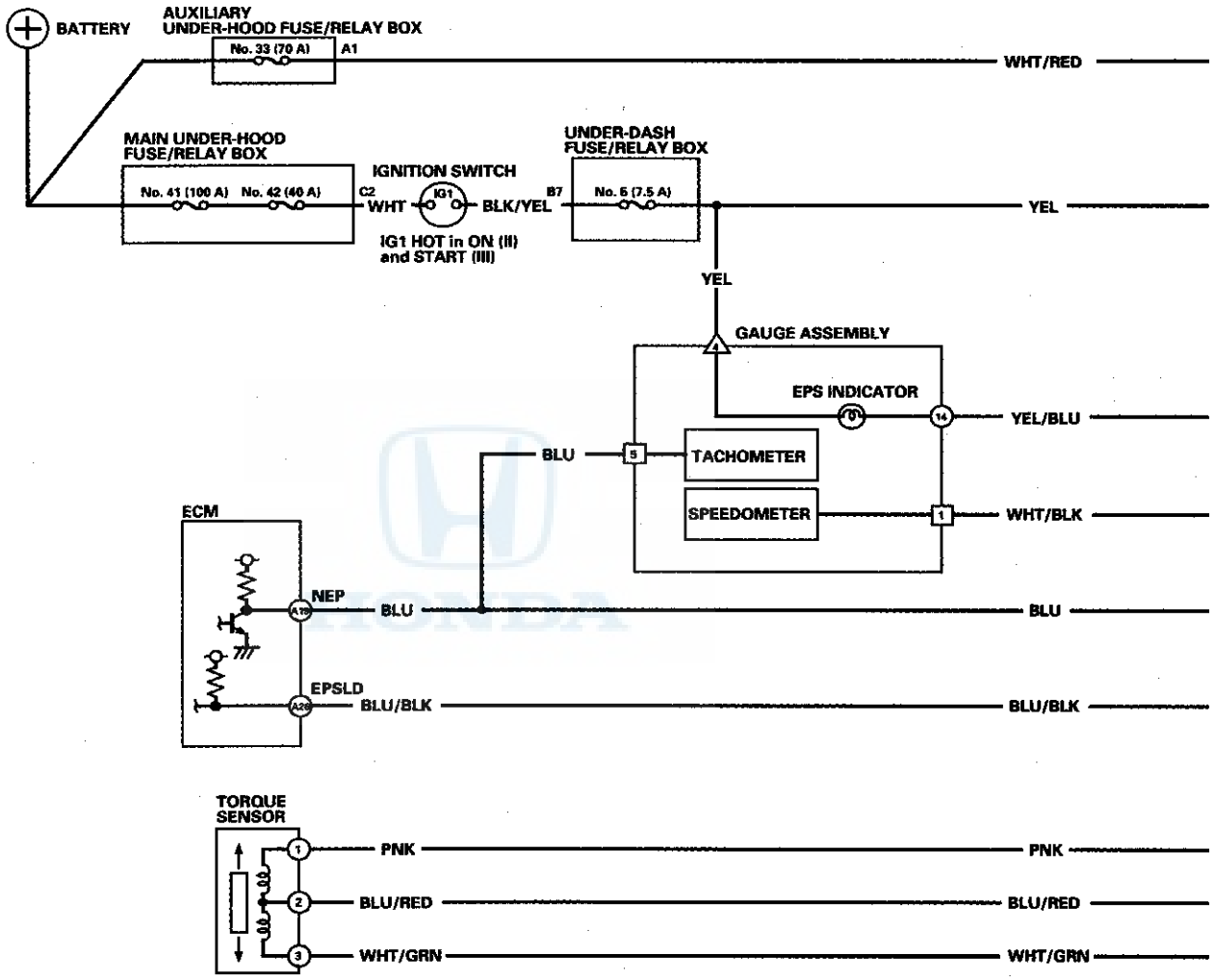
Wire side of female terminals

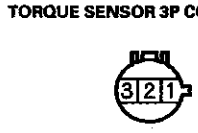
Terminal number	Wire color	Terminal sign (Terminal name)	Description	Signal		
				Terminals	Conditions	Voltage
1	BLK	PG (Power ground)	Ground for the actuator motor	—	—	—
2	WHT/RED	+B (Plus battery)	Power source for the actuator motor	2—GND	At all times	Battery voltage

EPS Components

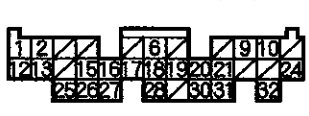
Circuit Diagram

'00-03 models

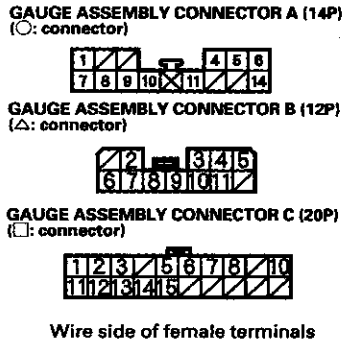




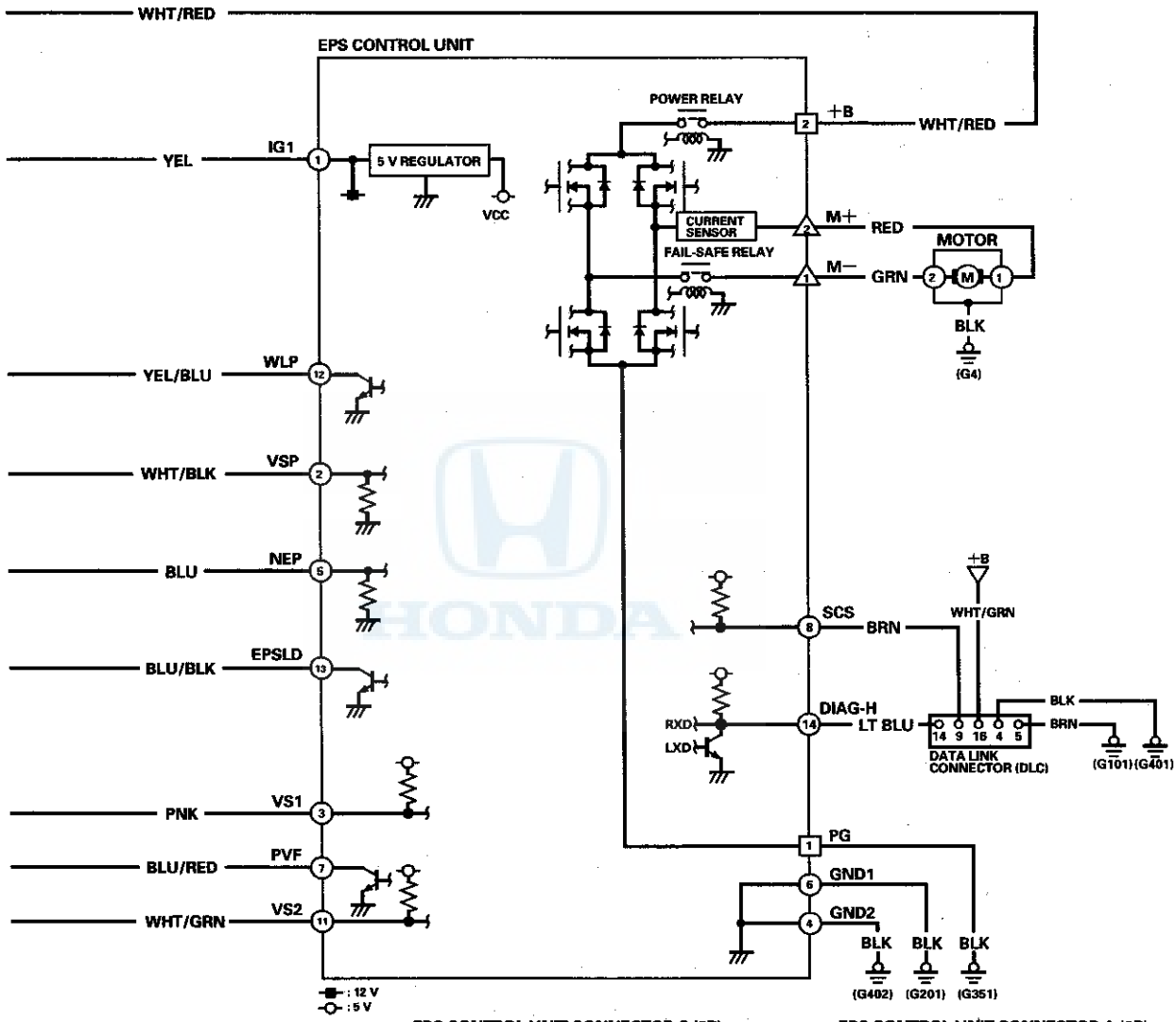
Terminal side of female terminals



Wire side of female terminals



Wire side of female terminals



MOTOR 2P CONNECTOR

Terminal side of female terminals

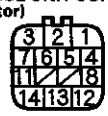
EPS CONTROL UNIT CONNECTOR C (2P)
(□: connector)

Terminal side of female terminals

EPS CONTROL UNIT CONNECTOR A (2P)
(△: connector)

Terminal side of female terminals

EPS CONTROL UNIT CONNECTOR B (14P)
(○: connector)



Terminal side of female terminals

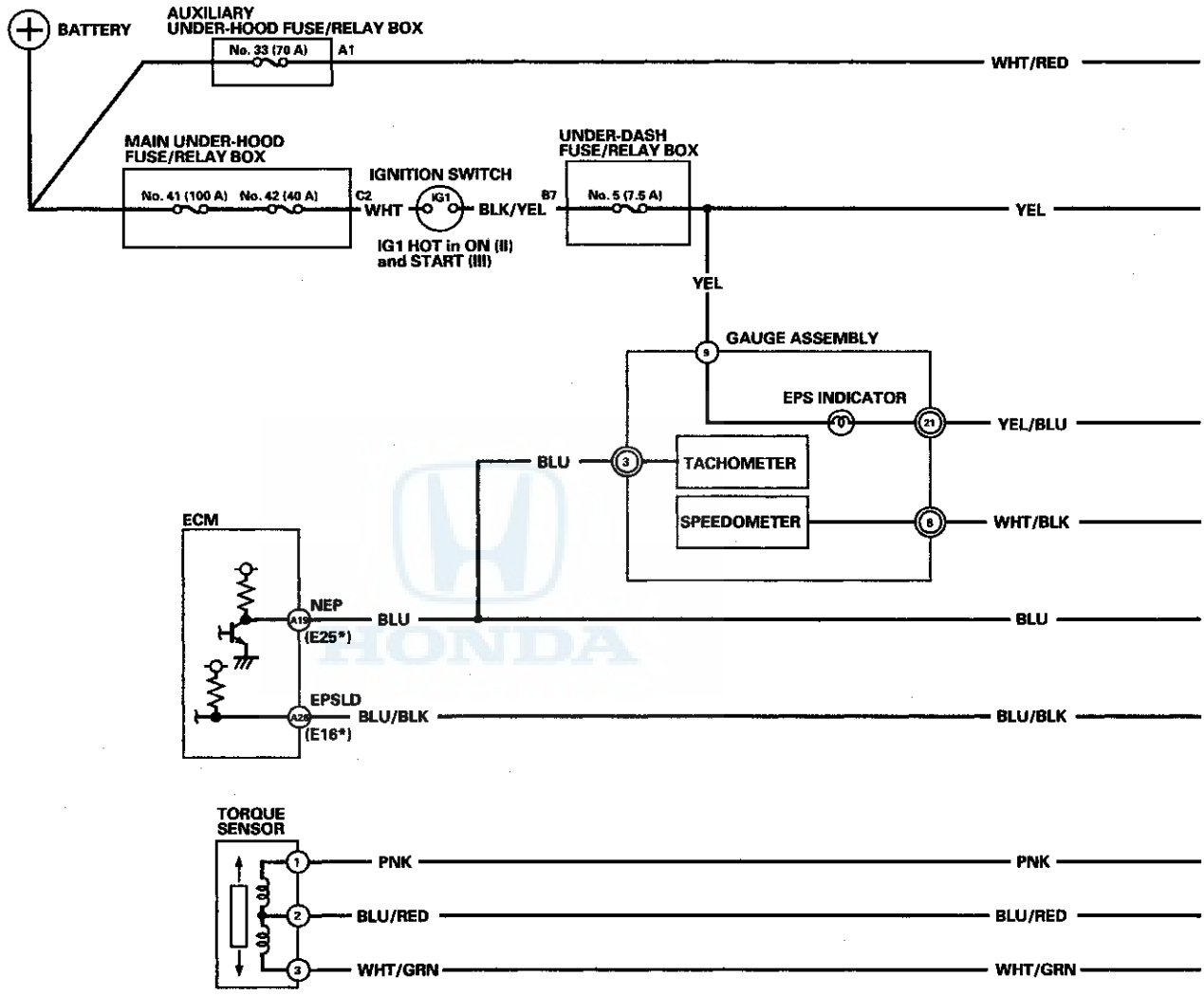
DATA LINK CONNECTOR (DLC)

Terminal side of female terminals

EPS Components

Circuit Diagram (cont'd)

'04-08 models



TORQUE SENSOR 3P CONNECTOR

Terminal side of female terminals

ECM CONNECTOR A (32P)
('04-05 models)

Wire side of female terminals

ECM CONNECTOR E (31P)
('06-08 models)

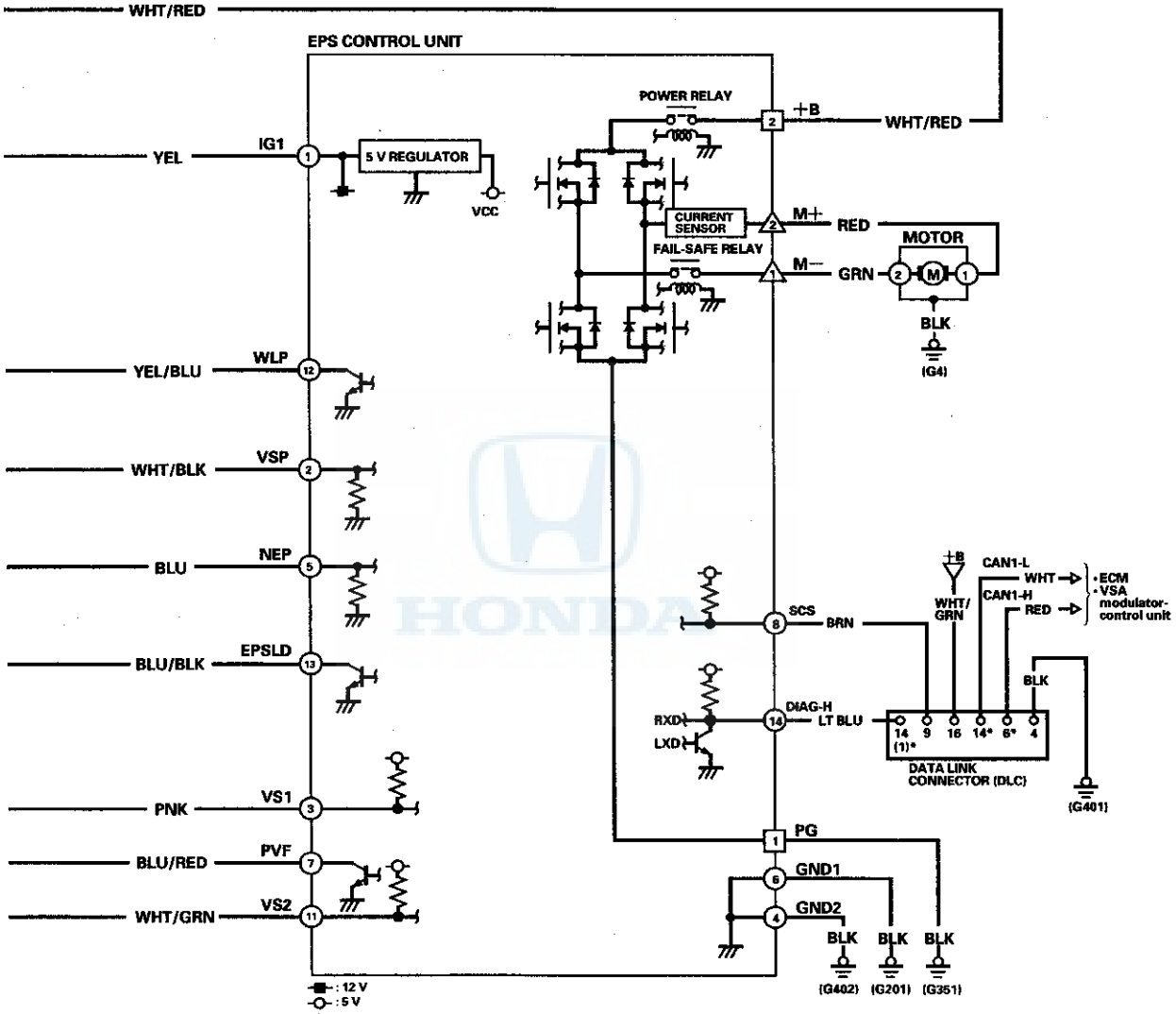
Wire side of female terminals

GAUGE ASSEMBLY CONNECTOR A (22P)
(○: connector)

GAUGE ASSEMBLY CONNECTOR B (30P)
(○: connector)

Wire side of female terminals

* ('06-08 models)



MOTOR 2P CONNECTOR

Terminal side of female terminals

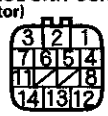
EPS CONTROL UNIT CONNECTOR C (2P)
(□: connector)

Terminal side of female terminals

EPS CONTROL UNIT CONNECTOR A (2P)
(△: connector)

Terminal side of female terminals

EPS CONTROL UNIT CONNECTOR B (14P)
(○: connector)



Terminal side of female terminals

DATA LINK CONNECTOR (DLC)
('04-05 models)

Terminal side of female terminals

DATA LINK CONNECTOR (DLC)
('06-08 models)

Terminal side of female terminals

DTC Troubleshooting

DTC 1: Power Relay Stuck ON

DTC 2: Fail-safe Relay Stuck ON

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Wait at least 10 seconds.

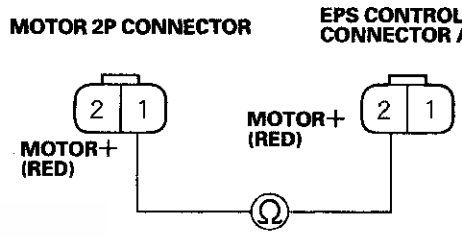
Does the EPS indicator come on and is DTC 1 or DTC 2 indicated?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

NO—The system is OK at this time.■

DTC 3: Lower FET Stuck ON

1. Disconnect EPS control unit connector A (2P) and the motor 2P connector.
2. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and motor 2P connector terminal No. 1.



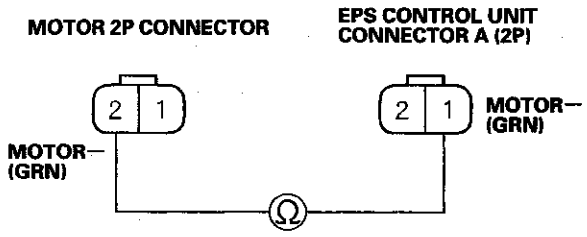
Terminal side of female terminals

Is there continuity?

YES—Go to step 3.

NO—Repair open in the wire between EPS control unit and the motor.■

3. Check for continuity between the EPS control unit connector A (2P) terminal No. 1 and motor 2P connector terminal No. 2.



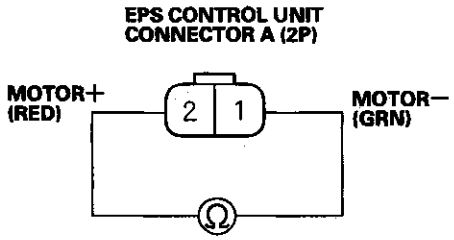
Terminal side of female terminals

Is there continuity?

YES—Go to step 4.

NO—Repair open in the wire between the EPS control unit and the motor.■

4. Check for continuity between EPS control unit connector A (2P) terminals No. 2 and No. 1.



Terminal side of female terminals

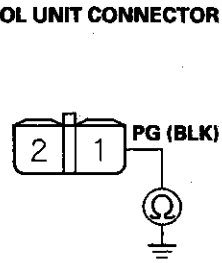
Is there continuity?

YES—Repair short between the RED and GRN wires for the EPS motor circuit.■

NO—Replace the steering gearbox (Short circuit to body ground inside the gearbox).■

DTC 4: Upper FET Stuck ON

1. Disconnect EPS control unit connector C (2P).
2. Check for continuity between EPS control unit connector C (2P) terminal No. 1 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

NO—Repair open in the wire between the EPS control unit and the body ground (G351).■

DTC Troubleshooting (cont'd)

DTC 5: Open in the Motor Circuit

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Turn the steering wheel to right or left, and wait 10 seconds or more.

   Does the EPS indicator come on?

   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time.■
5. Stop the engine, and check for DTCs with the HDS.

   Is DTC 5 indicated?

   YES—Go to step 6.

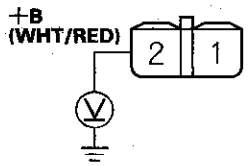
   NO—Do the appropriate troubleshooting for the code indicated.■
6. Check the No. 33 (70 A) fuse in the auxiliary under-hood fuse/relay box, and reinstall the fuse if it is OK.

   Is the fuse OK?

   YES—Go to step 7.

   NO—Replace the fuse and recheck.■
7. Make sure the ignition switch is in LOCK (0), then disconnect EPS control unit connector C (2P).
8. Measure the voltage between EPS control unit connector C (2P) terminal No. 2 and body ground.

   EPS CONTROL UNIT CONNECTOR C (2P)



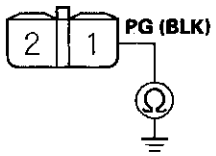
   Terminal side of female terminals

   Is there battery voltage?

   YES—Go to step 9.

   NO—Repair open in the wire between the No. 33 (70 A) fuse in the auxiliary under-hood fuse/relay box and the EPS control unit.■
9. Check for continuity between EPS control unit connector C (2P) terminal No. 1 and body ground.

   EPS CONTROL UNIT CONNECTOR C (2P)



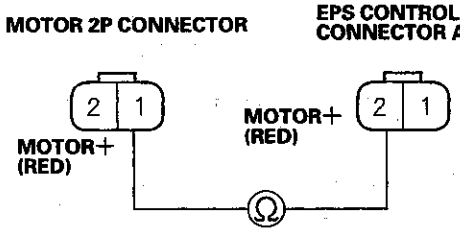
   Terminal side of female terminals

   Is there continuity?

   YES—Go to step 10.

   NO—Repair open in the wire between the EPS control unit and body ground (G351).■
10. Disconnect EPS control unit connector A (2P) and the motor 2P connector.

11. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and motor 2P connector terminal No. 1.



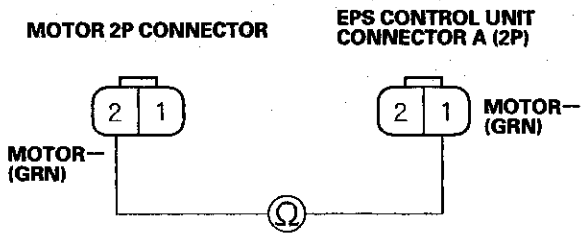
Terminal side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wire between EPS control unit and the motor. ■

12. Check for continuity between the EPS control unit connector A (2P) terminal No. 1 and motor 2P connector terminal No. 2.



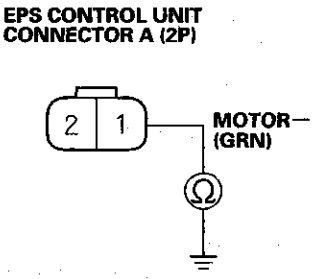
Terminal side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the EPS control unit and the motor. ■

13. Check for continuity between EPS control unit connector A (2P) terminal No. 1 and body ground.



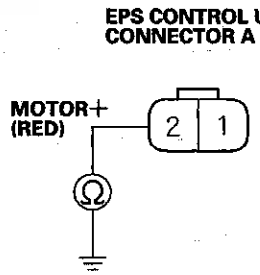
Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the EPS control unit and the motor. ■

NO—Go to step 14.

14. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the EPS control unit and the motor. ■

NO—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

DTC Troubleshooting (cont'd)

DTC 11, 13: Torque Sensor

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.

   Does the EPS indicator come on?

   YES—Go to step 4.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time.■

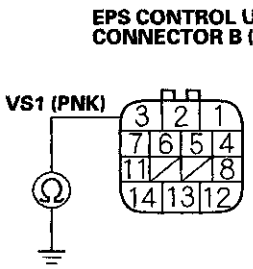
4. Stop the engine, and check for DTCs with the HDS.

   Is DTC 11 or 13 indicated?

   YES—Go to step 5.

   NO—Do the appropriate troubleshooting for the code indicated.■

5. Make sure the ignition switch is in LOCK (0), then disconnect EPS control unit connector B (14P).
6. Check for continuity between EPS control unit connector B (14P) terminal No. 3 and body ground.



Terminal side of female terminals

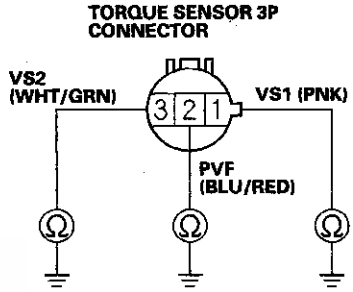
Is there continuity?

YES—Go to step 7.

NO—Go to step 10.

7. Disconnect the torque sensor 3P connector.
8. Check for continuity between the appropriate torque sensor 3P connector terminal and body ground (see table).

Terminal name	Torque sensor terminal No.
VS1	1
PVF	2
VS2	3



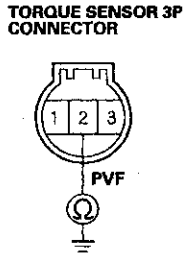
Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the appropriate sensor circuit between the torque sensor and the EPS control unit.■

NO—Go to step 9.

9. On the sensor side, check for continuity between the torque sensor 3P connector terminal No. 2 and body ground.



Terminal side of male terminals

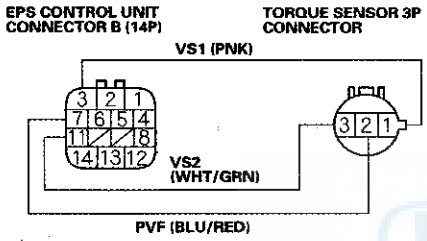
Is there continuity?

YES—Replace the torque sensor.■

NO—The EPS system is OK at this time. Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

10. Check for continuity between the appropriate EPS control unit connector B (14P) and torque sensor 3P connector terminals (see table).

Terminal name	Torque sensor terminal No.	EPS control unit terminal No.
VS1	1	3
PVF	2	7
VS2	3	11



Terminal side of female terminals

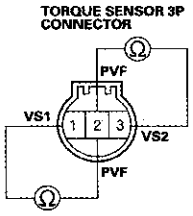
Is there continuity?

YES—Go to step 11.

NO—Repair open in the appropriate torque sensor circuit between the EPS control unit and the torque sensor. ■

11. Disconnect the torque sensor connector.

12. On the sensor side, check for resistance between torque sensor 3P connector terminals No. 1 and No. 2, and between terminals No. 2 and No. 3.



Terminal side of male terminals

Is the resistance between 12—14 Ω (at 68 °F, 20 °C)?

YES—The EPS system is OK at this time. Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO—Replace the torque sensor. ■

DTC 12: Torque Sensor PVF

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Wait at least 10 seconds.

   Does the EPS indicator come on?

   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time. ■

5. Check for DTCs with the HDS.

   Is DTC 12 indicated?

   YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

   NO—Do the appropriate troubleshooting for the code indicated. ■

DTC Troubleshooting (cont'd)

DTC 14: Torque Sensor (Resistance)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Turn the steering wheel fully to the left, and hold it in that position for 10 seconds or more.

   Does the EPS indicator come on?

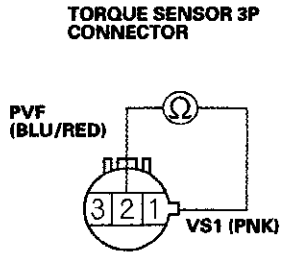
   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time.■
5. Stop the engine, and check for DTCs with the HDS.

   Is DTC 14 indicated?

   YES—Go to step 6.

   NO—Do the appropriate troubleshooting for the code indicated.■
6. Make sure the ignition switch is in LOCK (0), then disconnect the torque sensor 3P connector and EPS control unit connector B (14P).
7. Check for continuity between torque sensor 3P connector terminals No. 1 and No. 2.

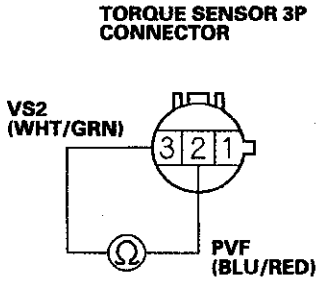


Terminal side of female terminals

   Is there continuity?

   YES—Repair short between the BLU/RED and PNK wires in the torque sensor circuit between the torque sensor and the EPS control unit.■

   NO—Go to step 8.
8. Check for continuity between torque sensor 3P connector terminals No. 2 and No. 3.

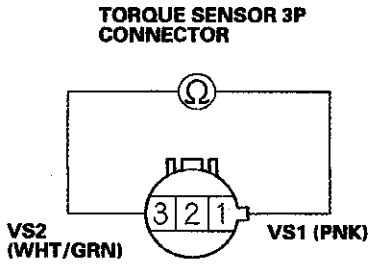


Terminal side of female terminals

   Is there continuity?

   YES—Repair short between the WHT/GRN and BLU/RED wires in the torque sensor circuit between the torque sensor and the EPS control unit.■

   NO—Go to step 9.
9. Check for continuity between torque sensor 3P connector terminals No. 1 and No. 3.



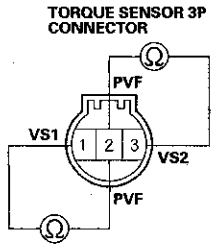
Terminal side of female terminals

   Is there continuity?

   YES—Repair short between the WHT/GRN and PNK wires in the torque sensor circuit between the torque sensor and the EPS control unit.■

   NO—Go to step 10.

10. On the sensor side, check for resistance between the torque sensor 3P connector terminals No. 1 and No. 2, and between terminals No. 2 and No. 3.



Terminal side of male terminals

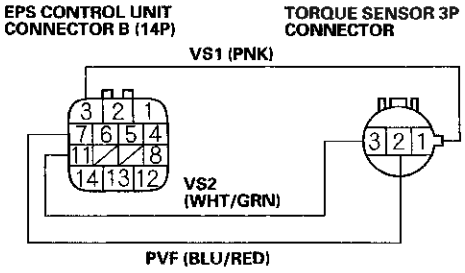
Is the resistance between 12— 14 Ω (at 68 °F, 20 °C)?

YES—Go to step 11.

NO—Replace the torque sensor. ■

11. Check for continuity between the appropriate EPS control unit connector B (14P) and torque sensor 3P connector terminals (see table).

Terminal name	Torque sensor terminal No.	EPS control unit terminal No.
VS1	1	3
PVF	2	7
VS2	3	11



Terminal side of female terminals

Is there continuity?

YES—The EPS system is OK at this time. Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO—Repair open in the appropriate torque sensor circuit between the EPS control unit and the torque sensor. ■

DTC 21: Voltage for IG1

1. Check the No. 5 (7.5 A) fuse in the under-dash fuse/relay box, and reinstall the fuse if it is OK.

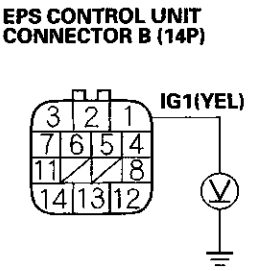
   NOTE: All indicators except the charging system indicator will not come on when the No. 5 (7.5 A) fuse is blown.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse and recheck. ■

2. Disconnect EPS control unit connector B (14P).
3. Turn the ignition switch to ON (II).
4. Measure the voltage between EPS control unit connector B (14P) terminal No. 1 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO—Check for an open in the wire between the under-dash fuse/relay box and the EPS control unit, and repair it if necessary. If the wire is OK, check for an open circuit inside the under-dash fuse/relay box. ■

DTC Troubleshooting (cont'd)

DTC 22: Vehicle Speed Signal

NOTE:
- If the MIL indicator is ON, troubleshoot the PGM-FI system first.
- When the engine is running at 2,000 rpm or above and the vehicle speed is 1 mph (1 km/h) or below for 3 minutes, the EPS indicator comes on.

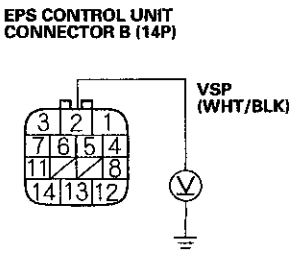
1. Test-drive the vehicle.

   Is the vehicle speedometer working correctly?

   YES—Go to step 2.

   NO—Do the speedometer system troubleshooting: '00-05 models (see page 22-94), '06-08 models (see page 22-95). ■

2. Turn the ignition switch to LOCK (0).
3. Block the front wheels and release the parking brake.
4. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-18).
5. Disconnect EPS control unit connector B (14P).
6. Block the right rear wheel, and slowly rotate the left rear wheel and measure the voltage between EPS control unit connector B (14P) terminal No. 2 and body ground.



Terminal side of female terminals

Does the voltage pulse 0 V and 5 V ?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO—Repair open or short to body ground in the wire between the EPS control unit and body ground, or faulty speedometer. ■

DTC 23: Engine Speed Signal Circuit

NOTE: If the MIL indicator is on, troubleshoot the PGM-FI problem first.

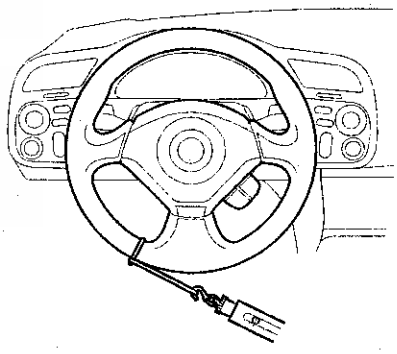
1. Start the engine, and check the tachometer.

   Is the tachometer working correctly?

   YES—Go to step 2.

   NO—Go to step 5.

2. Connect a commercially available spring scale to the steering wheel.
3. Pull on the scale to measure when the front wheels start to move. If the system is in good condition, the scale should read no more than 34 N (3.5 kgf, 7.7 lbf).



Is the measurement within the specification?

YES—The system is OK at this time. ■

NO—Go to step 4.

4. Test-drive the vehicle with the vehicle above 6.2 mph (10 km/h).

   Does EPS provide power assist?

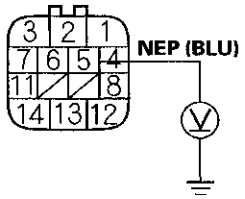
   YES—Go to step 5.

   NO—Do the troubleshooting for DTC 22. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect EPS control unit connector B (14P).
7. Start the engine.

8. Measure the voltage between EPS control unit connector B (14P) terminal No. 5 and body ground.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

Is there about 3 to 6 V?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

NO—Go to step 9.

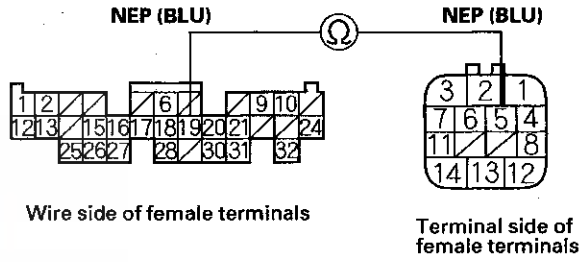
9. Turn the ignition switch to LOCK (0).

10. Disconnect ECM connector A (32P) ('00-05 models) or ECM connector E (31P) ('06-08 models).

11. Check for continuity between ECM connector A (32P) terminal A19 ('00-05 models) or ECM connector E (31P) terminal E25 ('06-08 models) and EPS control unit connector B (14P) connector terminal No. 5.

'00-05 models

ECM CONNECTOR A (32P) **EPS CONTROL UNIT CONNECTOR B (14P)**

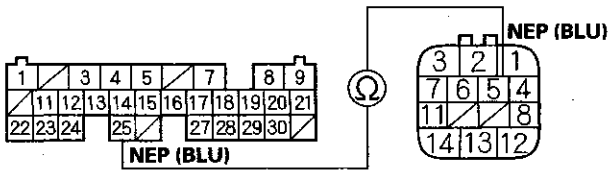


Wire side of female terminals

Terminal side of female terminals

'06-08 models

ECM CONNECTOR E (31P) **EPS CONTROL UNIT CONNECTOR B (14P)**



Wire side of female terminals

Terminal side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair the open in the wire between the EPS control unit and the ECM.■

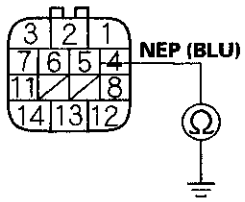
(cont'd)

DTC Troubleshooting (cont'd)

12. Disconnect gauge assembly connector C (20P) ('00-03 models) or B (30P) ('04-08 models).

13. Check for continuity between EPS control unit connector B (14P) terminal No. 5 and body ground.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

Is there continuity?

YES—Repair the short in the wire between the EPS control unit and the ECM.■

NO—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

DTC 30: Submicrocomputer

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Wait at least 10 seconds.

   Does the EPS indicator come on?

   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time. ■

5. Check for DTCs with the HDS.

   Is DTC 30 indicated?

   YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

   NO—Do the appropriate troubleshooting for the code indicated. ■

DTC 31, 32, 33: Motor Current Sensor

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Wait at least 10 seconds.

   Does the EPS indicator come on?

   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time. ■

5. Check for DTCs with the HDS.

   Is DTC 31, 32, or 33 indicated?

   YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

   NO—Do the appropriate troubleshooting for the code indicated. ■

DTC Troubleshooting (cont'd)

DTC 34, 35: EPS Control Unit Internal Circuit

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Wait at least 10 seconds.

   Does the EPS indicator come on?

   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time.■
5. Check for DTCs with the HDS.

   Is DTC 34 or 35 indicated?

   YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

   NO—Do the appropriate troubleshooting for the code indicated.■

DTC 36: Incorrect Motor Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Turn the steering wheel to right or left, and wait 10 seconds or more.

   Does the EPS indicator come on?

   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time.■
5. Stop the engine, and check for DTCs with the HDS.

   Is DTC 36 indicated?

   YES—Go to step 6.

   NO—Do the appropriate troubleshooting for the code indicated.■
6. Check the No. 33 (70 A) fuse in the auxiliary under-hood fuse/relay box, and reinstall the fuse if it is OK.

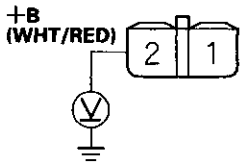
   Is the fuse OK?

   YES—Go to step 7.

   NO—Replace the fuse and recheck.■
7. Disconnect EPS control unit connector C (2P).

8. Measure the voltage between EPS control unit connector C (2P) terminal No. 2 and body ground.

EPS CONTROL UNIT CONNECTOR C (2P)



Terminal side of female terminals

Is there battery voltage?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

NO—Repair open in the wire between the No. 33 (70 A) fuse in the auxiliary under-hood fuse/relay box and the EPS control unit.■

DTC 37: No Motor Voltage

1. Check the No. 33 (70 A) fuse in the auxiliary under-hood fuse/relay box, and reinstall the fuse if it is OK.

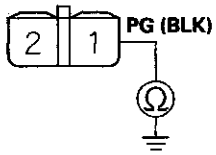
   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse and recheck.■

2. Check for continuity between EPS control unit connector C (2P) terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR C (2P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 3.

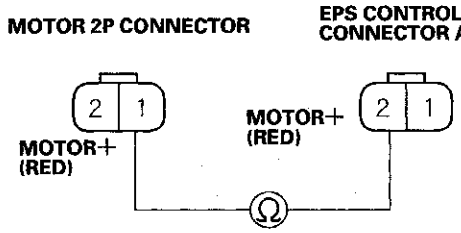
NO—Repair open in the wire between the EPS control unit and body ground (G351).■

3. Disconnect EPS control unit connector A (2P) and the motor 2P connector.

(cont'd)

DTC Troubleshooting (cont'd)

4. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and motor 2P connector terminal No. 1.



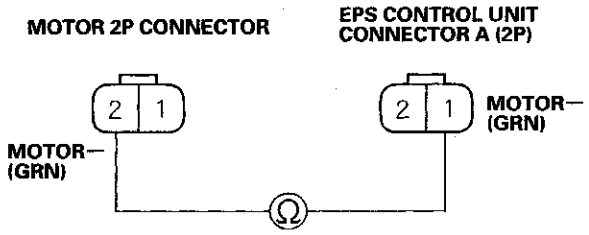
Terminal side of female terminals

Is there continuity?

YES—Go to step 5.

NO—Repair open in the RED wire between the EPS control unit and the motor.■

5. Check for continuity between EPS control unit connector A (2P) terminal No. 1 and motor 2P connector terminal No. 2.



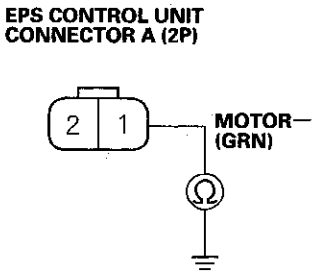
Terminal side of female terminals

Is there continuity?

YES—Go to step 6.

NO—Repair open in the GRN wire between the EPS control unit and the motor.■

6. Check for continuity between EPS control unit connector A (2P) terminal No. 1 and body ground.



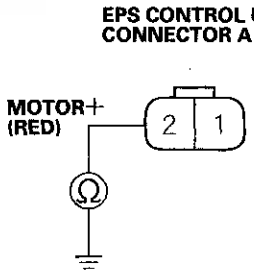
Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the GRN wire between the EPS control unit and the motor.■

NO—Go to step 7.

7. Check for continuity between EPS control unit connector A (2P) terminal No. 2 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the RED wire between the EPS control unit and the motor.■

NO—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

DTC 50 to 62: Central Processing Unit (CPU)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS (see page 17-20).
3. Start the engine.
4. Wait at least 10 seconds.

   Does the EPS indicator come on?

   YES—Go to step 5.

   NO—Check for loose terminals or poor connections. If the connections are good, the system is OK at this time.■
5. Check for DTCs with the HDS.

   Is DTC 50 to 62 indicated?

   YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck.■

   NO—Do the appropriate troubleshooting for the code indicated.■

EPS indicator does not come on/EPS indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to ON (II), start the engine, and watch the EPS indicator.

   Does the EPS indicator come on?

   YES—If the EPS indicator comes on and goes off, it's OK. If the EPS indicator stays on or blinks, go to step 13.

   NO—Go to step 2.
2. Turn the ignition switch to LOCK (0), then ON (II) again, and watch the brake system indicator.

   Does the brake system indicator come on?

   YES—Go to step 3.

   NO—Repair open in the indicator power source circuit:■

   - Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box.
   - Open in the wire between the No. 5 (7.5 A) fuse and gauge assembly.
   - Open circuit inside the under-dash fuse/relay box.
3. Turn the ignition switch to LOCK (0).
4. Check the EPS indicator bulb in the gauge assembly.

   Is the bulb OK?

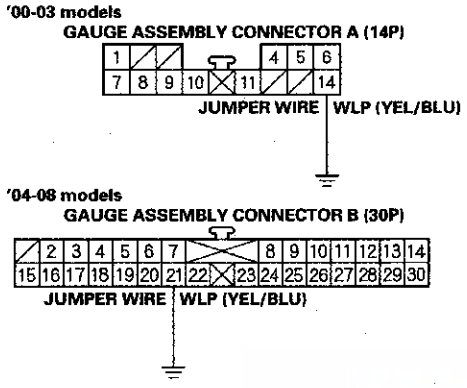
   YES—Go to step 5.

   NO—Replace the EPS indicator bulb.■
5. Turn the ignition switch to ON (II).

(cont'd)

Symptom Troubleshooting (cont'd)

6. Connect gauge assembly connector A (14P) terminal No. 14 ('00-03 models) or the gauge assembly connector B (30P) terminal No. 21 ('04-08 models) to body ground with a jumper wire.



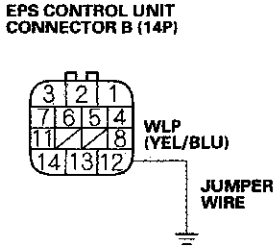
Wire side of female terminals

Does the EPS indicator come on?

YES—Go to step 7.

NO—Replace the bulb circuit board in the gauge assembly. ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect EPS control unit connector B (14P).
9. Turn the ignition switch to ON (II).
10. Connect EPS control unit connector B (14P) terminal No. 12 and body ground with a jumper wire.



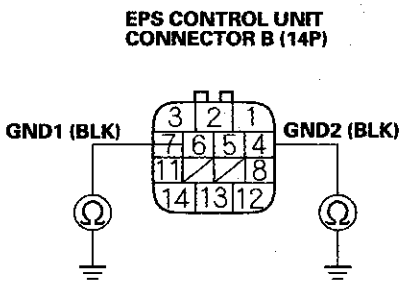
Terminal side of female terminals

Does the EPS indicator come on?

YES—Go to step 11.

NO—Repair open in the wire between the gauge assembly and the EPS control unit. ■

11. Check for continuity between body ground and EPS control unit connector B (14P) terminals No. 4 and No. 6 individually.



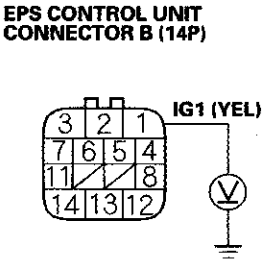
Terminal side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair open in the wires between the EPS control unit and body ground (G201 and G402). ■

12. Measure the voltage between EPS control unit connector B (14P) terminal No. 1 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

NO—Repair open in the wire between the No. 5 (7.5 A) fuse in the under-dash fuse/relay box and the EPS control unit. ■

13. Turn the ignition switch to LOCK (0).

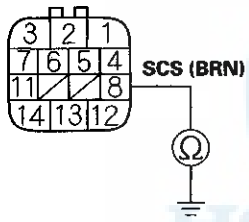
14. Disconnect EPS control unit connector B (14P).

15. Disconnect the connectors from the these units.

    - ECM connector A (32P) ('00-05 models) or ECM connector E (31P) ('06-08 models)
    - ABS modulator-control unit ('00-05 models) or VSA modulator-control unit ('06-08 models)
    - SRS unit

16. Check for continuity between EPS control unit connector B (14P) terminal No. 8 and body ground.

EPS CONTROL UNIT CONNECTOR B (14P)



Terminal side of female terminals

Is there continuity?

YES—Repair short to body ground in the SCS circuit. ■

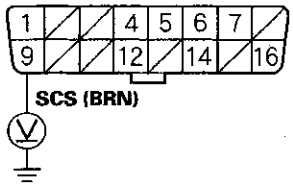
NO—Go to step 17.

17. Connect EPS control unit connector B (14P).

18. Turn the ignition switch to ON (II).

19. Measure the voltage between data link connector (DLC) terminal No. 9 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there about 6 V?

YES—Go to step 20.

NO—Repair open in the wire between the data link connector (DLC) and the EPS control unit. ■

20. Turn the ignition switch to LOCK (0).

21. Connect all disconnected connectors.

22. Disconnect EPS control unit connector B (14P).

23. Turn the ignition switch to ON (II), and start the engine.

    Does the EPS indicator go off?

    YES—Go to step 24.

    NO—Repair short to body ground in the wire between the EPS indicator and the EPS control unit. ■

24. Inspect the bulb circuit board in the gauge assembly, power and ground to the EPS unit, and terminal fit '00-03 models; (see page 22-63), '04-05 models; (see page 22-68), '06-08 models; (see page 22-73).

    Is it normal?

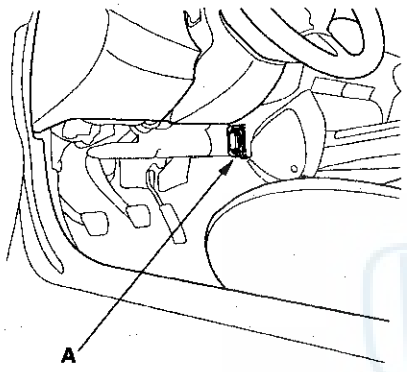
    YES—Check for loose EPS control unit connectors. If necessary, substitute a known-good EPS control unit and recheck. ■

    NO—Replace the bulb circuit board in the gauge assembly. ■

Memorizing the Torque Sensor Neutral Position

The torque sensor neutral position must be memorized whenever the gearbox is removed or installed, or when the torque sensor or EPS control unit is replaced, and after doing wheel alignment. Note that the torque sensor neutral position is not affected when erasing the DTC.

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



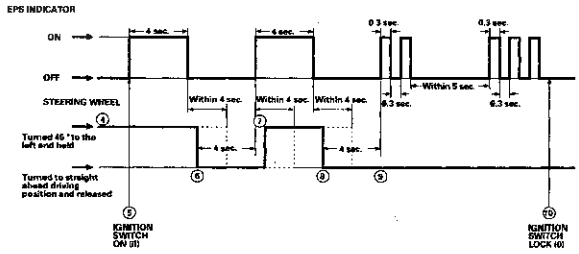
2. With the vehicle on the ground, set the front wheels in the straight ahead driving position.
3. Turn the ignition switch to ON (II).
4. For '06-08 models; make sure the HDS communicates with the vehicle and the EPS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
5. Turn the ignition switch to LOCK (0).
6. Short the SCS circuit to body ground using the HDS.
7. Turn the steering wheel 45 degrees to the left from the straight ahead driving position, and hold the steering wheel in that position.
8. Turn the ignition switch to ON (II). The EPS indicator comes on, then it goes off after 4 seconds.
9. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position and release the steering wheel. The EPS indicator comes on again 4 seconds after releasing the steering wheel.
10. Within 4 seconds after the EPS indicator comes on, turn the steering wheel 45 degrees to the left again and hold it in that position.
    The EPS indicator goes off after 4 seconds.
11. Within 4 seconds after the EPS indicator goes off, return the steering wheel to the straight ahead driving position and release the steering wheel. Do not move the steering wheel before turning the ignition switch to LOCK (0).

    NOTE: If the steering wheel is moved, the torque sensor neutral position cannot be written to memory.

12. The EPS indicator blinks twice 4 seconds after releasing the steering wheel, then it blinks three times 5 seconds after. Then, the indicator goes off. The torque sensor neutral position is memorized.

    NOTE: If the EPS indicator stays on, there was an error in writing the torque sensor neutral position to memory. Repeat the procedure starting from step 3.

13. Turn the ignition switch to LOCK (0).
14. Disconnect the HDS from the DLC.



Steering Gearbox Removal and Installation

Special Tools Required
Ball joint remover, 28 mm 07MAC-SL0A202

Removal

Note these items during removal:
- Using solvent and a brush, wash any oil and dirt off the gearbox. Blow dry with compressed air.
- Be sure to remove the steering wheel before disconnecting the steering joint. Damage to the cable reel can occur.

1. Make sure you have the anti-theft code for the audio, then write down the audio preset. Disconnect the negative battery cable from the battery.

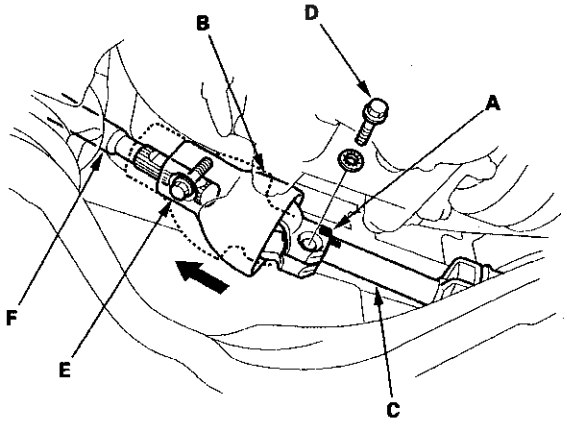
2. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-18).

3. Remove the front wheels.

4. Remove the driver's airbag (see page 23-164).

5. Remove the steering wheel (see page 17-6).

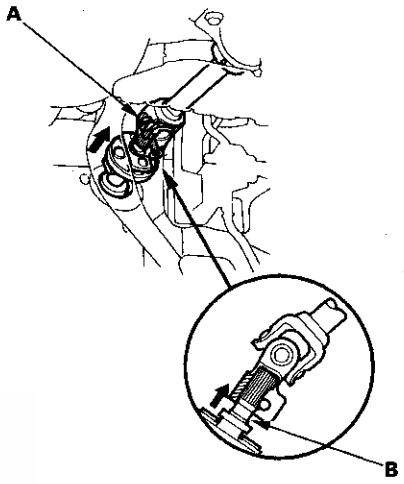
6. For '00-07 models; place a mark (A) on the steering joint (B) and the pinion shaft (C) to identify the position of the joint on the pinion shaft.



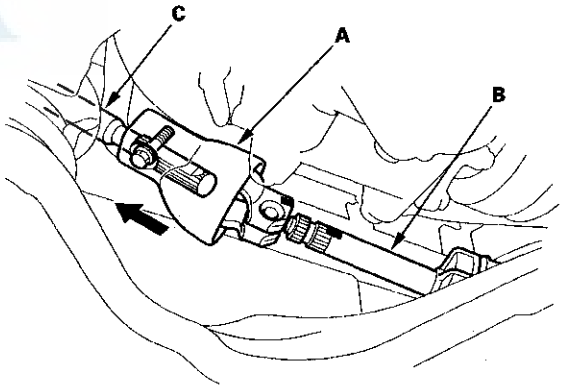
7. Remove the lower joint bolt (D) from the steering joint.

8. Loosen the upper joint bolt (E) on the steering joint, and pull the steering joint fully to the steering shaft (F) side.

9. Under the dashboard; loosen the joint bolt (A) on the column, and pull the steering shaft (B) fully to the column side.



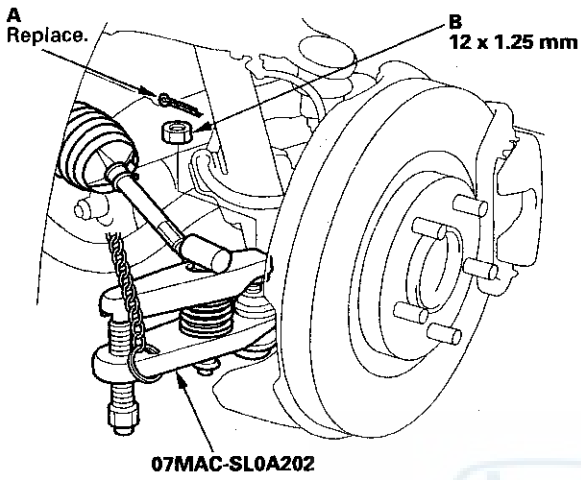
10. In the engine compartment; disconnect the steering joint (A) and pinion shaft (B) by moving the steering joint toward the steering shaft (C).



(cont'd)

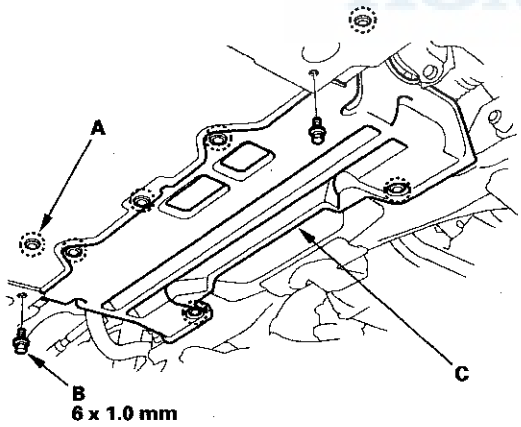
Steering Gearbox Removal and Installation (cont'd)

11. Remove and discard the cotter pin (A) from the 12 mm nut (B), then remove the nut.

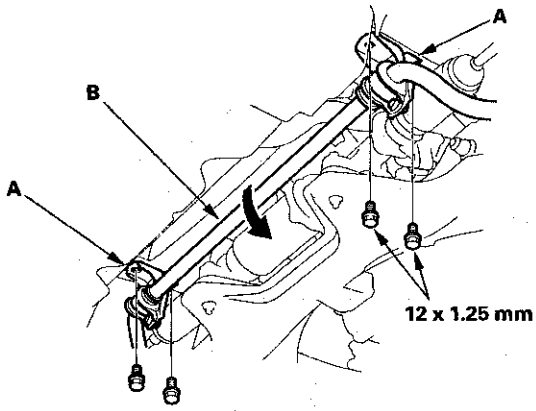


12. Separate the tie-rod ball joint and knuckle using the ball joint remover (see page 18-13).

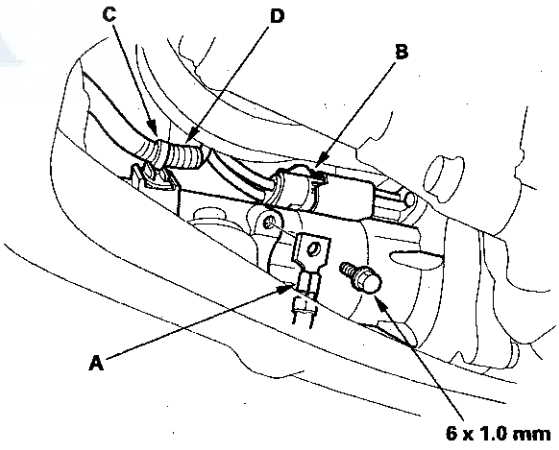
13. Remove the seven clips (A) and the two flange bolts (B), then remove the splash shield (C).



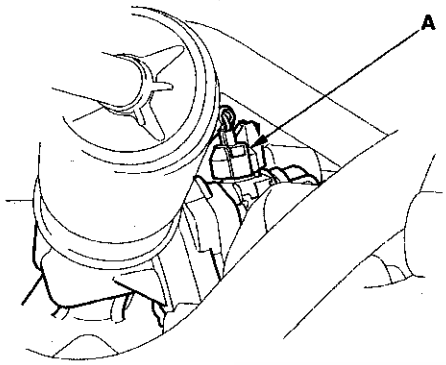
14. Remove the stabilizer bar holder brackets (A) from the frame, and lower the stabilizer bar (B).



15. Disconnect the ground cable (A) and motor 2P connector (B). Loosen the harness band (C), and release the wire harness (D) from the gearbox. After disconnecting the connector, put a piece of tape over the steering gearbox connector to protect it from dust, dirt, and foreign materials.

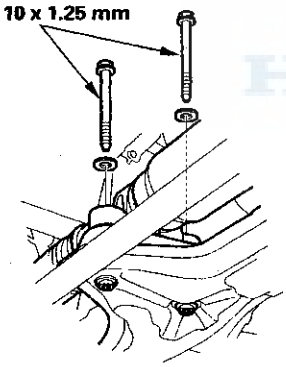


16. Disconnect the torque sensor 3P connector (A). After disconnecting the connector, put a piece of tape over the steering gearbox connector to protect it from dust, dirt, and foreign materials.

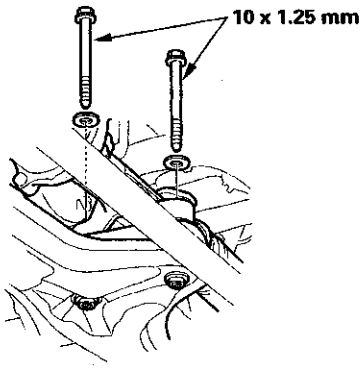


17. Except CR model: Remove the gearbox mounting bolts.

Right side:

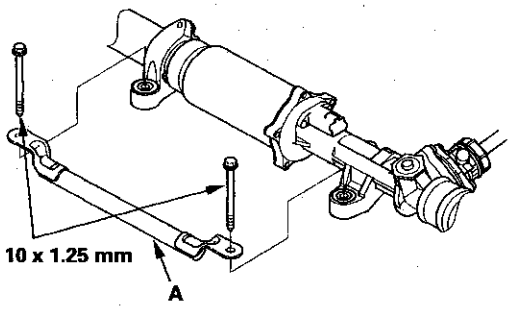


Left side:

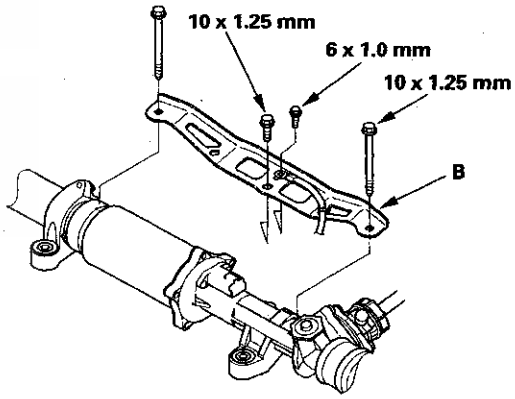


18. CR model: Remove the gearbox mounting bolts, steering gearbox front stiffener (A), and steering gearbox rear stiffener (B).

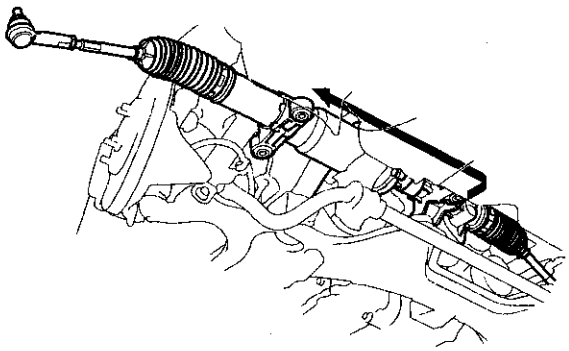
Front side:



Rear side:



19. Pull the steering gearbox toward the front. Move the steering gearbox to the passenger's side and remove it.



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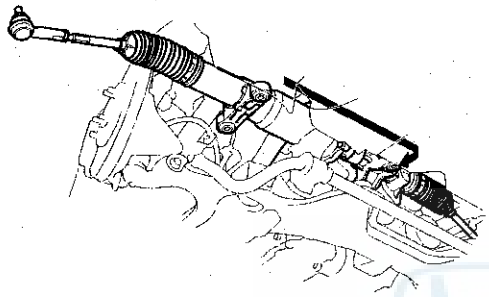
Steering Gearbox Removal and Installation (cont'd)

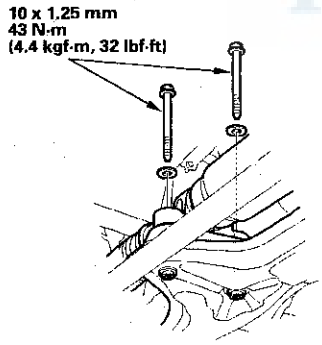
Installation

1. Before installing the gearbox, center the steering rack within its stroke.
2. Pass the driver's side of the steering gearbox through the right wheel housing. Place the steering gearbox on the front subframe, and move it into the original position.

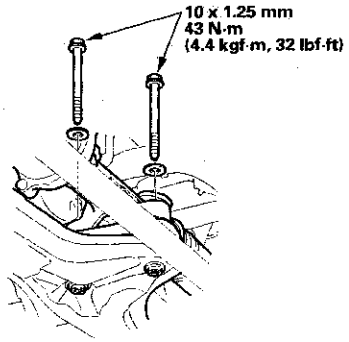


3. Except CR model: Install the gearbox mounting bolts.

Right side:

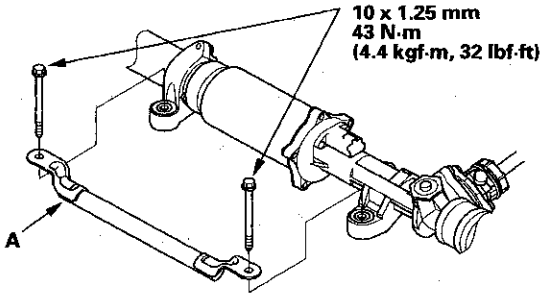


Left side:

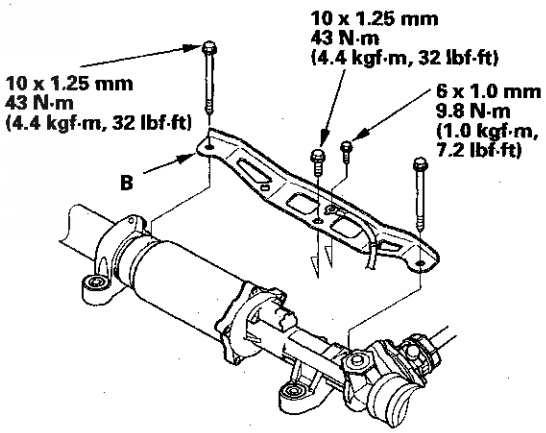


4. CR model: Install the gearbox mounting bolts, steering gearbox front stiffener (A), and steering gearbox rear stiffener (B).

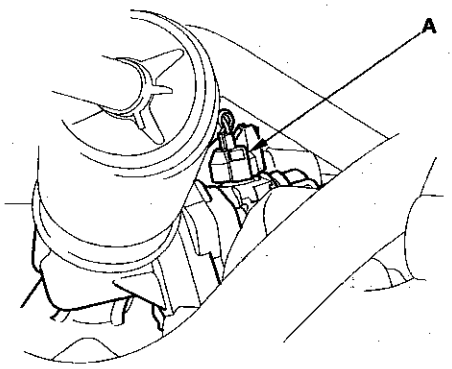
Front side:



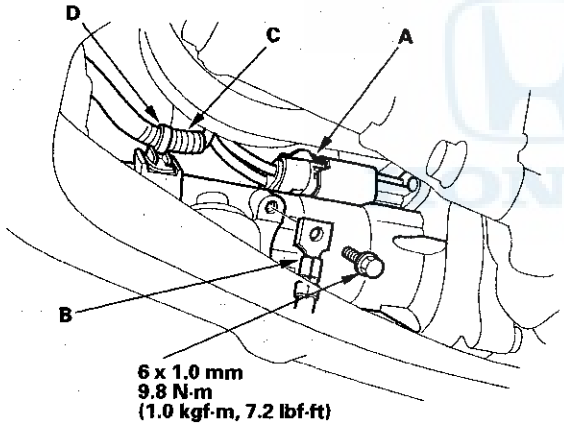
Rear side:



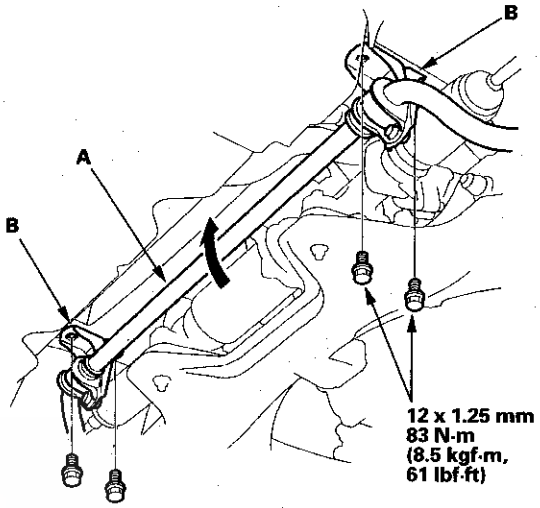
5. Connect the torque sensor 3P connector (A).



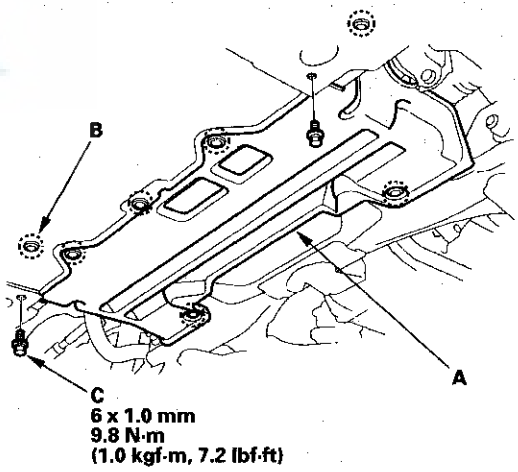
6. Connect the motor 2P connector (A) and ground cable (B). Secure the wire harness (C) with the harness band (D).



7. Raise the stabilizer bar (A) to the original position, and install the stabilizer bar holder brackets (B).



8. Install the splash shield (A) with the seven clips (B) and two flange bolts (C).



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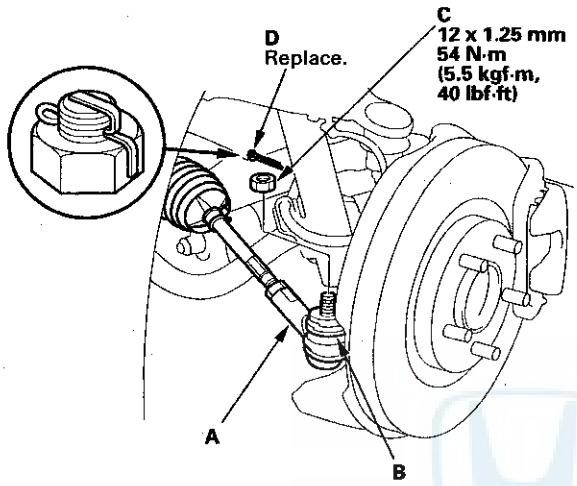
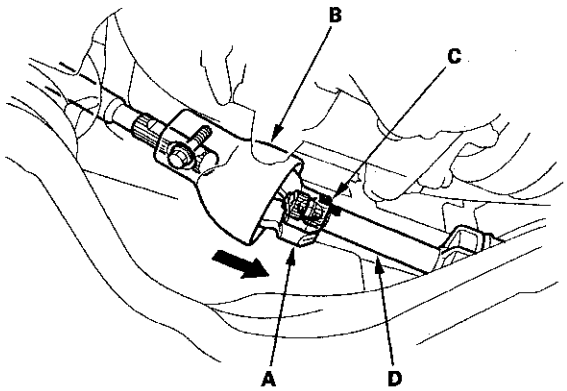
Steering Gearbox Removal and Installation (cont'd)

9. Wipe off any grease contamination from the tapered section and threads of the ball joint. Then reconnect the tie-rod ends (A) to the steering knuckles (B), and tighten the 12 mm nut (C) to the specified torque.



10. Install the new cotter pins (D), and bend them as shown.

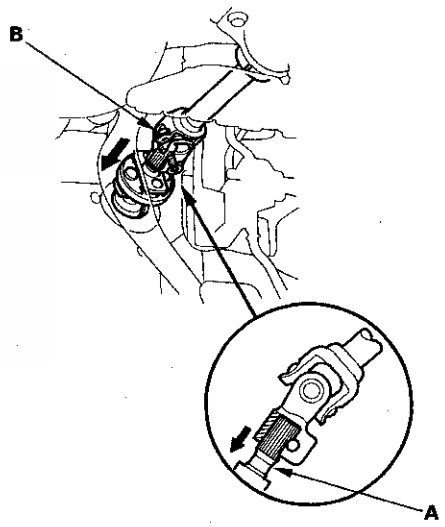
11. From the engine compartment, slip the lower end (A) of the steering joint (B) by aligning the marks (C) on the pinion shaft (D) and joint.



12. From the under the dashboard, push the steering shaft (A) fully to engine compartment side, but do not push excessively on the steering shaft. Then tighten the joint bolt (B) to the specified torque.

'00 model
U.S.A. models VIN JHMAP 114-YT000001 thru VIN JHMAP 114-YT008411
Canada models VIN JHMAP 114-YT800001 thru VIN JHMAP 114-YT800750
Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

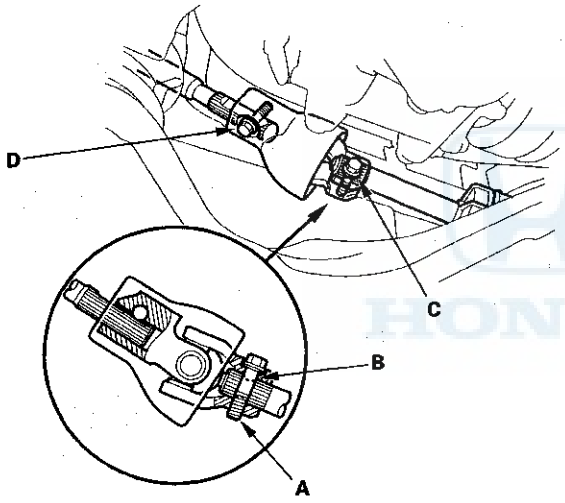
Other models:
Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)



13. Line up the bolt hole (A) with the groove around (B) the pinion shaft, and install the lower joint bolt (C) and the upper joint bolt (D) to the specified torque.

    '00 model
    U.S.A models VIN JHMAP 114-YT000001 thru VIN JHMAP 114-YT008411
    Canada models VIN JHMAP 114-YT800001 thru VIN JHMAP 114-YT800750
    Torque: 22 N·m (2.2 kgf·m, 16 lbf·ft)

    Other models:
    Torque: 29 N·m (3.0 kgf·m, 22 lbf·ft)



14. Install the steering wheel (see page 17-8).

15. Install the driver's airbag (see page 23-165).

16. Reconnect the negative battery cable to the battery.

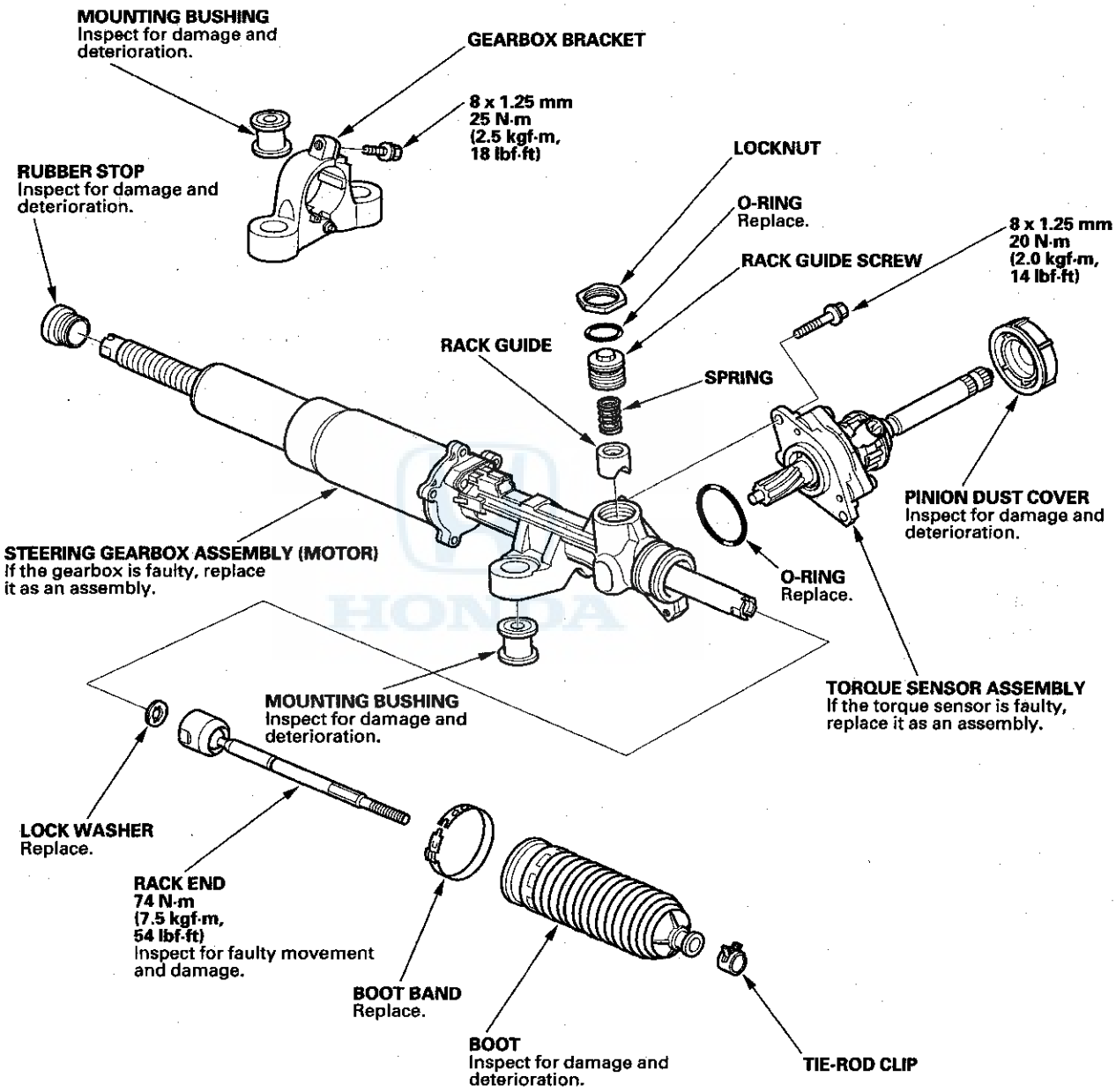
17. Install the front wheels, and adjust the front wheel alignment (see page 18-7).

18. After installation, do these checks.

    - Make sure the steering gearbox wires are not caught or pinched by any parts.
    - Make sure the steering gearbox connectors are properly connected.
    - Turn the ignition switch to ON (II), and check that the EPS indicator goes off.
    - Do the torque sensor memorization.
    - If the steering gearbox is replaced, the EPS control unit must memorize the torque sensor neutral position (see page 17-48).
    - For '00-05 models; do the ECM idle learn procedure (see page 11-140).
    - Test-drive the vehicle:
      – Check that the EPS indicator light does not come on.
      – Check the steering wheel spoke angle. Recheck and adjust the front wheel alignment, if necessary.
    - Enter the anti-theft code for the audio, then enter the audio presets.
    - For '01-08 models; set the clock.

Steering Gearbox Overhaul

Exploded View

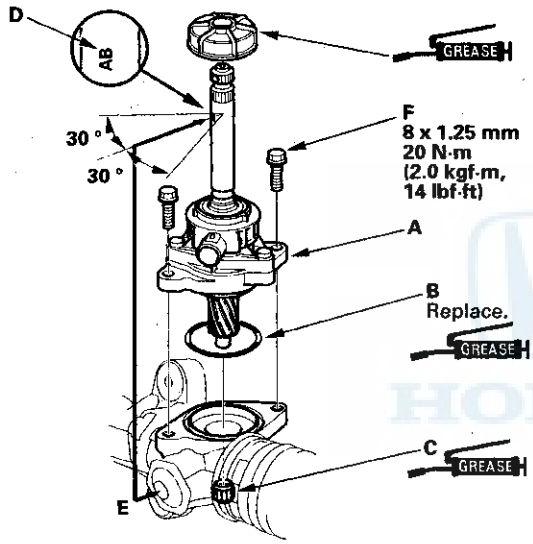


Torque Sensor Replacement

Note these items during replacement:
- Do not allow dust, dirt, or other foreign materials to enter the gearbox.
- Do not try to disassemble the torque sensor assembly. If the torque sensor is faulty, replace it as an assembly.
- If the torque sensor is replaced, the EPS control unit must memorize the torque sensor neutral position (see page 17-48).

1. Center the steering rack within its stroke.

2. Remove the torque sensor assembly (A).



3. Coat the new O-ring (B) with multipurpose grease, and carefully fit it on the torque sensor housing.

4. Apply multipurpose grease to the needle bearing (C) in the gearbox housing.

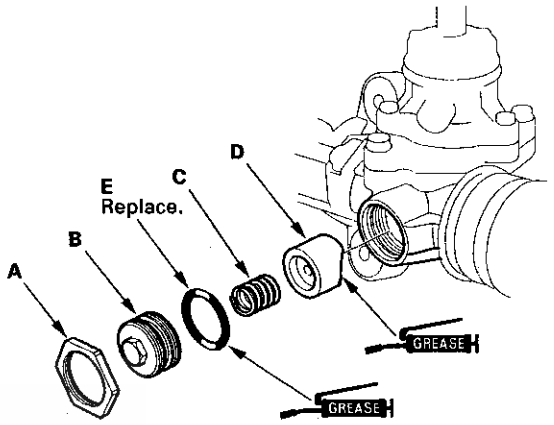
5. Install the torque sensor assembly on the gearbox housing by engaging the gear.
   The alphabet stamping (for example "AB") (D) on the pinion shaft aligns with the rack guide screw (E) when the rack is in the straight ahead driving position.
   When installing the torque sensor assembly, make sure the "alphabet" stamping ("AB") is within the range shown.

6. Tighten the 8 mm flange bolts (F) to the specified torque.

Rack Guide Removal/Installation

NOTE: During removal/installation, do not allow dust, dirt, or other foreign materials to enter the gearbox.

1. Loosen the locknut (A), then remove the rack guide screw (B), the spring (C), and the rack guide (D).



2. Apply multipurpose grease to the sliding surface of the rack guide, and install it onto the gearbox housing.

3. Coat the new O-ring (E) with multipurpose grease, and carefully fit it on the rack guide screw groove.

4. Install the spring, the rack guide screw, and the locknut.

5. Adjust the rack guide screw (see page 17-14). After adjusting, check that the rack moves smoothly by sliding the rack right and left.

Rack End Removal and Installation

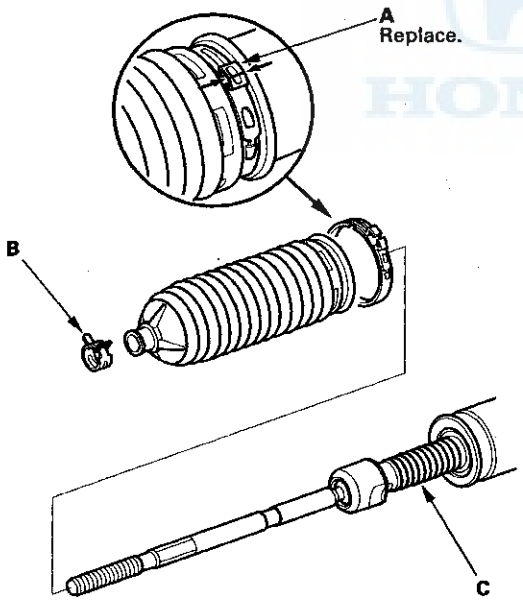
Special Tools Required
- Attachment, 32 x 35 mm 07746-0010100
- Driver 07749-0010000

NOTE:
- Do not allow dust, dirt, or other foreign materials to enter the gearbox.
- Do not disassemble the steering gearbox assembly (motor). If the motor is faulty, replace it as an assembly.

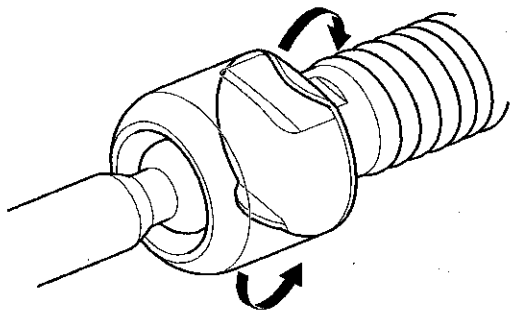
Removal

1. Remove the boot bands (A) and discard them. Remove the tie-rod clips (B), and pull the boots away from the ends of the steering gearbox.

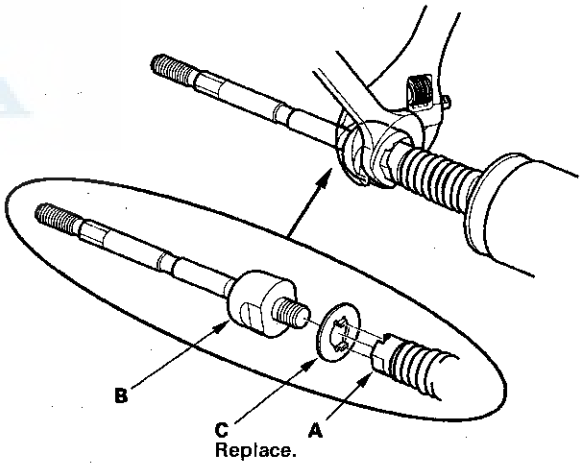
   NOTE: After removing the boot, check for water, dirt, or other foreign matter on the ball screw surface (C) and interior of the boot. If contaminated, clean the ball screw, gearbox housing, and boot completely.



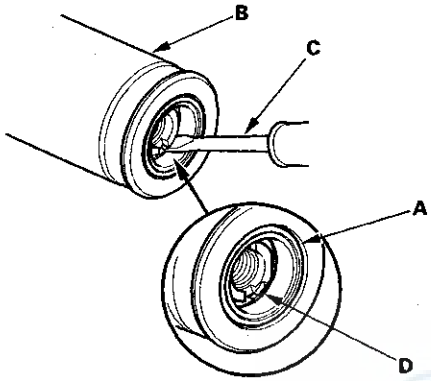
2. Unbend the lock washer.



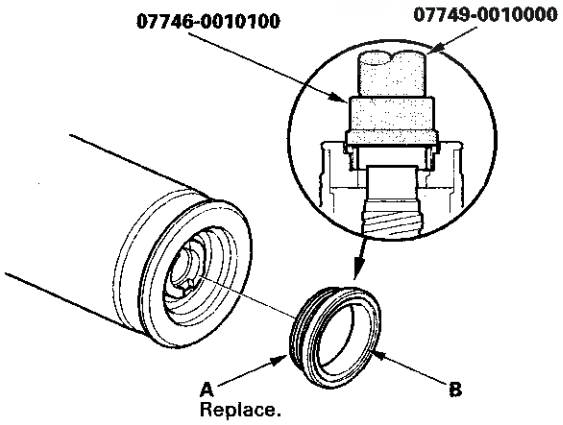
3. Hold the flat surface sections (A) on the passenger's side steering rack shaft with one wrench, and unscrew both rack ends (B) with another wrench. Be careful not to damage the shaft surface with the wrench. Remove the lock washers (C) and discard them.



4. Check the rubber stop (A) for damage or deterioration. If the rubber stop is damaged or deteriorated, replace it.
   Grasp the left rack end, and pull the rack shaft all the way to the left. Carefully remove the rubber stop by prying it out of the gearbox housing (B) with a flat tip screwdriver (C) on the cut-out portion (D) so as not to damage the housing.

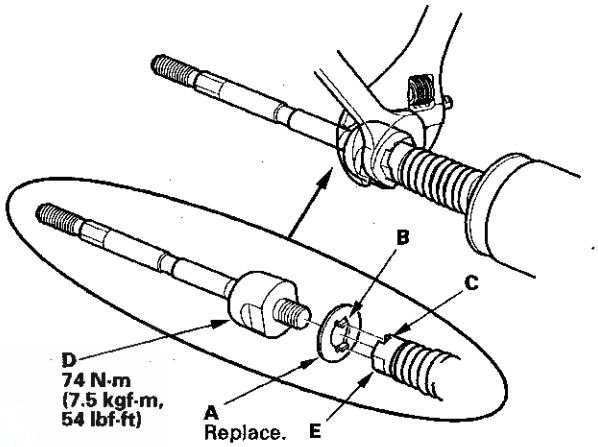


5. If the rubber stop was removed, position a new rubber stop (A) in the gearbox housing, then drive it in using the attachment and the driver as shown. Make sure that the attachment and the driver presses against the metal portion (B) of the rubber stop.



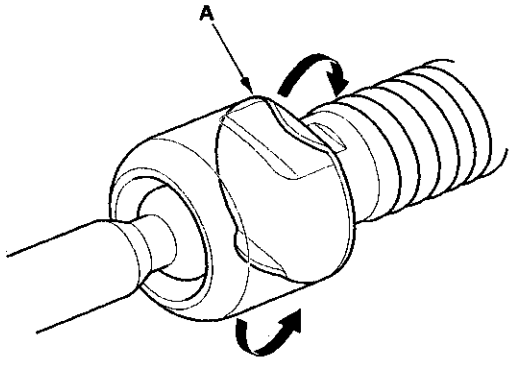
Installation

1. Install the new lock washer (A) on the rack shaft. Align the lock washer tabs (B) with the slots (C) in the rack shaft. Install the rack end (D) while holding the lock washer in place. Repeat this step for the other side of the rack shaft.



2. Hold the flat surface sections (E) on the steering rack shaft with one wrench, and tighten both rack ends with another wrench. Be careful not to damage the shaft surface with the wrench.

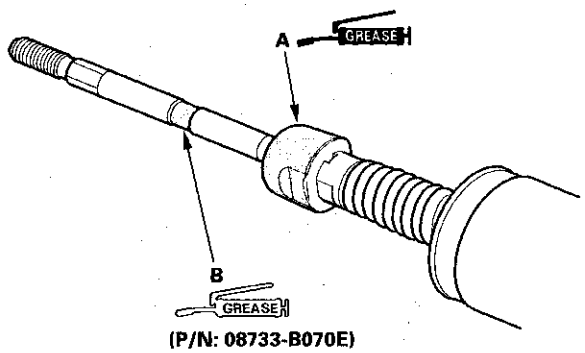
3. Bend the lock washer (A) back against the flat spots on the rack end joint housing.



(cont'd)

Rack End Removal and Installation (cont'd)

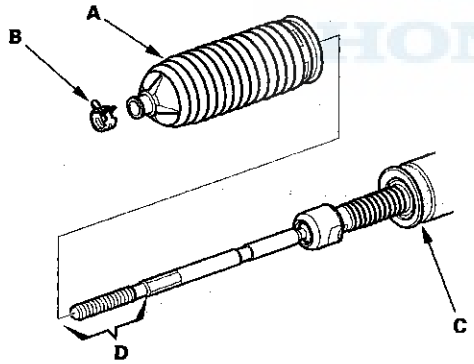
4. Apply multipurpose grease to the circumference (A) of the rack end joint housing.



(P/N: 08733-B070E)

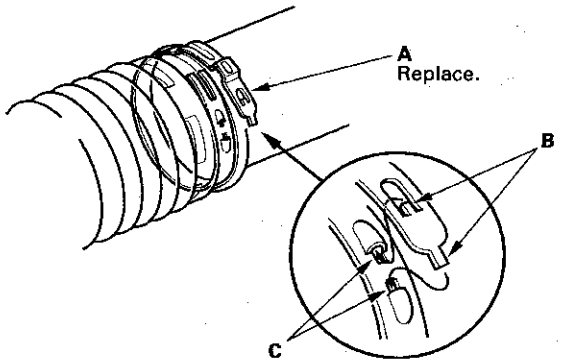
5. Apply a light coat of silicone grease to the boot grooves (B) on the rack ends.

6. Center the steering rack within its stroke. Install the boots (A) in the rack end with the tie-rod clips (B). Clean off any grease or contamination from the groove around (C) on the housing.

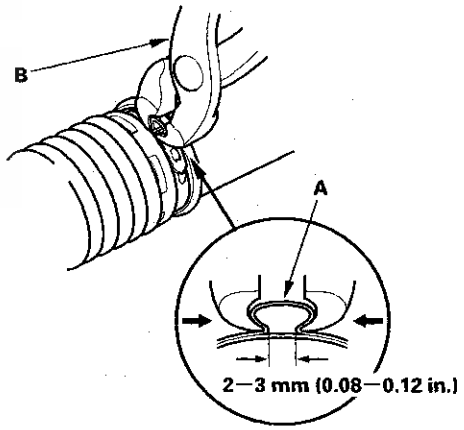


7. After installing the boots, wipe the grease off the thread section (D) of the rack end.

8. Install the new boot band (A) by aligning the tabs (B) with holes (C) of the band.



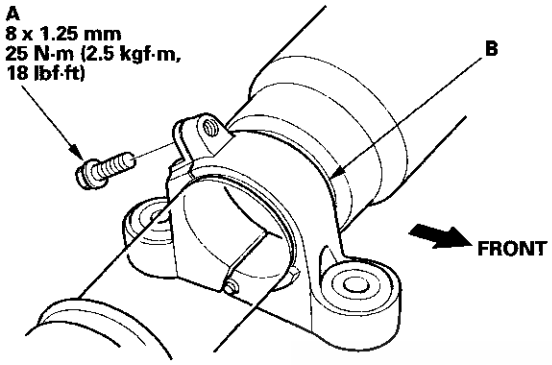
9. Close the ear portion (A) of the band with a commercially available Oetiker 1098 pincers or equivalent (B).



10. Slide the rack right and left to be certain that the boots are not deformed or twisted.

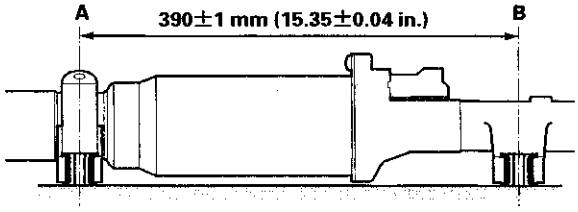
Gearbox Bracket Removal/ Installation

1. Remove the bracket clamp bolt (A) from the gearbox bracket (B), then pry open the bracket to remove it from the gearbox.



2. Install the gearbox bracket on the gearbox with the bracket clamp bolt toward the rear.

3. Adjust the distance between the bracket mounting bolt hole (A) and the gearbox mounting bolt hole (B) to the dimension shown. Make sure the bracket mounting bolt holes are parallel with gearbox mounting bolt holes.



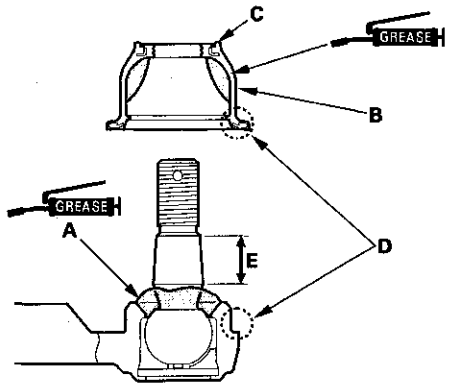
4. Install the bracket clamp bolt, and tighten it to 25 N·m (2.5 kgf·m, 18 lbf·ft).

Tie-rod Ball Joint Boot Replacement

Special Tools Required
Oil seal driver 07974-6790000

1. Remove the boot from the tie-rod end, and wipe the old grease off the ball pin.

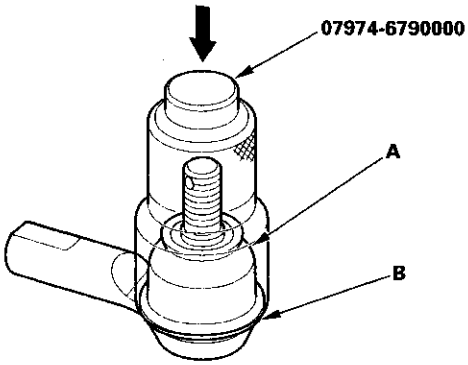
2. Pack the lower area of the ball pin (A) with fresh multipurpose grease.



3. Pack the interior of the new boot (B) and lip (C) with fresh multipurpose grease.

   Note these items when installing new grease:
   - Keep grease off the boot installation section (D) and the tapered section (E) of the ball pin.
   - Do not allow dust, dirt, or other foreign materials to enter the boot.

4. Install the new boot (A) using the oil seal driver. The boot must not have a gap at the boot installation sections (B). After installing the boot, check the ball pin tapered section for grease contamination, and wipe it off if necessary.

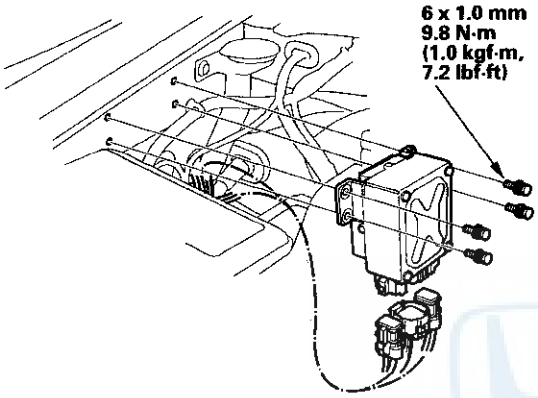


EPS Components

EPS Control Unit Removal/ Installation

1. Make sure you have the anti-theft code for the audio, then write down the frequencies for the audio preset buttons. Disconnect the negative battery cable from the battery.

2. Remove the EPS control unit.



3. Disconnect the EPS control unit connectors.

4. Install the EPS control unit in the reverse order of removal.

   NOTE: If the EPS control unit is replaced, the EPS control unit must memorize the torque sensor neutral position (see page 17-48).

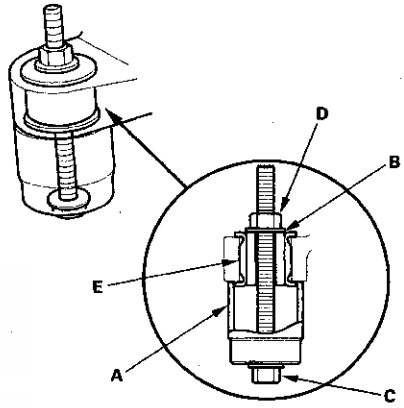
5. Reconnect the negative battery cable to the battery, and do these items:

   - For '00-05 models; do the ECM idle learn procedure (see page 11-140).
   - Enter the anti-theft code for the audio, then enter the audio presets.
   - For '01-08 models; set the clock.

Gearbox Mount Cushion Replacement

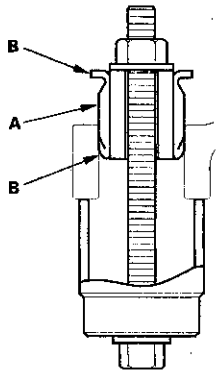
1. Remove the steering gearbox (see page 17-49).

2. Position a 34 mm socket wrench (A) on the flange part of the gearbox housing with a washer (B), a 10 x 105 mm flange bolt (C) and a 10 mm nut (D) as shown.



3. Hold the nut with a wrench, and tighten the flange bolt with another wrench. Remove the gearbox mount cushion (E).

4. Apply a mild soap and water solution to the new gearbox mount cushion surface (A), then place it on the gearbox mounting cushion hole.



5. Position a 34 mm socket wrench on the flange part of the gearbox housing with a washer, a flange bolt, and a nut as shown.

6. Install the gearbox mount cushion by tightening the nut until the mount cushion edges (B) contact the gearbox flange surface.

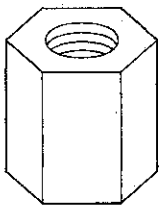
7. Install the steering gearbox (see page 17-52).

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

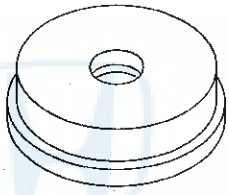
Suspension

Special Tools

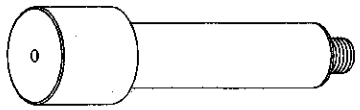
Ref. No.	Tool Number	Description	Qty
①	07AAF-SDAA100	Ball Joint Thread Protector, 12 mm	1
②	07GAD-SD40101	Attachment, 78 x 90 mm	1
③	07GAF-SD40100	Hub Dis/Assembly Tool, 42 mm	1
④	07GAF-SD40200	Inner Bearing Driver Attachment, 42 mm	1
⑤	07GAG-SD40700	Ball Joint Boot Clip Guide, 42 x 44 mm	1
⑥	07JAF-SH20330 or 07933-HB3000A without adjusting bolt	Bushing Base	1
⑦	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
⑧	071AF-S3VA000	Ball Joint Thread Protector, 14 mm	1
⑨	07746-0010400	Attachment, 52 x 55 mm	1
⑩	07746-0010500	Attachment, 62 x 68 mm	1
⑪	07746-0010600	Attachment, 72 x 75 mm	1
⑫	07749-0010000	Driver, 15 x 135L	1
⑬	07965-SD90100	Support Base, 73 x 78/82.6 mm	1



①, ⑧



②, ⑨, ⑩, ⑪



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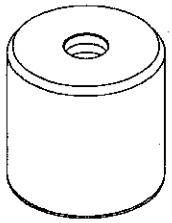
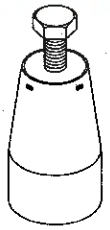


④



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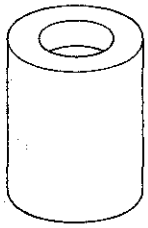

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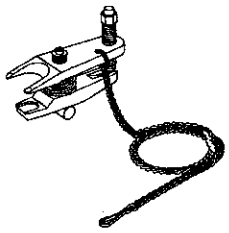

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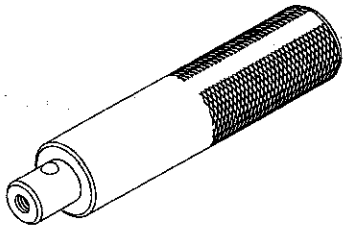

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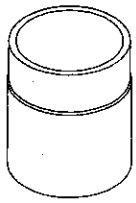
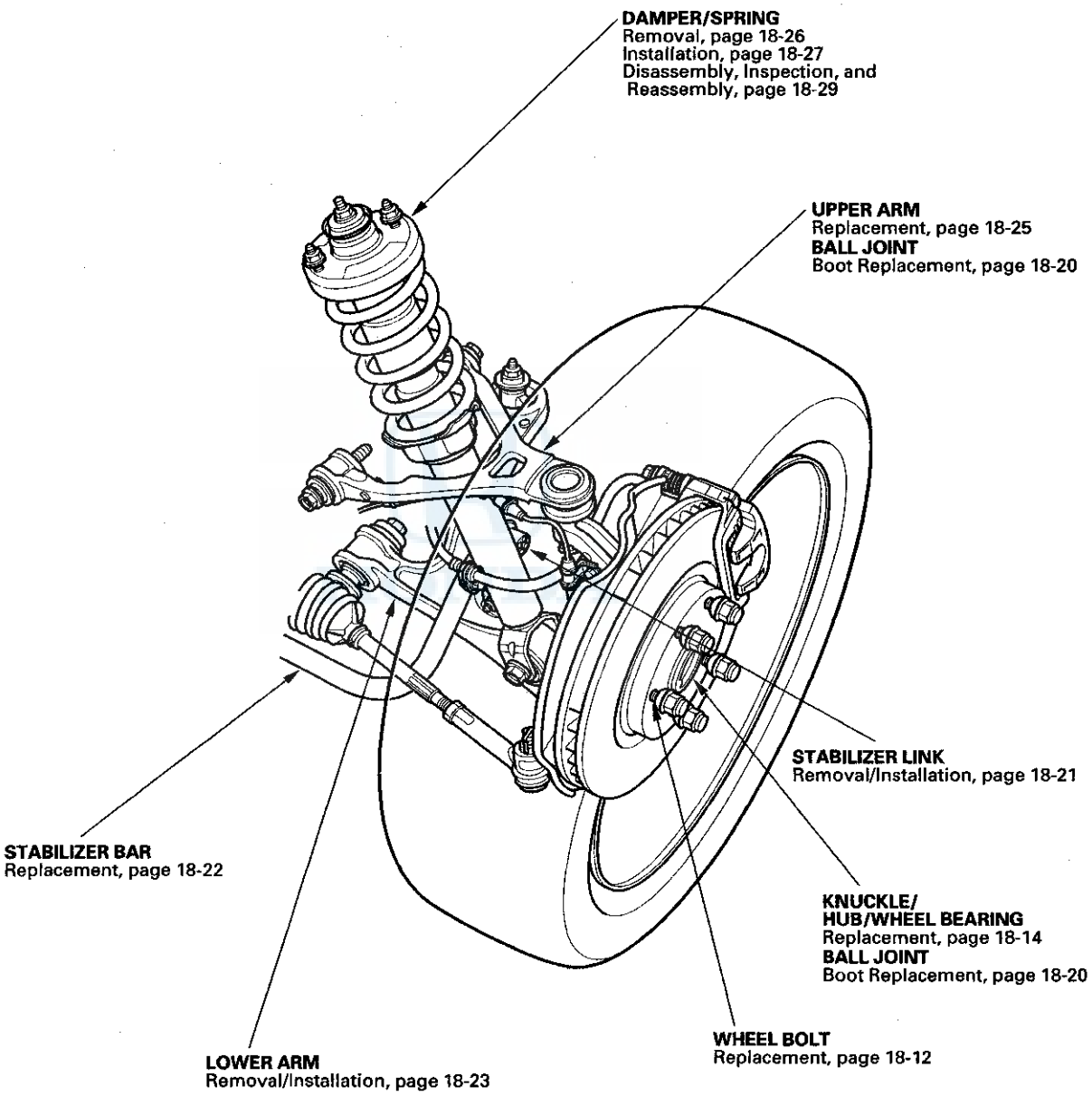


⑬

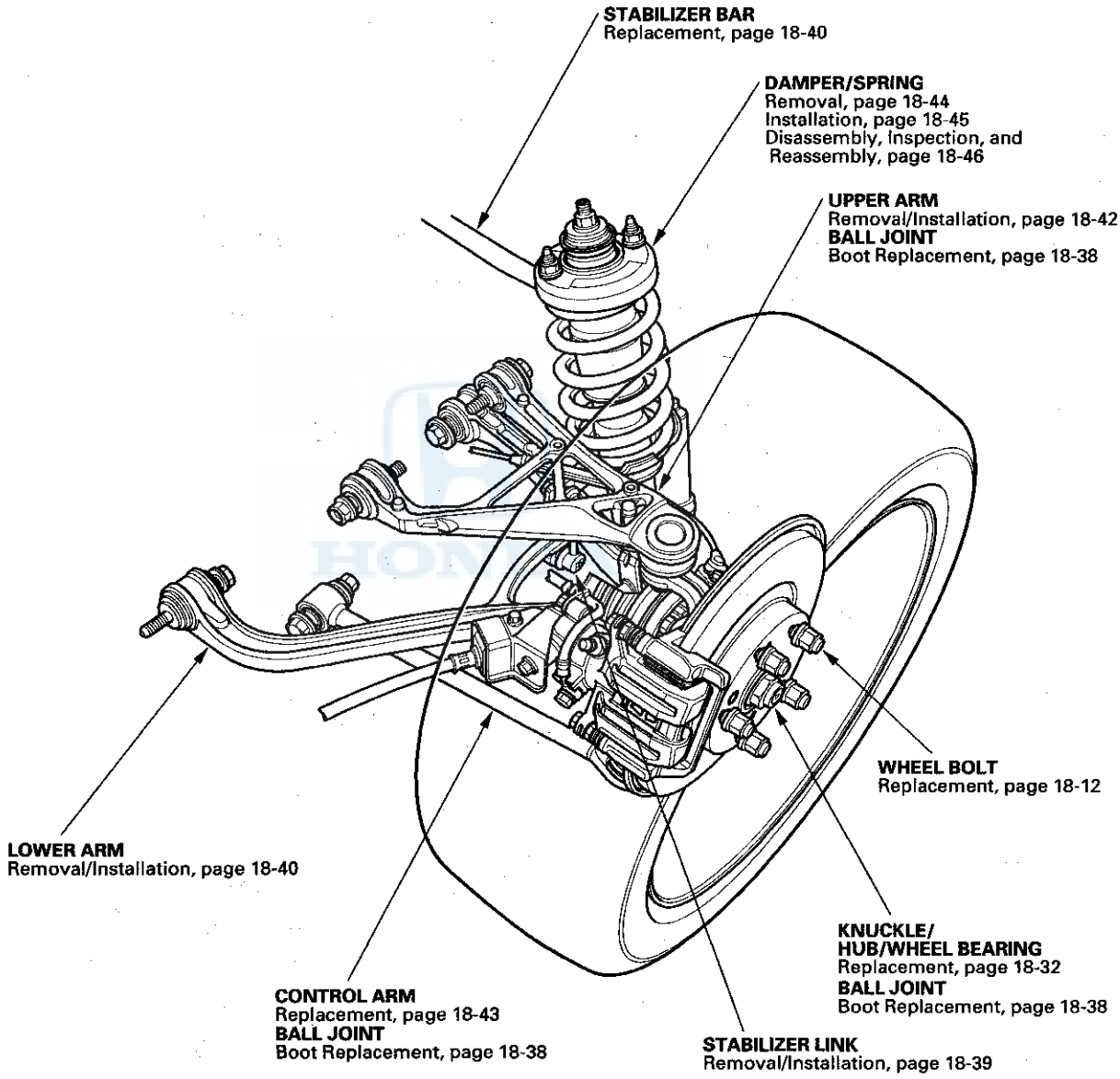
Component Location Index

Front Suspension



Component Location Index (cont'd)

Rear Suspension



Tire Sealant Removal

NOTE:
- This procedure is only to be used with the temporary tire repair sealant.
- The tire inflator and temporary repair sealant are used on vehicles without a spare tire.
- The temporary repair sealant used to repair the tire must be removed before the tire is permanently repaired.
- The temporary repair sealant (once used or past the expiration date) is considered hazardous waste, and must be disposed of in an environmentally safe manner (such as used engine oil and coolant). Check with your local regulations for proper disposal.
- The expiration date of the temporary repair sealant is printed on the label of the container.

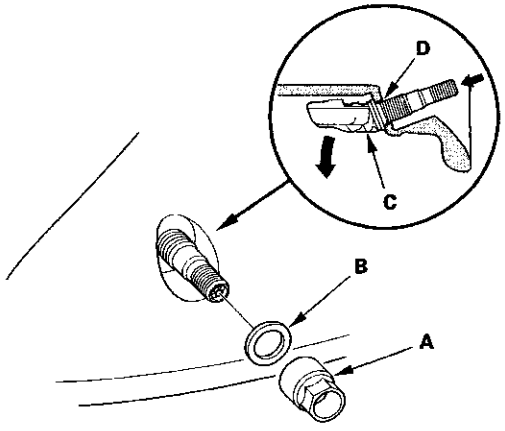
1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-18).

2. Remove the appropriate wheel and deflate the tire.

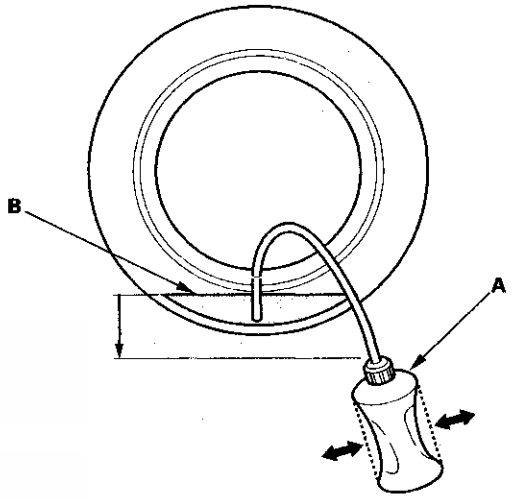
3. Place the wheel and tire assembly up right with the tire valve hole at the 6 o'clock position.

4. Remove the valve stem nut (A) and washer (B), then push the tire pressure sensor (C) into the wheel, down into the tire.

   NOTE:
   - Be careful not to spill the tire sealant from the valve stem hole (D).
   - Check the nut and the washer. If they have deteriorated or damaged, replace with new ones during reassembly.



5. Use a commercially available squeeze bottle, siphon gun (A), a commercially available air, or hand vacuum tool with a proper tube to remove the tire sealant. Insert the tube into the tire through the valve stem hole, and stick it down until the end of the tube is immersed into the sealant (B).



6. Remove the tire sealant. To completely empty the tire of sealant, carefully rock the wheel back and forth.

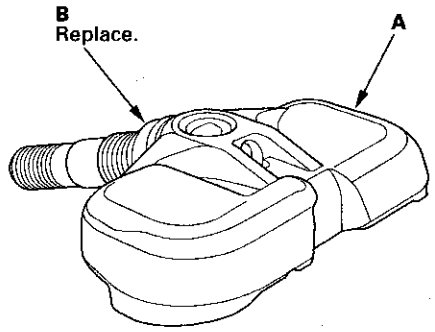
   NOTE: If using the bottle with the tube, set the bottle in a lower position than the tire and squeeze the bottle to siphon the tire sealant into the bottle.

7. Completely seal and dispose of the bottle containing the tire sealant in the proper manner for hazardous waste. Check with your local regulations.

(cont'd)

Tire Sealant Removal (cont'd)

8. Remove the tire from the wheel, and remove the tire pressure sensor (A) and the grommet (B) (if removed) from inside the tire.



9. Completely rinse the tire pressure sensor with cold water to remove the tire sealant.

   NOTE: Do not use any soap or cleaner. Use cold water only. Make sure the tire sealant does not stick to the sensor. If the sealant has dried onto the tire pressure sensor, then the sensor must be replaced (see page 18-82).

10. If you are repairing the tire for reuse, completely wipe out the inside of the tire, fix the flat, and reinstall the tire pressure sensor (see page 18-82) a new tire valve.

    NOTE:
    - Wipe the fluid sealant completely so that the beaded edge of the tire and the mating portion of the wheel rim and the bead are cleared.
    - The damaged portion such as punctures may be filled with the fluid sealant, depending on the extent of the damage.

11. Clean the mating surfaces of the brake disc and the inside of wheel, then install the wheel.

12. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

13. Make sure the TPMS indicator or the low tire pressure indicator does not come on (see page 18-51).

    NOTE: Using the tire sealant once may cause to be TPMS faulty. In this case replace the tire pressure sensor (see page 18-81).

14. Reduce the pressure in one tire less than 150 kPa (1.5 kgf/cm^2, 22 psi).

15. Make sure the low tire pressure indicator turns on (see page 18-51). If the low tire pressure indicator does not come on, replace the tire pressure sensor (see page 18-81).

16. Inflate the tire (see page 18-7).

Wheel Alignment

The suspension can be adjusted for caster, camber, and toe. However, each of these adjustments are related to each other. For example, when you adjust camber, the toe will change. Therefore, you must adjust the front/rear alignment whenever you adjust caster, camber, or toe.

Pre-Alignment Checks

For proper inspection and adjustment of the wheel alignment, do the following:

1. Release the parking brake to avoid an incorrect measurement.

2. Make sure the suspension is not modified.

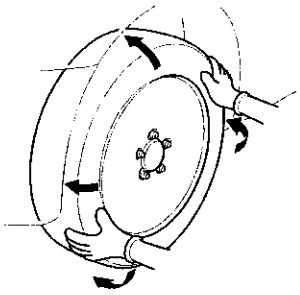
3. Check the tire size and tire pressure.

Tire size ('00-03 models):
Front: 205/55R16 89W
Rear: 225/50R16 92W
Tire size ('04-07 models):
Front: 215/45R17 87W
Rear: 245/40R17 91W
Tire size ('08 model):
Front: 215/45R17 87W
Rear (except CR model): 245/40R17 91W
Rear (CR model): 255/40R17 94W

Tire pressure (at cold):
Front/Rear: 220 kPa (2.2 kgf/cm², 32 psi)

4. Check the runout of the wheels and tires (see page 18-12).

5. Check the suspension ball joints (Hold a tire with your hands, and move it up and down and right and left to check for wobbling.)

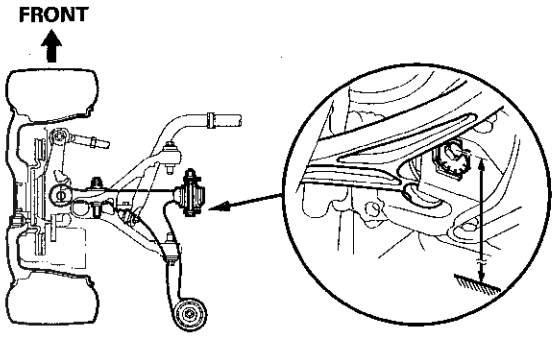


6. Bounce the vehicle up and down several times to settle the suspension.

7. Check the ride height of each suspension. Make sure the vehicle is empty, is parked on a level surface, and has properly inflated tires (the treadwear indicator must not be showing). If the height is out of specification, adjust the load as necessary.

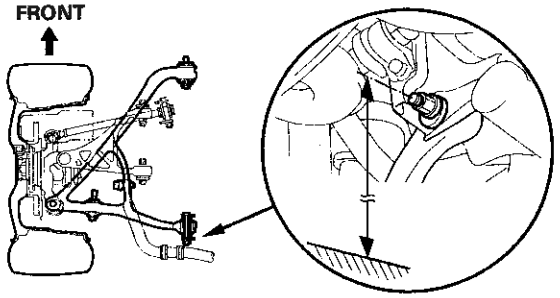
Height:
Front: 192—202 mm (7.56—7.95 in.)
Rear: 206—216 mm (8.11—8.50 in.)

Front:



The height from the ground to the center of the head of the lower arm's front adjusting bolt.

Rear:



The height from the ground to the center of the head of the lower arm's rear adjusting bolt.

(cont'd)

Wheel Alignment (cont'd)

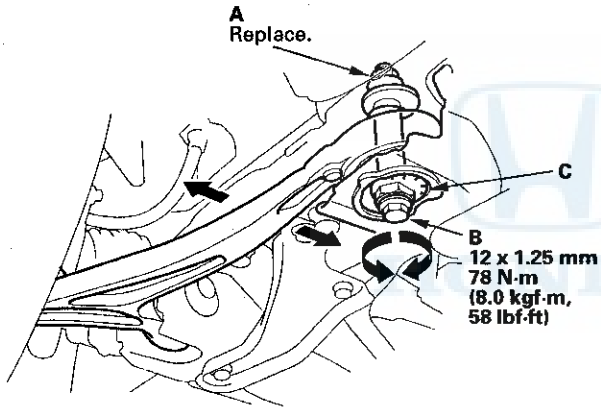
Caster Inspection/Adjustment

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the caster angle. If adjustment is required, go to step 2.

   Caster angle: 6 °00 ′±15 ′
   Maximum difference between the right and left side: 0 °15 ′

2. Hold the self-locking cam nut (A) on the rear of the lower arm, and loosen the flange bolt (B).



3. Replace the self-locking cam nut with a new one, and lightly tighten it.

   NOTE: Always use a new self-locking cam nut whenever it has been loosened.

4. Turn the adjusting cam collar (C) until the caster is correct.

5. After adjusting, tighten the flange bolt while holding the self-locking cam nut.

6. Bounce the vehicle several times, and recheck the caster reading.

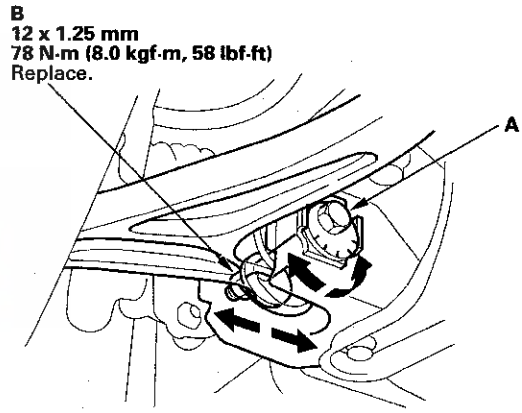
Front Camber Inspection/Adjustment

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the camber angle. If adjustment is required, go to step 2.

   Front camber angle: —0 °30 ′±10 ′
   Maximum difference between the right and left side: 0 °10 ′

2. Hold the adjusting bolt (A) on the front of the lower arm, and loosen the self-locking nut (B).



3. Replace the self-locking nut with a new one, and lightly tighten it.

   NOTE: Always use a new self-locking nut whenever it has been loosened.

4. Turn the adjusting bolt until the camber is correct.

5. After adjusting, tighten the self-locking nut while holding the adjusting bolt.

6. Bounce the vehicle several times, and recheck the camber reading.

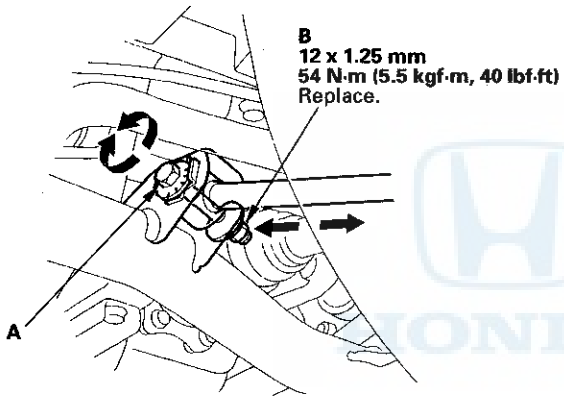
Rear Camber Inspection/Adjustment

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the camber angle. If adjustment is required, go to step 2.

   Rear camber angle: −1 °30 ′±10 ′

2. Hold the adjusting bolt (A) on the control arm, and loosen the self-locking nut (B).



3. Replace the self-locking nut with a new one, and lightly tighten it.

   NOTE: Always use a new self-locking nut whenever it has been loosened.

4. Turn the adjusting bolt until the camber is correct.

5. After adjusting, tighten the self-locking nut while holding the adjusting bolt.

Front Toe Inspection/Adjustment

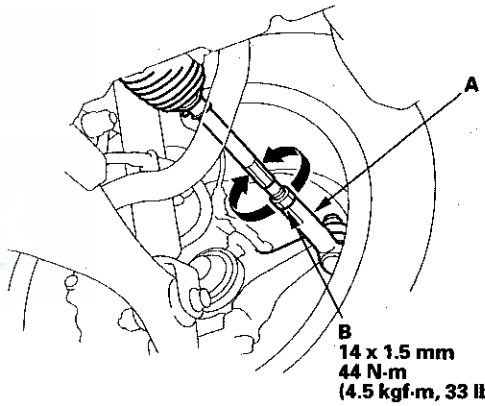
Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Center the steering wheel spokes and install a steering wheel holder tool.

2. Check the toe with the wheels pointed straight ahead. If adjustment is required, go to step 3.

   Front toe-in: 0±2 mm (0±0.08 in.)

3. Hold the tie-rod end (A), and loosen the tie-rod locknut (B).



4. Turn the tie-rod until the toe is correct.

5. After adjusting, tighten the locknut while holding the tie-rod end. Reposition the rack-end boot if it is twisted or dislocated.

(cont'd)

Wheel Alignment (cont'd)

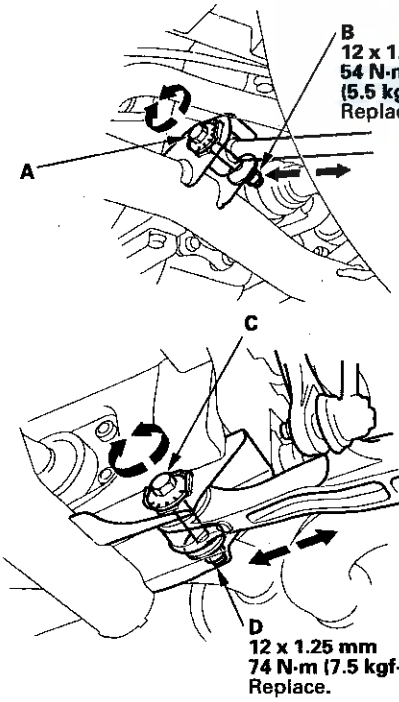
Rear Toe Inspection/Adjustment

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Release the parking brake to prevent an incorrect measurement.
2. Check the toe. If adjustment is required, go to step 3.

   Rear toe-in:
   '00-03 models: 6.0±2 mm (0.24±0.08 in.)
   '04-08 models:
   Except CR model: 3.6±2 mm (0.14±0.08 in.)
   CR model: 5.5±2 mm (0.22±0.08 in.)

3. Hold the adjusting bolt of the control arm (A), and loosen the self-locking nut (B). Hold the adjusting bolt of the lower arm (C), and loosen the self-locking nut (D).



4. Replace the self-locking nuts with new one, and lightly tighten them.

   NOTE: Always use new self-locking nuts whenever they have been loosened.

5. Turn both adjusting bolts in opposite directions until the toe is correct.

   NOTE: Adjust the rear toe by adjusting the control arm and the lower arm by the same amount in opposite directions to each other (for example, when you move the control arm out, move the lower arm in, and vice versa).

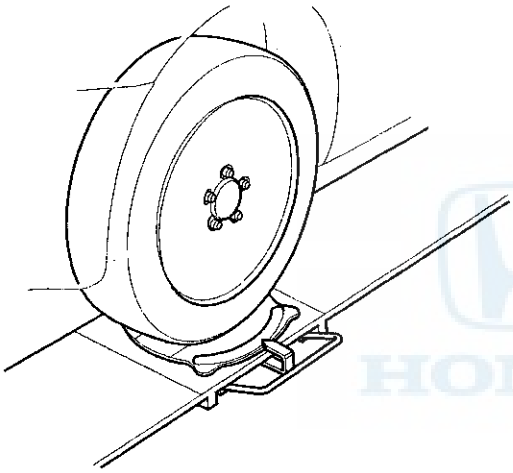
6. After adjusting, tighten both self-locking nuts while holding the respective adjusting bolts.

Turning Angle Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Turn the front wheels right and left while applying the brake, and measure the turning angles of both wheels.

   Turning angle:
   Inward: 34 °00 ′ ±2 °
   Outward (reference): 29 °00 ′



2. If the turning angles are out of specification or the inward turning angles differ between the right and left, check the toe, and adjust accordingly.

3. If the toe adjustment is correct but the turning angles are out of specification, check for bent or damaged suspension components.

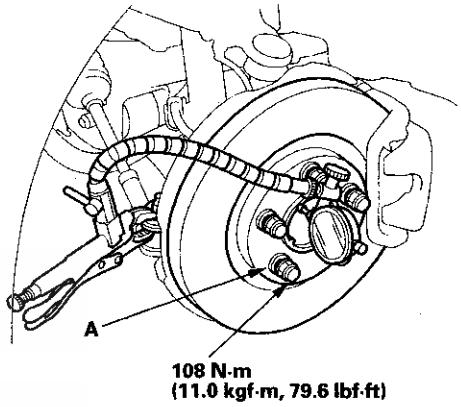
Wheel Bearing End Play Inspection

1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-18).

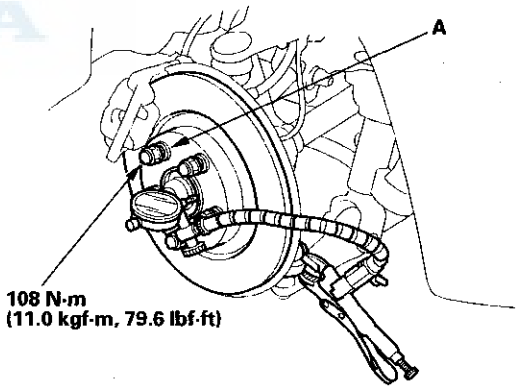
2. Remove the wheels.

3. Install suitable flat washers (A) and the wheel nuts. Tighten the nuts to the specified torque to hold the brake disc securely against the hub.

   Front:



   Rear:



4. Attach the dial gauge. Place the dial gauge against the hub flange.

5. Measure the bearing end play moving the brake disc inward or outward.

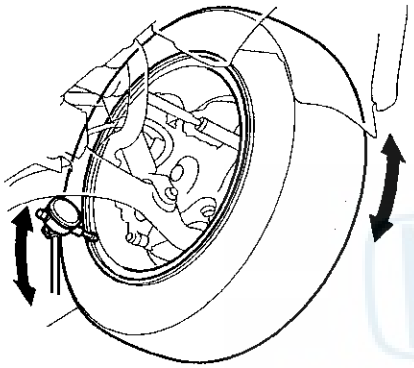
   Standard:
   Front/Rear: 0—0.05 mm (0—0.002 in.)

6. If the bearing end play measurement is more than the standard, replace the wheel bearing.

Wheel Runout Inspection

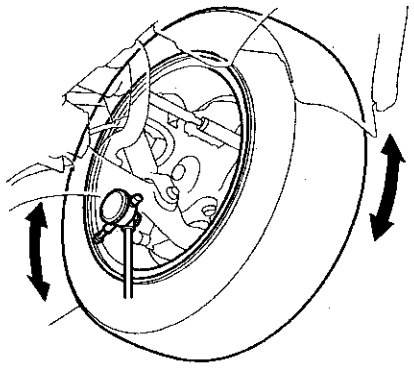
1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Check for bent or deformed wheels.
3. Set up the dial gauge as shown, and measure axial runout by turning the wheel.

Front and rear wheel axial runout:
Standard: 0—0.7 mm (0—0.03 in.)
Service limit: 2.0 mm (0.08 in.)



4. Reset the dial gauge to the position shown, and measure the radial runout.

Front and rear wheel radial runout:
Standard: 0—0.7 mm (0—0.03 in.)
Service limit: 1.5 mm (0.06 in.)



5. If the wheel runout is out of specification, check the wheel bearing end play (see page 18-11), and make sure the mating surfaces on the brake disc and the inside of the wheel are clean.
6. If the bearing end play is within the specification but the wheel runout is more than the service limit, replace the wheel.

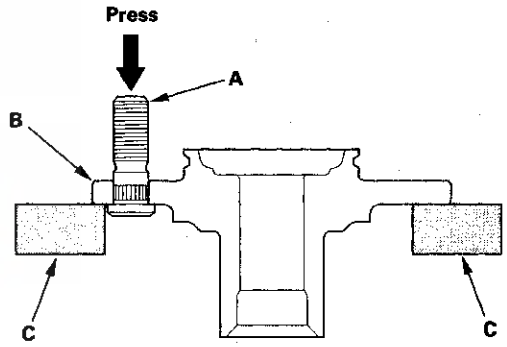
Wheel Bolt Replacement

NOTICE

- Do not use a hammer or air or electric impact tools to remove and install the wheel bolts.
- Be careful not to damage the threads of the wheel bolts.

1. Remove the front hub or rear hub: front (see page 18-14), rear (see page 18-32).
2. Separate the wheel bolt (A) from the hub (B) using a hydraulic press. Support the hub with hydraulic press attachments (C) or equivalent tools.

NOTE:
- Before installing the new wheel bolt, clean the mating surfaces on the bolt and the hub.
- The illustration shows a rear hub.



3. Insert the new wheel bolt into the hub while aligning the splined surfaces on the hub hole with the wheel bolt.

NOTE:
- Degrease all around the wheel bolt.
- Make sure the wheel bolt is installed vertically in relation to the hub disc surface.

4. Install the wheel bolt using a hydraulic press until the wheel bolt shoulder is fully seated.
5. Install the front hub or rear hub: front (see page 18-14), rear (see page 18-32).

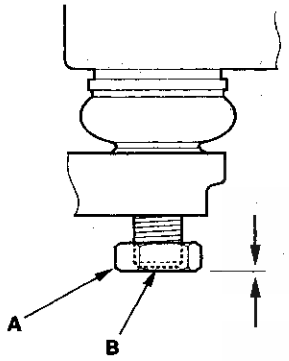
NOTE: If you cannot tighten the wheel nut to the specified torque value when installing the wheel, replace the front hub or rear hub as an assembly.

Ball Joint Removal

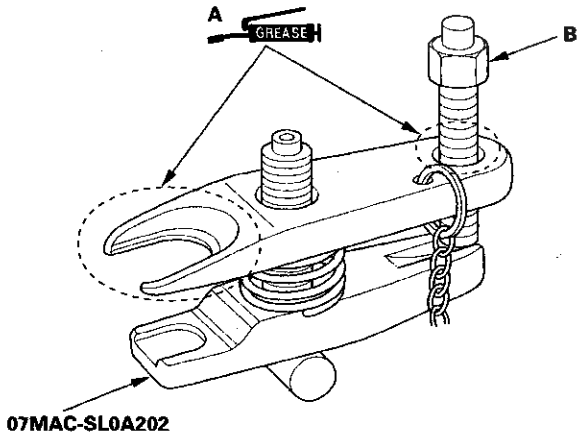
Special Tools Required
Ball joint remover, 28 mm 07MAC-SL0A202

NOTICE
Always use a ball joint remover to disconnect a ball joint. Do not strike the housing or any other part of the ball joint connection to disconnect it.

1. Install a hex nut (A) onto the threads of the ball joint (B). Make sure the nut is flush with the ball joint pin end to prevent damage to the threaded end of the ball joint pin.

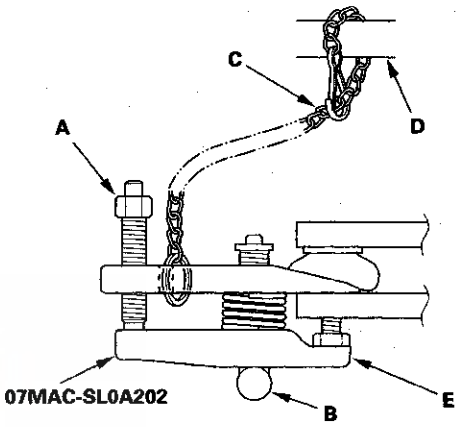


2. Apply grease to the ball joint remover on the areas shown (A). This will ease installation of the tool and prevent damage to the pressure bolt (B) threads.



3. Loosen the pressure bolt (A), and install the ball joint remover as shown. Insert the jaws carefully, making sure not to damage the ball joint boot. Adjust the jaw spacing by turning the adjusting bolt (B).

   NOTE: Fasten the safety chain (C) securely to a suspension arm or the subframe (D). Do not fasten it to a brake line or wire harness.



4. After adjusting the adjusting bolt, make sure the head of the adjusting bolt is in the position shown to allow the jaw (E) to pivot.

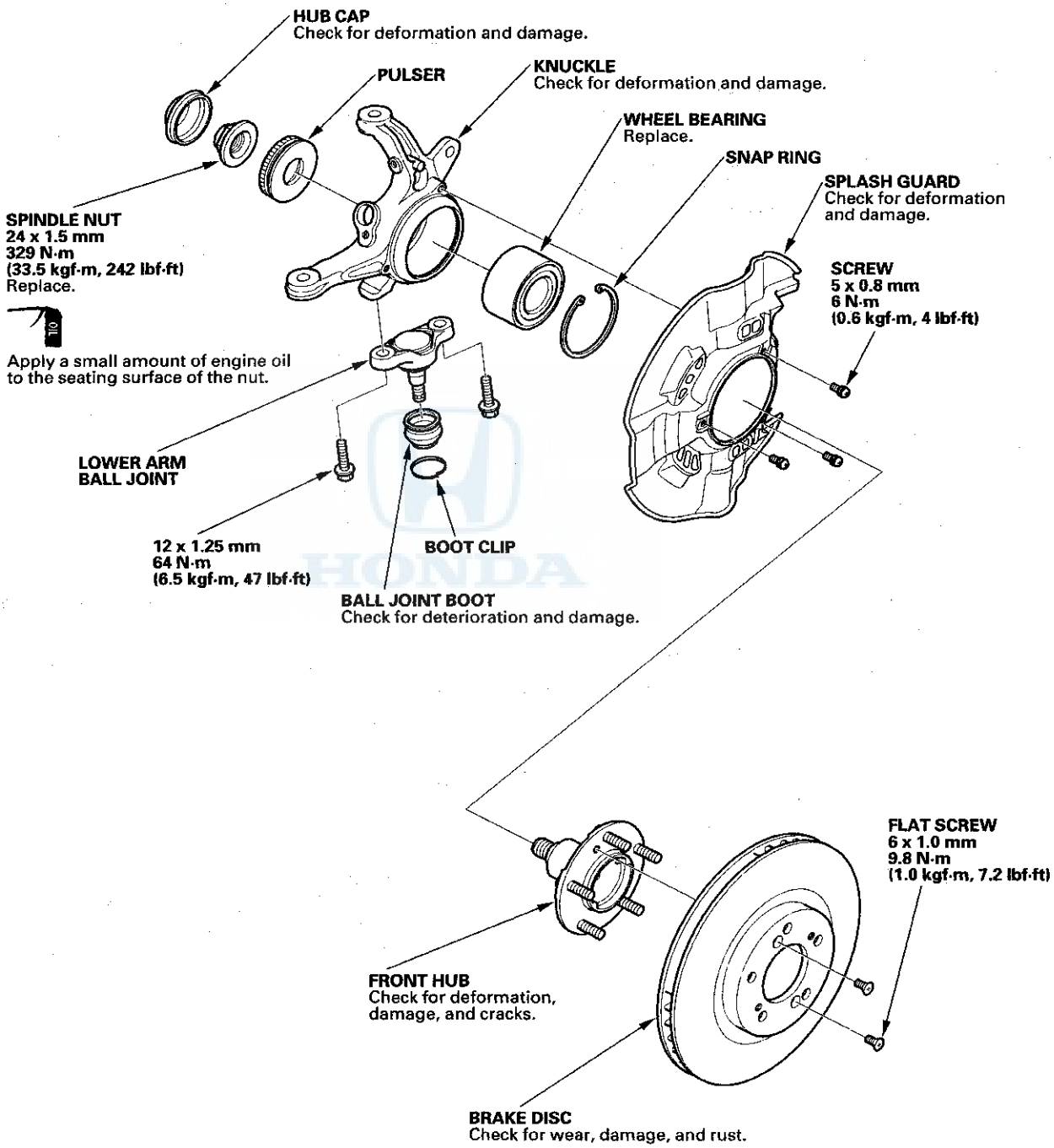
5. With a wrench, tighten the pressure bolt until the ball joint pin pops loose from the ball joint connecting hole. If necessary, apply penetrating type lubricant to loosen the ball joint pin.

   NOTE: Do not use pneumatic or electric tools on the pressure bolt.

6. Remove the ball joint remover, then remove the nut from the end of the ball joint pin, and pull the ball joint out of the ball joint connecting hole. Inspect the ball joint boot, and replace it if damaged.

Knuckle/Hub/Wheel Bearing Replacement

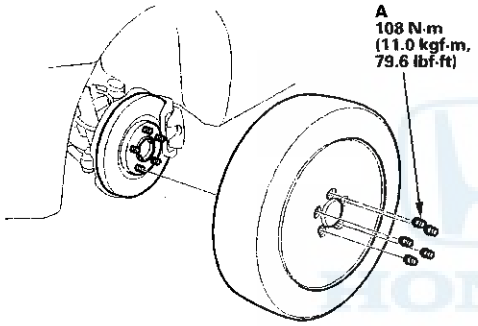
Exploded View



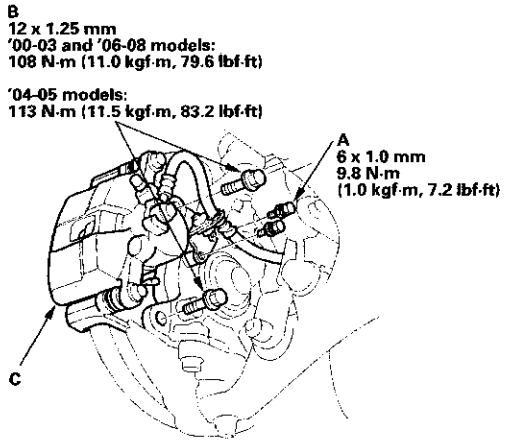
Special Tools Required
- Attachment, 78 x 90 mm 07GAD-SD40101
- Inner bearing driver attachment, 42 mm 07GAF-SD40200
- Ball joint remover, 28 mm 07MAC-SL0A202
- Ball joint thread protector, 14 mm 071AF-S3VA000
- Attachment, 72 x 75 mm 07746-0010600
- Driver, 15 x 135L 07749-0010000
- Support base, 73 x 78/82.6 mm 07965-SD90100

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).

2. Remove the wheel nuts (A) and the front wheel.

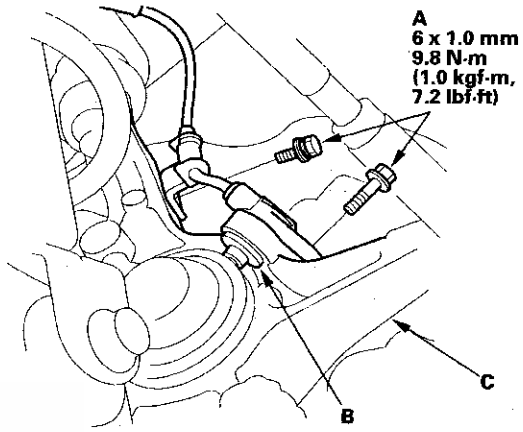


3. Remove the brake hose bracket mounting bolts (A).



4. Remove the brake caliper bracket mounting bolts (B), then remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.

5. Remove the flange bolts (A) and wheel speed sensor (B) from the knuckle (C). Do not disconnect the wheel speed sensor connector.

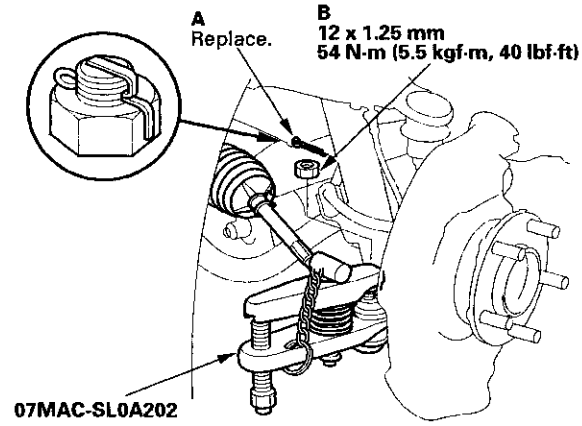


6. Remove the brake disc (see page 19-16).

7. Check the front hub for damage and cracks.

8. Remove the cotter pin (A) from the tie-rod end ball joint, then remove the nut (B).

   NOTE: During installation, install the new cotter pin after tightening the nut, and bend its end as shown.



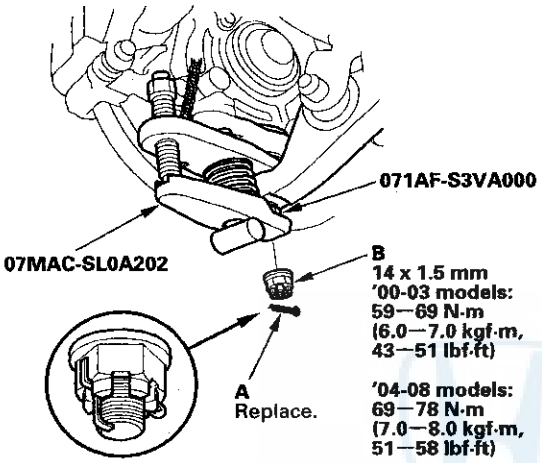
9. Disconnect the tie-rod end ball joint from the knuckle using the ball joint remover (see page 18-13).

(cont'd)

Knuckle/Hub/Wheel Bearing Replacement (cont'd)

10. Remove the cotter pin (A) from the lower arm ball joint, then remove the castle nut (B).

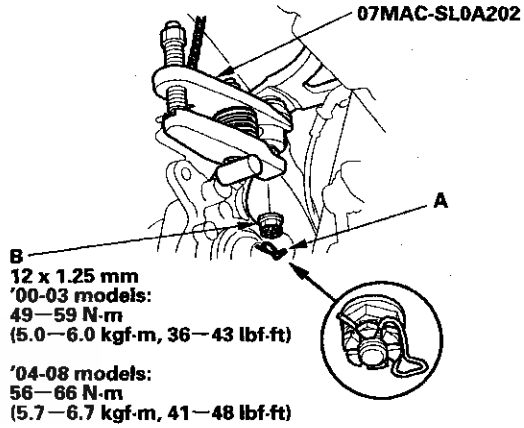
    NOTE: During installation, install the new cotter pin after tightening the castle nut, and bend its end as shown.



11. Disconnect the lower arm ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see page 18-13).

12. Remove the lock pin (A) from the upper arm ball joint, then remove the castle nut (B).

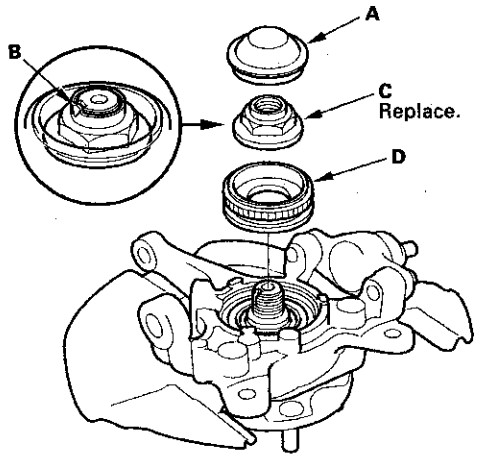
    NOTE: During installation, install the lock pin as shown after tightening the castle nut.



13. Disconnect the upper arm ball joint from the knuckle using the ball joint remover (see page 18-13).

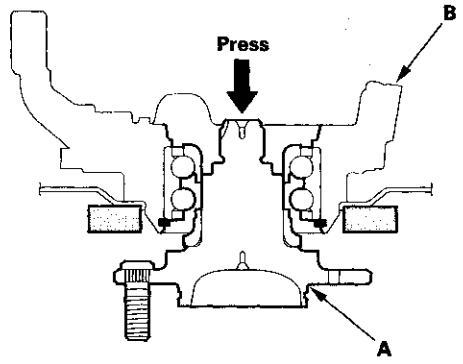
14. Remove the knuckle.

15. Remove the hub cap (A).

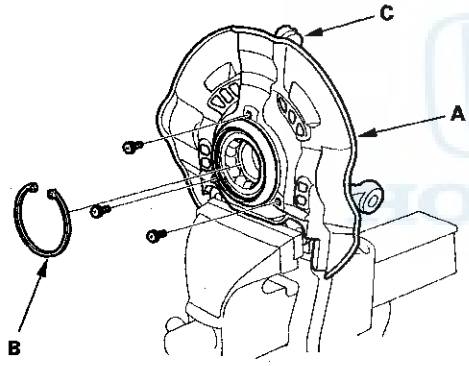


16. Raise the stake (B) of the spindle nut (C), and remove the nut and pulsar (D).

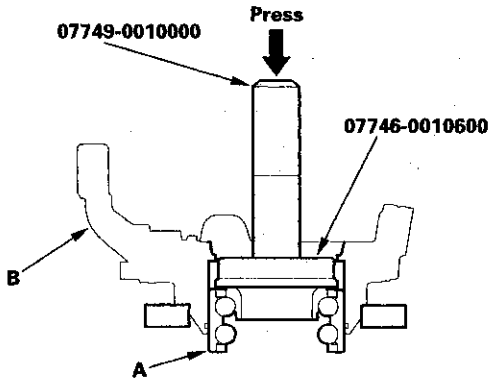
17. Separate the hub (A) from the knuckle (B) using a hydraulic press. Be careful not to deform the splash guard. Hold onto the hub to keep it from falling when pressed clear.



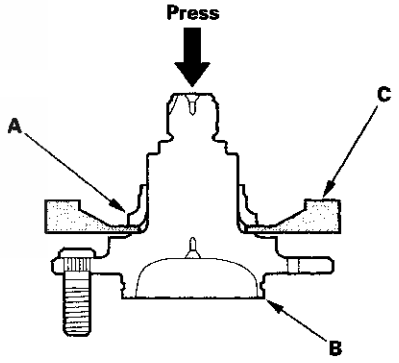
18. Remove the splash guard (A) and the snap ring (B) from the knuckle (C).



19. Press the wheel bearing (A) out of the knuckle (B) using the driver, the attachment, and a press.



20. Press the wheel bearing inner race (A) out of the hub (B) using a commercially available bearing separator (C) and a press.

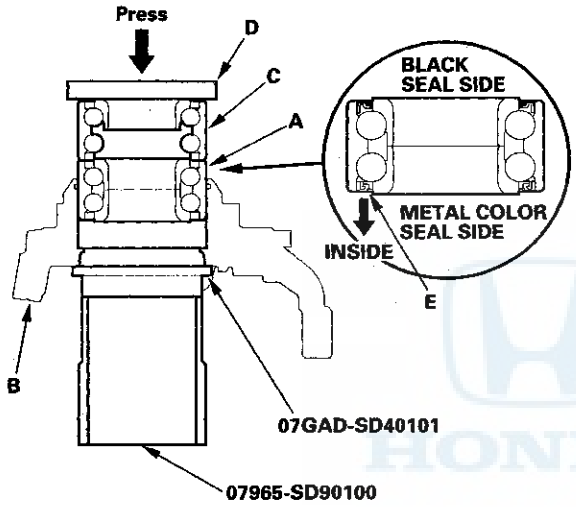


(cont'd)

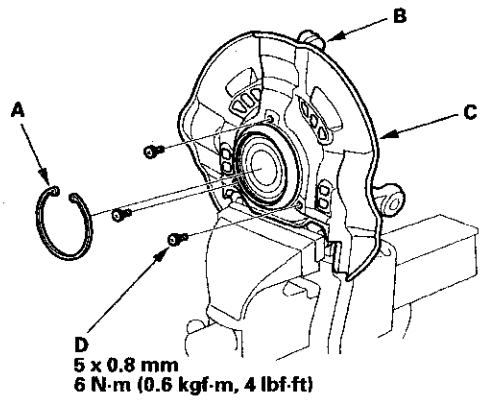
Knuckle/Hub/Wheel Bearing Replacement (cont'd)

21. Wash the knuckle and hub thoroughly in a high flash point solvent before reassembly.

22. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the attachment, the support base, and a press. Place the wheel bearing on the knuckle with the pack seal side facing (E) (metal color) toward the inside. Be careful not to damage the sleeve of the pack seal.



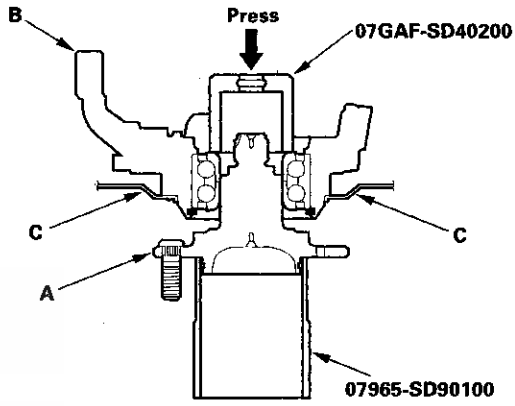
23. Install the snap ring (A) securely in the knuckle (B).



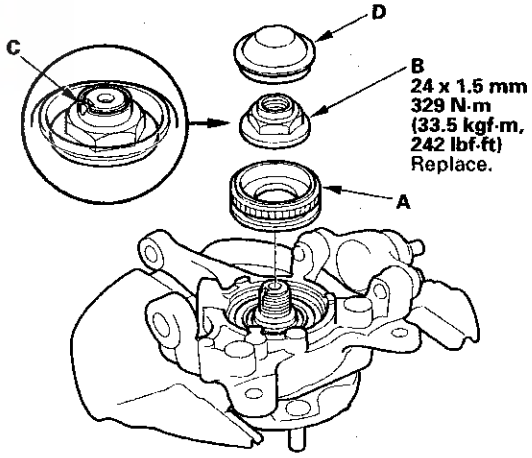
24. Install the splash guard (C), and tighten the screws (D) to the specified torque value.

25. Wash the spindle thoroughly in a high flash point solvent before reassembly.

26. Install the hub (A) onto the knuckle (B) using the inner bearing driver attachment, support base, and a hydraulic press. Be careful not to distort the splash guard (C).



27. Install the pulser (A).



28. Apply a small amount of engine oil to the seating surface of the new spindle nut (B). Install the nut, and tighten it to the specified torque value. Stake (C) the nut shoulder against the spindle with a drift.

29. Install the hub cap (D).

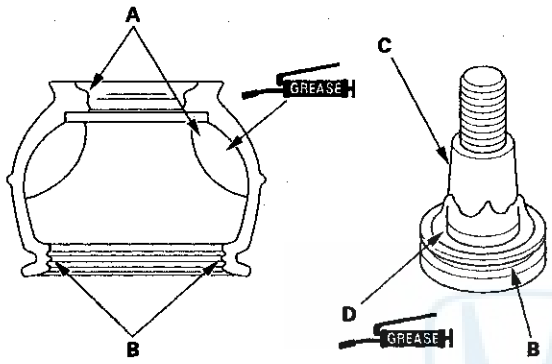
30. Install the knuckle in the reverse order of removal, paying particular attention to the following items:

- First install all of the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
- Be careful not to damage the ball joint boot when connecting the knuckle.
- Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Before installing the brake disc, clean the mating surfaces of the front hub and the inside of the brake disc.
- Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
- Check the wheel alignment, and adjust it if necessary (see page 18-7).

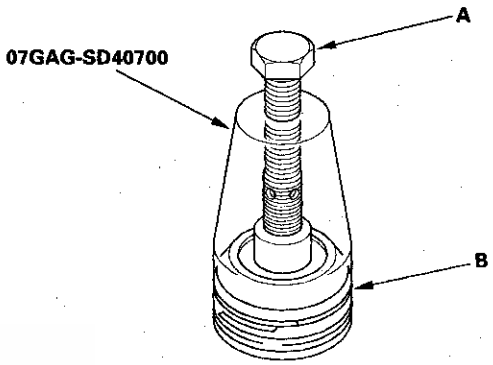
Ball Joint Boot Replacement

Special Tools Required
Ball joint boot clip guide, 42 x 44 mm 07GAG-SD40700

1. Remove the boot clip and the boot.
2. Pack the interior and lip of the new boot (A) with fresh grease. Do not contaminate the lower collar of the boot (B) with grease.



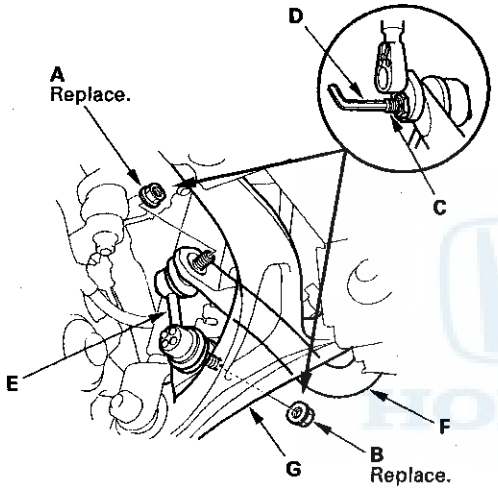
3. Wipe the grease off the tapered section of the ball joint pin (C), and pack the base (D) with fresh grease.
4. Install the boot onto the ball joint pin, then squeeze it gently to force out any air. Do not let dirt or other foreign materials get into the boot.
5. Adjust the ball joint boot clip guide with the adjusting bolt (A) until its base is just above the groove around the bottom of the boot. Then slide the clip (B) over the ball joint boot clip guide into the position on the boot.



6. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.

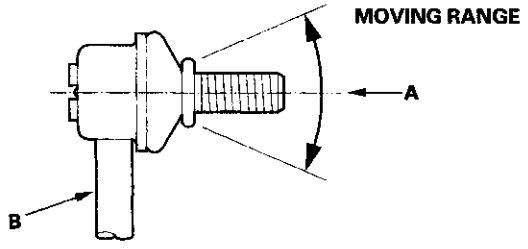
Stabilizer Link Removal/Installation

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the front wheel.
3. Remove the splash shield (see step 3 on page 18-22).
4. Remove the self-locking nut (A) and the flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), and disconnect the stabilizer link (E) from the stabilizer bar (F) and the lower arm (G).

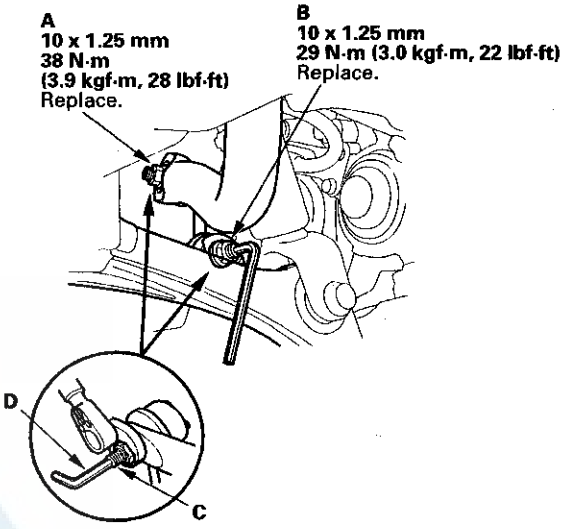


5. Install the stabilizer link to the stabilizer bar and lower arm with the joint pins set at the center (A) of their range of movement.

   NOTE: The left stabilizer link has a yellow paint mark on the rod (B), while the right stabilizer link has a white paint mark.



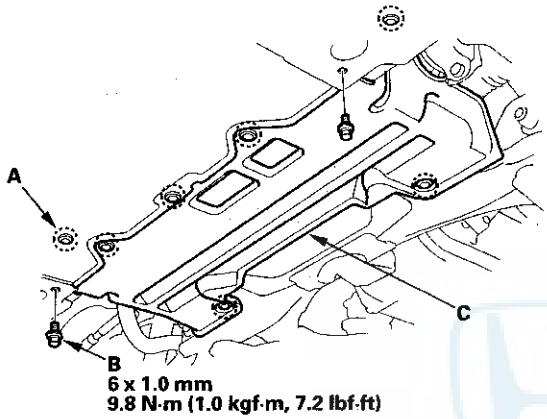
6. Install the new self-locking nut and the new flange nut, and lightly tighten them.
7. Place a jack under the lower arm, and raise the suspension to load the stabilizer bar.
8. Tighten the self-locking nut (A) and the flange nut (B) to the specified torque values while holding the respective joint pin (C) with a hex wrench (D).



9. Install the splash shield (see step 3 on page 18-22).
10. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel, and test-drive the vehicle.
11. After 5 minutes of driving, tighten the self-locking nut again to the specified torque value.

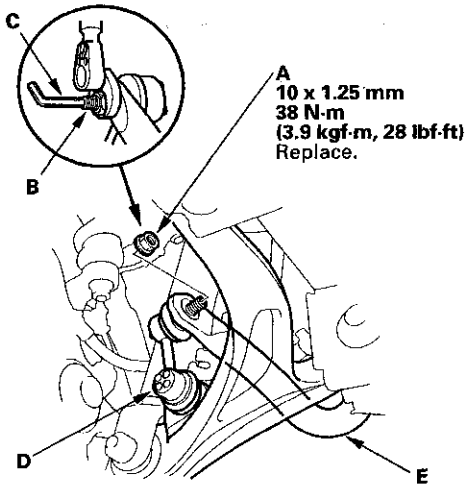
Stabilizer Bar Replacement

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the front wheels.
3. Remove the seven clips (A) and two flange bolts (B), then remove the splash shield (C).

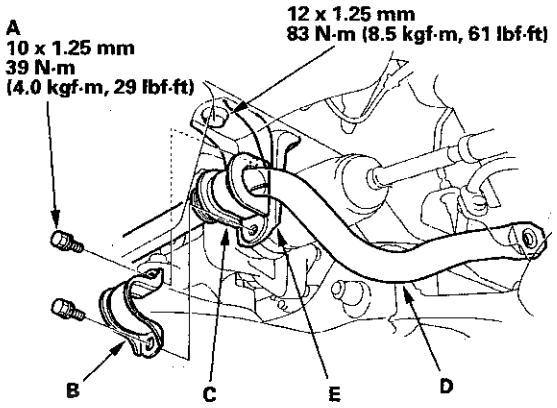


4. Remove the self-locking nut (A) while holding the joint pin (B) with a hex wrench (C), and disconnect both stabilizer links (D) from the stabilizer bar (E).

   NOTE: During installation, install the new self-locking nut.



5. Remove the bolts (A) and bushing holders (B), then remove the bushings (C) and the stabilizer bar (D).



6. Replace the stabilizer hold bracket (E) if necessary.
7. Install the stabilizer bar in the reverse order of removal, and note these items:

   - Refer to stabilizer link removal/installation to connect the stabilizer bar to the links (see page 18-21).
   - Before installing the wheel, clean the mating surfaces of the brake disc and inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-7).

Lower Arm Removal/Installation

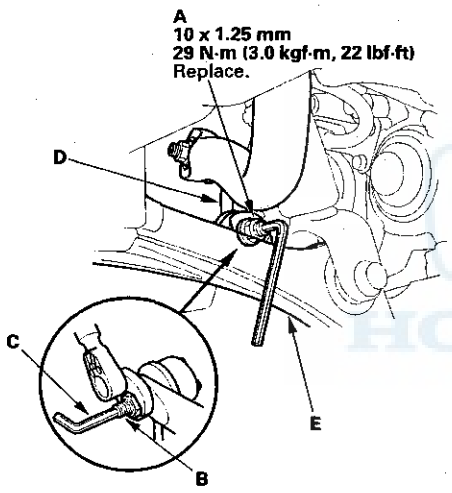
Special Tools Required
- Ball joint thread protector, 14 mm 071AF-S3VA000
- Ball joint remover, 28 mm 07MAC-SL0A202

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).

2. Remove the front wheel.

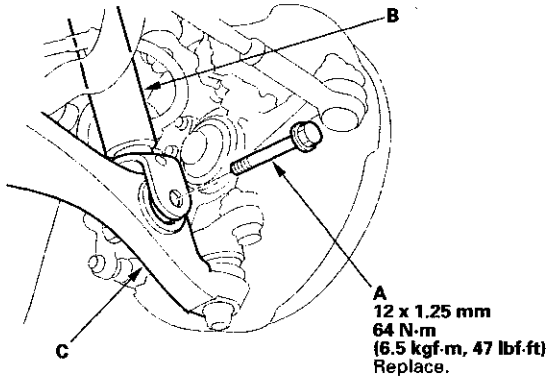
3. Remove the flange nut (A) while holding the joint pin (B) with a hex wrench (C), and disconnect the stabilizer link (D) from the lower arm (E).

   NOTE: During installation, install the new flange nut.



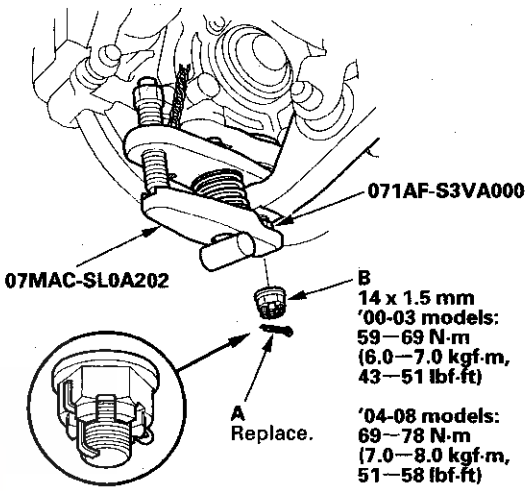
4. Remove the flange bolt (A), and disconnect the damper (B) from the lower arm (C).

   NOTE: During installation, install the new flange bolt.



5. Remove the cotter pin (A) from the lower arm ball joint, then remove the castle nut (B).

   NOTE: During installation, install the new cotter pin after tightening the castle nut, and bend its end as shown.



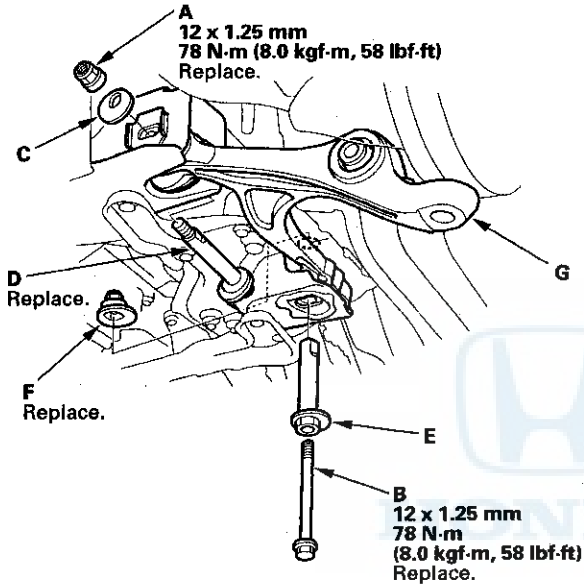
6. Disconnect the lower arm ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see page 18-13).

(cont'd)

Lower Arm Removal/Installation (cont'd)

7. Remove the self-locking nut (A) and flange bolt (B), then remove the adjusting cam plate (C), adjusting bolt (D), adjusting cam collar (E), self-locking cam nut (F), and the lower arm (G).

   NOTE: During installation, install the new self-locking nut and the new self-locking cam nut.



8. Install the lower arm in the reverse order of removal, and note these items:

   - First install all of the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
   - Be careful not to damage the ball joint boot when connecting the knuckle.
   - Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and mating surfaces of the castle nut.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-7).

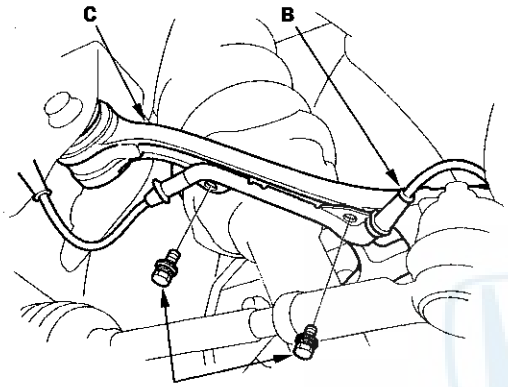
Upper Arm Replacement

Special Tools Required
Ball joint remover, 28 mm 07MAC-SL0A202

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).

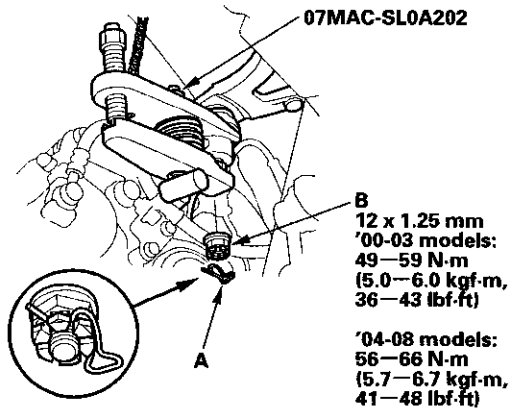
2. Remove the front wheel.

3. Remove the flange bolts (A) and the wheel speed sensor harness (B) from the upper arm (C).



4. Remove the lock pin (A) from the upper arm ball joint, then remove the castle nut (B).

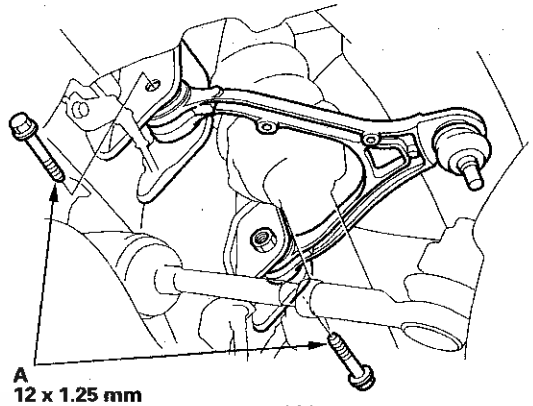
   NOTE: During installation, install the lock pin as shown after tightening the castle nut.



5. Disconnect the upper arm ball joint from the knuckle using the ball joint remover (see page 18-13).

6. Remove the flange bolts (A), and remove the upper arm.

   NOTE: During installation, install the new flange bolts.



7. Install the upper arm in the reverse order of removal, and note these items:

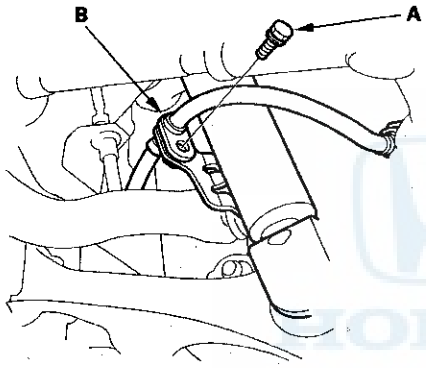
   - First install all of the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
   - Be careful not to damage the ball joint boot when connecting the knuckle.
   - Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and mating surfaces of the castle nut.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-7).

Damper/Spring Removal and Installation

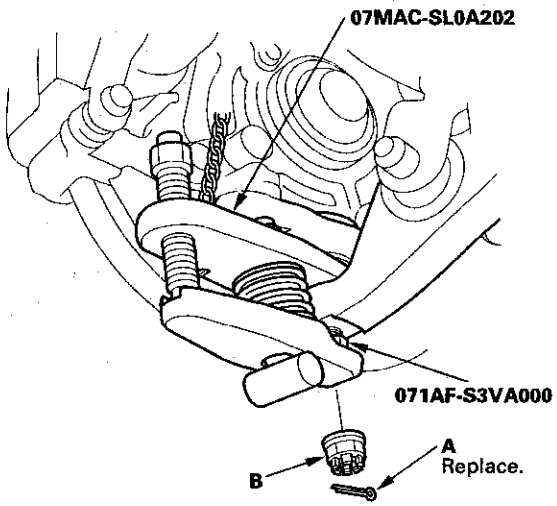
Special Tools Required
- Ball joint thread protector, 14 mm 071AF-S3VA000
- Ball joint remover, 28 mm 07MAC-SL0A202

Removal

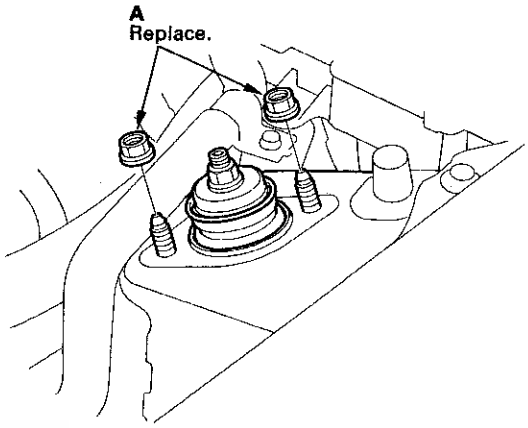
1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the front wheel.
3. Remove the flange bolt (A) and brake hose mounting bracket (B) from the damper.



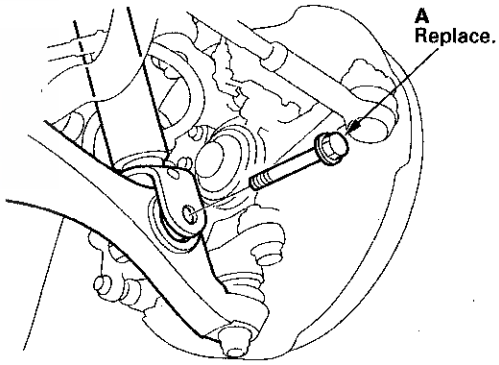
4. Remove the cotter pin (A) from the lower arm ball joint, then remove the castle nut (B).



5. Disconnect the lower arm ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see page 18-13).
6. Remove the flange nuts (A) from the top of the damper.

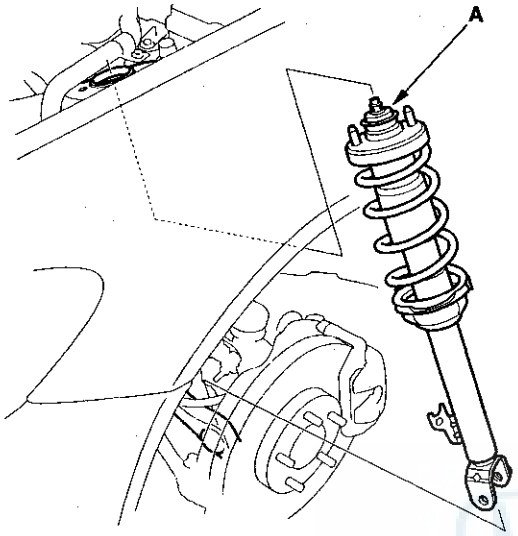


7. Remove the flange bolt (A) at the bottom of the damper.



8. Lower the lower arm, and remove the damper assembly (A).

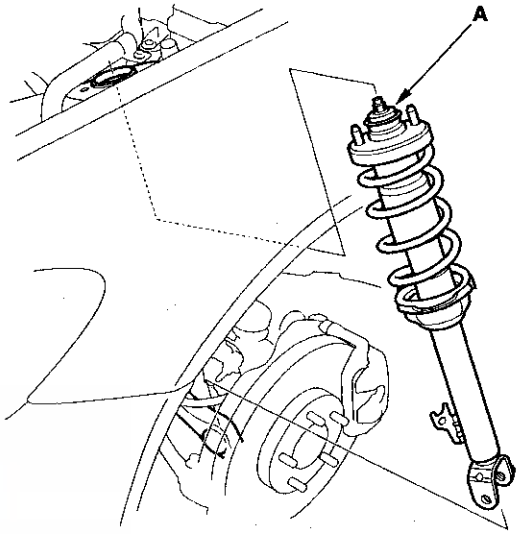
NOTE: Be careful not to damage the body.



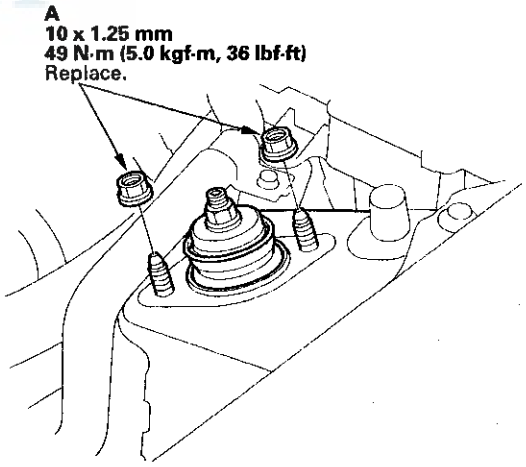
Installation

1. Lower the lower arm, and position the damper assembly (A) in the body.

NOTE: Be careful not to damage the body.



2. Loosely install the new flange nuts (A) onto the top of the damper studs.



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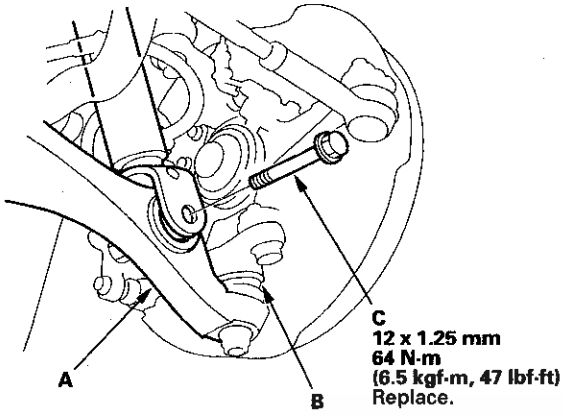
Damper/Spring Removal and Installation (cont'd)

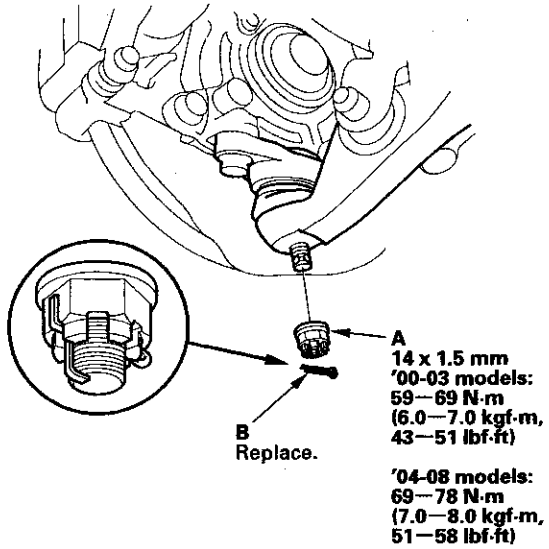
3. Position the bottom of the damper on the lower arm (A), and connect the lower arm and the lower ball joint (B).



4. Install the new flange bolt (C), and lightly tighten.

5. Raise the suspension until the vehicle just lifts off the safety stand.

6. Install the castle nut (A) onto the lower arm ball joint pin, and tighten it to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.

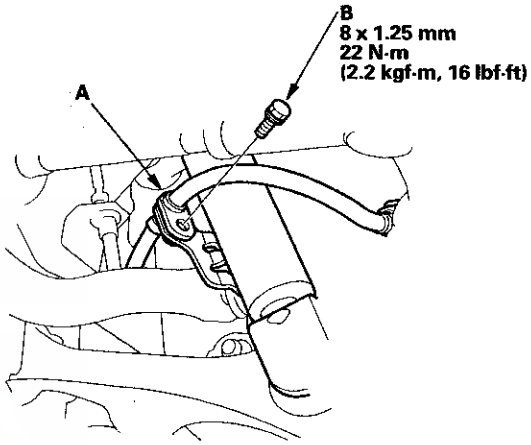


7. Install a new cotter pin (B) after tightening the castle nut, and bend its end as shown.

8. Tighten the flange bolt connecting the damper bottom to the lower arm to the specified torque value.

9. Tighten the flange nuts on the top of the damper to the specified torque value.

10. Install the brake hose mounting bracket (A) and the flange bolt (B) to the damper, and tighten the bolt to the specified torque value.

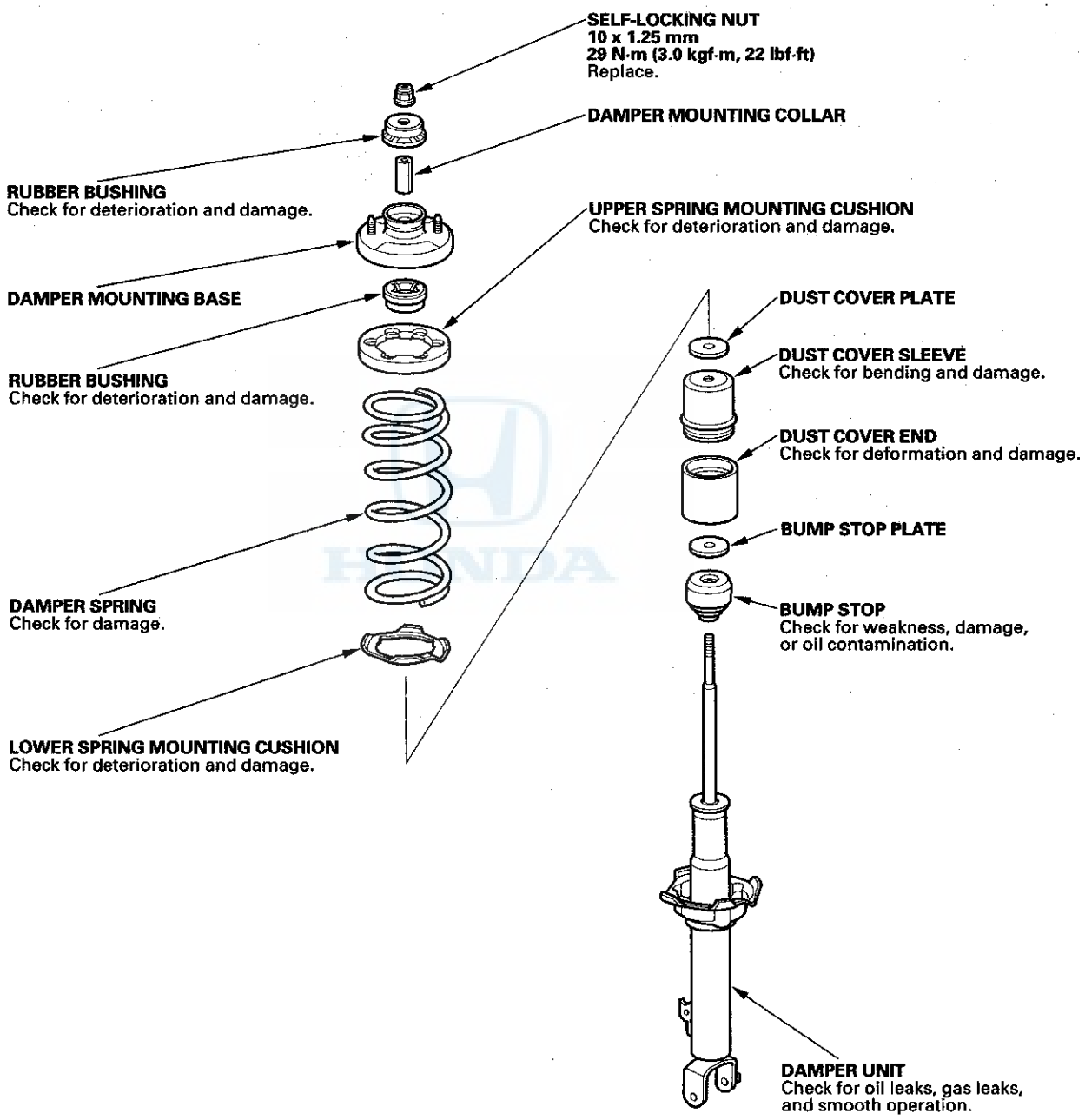


11. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel.

12. Check the wheel alignment, and adjust it if necessary (see page 18-7).

Damper/Spring Disassembly, Inspection, and Reassembly

Exploded View



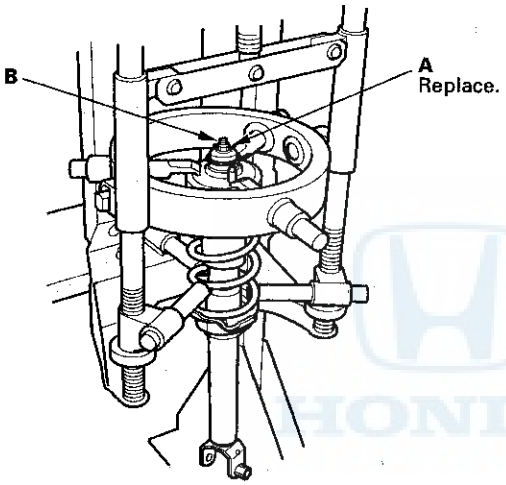
(cont'd)

Damper/Spring Disassembly, Inspection, and Reassembly (cont'd)

NOTE: When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or model 7200, or equivalent) according to the manufacturer's instructions.

Disassembly

1. Compress the damper spring, then remove the self-locking nut (A) while holding the damper shaft (B) with a hex wrench. Do not compress the spring more than necessary to remove the nut.



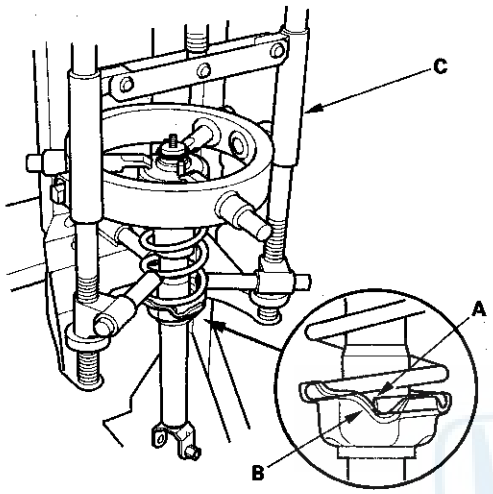
2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

Inspection

1. Reassemble all of the parts, except the damper spring.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking, and the damper should be replaced.
3. Check for oil leaks, abnormal noises, or binding during these tests.

Reassembly

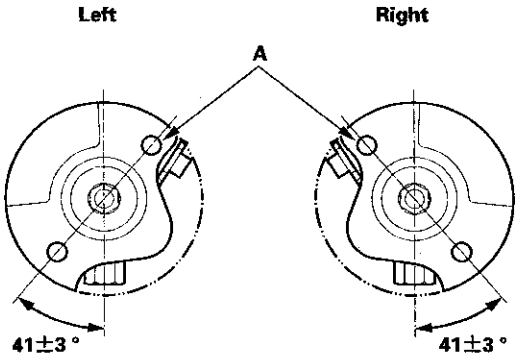
1. Assemble all of the damper components except the self-locking nut onto the damper unit. Align the spring bottom end (A), the stepped part of the lower spring mounting cushion, and the step on the lower spring seat (B).



2. Install the damper assembly on a commercially available strut spring compressor (C).

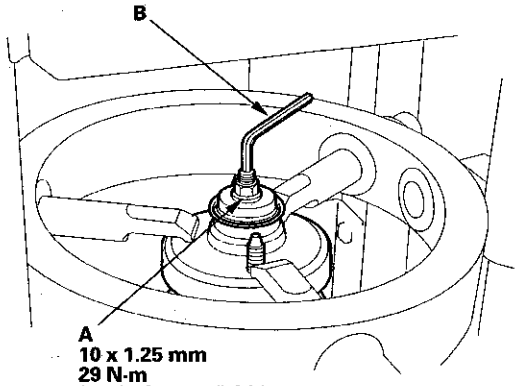
3. Position the stud bolt (A) in the damper mounting base as shown.

Viewing from top



4. Compress the damper spring with the spring compressor.

5. Install a new self-locking nut (A) on the damper shaft.

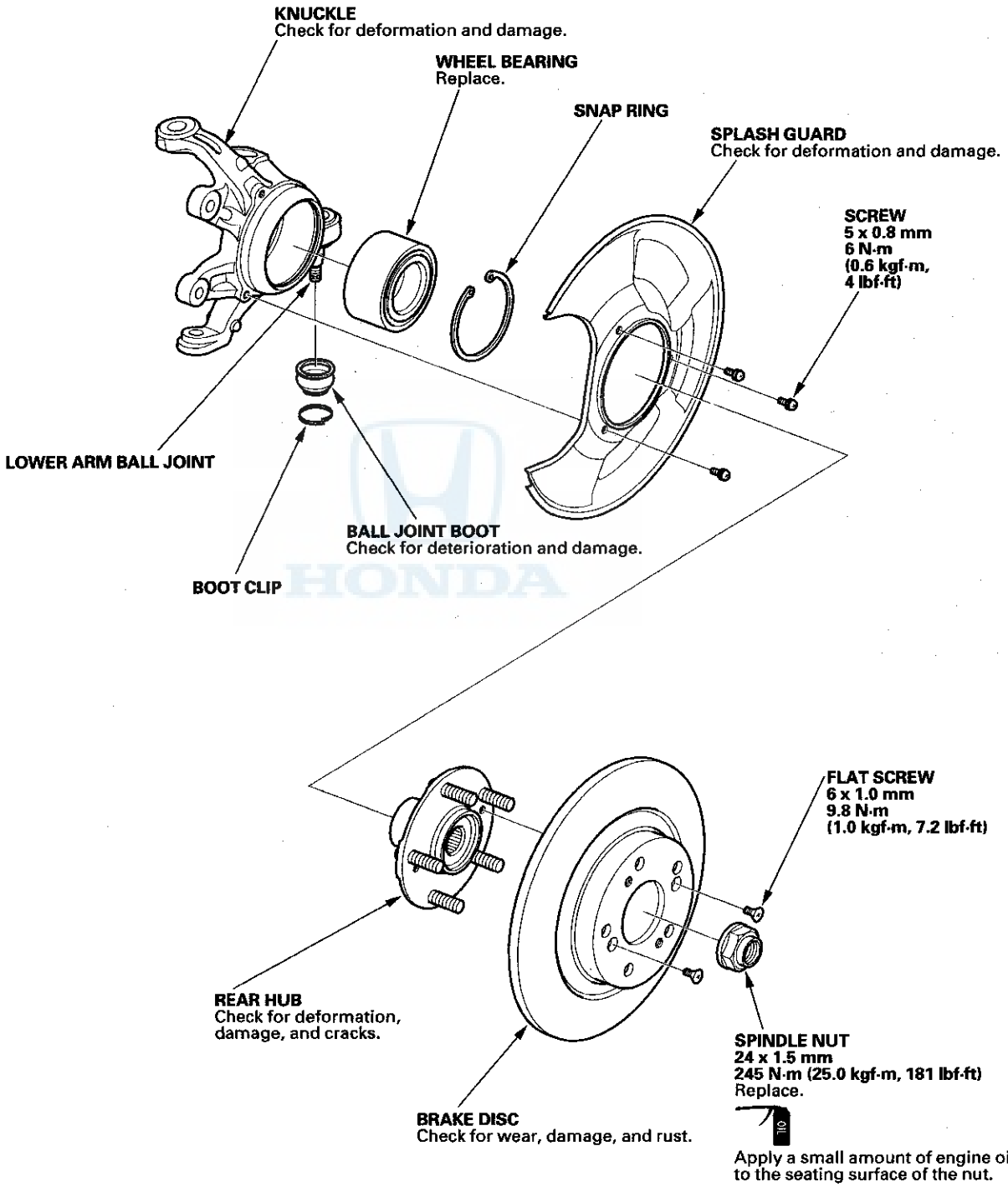


A
10 x 1.25 mm
29 N·m
(3.0 kgf·m, 22 lbf·ft)
Replace.

6. Hold the damper shaft with a hex wrench (B), and tighten the self-locking nut to the specified torque.

Knuckle/Hub/Wheel Bearing Replacement

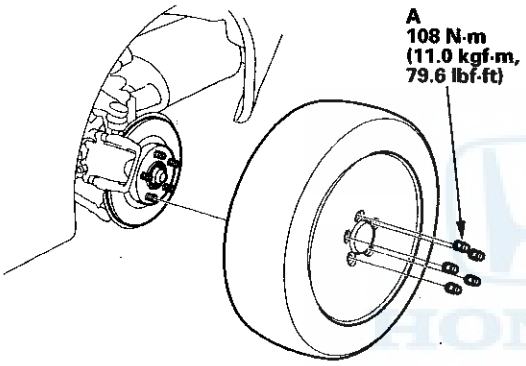
Exploded View



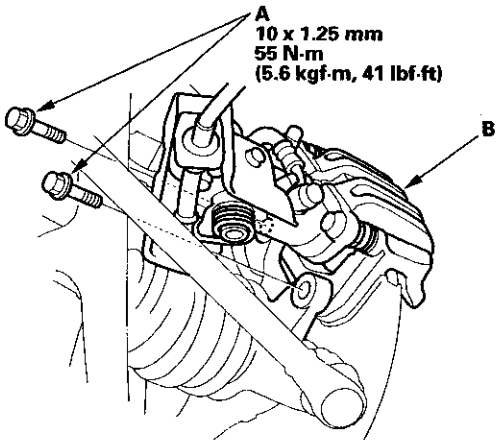
Special Tools Required
- Ball joint thread protector, 12 mm 07AAF-SDAA100
- Hub dis/assembly tool, 42 mm 07GAF-SD40100
- Ball joint remover, 28 mm 07MAC-SL0A202
- Attachment, 52 x 55 mm 07746-0010400
- Attachment, 62 x 68 mm 07746-0010500
- Driver, 15 x 135L 07749-0010000
- Support base, 73 x 78/82.6 mm 07965-SD90100

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).

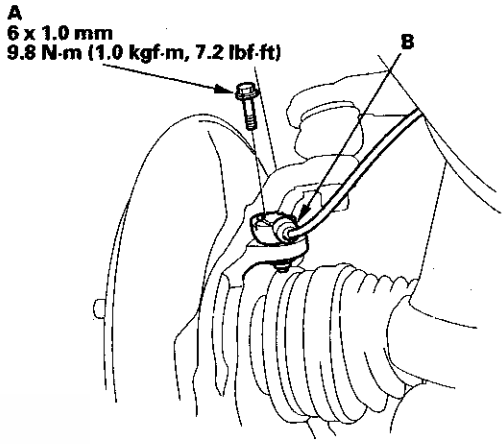
2. Remove the wheel nuts (A) and rear wheel.



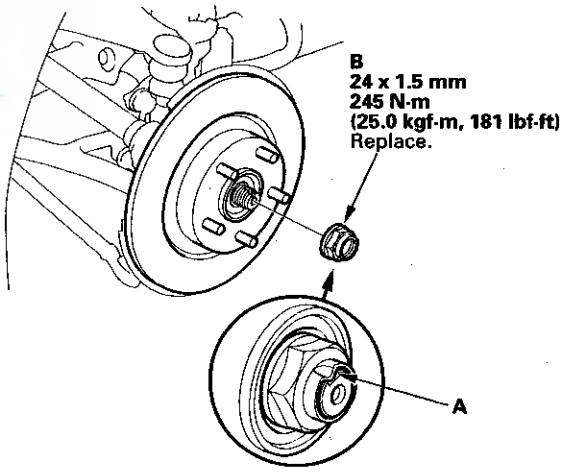
3. Remove the brake caliper bracket mounting bolts (A), then remove the caliper assembly (B) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.



4. Remove the flange bolt (A) and wheel speed sensor (B) from the knuckle. Do not disconnect the wheel speed sensor connector.



5. Raise the stake (A) of the spindle nut (B), and remove the nut.



(cont'd)

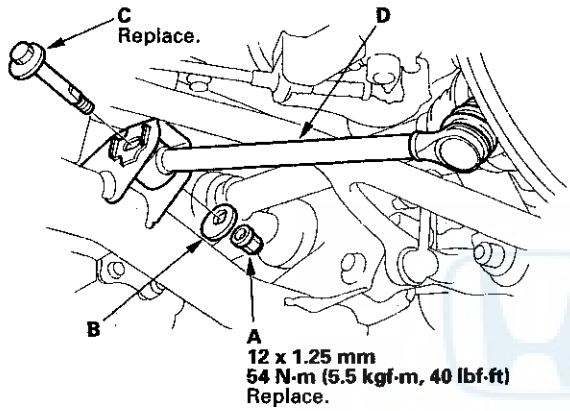
Knuckle/Hub/Wheel Bearing Replacement (cont'd)

6. Remove the brake disc (see page 19-25).

7. Check the rear hub for damage and cracks.

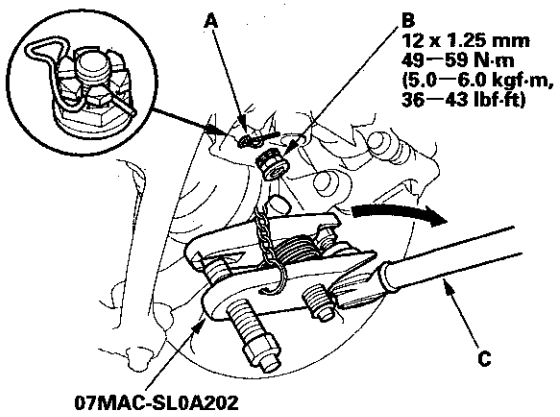
8. Remove the self-locking nut (A), adjusting cam plate (B), and adjusting bolt (C), then disconnect the control arm (D) from the frame.

   NOTE: During installation, install the new self-locking nut.



9. Remove the lock pin (A) from the control arm ball joint, then remove the castle nut (B).

   NOTE: During installation, install the lock pin as shown after tightening the castle nut.



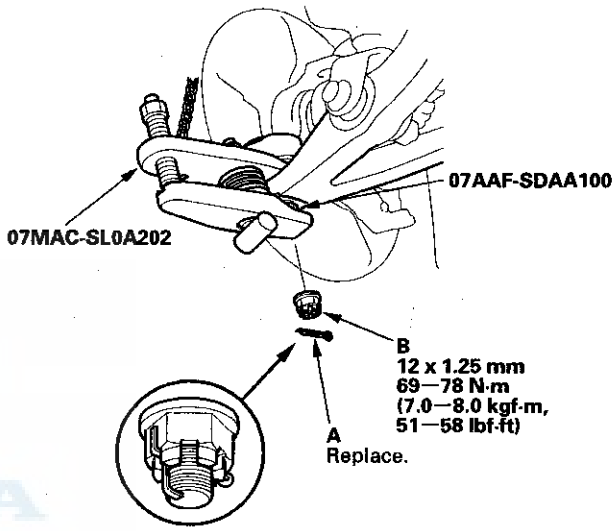
10. Disconnect the control arm ball joint from the knuckle using the ball joint remover (see page 18-13).

    NOTE: Turn the control arm (C) outward to install the ball joint remover.

11. Remove the control arm.

12. Remove the cotter pin (A) from the lower arm ball joint, then remove the castle nut (B).

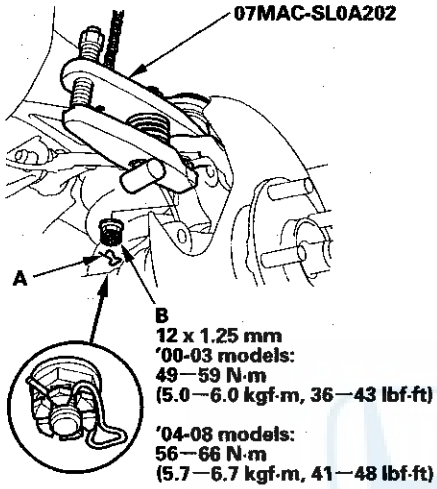
    NOTE: During installation, install the new cotter pin after tightening the castle nut, and bend its end as shown.



13. Disconnect the lower arm ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see page 18-13).

14. Remove the lock pin (A) from the upper arm ball joint, then remove the castle nut (B).

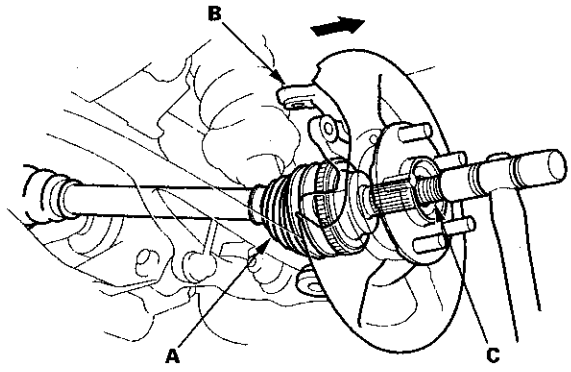
    NOTE: During installation, install the lock pin as shown after tightening the castle nut.



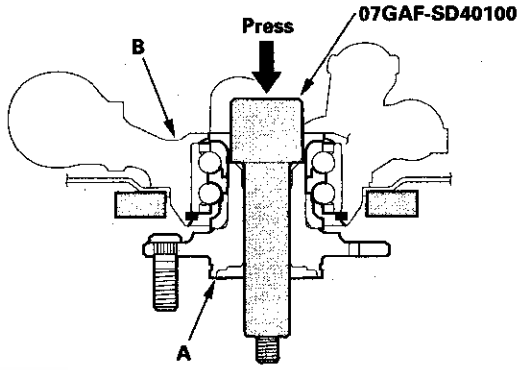
15. Disconnect the upper arm ball joint from the knuckle using the ball joint remover (see page 18-13).

16. Remove the driveshaft outboard joint (A) from the knuckle (B) by tapping the driveshaft end (C) with a soft face hammer while pulling the knuckle outward.

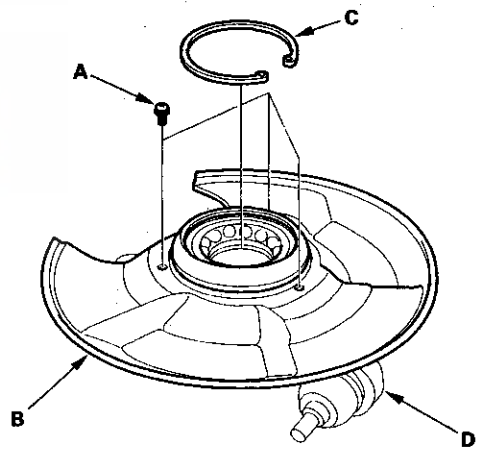
    NOTE: Do not pull the driveshaft outward. The driveshaft inboard joint may come apart.



17. Separate the hub (A) from the knuckle (B) using the hub dis/assembly tool and a hydraulic press. Be careful not to deform the splash guard. Hold onto the hub to keep it from falling when pressed clear.



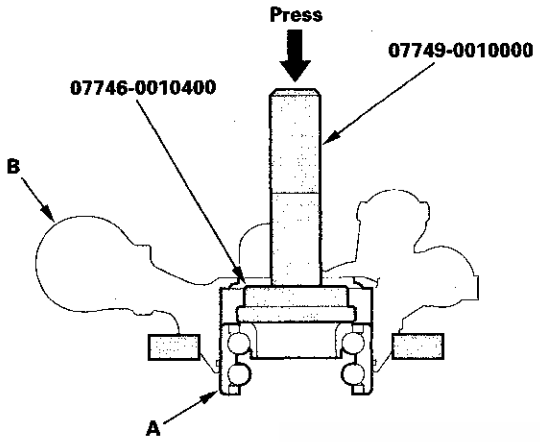
18. Remove the screws (A), the splash guard (B), and the snap ring (C) from the knuckle (D).



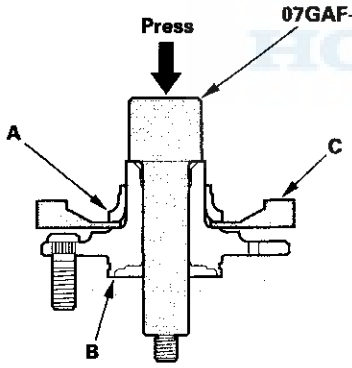
(cont'd)

Knuckle/Hub/Wheel Bearing Replacement (cont'd)

19. Press the wheel bearing (A) out of the knuckle (B) using the driver, the attachment, and a press.

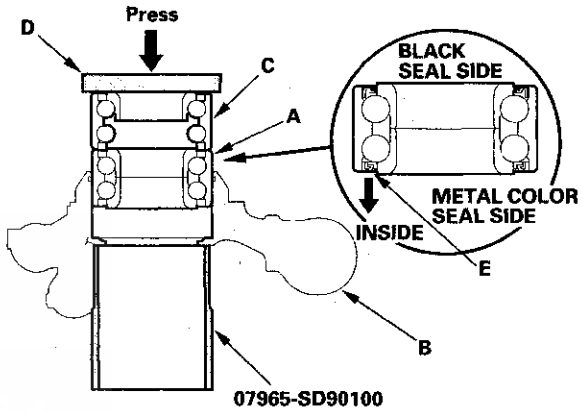


20. Press the wheel bearing inner race (A) out of the hub (B) using the hub dis/assembly tool, a commercially available bearing separator (C), and a press.

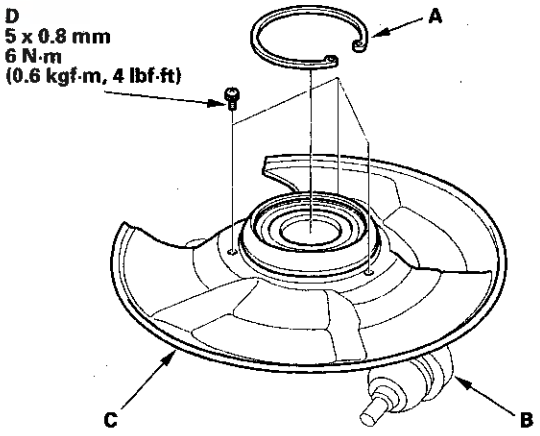


21. Wash the knuckle and hub thoroughly in a high flash point solvent before reassembly.

22. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the support base, and a press. Place the wheel bearing on the knuckle with the pack seal side facing (E) (metal color) toward the inside. Be careful not to damage the sleeve of the pack seal.

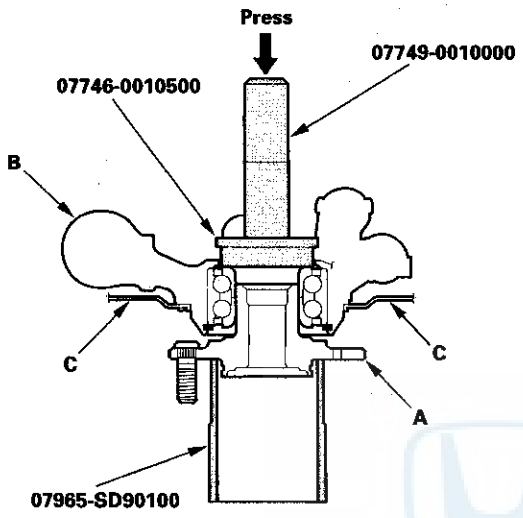


23. Install the snap ring (A) securely in the knuckle (B).



24. Install the splash guard (C), and tighten the screws (D) to the specified torque value.

25. Install the hub (A) onto the knuckle (B) using the driver, the attachment, the support base, and a hydraulic press. Be careful not to distort the splash guard (C).



26. Install the knuckle in the reverse order of removal, and note these items:

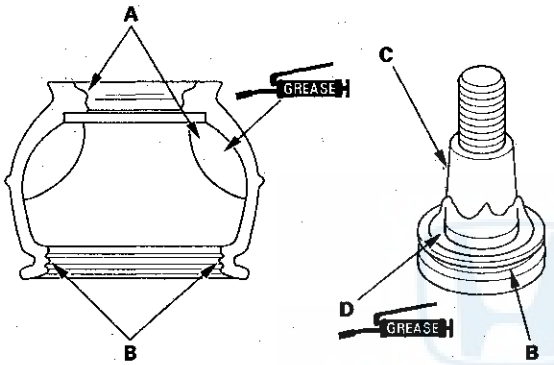
- First install all of the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
- Be careful not to damage the ball joint boot when connecting the knuckle.
- Use the new spindle nut during reassembly.
- Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
- Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Before installing the brake disc, clean the mating surfaces of the rear hub and the inside of the brake disc.
- Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
- Check the wheel alignment, and adjust it if necessary (see page 18-7).

Ball Joint Boot Replacement

Special Tools Required
- Ball joint boot clip guide, 42 x 44 mm 07GAG-SD40700
- Bushing base 07JAF-SH20330 or 07933-HB3000A without adjusting bolt

1. Remove the boot clip (except for the control arm ball joint) and the boot.

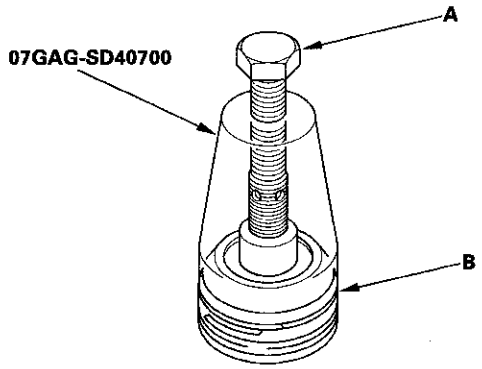
2. Pack the interior and lip of the new boot (A) with fresh grease. Do not contaminate the lower collar of the boot (B) with grease.



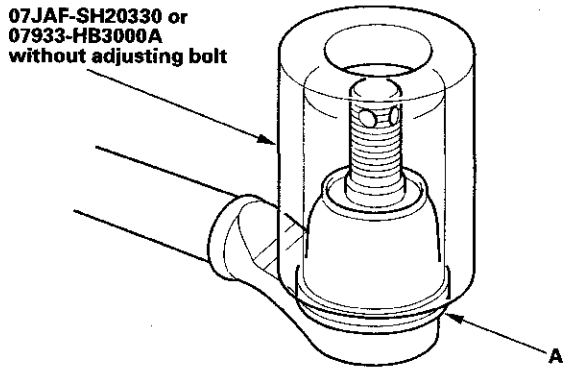
3. Wipe the grease off the tapered section of the ball joint pin (C), and pack the base (D) with fresh grease.

4. Install the boot onto the ball joint pin, then squeeze it gently to force out any air. Do not let dirt or other foreign materials get into the boot.

5. For the upper and lower arm ball joint, adjust the ball joint boot clip guide with the adjusting bolt (A) until its base is just above the groove around the bottom of the boot. Then slide the clip (B) over the boot clip guide into the position on the boot.



6. For the control arm ball joint, set the boot on the joint pin, and press it with the bushing base until there is no gap at the bottom of the boot (A).



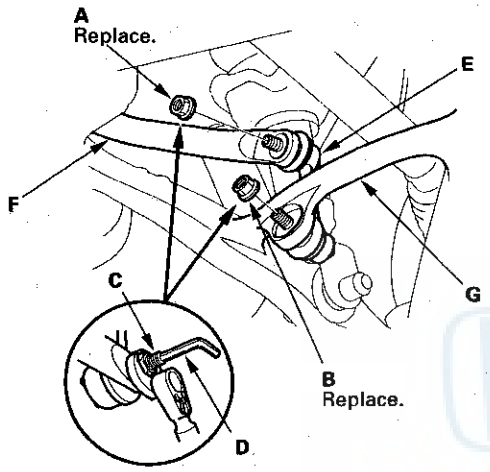
7. After installing the boot, wipe any grease off the exposed portion of the ball joint pin.

Stabilizer Link Removal/Installation

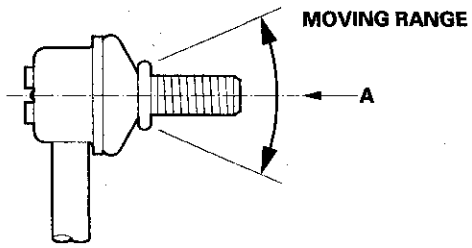
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).

2. Remove the rear wheel.

3. Remove the self-locking nut (A) and the flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), and disconnect the stabilizer link (E) from the stabilizer bar (F) and the lower arm (G).



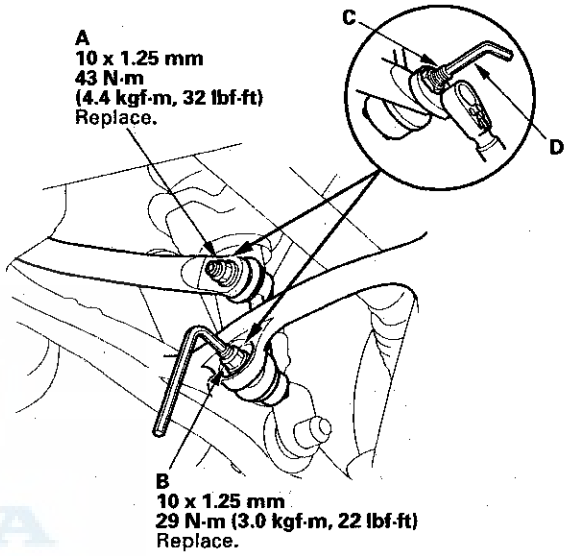
4. Install the stabilizer link to the stabilizer bar and lower arm with the joint pins set at the center (A) of their range of movement.



5. Install the new self-locking nut and the new flange nut, and lightly tighten them.

6. Place a jack under the lower arm, and raise the suspension to load the stabilizer bar.

7. Tighten the self-locking nut (A) and the flange nut (B) to the specified torque values while holding the respective joint pin (C) with a hex wrench (D).



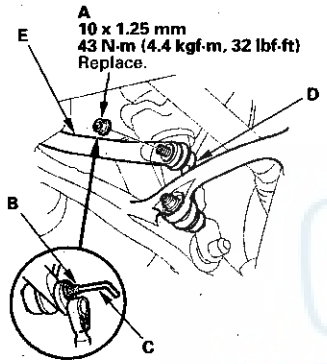
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheel, and test-drive the vehicle.

9. After 5 minutes of driving, tighten the self-locking nut again to the specified torque value.

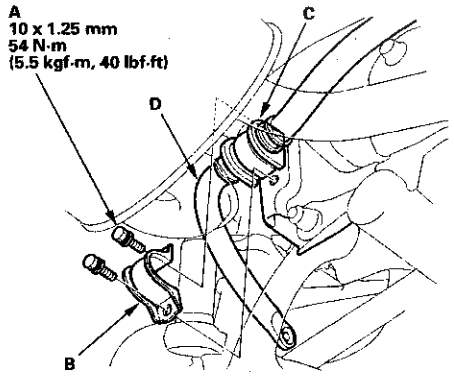
Stabilizer Bar Replacement

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the rear wheels.
3. Remove the self-locking nut (A) while holding the joint pin (B) with a hex wrench (C), and disconnect both stabilizer links (D) from the stabilizer bar (E).

   NOTE: During installation, install the new self-locking nut.



4. Remove the bolts (A) and bushing holders (B), then remove the bushings (C) and the stabilizer bar (D).



5. Install the stabilizer bar in the reverse order of removal, and note these items:

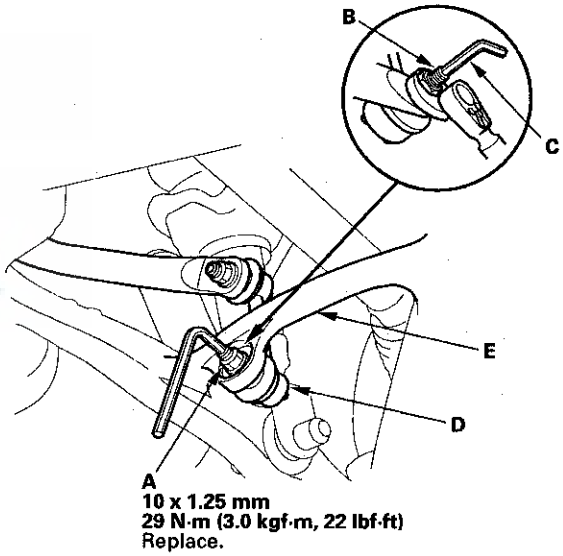
   - Refer to stabilizer link removal/installation to connect the stabilizer bar to the links (see page 18-39).
   - Before installing the wheel, clean the mating surfaces of the brake disc and inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-7).

Lower Arm Removal/Installation

Special Tools Required
- Ball joint thread protector, 12 mm 07AAF-SDAA100
- Ball joint remover, 28 mm 07MAC-SL0A202

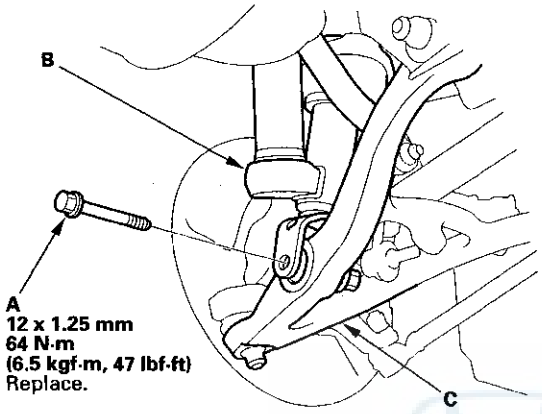
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the rear wheel.
3. Remove the flange nut (A) while holding the joint pin (B) with a hex wrench (C), and disconnect the stabilizer link (D) from the lower arm (E).

   NOTE: During installation, install the new flange nut.



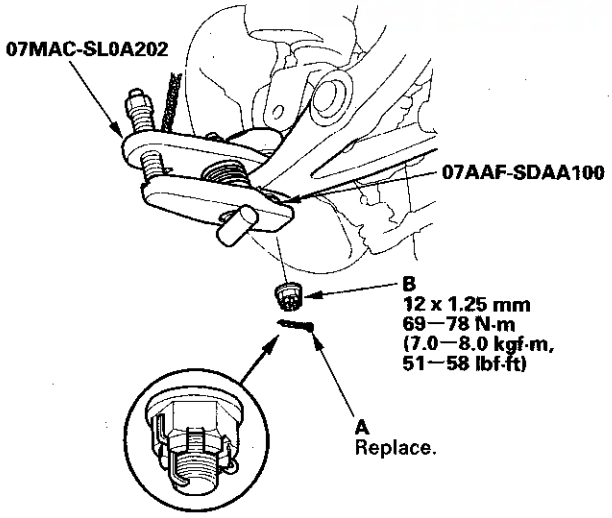
4. Remove the flange bolt (A), and disconnect the damper (B) from the lower arm (C).

   NOTE: During installation, install the new flange bolt.



5. Remove the cotter pin (A) from the lower arm ball joint, then remove the castle nut (B).

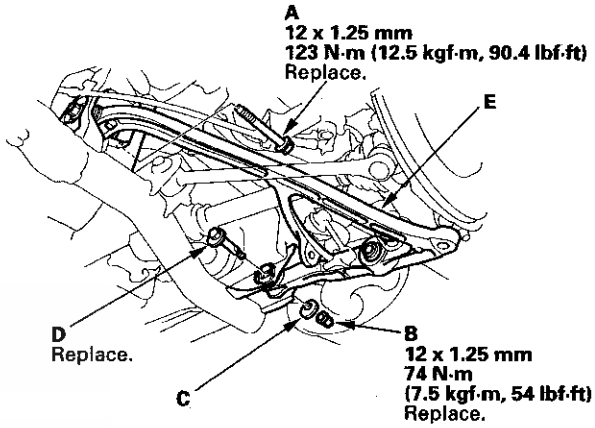
   NOTE: During installation, install the new cotter pin after tightening the castle nut, and bend its end as shown.



6. Disconnect the lower arm ball joint from the lower arm using the ball joint thread protector and the ball joint remover (see page 18-13).

7. Remove the flange bolt (A), self-locking nut (B), adjusting cam plate (C), adjusting bolt (D), and the lower arm (E).

   NOTE: During installation, install the new flange bolt, the new adjusting bolt, and the new self-locking nut.



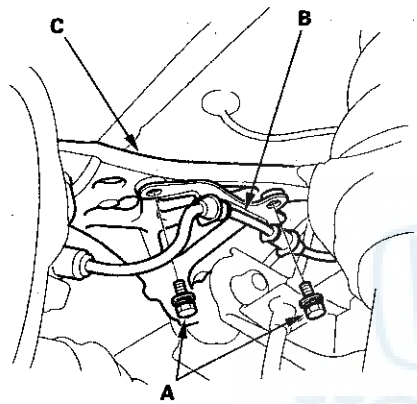
8. Install the lower arm in the reverse order of removal, and note these items:

   - First install all of the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
   - Be careful not to damage the ball joint boot when connecting the knuckle.
   - Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and mating surfaces of the castle nut.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-7).

Upper Arm Removal/Installation

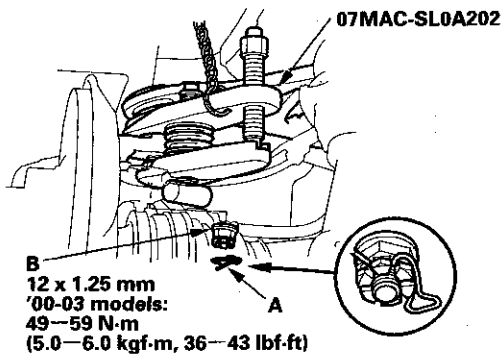
Special Tools Required
Ball joint remover, 28 mm 07MAC-SL0A202

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the rear wheel.
3. Remove the flange bolts (A) and the wheel speed sensor harness (B) from the upper arm (C).



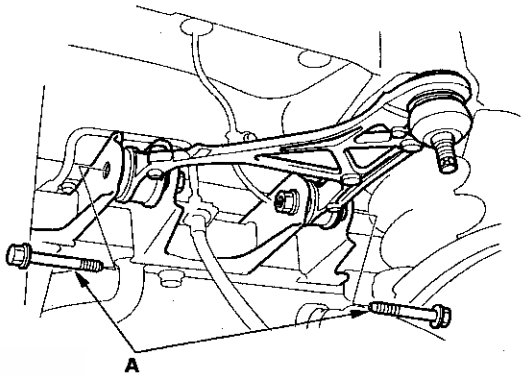
4. Remove the lock pin (A) from the upper arm ball joint, then remove the castle nut (B).

   NOTE: During installation, install the lock pin as shown after tightening the castle nut.



5. Disconnect the upper arm ball joint from the knuckle using the ball joint remover (see page 18-13).
6. Remove the flange bolts (A), and remove the upper arm.

   NOTE: During installation, install the new flange bolts.



7. Install the upper arm in the reverse order of removal, and note these items:

   - First install all of the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
   - Be careful not to damage the ball joint boot when connecting the knuckle.
   - Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and mating surfaces of the castle nut.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-7).

Control Arm Replacement

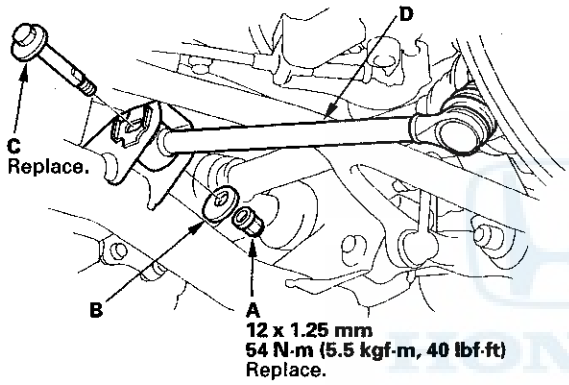
Special Tools Required
Ball joint remover, 28 mm 07MAC-SL0A202

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).

2. Remove the rear wheel.

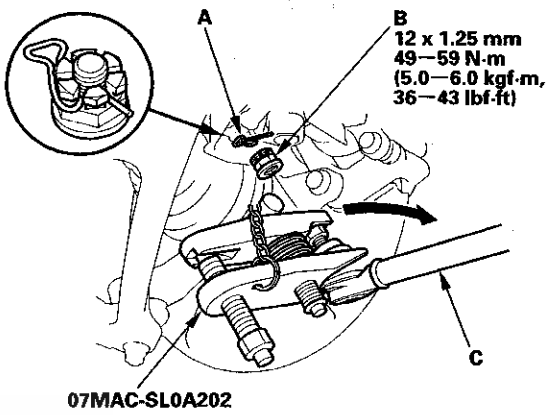
3. Remove the self-locking nut (A), adjusting cam plate (B), and adjusting bolt (C), then disconnect the control arm (D) from the frame.

   NOTE: During installation, install the new self-locking nut.



4. Remove the lock pin (A) from the control arm ball joint, then remove the castle nut (B).

   NOTE: During installation, install the lock pin as shown after tightening the castle nut.



5. Disconnect the control arm ball joint from the knuckle using the ball joint remover (see page 18-13).

   NOTE: Turn the control arm (C) outward to install the ball joint remover.

6. Remove the control arm.

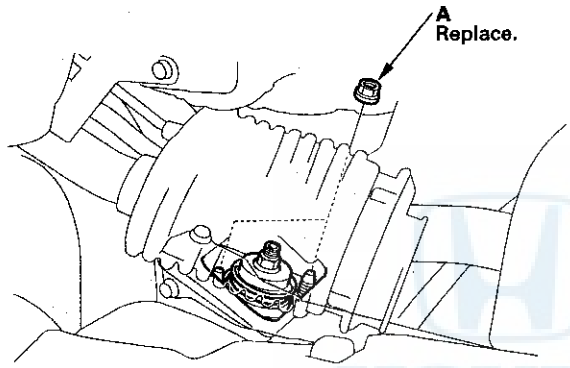
7. Install the control arm in the reverse order of removal, and note these items:

   - First install all of the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
   - Be careful not to damage the ball joint boot when connecting the knuckle.
   - Before connecting the ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and mating surfaces of the castle nut.
   - Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
   - Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see page 18-7).

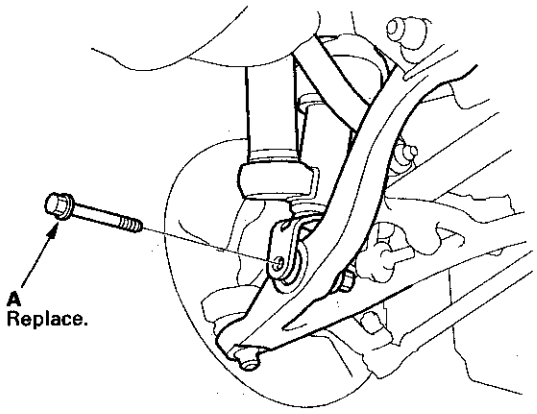
Damper/Spring Removal and Installation

Removal

1. Remove the spare tire (if equipped) from the trunk.
2. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
3. Remove the rear wheel.
4. Remove the flange nuts (A) from the top of the damper.

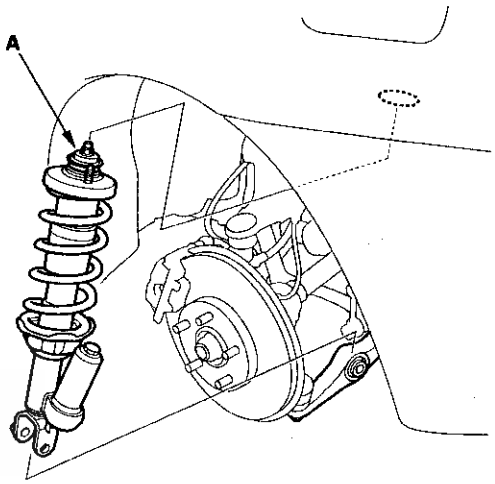


5. Remove the flange bolt (A) at the bottom of the damper.



6. Lower the lower arm, and remove the damper assembly (A).

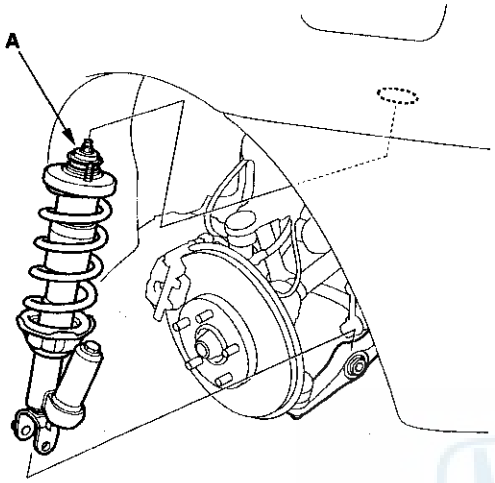
NOTE: Be careful not to damage the body.



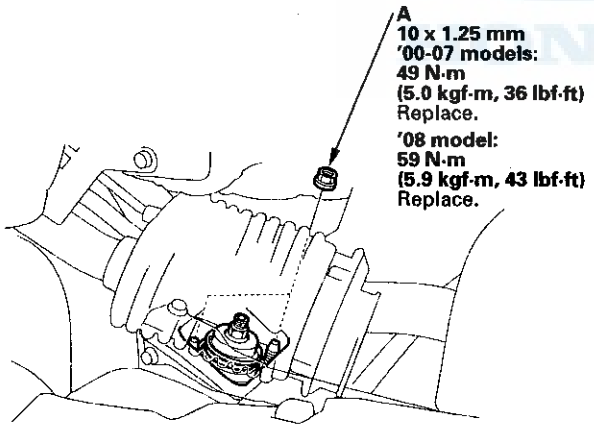
Installation

1. Lower the lower arm, and position the damper assembly (A) in the body.

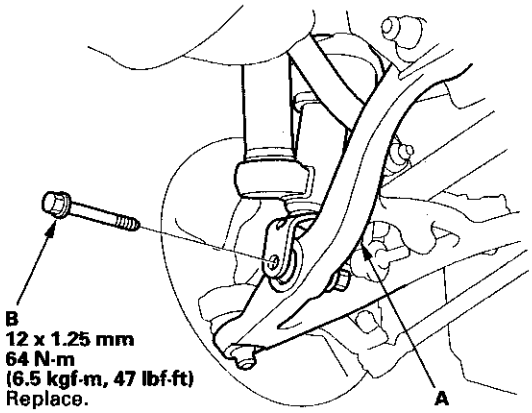
   NOTE: Be careful not to damage the body.



2. Loosely install the new flange nuts (A) onto the top of the damper studs.



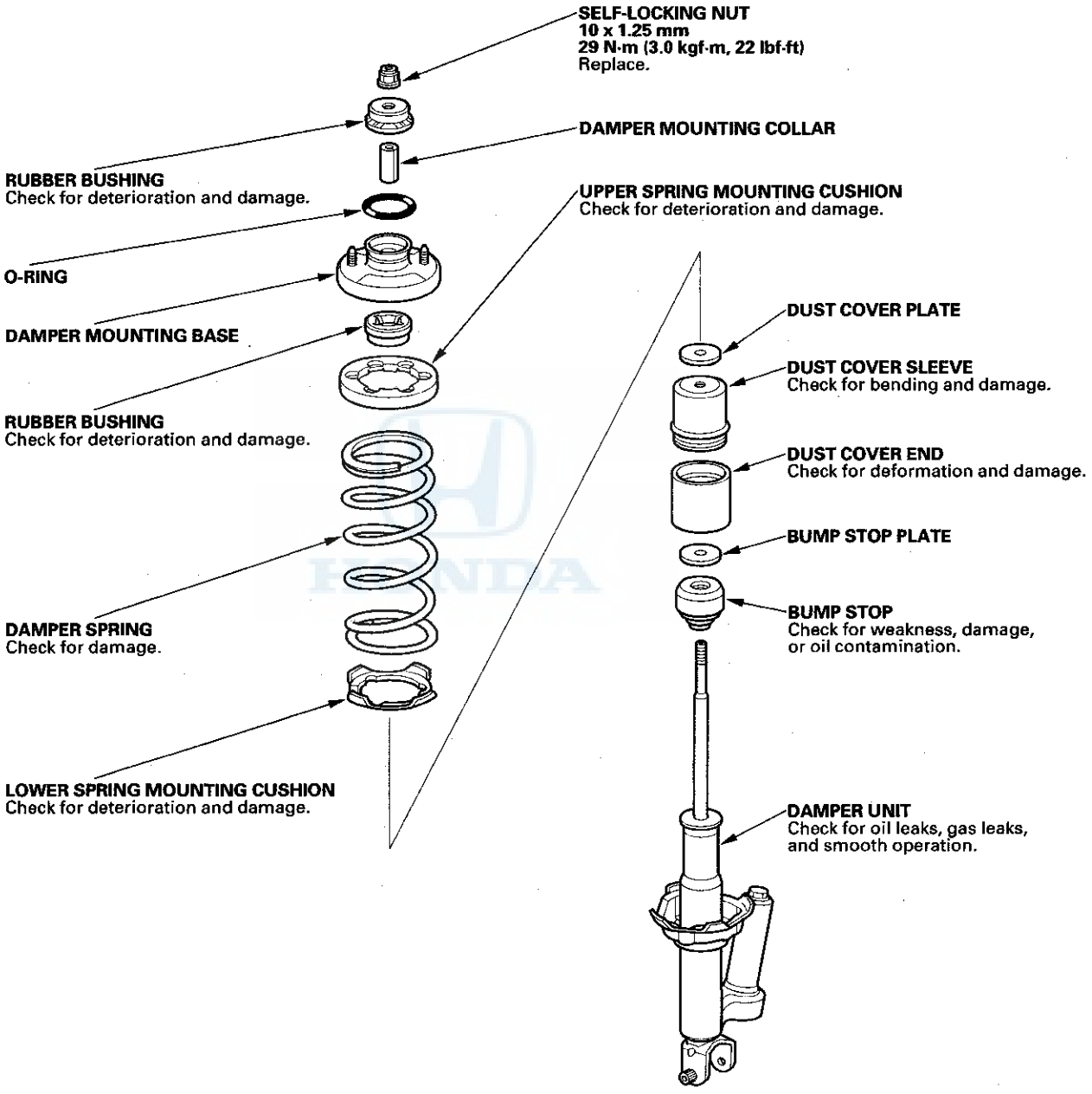
3. Position the bottom of the damper on the lower arm (A).



4. Install the new flange bolt (B), and lightly tighten.
5. Raise the suspension until the vehicle just lifts off the safety stand.
6. Tighten the flange bolt connecting the damper bottom to the lower arm to the specified torque value.
7. Tighten the flange nuts on the top of the damper to the specified torque value.
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheel.
9. Check the wheel alignment, and adjust it if necessary (see page 18-7).
10. Put the spare tire (if equipped) back in the trunk.

Damper/Spring Disassembly, Inspection, and Reassembly

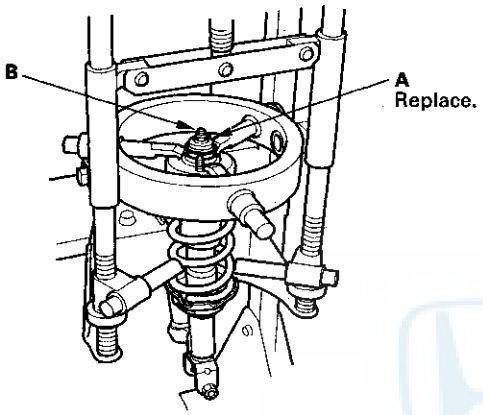
Exploded View



NOTE: When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or Model 7200, or equivalent) according to the manufacturer's instructions.

Disassembly

1. Compress the damper spring, then remove the self-locking nut (A) while holding the damper shaft (B) with a hex wrench. Do not compress the spring more than necessary to remove the nut.



2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

Inspection

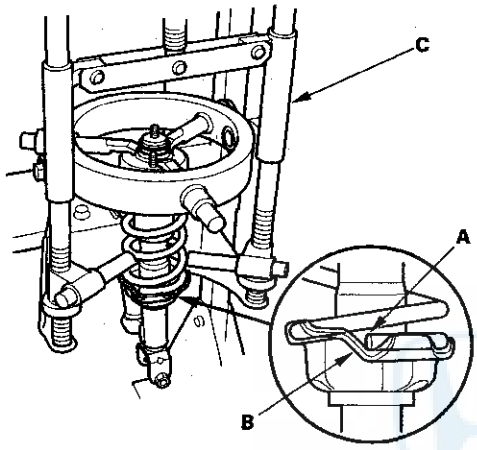
1. Reassemble all of the parts, except the damper spring.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking, and the damper should be replaced.
3. Check for oil leaks, abnormal noises, or binding during these tests.

(cont'd)

Damper/Spring Disassembly, Inspection, and Reassembly (cont'd)

Reassembly

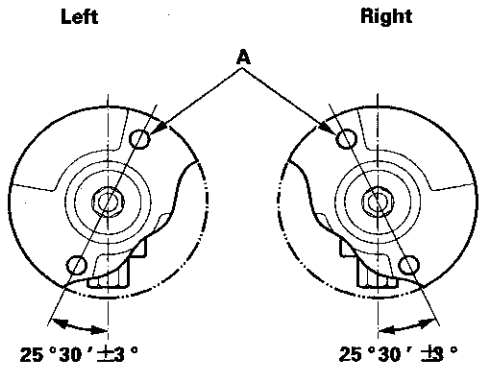
1. Assemble all of the damper components except the self-locking nut onto the damper unit. Align the spring bottom end (A), the stepped part of the lower spring mounting cushion, and the step on the lower spring seat (B).



2. Install the damper assembly on a commercially available strut spring compressor (C).

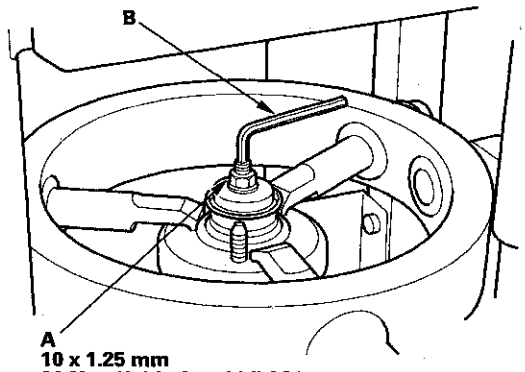
3. Position the stud bolt (A) in the damper mounting base as shown.

Viewing from top



4. Compress the damper spring with the spring compressor.

5. Install a new self-locking nut (A) on the damper shaft.



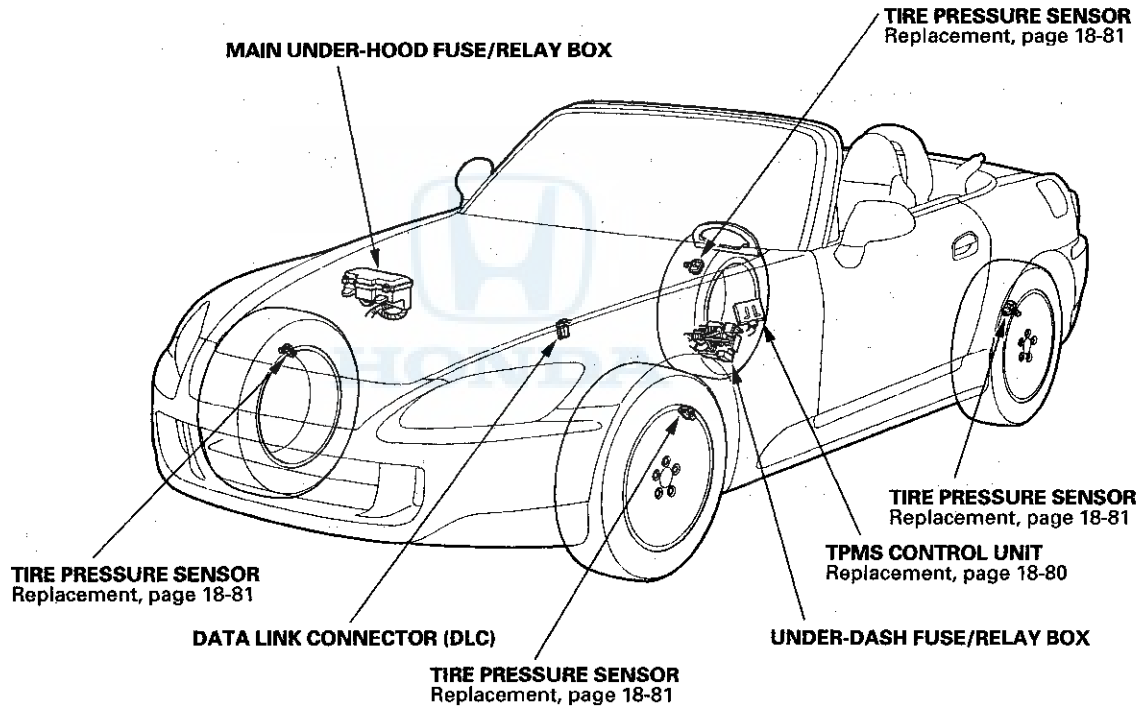
10 x 1.25 mm
29 N·m (3.0 kgf·m, 22 lbf·ft)
Replace.

6. Hold the damper shaft with a hex wrench (B), and tighten the self-locking nut to the specified torque.

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Suspension

Component Location Index

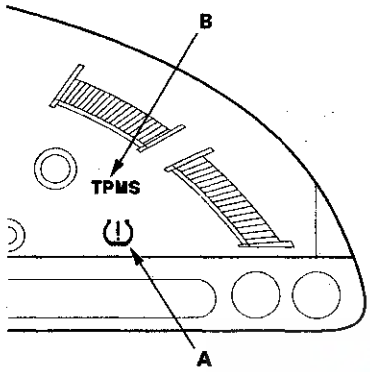


General Troubleshooting Information

System Indicator Locations

The system has two indicators.

- The low tire pressure indicator (A)
- The TPMS indicator (B)



How TPMS Works

The TPMS (tire pressure monitoring system) has a low tire pressure indicator and a TPMS indicator. When the TPMS control unit detects low pressure in a tire, or a problem in the system, it turns on the appropriate indicator.

- If low tire pressure is detected in one or more tires, the low tire pressure indicator comes on.
- If a problem in the system is detected, the TPMS indicator comes on.
- If low tire pressure and a problem in the system are detected, only the TPMS indicator comes on.

If the system is OK, the TPMS indicator and the low tire pressure indicator should come on when you turn the ignition switch to ON (II), and then go off 2 seconds later. If they don't, there is a problem with the system.

If the system detects low pressure in any of the four tires, the low tire pressure indicator comes on, and the control unit will set one or more of these codes: DTC 11, 13, 15, 17. When the tire pressure returns to normal, the control unit turns off the indicators and stores the DTC(s). However, if the control unit detects a problem in the system during an indication of low tire pressure, it turns off the low tire pressure indicator, stores the DTC(s), and turns on the TPMS indicator(s).

NOTE: Tire pressures increase slightly as the temperature in the tires rises during driving at highway speeds. Pressures can also increase or decrease slightly with changes in outside air temperature. A temperature change of about 18 °F (10 °C) changes tire pressure by about 10 kPa (0.1 kgf/cm², 1.5 psi). If the temperature drops, tire pressure could decrease just enough to turn on the low tire pressure indicator, but later, the tire temperature could increase enough to turn the indicator off. To resolve a complaint of such intermittent indications, confirm and clear the stored DTC(s) and check the tire pressures. Then explain to the customer how temperature changes can affect the system, especially when tire pressures are near the low end of the TPMS normal range - 168 to 220 kPa (1.7 to 2.2 kgf/cm², 24 to 32 psi).

If a problem is detected in the system, the TPMS indicator comes on and stays on until the system returns to normal with most DTCs. If DTC 81, 83, or 85 is set, the TPMS indicator goes off only when the ignition switch is turned to LOCK (0).

Except CR model: When a flat tire is replaced with the spare tire, the TPMS indicator comes on (DTC 32, 34, 36, or 38) because the system is no longer receiving the signal from the tire's transmitter. This is not a problem with the spare tire.

CR model: When a tire sealant is charged into the flat tire, there is a possibility that the TPMS indicator or the low tire pressure indicator may come on and cause a DTC to be stored. Therefore, it is necessary to clean the tire pressure sensor after removing the tire sealant and repair the flat tire (see page 18-5).

(cont'd)

General Troubleshooting Information (cont'd)

Problems That Are Not System Faults

- Tire Sealant
  Fluid sealant used to repair a punctured tire can damage the tire pressure sensor mounted on each wheel. It can prevent the system from detecting the correct tire pressure, which sets a DTC 11, 13, 15, or 17 even though the system is normal.
- Cold Weather
  When the weather is extremely cold - about −40 °F (−40 °C) or colder - the output of the lithium battery in each tire pressure sensor may drop far enough that the control unit sets a DTC for low battery voltage (31, 33, 35, or 37) even though the system is normal.
- Non-TPMS Wheels
  Vehicles equipped with TPMS must use wheels made for the system. Every TPMS wheel has an exclusive mark; do not use any other type of wheel.

How a Diagnostic Trouble Code (DTC) is Set

- When the system detects a problem, the TPMS control unit sets a code, but shifts to fail-safe mode, and will not alert the driver to low tire pressures.
- If the TPMS control unit loses power, or fails, the TPMS indicator will come on, but no DTC are set.
- The memory can hold all the DTCs that could possibly be set. However, when the same DTC is detected more than once, the most recent one overwrites the previous one, so only the latest DTC of each type is stored.
- DTCs are indicated in ascending order, not in the order they occurred.
- Set DTCs are stored in the EEPROM (nonvolatile memory), they cannot be cleared by disconnecting the battery. To clear a DTC, connect the HDS (Honda Diagnostic System) to the data link connector (DLC), and follow the screen prompts.

How to Troubleshoot DTCs

DTC troubleshooting procedures assume the cause of the problem is still present and the TPMS indicator is still on. (NOTE: The TPMS indicator comes on for DTCs 11, 13, 15, and 17 only if the low tire pressure indication is false, caused by a problem in the system.) Do not use a troubleshooting procedure unless the system has set the DTC listed for it.

1. Ask the customer to describe the conditions when the indicator came on, and try to reproduce the same conditions for troubleshooting. Find out if the customer checked and/or adjusted tire pressures since the indicator came on.

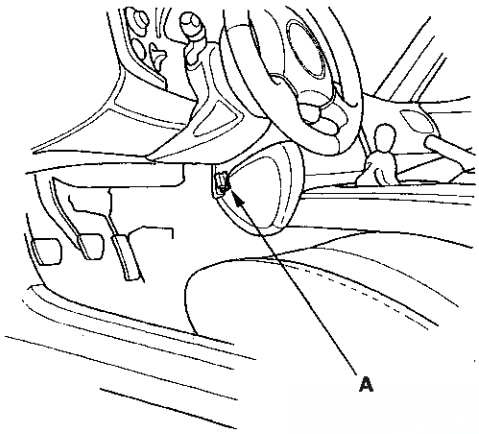
2. If an indicator does not come on during the test-drive, check for loose terminals, poor contact due to damaged terminals, etc. before you start troubleshooting.

3. After troubleshooting, repair and clear the DTCs, and test-drive the vehicle. Make sure no indicators come on.

4. Check for DTCs from gauge assembly that is connected via F-CAN. If there are DTCs that are related to F-CAN, the most likely cause was that the ignition switch was turned to ON (II) with the TPMS control unit connector disconnected. Clear the DTCs. Check for gauge assembly and TPMS codes, and troubleshoot those first.

How to Retrieve DTCs

1. With the ignition switch at LOCK (0), connect the HDS (Honda Diagnostic System) to the data link connector (DLC) (A) located under the driver's side of the dashboard.



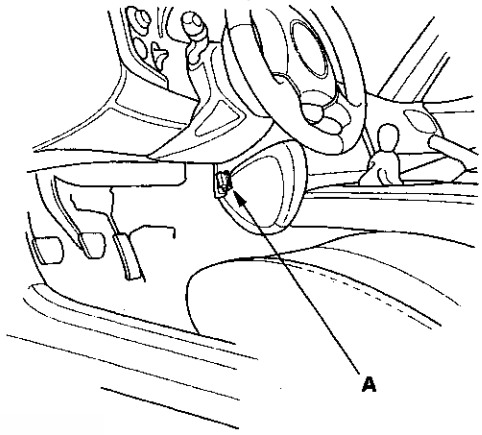
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.

   NOTE: See the HDS Help menu for specific instructions.

5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Clear the DTC(s) by following the screen prompts on the HDS.

   NOTE: See the HDS Help menu for specific instructions.

5. Turn the ignition switch to LOCK (0).

Memorizing the Tire Pressure Sensor ID

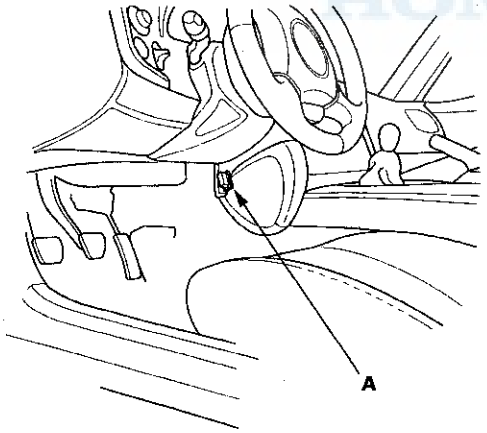
Special Tools Required
TPMS sensor initializer tool AKS0620006
Available through the Honda Tool and Equipment Program; call 888-424-6857

All four tire pressure sensor IDs must be memorized to the TPMS control unit whenever you do any of these actions:

- Replace the TPMS control unit.
- Replace the tire pressure sensor.
- Substitute a known-good wheel with tire pressure sensor.

NOTE:
- To ensure the control unit memorizes the correct ID, the vehicle with the new sensor must be at least 10 ft (3 m) away from other vehicles that have tire pressure sensors.
- When doing a tire rotation, memorizing the sensors in not needed.

1. With the ignition switch at LOCK (0) wait 5 minutes or more for the TPMS sensors to go to sleep mode. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

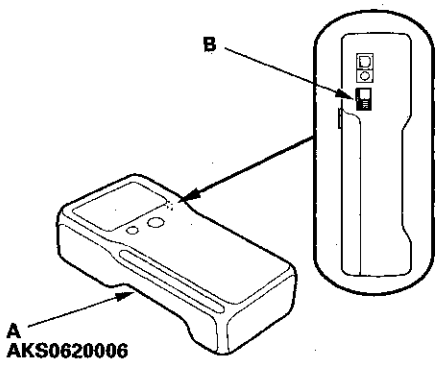


2. Turn the ignition switch to ON (II).

3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).

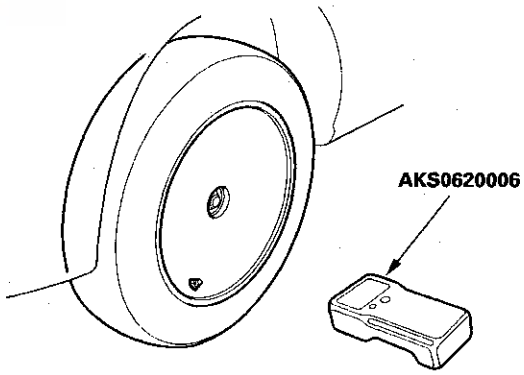
4. Select Sensor ID Learning from the mode menu on the HDS.

5. Follow HDS screen prompts to turn on the TPMS sensor initializer tool (A). Verify the power switch (B) is in the "Low" position.



6. Hold the TPMS sensor initializer tool near one wheel, memorize the pressure sensor ID by following the screen prompts on the HDS.

NOTE:
- If you turn the ignition switch to LOCK (0) before memorizing all four sensor IDs, the memorizing ID is canceled.
- See the HDS Help menu for specific instructions.



7. Repeat step 6 for each wheel until all four sensor IDs are memorized. When all four IDs are memorized, the low tire pressure indicator blinks.

8. Turn the ignition switch to LOCK (0).
9. Disconnect the HDS from the DLC.
10. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
11. Make sure the low tire pressure indicator does not blink.
12. Turn the ignition switch to LOCK (0).
13. Reduce the pressure in one tire until it is less than the appropriate specification.
14. Turn the ignition switch to ON (II).
15. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
16. Make sure the low tire pressure indicator turns on, then inflate the tire (see page 18-7).
17. Repeat step 12 to 16 for all the other tires.
18. Clear any DTCs with the HDS.

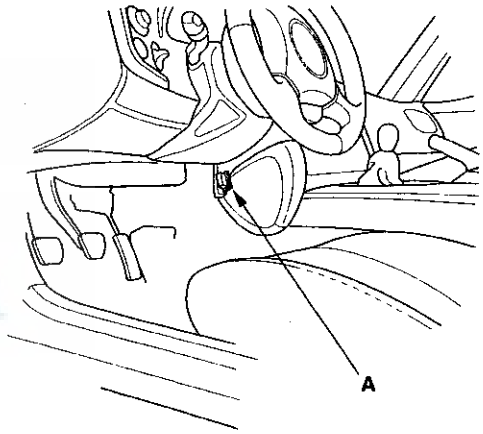
Tire Pressure Sensor Location

Special Tools Required
TPMS sensor initializer tool AKS0620006
Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE: This procedure locates where the tire pressure sensors number 1, 2, 3, 4 are mounted, when activated by the TPMS sensor initializer tool.

- Memorizing tire pressure sensor IDs (including replacing the TPMS control unit, or the tire pressure sensors).
- Wheel rotation.

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

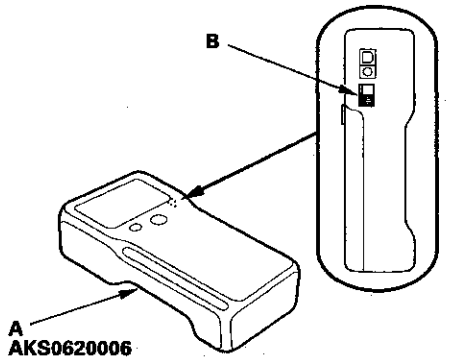


2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Select Function Test from the mode menu, then select Sensor Position Check on the HDS.

(cont'd)

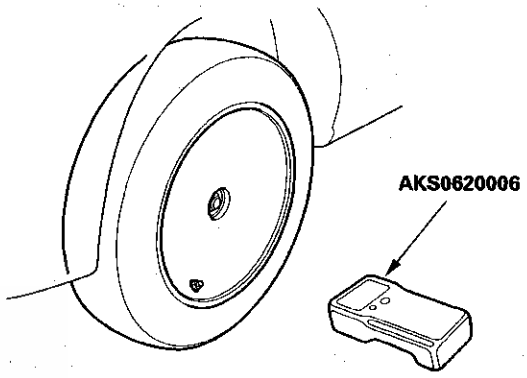
Tire Pressure Sensor Location (cont'd)

5. Follow HDS screen prompts to turn on the TPMS sensor initializer tool (A). Verify the power switch (B) is in the "Low" position.

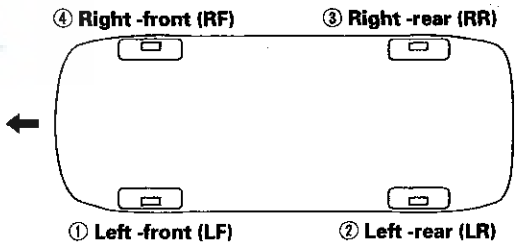


6. Follow the prompts on the HDS to activate the tire pressure sensors using the TPMS sensor initializer tool. Start with the left-front (LF) wheel.

   NOTE:
   - See the HDS Help menu for specific instructions.
   - Initialize the wheel in the sequence shown.



INITIALIZATION SEQUENCE :



7. Check the HDS screen, and note the active sensor reception order of the tire pressure sensor 1, 2, 3, 4.

   NOTE: If the sensor does not respond to the TPMS initializer, rotate the tire 1/4 turn and retry. If the sensor still does not respond after one full rotation of the tire, swap the tire to a known-good location and retry. If the sensor still does not respond after one full rotation of the tire, replace the tire pressure sensor.

8. Note the sensor location for reference.

9. Turn the ignition switch to LOCK (0).

DTC Troubleshooting Index

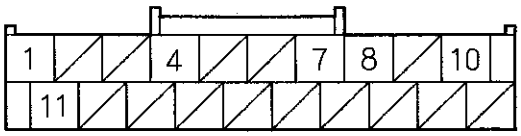
DTC	Detection Item	Troubleshooting
11	Tire 1 Low Air Pressure	(see page 18-65)
13	Tire 2 Low Air Pressure	(see page 18-65)
15	Tire 3 Low Air Pressure	(see page 18-65)
17	Tire 4 Low Air Pressure	(see page 18-65)
21	Tire 1 Pressure Sensor Abnormally High Temperature	(see page 18-67)
22	Tire 2 Pressure Sensor Abnormally High Temperature	(see page 18-67)
23	Tire 3 Pressure Sensor Abnormally High Temperature	(see page 18-67)
24	Tire 4 Pressure Sensor Abnormally High Temperature	(see page 18-67)
31	Tire 1 Pressure Sensor Low Battery Voltage	(see page 18-68)
32	Tire 1 Pressure Sensor Transmission Failure	(see page 18-69)
33	Tire 2 Pressure Sensor Low Battery Voltage	(see page 18-68)
34	Tire 2 Pressure Sensor Transmission Failure	(see page 18-69)
35	Tire 3 Pressure Sensor Low Battery Voltage	(see page 18-68)
36	Tire 3 Pressure Sensor Transmission Failure	(see page 18-69)
37	Tire 4 Pressure Sensor Low Battery Voltage	(see page 18-68)
38	Tire 4 Pressure Sensor Transmission Failure	(see page 18-69)
41	Abnormal Signal Reception Error	(see page 18-70)
51	Tire 1 Pressure Sensor Registration Error	(see page 18-71)
53	Tire 2 Pressure Sensor Registration Error	(see page 18-71)
55	Tire 3 Pressure Sensor Registration Error	(see page 18-71)
57	Tire 4 Pressure Sensor Registration Error	(see page 18-71)
81	TPMS Control Unit Failure	(see page 18-72)
83	No VSP Signal	(see page 18-72)
85	F-CAN Communication Failure	(see page 18-73)
91	Tire 1 Pressure Sensor Internal Error	(see page 18-75)
93	Tire 2 Pressure Sensor Internal Error	(see page 18-75)
95	Tire 3 Pressure Sensor Internal Error	(see page 18-75)
97	Tire 4 Pressure Sensor Internal Error	(see page 18-75)

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
HDS does not communicate with the TPMS control unit or the vehicle	Troubleshooting the DLC circuit (see page 11-367)	
Low tire pressure indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-76)	
Low tire pressure indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-77)	
TPMS indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-78)	
TPMS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-78)	

System Description

TPMS Control Unit Inputs and Outputs for 20P Connector



Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Signal		
				Terminal	Conditions	Voltage
1	WHT	CAN2 H (CAN2 communication signal high)	Sends the communication signal	———	Ignition switch ON (II)	Pulses
4	BLK	GRD (Ground)	Ground for the TPMS control unit	4-GND	At all times	Less than 0.1 V
7	GRY	K-LINE (Data link connector)	Communications with the HDS	———	———	———
8	YEL	IG1 (Ignition switch 1)	Power source for activating the system	8-GND	Ignition switch ON (II)	Battery voltage
					Ignition switch LOCK (0)	Less than 0.1 V
10	RED	+B (Battery positive)	Power source for the TPMS control unit	10-GND	At all times	Battery voltage
11	RED	CAN2 L (CAN2 communication signal low)	Sends the communication signal	———	Ignition switch ON (II)	Pulses

(cont'd)

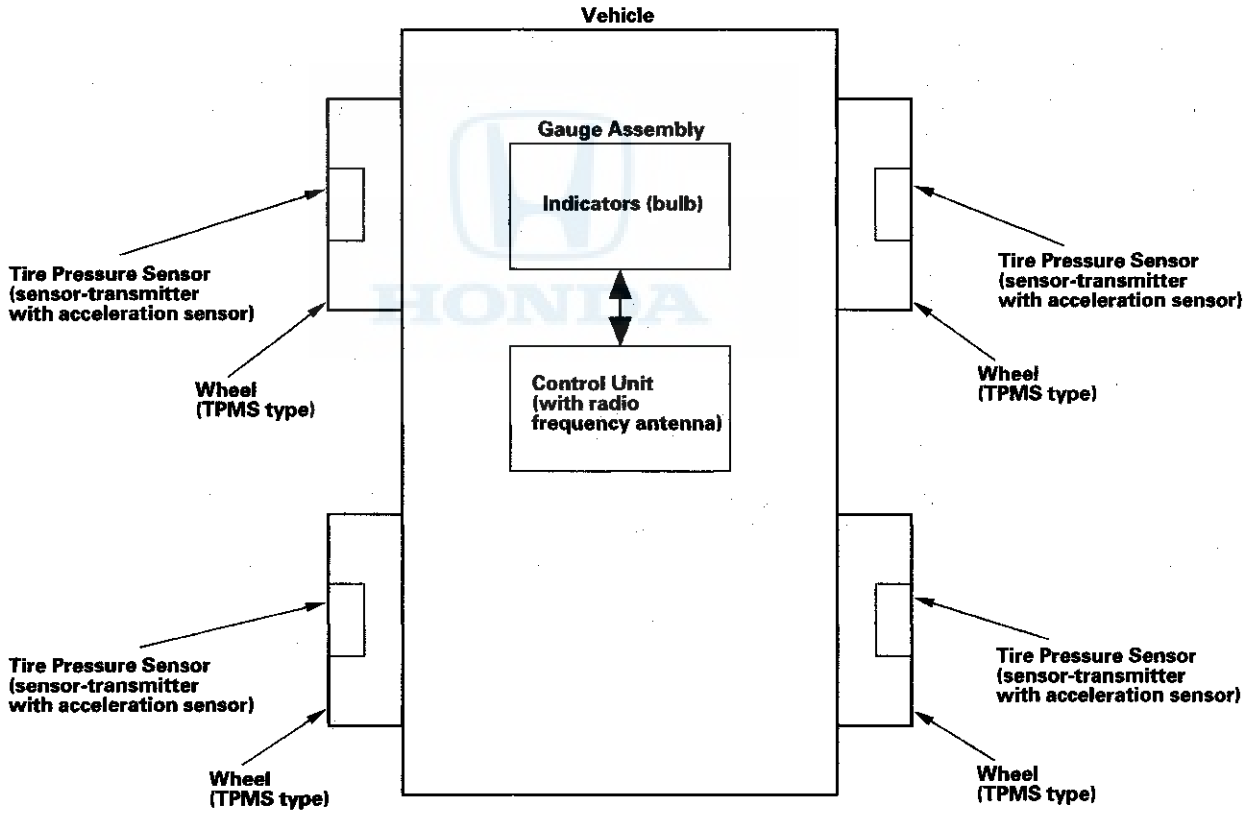
System Description (cont'd)

System Structure

Once the vehicle speed exceeds 28 mph (45 km/h), the TPMS control unit monitors all four tires and the system. If it detects low pressure in a tire, it alerts the driver by turning on the low tire pressure indicator. If it detects a problem in the system, it turns on the TPMS indicator.

Control unit
Mounted under the driver's side of the dash, the TPMS control unit receives pressure sensor ID signals every time the vehicle speeds exceeds 28 mph (45 km/h). It also receives signals from the transmitters for tire pressure and the sensor condition, and it continuously monitors and controls the system.

Indicators
Two indicators are in the gauge assembly: The low tire pressure indicator comes on when any tire pressure is low, and the TPMS indicator that comes on only if there's a problem with the system.
The low tire pressure indicator alerts the driver that a tire(s) pressure is low, but does not specify the tire(s) location.



Tire pressure sensor

Each sensor is an integrated unit made up of the tire valve stem, a pressure sensor, and a transmitter. The unit is attached to the inside of the wheel, around the valve stem. The sensor transmits the internal tire information to the control unit once every 60 seconds when the vehicle speed exceeds 28 mph (45 km/h). When the TPMS control unit receives a tire pressure signal that is less than 175 kPa (1.8 kgf/cm², 25 psi), the TPMS control unit then turns on the low tire pressure indicator. When that tire's pressure is increased to more than 200 kPa (2.0 kgf/cm², 29 psi), and the vehicle is driven above 28 mph (45 km/h) the transmitter sends the tire pressure signal to the control unit, and then the control unit turns the indicator off.

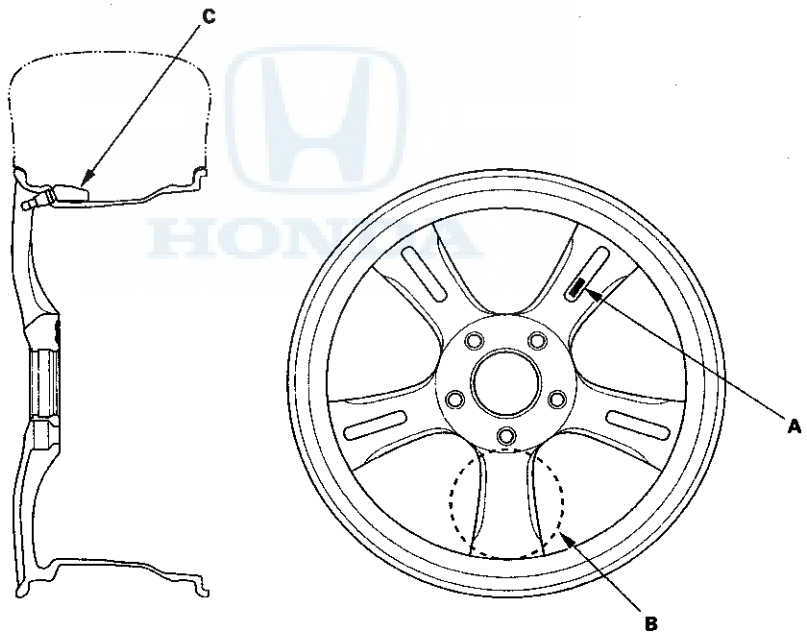
Do not mix the tire pressure sensor with another TPMS type.

Sensor active:

- When the wheel rotates over 28 mph (45 km/h), the sensor detects the momentum, switches the sensor to the normal function mode.
- The LF (low frequency) signal of the TPMS initializer tool makes the sensor active even though the vehicle is stopped. The tire pressure sensor goes into sleep mode when the acceleration sensor detects the wheel is stationary for 5 minutes or more continuously.

Wheels

TPMS will not work unless TPMS type wheels are installed on the vehicle. The original equipment wheels have a "TPMS" mark (A) on them and counterweights (B) are mounted to counter balance the weight of the tire pressure sensor (C).



(cont'd)

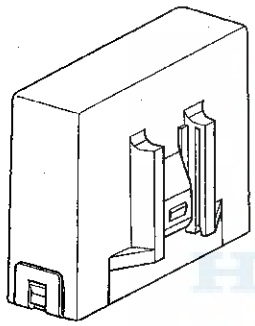
System Description (cont'd)

System Communication

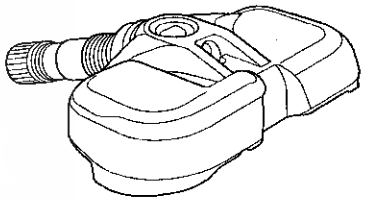
- When the vehicle is traveling more than 28 mph (45 km/h), an RF (radio frequency) band wave signal is continuously transmitted from each tire pressure sensor to the control unit.
- When the wheels rotate, and the tire pressure sensors momentum is detected, switching them from sleep mode to normal function mode. After the vehicle is stationary for 5 minutes, the sensors switch from normal function mode back to sleep mode to extend their battery life.
- Each tire pressure sensor has its own ID to prevent jamming by similar systems on other vehicles. After memorizing all the sensor IDs, the control unit receives only those specific signals.
- An ID cannot be memorized automatically. The control unit knows which ID belongs to each tire pressure sensor. This recurring ID confirmation prevents any confusion in the system as a result of normal tire rotation.

NOTE: Be careful not to bend the brackets on the TPMS control unit: Misalignment of the control unit could interfere with sending and receiving signals.

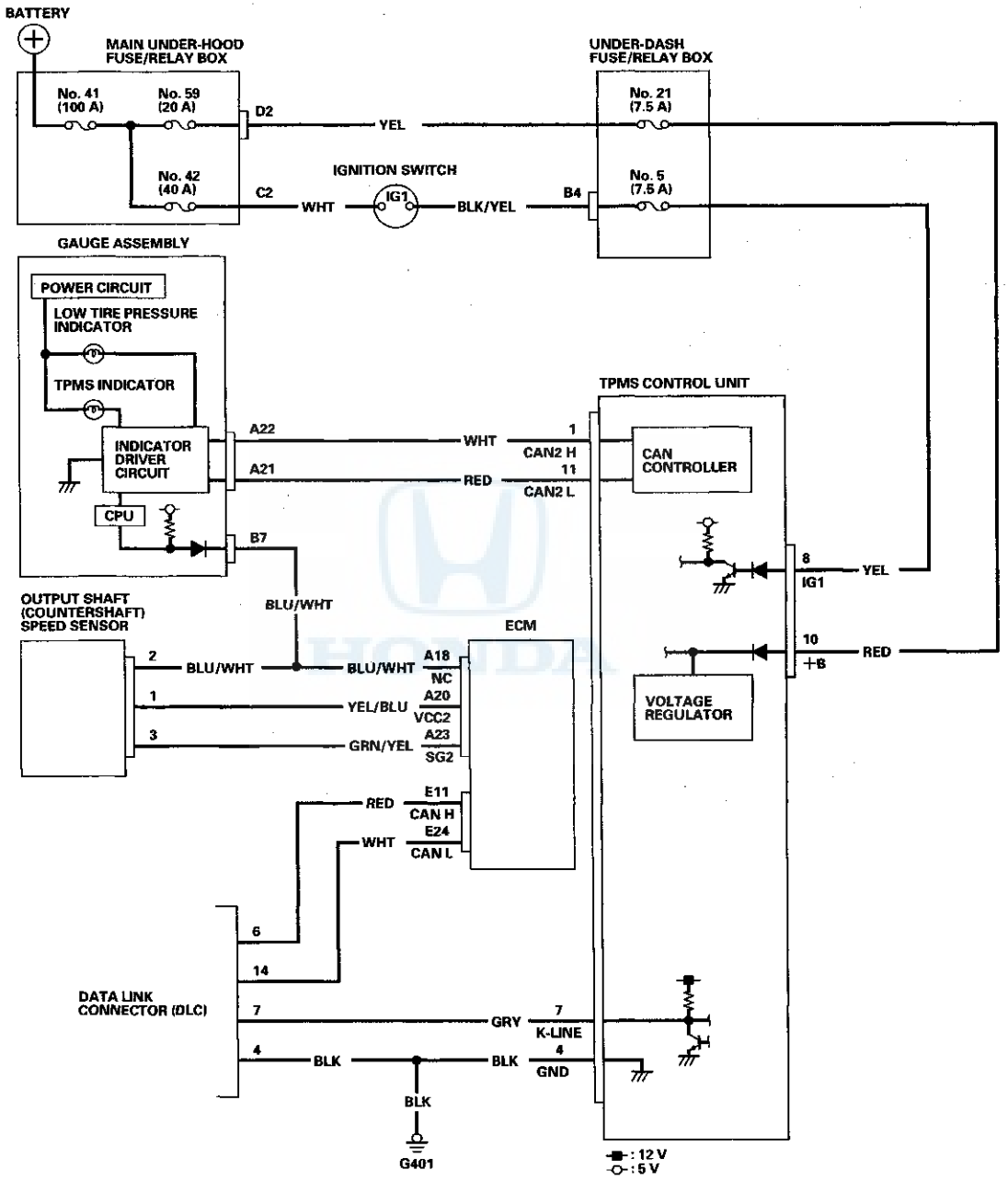
Control Unit
(with Radio Frequency Antenna)



Tire Pressure Sensor
(Sensor-transmitter with acceleration sensor)



Circuit Diagram



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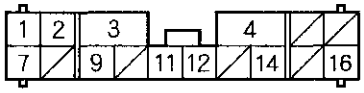
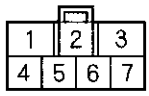
Circuit Diagram (cont'd)

MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR D (16P)



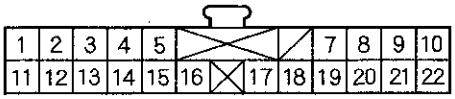
Wire side of female terminals

UNDER-DASH FUSE/RELAY BOX CONNECTOR B (7P)



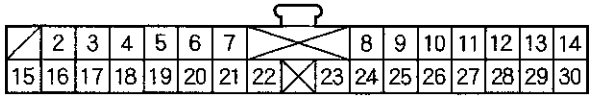
Wire side of female terminals

GAUGE ASSEMBLY CONNECTOR A (22P)



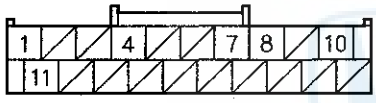
Wire side of female terminals

GAUGE ASSEMBLY CONNECTOR B (30P)



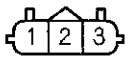
Wire side of female terminals

TPMS CONTROL UNIT 20P CONNECTOR



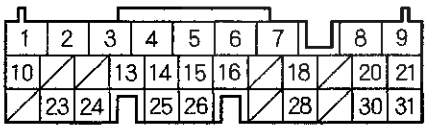
Wire side of female terminals

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONNECTOR



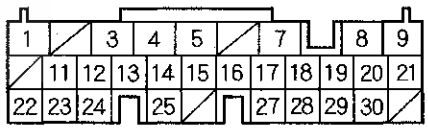
Wire side of female terminals

ECM CONNECTOR A (31P)



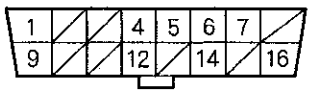
Wire side of female terminals

ECM CONNECTOR E (31P)



Wire side of female terminals

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

DTC Troubleshooting

DTC 11, 13, 15, 17: Tire Low Air Pressure

NOTE: If low tire pressure is detected, the control unit sets one or more of these DTCs, and turns on the low tire pressure indicator. If the low tire pressure indicator comes on due to true low tire pressure, and the customer corrects it before bringing the vehicle in, the DTCs will have been stored, but the indicator will be off.

1. Turn the ignition switch to LOCK (0).
2. Check the pressure of all four tires.

   Is there 175 kPa (1.8 kgf/cm², 25 psi) or less?

   YES—Go to step 3.

   NO—Go to step 5.
3. Check for and repair the cause of air loss, and then inflate the tire (see page 18-7).
4. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

   Does the low tire pressure indicator go off?

   YES—The system is OK at this time. Clear the DTC with the HDS. ■

   NO—Go to step 6.
5. Turn the ignition switch to ON (II).
6. Check for DTCs with the HDS.
7. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire pressure sensor
11	No. 1
13	No. 2
15	No. 3
17	No. 4

8. Determine the affected tire location by the tire pressure sensor number (see page 18-55).
9. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 AIR PRESSURE in the TPMS DATA LIST with the HDS, and compare it with the actual measured tire pressure.

   Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

   YES—Go to step 10.

   NO—Replace the appropriate tire pressure sensor (see page 18-81). ■

(cont'd)

DTC Troubleshooting (cont'd)

10. Clear the DTC with the HDS.
11. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
12. Check for DTCs with the HDS.

    Is DTC 11, 13, 15, or 17 indicated?

    YES—Go to step 13.

    NO—If any other DTCs are indicated, troubleshoot the appropriate DTC. If no DTCs are indicated, the system is OK at this time.■
13. Clear the DTC with the HDS.
14. Turn the ignition switch to LOCK (0).
15. Substitute a known-good TPMS wheel.
16. Memorize the tire pressure sensor ID with the HDS (see page 18-54).
17. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
18. Check for DTCs with the HDS.

    Is DTC 11, 13, 15, or 17 indicated?

    YES—Replace the TPMS control unit (see page 18-80).■

    NO—Replace the original tire pressure sensor (see page 18-81).■

DTC 21, 22, 23, 24: Tire Pressure Sensor Abnormally High Temperature

1. Turn the ignition switch to LOCK (0).
2. Make sure the tires have cooled down.

   NOTE: An abnormal rise in the internal temperature of the tires can be caused by
   - Excessive braking
   - Failure to release the parking brake (rear tires only)
   - Leaving the vehicle running while parked (rear tires only)
   - Improper assembly of a wheel and tire

3. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

   Does the TPMS indicator go off?

   YES—The system is OK at this time. Clear the DTC with the HDS. ■

   NO—Go to step 4.

4. Check for DTCs with the HDS.
5. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire pressure sensor
21	No. 1
22	No. 2
23	No. 3
24	No. 4

6. Determine the affected tire location by the tire pressure sensor number (see page 18-55).
7. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 AIR TEMPERATURE in the TPMS DATA LIST with the HDS.

   Is 176 °F (80 °C) or more indicated?

   YES—Replace the appropriate tire pressure sensor (see page 18-81). ■

   NO—Go to step 8.

8. Clear the DTC with the HDS.
9. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
10. Check for DTCs with the HDS.

    Is DTC 21, 22, 23, or 24 indicated?

    YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-80), and recheck. ■

    NO—If any other DTCs are indicated, troubleshoot the appropriate DTC. If no DTC are indicated, the system is OK at this time. ■

DTC Troubleshooting (cont'd)

DTC 31, 33, 35, 37: Tire Pressure Sensor Low Battery Voltage

NOTE: This problem occurs when the temperature around the sensor is −40 °F (−40 °C) or less. Note that the diagnosis must be made in a place where ambient temperature is −40 °F (−40 °C) or more.

1. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

   Does the TPMS indicator go off?

   YES—The system is OK at this time. Clear the DTC with the HDS.■

   NO—Go to step 2.

2. Check for DTCs with the HDS.

3. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire pressure sensor
31	No. 1
33	No. 2
35	No. 3
37	No. 4

4. Determine the affected tire location by the tire pressure sensor number (see page 18-55).

   Did each tire pressure sensor respond to the TPMS initializer tool?

   YES—Go to step 5.

   NO—Check that the tire pressure sensor is properly mounted. If necessary, replace the appropriate tire pressure sensor (see page 18-81).■

5. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 PRESSURE SENSOR TRANSMITTER BATTERY in the TPMS DATA LIST with the HDS.

   Is LOW indicated?

   YES—Replace the appropriate tire pressure sensor (see page 18-81).■

   NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-80), and recheck.■

DTC 32, 34, 36, 38: Tire Pressure Sensor Transmission Failure

NOTE: Inspect for an aftermarket electrical device interfering with the RF signal from the sensors when driving the vehicle.

1. Turn the ignition switch to ON (II).
2. Check for DTCs with the HDS.
3. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire pressure sensor
32	No. 1
34	No. 2
36	No. 3
38	No. 4

4. Turn the ignition switch to LOCK (0).
5. Make sure all four wheels are TPMS wheels with the properly mounted tire pressure sensors.

   Are TPMS type wheels with a tire pressure sensor mounted on the vehicle?

   YES—Go to step 8.

   NO—Go to step 6.
6. Substitute a known-good TPMS wheel.
7. Memorize the tire pressure sensor ID with the HDS (see page 18-54).

   Did the TPMS control unit memorize the tire pressure sensors?

   YES—Replace the original tire pressure sensor (see page 18-81).■

   NO—Go to step 8.
8. Turn the ignition switch to ON (II).
9. Determine the affected tire location by the tire pressure sensor number (see page 18-55).

   Did each tire sensor respond to the TPMS initializer tool?

   YES—Go to step 10.

   NO—Check for an aftermarket electrical device interfering with the RF signals from the sensors. If there are no electrical devices causing interference, replace the appropriate tire pressure sensor (see page 18-81).■
10. Turn the ignition switch to LOCK (0), and wait 5 minutes or more.
11. Turn the ignition switch to ON (II).
12. Identify the affected tire sensor number from the DTC list on step 3.
13. Locate the effected tire pressure sensor checking the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 AIR PRESSURE in the TPMS DATA LIST with the HDS.

    Is the default pressure of 145 psi displayed?

    YES—Go to step 14.

    NO—Repeat steps 10 through 13 until the default pressure (145 psi) is displayed. If the default pressure is never displayed, replace the TPMS control unit (see page 18-80).■
14. Drive the vehicle over 28 mph (45 km/h), and monitor the effected tire pressure sensor with the HDS.

    Did the effected tire pressure sensor change from the default pressure (145 psi) to the correct tire pressure?

    YES—The system is OK at this time. Clear the DTC with the HDS.■

    NO—Replace the appropriate tire pressure sensor (see page 18-81).■

DTC Troubleshooting (cont'd)

DTC 41: Abnormal Signal Reception Error

NOTE: Inspect for an aftermarket electrical device interfering with the RF signal from the sensors when driving the vehicle.

1. Turn the ignition switch to LOCK (0).
2. Make sure all four wheels are TPMS wheels with tire pressure sensors.

   Are TPMS type wheels with tire pressure sensors mounted on the vehicle?

   YES—Go to step 5.

   NO—Go to step 3.
3. Substitute known-good TPMS wheels.
4. Memorize the tire pressure sensor ID with the HDS (see page 18-54).

   Did each tire pressure sensor location respond to the TPMS initializer tool?

   YES—Replace the original TPMS wheels.■

   NO—Replace the TPMS control unit (see page 18-80).■
5. Memorize the tire pressure sensor ID with the HDS (see page 18-54).

   Did each tire pressure sensor location respond to the TPMS initializer tool?

   YES—The system is OK at this time, clear the DTC with the HDS.■

   NO—Replace the TPMS control unit (see page 18-80).■

DTC 51, 53, 55, 57: Tire Pressure Sensor Registration Error

1. Turn the ignition switch to ON (II).
2. Check for DTCs with the HDS.
3. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire pressure sensor
51	No. 1
53	No. 2
55	No. 3
57	No. 4

4. Turn the ignition switch to LOCK (0).
5. Make sure all four wheels are TPMS wheels with the properly mounted tire pressure sensors. If necessary substitute known-good TPMS wheels.
6. Turn the ignition switch to ON (II).
7. Clear the DTC with the HDS.
8. Memorize the tire pressure sensor ID with the HDS (see page 18-54).
9. Test-drive the vehicle. Drive the vehicle at 28 mph (45 km/h) for 1 minute or more.
10. Check for DTCs with the HDS.

    Is DTC 51, 53, 55, or 57 indicated?

    YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-80), and recheck. ■

    NO—Replace the appropriate tire pressure sensor (see page 18-81). ■

DTC Troubleshooting (cont'd)

DTC 81: TPMS Control Unit Failure

NOTE: Low battery voltage can cause this DTC. Make sure the battery is fully charged and in good condition (see page 22-47).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn the ignition switch to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 81 indicated?

   YES—Replace the TPMS control unit (see page 18-80). ■

   NO—The system is OK at this time. ■

DTC 83: No VSP Signal

NOTE: If DTC 85 is stored at the same time as DTC 83, troubleshoot DTC 85 first, then recheck for DTC 83.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle at 7 mph (10 km/h) or more.
4. Check the speedometer.

   Does the speedometer register speed?

   YES—Go to step 9.

   NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Check and troubleshoot the fuel and emissions system DTC (see page 11-213). If necessary, do the vehicle speed signal circuit troubleshooting (see page 22-95).
7. Test-drive the vehicle at 7 mph (10 km/h) or more.
8. Check the speedometer.

   Does the speedometer register speed?

   YES—The system is OK at this time. ■

   NO—Substitute a known-good gauge assembly (see page 22-89), and recheck. If no codes are shown, replace the original gauge assembly. ■

9. Check the VEHICLE SPEED in the TPMS DATA LIST with the HDS.

   Is the vehicle speed indicated?

   YES—The system is OK at this time. ■

   NO—Substitute a known-good TPMS control unit (see page 18-80), and recheck. ■

DTC 85: F-CAN Communication Failure

NOTE: Check for gauge DTCs with the HDS (see page 22-6). If gauge DTCs are stored, troubleshoot those DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn the ignition switch to ON (II) again.
4. Wait about 5 seconds.
5. Check for DTCs with the HDS.

   Is DTC 85 indicated?

   YES—Go to step 6.

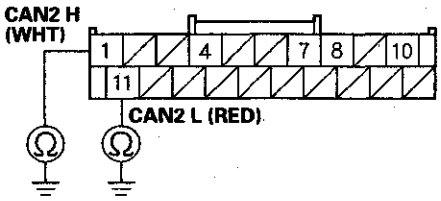
   NO—The system is OK at this time. Check for loose terminals between the TPMS control unit and the gauge assembly. ■
6. Test-drive the vehicle.

   Does the speedometer work?

   YES—Go to step 7.

   NO—Check for loose terminals and poor connections at the gauge assembly. If necessary, substitute a known-good gauge assembly (see page 22-89), and recheck. ■
7. Turn the ignition switch to LOCK (0).
8. Disconnect gauge assembly connector A (22P).
9. Disconnect the TPMS control unit 20P connector.
10. Check for continuity between body ground and TPMS control unit 20P connector terminals No. 1 and No. 11 individually.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

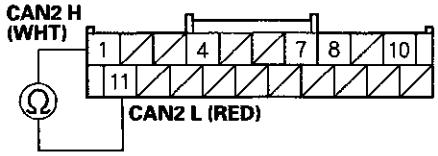
Is there continuity?

YES—Repair short to body ground in the wire between the TPMS control unit and the gauge assembly. ■

NO—Go to step 11.

11. Check for continuity between TPMS control unit 20P connector terminals No. 1 and No. 11.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the TPMS control unit and the gauge assembly. ■

NO—Go to step 12.

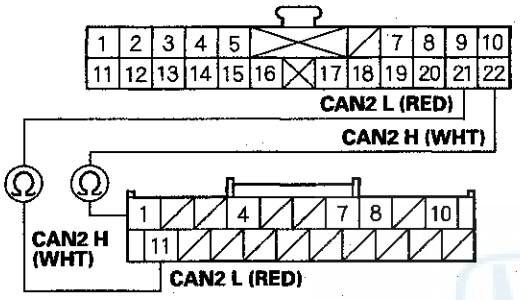
(cont'd)

DTC Troubleshooting (cont'd)

12. Check for continuity between the TPMS control unit 20P connector terminals and gauge assembly connector A (22P) terminals (see table).

Terminal name	TPMS control unit terminal	Gauge assembly terminal
CAN2 L	No. 11	No. 21
CAN2 H	No. 1	No. 22

GAUGE ASSEMBLY CONNECTOR A (22P)
Wire side of female terminals



TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wire between the TPMS control unit and the gauge assembly.■

13. Substitute a known-good TPMS control unit (see page 18-80).

14. Reconnect all connectors.

15. Memorize the tire pressure sensor ID with the HDS (see page 18-54).

16. Turn the ignition switch to ON (II).

17. Clear the DTC with the HDS.

18. Turn the ignition switch to LOCK (0), then turn the ignition switch to ON (II) again.

19. Wait about 5 seconds.

20. Check for DTCs with the HDS.

Is DTC 85 indicated?

YES—Replace the gauge assembly (see page 22-89).■

NO—Replace the original TPMS control unit (see page 18-80).■

DTC 91, 93, 95, 97: Tire Pressure Sensor Internal Error

1. Turn the ignition switch to ON (II).
2. Check for DTCs with the HDS.
3. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire pressure sensor
91	No. 1
93	No. 2
95	No. 3
97	No. 4

4. Determine the affected tire location by the tire pressure sensor number (see page 18-55).

   Did the sensors respond to the TPMS initializer tool?

   YES—Go to step 5.

   NO—Check that the tire pressure sensor is properly mounted. If necessary, replace the appropriate tire pressure sensor (see page 18-81). ■

5. Clear the DTC with the HDS.
6. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
7. Check for DTCs with the HDS.

   Is DTC 91, 93, 95, or 97 indicated?

   YES—Replace the appropriate tire pressure sensor (see page 18-81) and recheck. If DTCs are still present, substitute a known-good TPMS control unit (see page 18-80), and recheck. ■

   NO—If any other DTCs are indicated, troubleshoot the appropriate DTC. If no DTCs are indicated, the system is OK at this time. ■

Symptom Troubleshooting

Low tire pressure indicator does not come on, and no DTCs are stored

1. Turn the ignition switch to ON (II).
2. Check the low tire pressure indicator for several seconds when the ignition switch is turned to ON (II).

   Did the indicator come on and then go off?

   YES—Go to step 5.

   NO—Go to step 3.
3. Turn the ignition switch to LOCK (0).
4. Check the low tire pressure indicator bulb in the gauge assembly (see page 22-59).

   Is the bulb OK?

   YES—Do the troubleshooting for the gauge assembly (see page 22-60). If necessary, substitute a known-good gauge assembly (see page 22-89), and recheck.■

   NO—Replace the low tire pressure indicator bulb (see page 22-59).■
5. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
6. Stop the vehicle, and lower the pressure in each tire until the low tire pressure indicator comes on. Reinflate the tire before continuing to the next tire.

   NOTE: If 5 minutes has passed since finishing the last test-drive, reactivate the appropriate tire pressure sensors using the TPMS sensor initializer tool (see page 18-55).

   Does the indicator come on when the pressure drops below 175 kPa (1.8 kgf/cm², 25 psi) or less?

   YES—The system is OK at this time.■

   NO—Go to step 7.
7. Determine the effected tire location by the tire pressure sensor number (see page 18-55).

   Did the sensors respond to the TPMS initializer tool?

   YES—Go to step 8.

   NO—Check that the tire pressure sensor is properly mounted. If necessary, replace the appropriate tire pressure sensor (see page 18-81).■
8. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 AIR PRESSURE in the TPMS DATA LIST with the HDS, and compare with the actual measured tire pressure.

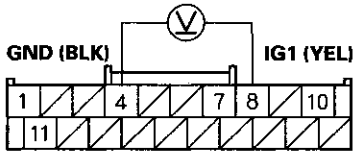
   Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

   YES—Go to step 9.

   NO—Replace the appropriate tire pressure sensor (see page 18-81).■
9. Turn the ignition switch to LOCK (0).

10. Disconnect the TPMS control unit 20P connector.
11. Measure voltage between TPMS control unit 20P connector terminals No. 4 and No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair short to power in the wire between the TPMS control unit and the No. 5 (7.5 A) fuse in the under-dash fuse/relay box.■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-80), and recheck.■

Low tire pressure indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to LOCK (0).
2. Disconnect the TPMS control unit 20P connector.
3. Turn the ignition switch to ON (II).
4. Check the low tire pressure indicator for several seconds when the ignition switch is turned to ON (II).

Did the indicator come on and then go off?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-80), and recheck.■

NO—Do the troubleshooting for the gauge assembly (see page 22-60). If necessary, substitute a known-good gauge assembly (see page 22-89), and recheck.■

Symptom Troubleshooting (cont'd)

TPMS indicator does not come on, and no DTCs are stored

1. Turn the ignition switch to LOCK (0).
2. Disconnect the TPMS control unit 20P connector.
3. Turn the ignition switch to ON (II).
4. Check the TPMS indicator for several seconds when the ignition switch is turned to ON (II).

   Did the indicator come on?

   YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-80), and recheck. ■

   NO—Go to step 5.
5. Turn the ignition switch to LOCK (0).
6. Check the TPMS indicator bulb in the gauge assembly (see page 22-59).

   Is the bulb OK?

   YES—Do the troubleshooting for the gauge assembly (see page 22-60). If necessary, substitute a known-good gauge assembly (see page 22-89), and recheck. ■

   NO—Replace the TPMS indicator bulb (see page 22-59). ■

TPMS indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to ON (II).
2. Check the TPMS indicator for several seconds when the ignition switch is turned to ON (II).

   Did the indicator come on and then go off?

   YES—The system is OK at this time. ■

   NO—Go to step 3.
3. Turn the ignition switch to LOCK (0).
4. Check the No. 21 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?

   YES—Replace the No. 21 (7.5 A) fuse, and recheck. ■

   NO—Reinstall the fuse, then go to step 5.
5. Check the No. 5 (7.5 A) fuse in the under-dash fuse/relay box.

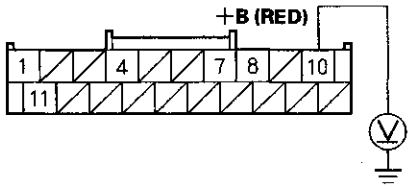
   Is the fuse blown?

   YES—Replace the No. 5 (7.5 A) fuse, and recheck. ■

   NO—Reinstall the fuse, then go to step 6.
6. Disconnect the TPMS control unit 20P connector.

7. Measure voltage between body ground and TPMS control unit 20P connector terminal No. 10.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

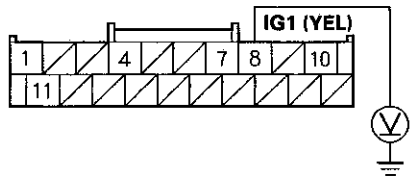
YES—Go to step 8.

NO—Repair open in the wire between the TPMS control unit and the No. 21 (7.5 A) fuse in the under-dash fuse/relay box.■

8. Turn the ignition switch to ON (II).

9. Measure voltage between body ground and TPMS control unit 20P connector terminal No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Repair open in the wire between the TPMS control unit and the No. 5 (7.5 A) fuse in the under-dash fuse/relay box.■

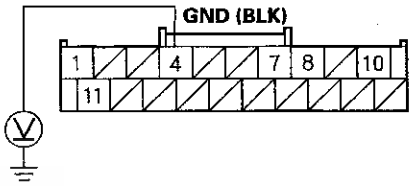
10. Turn the ignition switch to LOCK (0).

11. Reconnect the TPMS control unit 20P connector.

12. Turn the ignition switch to ON (II).

13. Measure voltage between body ground and TPMS control unit 20P connector terminal No. 4.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair open or high resistance in the wire between the TPMS control unit and body ground (G401).■

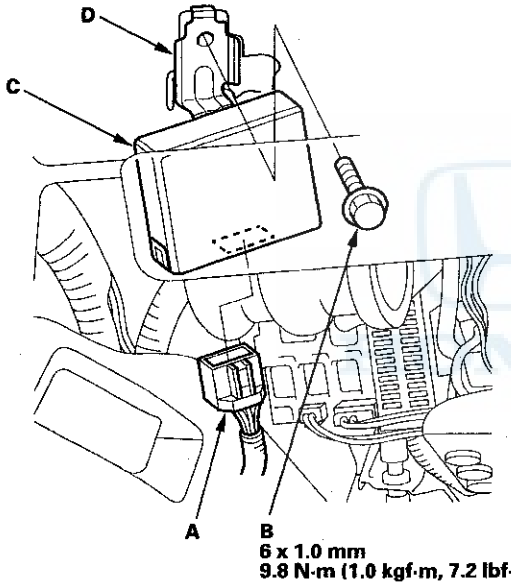
NO—Do the troubleshooting for the gauge assembly (see page 22-60). If the gauge assembly is OK, check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-80), and recheck.■

TPMS Control Unit Replacement

NOTE: Make sure the TPMS control unit mounting bracket is not bent or twisted as this may affect its communication with the tire pressure sensors.

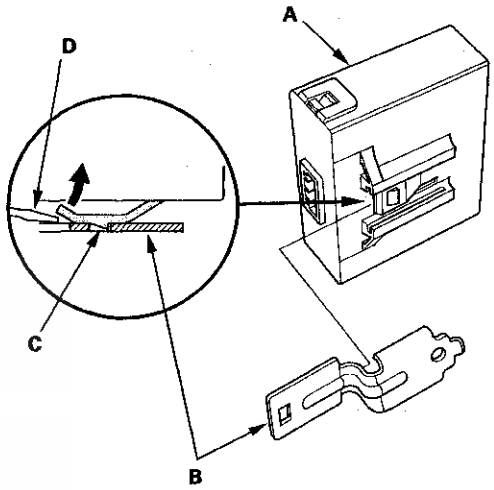
1. Turn the ignition switch to LOCK (0).
2. Remove the driver's dashboard lower cover (see page 20-85).
3. Disconnect the TPMS control unit connector (A).

   NOTE: The TPMS control unit is located above the hood release handle.



4. Remove the flange bolt (B), and remove the TPMS control unit (C) with the bracket (D).
5. Remove the TPMS control unit (A) from the bracket (B).

   NOTE: While separating the TPMS control unit from the bracket, release the hook (C) on the TPMS control unit using a flat-tipped screwdriver (D), and push it up to remove the bracket.



6. Install the TPMS control unit in the reverse order of removal.

   NOTE: Make sure the TPMS control unit is properly installed. You will hear a click when the TPMS control unit is securely mounted on the bracket.

7. Connect the HDS, and memorize the tire pressure sensor IDs using the TPMS initializer tool (see page 18-54).

Tire Pressure Sensor Replacement

Removal

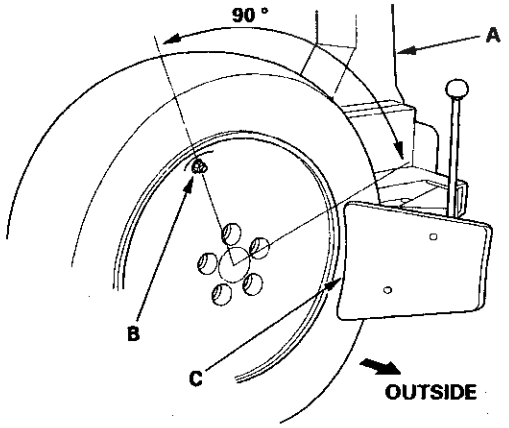
NOTE: For CR model, if tire sealant has been used for repair the flat tire, do the tire sealant removal (see page 18-5) first. In this case, the tire removal procedure is normally, but be careful not to damage the tire pressure sensor is dropped into the inside of the tire, and not to spill the remaining tire sealant.

1. Raise the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the wheel with the faulty sensor.
3. Remove the tire valve stem cap and the valve stem core, and let the tire deflate.
4. Remove any balance weights, and then break the bead loose from the wheel with a commercially available tire changer (A).

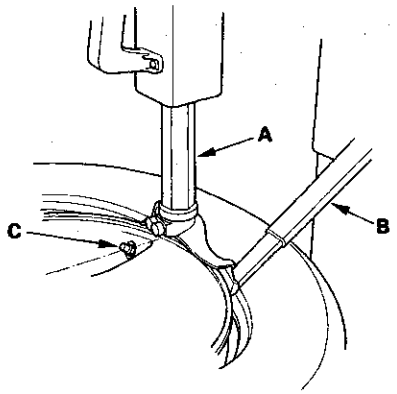
NOTICE

Note these items to avoid damaging the tire pressure sensor:

- Do the outside of the wheel first.
- Position the wheel as shown so the valve stem (B) is 90 degrees from the bead breaker (C) as shown.
- Do not position the bead breaker of the tire changer too close to the rim.

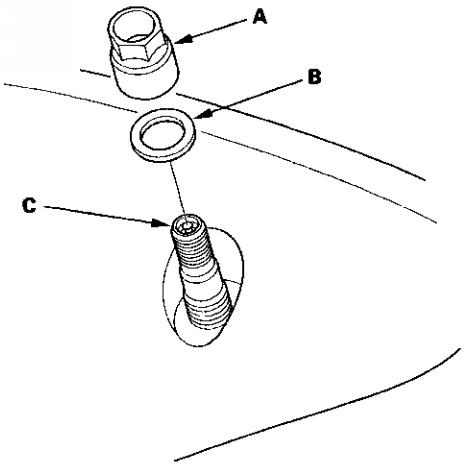


5. Position the wheel so the tire machine (A) and tire iron (B) are next to the valve stem (C) and will move away from it when the machine starts. Then remove the tire from the wheel.



6. Remove the valve stem nut (A) and washer (B), then remove the tire pressure sensor with valve stem (C) from the wheel.

NOTE: Check the nut and the washer, if they have deterioration or damage, replace with new ones during reassembly.

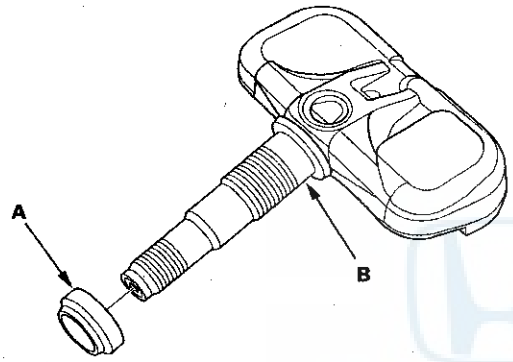


(cont'd)

Tire Pressure Sensor Replacement (cont'd)

7. Remove and discard the valve stem grommet (A) from the tire pressure sensor (B).

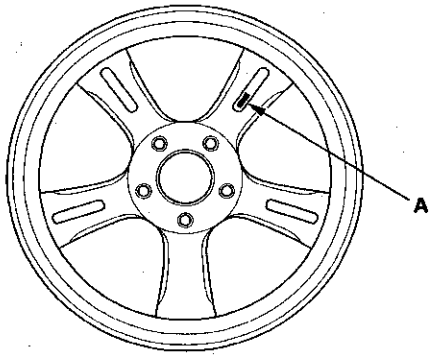
   NOTE:
   - The valve stem grommet might stay in the wheel; make sure you remove it.
   - Always use a new valve stem grommet whenever the tire pressure sensor has been removed from the wheel. When only removing a tire from the wheel, replace the valve stem grommet if it is possible.



8. CR model: Thoroughly clean the tire and the inside of the wheel with cold water if the tire sealant was used.

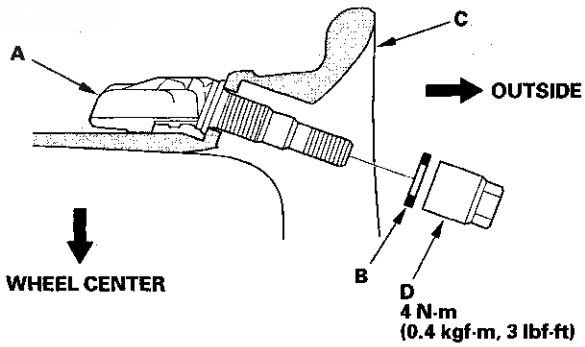
Installation

NOTE: Use only wheels that have a "TPMS" stamp (A) on them.



1. Before installing the tire pressure sensor, clean the mating surfaces on the sensor and the wheel.

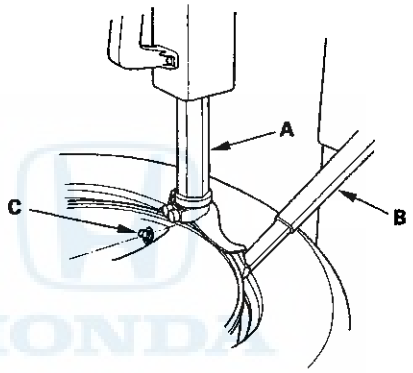
2. Install the tire pressure sensor (A) and the washer (B) to the wheel (C), and tighten the valve stem nut (D) finger tight. Make sure the pressure sensor is resting on the wheel.



3. Tighten the valve stem nut to the specified torque while holding the tire pressure sensor.

   NOTE:
   - Do not use air or electric impact tools to tighten a valve stem nut.
   - Do not twist the tire pressure sensor with the wheel, as this will damage or deform the valve stem grommet.

4. Lube the tire bead sparingly, and position the wheel so the tire machine (A) and tire iron (B) are next to the valve stem (C) and will move away from it when the machine starts. Then install the tire onto the wheel.



5. With a dry air source, inflate the tire to 300 kPa (3.1 kgf/cm^2, 44 psi) to seat the tire bead to the rim, then adjust the tire pressure (see page 18-7), then install the valve stem cap.

   NOTE: Make sure the tire bead is seated on both sides of the rim uniformly.

6. Check and adjust the wheel balance, then install the wheels on the vehicle.

7. Remove the jack stands, and lower the vehicle. Torque the wheel nuts to specifications.

8. Connect the HDS, and memorize the tire pressure sensor IDs using the TPMS sensor initializer tool (see page 18-54).

HONDA

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

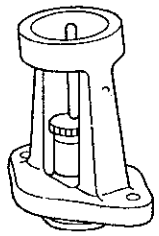
Brakes

Conventional Brake Components

Conventional Brake Components

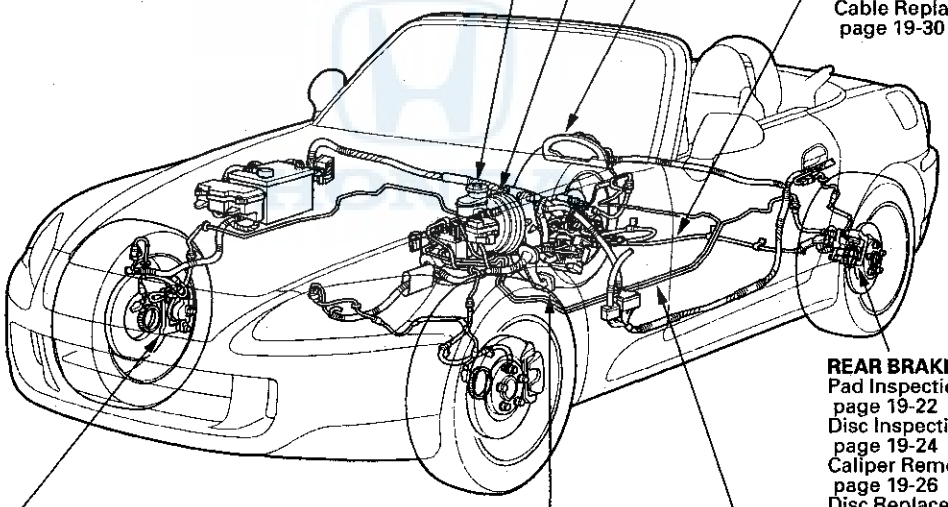
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07JAG-SD40100	Pushrod Adjustment Gauge	1



①

Component Location Index



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BRAKE PEDAL
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Conventional Brake Components

Brake System Inspection and Test

Inspect the brake system components listed. Repair or replace any parts that are leaking or damaged.

Component Inspections:

Component	Procedure	Also check for
Master Cylinder	Look for damage or signs of fluid leakage at: • Reservoir or master cylinder body. • Lines, grommets, and their joints. • Between master cylinder and booster.	Bulging seal at reservoir cap. This is a sign of fluid contamination.
Brake Hoses	Look for damage or signs of fluid leakage at: • Line joints and banjo bolt connections. • Hoses and lines, also inspect for twisting or damage.	Bulging, twisted, or bent lines.
Caliper	Look for damage or signs of fluid leakage at: • Piston seal. • Banjo bolt connections. • Bleed screw.	Seized or sticking caliper pins.
ABS or VSA Modulator-control Unit	Look for damage or signs of fluid leakage at: • Line joints. • Modulator-control unit.	

Brake System Test

Brake pedal sinks/fades when braking

1. Set the parking brake, and start the engine, then turn off the A/C. Allow the engine to warm up to normal operating temperature (radiator fan comes on twice).
2. Attach a 50 mm (2 in.) piece of masking tape along the bottom of the steering wheel, and draw a horizontal reference mark across it.
3. With the transmission in the Neutral position, press and hold the brake pedal lightly, then release the parking brake.
4. While still holding the brake pedal, hook the end of the tape measure behind the brake pedal, then pull the tape up to the steering wheel. Note the measurement between the brake pedal and the reference mark on the steering wheel.
5. Apply steady pressure to the brake pedal for 3 minutes.
6. Watch the tape measure.
   - If the measurement increases 10 mm (3/8 in.) or less, the master cylinder is OK.
   - If the measurement increases more than 10 mm (3/8 in.), replace the master cylinder.

Symptom Troubleshooting

Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

NOTE: Make sure that the caliper pins are installed correctly.
The upper caliper pin A and lower caliper pin B are different. If the pins are installed in the wrong location, it will cause vibration, uneven or rapid brake pad wear, and possibly uneven tire wear. For proper caliper pin location (see page 19-17).

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.

2. With the engine running, raise the vehicle on a lift, and spin all four wheels by hand.

   Is there brake drag at any of the wheels?

   YES—Go to step 3.

   NO—Look for other causes of pad wear, high pedal, or vehicle vibration. ■

3. Turn the ignition switch to LOCK (0), press the brake pedal several times to deplete the vacuum in the brake booster, and then spin the wheels again to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 4.

   NO—Replace the brake booster (see page 19-18). ■

4. Without removing the brake lines, unbolt and separate the master cylinder from the booster, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 5.

   NO—Check the brake pedal position switch adjustment and pedal free play (see page 19-6). ■

5. Loosen the hydraulic lines at the master cylinder, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

   YES—Go to step 6.

   NO—Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, replace the master cylinder (see page 19-18). ■

6. Loosen the bleed screws at each caliper, then spin the wheels to check for brake drag.

   Is there brake drag at any of the wheels?

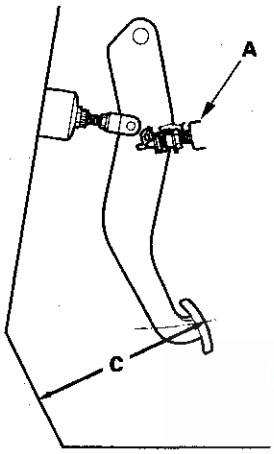
   YES—Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid. If the brake fluid is OK, disassemble and repair the caliper on the wheel(s) with brake drag. ■

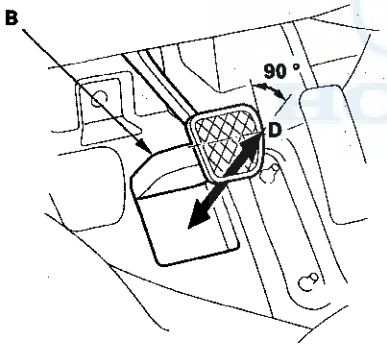
   NO—Look for and replace any damaged brake lines. If all brake lines are OK, replace the ABS or VSA modulator-control unit: ABS (see page 19-63), VSA (see page 19-127). ■

Brake Pedal and Brake Pedal Position Switch Adjustment

Pedal Height

1. Turn the brake pedal position switch (A) counterclockwise, and pull it back until it is no longer touching the brake pedal.

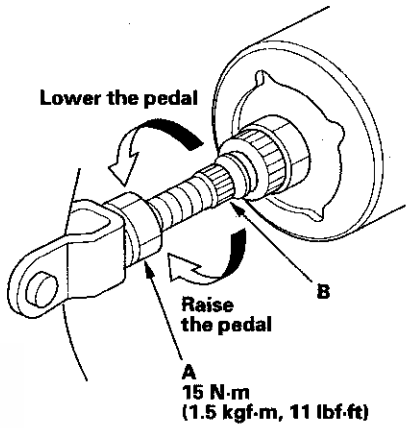




2. Pull back the carpet and find the cutout (B) in the insulation. Lift up the insulation cutout and measure the pedal height (C) at the center of the pedal pad (D) to the floor.

   Standard pedal height (with carpet moved aside):
   179 mm (7 1/16 in.)

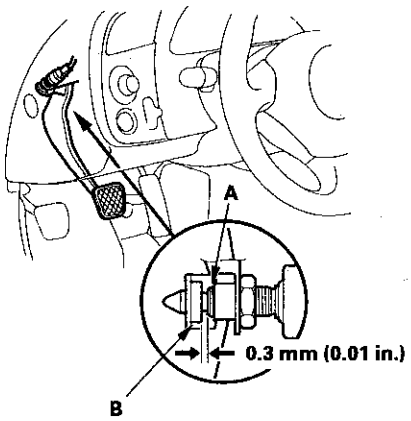
3. Loosen the pushrod locknut (A), and screw the pushrod (B) in or out with pliers, until the standard pedal height from the floor is reached. After adjustment, tighten the locknut firmly. Do not adjust the pedal height with the pushrod pushed in.



Brake Pedal Position Switch Clearance

4. Screw in the brake pedal position switch until its plunger is fully pushed in (threaded end (A) touching the pad (B) on the pedal arm). Then back off the switch 1/4 turn to make 0.3 mm (0.01 in.) of clearance between the threaded end and the pad. Tighten the locknut firmly.

   NOTE: The brakes will drag if there is no clearance. Connect the brake pedal position switch connector. Make sure that the brake lights go off when the pedal is released.

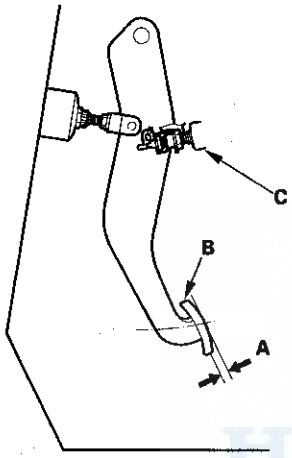


5. Check the brake pedal free play.

Pedal Free Play

1. With the ignition switch to LOCK (0), inspect the free play (A) on the brake pedal pad (B) by pushing the brake pedal by hand. If the brake pedal free play is out of specification, adjust the brake pedal position switch (C). If the brake pedal free play is insufficient, it may result in brake drag.

   Free play: 1—5 mm (1/16—3/16 in.)

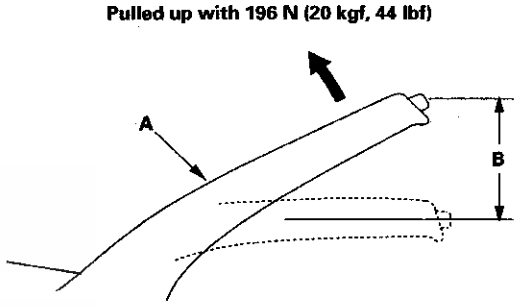


Parking Brake Inspection and Adjustment

Inspection

1. Pull the parking brake lever (A) with 196 N (20 kgf, 44 lbf) of force to fully apply the parking brake. The parking brake lever should be locked within the specified clicks (B).

   Lever locked clicks: 9 to 13



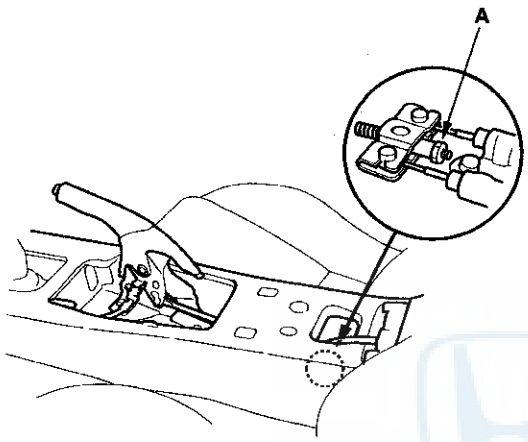
2. Adjust the parking brake if the lever clicks are not within the specification.

(cont'd)

Parking Brake Inspection and Adjustment (cont'd)

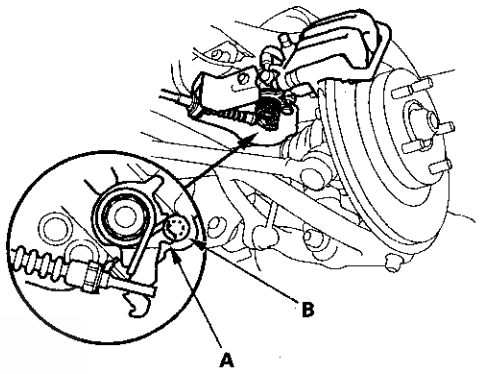
Adjustment

1. Remove the console panel (see page 20-80).
2. Release the parking brake lever fully.
3. Loosen the parking brake adjusting nut (A).



4. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
5. Remove the rear wheels.
6. Make sure the parking brake lever (A) on the rear brake caliper contacts the stop pin (B).

   NOTE: The parking brake lever will only contact the stop pin when the parking brake adjusting nut is loosened.

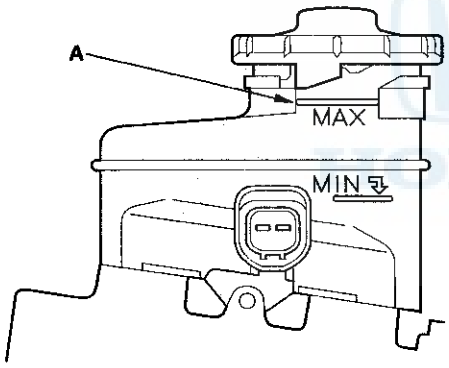


7. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.
8. Pull the parking brake lever 1 click.
9. Tighten the parking brake adjusting nut until the parking brakes drag slightly when the rear wheels are turned.
10. Release the parking brake lever fully, and check that the parking brakes do not drag when the rear wheels are turned. Readjust if necessary.
11. Make sure the parking brakes are fully applied when the parking brake lever is pulled all the way (9 to 13 clicks).
12. Install the console panel (see page 20-80).

Brake System Bleeding

NOTE:
- Do not reuse the drained fluid.
- Use only clean Honda DOT 3 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid; they may not be compatible.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid does contact the paint, wash it off immediately with water.
- The reservoir connected to the master cylinder must be at the MAX (upper) level mark at the start of the bleeding procedure and checked after bleeding each brake caliper. Add fluid as required.

1. Make sure the brake fluid level in the reservoir is at the MAX (upper) level line (A).



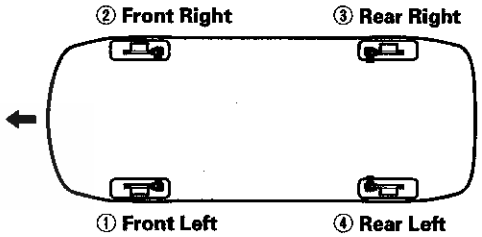
2. Attach a piece of clear plastic hose over the first bleed screw, and submerge the other end in a container of new brake fluid.

3. Have someone slowly pump the brake pedal several times, then apply steady pressure.

4. Starting at the left-front, loosen the brake bleed screw to allow air to escape from the system. Then tighten the bleed screw securely.

5. Repeat the procedure for each caliper until no air bubbles are in the fluid. Bleed the calipers in the sequence shown.

BLEEDING SEQUENCE:



6. Refill the master cylinder reservoir to the MAX (upper) level line.

Pressure Bleeding

Install the appropriate power probe pressure bleeder adapter onto the master cylinder.

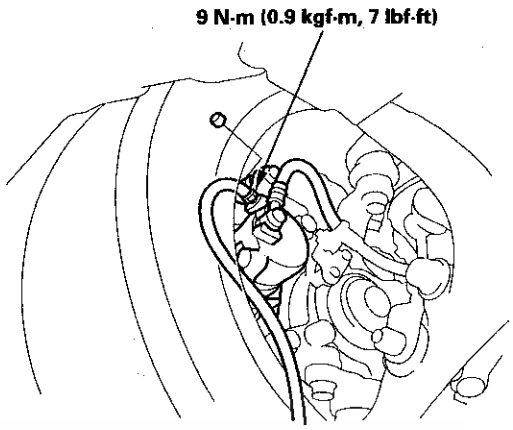
Use the bleeding sequence above, and follow the bleeding instructions that come with your pressure bleeder.

(cont'd)

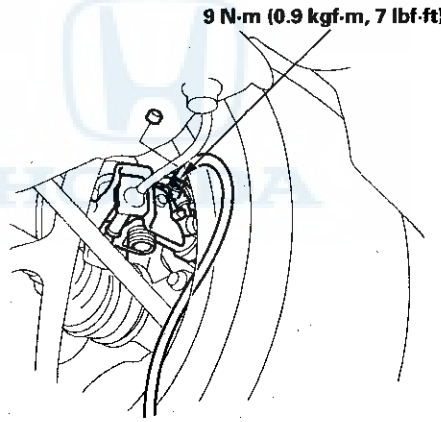
Brake System Bleeding (cont'd)

Bleed screw locations

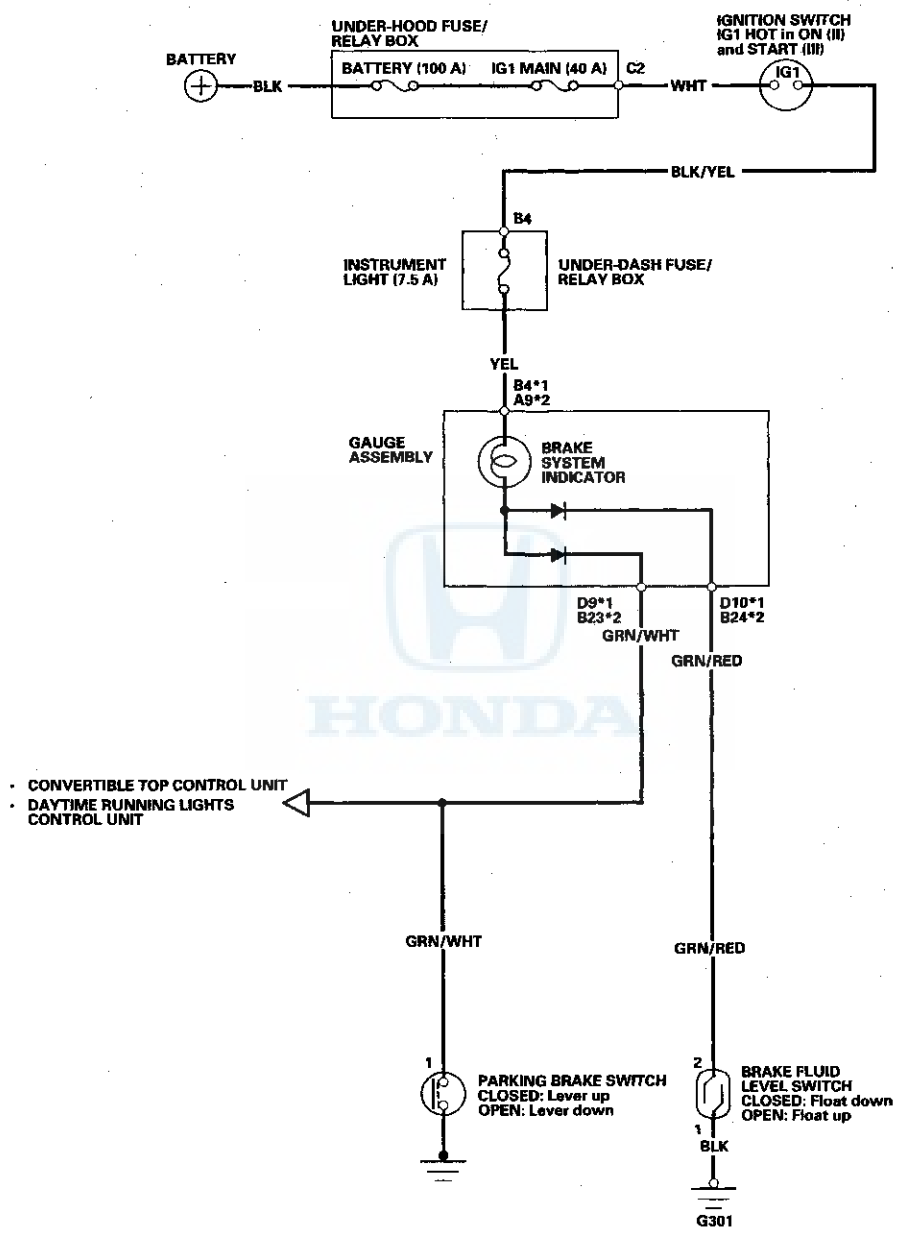
Front



Rear



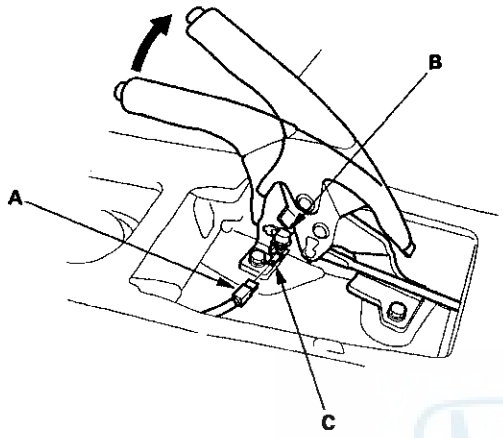
Brake System Indicator Circuit Diagram



*1: '00-03 models
*2: '04-08 models

Parking Brake Switch Test

1. Remove the center console (see page 20-80).
2. Disconnect the parking brake switch connector (A) from the parking brake switch (B).



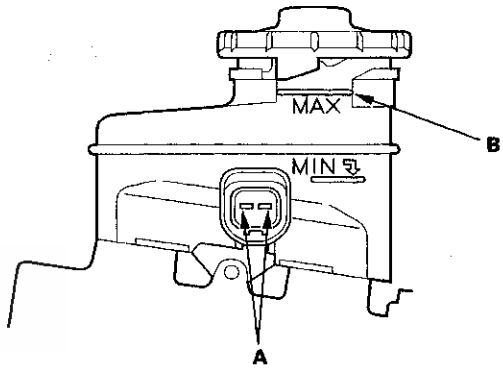
3. Check for continuity between the switch terminal (C) and body ground.
   - With the parking brake lever up, there should be continuity.
   - With the parking brake lever down, there should be no continuity.

   NOTE: If the parking brake switch is OK, but the brake system indicator does not work, do the input test for the daytime running lights control unit (see page 22-127).
4. Connect the parking brake switch connector.
5. Reinstall the center console (see page 20-80).

Brake Fluid Level Switch Test

Check for continuity between the terminals (A) with the float in the down position and the up position.

- Remove the brake fluid completely from the reservoir. With the float down, there should be continuity.
- Fill the reservoir with brake fluid to the MAX (upper) level (B). With the float up, there should be no continuity.



Front Brake Pad Inspection and Replacement

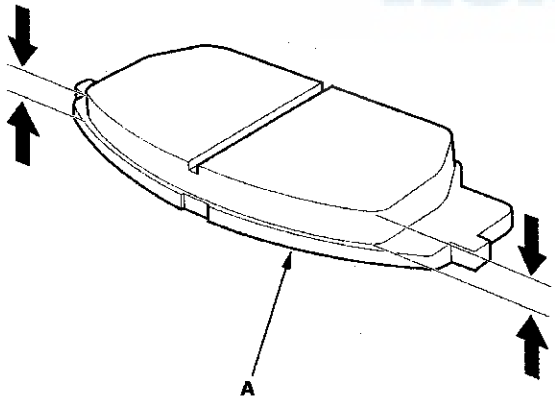
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Inspection

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the front wheels.
3. Remove the brake pads.
4. Using vernier calipers, measure the thickness of each brake pad lining. The measurement does not include the brake pad backing plate (A) thickness.

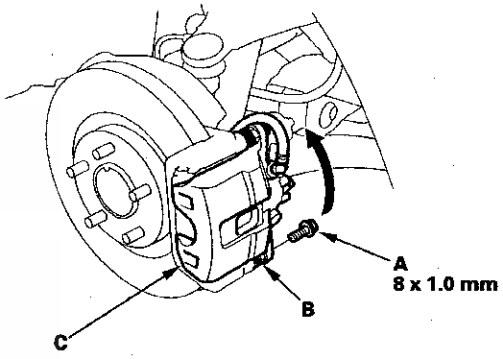
   Brake pad thickness:
   Standard: 9.5—10.5 mm (0.37—0.41 in.)
   Service limit: 1.6 mm (0.06 in.)



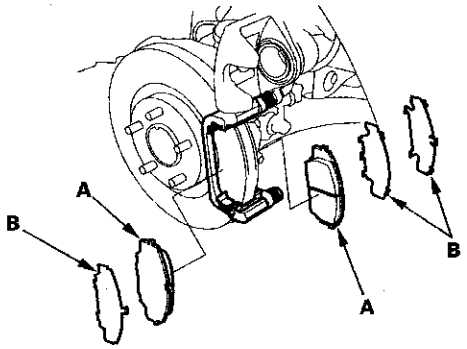
5. If the brake pad thickness is less than the service limit, replace the front brake pads as a set.
6. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.

Replacement

1. Remove some brake fluid from the master cylinder.
2. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
3. Remove the front wheels.
4. Remove the flange bolt (A) while holding the caliper pin (B) with a wrench and being careful not to damage the pin boot, and pivot the caliper (C) up out of the way. Check the brake hose and pin boots for damage and deterioration.



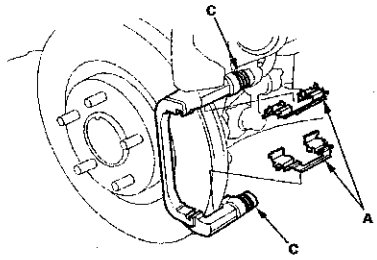
5. Remove the brake pads (A) and the pad shims (B).



(cont'd)

Front Brake Pad Inspection and Replacement (cont'd)

6. Remove the pad retainers (A).

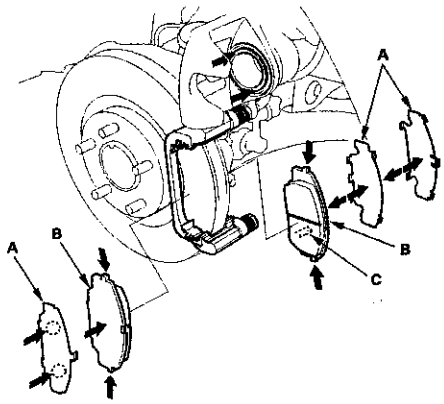


7. Clean the caliper thoroughly; remove any rust, and check for grooves and cracks. Verify that the caliper pins (C) move in and out smoothly. Clean and lube if needed.

8. Inspect the brake disc, and check for damage and cracks (see page 19-15).

9. Install the pad retainers. Wipe excess assembly paste off the retainers. Keep the assembly paste off of the brake disc and brake pads.

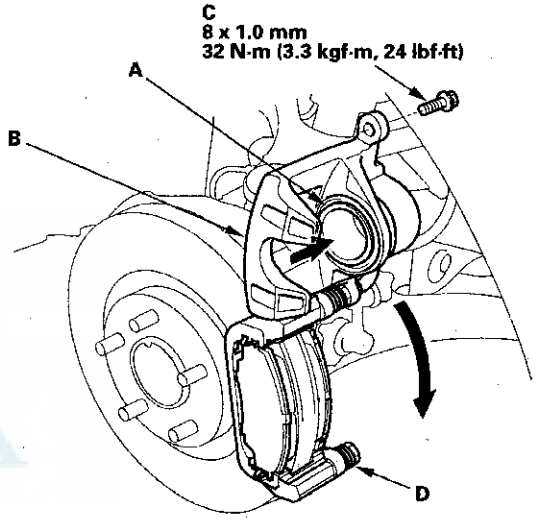
10. Apply a thin coat of M-77 assembly paste (P/N 08798-9010) to the pad side of the shims (A), the back of the brake pads (B), and the other areas indicated by the arrows. Wipe excess paste off the pad shims and brake pads. Contaminated brake discs or brake pads reduce stopping ability. Keep assembly paste off of the brake discs and brake pads.



11. Install the brake pads and pad shims correctly. Install the brake pads with the wear indicator (C) on the lower inside. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.

12. Push in the piston (A) so the caliper will fit over the brake pads. Check the brake fluid level. The brake fluid may over flow if the reservoir is too full. Make sure the piston boot is in position to prevent damaging it when pivoting the caliper down.

    NOTE: Be careful when pressing in the caliper piston; brake fluid might overflow from the master cylinder's reservoir.



13. Pivot the caliper (B) down into position. Install the flange bolt (C), and tighten it to the specified torque while holding the caliper pin (D) with a wrench and being careful not to damage the pin boot.

14. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheels.

15. Add brake fluid as needed.

16. Press the brake pedal several times to make sure the brakes work.

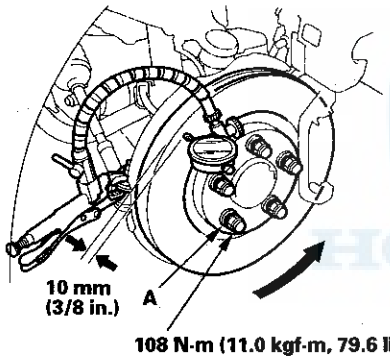
    NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

17. After installation, check for leaks at hose and line joints or connections, and retighten if necessary. Test-drive the vehicle, then check for leaks (see page 19-28).

Front Brake Disc Inspection

Runout

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the front wheels.
3. Remove the brake pads (see page 19-13).
4. Inspect the brake disc surface for damage and cracks. Clean the brake disc thoroughly, and remove all rust.
5. Install suitable flat washers (A) and wheel nuts, and tighten the wheel nuts to specified torque to hold the brake disc securely against the hub.



6. Set up the dial gauge against the brake disc as shown, and measure runout at 10 mm (3/8 in.) from the outer edge of the brake disc.

   Brake disc runout:
   Service limit: 0.04 mm (0.0016 in.)

7. If the brake disc is beyond the service limit, refinish the brake disc with a commercially available on-car brake lathe.

   Max. refinishing limit: 23.0 mm (0.91 in.)

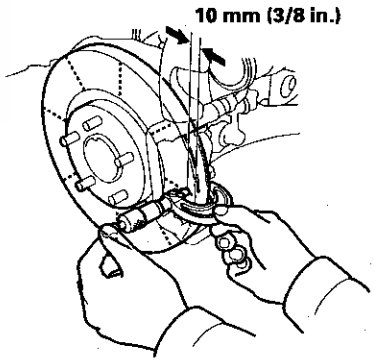
   NOTE:
   - If the brake disc is beyond the service limit for refinishing, replace it (see page 19-16).
   - A new disc should be refinished if its runout is greater than 0.04 mm (0.0016 in.).

Thickness and Parallelism

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the front wheels.
3. Remove the brake pads (see page 19-13).
4. Using a micrometer, measure the brake disc thickness at eight points, about 45 ° apart and 10 mm (3/8 in.) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the max. refinishing limit.

   Brake disc thickness:
   Standard: 24.9—25.1 mm (0.98—0.99 in.)
   Max. refinishing limit: 23.0 mm (0.91 in.)
   Brake disc parallelism: 0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.



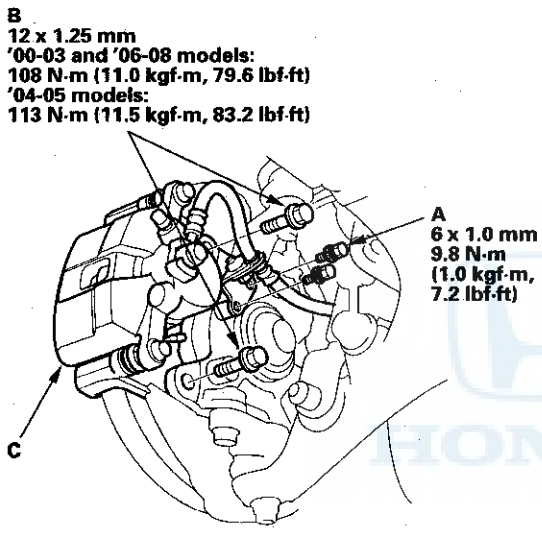
5. If the brake disc is beyond the service limit for parallelism, refinish the brake disc with a commercially available on-car brake lathe.

   NOTE: If the brake disc is beyond the service limit for refinishing, replace it (see page 19-16).

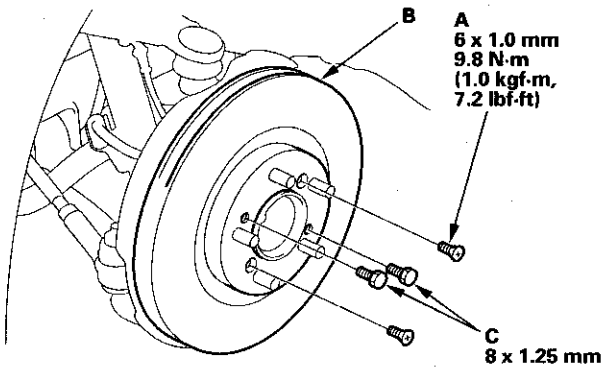
Front Brake Disc Replacement

NOTE: Keep any grease off the brake disc and brake pads.

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the front wheel.
3. Remove the brake hose bracket mounting bolt (A).



4. Remove the brake caliper bracket mounting bolts (B), then remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.
5. Remove the brake disc flat screws (A).



6. Remove the brake disc (B) from the front hub.

   NOTE: If the brake disc is stuck to the front hub, thread two 8 x 1.25 mm bolts (C) into the brake disc to push it away from the front hub. Turn each bolt 90 degrees at a time to prevent the brake disc from binding.

7. Install the brake disc in the reverse order of removal.

   NOTE: Before installing the brake disc, clean the mating surface of the front hub and the inside of the brake disc.

8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the front wheel.

Front Brake Caliper Overhaul

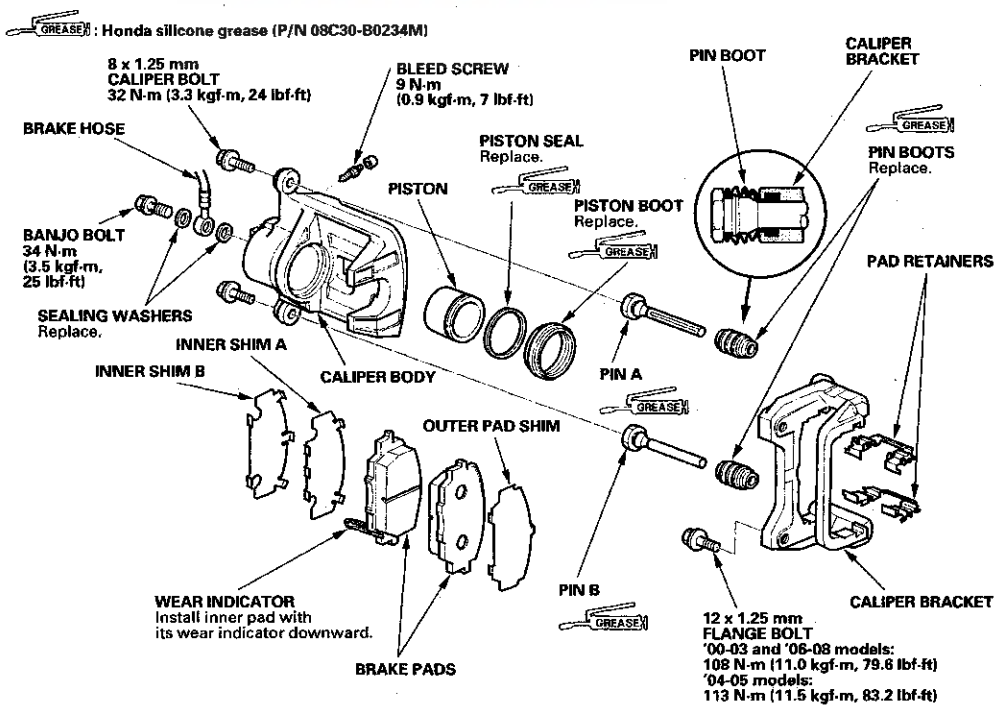
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Remove, disassemble, inspect, reassemble, and install the caliper, and note these items:

NOTE: Make sure that the caliper pins are installed correctly. Upper caliper pin A and lower caliper pin B are different. If these caliper pins are installed in the wrong location, it will cause vibration, uneven or rapid pad wear, and possibly uneven tire wear.

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dust and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Make sure no grease or oil gets on the brake discs or pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean Honda DOT 3 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid as they may not be compatible.
- Coat the piston, piston seal groove, and caliper bore with clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.



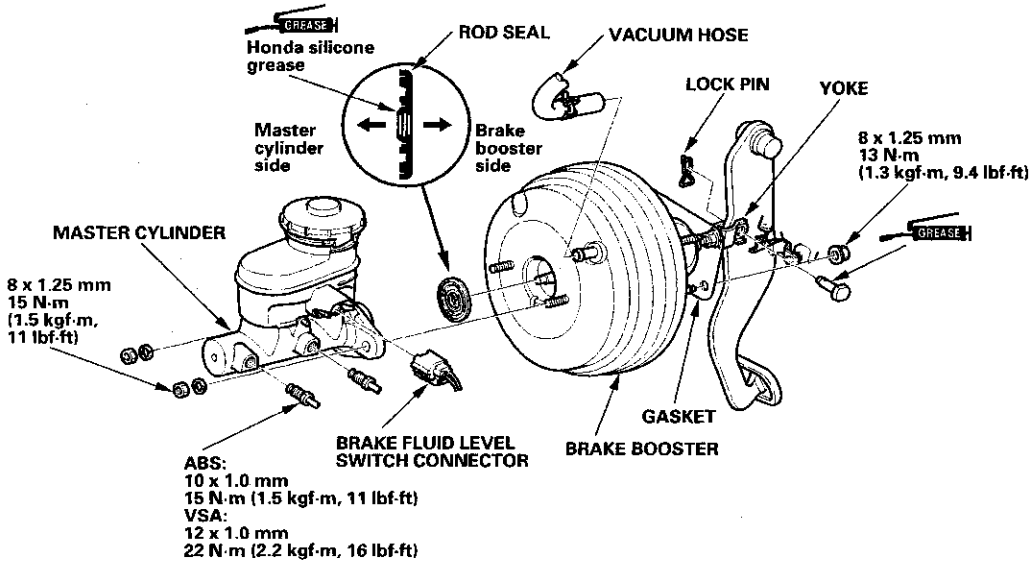
Conventional Brake Components

Master Cylinder/Brake Booster Replacement

NOTE: Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid does contact the paint, wash it off immediately with water.

1. Disconnect the brake fluid level switch connector.
2. Remove the brake fluid from the master cylinder reservoir with a syringe.
3. Disconnect the brake lines from the master cylinder. To prevent spills, cover the line joints with rags or shop towels.
4. Remove the master cylinder mounting nuts and washers.
5. Remove the master cylinder from the brake booster.
6. Disconnect the brake booster vacuum hose from the brake booster.
7. Remove the lock pin and yoke pin.
8. Remove the four brake booster mounting nuts.
9. Pull the brake booster forward, and remove the brake booster from the engine compartment. Be careful not to bend or damage the brake lines when removing it.
10. Install the brake booster and master cylinder in the reverse order of removal, and note these items:

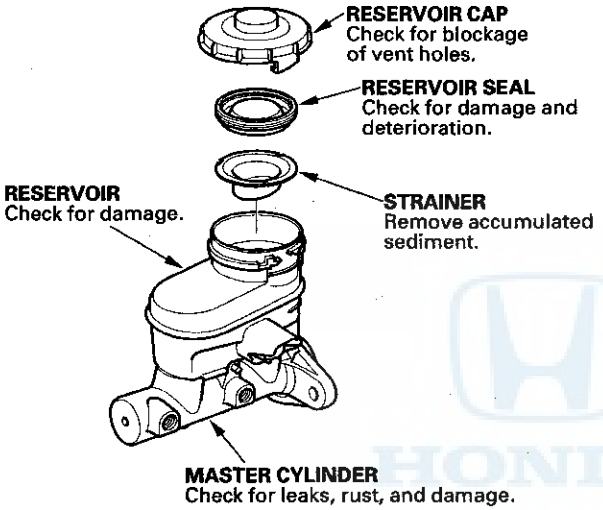
- Replace all rubber parts and the gasket with new ones whenever removed.
- Coat the lip of the new rod seal with recommended seal grease.
- Install the rod seal onto the brake booster with its grooved side toward the master cylinder.
- '00-05 models, adjust the pushrod length before installing the booster (see page 19-19).
- Fill the master cylinder reservoir, and bleed the brake system (see page 19-9).
- After installation, check the brake pedal height and brake pedal free play (see page 19-6) and adjust if necessary.
- Bleed the brake system (see page 19-9).
- Spin the wheels to check for brake drag.



Master Cylinder Inspection

1. Inspect and note these items:

   - Before reassembling, check that all parts are free of dirt and other foreign particles.
   - Do not try to disassemble the master cylinder assembly. Replace the master cylinder assembly with a new part if necessary.
   - Do not allow dirt or foreign matter to contaminate the brake fluid.

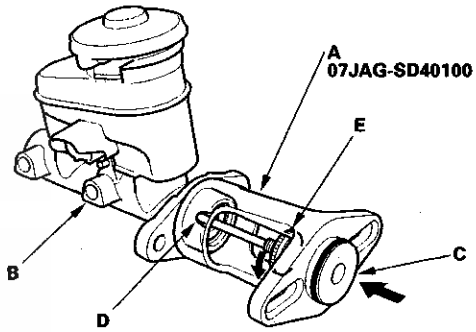


Master Cylinder Pushrod Clearance Adjustment

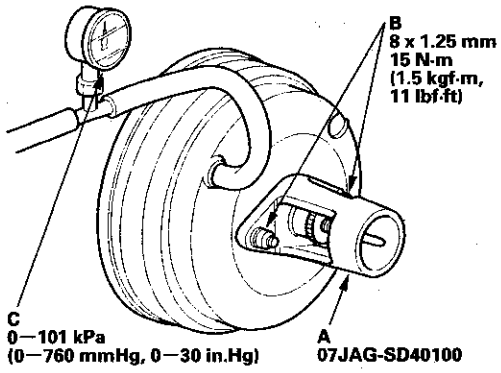
Special Tools Required
Pushrod adjustment gauge 07JAG-SD40100

NOTE: Master cylinder pushrod-to-piston clearance must be checked and adjustments made, if necessary, before installing the master cylinder.

1. Set the pushrod adjustment gauge (A) on the master cylinder body (B), push in the center shaft (C) until the top of it contacts the end of the secondary piston (D) by turning the adjusting nut (E).



2. Without disturbing the center shaft's position, install the pushrod adjustment gauge (A) onto the booster.



3. Install the master cylinder nuts (B), and tighten to the specified torque.

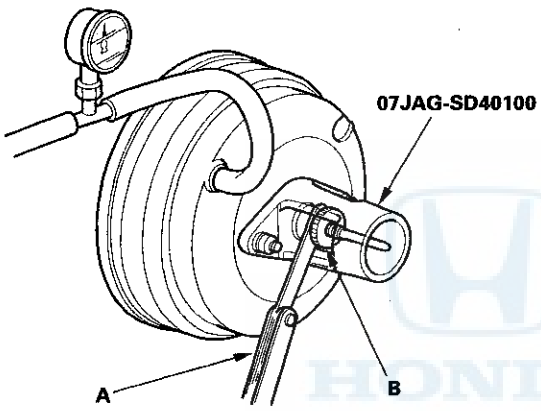
4. Connect the booster in-line with a vacuum gauge (C) 0—101 kPa (0—760 mmHg, 0—30 in.Hg) to the booster's engine vacuum supply, and maintain an engine speed that will deliver 66 kPa (500 mmHg, 20 in.Hg) vacuum.

(cont'd)

Master Cylinder Pushrod Clearance Adjustment (cont'd)

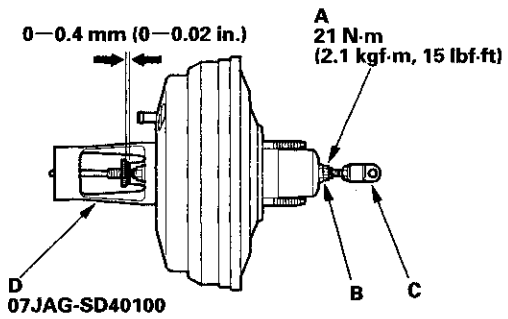
5. With a feeler gauge (A), measure the clearance between the gauge body and the adjusting nut (B) as shown.
   If the clearance between the gauge body and the adjusting nut is 0.4 mm (0.02 in.), the pushrod-to-piston clearance is 0 mm. However, if the clearance between the gauge body and the adjusting nut is 0 mm, the pushrod-to-piston clearance is 0.4 mm (0.02 in.) or more. Therefore, it must be adjusted and rechecked.

   Clearance: 0—0.4 mm (0—0.02 in.)



6. If the clearance is incorrect, loosen the star locknut (A), and turn the adjuster (B) in or out to adjust.

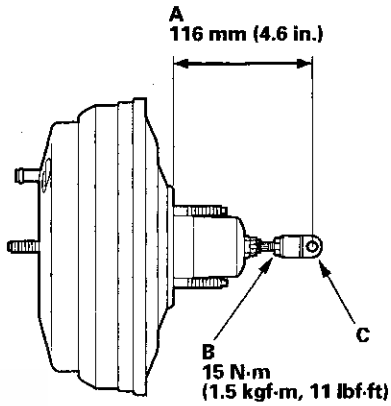
   - Adjust the clearance while the specified vacuum is applied to the booster.
   - Hold the yoke (C) while adjusting.



7. Tighten the star locknut securely.

8. Remove the pushrod adjustment gauge (D).

9. Check the pushrod length (A) as shown if the booster is removed. If the length is incorrect, loosen the pushrod locknut (B), and turn the yoke (C) in or out to adjust.



10. Install the master cylinder (see page 19-18).

Brake Booster Test

Functional Test

1. With the ignition switch at LOCK (0), press the brake pedal several times to deplete the vacuum reservoir, then press the brake pedal hard, and hold it for 15 seconds. If the brake pedal sinks, either the master cylinder is bypassing internally, or the brake system is leaking. Inspect the brake hoses and lines (see page 19-28).

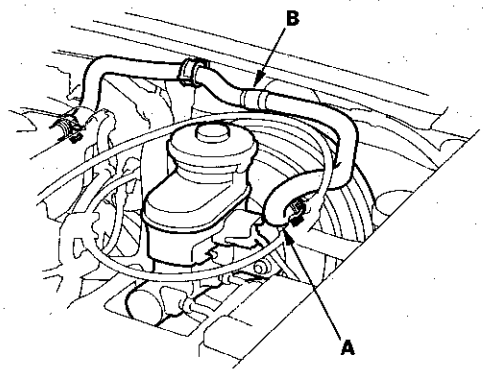
2. Start the engine with the brake pedal pressed. If the brake pedal sinks slightly, the vacuum booster is operating normally. If the brake pedal height does not vary, do the brake system test (see page 19-4).

Leak Test

1. Press the brake pedal with the engine running, then stop the engine. The brake pedal height should not vary while pressed for 30 seconds. If the pedal height rises, go to step 6. If it does not rise, go to step 2.

2. Start the engine, and let it idle for 30 seconds. Turn the ignition switch to LOCK (0), and wait 30 seconds. Press the brake pedal several times using normal pressure. When the pedal is first pressed, it should be low. On consecutive applications, the pedal height should gradually rise. Does the pedal rise on each consecutive application? If it rises the booster is OK. If it does not go to step 3.

3. Disconnect the brake booster vacuum hose (A) at the booster. The check valve (B) is built into the hose.



4. Start the engine, and let it idle. There should be vacuum available. If no vacuum is available, the check valve is not working properly. Replace the brake booster vacuum hose and check valve, and retest. If vacuum is found, go to step 5.

5. With the ignition switch at LOCK (0), reconnect the vacuum hose to the brake booster.

6. Start the engine, and then pinch the brake booster vacuum hose between the check valve and the booster.

7. Turn the ignition switch to LOCK (0), and wait 30 seconds. Press the brake pedal several times using normal pressure. When the pedal is first pressed, it should be low. On consecutive applications, the pedal height should gradually rise.

   - If the pedal position does not vary inspect the seal between the master cylinder and booster. If the seal is OK, replace the brake booster.
   - If the pedal position varies, replace the brake booster vacuum hose/check valve assembly.

Rear Brake Pad Inspection and Replacement

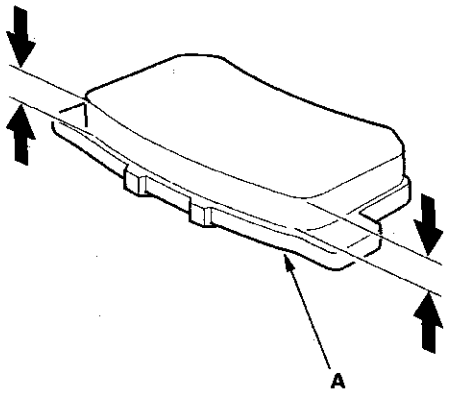
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Inspection

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the rear wheels.
3. Release the parking brake.
4. Remove the brake pads.
5. Using vernier calipers, measure the thickness of each brake pad lining. The measurement does not include the pad backing plate (A) thickness.

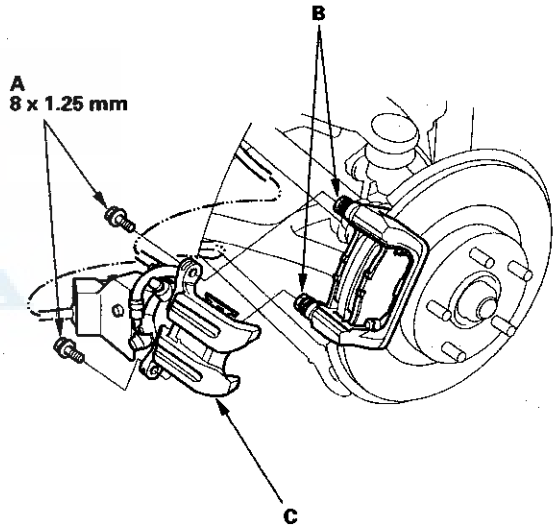
   Brake pad thickness:
   Standard: 8.9—9.1 mm (0.35—0.36 in.)
   Service limit: 1.6 mm (0.06 in.)



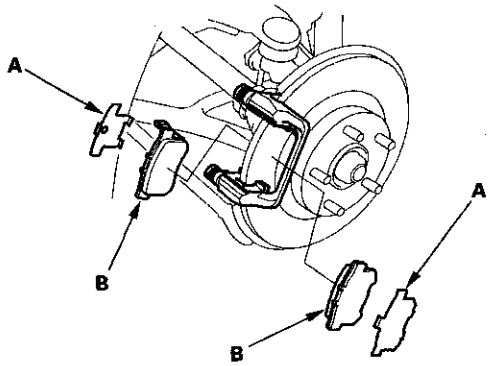
6. If the brake pad thickness is less than the service limit, replace the rear brake pads as a set.
7. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.

Replacement

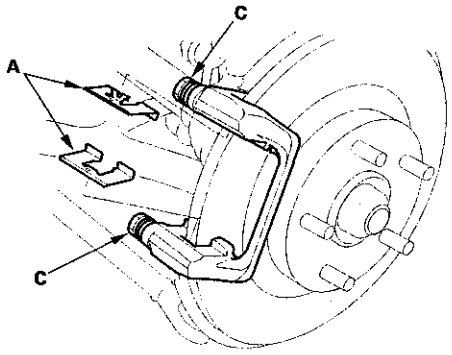
1. Remove some brake fluid from the master cylinder.
2. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
3. Remove the rear wheels.
4. Remove the flange bolts (A) while holding the caliper pin (B) with a wrench and being careful not to damage the pin boot, and remove the caliper (C) from the bracket. Check the brake hose and pin boots for damage and deterioration.



5. Remove the pad shims (A) and brake pads (B).



6. Remove the pad retainers (A).

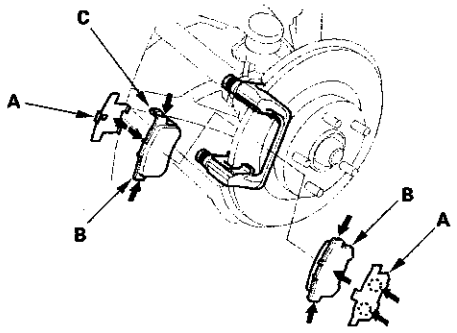


7. Clean the caliper thoroughly; remove any rust, and check for grooves and cracks. Verify that the caliper pins (C) move in and out smoothly. Clean and lube if needed.

8. Inspect the brake disc, and check for damage and cracks (see page 19-24).

9. Install the pad retainers. Wipe excess assembly paste off the retainers. Keep the assembly paste off of the brake disc and brake pads.

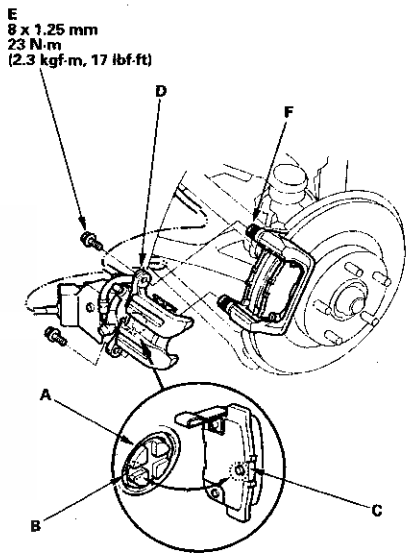
10. Apply a thin coat of M-77 assembly paste (P/N 08798-9010) to the pad side of the shims (A), the back of the brake pads (B), and the other areas indicated by the arrows. Wipe excess assembly paste off the pad shims and brake pads. Contaminated brake discs or pads reduce stopping ability. Keep assembly paste off of the brake discs and brake pads.



11. Install the brake pads and pad shims on the caliper bracket. Install the inner pad with its wear indicator (C) facing upward. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a momentary loss of braking efficiency.

12. Rotate the caliper piston (A) clockwise into the cylinder, then align the cutout (B) in the piston with the tab (C) on the inner pad by turning the piston back. Lubricate the boot with rubber paste to avoid twisting the piston boot. If the piston boot is twisted, back it out so it is positioned properly.

    NOTE: Be careful when moving in the piston back in the caliper; brake fluid might overflow from the master cylinder's reservoir.



13. Install the brake caliper (D).

14. Install the flange bolts (E), and tighten it to the specified torque while holding the caliper pin (F) with a wrench and being careful not to damage the pin boot.

15. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheels.

16. Add brake fluid as needed.

17. Press the brake pedal several times to make sure the brakes work.

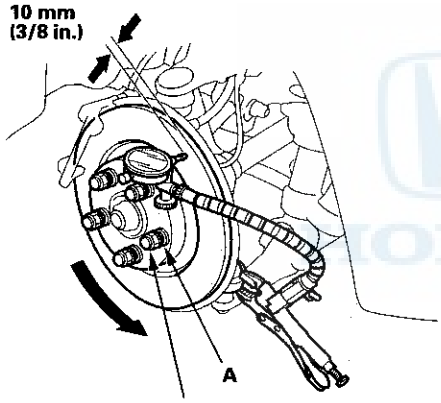
    NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

18. After installation, check for leaks at hose and line joints or connections, and retighten if necessary. Test-drive the vehicle, then check for leaks (see page 19-28).

Rear Brake Disc Inspection

Runout

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the rear wheels.
3. Remove the brake pads (see page 19-22).
4. Inspect the brake disc surface for damage and cracks. Clean the brake disc thoroughly, and remove all rust.
5. Install suitable flat washers (A) and wheel nuts, and tighten the wheel nuts to the specified torque to hold the brake disc securely against the hub.



108 N·m (11.0 kgf·m, 79.6 lbf·ft)

6. Set up the dial gauge against the brake disc as shown, and measure the runout at 10 mm (3/8 in.) from the outer edge of the brake disc.

   Brake disc runout:
   Service limit: 0.04 mm (0.0016 in.)

7. If the brake disc is beyond the service limit, refinish the brake disc with a commercially available on-car brake lathe.

   Max. refinishing limit: 10.0 mm (0.39 in.)

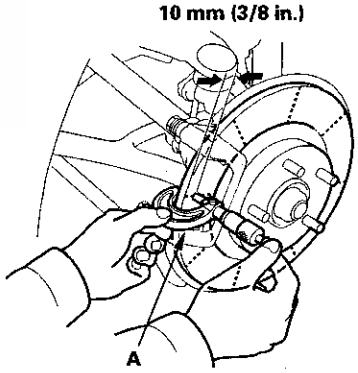
   NOTE:
   - If the brake disc is beyond the service limit for refinishing, replace it (see page 19-25).
   - A new brake disc should be refinished if its runout is greater than 0.04 mm (0.0016 in.).

Thickness and Parallelism

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the rear wheels.
3. Remove the brake pads (see page 19-22).
4. Using a micrometer (A), measure the brake disc thickness at eight points, approximately 45 ° apart and 10 mm (3/8 in.) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the max. refinishing limit.

   Brake disc thickness:
   Standard: 11.9—12.1 mm (0.469—0.476 in.)
   Max. refinishing limit: 10.0 mm (0.39 in.)
   Brake disc parallelism: 0.015 mm (0.0006 in.) max.

   NOTE: This is the maximum allowable difference between the thickness measurements.



5. If the brake disc is beyond the service limit for parallelism, refinish the brake disc with a commercially available on-car brake lathe.

   NOTE: If the brake disc is beyond the service limit for refinishing, replace it (see page 19-25).

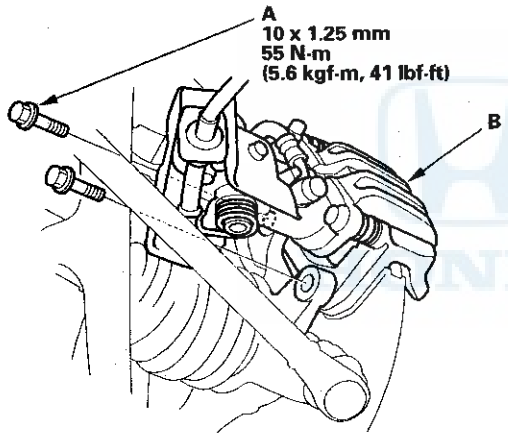
Rear Brake Disc Replacement

NOTE: Keep any grease off the brake disc and brake pads.

1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).

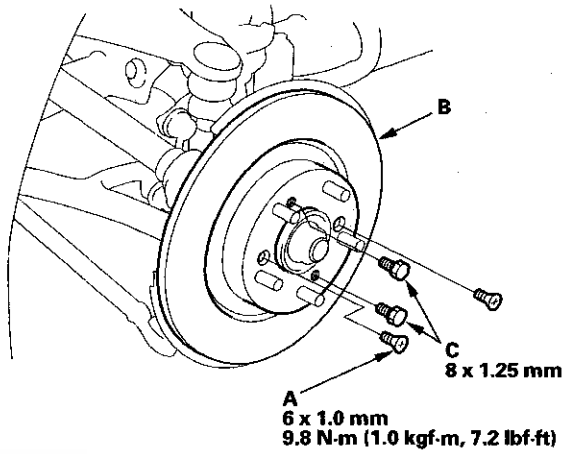
2. Remove the rear wheel.

3. Remove the brake caliper bracket mounting bolts (A), then remove the caliper assembly (B) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.



4. Release the parking brake.

5. Remove the brake disc flat screws (A).



6. Remove the brake disc (B) from the rear hub.

   NOTE:
   - If the brake disc is stuck to the rear hub, thread two 8 x 1.25 mm bolts (C) into the brake disc to push it away from the rear hub. Turn each bolt 90 degrees at a time to prevent the brake disc from binding.
   - After installation, check the parking brake, and adjust it if necessary (see page 19-7).

7. Install the brake disc in the reverse order of removal.

   NOTE: Before installing the brake disc, clean the mating surface of the rear hub and the inside of the brake disc.

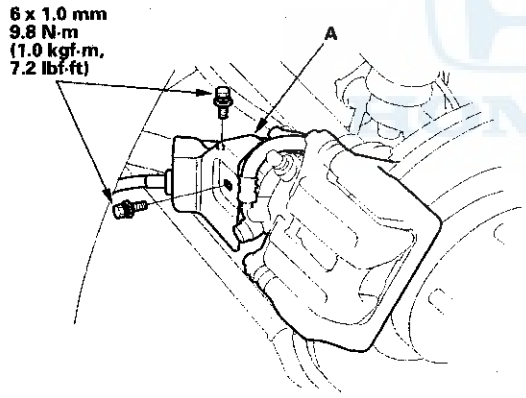
8. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the rear wheel.

Rear Brake Caliper Removal/Installation

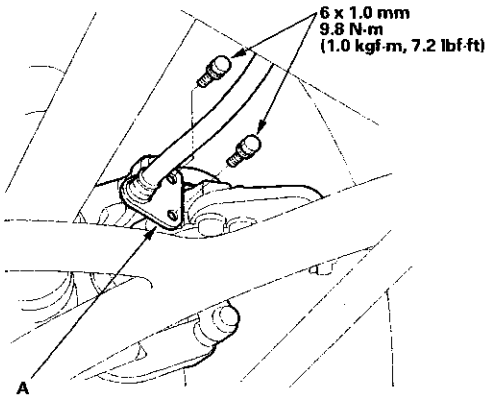
⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.
- Thoroughly clean the outside of the caliper to prevent dust and dirt from entering inside.

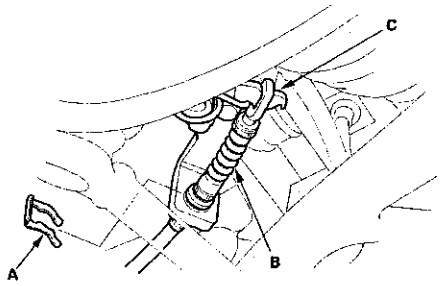
1. Raise the rear of the vehicle, and support it with safety stands in the proper locations (see page 1-18).
2. Remove the rear wheel.
3. Release the parking brake.
4. Remove the caliper shield (A).



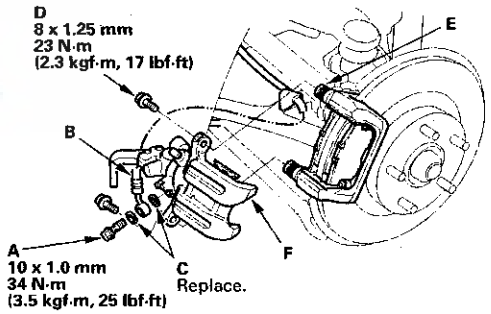
5. Remove the brake hose mounting bracket (A) from the rear caliper body.



6. Remove the cable clip (A) from the parking brake cable (B).



7. Disconnect the parking brake cable end from the parking brake arm (C).
8. Remove the banjo bolt (A), and disconnect the brake hose (B). Remove the two sealing washers (C), and replace them. Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.



9. Remove the flange bolt (D) while holding the caliper pin (E) with a wrench and being careful not to damage the pin boot, and remove the caliper (F) from the bracket.
10. Install the rear brake caliper in the reverse order of removal, and note these items:
    - When installing the caliper, align the cutout in the piston with the tab on the inner pad (see page 19-22).
    - Check the brake hose and caliper fitting for leaks, and tighten the banjo bolt if necessary.
    - Check the brake hoses for interference and twisting.
    - Contaminated brake discs or pads reduce stopping ability. Keep paste off of the discs and pads.

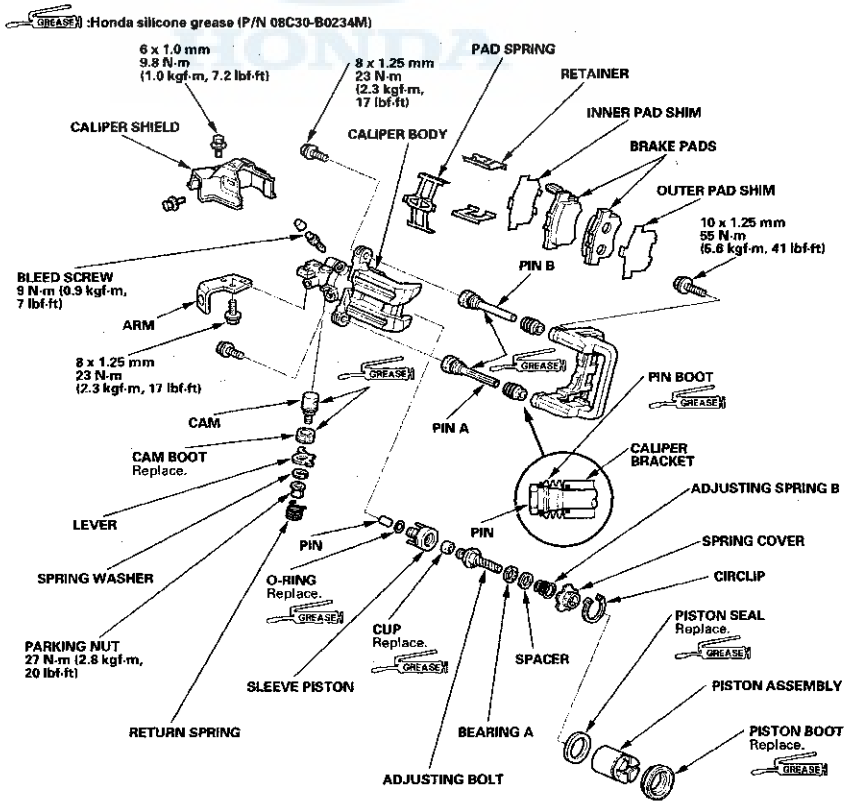
Rear Brake Caliper Overhaul

⚠CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Remove, disassemble, inspect, reassemble, and install the caliper, and note these items:

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Make sure no grease or oil gets on the brake discs or pads.
- When reusing pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only clean Honda DOT 3 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid as they may not be compatible.
- Coat the piston, piston seal groove, and caliper bore with clean brake fluid.
- Replace all rubber parts with new ones whenever disassembled.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.



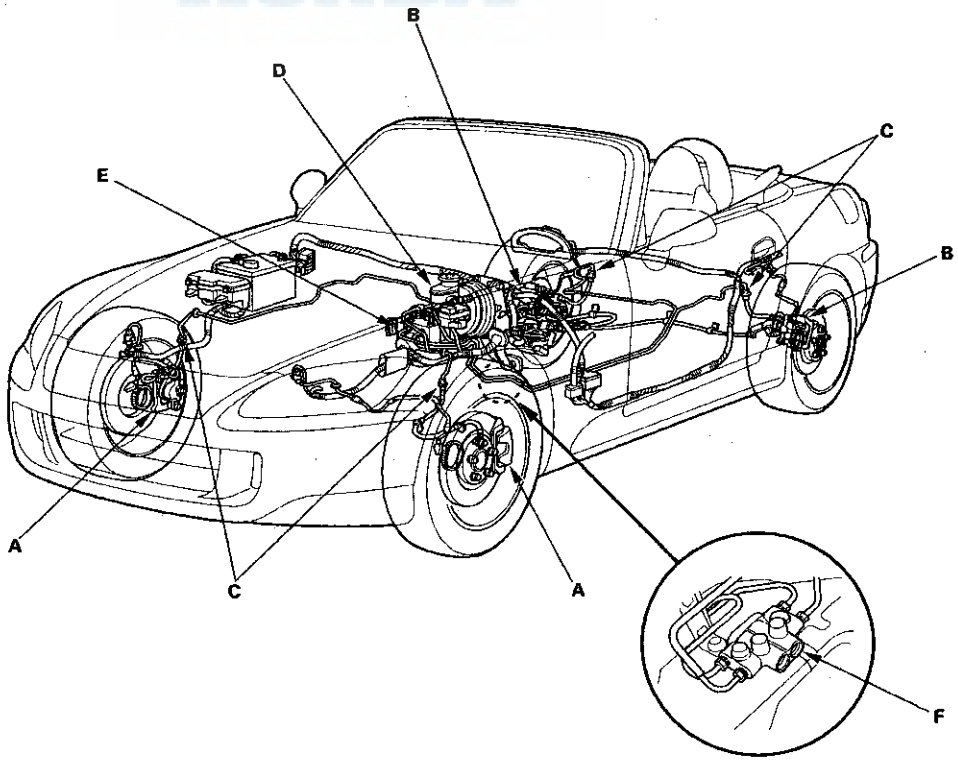
Conventional Brake Components

Brake Hose and Line Inspection

1. Inspect the brake hoses for damage, deterioration, leaks, interference, and twisting.
2. Check the brake lines for damage, rusting, and leakage. Also check for bent brake lines.
3. Check for leaks at hose and line joints or connections, and retighten if necessary.
4. Check the master cylinder and ABS or VSA modulator-control unit for damage and leakage.

NOTE: Replace the brake hose clip whenever the brake hose is serviced.

Connection Point	Component	Connected to	Specified Torque Value	Note
A	Front brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	9 N·m (0.9 kgf·m, 7 lbf·ft)	
B	Rear brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	9 N·m (0.9 kgf·m, 7 lbf·ft)	
C	Brake hose	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
D	Master cylinder (ABS)	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
	Master cylinder (VSA)		22 N·m (2.2 kgf·m, 16 lbf·ft)	
E	ABS modulator-control unit	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
	VSA modulator-control unit	Brake line (12 mm nut)	22 N·m (2.2 kgf·m, 16 lbf·ft)	Flare nut
		Brake line (10 mm nut)	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
F	Proportioning control valve (ABS)	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
	4-way joint (VSA)			

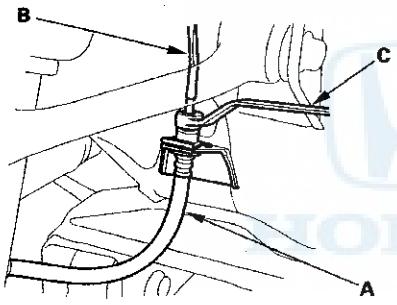


Brake Hose Replacement

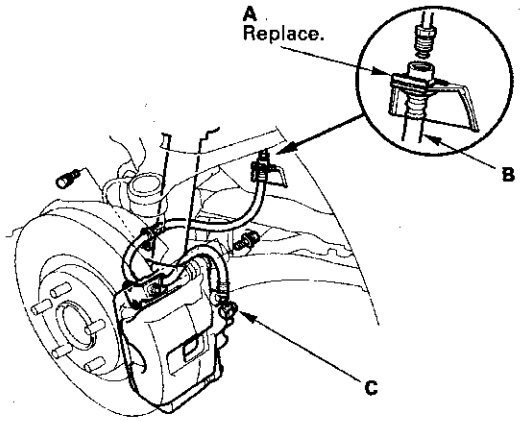
NOTE:
- Before reassembling, check that all parts are free of dust and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent material.

1. Remove the wheel.

2. Disconnect the brake hose (A) from the brake line (B) using a 10 mm flare-nut wrench (C).



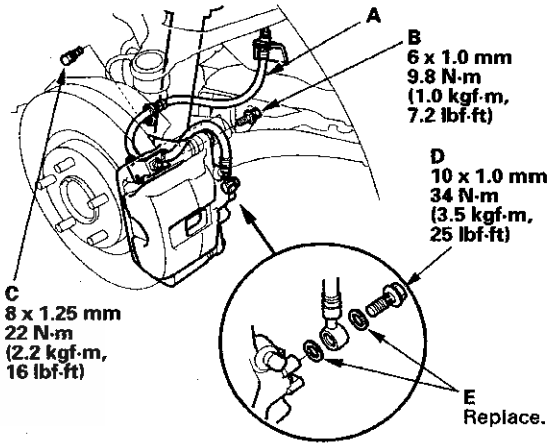
3. Remove the brake hose clip (A) from the brake hose (B).



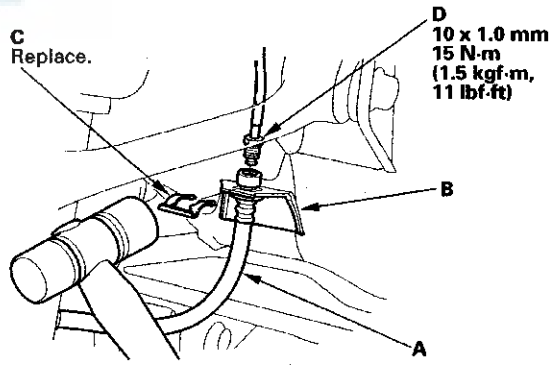
4. Remove the banjo bolt (C), and disconnect the brake hose from the caliper.

5. Remove the brake hose from the knuckle and damper bracket.

6. Install the brake hose (A) on the knuckle and damper bracket with two 6 mm flange bolts (B) and the 8 mm flange bolt (C) first, then connect the brake hose to the caliper with the banjo bolt (D) and new sealing washers (E).



7. Install the brake hose (A) onto the upper brake hose bracket (B) on the body with a new brake hose clip (C).



8. Connect the brake line (D) to the brake hose.

9. After installing the brake hose, bleed the brake system (see page 19-9).

10. Do the following checks:

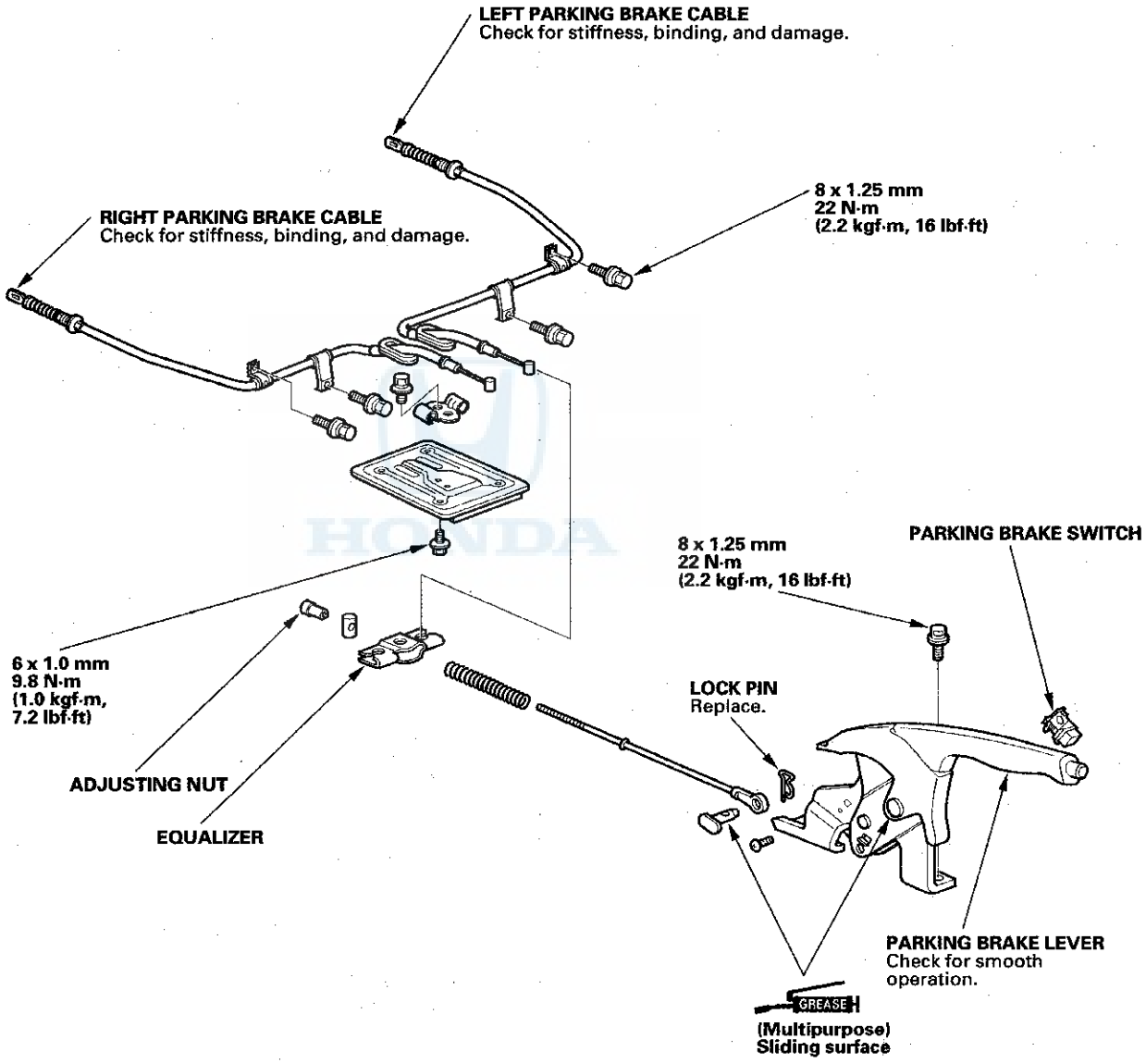
    - Check the brake hose and line joint for leaks, and tighten if necessary (see page 19-28).
    - Check the brake hoses for interference and twisting.

11. Clean the mating surfaces of the brake disc and the inside of the wheel, then install the wheel.

Conventional Brake Components

Parking Brake Cable Replacement

Exploded View

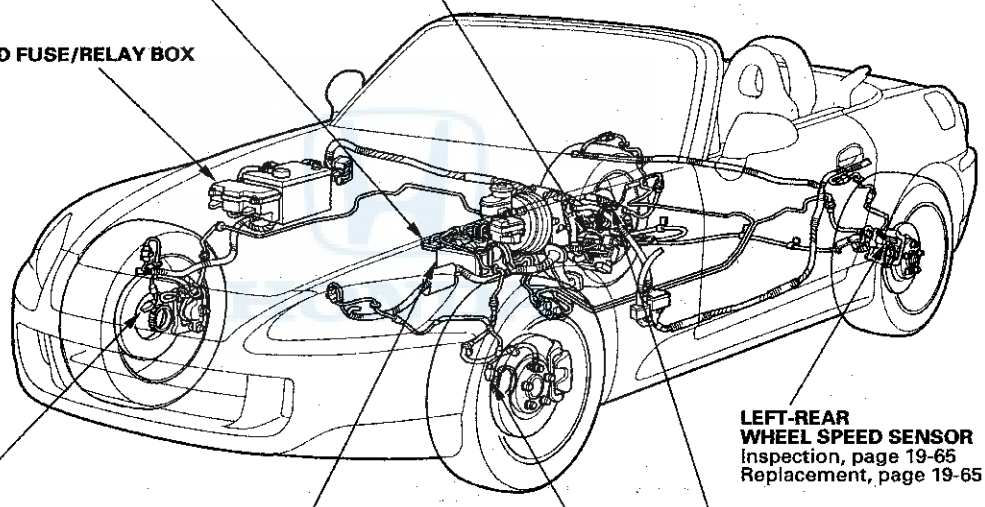


Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Brakes

ABS Components

Component Location Index



General Troubleshooting Information

ABS Indicator

- If the system is OK, the ABS indicator goes off 2 seconds after turning the ignition switch to ON (II) without starting the engine, and then comes on again and goes off 2 seconds later after starting the engine. This occurs because the ABS modulator-control unit is turned on by the IG2 power source.
- The ABS indicator comes on when the ABS modulator-control unit detects a problem in the system. However, even though the system is operating properly, the indicator will come on under these conditions:
  - Only the drive wheels rotate
  - One drive wheel is stuck
  - The vehicle goes into a spin
  - The ABS continues to operate for a long time
  - The vehicle is subjected to an electrical signal disturbance

To determine the actual cause of the problem, question the customer, taking these conditions into consideration.

- When a problem is detected and the ABS indicator comes on, there are cases when the indicator stays on until the ignition switch is turned to LOCK (0), and cases when the indicator goes off automatically when the system returns to normal.
  - DTC 61 or 62: The ABS indicator goes off automatically when the system returns to normal.
  - DTC 11, 13, 15, 17, 31, 32, 33, 34, 35, 36, 37, 38, 54, 71, or 81: The ABS indicator stays on until the ignition switch is turned to LOCK (0) whether or not the system returns to normal.
  - DTC 12, 14, 16, 18, 21, 22, 23, 24, 41, 42, 43, 44, 51, 52, or 53: The ABS indicator goes off when the vehicle is driven again and the system is OK after the ignition switch is turned from LOCK (0) to ON (II).

Diagnostic Trouble Code (DTC)

- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in numerical order.
- The DTCs are memorized in the EEPROM. Therefore, the memorized DTCs are not erased when the battery is disconnected, the ignition switch is turned to LOCK (0), or the system returns to normal. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  - Initial diagnosis:
    Done right after the ignition switch is turned to ON (II) and until the ABS indicator goes off
  - Regular diagnosis:
    Done right after the initial diagnosis until the ignition switch is turned to LOCK (0)
- When a problem is detected by self-diagnosis, the system does the following:
  - Turns the ABS indicator on
  - Memorizes the DTC
  - Stops ABS operation

Kickback

The pump motor operates when the ABS modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the ABS modulator-control unit is functioning.
- The ABS modulator-control unit checks the pump motor operation when the vehicle is started the first time after the ignition switch is turned to ON (II). You may hear the motor operate at this time, but it is normal.

(cont'd)

General Troubleshooting Information (cont'd)

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the ABS indicator is still on. Following the flowchart when the ABS indicator does not come on can result in incorrect diagnosis. The connector illustrations show the female terminal connectors with a single outline and the male terminal connectors with a double outline.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS indicator came on, such as during control, after control, when the vehicle was traveling at a certain speed, etc. If necessary, have the customer demonstrate the concern.

2. When the ABS indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor contact of the terminals, etc., before you start troubleshooting.

3. After troubleshooting, or repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions as originally set with the DTCs. Make sure the ABS indicator does not come on.

Intermittent Failures

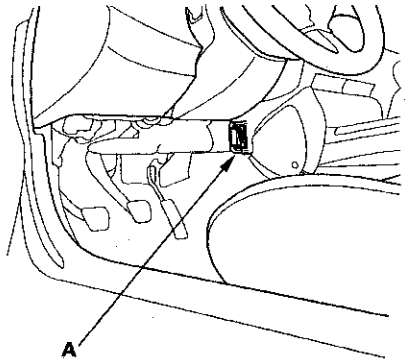
The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the indicator(s) of the system does not come on, check for loose connections and grounds, poor contact of the terminals related to the circuit that you are troubleshooting.

How to Retrieve DTCs

Honda Diagnostic System (HDS) Method

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) (A).
   For '00-01 models, the DLC is located under the passenger's side of the dashboard.
   For '02-05 models, the DLC is located behind the driver's side of the front console.

   NOTE: The illustration shows '02-05 models.



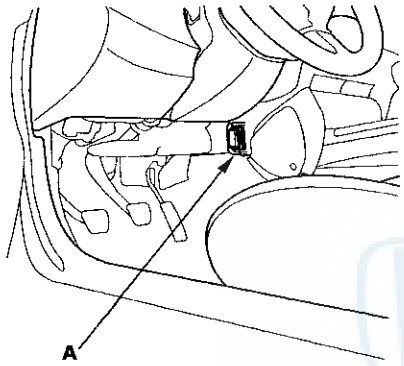
2. Turn the ignition switch to ON (II), and follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the appropriate DTC Troubleshooting.

   NOTE: See the HDS Help menu for specific instructions.

Service Check Signal (SCS) Circuit Method

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) (A).
   For '00-01 models, the DLC is located under the passenger's side of the dashboard.
   For '02-05 models, the DLC is located behind the driver's side of the front console.

   NOTE: The illustration shows '02-05 models.



2. Short the SCS circuit to body ground using the HDS without the brake pedal pressed.

   NOTE: If the brake pedal is pressed when turning the ignition switch to ON (II), the system shifts to the DTC clearing mode.

3. Turn the ignition switch to ON (II).

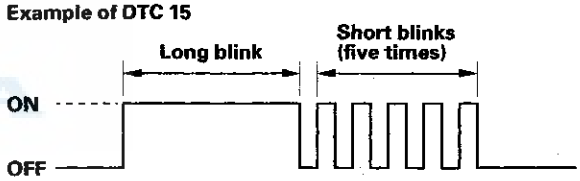
4. The blinking frequency indicates the DTC. DTCs are indicated by a series of long and short blinks. One long blink equals ten short blinks. Add the long and short blinks together to determine the DTC. After determining the DTC, refer to the appropriate DTC Troubleshooting.

   NOTE:
   - If the DTC is not memorized, the ABS indicator will go off for 3.6 seconds, and then come back on.
   - If the ABS indicator stays on, troubleshoot for "ABS indicator does not go off, and no DTCs are stored" (see page 19-61).

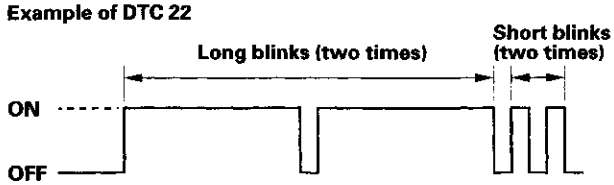
   The system will not indicate the DTC unless these conditions are met:

   - The brake pedal is not pressed.
   - The ignition switch is turned to ON (II).
   - The SCS circuit is shorted to body ground before the ignition switch is turned to ON (II).

Example of DTC 15



Example of DTC 22



5. Turn the ignition switch to LOCK (0).

6. Disconnect the HDS from the DLC.

(cont'd)

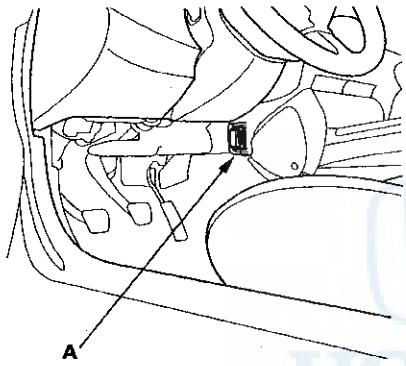
General Troubleshooting Information (cont'd)

How to Clear DTCs

HDS Method

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) (A).
   For '00-01 models, the DLC is located under the passenger's side of the dashboard.
   For '02-05 models, the DLC is located behind the driver's side of the front console.

   NOTE: The illustration shows '02-05 models.



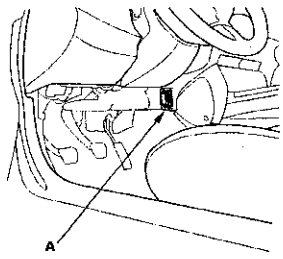
2. Turn the ignition switch to ON (II), and clear the DTC(s) by following the screen prompts on the HDS.

   NOTE: See the HDS Help menu for specific instructions.

Service Check Signal (SCS) Circuit Method

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) (A).
   For '00-01 models, the DLC is located under the passenger's side of the dashboard.
   For '02-05 models, the DLC is located behind the driver's side of the front console.

   NOTE: The illustration shows '02-05 models.



2. Short the SCS circuit to body ground using the HDS.
3. Press the brake pedal.
4. Turn the ignition switch to ON (II) while continuing to press the brake pedal.
5. After the ABS indicator goes off, release the brake pedal.
6. After the ABS indicator comes on, press the brake pedal again.
7. After the ABS indicator goes off, release the brake pedal.

   You cannot clear the DTC unless these conditions are met:

   - The vehicle speed is 6 mph (10 km/h) or less.
   - The SCS circuit is shorted to body ground before the ignition switch is turned to ON (II).
   - The brake pedal is pressed before the ignition switch is turned to ON (II).

8. After a few seconds, the ABS indicator blinks twice and the DTC is cleared. If the indicator does not blink twice, repeat steps 1 thru 7. If the ABS indicator stays on after it blinks twice, check the DTC, because a problem was detected during initial diagnosis before shifting to DTC clearing mode.
9. Turn the ignition switch to LOCK (0).
10. Disconnect the HDS from the DLC.

DTC Troubleshooting Index

DTC	Detection Item	Note
11	Right-front Wheel Speed Sensor (Open/Short to Body Ground/Short to Power)	(see page 19-50)
12	Right-front Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	(see page 19-51)
13	Left-front Wheel Speed Sensor (Open/Short to Body Ground/Short to Power)	(see page 19-50)
14	Left-front Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	(see page 19-51)
15	Right-rear Wheel Speed Sensor (Open/Short to Body Ground/Short to Power)	(see page 19-50)
16	Right-rear Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	(see page 19-51)
17	Left-rear Wheel Speed Sensor (Open/Short to Body Ground/Short to Power)	(see page 19-50)
18	Left-rear Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	(see page 19-51)
21	Right-front Pulser	(see page 19-53)
22	Left-front Pulser	(see page 19-53)
23	Right-rear Pulser	(see page 19-53)
24	Left-rear Pulser	(see page 19-53)
31	ABS Solenoid	(see page 19-53)
32	ABS Solenoid	(see page 19-53)
33	ABS Solenoid	(see page 19-53)
34	ABS Solenoid	(see page 19-53)
35	ABS Solenoid	(see page 19-53)
36	ABS Solenoid	(see page 19-53)
37	ABS Solenoid	(see page 19-53)
38	ABS Solenoid	(see page 19-53)
41	Right-front Wheel Lock	(see page 19-54)
42	Left-front Wheel Lock	(see page 19-54)
43	Right-rear Wheel Lock	(see page 19-54)
44	Left-rear Wheel Lock	(see page 19-54)
51	Motor Lock	(see page 19-54)
52	Motor Stuck OFF	(see page 19-55)
53	Motor Stuck ON	(see page 19-56)
54	ABS Fail-safe Relay	(see page 19-57)
61	Low FSR +B Voltage	(see page 19-57)
62	High FSR +B Voltage	(see page 19-57)
71	Different Diameter Tire	(see page 19-58)
81	Central Processing Unit (CPU) Diagnosis, and ROM/RAM Diagnosis	(see page 19-58)

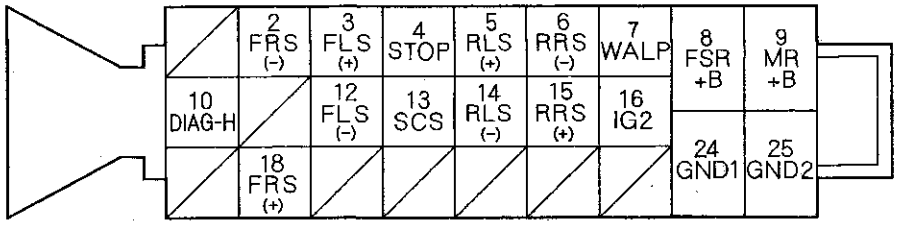
ABS Components

Symptom Troubleshooting Index

Symptom	Diagnostic procedure
ABS indicator does not come on ('00-03 models)	Symptom Troubleshooting (see page 19-59)
ABS indicator does not come on ('04-05 models)	Symptom Troubleshooting (see page 19-60)
ABS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 19-61)

System Description

ABS Modulator-control Unit Inputs and Outputs for 25P Connector



Wire side of female terminals

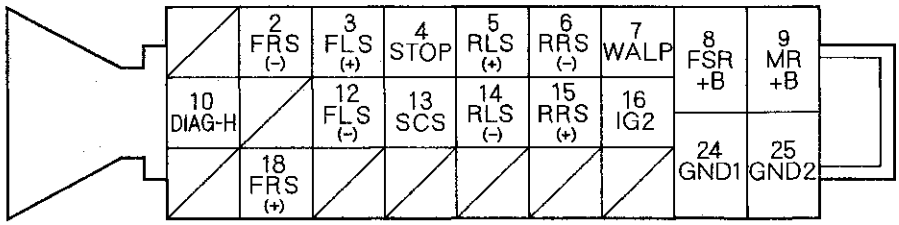
Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement (Disconnect the ABS modulator-control unit 25P connector)			
				Terminals	Conditions		Result
2	BLU	FRS (−) (Front-right wheel negative)	Detects right-front wheel speed sensor signal	2—18	Wheel	Spin wheel at 1 turn/second	AC: 0.053 V or above Reference Oscilloscope 0.15 Vp-p or above
3	BLU/ ORN	FLS (+) (Front-left wheel positive)	Detects left-front wheel speed sensor signal	3—12			
4	WHT/ BLK	STOP	Detects brake pedal position switch signal	4—GND	Brake pedal	Pressed	Battery voltage
						Released	Below 0.3 V
5	YEL/ RED	RLS (+) (Rear-left wheel positive)	Detects left-rear wheel speed sensor signal	5—14	Wheel	Spin wheel at 1 turn/second	AC: 0.053 V or above Reference Oscilloscope 0.15 Vp-p or above
6	BLU/ YEL	RRS (−) (Rear-right wheel negative)	Detects right-rear wheel speed sensor signal	6—15			
7	BLU/ RED	WALP (Warning lamp)	Drives ABS indicator	7—GND	ABS indicator (Ignition switch to ON (II))	ON	About 6 V
						OFF	Below 0.3 V*1
8	WHT/ GRN	FSR +B (ABS fail-safe relay battery)	Power source for the ABS fail-safe relay	8—GND	At all times		Battery voltage
9	WHT/ BLU	MR +B (Motor relay battery)	Power source for the motor relay	9—GND	At all times		Battery voltage
10	LT BLU	DIAG-H (Data link connector)	Communicates with the HDS	——	——		——

* 1: When measured with the ABS modulator-control unit 25P connector terminal No. 7 connected to body ground with a jumper wire.

(cont'd)

System Description (cont'd)

ABS Modulator-control Unit Inputs and Outputs for 25P Connector (cont'd)



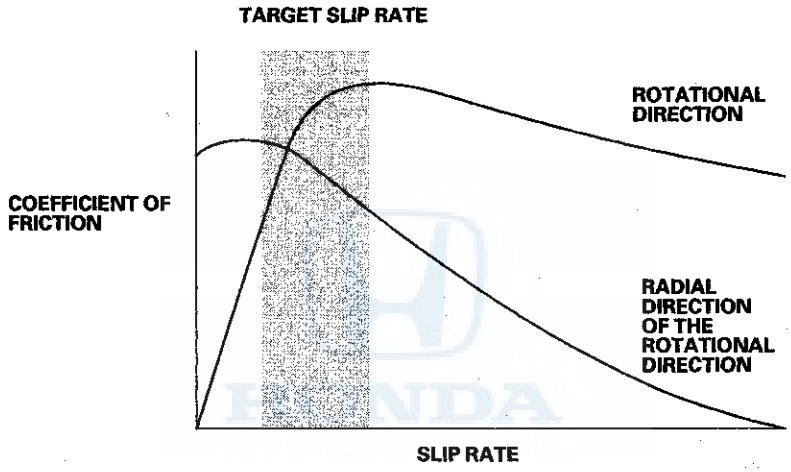
Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Measurement (Disconnect the ABS modulator-control unit 25P connector)			
				Terminals	Conditions		Result
12	BRN/ WHT	FLS (—) (Front-left wheel negative)	Detects left-front wheel speed sensor signal	12—3	Wheel	Spin wheel at 1 turn/second	AC: 0.053 V or above Reference Oscilloscope 0.15 Vp-p or above
13	BRN	SCS (Service check signal)	Detects service check connector signal (DTC indication or DTC clearing)	——	——		——
14	GRY/ RED	RLS (—) (Rear-left wheel negative)	Detects left-rear wheel speed sensor signal	14—5	Wheel	Spin wheel at 1 turn/second	AC: 0.053 V or above Reference Oscilloscope 0.15 Vp-p or above
15	GRN/ WHT	RRS (+) (Rear-right wheel positive)	Detects right-rear wheel speed sensor signal	15—6			
16	YEL/ BLK	IG2 (Ignition 2)	Power source for activating the system	16—GND	——		Battery voltage
18	GRN/ BLK	FRS (+) (Front-right wheel positive)	Detects right-front wheel speed sensor signal	18—2	Wheel	Spin wheel at 1 turn/second	AC: 0.053 V or above Reference Oscilloscope 0.15 Vp-p or above
24	BLK	GND1 (Ground 1)	Ground	24—GND	At all times		continuity
25	BLK	GND2 (Ground 2)	Ground	25—GND	At all times		continuity

Features

When the brake pedal is pressed while driving, the wheels can lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. The ABS precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures the maneuverability and stability of the vehicle.
The ABS calculates the slip rate of the wheels based on the vehicle speed and the wheel speed, then it controls the brake fluid pressure to reach the target slip rate.

Grip force of tire and road surface

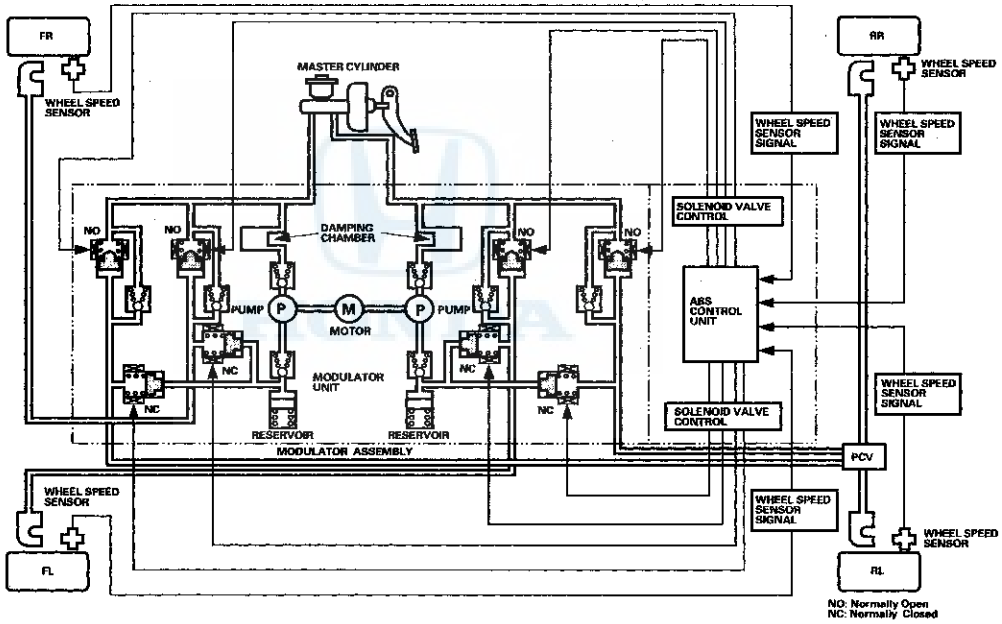


(cont'd)

ABS Components

System Description (cont'd)

COMPONENTS		MAIN FUNCTION
Wheel speed sensor		The wheel speed sensor outputs the speed signal to the ABS control unit according to the pulser's rotation speed.
ABS modulator-control unit	ABS control unit	The ABS control unit processes the signal from the wheel speed sensor, then outputs the ABS control signal to the modulator unit.
	Modulator unit	The modulator unit receives the control signal, then controls brake fluid pressure for each wheel.
Pump motor relay (inside of the ABS control unit)		The pump motor relay drives the pump motor.
ABS fail-safe relay (inside of the ABS control unit)		The ABS fail-safe relay cuts the power to the solenoid valve when the problem is detected.



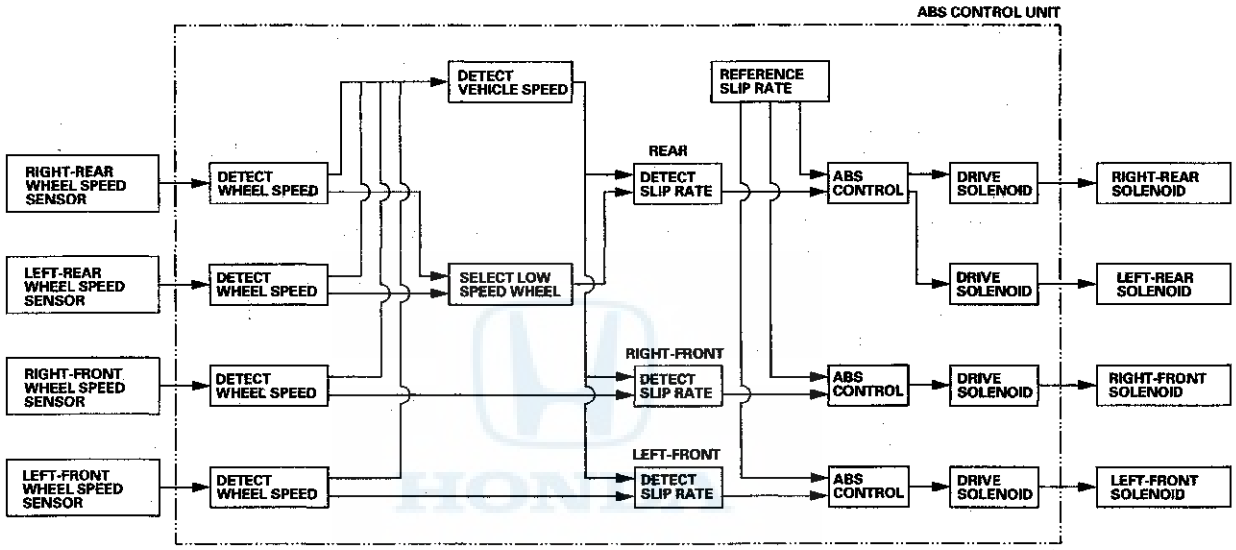
ABS Control Unit

Main Control

The ABS control unit detects the wheel speed based on the wheel speed sensor signal it received, then it calculates the vehicle speed based on the detected wheel speed. The control unit detects the vehicle speed during deceleration based on the rate of deceleration.

The ABS control unit calculates the slip rate of each wheel, and transmits the control signal to the modulator unit solenoid valve when the slip rate is high.

The pressure reduction control has three modes: Pressure reducing, pressure retaining, and pressure intensifying.



Self-diagnosis Function

1. The ABS control unit is equipped with a main CPU and a subCPU. Each CPU checks the other for problems.
2. The CPUs check the circuit of the system.
3. The ABS control unit turns on the ABS indicator when the unit detects a problem, and the unit stops the system.
4. The self-diagnosis can be classified into these two categories:
   - Initial diagnosis
   - Regular diagnosis

On-board Diagnosis Function

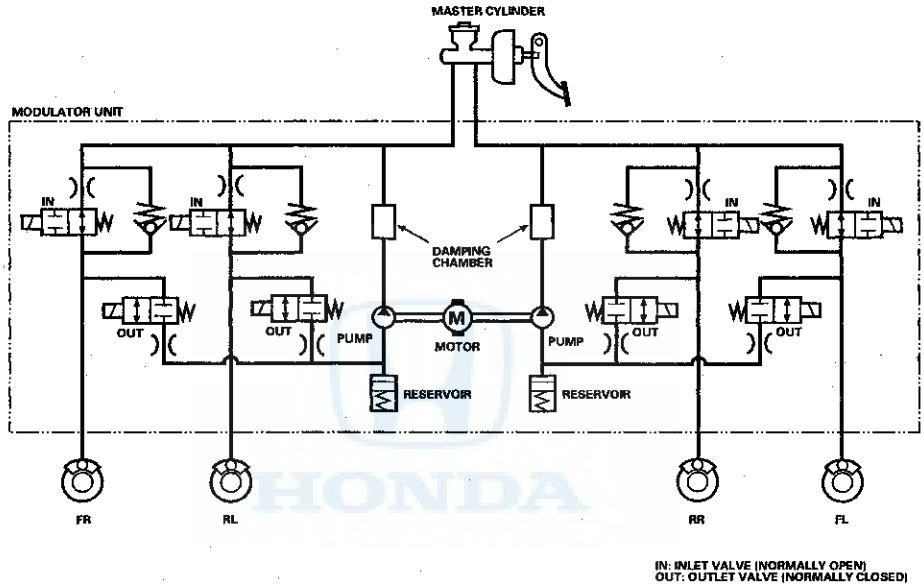
The ABS can be diagnosed with the HDS.
The ALB Checker cannot be used with this system. For air bleeding and checking wheel speed sensor signals, use the HDS.
See the HDS Help menu for specific operating instructions.

(cont'd)

System Description (cont'd)

Modulator Unit

The ABS modulator consists of the inlet solenoid valve, outlet solenoid valve, reservoir, pump, pump motor, and the damping chamber. The modulator reduces the caliper fluid pressure directly. It is a circulating-type modulator because the brake fluid circulates through the caliper, reservoir, and the master cylinder. The hydraulic control has three modes: Pressure intensifying, pressure retaining, and pressure reducing. The hydraulic circuit is an independent four channel type, one channel for each wheel.



Pressure intensifying mode: Inlet valve open, outlet valve closed:
Master cylinder fluid is pumped out to the caliper.

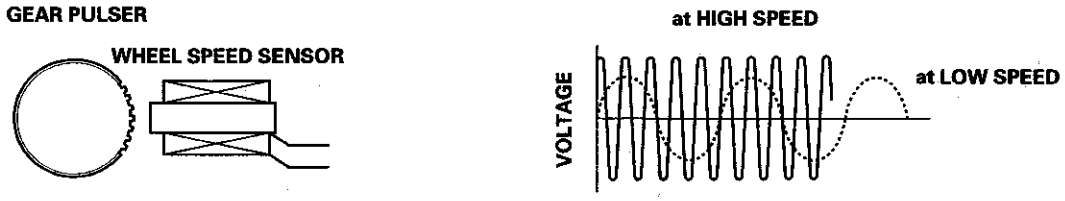
Pressure retaining mode: Inlet valve closed, outlet valve closed:
Caliper fluid is retained by the inlet valve and outlet valve.

Pressure reducing mode: Inlet valve closed, outlet valve open:
Caliper fluid flows through the outlet valve to the reservoir.

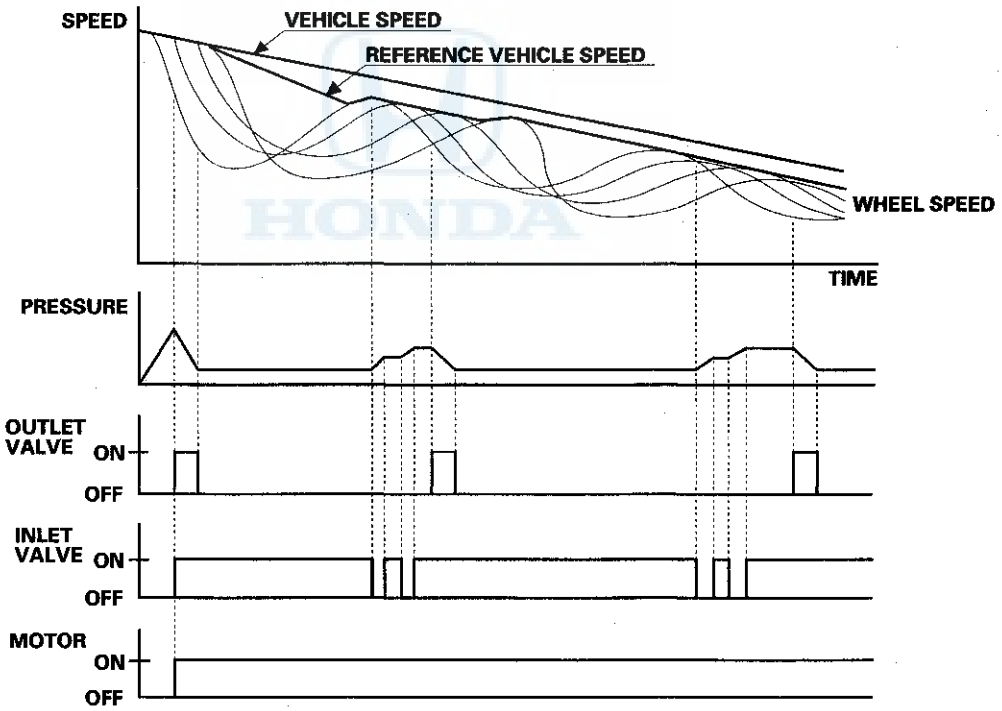
Motor operation mode: When starting the pressure reducing mode, the pump motor is ON.
When stopping ABS operation, the pump motor is OFF.
The reservoir fluid is pumped out by the pump, through the damping chamber, to the master cylinder.

Wheel Speed Sensors

The wheel speed sensors are the magnetic contactless type. As the gear pulser teeth rotate past the wheel speed sensor's magnetic coil, AC current is generated. The AC frequency changes in accordance with the wheel speed. The ABS modulator-control unit detects the wheel speed sensor signal frequency and thereby detects the wheel speed.



Wheel Speed and Modulator Control

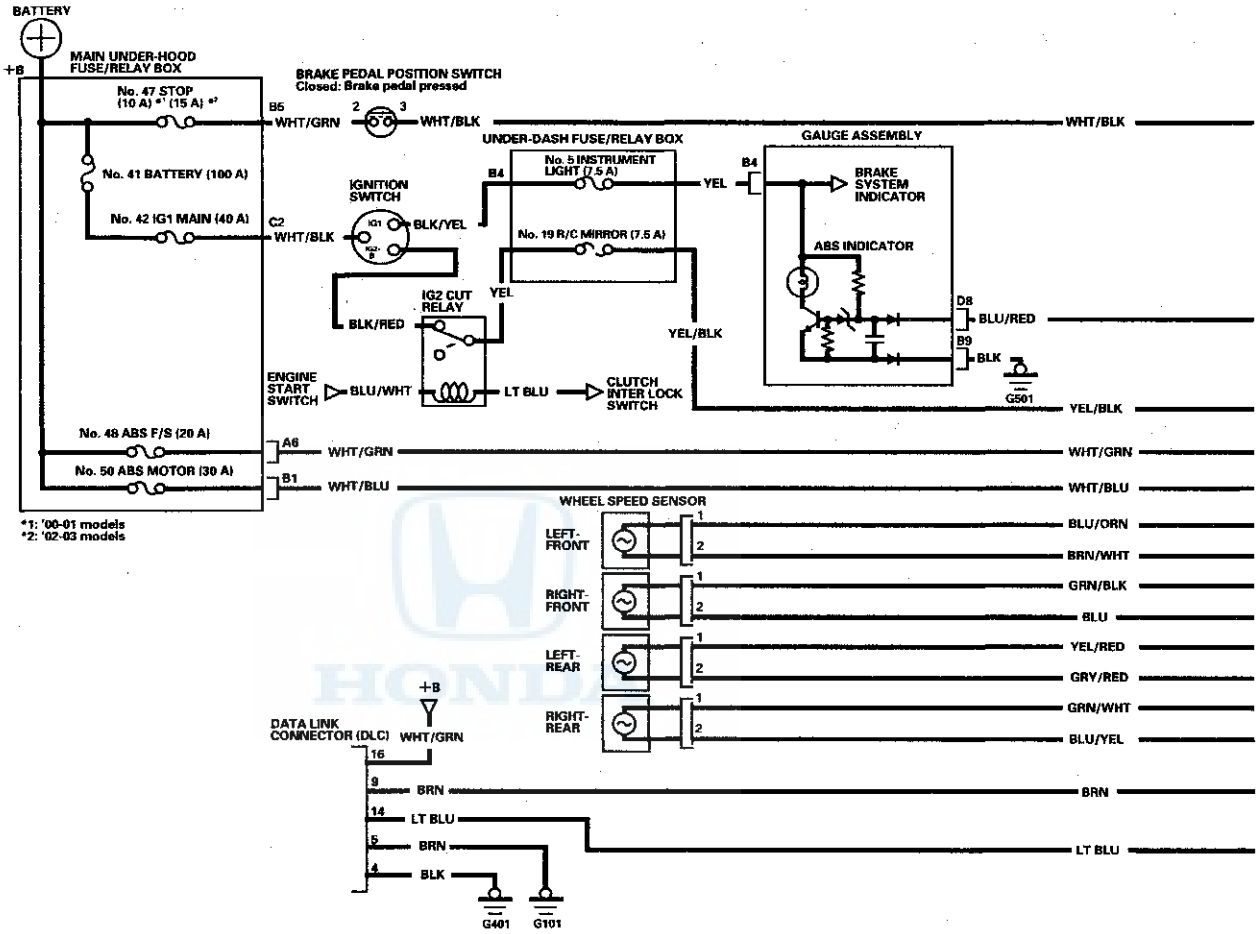


When the wheel speed drops sharply below the vehicle speed, the inlet valve closes and if necessary, the outlet valve opens momentarily to reduce the caliper fluid pressure. The pump motor starts at this time. As the wheel speed is restored, the outlet valve closes, and the inlet valve opens momentarily to increase the caliper fluid pressure.

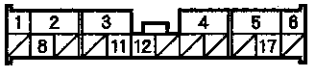
ABS Components

Circuit Diagram

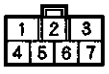
'00-03 Models



MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR A (18P)



MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR B (7P)



Wire side of female terminals

GAUGE ASSEMBLY CONNECTOR D (16P)

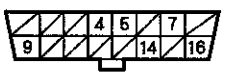
GAUGE ASSEMBLY CONNECTOR B (12P)

Wire side of female terminals

BRAKE SWITCH 4P CONNECTOR

Wire side of female terminals

DATA LINK CONNECTOR (DLC)



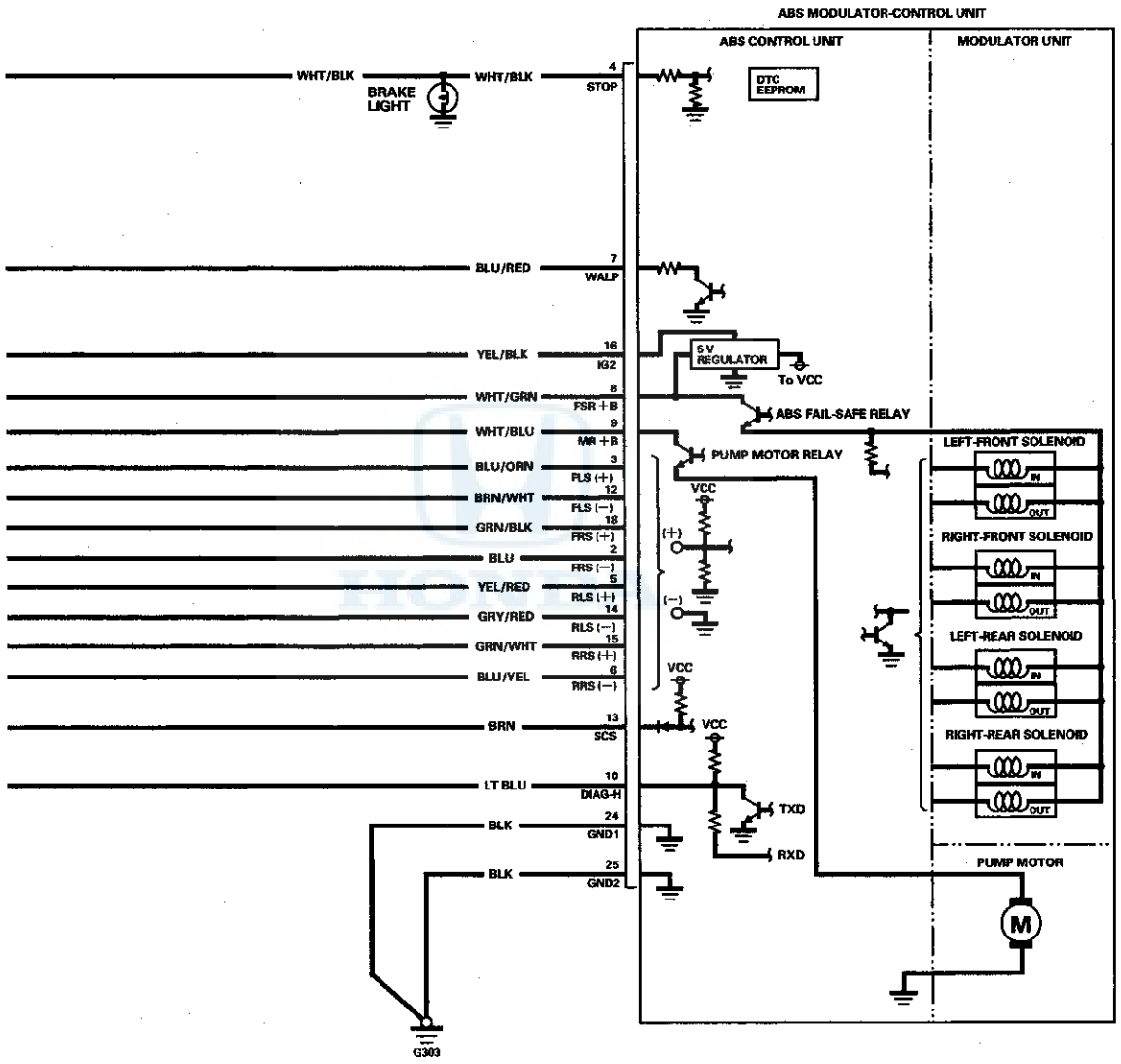
Terminal side of female terminals

WHEEL SPEED SENSOR 2P CONNECTOR

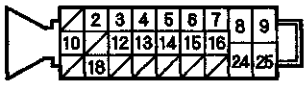
FRONT

REAR

Terminal side of male terminals



ABS MODULATOR-CONTROL UNIT 25P CONNECTOR

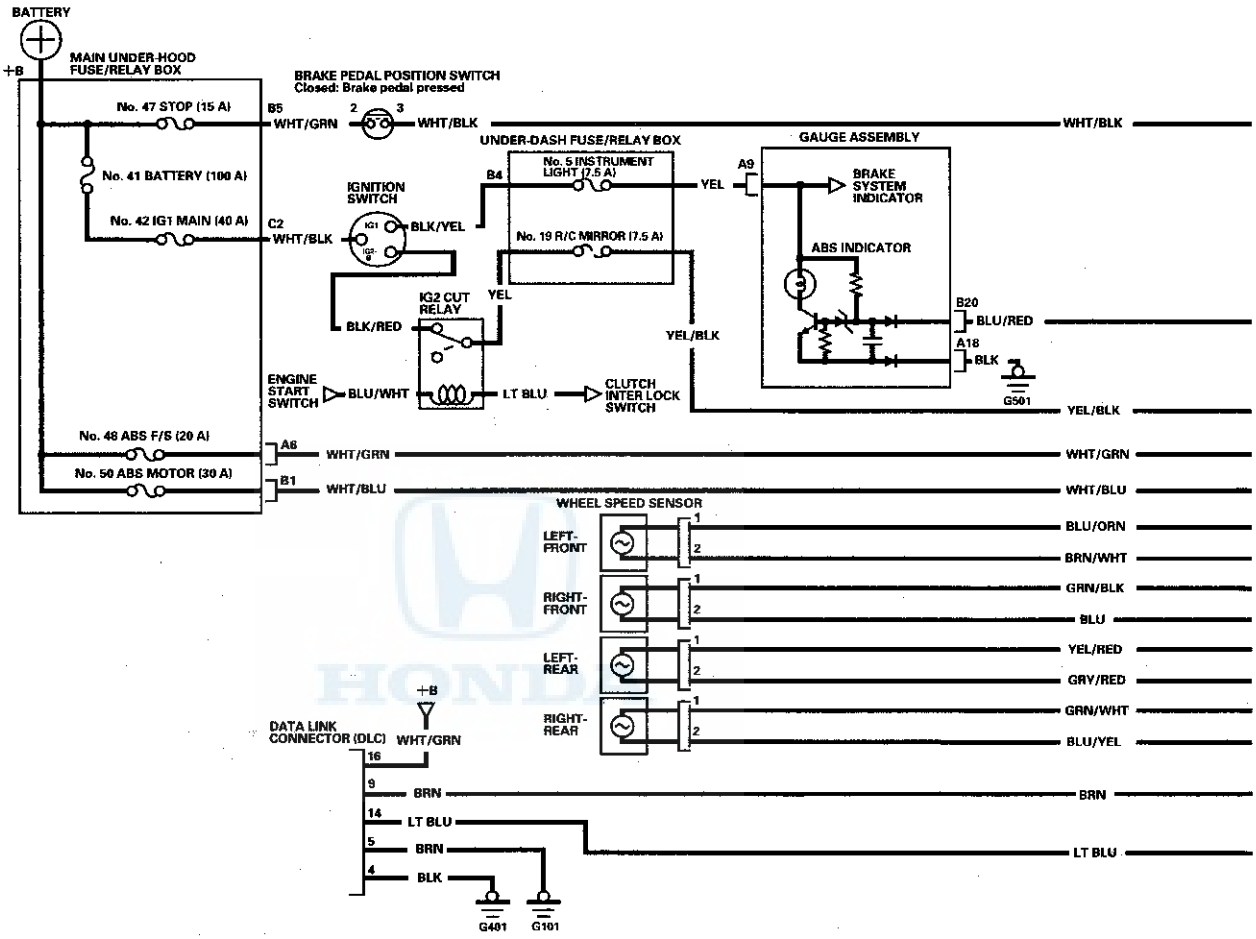


Wire side of female terminals

ABS Components

Circuit Diagram (cont'd)

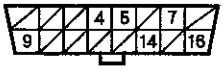
'04-05 Models



MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR A (18P)

GAUGE ASSEMBLY CONNECTOR A (22P)

DATA LINK CONNECTOR (DLC)

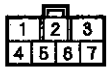


Terminal side of female terminals

WHEEL SPEED SENSOR 2P CONNECTOR

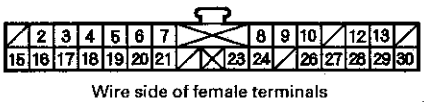
FRONT

MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR B (7P)



Wire side of female terminals

GAUGE ASSEMBLY CONNECTOR B (30P)



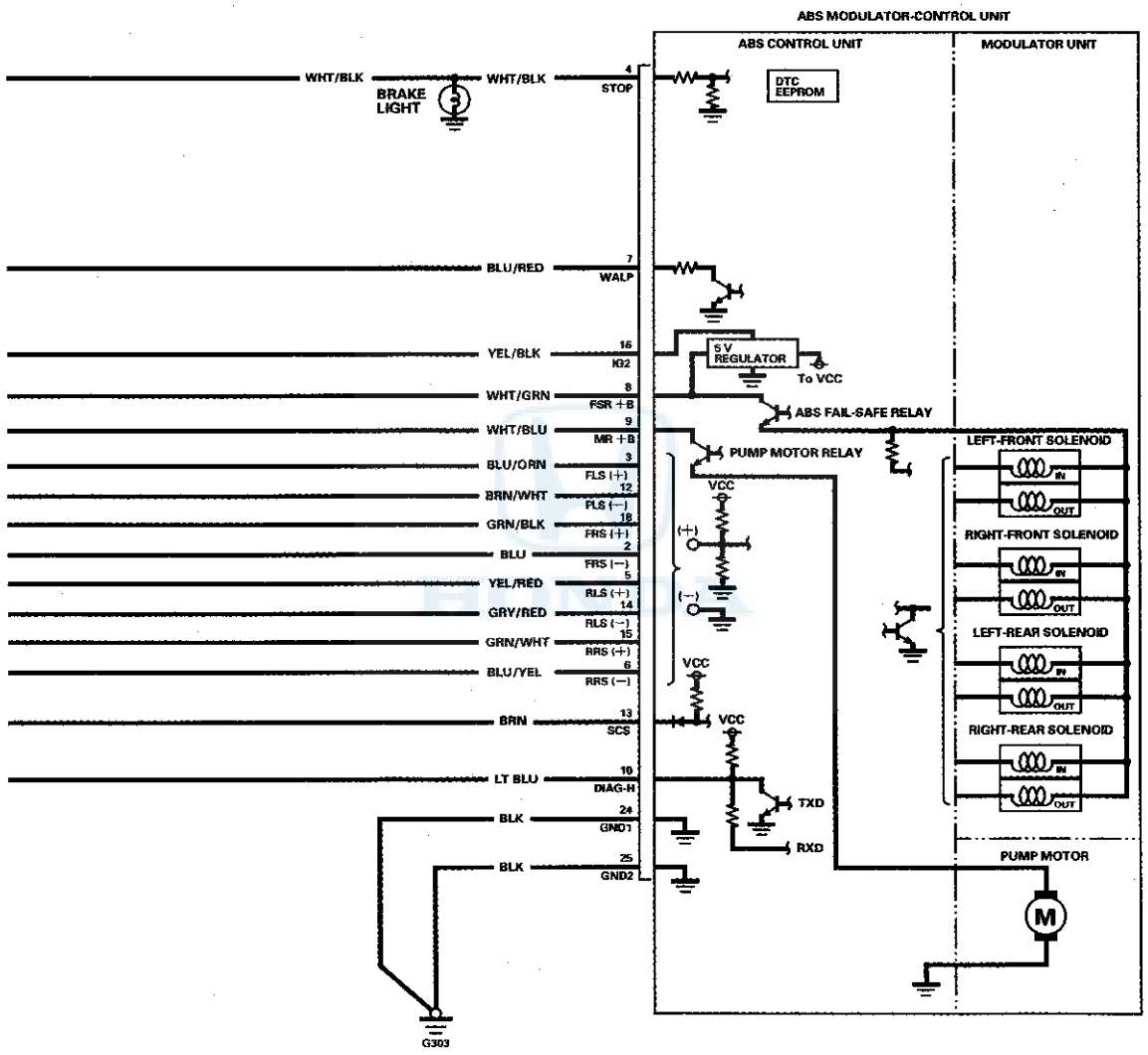
Wire side of female terminals

BRAKE SWITCH 4P CONNECTOR

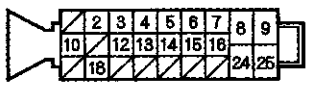
Wire side of female terminals

REAR

Terminal side of male terminals



ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



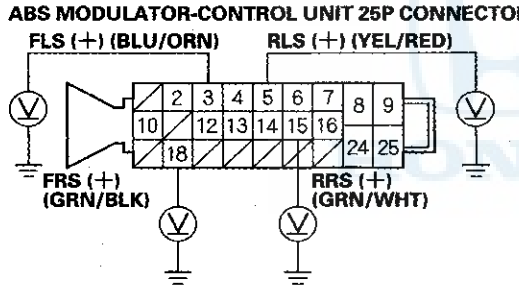
Wire side of female terminals

DTC Troubleshooting

DTC 11, 13, 15, 17: Wheel Speed Sensor (Open/Short to Body Ground/Short to Power)

1. Disconnect the ABS modulator-control unit 25P connector.
2. Start the engine.
3. Measure the voltage between the appropriate wheel speed sensor (+) circuit terminal of the ABS modulator-control unit 25P connector and body ground (see table).

DTC	Appropriate Terminal
11 (Right-front)	No. 18: FRS (+)
13 (Left-front)	No. 3: FLS (+)
15 (Right-rear)	No. 15: RRS (+)
17 (Left-rear)	No. 5: RLS (+)



Wire side of female terminals

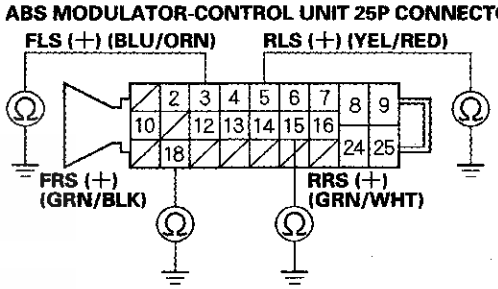
Is there 0.1 V or more?

YES—Repair short to power in the (+) circuit wire between the ABS modulator-control unit and the appropriate wheel speed sensor. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Check for continuity between the appropriate wheel speed sensor (+) circuit terminal of the ABS modulator-control unit 25P connector and body ground (see table).

DTC	Appropriate Terminal
11 (Right-front)	No. 18: FRS (+)
13 (Left-front)	No. 3: FLS (+)
15 (Right-rear)	No. 15: RRS (+)
17 (Left-rear)	No. 5: RLS (+)



Wire side of female terminals

Is there continuity?

YES—Go to step 6.

NO—Go to step 7.

6. Disconnect the wire harness 2P connector from the appropriate wheel speed sensor, then check for continuity between the (+) and (−) terminals of the wire harness connector and body ground individually.

Is there continuity?

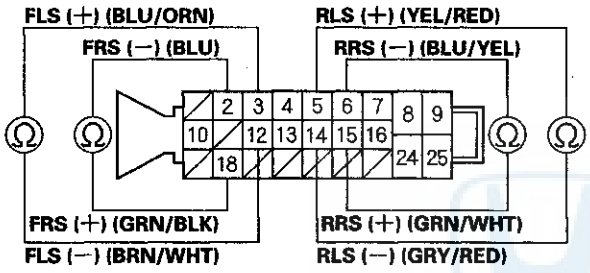
YES—Repair short to body ground in the (+) or (−) circuit wire between the ABS modulator-control unit and the wheel speed sensor. ■

NO—Replace the wheel speed sensor. ■

7. Check the resistance between the appropriate wheel speed sensor (+) and (−) circuit terminals of the ABS modulator-control unit 25P connector (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	No. 18: FRS (+)	No. 2: FRS (−)
13 (Left-front)	No. 3: FLS (+)	No. 12: FLS (−)
15 (Right-rear)	No. 15: RRS (+)	No. 6: RRS (−)
17 (Left-rear)	No. 5: RLS (+)	No. 14: RLS (−)

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is the resistance between 450−2,000 Ω ?

YES—Check for loose terminals in the ABS modulator-control unit 31P connector. If necessary, substitute a known-good ABS modulator-control unit, and recheck. ■

NO—Go to step 8.

8. Disconnect the wire harness 2P connector from the appropriate wheel speed sensor, and check the resistance between the (+) and (−) terminals of the wheel speed sensor.

Is the resistance between 450−2,000 Ω ?

YES—Repair open in the (+) or (−) circuit wire, or short between the (+) circuit wire and the (−) circuit wire between the ABS modulator-control unit and the wheel speed sensor. ■

NO—Replace the wheel speed sensor. ■

DTC 12, 14, 16, 18: Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)

NOTE: If the ABS indicator comes on because of electrical noise, the indicator goes off when you test-drive the vehicle at 19 mph (30 km/h).

1. Visually check for appropriate wheel speed sensor and pulser installation (see table). Measure pulser-to-sensor clearance. Inspect the pulsers for chipped or damaged teeth (see page 19-65).

DTC	Appropriate Wheel Speed Sensor
12	Right-front
14	Left-front
16	Right-rear
18	Left-rear

Are the wheel speed sensor and pulser installed correctly?

YES—Go to step 2.

NO—Reinstall or replace the appropriate wheel speed sensor or pulser. ■

2. Disconnect the ABS modulator-control unit 25P connector.

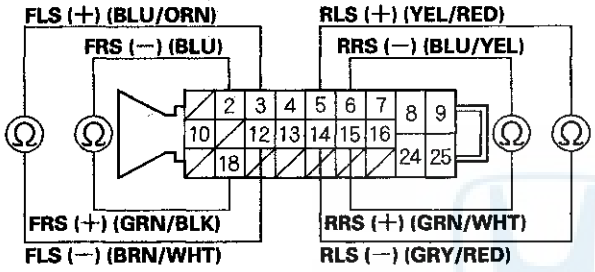
(cont'd)

DTC Troubleshooting (cont'd)

3. Measure the resistance between the appropriate wheel speed sensor (+) and (−) circuit terminals of the ABS modulator-control unit 25P connector (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
12 (Right-front)	No. 18: FRS (+)	No. 2: FRS (−)
14 (Left-front)	No. 3: FLS (+)	No. 12: FLS (−)
16 (Right-rear)	No. 15: RRS (+)	No. 6: RRS (−)
18 (Left-rear)	No. 5: RLS (+)	No. 14: RLS (−)

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there less than 450 Ω ?

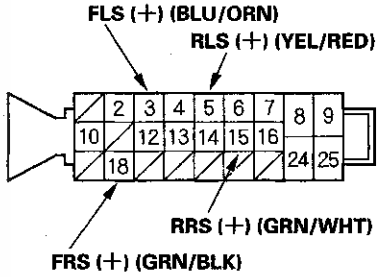
YES—Go to step 5.

NO—Go to step 4.

4. Check for continuity between the appropriate wheel speed sensor (+) circuit terminal and other wheel speed sensor (+) circuit terminals of the ABS modulator-control unit 25P connector (see table).

DTC	Appropriate Terminal	Other Terminals		
12	No. 18: FRS (+)	No. 3	No. 15	No. 5
14	No. 3: FLS (+)	No. 18	No. 15	No. 5
16	No. 15: RRS (+)	No. 18	No. 3	No. 5
18	No. 5: RLS (+)	No. 18	No. 3	No. 15

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the appropriate wheel speed sensor and the other wheel speed sensor. ■

NO—Clear the DTC, and test-drive the vehicle. If the ABS indicator comes on and the same DTC is indicated, replace the ABS modulator-control unit. ■

5. Disconnect the harness 2P connector from the appropriate wheel speed sensor, and check the resistance between the (+) side and the (−) side of the wheel speed sensor.

Is there less than 450 Ω ?

YES—Replace the wheel speed sensor. ■

NO—Repair short in wire between the appropriate wheel speed sensor (+) and (−) circuits. ■

DTC 21, 22, 23, 24: Pulser

1. Clear the DTC (see page 19-36).
2. Test-drive the vehicle at 19 mph (30 km/h) or more.

   Does the ABS indicator come on, and are DTCs 21, 22, 23, 24 indicated?

   YES—Go to step 3.

   NO—The system is OK at this time.■
3. Check the appropriate pulser gears for chipped or damaged teeth (see table). Also check the air gap (see page 19-65).

DTC	Appropriate Pulser
21	Right-front
22	Left-front
23	Right-rear
24	Left-rear

   Are the pulser gears OK?

   YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and recheck.■

   NO—Replace the driveshaft or hub unit with the chipped pulser gear.■

DTC 31, 32, 33, 34, 35, 36, 37, 38: ABS Solenoid

1. Clear the DTC (see page 19-36).
2. Turn the ignition switch to ON (II).
3. Verify the DTC.

   Does the ABS indicator come on, and are DTCs 31, 32, 33, 34, 35, 36, 37, 38 indicated?

   YES—Check power and ground to the ABS modulator-control unit. If OK, check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and recheck.■

   NO—The system is OK at this time.■

DTC Troubleshooting (cont'd)

DTC 41, 42, 43, 44: Wheel Lock

1. Lift up the vehicle so all four wheels are off the ground, and release the parking brake.
2. Check for brake drag with the brakes hot.

   Do the brakes drag?

   YES—Repair the brake drag. ■

   NO—Go to step 3.
3. Check the installation of the appropriate wheel speed sensor (see table).

DTC	Appropriate Wheel
41	Right-front
42	Left-front
43	Right-rear
44	Left-rear

   Is it correct?

   YES—The probable cause was the vehicle spun during cornering. If the code recurs during normal driving, replace the ABS modulator-control unit. ■

   NO—Reinstall the wheel speed sensor correctly. ■

DTC 51: Motor Lock

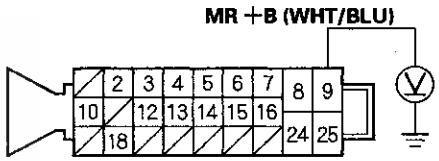
1. Check the ABS MOTOR (30 A) fuse in the main under-hood fuse/relay box, and reinstall the fuse if it is OK.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, and recheck. ■
2. Disconnect the ABS modulator-control unit 25P connector.
3. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 9 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

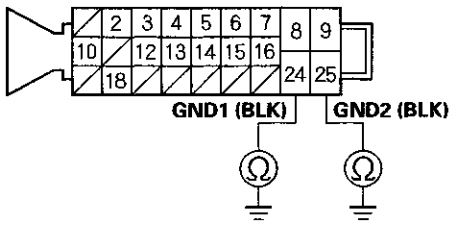
Is there battery voltage?

YES—Go to step 4.

NO—Repair open in the wire between the ABS MOTOR (30 A) fuse and the ABS modulator-control unit. ■

4. Check for continuity between body ground and ABS modulator-control unit 25P connector terminals No. 24 and No. 25 individually.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 5.

NO—Repair open or high resistance in the wire between the ABS modulator-control unit 25P connector and body ground G303. ■

5. Reconnect the ABS modulator-control unit 25P connector.

6. Clear the DTC (see page 19-36).

7. Test-drive the vehicle at 6 mph (10 km/h) or more.

Does the ABS indicator come on, and is DTC 51 indicated?

YES—Check for loose terminals at the ABS modulator-control unit 25P connector. If connections are good, replace the ABS modulator-control unit. ■

NO—The system is OK at this time. ■

DTC 52: Motor Stuck OFF

1. Check the ABS MOTOR (30 A) fuse in the main under-hood fuse/relay box, and reinstall the fuse if it is OK.

Is the fuse OK?

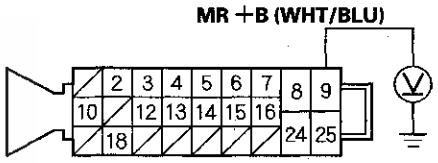
YES—Go to step 2.

NO—Replace the fuse, and recheck. ■

2. Disconnect the ABS modulator-control unit 25P connector.

3. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 9 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 4.

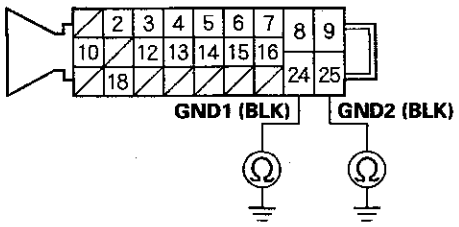
NO—Repair open in the wire between the ABS MOTOR (30 A) fuse and the ABS modulator-control unit. ■

(cont'd)

DTC Troubleshooting (cont'd)

4. Check for continuity between body ground and ABS modulator-control unit 25P connector terminals No. 24 and No. 25 individually.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and retest.■

NO—Repair open in the wire(s) between the ABS modulator-control unit 25P connector and body ground G303.■

DTC 53: Motor Stuck ON

1. Clear the DTC (see page 19-36).
2. Test-drive the vehicle.

Does the ABS indicator come on, and is DTC 53 indicated?

YES—Replace the ABS modulator-control unit.■

NO—The system is OK at this time.■

DTC 54: ABS Fail-safe Relay

1. Clear the DTC (see page 19-36).
2. Test-drive the vehicle.

   Does the ABS indicator come on, and is DTC 54 indicated?

   YES—Replace the ABS modulator-control unit.■

   NO—Intermittent failure; the vehicle is OK at this time.■

DTC 61: Low FSR +B Voltage

DTC 62: High FSR +B Voltage

1. Clear the DTC (see page 19-36).
2. Test-drive the vehicle at 6 mph (10 km/h) or more.

   Does the ABS indicator come on?

   YES—Go to step 3.

   NO—The system is OK at this time.■

3. Verify the DTC.

   Is DTC 61 or 62 indicated?

   YES—Check the battery and charging system.■

   NO—Do the appropriate troubleshooting for the DTC indicated.■

DTC Troubleshooting (cont'd)

DTC 71: Different Diameter Tire

1. Clear the DTC (see page 19-36).
2. Test-drive the vehicle.

   Does the ABS indicator come on, and is DTC 71 indicated?

   YES—Make sure all four tires are the specified size and are inflated to the proper specification. ■

   NO—Intermittent failure; the vehicle is OK at this time. ■

DTC 81: Central Processing Unit (CPU) Diagnosis, and ROM/RAM Diagnosis

1. Clear the DTC (see page 19-36).
2. Test-drive the vehicle.

   Does the ABS indicator come on, and is DTC 81 indicated?

   YES—Replace the ABS modulator-control unit. ■

   NO—Intermittent failure; the vehicle is OK at this time. ■

Symptom Troubleshooting

ABS indicator does not come on ('00-03 models)

1. Turn the ignition switch to ON (II), and watch the ABS indicator.

   Does the ABS indicator come on?

   YES—The system is OK at this time.■

   NO—Go to step 2.

2. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.

   Does the brake system indicator come on?

   YES—Go to step 3.

   NO—Repair open in the indicator power source circuit:■

   - Blown INSTRUMENT LIGHT (7.5 A) fuse in the under-dash fuse/relay box.
   - Open in the wire between the INSTRUMENT LIGHT (7.5 A) fuse and gauge assembly.
   - Open circuit inside the fuse box.

3. Turn the ignition switch to LOCK (0).

4. Disconnect the ABS modulator-control unit 25P connector.

5. Turn the ignition switch to ON (II).

   Does the ABS indicator come on?

   YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and recheck.■

   NO—Go to step 6.

6. Check the ABS indicator bulb in the gauge assembly.

   Is the bulb OK?

   YES—Go to step 7.

   NO—Replace the ABS indicator bulb.■

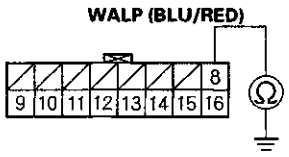
7. Turn the ignition switch to LOCK (0).

8. Remove the gauge assembly (see page 22-89).

9. Disconnect the gauge assembly connector D (16P).

10. Check for continuity between gauge assembly connector D (16P) terminal No. 8 and body ground.

GAUGE ASSEMBLY CONNECTOR D (16P)



Wire side of female terminals

Is there continuity?

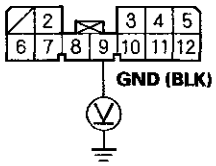
YES—Repair short to body ground in the wire between the gauge assembly and the ABS modulator-control unit.■

NO—Go to step 11.

11. Reconnect the gauge assembly connector D (16P).

12. Turn the ignition switch to ON (II), then measure the voltage between gauge assembly connector B (12P) terminal No. 9 and body ground.

GAUGE ASSEMBLY CONNECTOR B (12P)



Wire side of female terminals

Is there 0.1 V or less?

YES—Check for loose terminals in the gauge assembly connectors. If the connector is OK, replace the gauge assembly.■

NO—Repair open in the wire between the gauge assembly and body ground (G501).■

Symptom Troubleshooting (cont'd)

ABS indicator does not come on ('04-05 models)

1. Turn the ignition switch to ON (II), and watch the ABS indicator.

   Does the ABS indicator come on?

   YES—The system is OK at this time.■

   NO—Go to step 2.

2. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.

   Does the brake system indicator come on?

   YES—Go to step 3.

   NO—Repair open in the indicator power source circuit:■

   - Blown INSTRUMENT LIGHT (7.5 A) fuse in the under-dash fuse/relay box.
   - Open in the wire between the INSTRUMENT LIGHT (7.5 A) fuse and gauge assembly.
   - Open circuit inside the fuse box.

3. Turn the ignition switch to LOCK (0).

4. Disconnect the ABS modulator-control unit 25P connector.

5. Turn the ignition switch to ON (II).

   Does the ABS indicator come on?

   YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and recheck.■

   NO—Go to step 6.

6. Check the ABS indicator bulb in the gauge assembly.

   Is the bulb OK?

   YES—Go to step 7.

   NO—Replace the ABS indicator bulb.■

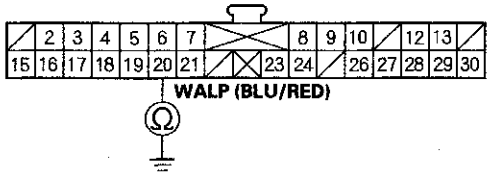
7. Turn the ignition switch to LOCK (0).

8. Remove the gauge assembly (see page 22-89).

9. Disconnect the gauge assembly connector B (30P).

10. Check for continuity between gauge assembly connector B (30P) terminal No. 20 and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

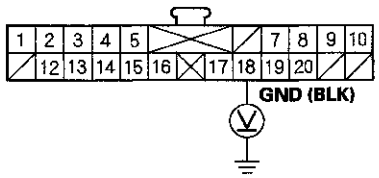
YES—Repair short to body ground in the wire between the gauge assembly and the ABS modulator-control unit.■

NO—Go to step 11.

11. Reconnect the gauge assembly connector B (30P).

12. Turn the ignition switch to ON (II), then measure the voltage between gauge assembly connector A (22P) terminal No. 18 and body ground.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

Is there 0.1 V or less?

YES—Check for loose terminals in the gauge assembly connectors. If the connector is OK, replace the gauge assembly.■

NO—Repair open in the wire between the gauge assembly and body ground (G501).■

ABS indicator does not go off, and no DTCs are stored

1. Check the ABS F/S (20 A) fuse in the main under-hood fuse/relay box, and reinstall the fuse if it is OK.
   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, and recheck. If the fuse is blown, check for a short to body ground in this fuse circuit. If the circuit is OK, replace the ABS modulator-control unit. ■

2. Check the R/C MIRROR (7.5 A) fuse in the under-dash fuse/relay box, and reinstall the fuse if it is OK.

   Is the fuse OK?

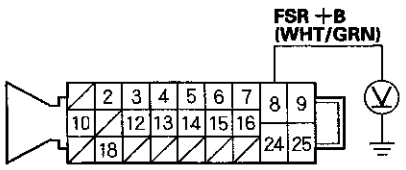
   YES—Go to step 3.

   NO—Replace the fuse, and recheck. If the fuse is blown, check for a short to body ground in this fuse circuit. ■

3. Disconnect the ABS modulator-control unit 25P connector.

4. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 8 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there battery voltage?

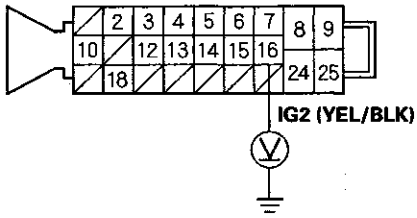
YES—Go to step 5.

NO—Repair open in the wire between the ABS F/S (20 A) fuse and the ABS modulator-control unit. ■

5. Turn the ignition switch to ON (II).

6. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 16 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there battery voltage?

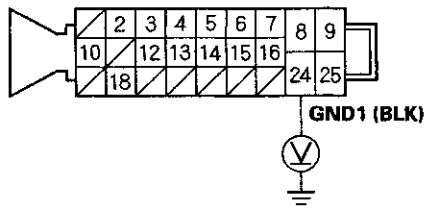
YES—Go to step 7.

NO—Repair open in the wire between fuse #19 (7.5 A) and the ABS modulator-control unit. ■

7. Turn the ignition switch to LOCK (0).

8. Check for continuity between ABS modulator-control unit 25P connector terminal No. 24 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

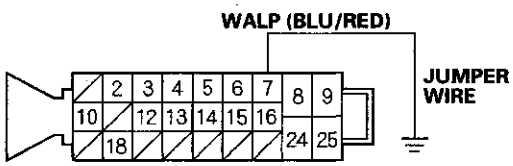
NO—Repair open in the wire between the ABS modulator-control unit and body ground (G303). ■

(cont'd)

Symptom Troubleshooting (cont'd)

9. Connect ABS modulator-control unit 25P connector terminal No. 7 and body ground with a jumper wire, then turn the ignition switch to ON (II).

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

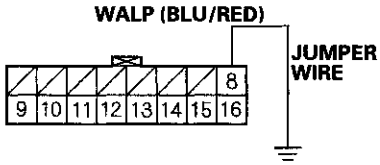
Does the ABS indicator go off?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If necessary, substitute a known-good ABS modulator-control unit, and recheck. ■

NO—Go to step 10 ('00-03 models) or step 11 ('04-05 models).

10. Connect gauge assembly connector D (16P) terminal No. 8 and body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR D (16P)



Wire side of female terminals

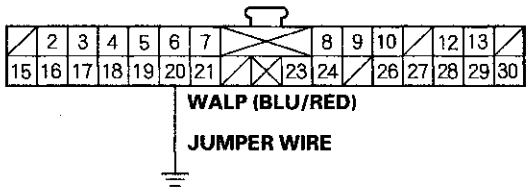
Does the ABS indicator go off?

YES—Repair open in the wire between the gauge assembly and the ABS modulator-control unit. ■

NO—Check for loose terminals in the gauge assembly connectors. If the connector is OK, replace the gauge assembly. ■

11. Connect gauge assembly connector B (30P) terminal No. 20 and body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Does the ABS indicator go off?

YES—Repair open in the wire between the gauge assembly and the ABS modulator-control unit. ■

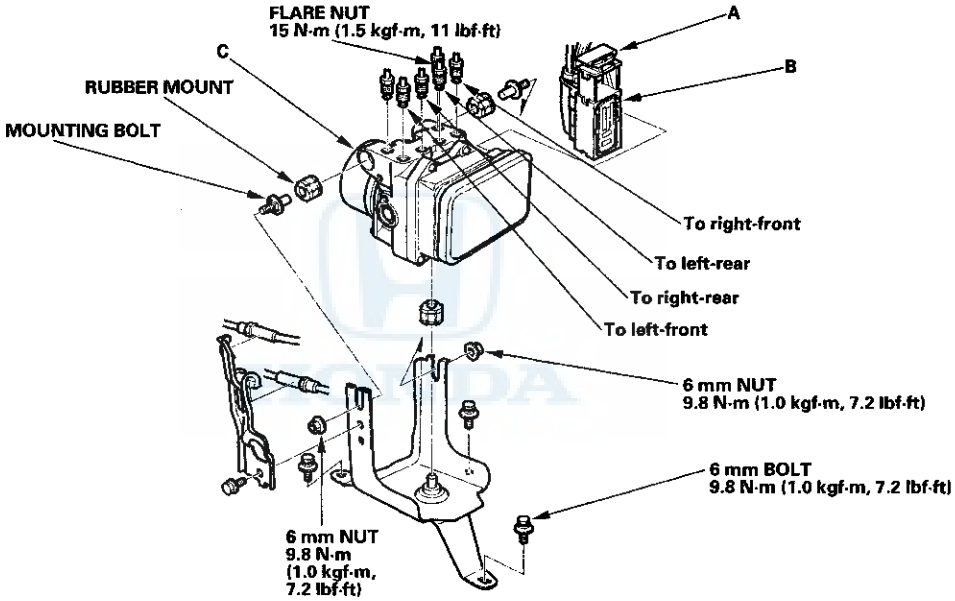
NO—Check for loose terminals in the gauge assembly connectors. If the connector is OK, replace the gauge assembly. ■

ABS Modulator-Control Unit Removal and Installation

NOTE:
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Take care not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent material.

Removal ('00-03 Models)

1. Turn the ignition switch to LOCK (0).
2. Pull up the lock (A) of the ABS modulator-control unit 25P connector (B), then disconnect the connector.



3. Disconnect the six brake lines from the ABS modulator-control unit (C).
4. Remove the two 6 mm nuts.
5. Remove the ABS modulator-control unit.

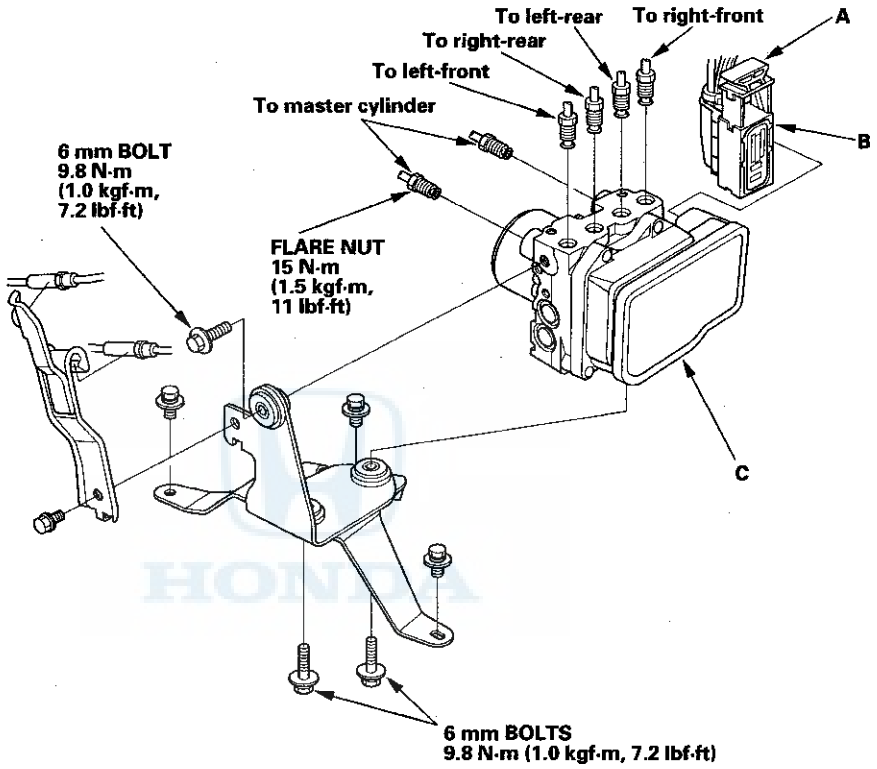
Installation ('00-03 Models)

1. Install the ABS modulator-control unit, then tighten the two 6 mm nuts.
2. Align the connecting surface of the ABS modulator-control unit 25P connector.
3. Push in the lock of the ABS modulator-control unit 25P connector until you hear it click into place, then connect the connector.
4. Bleed the brake system, starting with the front wheels (see page 19-9).
5. Start the engine, and check that the ABS indicator goes off.
6. Test-drive the vehicle, and check that the ABS indicator does not come on.

ABS Modulator-Control Unit Removal and Installation (cont'd)

Removal ('04-05 Models)

1. Turn the ignition switch to LOCK (0).
2. Pull up the lock (A) of the ABS modulator-control unit 25P connector (B), then disconnect the connector.



3. Disconnect the six brake lines from the ABS modulator-control unit (C).
4. Remove the three 6 mm bolts.
5. Remove the ABS modulator-control unit.

Installation ('04-05 Models)

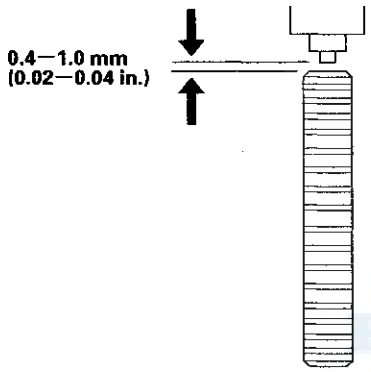
1. Install the ABS modulator-control unit, then tighten the three 6 mm bolts.
2. Align the connecting surface of the ABS modulator-control unit 25P connector.
3. Push in the lock of the ABS modulator-control unit 25P connector until you hear it click into place, then connect the connector.
4. Bleed the brake system, starting with the front wheels (see page 19-9).
5. Start the engine, and check that the ABS indicator goes off.
6. Test-drive the vehicle, and check that the ABS indicator does not come on.

Wheel Speed Sensor Inspection

1. Inspect the front and rear pulsers for chipped or damaged teeth.
2. Measure the air gap between the wheel speed sensor and pulser all the way around while rotating the pulser. Remove the rear brake disc to measure the gap on the rear wheel speed sensor. If the gap exceeds 1.0 mm (0.04 in.), check for a bent suspension arm.

Standard:
Front/Rear: 0.4—1.0 mm (0.02—0.04 in.)

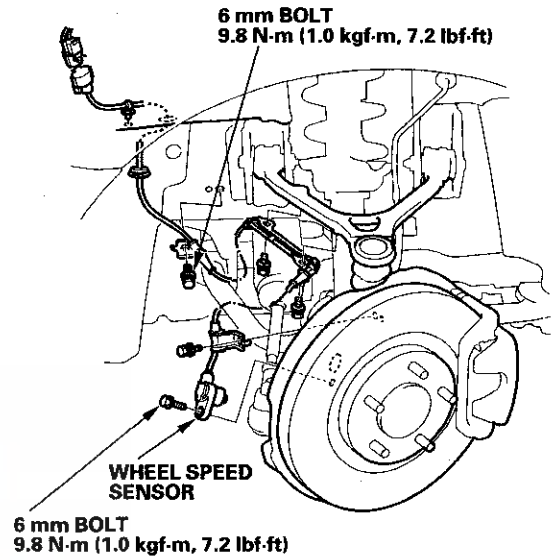
Front/Rear



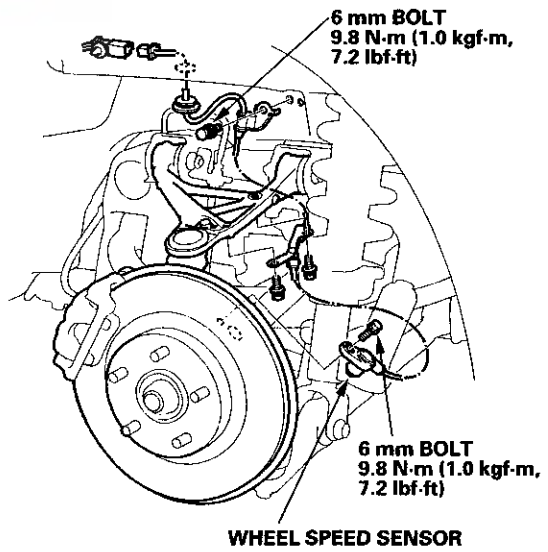
Wheel Speed Sensor Replacement

NOTE: Install the sensors carefully to avoid twisting the wires.

Front



Rear



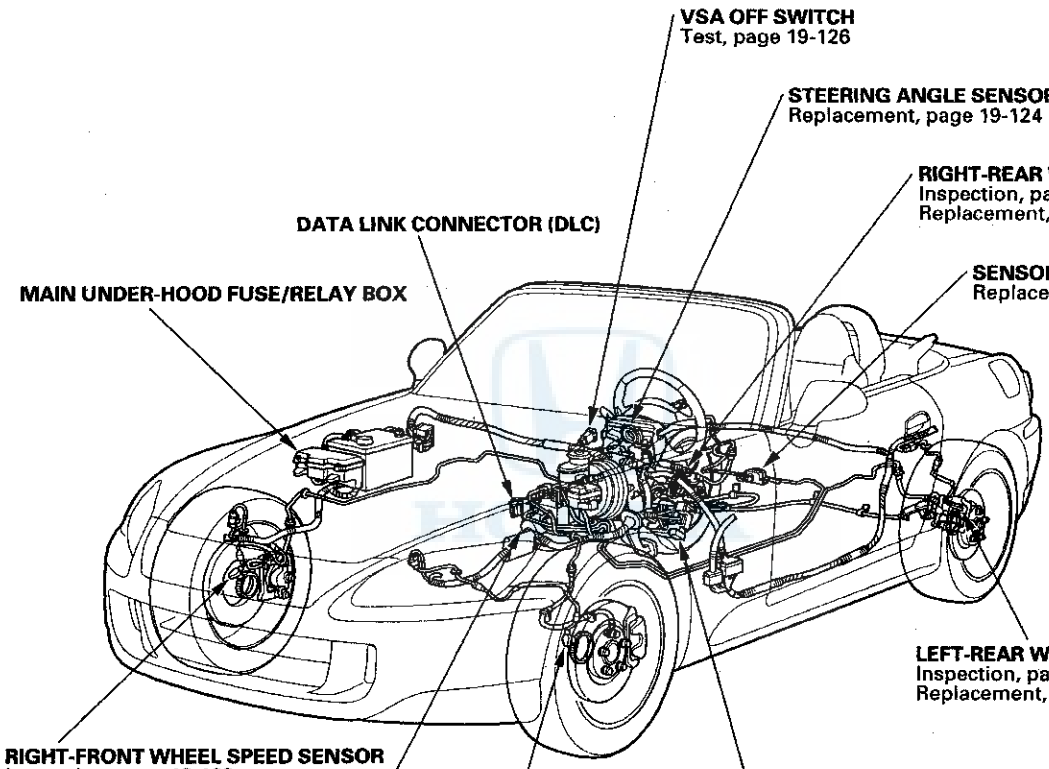

HONDA

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Brakes

VSA System Components

Component Location Index

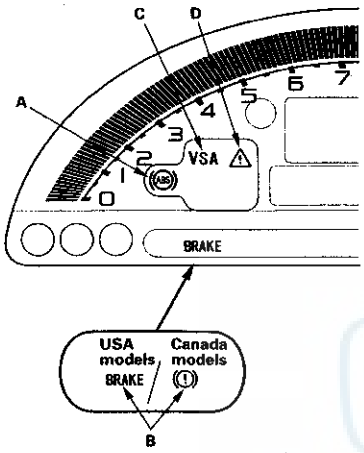


General Troubleshooting Information

System Indicator

This system has four indicators:

- ABS indicator (A)
- Brake system indicator (B)
- VSA indicator (C)
- VSA activation indicator (D)



When the system detects a problem, it will turn the appropriate indicator on. Depending on the failure, the VSA modulator-control unit determines which indicators are turned on.
When the system is OK, each indicator comes on for about 2 seconds after turning the ignition switch to ON (II), then goes off.

ABS Indicator

The ABS indicator comes on when the ABS function is lost. The brakes still work like a conventional system.

Brake System Indicator

The brake system indicator comes on when the EBD function is lost, the parking brake is applied, and/or the brake fluid level is low.

VSA Indicator

The VSA indicator comes on, when VSA function is lost.

VSA Activation Indicator

The VSA activation indicator blinks, when the VSA function is activating. The VSA activation indicator comes on, when the VSA is turned OFF by using the VSA OFF switch, or the VSA function is lost.

ABS/VSA Indicator

- If the system is OK, the ABS and VSA indicators go off 2 seconds after turning the ignition switch to ON (II).
- The ABS and VSA indicators come on when the control unit detects a problem in the system. However, even though the system is operating properly, the indicator may come on under these conditions:
  - Only the drive wheels rotate.
  - One drive wheel is stuck.
  - The vehicle goes into a spin.
  - The ABS or VSA continues to operate for a long time.
  - The vehicle is subjected to an electrical signal disturbance.

To determine the actual cause of the problem, question the customer, taking these conditions into consideration.

- When a problem is detected, there are cases when the indicator stays on until the ignition switch is turned to LOCK (0), and cases when the indicator goes off automatically when the system returns to normal.
  - DTC 61 or 62:
    The ABS and VSA indicators go off automatically when the system returns to normal.
  - DTC 31, 32, 33, 34, 35, 36, 37, 38, 54, 81, 121, 122, 123 or 124:
    The ABS and VSA indicators stay on until the ignition switch is turned to LOCK (0) whether or not the system returns to normal.
  - DTC 11, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 51 or 52:
    The ABS and VSA indicators stay on until the system returns to normal after the engine is restarted, and the vehicle is driven.
  - DTC 25, 26, 27, 64, 65, 66, 68, 83, 86, 91, 104 or 105:
    The VSA indicator stays on until the ignition switch is turned to LOCK (0) whether or not the system returns to normal.
  - DTC 84:
    The VSA activation indicator go off automatically when the system returns to normal.

(cont'd)

General Troubleshooting Information (cont'd)

Diagnostic Trouble Code (DTC)

- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in ascending number order, not in the order they occur.
- The DTCs are memorized in the EEPROM. Therefore, the memorized DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
  - Initial diagnosis: Done right after the ignition switch is turned to ON (II) and until the ABS and VSA indicators go off.
  - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).
- When the system detects a problem, the VSA modulator-control unit shifts to fail-safe mode.

Kickback

The pump motor operates when the VSA modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the VSA modulator-control unit is functioning.
- The VSA modulator-control unit checks the pump motor operation one time after completing initial diagnosis during regular diagnosis when the vehicle is driven over 12 mph (20 km/h). You may hear the motor operate at this time, but it is normal.

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles without the VSA system (see page 19-9).

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the ABS and/or VSA indicator is still on. Following the troubleshooting procedure when the ABS and/or VSA indicator does not come on (no problem is present) can result in incorrect diagnosis.
The connector illustrations show the female terminal connectors with a single outline and the male terminal connectors with a double outline.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS and/or VSA indicator came on, such as during activation, after activation, when the vehicle was traveling at a certain speed, etc. If necessary, have the customer demonstrate the concern.

2. When the ABS or VSA indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor contact of the terminals, etc. before you start troubleshooting.

3. After troubleshooting, or repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions as originally set with the DTCs. Make sure the ABS and VSA indicators do not come on.

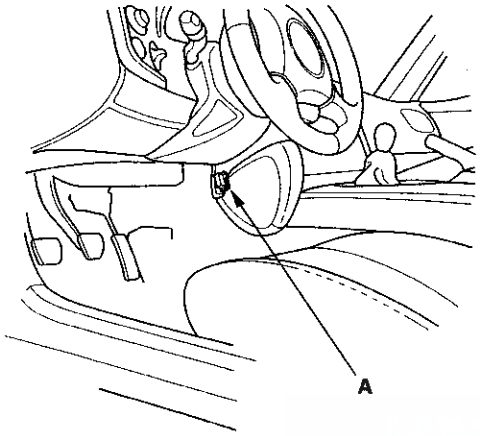
4. Check for DTCs from other systems which connected via F-CAN, if there are DTCs that are related to F-CAN, the most likely cause was that the ignition switch was turned to ON (II) with the VSA modulator-control unit connector disconnected. Clear the DTCs. Check for fuel and emissions codes, and troubleshoot those first.

Intermittent Failures

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the indicator(s) of the system does not come on, check for loose connectors and grounds, poor contact of the terminals related to the circuit that you are troubleshooting.

How to Use the HDS (Honda Diagnostic System)

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Check the diagnostic trouble code (DTC) and note it. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.

   NOTE:
   - The HDS can read the DTC, the current data, and other system data.
   - For specific operations, refer to the Help menu that came with the HDS.

How to Retrieve DTCs

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).

VSA System Components

DTC Troubleshooting Index

DTC	Detection Item	ABS Indicator	Brake System Indicator	VSA Indicator	VSA Activation Indicator	Note
11	Right-front Wheel Speed Sensor (Short to Power/Short to Body Ground /Open)	ON	ON or OFF*	ON	ON	(see page 19-89)
12	Right-front Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	ON	ON or OFF*	ON	ON	(see page 19-92)
13	Left-front Wheel Speed Sensor (Short to Power/Short to Body Ground/Open)	ON	ON or OFF*	ON	ON	(see page 19-89)
14	Left-front Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	ON	ON or OFF*	ON	ON	(see page 19-92)
15	Right-rear Wheel Speed Sensor (Short to Power/Short to Body Ground/Open)	ON	ON or OFF*	ON	ON	(see page 19-89)
16	Right-rear Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	ON	ON or OFF*	ON	ON	(see page 19-92)
17	Left-rear Wheel Speed Sensor (Short to Power/Short to Body Ground/Open)	ON	ON or OFF*	ON	ON	(see page 19-89)
18	Left-rear Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)	ON	ON or OFF*	ON	ON	(see page 19-92)
21	Right-front Pulser	ON	ON or OFF*	ON	ON	(see page 19-94)
22	Left-front Pulser	ON	ON or OFF*	ON	ON	(see page 19-94)
23	Right-rear Pulser	ON	ON or OFF*	ON	ON	(see page 19-94)
24	Left-rear Pulser	ON	ON or OFF*	ON	ON	(see page 19-94)
25	Yaw Rate Sensor	OFF	OFF	ON	ON	(see page 19-94)
26	Lateral Acceleration Sensor	OFF	OFF	ON	ON	(see page 19-94)
27	Steering Angle Sensor	OFF	OFF	ON	ON	(see page 19-96)
31	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)
32	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)
33	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)
34	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)
35	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)
36	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)
37	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)
38	ABS Solenoid	ON	ON	ON	ON	(see page 19-98)

* : Brake system indicator turns ON when two or more wheels fail.

DTC	Detection Item	ABS Indicator	Brake System Indicator	VSA Indicator	VSA Activation Indicator	Note
51	Motor Lock	ON	OFF	ON	ON	(see page 19-98)
52	Motor Stuck ON/OFF	ON	OFF	ON	ON	(see page 19-98)
54	Fail-safe Relay	ON	ON	ON	ON	(see page 19-99)
61	Low +B-FSR Voltage	ON	ON or OFF	ON	ON	(see page 19-100)
62	High +B-FSR Voltage	ON	ON	ON	ON	(see page 19-100)
64	Sensor Power Voltage	OFF	OFF	ON	ON	(see page 19-100)
65	Brake Fluid Level	OFF	OFF	ON	ON	(see page 19-101)
66	VSA Pressure Sensor (Inside of VSA Modulator-control Unit)	OFF	OFF	ON	ON	(see page 19-102)
68	Brake Pedal Position Switch	OFF	OFF	ON	ON	(see page 19-102)
81	Central Processing Unit (CPU)	ON or OFF	ON or OFF	ON	ON	(see page 19-103)
83	ECM Communication	OFF	OFF	ON	ON	(see page 19-104)
84	VSA Sensor Neutral Position	OFF	OFF	OFF	ON	(see page 19-104)
86	F-CAN Communication	OFF	OFF	ON	ON	(see page 19-105)
91	VSA Operation	OFF	OFF	ON	ON	(see page 19-108)
104	Sensor Cluster	OFF	OFF	ON	ON	(see page 19-94)
105	Hydraulic Unit Temperature Sensor	OFF	OFF	ON	ON	(see page 19-111)
121	VSA Solenoid	ON	ON	ON	ON	(see page 19-111)
122	VSA Solenoid	ON	ON	ON	ON	(see page 19-111)
123	VSA Solenoid	ON	ON	ON	ON	(see page 19-111)
124	VSA Solenoid	ON	ON	ON	ON	(see page 19-111)

*: Brake system indicator turns ON when two or more wheels fail.

VSA System Components

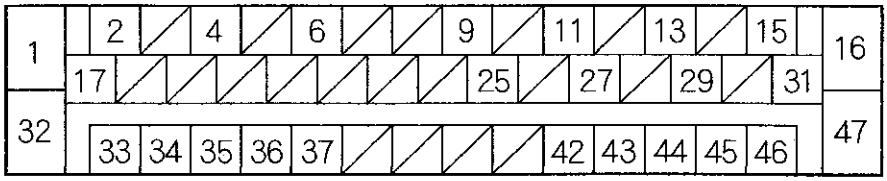
Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure
HDS does not communicate with the VSA modulator-control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-367)
ABS indicator does not come on	Symptom Troubleshooting (see page 19-112)
ABS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 19-113)
Brake system indicator does not come on	Symptom Troubleshooting (see page 19-115)
Brake system indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 19-117)
VSA indicator does not come on	Symptom Troubleshooting (see page 19-119)
VSA indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 19-120)
VSA activation indicator does not come on at start-up (bulb check)	Symptom Troubleshooting (see page 19-122)
VSA activation indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 19-122)

System Description

VSA Modulator-control Unit Inputs and Outputs for 47P Connector



Wire side of female terminals

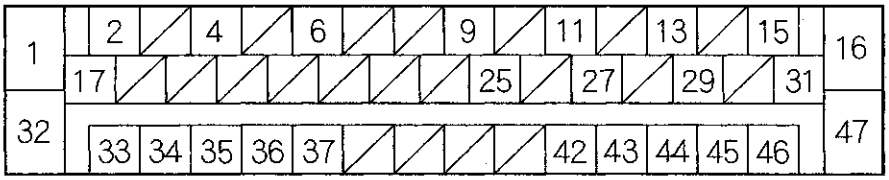
Terminal number	Wire color	Terminal sign	Description	Measurement (Disconnect the VSA modulator-control unit 47P connector)		
				Terminal	Conditions	Result
1	WHT/BLU	+B-P	Power source for the pump motor	1—GND	At all times	Battery voltage
2	GRY	K-LINE	Communicates with HDS	———	———	———
4	BLK/YEL	IG1	Power source for activating the system	4—GND	Ignition switch ON (II)	Battery voltage
6	GRN/WHT	CLST-IG	Power source for the sensor cluster	———	———	———
9	GRN/RED	BFLS	Detects brake fluid level switch	9—GND	Ignition switch ON (II) and brake fluid level: High	Battery voltage
					Ignition switch ON (II) and brake fluid level: Low	1.0 V or less
11	RED	CAN1-H	F-CAN communication circuit	———	———	———
13	PNK	WL-EBD	Drives brake system indicator	13—GND	Ignition switch ON (II)	Battery voltage
15	WHT	CAN1-L	F-CAN communication circuit	———	———	———
16	BLK	GND-V	Ground for the VSA modulator-control unit	16—GND	At all times	Continuity
17	PNK/BLK	VSA	Drives VSA indicator	17—GND	Ignition switch ON (II)	Battery voltage
25	RED	CAN2-L	CAN2 communication circuit	———	———	———
27	WHT	VSA OFF SW	Detects VSA OFF switch signal	———	———	———
29	WHT	CAN2-H	CAN2 communication circuit	———	———	———

(cont'd)

VSA System Components

System Description (cont'd)

VSA Modulator-control Unit Inputs and Outputs for 47P Connector (cont'd)



Wire side of female terminals

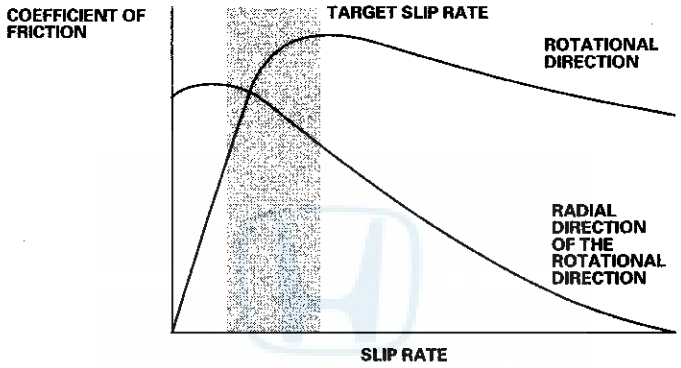
Terminal number	Wire color	Terminal sign	Description	Measurement (Disconnect the VSA modulator-control unit 47P connector)		
				Terminal	Conditions	Result
31	LT GRN	CLST-GND	Ground for the sensor cluster	—	—	—
32	WHT/RED	+B-V	Power source for the fail-safe relay	32—GND	At all times	Battery voltage
33	BLU	FRS (—)	Detects right-front wheel speed sensor signal	—	—	—
34	GRN/BLK	FRS (+)		—	—	—
35	GRN	ACT	Drives VSA activation indicator	35—GND	Ignition switch ON (II)	Battery voltage
36	YEL/RED	RLS (+)	Detects left-rear wheel speed sensor signal	—	—	—
37	GRY/RED	RLS (—)		—	—	—
42	BLU/YEL	RRS (—)	Detects right-rear wheel speed sensor signal	—	—	—
43	GRN/WHT	RRS (+)				
44	BLU/RED	ABS	Drives ABS indicator	44—GND	Ignition switch ON (II)	Battery voltage
45	BLU/ORN	FLS (+)	Detects left-front wheel speed sensor signal	—	—	—
46	BRN/WHT	FLS (—)				
47	BLK	GND-P	Ground for the pump motor	47—GND	At all times	Continuity

ABS Features

When the brake pedal is pressed while driving, the wheels can lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. The ABS precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures maneuverability and stability of the vehicle.

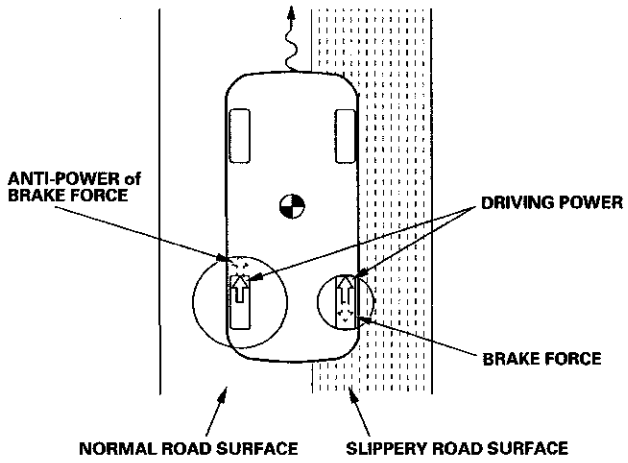
The ABS calculates the slip rate of the wheels based on the vehicle speed and the wheel speed, and then it controls the brake fluid pressure to reach the target slip rate.

Grip force of tire and road surface



TCS Features

The TCS provides low-speed traction. When a drive wheel loses traction on a slippery road surface and starts to spin, the VSA modulator-control unit applies brake pressure to slow the spinning wheel. At that time, the VSA modulator-control unit sends a traction control signal to the ECM to reduce engine power.

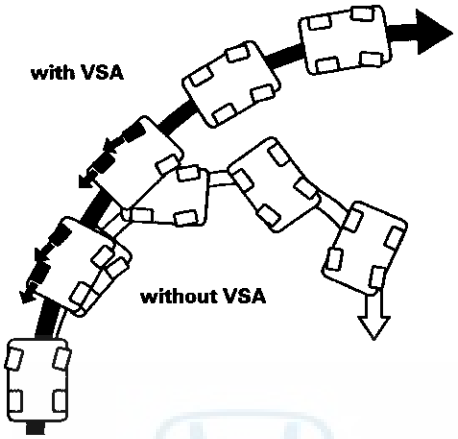


(cont'd)

System Description (cont'd)

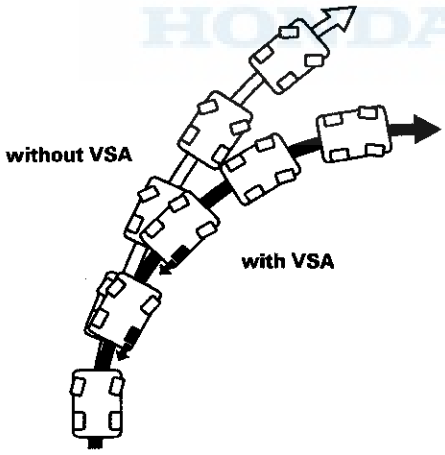
VSA System Features

Oversteer control
Applies the brake to the front and rear outside wheels



The brake makes the yaw rate opposite to the turning direction

Understeer control
- Applies the brake to the rear inside wheel
- Controls the engine torque when accelerating



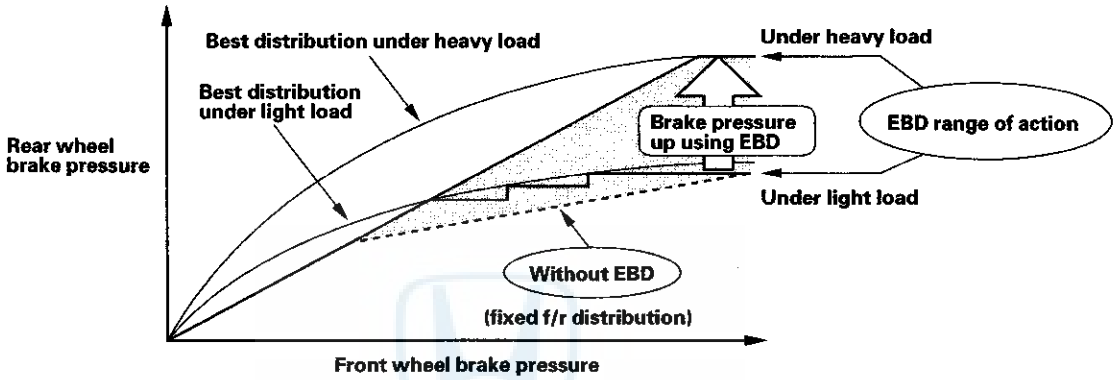
The brake increases the yaw rate toward the turning direction

The throttle control effect;
- **reduces vehicle speed**
- **increases cornering force**

Electronic Brake Distribution (EBD)

Electronic brake distribution (EBD) has been added to the VSA system. EBD eliminates the need for an external, mechanical proportioning valve and improves overall braking performance.

When the vehicle is heavily loaded, most of the increase in weight is born by the rear wheels, increasing braking capability. Proportioning valves maintain a fixed distribution of brake pressure between the front and the rear wheels, making it very difficult to fully utilize increased rear wheel braking capability. EBD varies brake pressure distribution according to load, using input from the wheel speed sensors, which improves overall braking performance.



Normal Braking
Under normal braking conditions, brake pressure is evenly distributed between the front and rear brakes, and EBD is not used.

Firm Braking
Under hard braking conditions, the VSA modulator-control unit monitors wheel speed in order to allow a maximum amount of brake distribution individually to the rear wheels. Once the VSA modulator-control unit detects that one or both rear wheels are nearing their maximum braking potential, the inlet valve closes for one or both rear wheels, maintaining the current pressure. If the traction is improved, and the wheel(s) is no longer nearing its limits, the VSA modulator-control unit will open the inlet solenoid allowing additional pressure to be distributed to the rear wheel. The rear wheels are controlled independently of each other during EBD function.

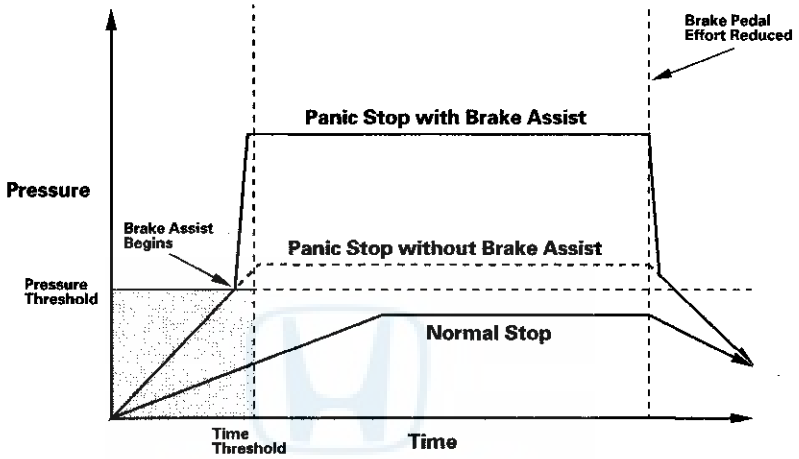
If during EBD function the VSA modulator-control unit determines that the wheels are beginning to slip more than a predetermined amount, the control unit abandons EBD control and shifts to select low 3-channel ABS control.

(cont'd)

System Description (cont'd)

Brake Assist Features

Brake assist helps ensure that any driver can achieve the full braking potential of the vehicle by increasing brake system pressure in a panic situation, bringing the vehicle into a full ABS stop.
If during a panic stop the VSA modulator-control unit determines that the brake system pressure increases above a threshold in less than a certain amount of time, the VSA modulator-control unit engages brake assist.
Because the brake system pressure crossed the pressure threshold before the time threshold had expired, the VSA modulator-control unit goes into brake assist mode.



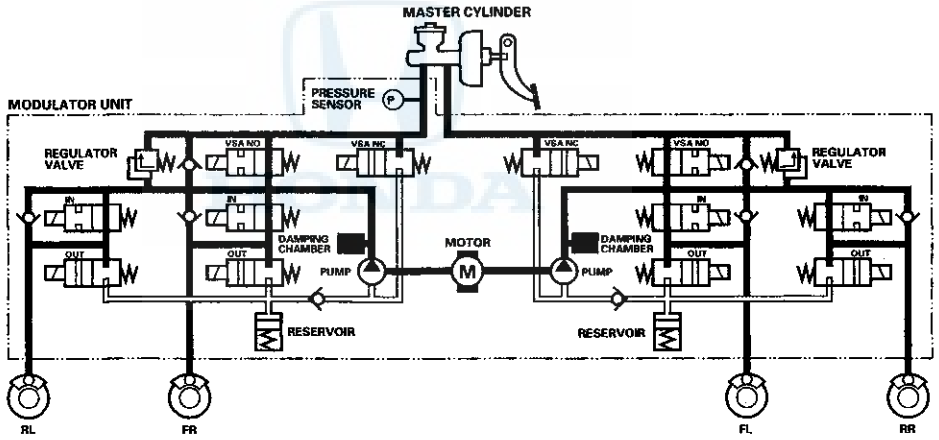
Modulator Unit

The modulator unit consists of the inlet solenoid valve, outlet solenoid valve, VSA normally open (NO) solenoid valve, VSA normally closed (NC) solenoid valve, reservoir, pump, pump motor, and the damping chamber.
The modulator controls the caliper fluid pressure directly. It is a circulating-type modulator because the brake fluid circulates through the caliper, the reservoir, and the master cylinder.
The hydraulic control has three modes: pressure intensifying, pressure retaining, and pressure reducing.
The hydraulic circuit is an independent four channel type, one channel for each wheel.

ABS Control

Pressure Intensifying Mode
VSA NO valve open, VSA NC valve closed, inlet valve open, outlet valve closed.
Master cylinder fluid is pumped out to the caliper.

Pump Motor
When starting the pressure reducing mode, the pump motor is ON. When stopping ABS operation, the pump motor is OFF.
The reservoir fluid is pumped out by the pump, through the damping chamber, to the master cylinder.

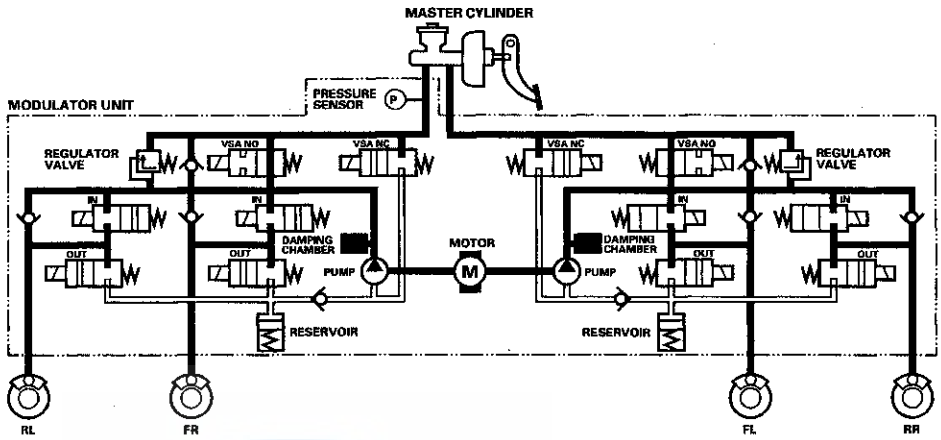


(cont'd)

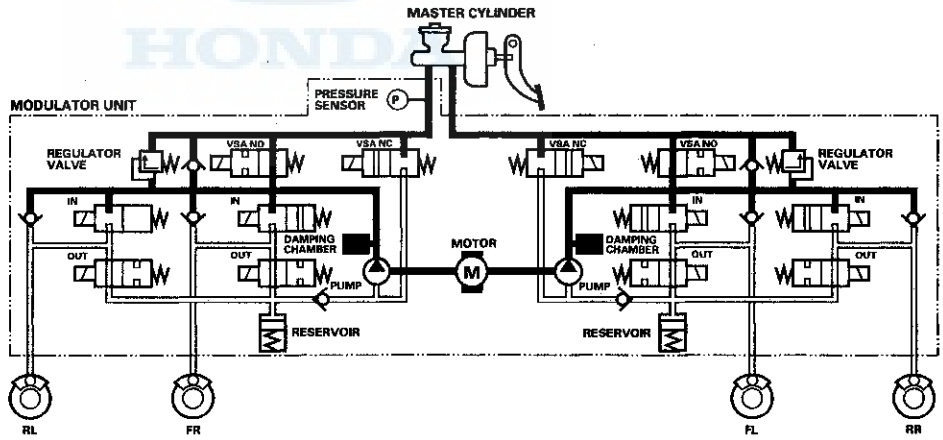
VSA System Components

System Description (cont'd)

Pressure Retaining Mode
VSA NO valve open, VSA NC valve closed, inlet valve closed, outlet valve closed.
Caliper fluid is retained by the inlet valve and outlet valve.



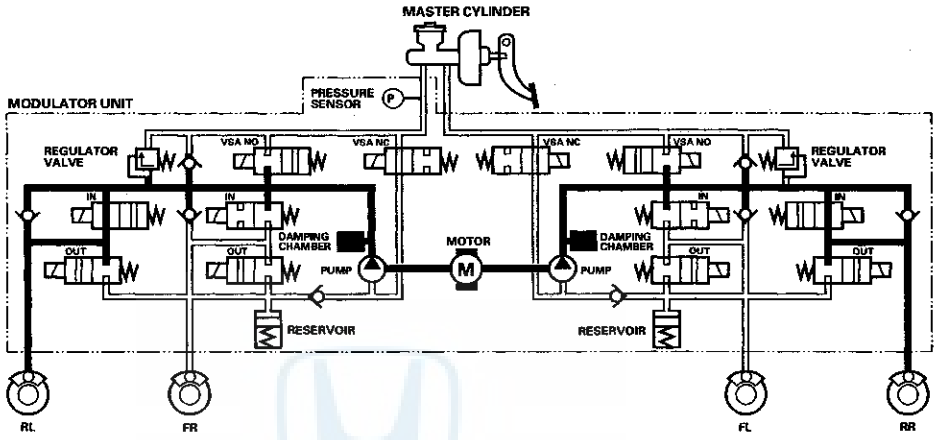
Pressure Reducing Mode
VSA NO valve open, VSA NC valve closed, inlet valve closed, outlet valve open.
Caliper fluid flows through the outlet valve to the reservoir.



TCS Control

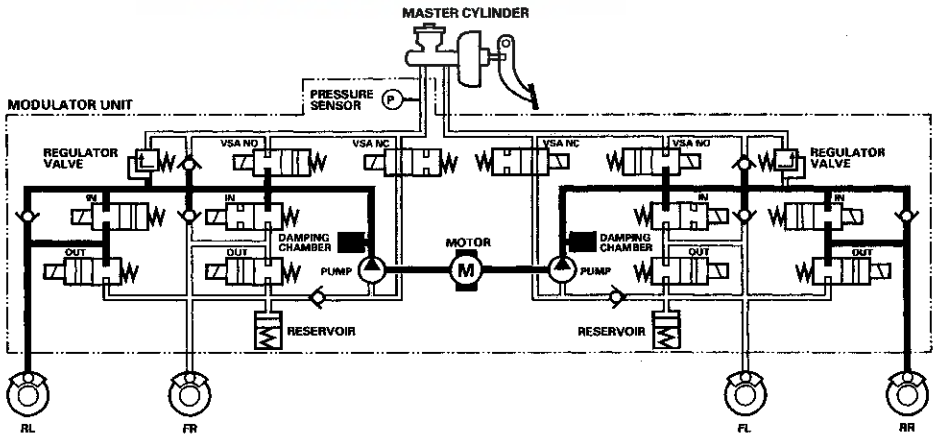
Pressure Intensifying Mode

VSA NO valve closed, VSA NC valve open, inlet valve open, outlet valve closed, pump motor ON.
The reservoir and master cylinder fluid is pumped out by the pump, through the damping chamber, to the rear caliper.



Pressure Retaining Mode

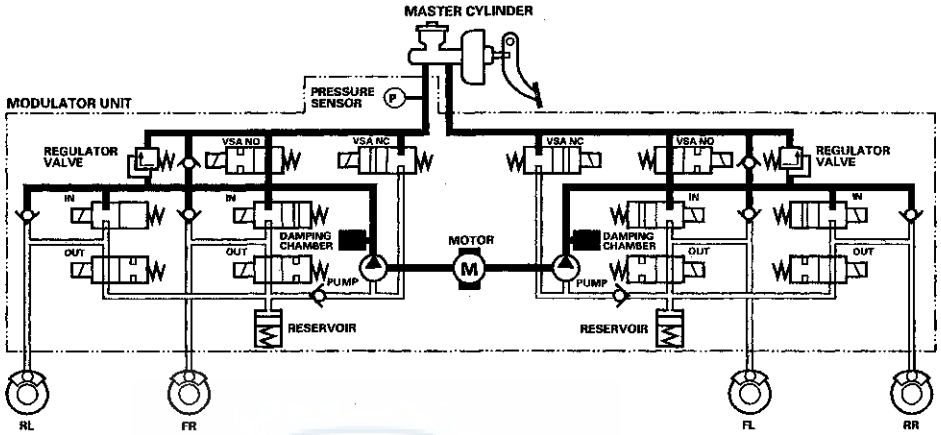
VSA NO valve closed, VSA NC valve open, inlet valve closed, outlet valve closed, pump motor ON.
Rear caliper fluid is retained by the inlet valve and outlet valve.



(cont'd)

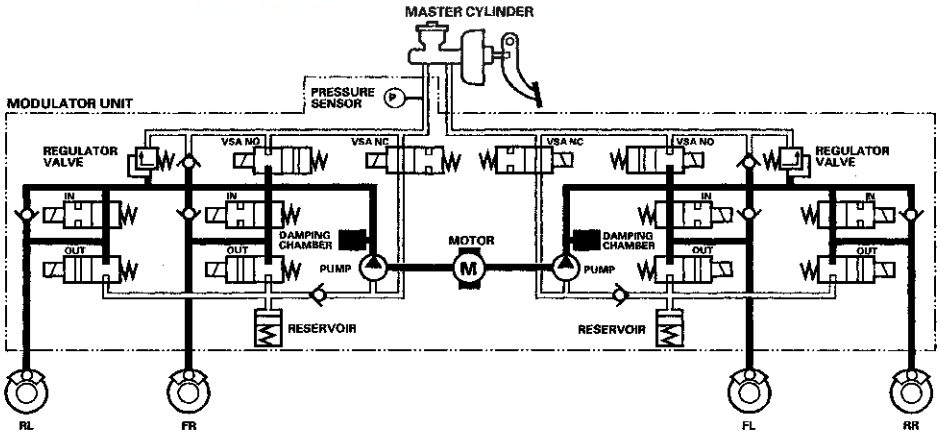
System Description (cont'd)

Pressure Reducing Mode
VSA NO valve open, VSA NC valve closed, inlet valve closed, rear outlet valve open, pump motor ON.
Caliper fluid flows through the outlet valve to the reservoir.



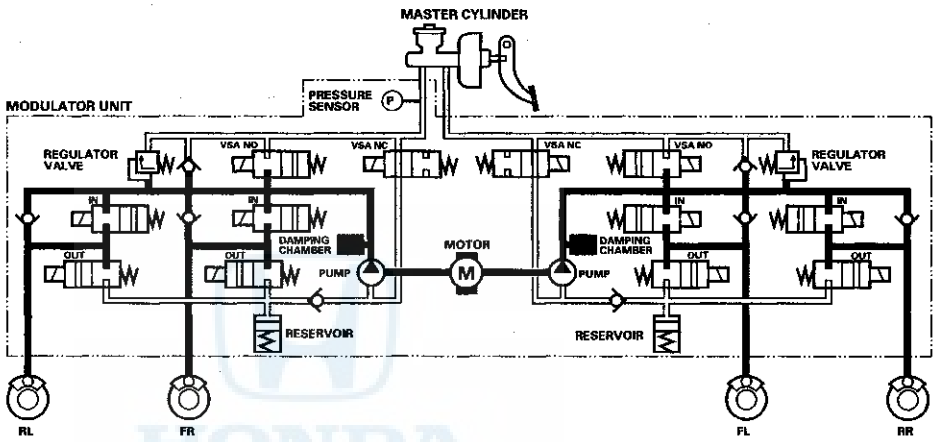
VSA Control

Pressure Intensifying Mode
VSA NO valve closed, VSA NC valve open, inlet valve open, outlet valve closed, pump motor ON.
The reservoir and master cylinder fluid is pumped out by the pump, through the damping chamber, to the front and rear calipers.



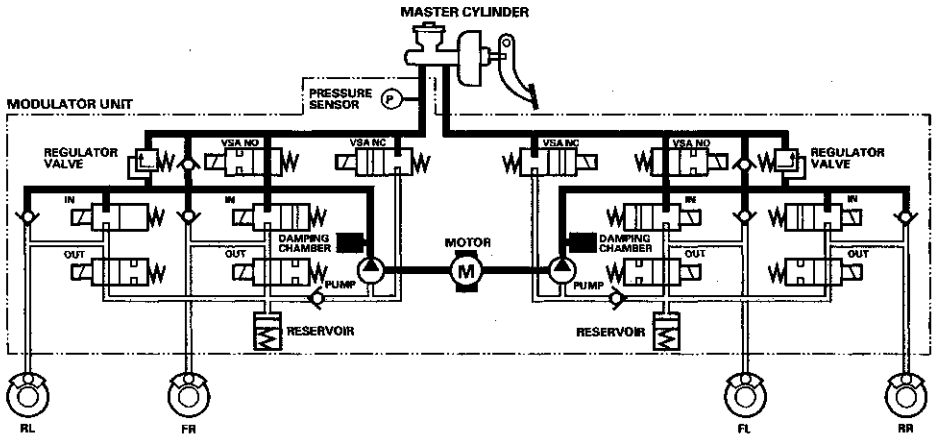
Pressure Retaining Mode

VSA NO valve closed, VSA NC valve open, inlet valve closed, outlet valve closed, pump motor ON. Front and rear caliper fluid is retained by the inlet valve and outlet valve.



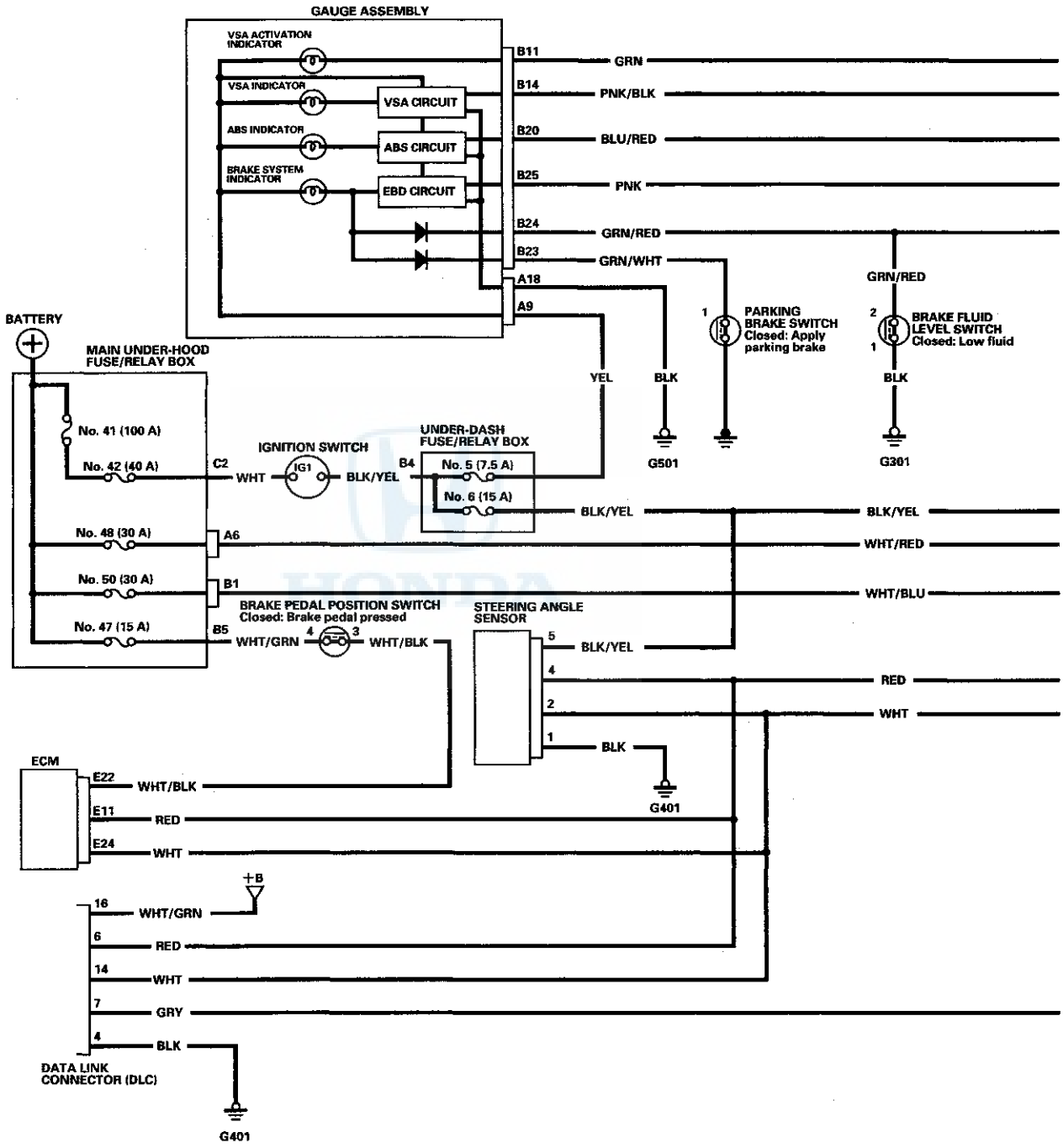
Pressure Reducing Mode

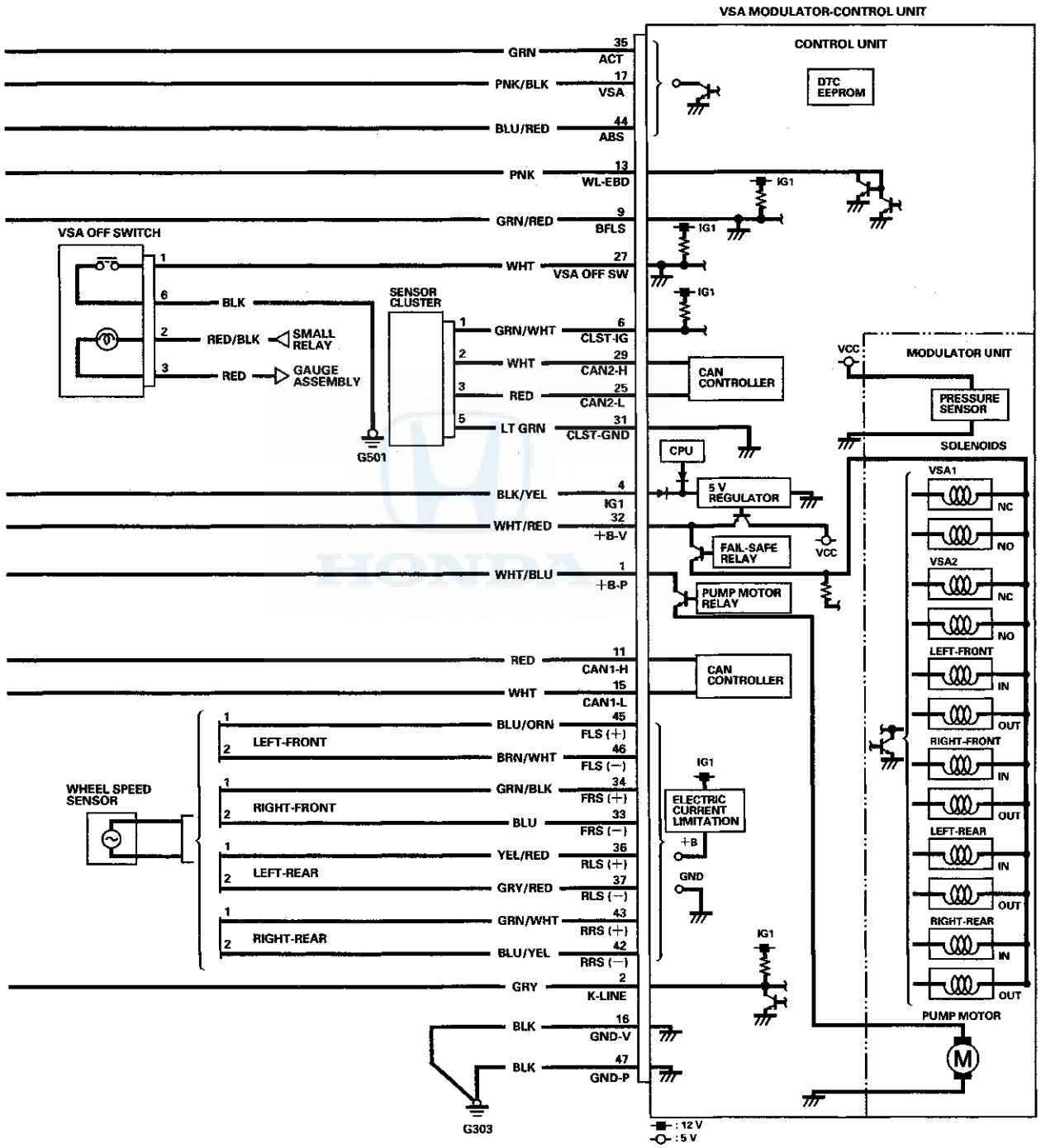
VSA NO valve open, VSA NC valve closed, inlet valve closed, outlet valve open, pump motor ON. Caliper fluid flows through the outlet valve to the reservoir.



VSA System Components

Circuit Diagram



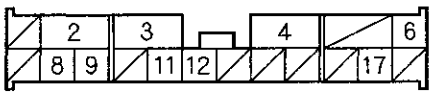

VSA MODULATOR-CONTROL UNIT
CONTROL UNIT
DTC EEPROM
GRN 35 ACT
PNK/BLK 17 VSA
BLU/RED 44 ABS
PNK 13 WL-EBD
GRN/RED 9 BFLS
WHT 27 VSA OFF SW
VSA OFF SWITCH
BLK
RED/BLK
SMALL RELAY
RED
GAUGE ASSEMBLY
SENSOR CLUSTER
GRN/WHT 6 CLST-IG
WHT 29 CAN2-H
RED 25 CAN2-L
LT GRN 31 CLST-GND
G501
BLK/YEL 4 IG1
WHT/RED 32 +B-V
WHT/BLU 1 +B-P
IG1
CAN CONTROLLER
CPU
5 V REGULATOR
FAIL-SAFE RELAY
PUMP MOTOR RELAY
VCC
MODULATOR UNIT
PRESSURE SENSOR
SOLENOIDS
VSA1
VSA2
NC
NO
LEFT-FRONT
RIGHT-FRONT
LEFT-REAR
RIGHT-REAR
IN
OUT
PUMP MOTOR
RED 11 CAN1-H
WHT 15 CAN1-L
WHEEL SPEED SENSOR
BLU/ORN 45 FLS (+)
BRN/WHT 46 FLS (−)
GRN/BLK 34 FRS (+)
BLU 33 FRS (−)
YEL/RED 36 RLS (+)
GRY/RED 37 RLS (−)
GRN/WHT 43 RRS (+)
BLU/YEL 42 RRS (−)
ELECTRIC CURRENT LIMITATION
+B
GND
GRY 2 K-LINE
BLK 16 GND-V
BLK 47 GND-P
G303
: 12 V
: 5 V

(cont'd)

VSA System Components

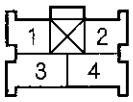
Circuit Diagram (cont'd)

MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR A (18P)

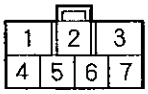


BRAKE FLUID LEVEL SWITCH 2P CONNECTOR

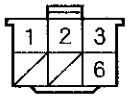
BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



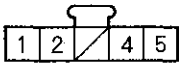
MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR B (7P)



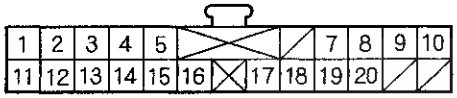
VSA OFF SWITCH 6P CONNECTOR



STEERING ANGLE SENSOR 5P CONNECTOR

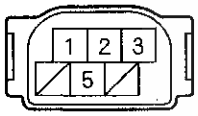


GAUGE ASSEMBLY CONNECTOR A (22P)

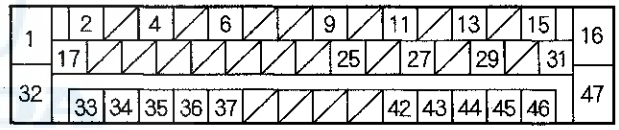


GAUGE ASSEMBLY CONNECTOR B (30P)

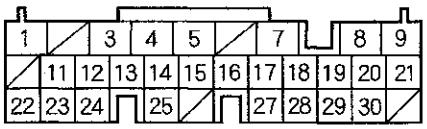
SENSOR CLUSTER 6P CONNECTOR



VSA MODULATOR-CONTROL UNIT 47P CONNECTOR

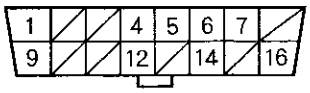


ECM CONNECTOR E (31P)



Wire side of female terminals

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

WHEEL SPEED SENSOR 2P CONNECTOR

Terminal side of male terminals

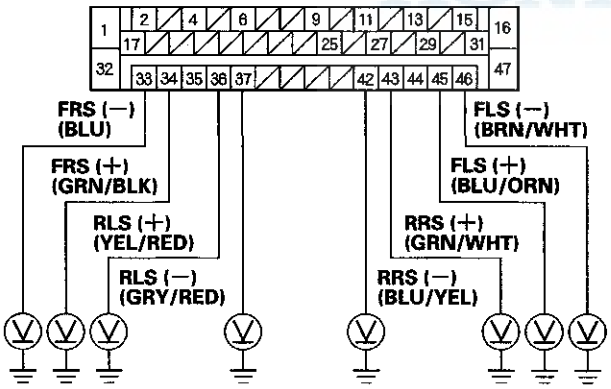
DTC Troubleshooting

DTC 11, 13, 15, 17: Wheel Speed Sensor (Short to Power/Short to Body Ground/Open)

1. Turn the ignition switch to LOCK (0).
2. Disconnect the VSA modulator-control unit 47P connector.
3. Start the engine.
4. Measure the voltage between body ground and the appropriate wheel speed sensor (+) and (−) terminals of the VSA modulator-control unit 47P connector individually (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	FRS (+): No. 34	FRS (−): No. 33
13 (Left-front)	FLS (+): No. 45	FLS (−): No. 46
15 (Right-rear)	RRS (+): No. 43	RRS (−): No. 42
17 (Left-rear)	RLS (+): No. 36	RLS (−): No. 37

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

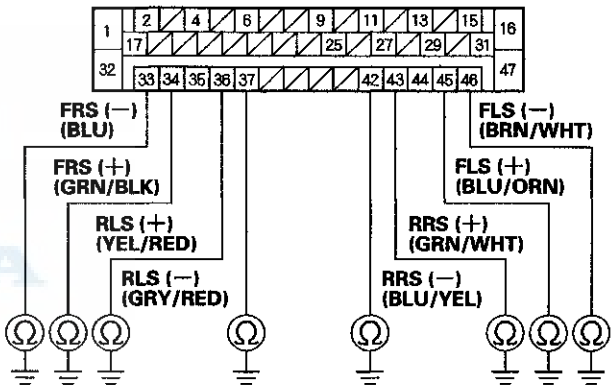
YES—Repair short to power in the wire between the VSA modulator-control unit and the appropriate wheel speed sensor. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Check for continuity between body ground and the appropriate wheel speed sensor (+) and (−) terminals of the VSA modulator-control unit 47P connector individually (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	FRS (+): No. 34	FRS (−): No. 33
13 (Left-front)	FLS (+): No. 45	FLS (−): No. 46
15 (Right-rear)	RRS (+): No. 43	RRS (−): No. 42
17 (Left-rear)	RLS (+): No. 36	RLS (−): No. 37

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 7.

NO—Go to step 9.

(cont'd)

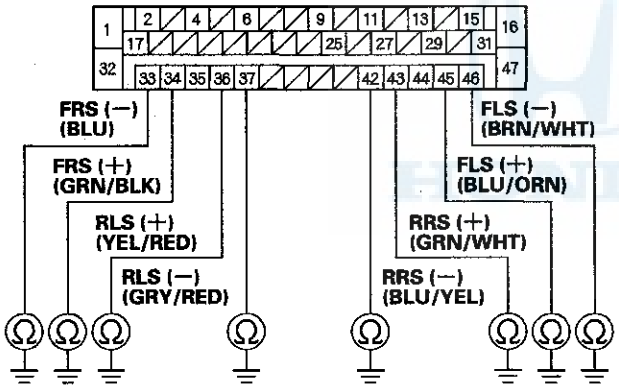
DTC Troubleshooting (cont'd)

7. Disconnect the appropriate wheel speed sensor 2P connector.

8. Check for continuity between body ground and the appropriate wheel speed sensor (+) and (−) terminals of the VSA modulator-control unit 47P connector individually (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	FRS (+): No. 34	FRS (−): No. 33
13 (Left-front)	FLS (+): No. 45	FLS (−): No. 46
15 (Right-rear)	RRS (+): No. 43	RRS (−): No. 42
17 (Left-rear)	RLS (+): No. 36	RLS (−): No. 37

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the VSA modulator-control unit and the wheel speed sensor. ■

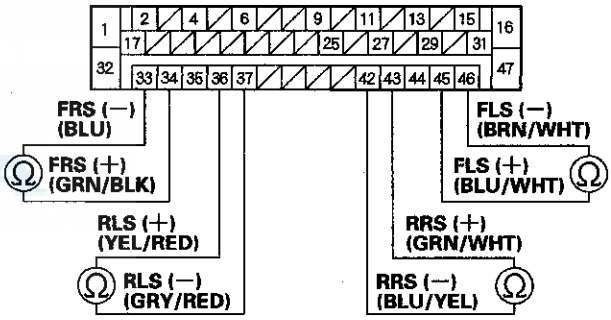
NO—Replace the wheel speed sensor (see page 19-129). ■

9. Disconnect the appropriate wheel speed sensor 2P connector.

10. Check for continuity between the appropriate wheel speed sensor (+) and (−) terminals of the VSA modulator-control unit 47P connector (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	FRS (+): No. 34	FRS (−): No. 33
13 (Left-front)	FLS (+): No. 45	FLS (−): No. 46
15 (Right-rear)	RRS (+): No. 43	RRS (−): No. 42
17 (Left-rear)	RLS (+): No. 36	RLS (−): No. 37

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

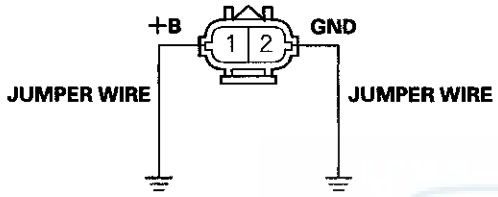
YES—Repair short in the wires between the VSA modulator-control unit and the wheel speed sensor. ■

NO—Go to step 11.

11. Connect wheel speed sensor 2P connector terminals No. 1 and No. 2 to body ground with a jumper wire.

DTC	Appropriate Wheel Speed Sensor
11	Right-front
13	Left-front
15	Right-rear
17	Left-rear

WHEEL SPEED SENSOR 2P CONNECTOR

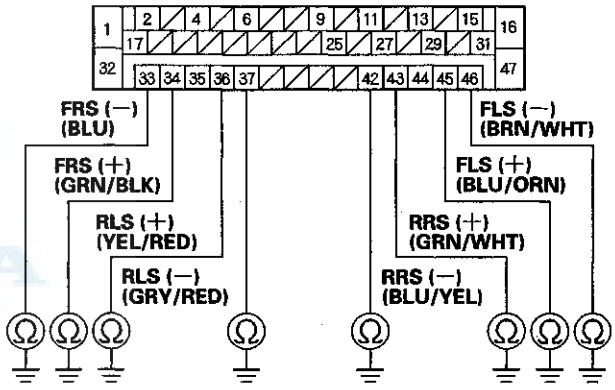


Terminal side of male terminals

12. Check for continuity between body ground and the appropriate wheel speed sensor (+) and (−) terminals of the VSA modulator-control unit 47P connector individually (see table).

DTC	Appropriate Terminal	
	(+) Side	(−) Side
11 (Right-front)	FRS (+): No. 34	FRS (−): No. 33
13 (Left-front)	FLS (+): No. 45	FLS (−): No. 46
15 (Right-rear)	RRS (+): No. 43	RRS (−): No. 42
17 (Left-rear)	RLS (+): No. 36	RLS (−): No. 37

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair open in the wires between the VSA modulator-control unit and the wheel speed sensor. ■

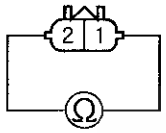
(cont'd)

DTC Troubleshooting (cont'd)

13. On the sensor side, measure the resistance between the (+) and (−) terminals of the appropriate wheel speed sensor.

DTC	Appropriate Wheel Speed Sensor
11	Right-front
13	Left-front
15	Right-rear
17	Left-rear

WHEEL SPEED SENSOR 2P CONNECTOR



Terminal side of female terminals

Is the resistance between 450—2,000 Ω ?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

NO—Replace the wheel speed sensor (see page 19-129). ■

DTC 12, 14, 16, 18: Wheel Speed Sensor (Electrical Noise/Intermittent Interruption)

NOTE: If the ABS indicator and VSA indicator come on because of electrical noise, the indicators go off when you test-drive the vehicle at 19 mph (30 km/h).

1. Turn the ignition switch to LOCK (0).
2. Check the appropriate wheel speed sensor and pulser (see page 19-129).

DTC	Appropriate Wheel Speed Sensor
12	Right-front
14	Left-front
16	Right-rear
18	Left-rear

Are they OK?

YES—Go to step 3.

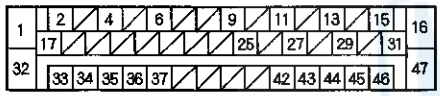
NO—Reinstall or replace the appropriate wheel speed sensor or pulser. ■

3. Disconnect the VSA modulator-control unit 47P connector.

4. Check for continuity between the appropriate wheel speed sensor (—) terminal and other wheel speed sensor (—) terminals of the VSA modulator-control unit 47P connector (see table).

DTC	Appropriate Terminal	Other Terminals		
12	FRS (—): No. 33	No. 46	No. 42	No. 37
14	FLS (—): No. 46	No. 33	No. 42	No. 37
16	RRS (—): No. 42	No. 33	No. 46	No. 37
18	RLS (—): No. 37	No. 33	No. 46	No. 42

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the appropriate wheel speed sensor and the other wheel speed sensor. ■

NO—Go to step 5.

5. Substitute a known-good wheel speed sensor for the appropriate wheel speed sensor (see table).

DTC	Appropriate Wheel Speed Sensor
12	Right-front
14	Left-front
16	Right-rear
18	Left-rear

6. Reconnect all of the disconnected connectors.
7. Turn the ignition switch to ON (II).
8. Clear the DTC with the HDS.
9. Turn the ignition switch to LOCK (0), then disconnect the HDS.
10. Test-drive the vehicle at 19 mph (30 km/h) or more.
11. Check for DTCs with the HDS.

Is DTC 12, 14, 16, or 18 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

NO—Replace the original wheel speed sensor or pulser (see page 19-129). ■

DTC Troubleshooting (cont'd)

DTC 21, 22, 23, 24: Pulser

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then disconnect the HDS.
4. Test-drive the vehicle at 19 mph (30 km/h) or more.
5. Check for DTCs with the HDS.

   Is DTC 21, 22, 23, or 24 indicated?

   YES—Go to step 6.

   NO—The system is OK at this time.■
6. Check the appropriate pulser (see table) (see page 19-129).

DTC	Appropriate Pulser
21	Right-front
22	Left-front
23	Right-rear
24	Left-rear

   Is the pulser OK?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

   NO—Replace the pulser.■

DTC 25: Yaw Rate Sensor

DTC 26: Lateral Acceleration Sensor

DTC 104: Sensor Cluster

1. Check the size, air pressure, and amount of wear of all four tires, and the wheel alignment (see page 18-7).

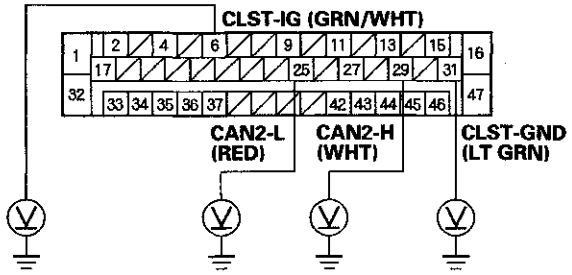
   Is the tire condition and wheel alignment OK?

   YES—Go to step 2.

   NO—Make sure the suspension is not modified, and adjust the wheel alignment correctly, and recheck by test-driving.■
2. Turn the ignition switch to LOCK (0).
3. Disconnect the sensor cluster 6P connector.
4. Disconnect the VSA modulator-control unit 47P connector.
5. Turn the ignition switch to ON (II).

6. Measure the voltage between body ground and VSA modulator-control unit 47P connector terminals No. 6, No. 25, No. 29, and No. 31 individually.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

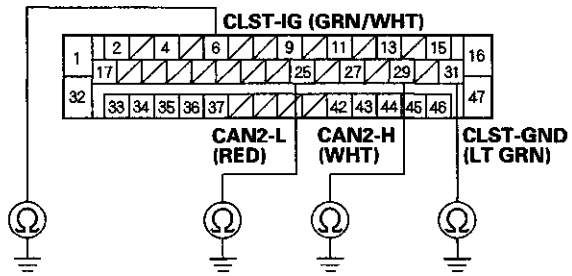
YES—Repair short to power in the wire between the VSA modulator-control unit and the sensor cluster. ■

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).

8. Check for continuity between body ground and VSA modulator-control unit 47P connector terminals No. 6, No. 25, No. 29, and No. 31 individually.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

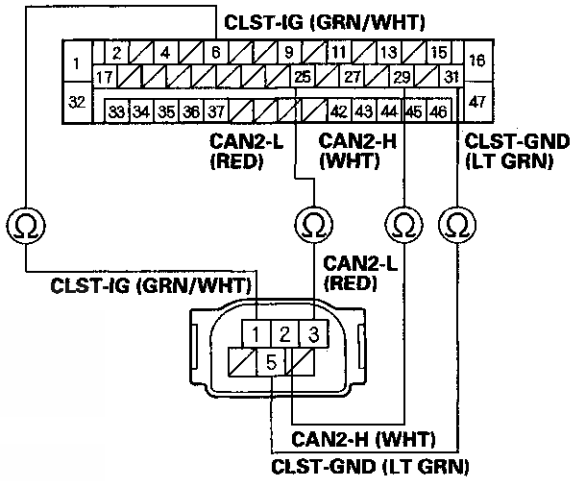
Is there continuity?

YES—Repair short to body ground in the wire between the VSA modulator-control unit and the sensor cluster. ■

NO—Go to step 9.

9. Check for continuity between VSA modulator-control unit 47P connector terminals No. 6, No. 25, No. 29, and No. 31 and sensor cluster 6P connector terminals No. 1, No. 3, No. 2, and No. 5.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR
Wire side of female terminals



SENSOR CLUSTER 6P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the VSA modulator-control unit and the sensor cluster. ■

(cont'd)

DTC Troubleshooting (cont'd)

10. Substitute a known-good sensor cluster (see page 19-125).

    NOTE: Check that the sensor cluster mounting bracket is not bent or twisted, and make sure the sensor cluster is mounted properly and fixed.

11. Reconnect all of the disconnected connectors.

12. Turn the ignition switch to ON (II).

13. Clear the DTC with the HDS.

14. Do the VSA sensor neutral position memorization (see page 19-125).

15. Turn the ignition switch to LOCK (0), then disconnect the HDS.

16. Test-drive the vehicle around a number of corners.

17. Check for DTCs with the HDS.

    Is DTC 25, 26, or 104 indicated?

    YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

    NO—If any DTCs are indicated, go to the indicated DTCs troubleshooting. If DTC is not indicated, replace the sensor cluster (see page 19-125). ■

DTC 27: Steering Angle Sensor

1. Check the size, air pressure, and amount of wear of all four tires, and the wheel alignment (see page 18-7).

   Is the tire condition and wheel alignment OK?

   YES—Go to step 2.

   NO—Make sure the suspension is not modified, and adjust the wheel alignment correctly, and recheck by test-driving. ■

2. Turn the ignition switch to ON (II).

3. Clear the DTC with the HDS.

4. Slowly drive the vehicle straight ahead without turning the steering wheel for 10 ft (3 m) or more, then park the vehicle while holding the steering wheel in the straight ahead position.

5. Check the STEERING ANGLE in the VSA DATA LIST with the HDS.

   Is it 0° ±3 °?

   YES—Go to step 7.

   NO—Go to step 6.

6. Do the VSA sensor neutral position memorization (see page 19-125).

7. Turn the ignition switch to LOCK (0), then disconnect the HDS.

8. Test-drive the vehicle around a number of corners.
9. Check the DTCs with the HDS.

   Is DTC 27 indicated?

   YES—Go to step 10.

   NO—If the DTC 86 is indicated, do the DTC 86 troubleshooting (see page 19-105). If no DTCs are indicated, the system is OK at this time.■
10. Turn the ignition switch to LOCK (0).
11. Substitute a known-good steering angle sensor (see page 19-124).

    NOTE: Make sure the steering angle sensor and combination switch are mounted properly (see page 19-124).
12. Turn the ignition switch to ON (II).
13. Clear the DTC with the HDS.
14. Do the VSA sensor neutral position memorization (see page 19-125).
15. Turn the ignition switch to LOCK (0), then disconnect the HDS.
16. Test-drive the vehicle around a number of corners.
17. Check for DTCs with the HDS.

    Is DTC 27 indicated?

    YES—Go to step 18.

    NO—Replace the original steering angle sensor (see page 19-124).■
18. Turn the ignition switch to LOCK (0).
19. Substitute a known-good sensor cluster (see page 19-125).

    NOTE: Check that the sensor cluster mounting bracket is not bent or twisted, and make sure the sensor cluster is mounted properly and fixed.
20. Turn the ignition switch to ON (II).
21. Clear the DTC with the HDS.
22. Do the VSA sensor neutral position memorization (see page 19-125).
23. Turn the ignition switch to LOCK (0), then disconnect the HDS.
24. Test-drive the vehicle around a number of corners.
25. Check for DTCs with the HDS.

    Is DTC 27 indicated?

    YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

    NO—Replace the original sensor cluster (see page 19-125).■

DTC Troubleshooting (cont'd)

DTC 31, 32, 33, 34, 35, 36, 37, 38: ABS Solenoid

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 31, 32, 33, 34, 35, 36, 37, or 38 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

   NO—The system is OK at this time.■

DTC 51: Motor Lock

DTC 52: Motor Stuck ON/OFF

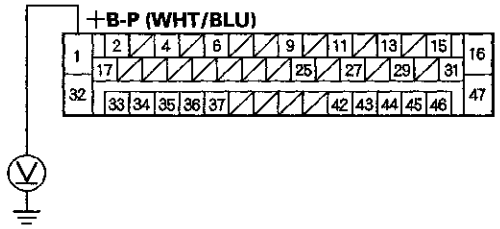
1. Turn the ignition switch to LOCK (0).
2. Check the No. 50 (30 A) fuse in the main under-hood fuse/relay box.

   Is the fuse blown?

   YES—Install the new No. 50 (30 A) fuse, and recheck. If the fuse continues to blow, check for short to body ground in the wire between the No. 50 (30 A) fuse in the main under-hood fuse/relay box and the VSA modulator-control unit. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

   NO—Reinstall the checked fuse, then go to step 3.
3. Disconnect the VSA modulator-control unit 47P connector.
4. Measure the voltage between VSA modulator-control unit 47P connector terminal No. 1 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

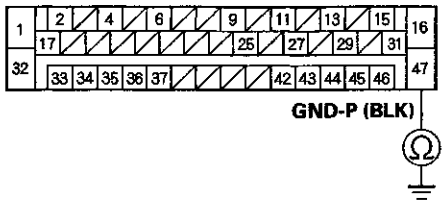
Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the No. 50 (30 A) fuse in the main under-hood fuse/relay box and the VSA modulator-control unit.■

5. Check for continuity between VSA modulator-control unit 47P connector terminal No. 47 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 6.

NO—Repair open in the wire between the VSA modulator-control unit and body ground (G303).■

6. Reconnect the VSA modulator-control unit 47P connector.
7. Turn the ignition switch to ON (II).
8. Clear the DTC with the HDS.
9. Turn the ignition switch to LOCK (0), then disconnect the HDS.
10. Test-drive the vehicle at 10 mph (15 km/h) or more.
11. Check for DTCs with the HDS.

Is DTC 51 or DTC 52 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

NO—The system is OK at this time.■

DTC 54: Fail-safe Relay

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then disconnect the HDS.
4. Test-drive the vehicle.
5. Check for DTCs with the HDS.

Is DTC 54 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

NO—Intermittent failure; the vehicle is OK at this time.■

DTC Troubleshooting (cont'd)

DTC 61: Low +B-FSR Voltage

DTC 62: High +B-FSR Voltage

NOTE: If the vehicle has high electric load or a weak battery, DTC 61 may be stored when starting the engine.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.

   Does the ABS indicator come on?

   YES—Go to step 4.

   NO—The system is OK at this time. ■
4. Check for DTCs with the HDS.

   Is DTC 61 or 62 indicated?

   YES—Check the charging system (see page 4-36). ■

   NO—Do the appropriate troubleshooting for the DTC indicated. ■

DTC 64: Sensor Power Voltage

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then disconnect the HDS.
4. Test-drive the vehicle.
5. Check for DTCs with the HDS.

   Is DTC 64 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

   NO—The system is OK at this time. ■

DTC 65: Brake Fluid Level

1. Check the brake fluid level in the master cylinder reservoir.

   Is brake fluid level OK?

   YES—Go to step 2.

   NO—Inspect the brake pads: Front (see page 19-13), rear (see page 19-22), and replace worn out brake pads, then recheck. ■

2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0).
5. Disconnect the brake fluid level switch 2P connector.
6. Turn the ignition switch to ON (II).
7. Check for DTCs with the HDS.

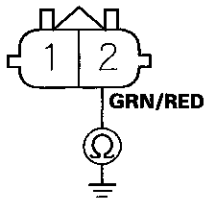
   Is DTC 65 indicated?

   YES—Go to step 8.

   NO—Replace the reservoir (brake fluid level switch is included) on the master cylinder (see page 19-18). ■

8. Turn the ignition switch to LOCK (0).
9. Disconnect the VSA modulator-control unit 47P connector.
10. Disconnect the gauge assembly connector B (30P).
11. Check for continuity between brake fluid level switch 2P connector terminal No. 2 and body ground.

BRAKE FLUID LEVEL SWITCH 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the gauge assembly or the VSA modulator-control unit and the brake fluid level switch. ■

NO—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

DTC Troubleshooting (cont'd)

DTC 66: VSA Pressure Sensor (Inside of VSA Modulator-control Unit)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then disconnect the HDS.
4. Test-drive the vehicle.
5. Check for DTCs with the HDS.

   Is DTC 66 indicated?

   YES—Replace the VSA modulator-control unit (see page 19-127).■

   NO—The system is OK at this time.■

DTC 68: Brake Pedal Position Switch

1. Turn the ignition switch to ON (II).
2. Check for other DTCs.

   Is another DTC indicated?

   YES—Do the appropriate troubleshooting for the DTC.■

   NO—Go to step 3.
3. Turn the ignition switch to LOCK (0).
4. Check the brake pedal position switch (see page 22-144), and adjustment (see page 19-6).

   Is the switch and adjustment OK?

   YES—Go to step 5.

   NO—Adjust the brake pedal position switch. If necessary, replace the switch (see page 19-6).■
5. Turn the ignition switch to ON (II).
6. Clear the DTC with the HDS.
7. Turn the ignition switch to LOCK (0), then disconnect the HDS.
8. Test-drive the vehicle.

9. Check for DTCs with the HDS.

   Is DTC 68 indicated?

   YES—Go to step 10.

   NO—The system is OK at this time.■

10. Troubleshoot the brake pedal position switch signal circuit (see page 11-460).

    Is the brake pedal position switch circuit OK?

    YES—Check for loose terminals in the ECM connector, if the connections are OK, substitute a known-good ECM and recheck. If the problem is gone, replace the original ECM. If the problem continues, replace the VSA modulator-control unit (see page 19-127).■

    NO—Repair the brake pedal position switch circuit.■

DTC 81: Central Processing Unit (CPU)

1. Turn the ignition switch to ON (II).
2. Check for other DTCs.

   Is another DTC indicated?

   YES—Do the appropriate troubleshooting for the DTC.■

   NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0), then disconnect the HDS.
5. Test-drive the vehicle.
6. Check for DTCs with the HDS.

   Is DTC 81 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

   NO—Intermittent failure; the system is OK at this time.■

DTC Troubleshooting (cont'd)

DTC 83: ECM Communication

1. Turn the ignition switch to ON (II).
2. Check for DTCs with the HDS.

   Is DTC 86 indicated?

   YES—Do the troubleshooting for DTC 86. ■

   NO—Go to step 3.
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0), then disconnect the HDS.
5. Test-drive the vehicle.
6. Check for DTCs with the HDS.

   Is DTC 83 indicated?

   YES—Go to step 7.

   NO—The system is OK at this time. ■
7. Check for fuel and emission systems (PGM-FI) DTCs with the HDS (see page 11-213).

   Are any ECM DTCs indicated?

   YES—Do the applicable troubleshooting for the ECM. ■

   NO—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

DTC 84: VSA Sensor Neutral Position

NOTE: If DTC 84 is stored, the VSA activation indicator does not go off until doing the VSA sensor neutral position memorization (see page 19-125).

1. Do the VSA sensor neutral position memorization (see page 19-125).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 84 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

   NO—The system is OK at this time. ■

DTC 86: F-CAN Communication

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.
4. Check for DTCs with the HDS.

   Is DTC 86 indicated?

   YES—Go to step 5.

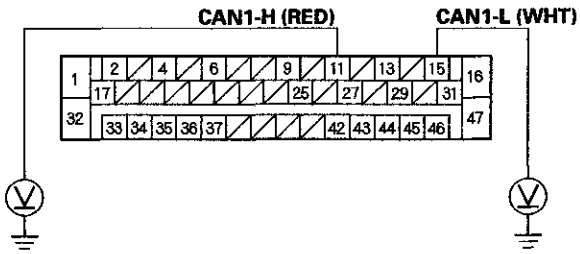
   NO—The system is OK at this time.■
5. Clear the DTC with the HDS.
6. Start and run the engine for at least 5 seconds.
7. Check for DTCs with the HDS.

   Is DTC 86 indicated?

   YES—Go to step 8.

   NO—Intermittent failure; the F-CAN communication line is OK at this time.■
8. Turn the ignition switch to LOCK (0).
9. Short the SCS line with the HDS.
10. Disconnect ECM connector E (31P).
11. Disconnect the steering angle sensor 5P connector.
12. Disconnect the VSA modulator-control unit 47P connector.
13. Turn the ignition switch to ON (II).
14. Measure the voltage between body ground and VSA modulator-control unit 47P connector terminals No. 11 and No. 15 individually.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair short to power in the wire between the VSA modulator-control unit and the ECM.■

NO—Go to step 15.

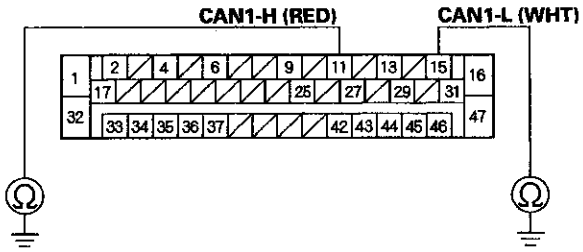
(cont'd)

DTC Troubleshooting (cont'd)

15. Turn the ignition switch to LOCK (0).

16. Check for continuity between body ground and VSA modulator-control unit 47P connector terminals No. 11 and No. 15 individually.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

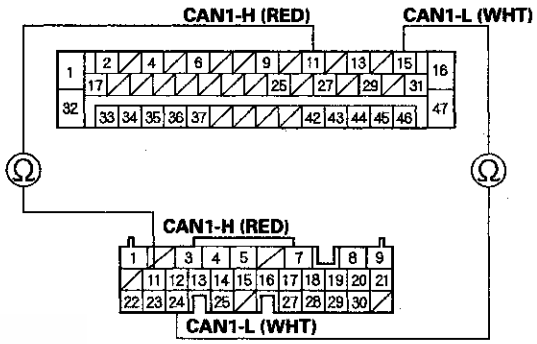
Is there continuity?

YES—Repair short to body ground in the wire between the VSA modulator-control unit, the steering angle sensor, and the ECM.■

NO—Go to step 17.

17. Check for continuity between VSA modulator-control unit 47P connector terminals No. 11, No. 15 and ECM connector E (31P) terminals No. 11, No. 24 individually.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR
Wire side of female terminals



ECM CONNECTOR E (31P)
Wire side of female terminals

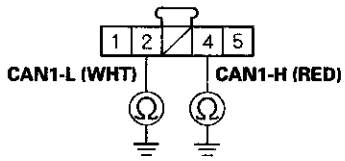
Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the VSA modulator-control unit and the ECM.■

18. Check for continuity between the steering angle sensor 5P connector terminals No. 2, No. 4 and body ground individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Trace and repair short to body ground on the CAN1-L or CAN1-H wires between the steering angle sensor, the ECM, and the VSA modulator-control unit.■

NO—Go to step 19.

19. Check the No. 6 (15 A) fuse in the under-dash fuse/relay box.

    Is the fuse blown?

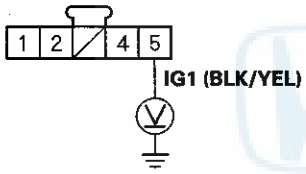
    YES—Replace the fuse, and recheck.■

    NO—Reinstall the checked fuse, then go to step 20.

20. Turn the ignition switch to ON (II).

21. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 22.

NO—Repair open in the wire between the No. 6 (15 A) fuse and the steering angle sensor.■

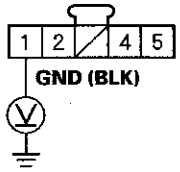
22. Turn the ignition switch to LOCK (0).

23. Reconnect all of the disconnected connectors.

24. Turn the ignition switch to ON (II).

25. Measure the voltage between steering angle sensor 5P connector terminal No. 1 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or less?

YES—Replace the steering angle sensor (see page 19-124).■

NO—Repair open in the wire between the steering angle sensor and body ground (G401).■

DTC Troubleshooting (cont'd)

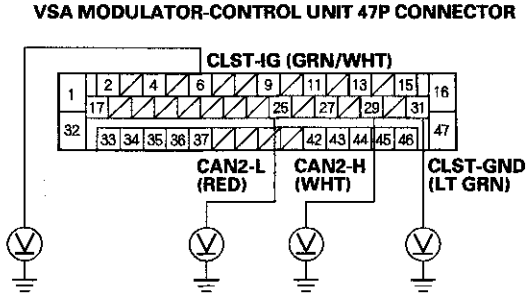
DTC 91: VSA Operation

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then disconnect the HDS.
4. Test-drive the vehicle.
5. Check for DTCs with the HDS.

   Is DTC 91 indicated?

   YES—Go to step 6.

   NO—If DTC 86 is indicated, do the DTC 86 troubleshooting (see page 19-105). If no DTCs are indicated, the system is OK at this time.■
6. Turn the ignition switch to LOCK (0).
7. Disconnect the sensor cluster 6P connector.
8. Disconnect the VSA modulator-control unit 47P connector.
9. Turn the ignition switch to ON (II).
10. Measure the voltage between body ground and VSA modulator-control unit 47P connector terminals No. 6, No. 25, No. 29, and No. 31 individually.



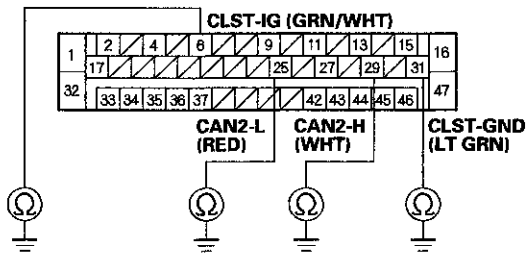
Wire side of female terminals

Is there 0.1 V or more?

YES—Repair short to power in the wire between the VSA modulator-control unit and the sensor cluster.■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Check for continuity between body ground and VSA modulator-control unit 47P connector terminals No. 6, No. 25, No. 29, and No. 31 individually.



Wire side of female terminals

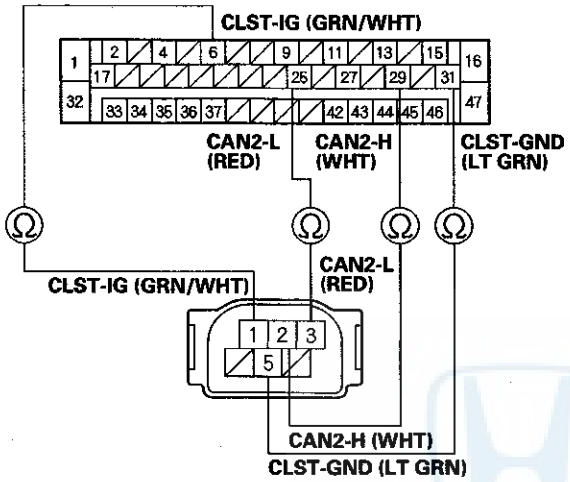
Is there continuity?

YES—Repair short to body ground in the wire between the VSA modulator-control unit and the sensor cluster.■

NO—Go to step 13.

13. Check for continuity between VSA modulator-control unit 47P connector terminals No. 6, No. 25, No. 29, No. 31, and sensor cluster 6P connector terminals No. 1, No. 3, No. 2, No. 5.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR
Wire side of female terminals



SENSOR CLUSTER 6P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair open in the wire between the VSA modulator-control unit and the sensor cluster.■

14. Substitute a known-good sensor cluster (see page 19-125).

15. Reconnect all of the disconnected connectors.

16. Turn the ignition switch to ON (II).

17. Clear the DTC with the HDS.

18. Turn the ignition switch to LOCK (0), then disconnect the HDS.

19. Test-drive the vehicle around a number of corners.

20. Check for DTCs with the HDS.

Is DTC 91 indicated?

YES—Go to step 21.

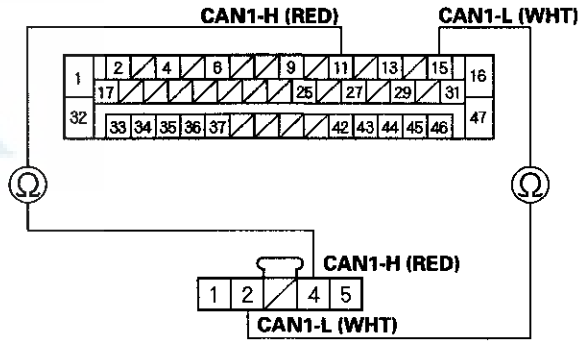
NO—Replace the original sensor cluster (see page 19-125).■

21. Turn the ignition switch to LOCK (0).

22. Disconnect the steering angle sensor 5P connector.

23. Check for continuity between VSA modulator-control unit 47P connector terminals No. 11, No. 15 and steering angle sensor 5P connector terminals No. 4, No. 2.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR
Wire side of female terminals



STEERING ANGLE SENSOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 24.

NO—Repair open in the wire between the VSA modulator-control unit and the steering angle sensor.■

(cont'd)

DTC Troubleshooting (cont'd)

24. Check the No. 6 (15 A) fuse in the under-dash fuse/relay box.

    Is the fuse blown?

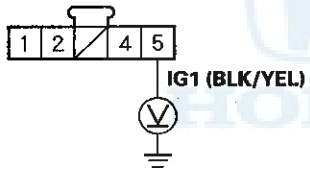
    YES—Install the new No. 6 (15 A) fuse, and recheck. If the fuse continues to blow, check for short to body ground in the wire between the No. 6 (15 A) fuse in the under-dash fuse/relay box and the steering angle sensor, or the VSA modulator-control unit. ■

    NO—Reinstall the checked fuse, then go to step 25.

25. Turn the ignition switch to ON (II).

26. Measure voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

    STEERING ANGLE SENSOR 5P CONNECTOR



    Wire side of female terminals

    Is there battery voltage?

    YES—Go to step 27.

    NO—Repair open in the wire between the No. 6 (15 A) fuse and the steering angle sensor. ■

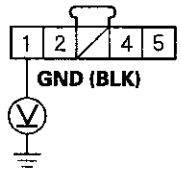
27. Turn the ignition switch to LOCK (0).

28. Reconnect all connectors.

29. Turn the ignition switch to ON (II).

30. Measure the voltage between steering angle sensor 5P connector terminal No. 1 and body ground.

    STEERING ANGLE SENSOR 5P CONNECTOR



    Wire side of female terminals

    Is there 0.1 V or less?

    YES—Replace the steering angle sensor (see page 19-124). ■

    NO—Repair open in the wire between the steering angle sensor and body ground (G401). ■

DTC 105: Hydraulic Unit Temperature Sensor

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then disconnect the HDS.
4. Test-drive the vehicle.
5. Check for DTCs with the HDS.

   Is DTC 105 indicated?

   YES—Replace the VSA modulator-control unit (see page 19-127).■

   NO—The system is OK at this time.■

DTC 121, 122, 123, 124: VSA Solenoid

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then disconnect the HDS.
4. Test-drive the vehicle.
5. Check for DTCs with the HDS.

   Is DTC 121, 122, 123, or 124 indicated?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

   NO—Intermittent failure; the system is OK at this time.■

Symptom Troubleshooting

ABS indicator does not come on

1. Turn the ignition switch to ON (II), and watch the ABS indicator.

   Does the ABS indicator come on?

   YES—The system is OK at this time.■

   NO—Go to step 2.

2. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.

   Does the brake system indicator come on?

   YES—Go to step 7.

   NO—Go to step 3.

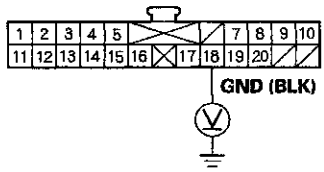
3. Turn the ignition switch to LOCK (0).

4. Remove the gauge assembly. Do not disconnect the gauge assembly connector A (22P) and connector B (30P) (see page 22-89).

5. Turn the ignition switch to ON (II).

6. Measure the voltage between gauge assembly connector A (22P) terminal No. 18 and body ground.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

Is there 0.1 V or less?

YES—Do the self-diagnostic function troubleshooting for the gauge assembly (see page 22-60).■

NO—Repair open in the wire between the gauge assembly and body ground (G501).■

7. Turn the ignition switch to LOCK (0).

8. Disconnect the VSA modulator-control unit 47P connector.

9. Turn the ignition switch to ON (II).

   Does the ABS indicator come on?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

   NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

11. Check the ABS indicator bulb in the gauge assembly (see page 22-58).

    Is the bulb OK?

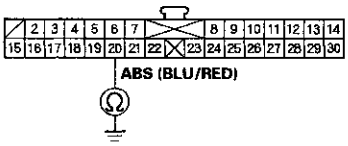
    YES—Go to step 12.

    NO—Replace the ABS indicator bulb (see page 22-58).■

12. Disconnect the gauge assembly connector B (30P).

13. Check for continuity between gauge assembly connector B (30P) terminal No. 20 and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the gauge assembly and the VSA modulator-control unit.■

NO—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

ABS indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to LOCK (0).
2. Check the No. 48 (30 A) fuse in the main under-hood fuse/relay box.

   Is the fuse blown?

   YES—Check for a short to body ground in the fuse circuit, then replace the fuse, and recheck. ■

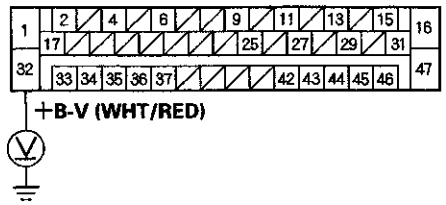
   NO—Reinstall the checked fuse, then go to step 3.
3. Check the No. 6 (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?

   YES—Check for a short to body ground in the fuse circuit, then replace the fuse, and recheck. ■

   NO—Reinstall the checked fuse, then go to step 4.
4. Disconnect the VSA modulator-control unit 47P connector.
5. Measure the voltage between VSA modulator-control unit 47P connector terminal No. 32 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

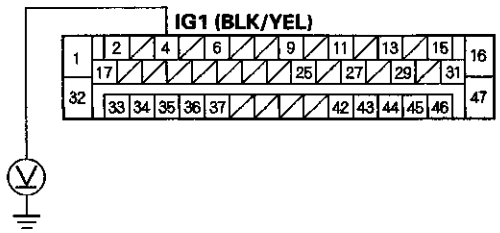
Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between the No. 48 (30 A) fuse in the main under-hood fuse/relay box and the VSA modulator-control unit. ■

6. Turn the ignition switch to ON (II).
7. Measure the voltage between VSA modulator-control unit 47P connector terminal No. 4 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

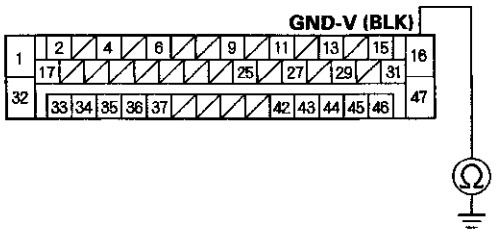
Is there battery voltage?

YES—Go to step 8.

NO—Repair open in the wire between the No. 6 (15 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

8. Turn the ignition switch to LOCK (0).
9. Check for continuity between VSA modulator-control unit 47P connector terminal No. 16 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between the VSA modulator-control unit and body ground (G303). ■

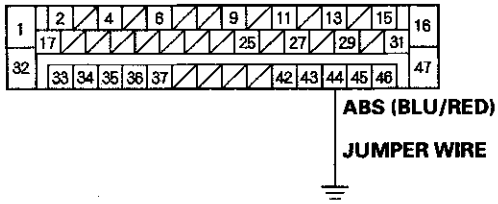
(cont'd)

Symptom Troubleshooting (cont'd)

10. Turn the ignition switch to ON (II).

11. Connect VSA modulator-control unit 47P connector terminal No. 44 and body ground with a jumper wire.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

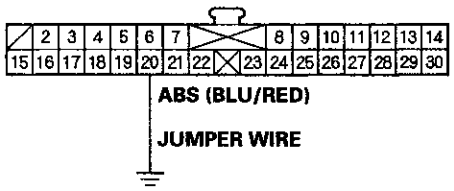
Does the ABS indicator go off?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

NO—Go to step 12.

12. Connect gauge assembly connector B (30P) terminal No. 20 and body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Does the ABS indicator go off?

YES—Repair open in the wire between the gauge assembly and the VSA modulator-control unit.■

NO—Check for loose terminals in the gauge assembly connector B (30P). If necessary, substitute a known-good gauge assembly (see page 22-89), and retest.■

Brake system indicator does not come on

1. Apply the parking brake.
2. Turn the ignition switch to ON (II), and watch the brake system indicator.

   Does the brake system indicator come on and stay on?

   YES—Go to step 3.

   NO—Go to step 6.
3. Turn the ignition switch to LOCK (0).
4. Release the parking brake.
5. Turn the ignition switch to ON (II), and watch the brake system indicator.

   Does the brake system indicator come on for several seconds?

   YES—The system is OK at this time.■

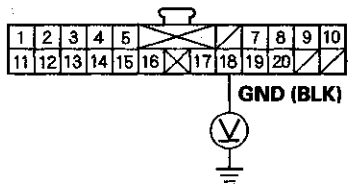
   NO—Go to step 14.
6. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.

   Does the ABS indicator come on for several seconds?

   YES—Go to step 11.

   NO—Go to step 7.
7. Turn the ignition switch to LOCK (0).
8. Remove the gauge assembly. Do not disconnect the gauge assembly connector A (22P) and connector B (30P).
9. Turn the ignition switch to ON (II).
10. Measure the voltage between gauge assembly connector A (22P) terminal No. 18 and body ground.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

Is there 0.1 V or less?

YES—Do the self-diagnostic function troubleshooting for the gauge assembly (see page 22-60).■

NO—Repair open in the wire between the gauge assembly and body ground (G501).■

11. Turn the ignition switch to LOCK (0).
12. Release the parking brake.
13. Turn the ignition switch to ON (II).

    Does the brake system indicator come on for several seconds?

    YES—Do the parking brake switch test (see page 19-12).■

    NO—Go to step 14.
14. Turn the ignition switch to LOCK (0).
15. Disconnect the VSA modulator-control unit 47P connector.

(cont'd)

Symptom Troubleshooting (cont'd)

16. Turn the ignition switch to ON (II).

    Does the brake system indicator come on for several seconds?

    YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

    NO—Go to step 17.

17. Turn the ignition switch to LOCK (0).

18. Remove the gauge assembly (see page 22-89).

19. Check the brake system indicator bulb in the gauge assembly (see page 22-58).

    Is the bulb OK?

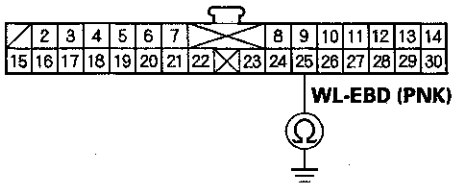
    YES—Go to step 20.

    NO—Replace the brake system indicator bulb (see page 22-58). ■

20. Disconnect the gauge assembly connector B (30P).

21. Check for continuity between gauge assembly connector B (30P) terminal No. 25 and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground between the gauge assembly and the VSA modulator-control unit. ■

NO—Check for loose terminals in the gauge assembly connector B (30P). If necessary, substitute a known-good gauge assembly (see page 22-89), and retest. ■

Brake system indicator does not go off, and no DTCs are stored

1. Release the parking brake.
2. Turn the ignition switch to ON (II).

   Does the brake system indicator goes off after several seconds?

   YES—The system is OK at this time.■

   NO—Go to step 3.
3. Check the brake fluid level in the master cylinder reservoir.

   Is brake fluid level OK?

   YES—Go to step 4.

   NO—Inspect the brake pads: Front (see page 19-13), rear (see page 19-22), and replace worn out pads, then recheck.■
4. Check the ABS indicator.

   Does ABS indicator stay on?

   YES—Check for DTCs and do the indicated DTC troubleshooting.■

   NO—Go to step 5.
5. Do the brake fluid level switch test (see page 19-12).

   Is the switch OK?

   YES—Go to step 6.

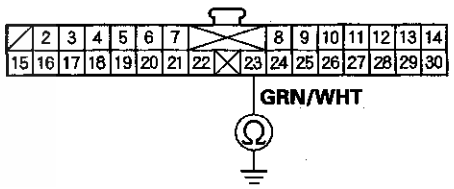
   NO—Replace the reservoir (brake fluid level switch is included) on the master cylinder (see page 19-18). ■
6. Do the parking brake switch test (see page 19-12).

   Is the switch OK?

   YES—Go to step 7.

   NO—Replace the parking brake switch (see page 19-30).■
7. Turn the ignition switch to LOCK (0).
8. Remove the gauge assembly (see page 22-89).
9. Disconnect the gauge assembly connector B (30P).
10. Check for continuity between gauge assembly connector B (30P) terminal No. 23 and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the gauge assembly and the parking brake switch.■

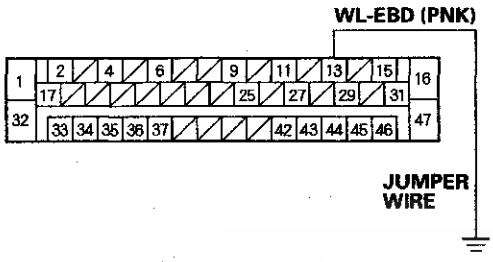
NO—Go to step 11.

(cont'd)

Symptom Troubleshooting (cont'd)

11. Reconnect the gauge assembly connector B (30P).
12. Turn the ignition switch to ON (II).
13. Connect VSA modulator-control unit 47P connector terminal No. 13 and body ground with a jumper wire.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

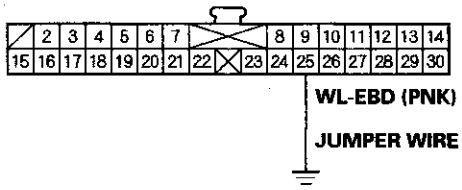
Does the brake system indicator go off?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

NO—Go to step 14.

14. Connect gauge assembly connector B (30P) terminal No. 25 and body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Does the brake system indicator go off?

YES—Repair open in the wire between the gauge assembly and the VSA modulator-control unit.■

NO—Check for loose terminals in the gauge assembly connector B (30P). If necessary, substitute a known-good gauge assembly (see page 22-89), and retest.■

VSA indicator does not come on

1. Turn the ignition switch to ON (II), and watch the VSA indicator.

   Does the VSA indicator come on?

   YES—The system is OK at this time. ■

   NO—Go to step 2.

2. Turn the ignition switch to LOCK (0), then turn it to ON (II) again.

   Does the brake system indicator come on?

   YES—Go to step 7.

   NO—Go to step 3.

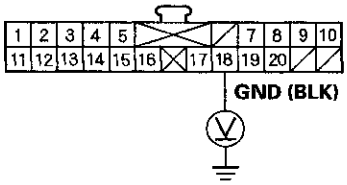
3. Turn the ignition switch to LOCK (0).

4. Remove the gauge assembly. Do not disconnect the gauge assembly connector A (22P) and connector B (30P) (see page 22-89).

5. Turn the ignition switch to ON (II).

6. Measure the voltage between gauge assembly connector A (22P) terminal No. 18 and body ground.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

Is there 0.1 V or less?

YES—Do the self-diagnostic function troubleshooting for the gauge assembly (see page 22-60). ■

NO—Repair open in the wire between the gauge assembly and body ground (G501). ■

7. Turn the ignition switch to LOCK (0).

8. Disconnect the VSA modulator-control unit 47P connector.

9. Turn the ignition switch to ON (II).

   Does the VSA indicator come on?

   YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

   NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

11. Check the VSA indicator bulb in the gauge assembly (see page 22-58).

    Is the bulb OK?

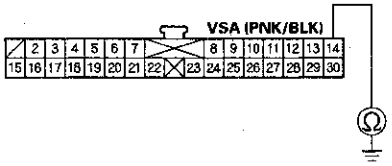
    YES—Go to step 12.

    NO—Replace the VSA indicator bulb (see page 22-58). ■

12. Disconnect the gauge assembly connector B (30P).

13. Check for continuity between gauge assembly connector B (30P) terminal No. 14 and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the gauge assembly and the VSA modulator-control unit. ■

NO—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

Symptom Troubleshooting (cont'd)

VSA indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to LOCK (0).
2. Check the No. 48 (30 A) fuse in the main under-hood fuse/relay box.

   Is the fuse blown?

   YES—Check for a short to body ground in the fuse circuit, then replace the fuse, and recheck.■

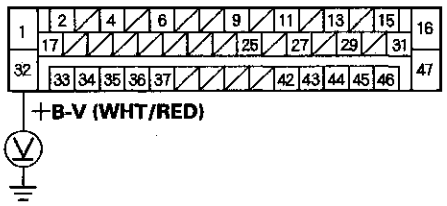
   NO—Reinstall the checked fuse, then go to step 3.
3. Check the No. 6 (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse blown?

   YES—Check for a short to body ground in the fuse circuit, then replace the fuse, and recheck.■

   NO—Reinstall the checked fuse, then go to step 4.
4. Disconnect the VSA modulator-control unit 47P connector.
5. Measure the voltage between VSA modulator-control unit 47P connector terminal No. 32 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

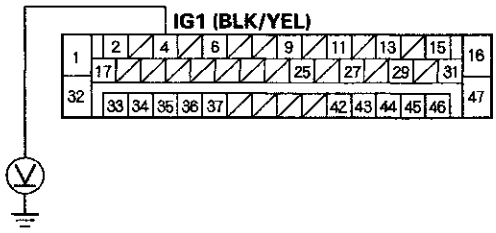
Is there battery voltage?

YES—Go to step 6.

NO—Repair open in the wire between the No. 48 (30 A) fuse in the main under-hood fuse/relay box and the VSA modulator-control unit.■

6. Turn the ignition switch to ON (II).
7. Measure the voltage between VSA modulator-control unit 47P connector terminal No. 4 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

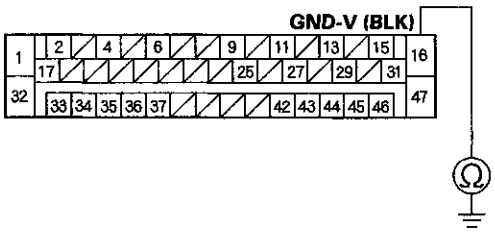
Is there battery voltage?

YES—Go to step 8.

NO—Repair open in the wire between the No. 6 (15 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit.■

8. Turn the ignition switch to LOCK (0).
9. Check for continuity between VSA modulator-control unit 47P connector terminal No. 16 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

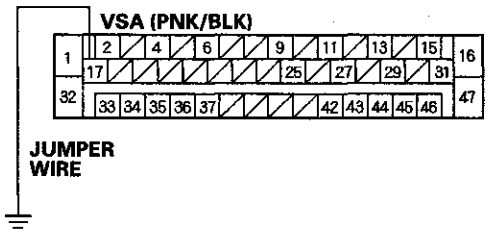
YES—Go to step 10.

NO—Repair open in the wire between the VSA modulator-control unit and body ground (G303).■

10. Turn the ignition switch to ON (II).

11. Connect VSA modulator-control unit 47P connector terminal No. 17 and body ground with a jumper wire.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

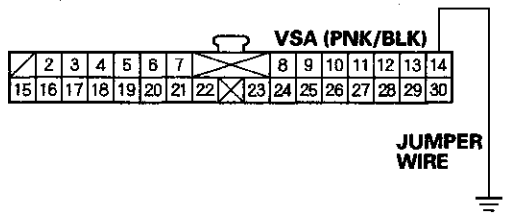
Does the VSA indicator go off?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest.■

NO—Go to step 12.

12. Connect gauge assembly connector B (30P) terminal No. 14 and body ground with a jumper wire.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Does the VSA indicator go off?

YES—Repair open in the wire between the gauge assembly and the VSA modulator-control unit.■

NO—Check for loose terminals in the gauge assembly connector B (30P). If necessary, substitute a known-good gauge assembly (see page 22-89), and retest.■

Symptom Troubleshooting (cont'd)

VSA activation indicator does not come on at start-up (bulb check)

1. Turn the ignition switch to ON (II), and watch the VSA activation indicator.

   Does the VSA activation indicator come on for several seconds?

   YES—The system is OK at this time. ■

   NO—Go to step 2.

2. Apply the parking brake.

   Does the brake system indicator come on?

   YES—Go to step 3.

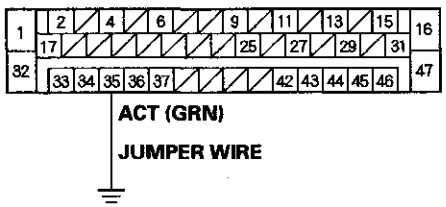
   NO—Do the self-diagnostic function troubleshooting for the gauge assembly (see page 22-60). ■

3. Turn the ignition switch to LOCK (0).

4. Disconnect the VSA modulator-control unit 47P connector.

5. Connect VSA modulator-control unit 47P connector terminal No. 35 and body ground with a jumper wire, and turn the ignition switch to ON (II).

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Does the VSA activation indicator come on?

YES—Check for loose terminals in the VSA modulator-control unit 47P connector. If necessary, substitute a known-good VSA modulator-control unit (see page 19-127), and retest. ■

NO—Repair open in the wire between the gauge assembly and the VSA modulator-control unit. ■

VSA activation indicator does not go off, and no DTCs are stored

NOTE: Do the VSA neutral position memorization (see page 19-125) first, if the indicator remains on, proceed with this flow chart.

1. Turn the ignition switch to ON (II), and watch the VSA activation indicator.

   Does the VSA activation indicator go off?

   YES—The system is OK at this time. ■

   NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).

3. Check the VSA OFF switch (see page 19-126).

   Is the switch OK?

   YES—Go to step 4.

   NO—Replace the VSA OFF switch (see page 19-126). ■

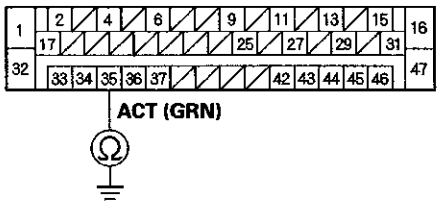
4. Remove the gauge assembly (see page 22-89).

5. Disconnect the gauge assembly connector B (30P).

6. Disconnect the VSA modulator-control unit 47P connector.

7. Check for continuity between VSA modulator-control unit 47P connector terminal No. 35 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

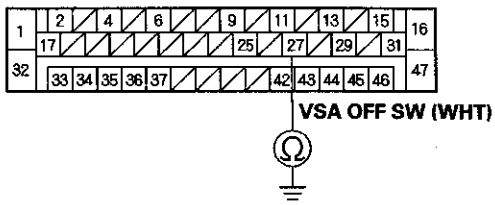
YES—Repair short to body ground in the wire between the gauge assembly and the VSA modulator-control unit. ■

NO—Go to step 8.

8. Disconnect the VSA OFF switch 6P connector.

9. Check for continuity between VSA modulator-control unit 47P connector terminal No. 27 and body ground.

VSA MODULATOR-CONTROL UNIT 47P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire between the VSA OFF switch and the VSA modulator-control unit. ■

NO—Go to step 10.

10. Substitute a known-good VSA modulator-control unit (see page 19-127).

11. Reconnect all of the disconnected connectors.

12. Turn the ignition switch to ON (II).

13. Clear the DTC with the HDS.

14. Test-drive the vehicle.

Does the VSA activation indicator go off?

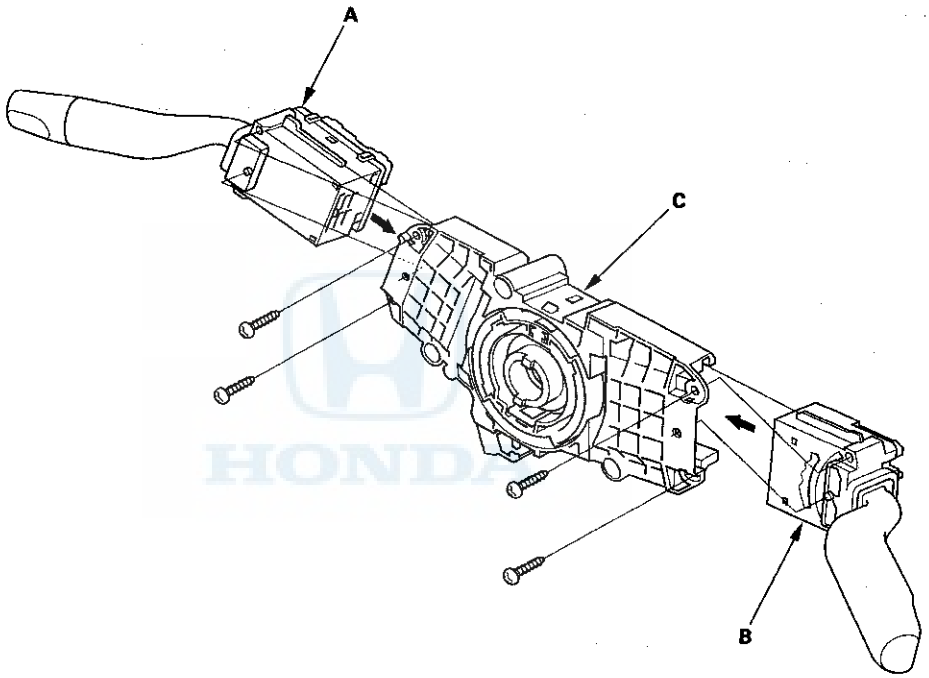
YES—Replace the original VSA modulator-control unit (see page 19-127). ■

NO—Check for loose terminals in the gauge assembly connectors. If necessary, substitute a known-good gauge assembly (see page 22-89), and retest. ■

Steering Angle Sensor Replacement

NOTE: Do not damage or drop the combination switch as the steering angle sensor is sensitive to shock and vibration.

1. Remove the steering wheel (see page 17-6).
2. Remove the steering column covers (see page 17-9) and the cable reel (see page 23-174).
3. Remove the combination switch assembly (see page 17-9).
4. Remove the combination light switch (A) and the wiper/washer switch (B).



5. Replace the combination switch body (C).
6. Install the combination switch in the reverse order of removal.

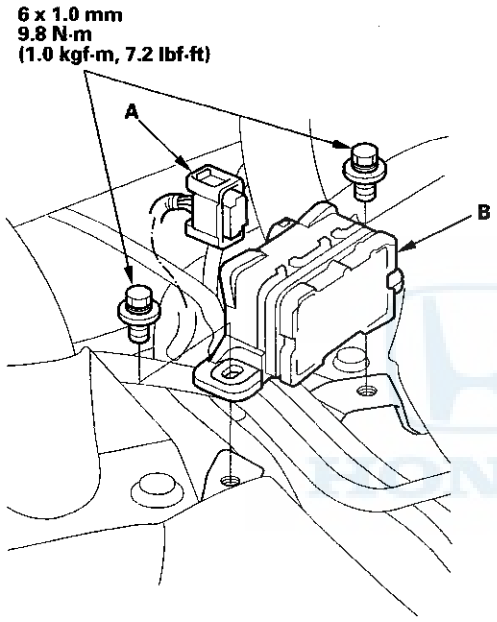
   NOTE:
   - Do not remove the steering angle sensor from the combination switch body.
   - When installing the cable reel, set the turn signal canceling sleeve position (see page 23-177).

7. Do the VSA sensor neutral position memorization (see page 19-125).

Sensor Cluster Replacement

NOTE:
- Do not damage or drop the sensor as it is sensitive.
- Do not use power tools.

1. Turn the ignition switch to LOCK (0).
2. Remove the rear console (see page 20-82).
3. Disconnect the sensor cluster 6P connector (A).

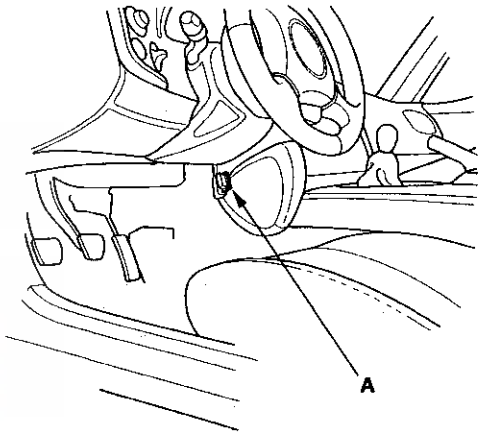


4. Remove the sensor cluster (B).
5. Install the sensor in the reverse order of removal.
6. Do the VSA sensor neutral position memorization (see page 19-125).

VSA Sensor Neutral Position Memorization

NOTE: Do not press the brake pedal during this procedure.

1. Slowly run the vehicle straight without operating the steering wheel for 10 ft (3 m) or more, then park the vehicle on a flat and level surface while holding the steering wheel at straight position.
2. With the ignition switch at LOCK (0), connect the HDS to the data link connector (DLC) (A) under the driver's side of the dashboard.

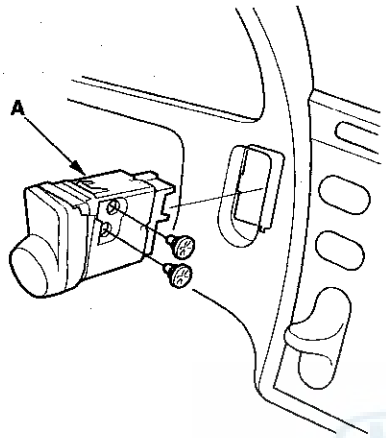


3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshoot the DLC circuit (see page 11-367).
5. Do the VSA sensor neutral position memorization in the VSA ADJUSTMENT with the HDS.

   NOTE: See the HDS Help menu for specific instructions.
6. Turn the ignition switch to LOCK (0).

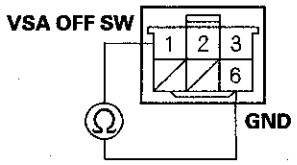
VSA OFF Switch Test

1. Remove the instrument panel (see page 20-84).
2. Remove the VSA OFF switch (A) by pushing from the back side of the instrument panel.



3. Check for continuity between VSA OFF switch 6P connector terminals No. 1 and No. 6. There should be continuity when the switch is pressed, and no continuity when the switch is released.

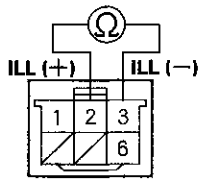
VSA OFF SWITCH 6P CONNECTOR



Terminal side of female terminals

4. Check for continuity between VSA OFF switch 6P connector terminals No. 2 and No. 3. There should be continuity at all times.

VSA OFF SWITCH 6P CONNECTOR



Terminal side of male terminals

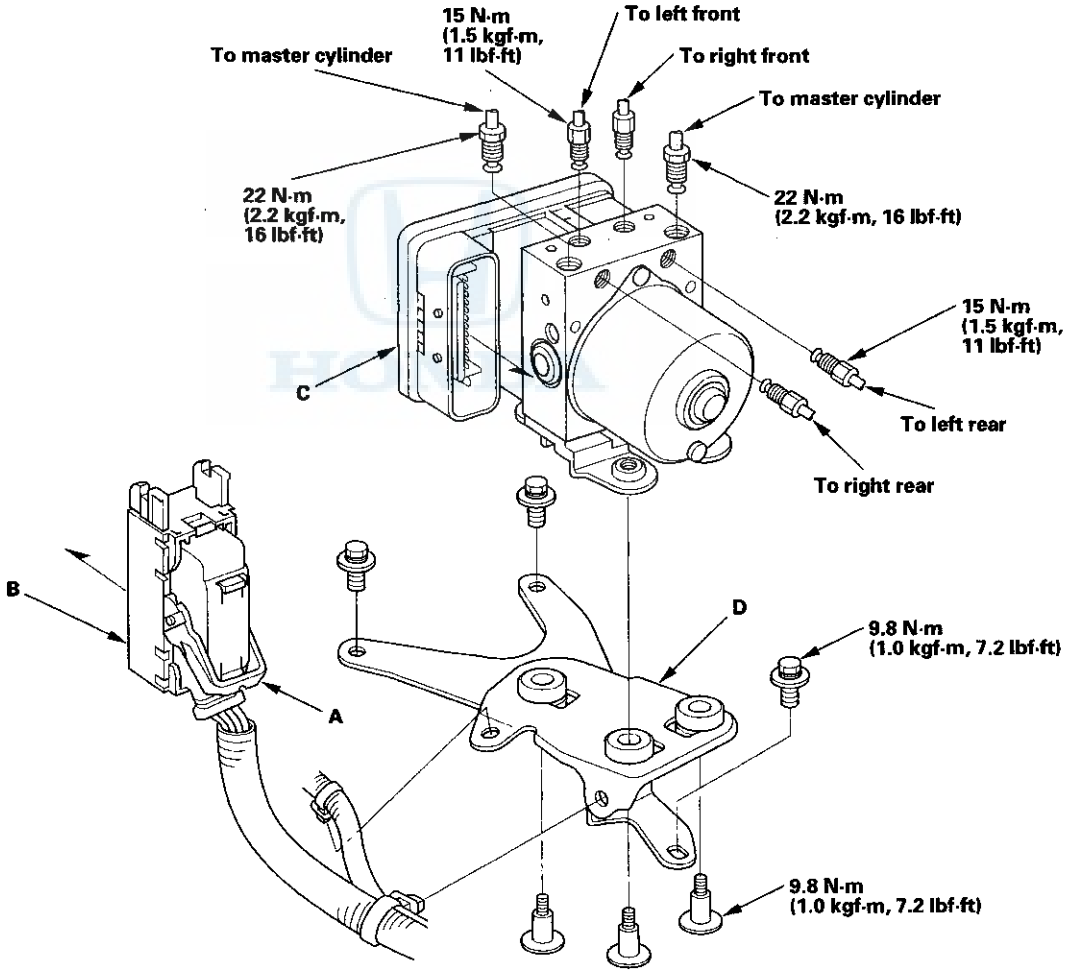
VSA Modulator-Control Unit Removal and Installation

NOTE:
- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Be careful not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from flowing, plug and cover the hose ends and joints with a shop towel or equivalent material.

Removal

1. Turn the ignition switch to LOCK (0).

2. Pull down the lock (A) on the VSA modulator-control unit 47P connector (B), and remove the connector.



3. Disconnect the six brake lines from the VSA modulator-control unit (C).

4. Remove the VSA modulator-control unit with the bracket (D) from the body.

5. Remove the VSA modulator-control unit from the bracket.

(cont'd)

VSA Modulator-Control Unit Removal and Installation (cont'd)

Installation

1. Install the VSA modulator-control unit on the bracket.
2. Install the bracket with the VSA modulator-control unit to the body.
3. Reconnect the six brake lines, then tighten the flare nuts to the specified torque.
4. Align the connecting surface of the VSA modulator-control unit 47P connector to the VSA modulator-control unit.
5. Pull up the lock of the VSA modulator-control unit 47P connector, then confirm the connector is fully seated.
6. Bleed the brake system (see page 19-9).
7. Do the VSA sensor neutral position memorization (see page 19-125).
8. Start the engine, and check that the ABS and VSA indicators go off.
9. Test-drive the vehicle, and check that the ABS and VSA indicators do not come on.

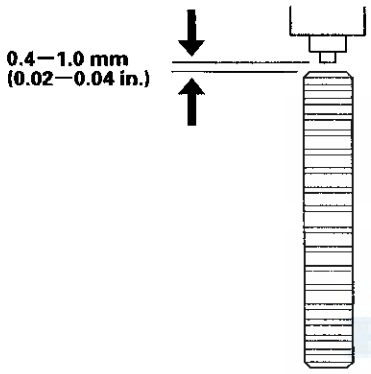
NOTE: If the brake pedal is spongy, there may be air trapped in the modulator and then induced in to the normal brake system during modulation. Bleed the brake system again (see page 19-9).

Wheel Speed Sensor Inspection

1. Inspect the front and rear pulsers for chipped or damaged teeth.
2. Measure the air gap between the wheel speed sensor and pulser all the way around while rotating the pulser. Remove the rear brake disc to measure the gap on the rear wheel speed sensor. If the gap exceeds 1.0 mm (0.04 in.), check for a bent suspension arm.

Standard:
Front/Rear: 0.4—1.0 mm (0.02—0.04 in.)

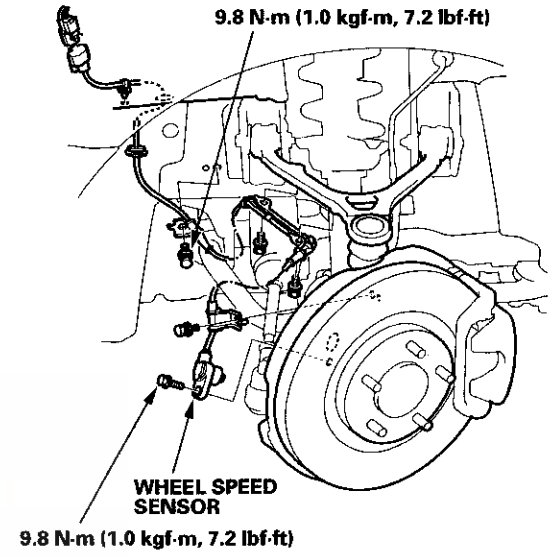
Front/Rear



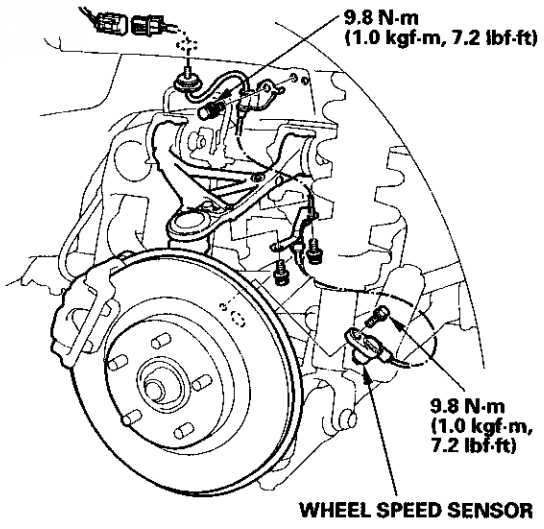
Wheel Speed Sensor Replacement

NOTE: Install the sensors carefully to avoid twisting the wires.

Front



Rear




HONDA

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If body maintenance is required)

The S2000 SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, and seat belt tensioners in the seat belt retractors. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional activation of the airbags and seat belt tensioners.
- Do not bump or impact the SRS unit, or front impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, console, dashboard, dashboard lower panel, in the dashboard above the glove box. Do not use electrical test equipment on these circuits.

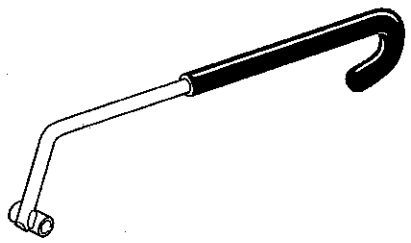
Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Body

Navigation Tools: Click on the "Table of Contents" below, or use the Bookmarks to the left.

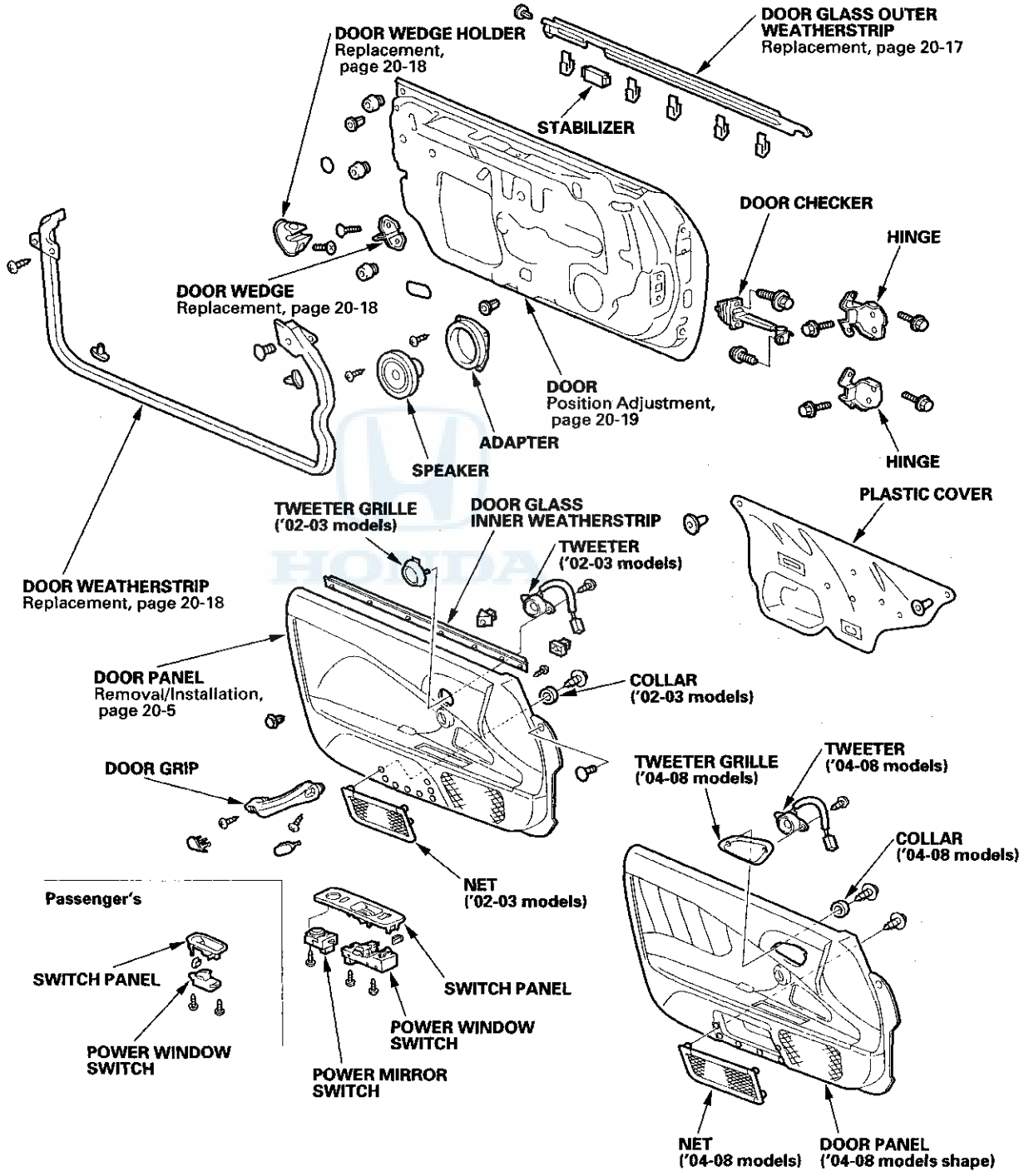
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAF-SNAA100	Torsion Bar Assembly Tool	1



①

Component Location Index



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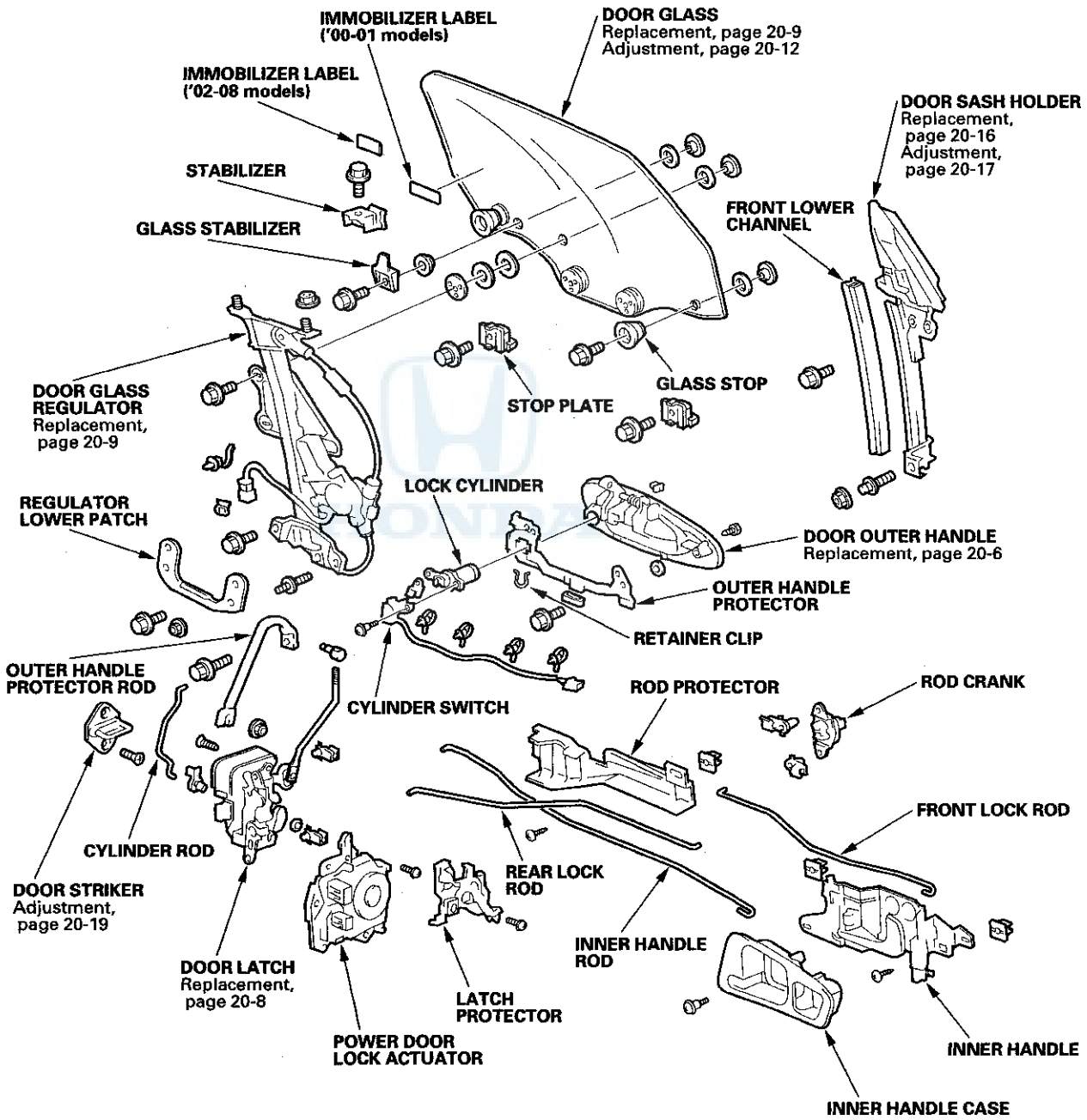
Component Location Index (cont'd)



Door Panel Removal/Installation

Special Tools Required
- KTC trim tool set SOJATP2014 *
- Trim pad remover, Snap-on A 177A or equivalent, commercially available

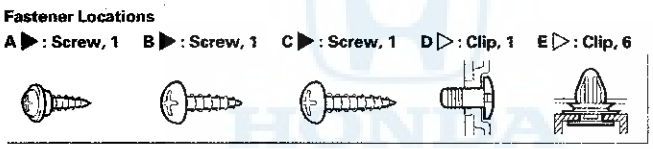
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

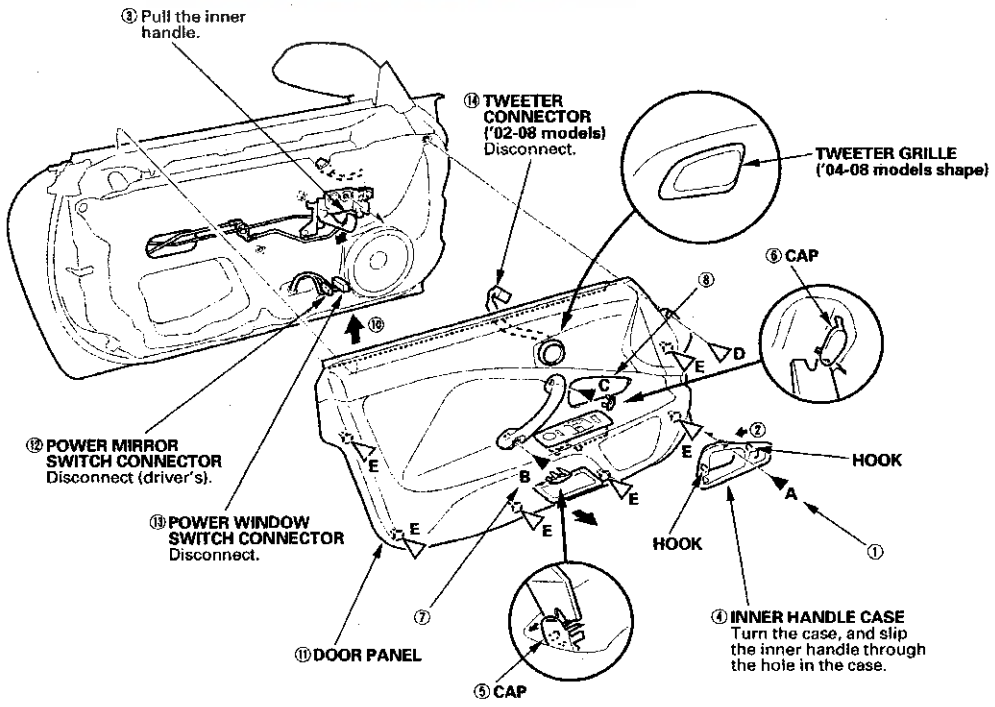
NOTE:
- Take care not to scratch the door panel and door.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.

1. Remove the door panel in the numbered sequence. Remove the door panel with as little bending as possible to avoid creasing or breaking it.

2. Install the panel in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the connectors are plugged in properly.
   - Push the clips into place securely.
   - Check the window and power door lock operations.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks.

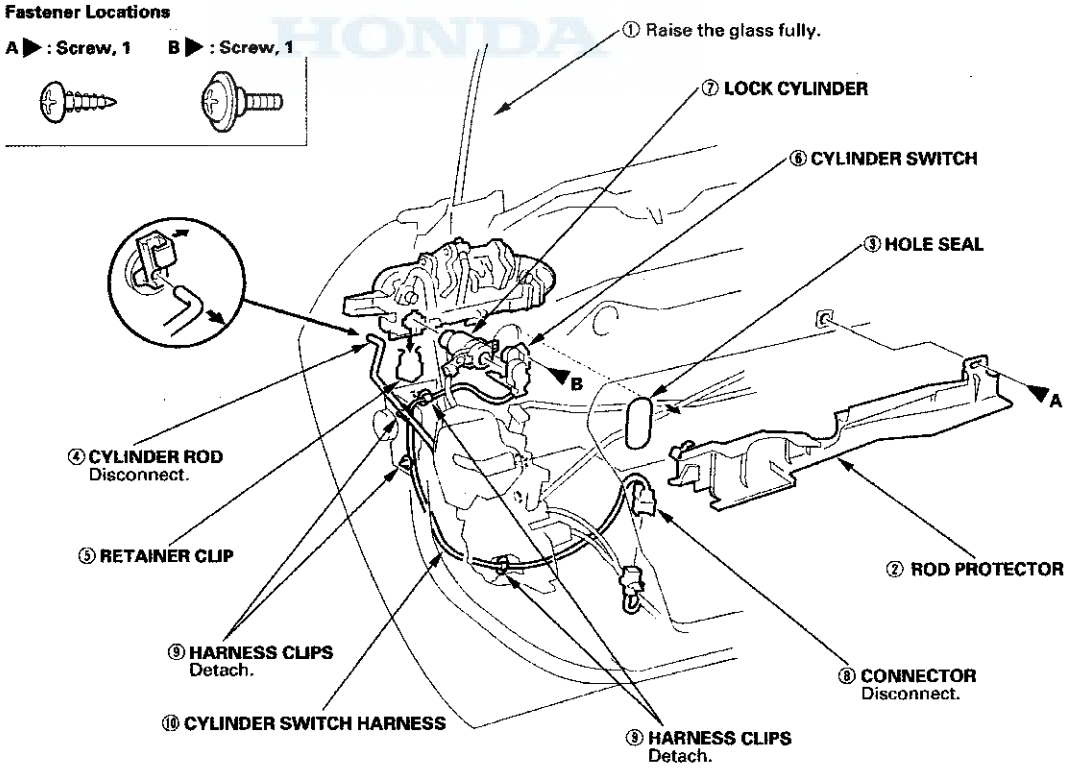




Door Outer Handle Replacement

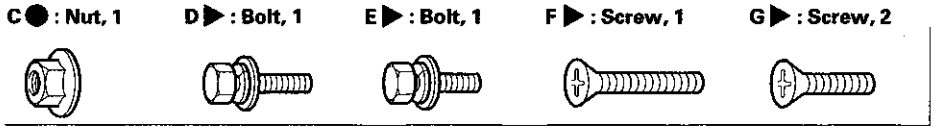
NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Take care not to bend the rods.

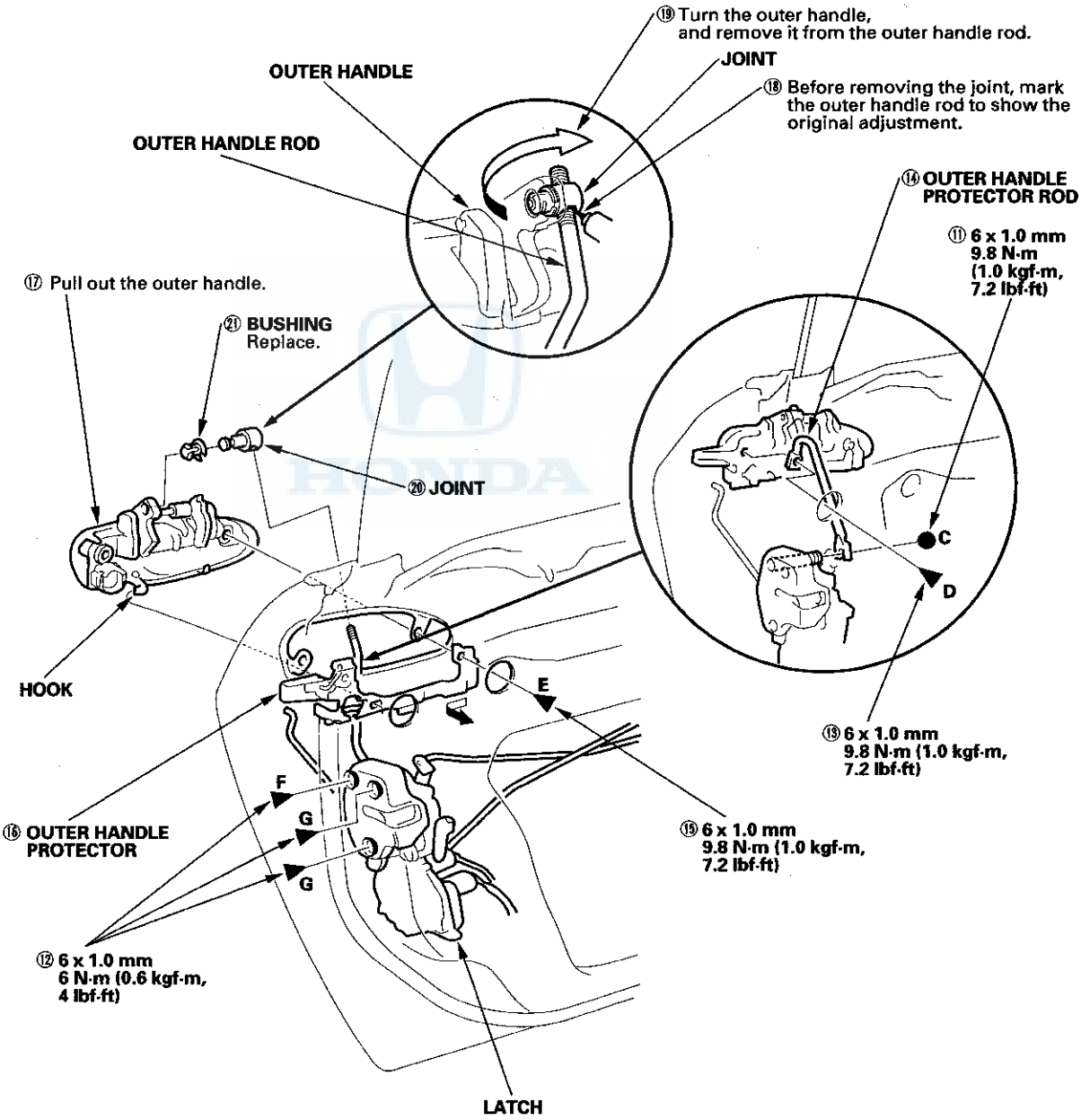
1. Remove these items:
   - Door panel (see page 20-5)
   - Plastic cover, as necessary (see page 20-3)
2. Remove the door outer handle in the numbered sequence.
3. Install the outer handle in the reverse order of removal, and note these items:
   - Make sure the cylinder switch harness is routed properly.
   - Make sure the cylinder switch connector is plugged in properly, and the rods are connected securely.
   - When installing the lock cylinder, leave the outer handle bolts loose so the outer handle protector does not interfere with the lock cylinder installation, then tighten the handle bolts.
   - Install the retainer clip on the outer handle, then install the lock cylinder. Be sure the retainer clip is fully seated in the slot on the lock cylinder.
   - Make sure the door locks and opens properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks.



Fastener Locations

C ● : Nut, 1 D ▶ : Bolt, 1 E ▶ : Bolt, 1 F ▶ : Screw, 1 G ▶ : Screw, 2





Door Latch Replacement

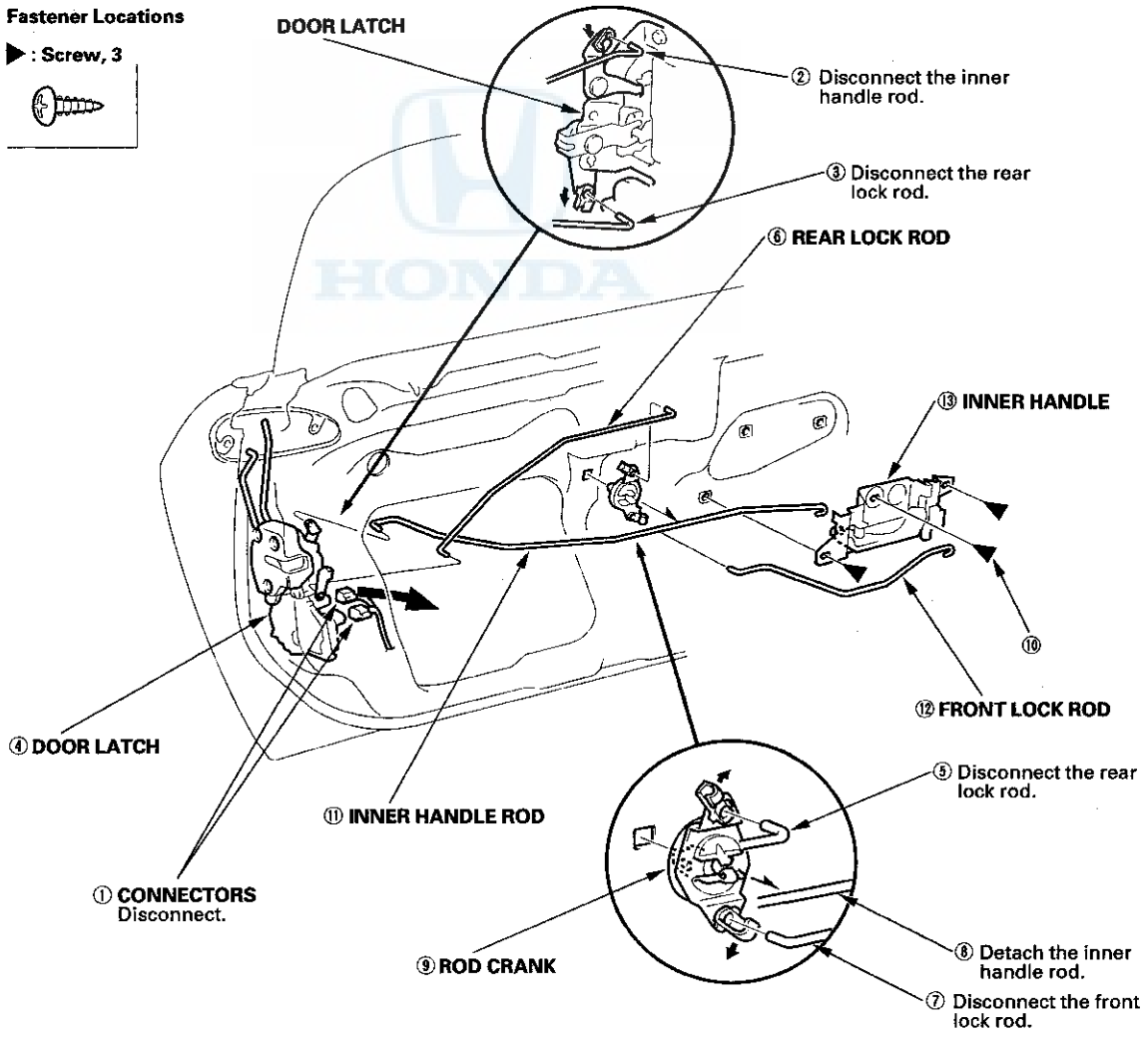
NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Take care not to bend the rods.

1. Remove the outer handle (see page 20-6).

2. Remove the door latch in the numbered sequence.

3. Install the latch in the reverse order of removal, and note these items:

   - Make sure the actuator connectors are plugged in properly, and each rod is connected securely.
   - Make sure the door locks and opens properly.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks.



Door Glass and Regulator Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the door.
- Take care not to drop the window glass inside the door.

1. Remove these items:

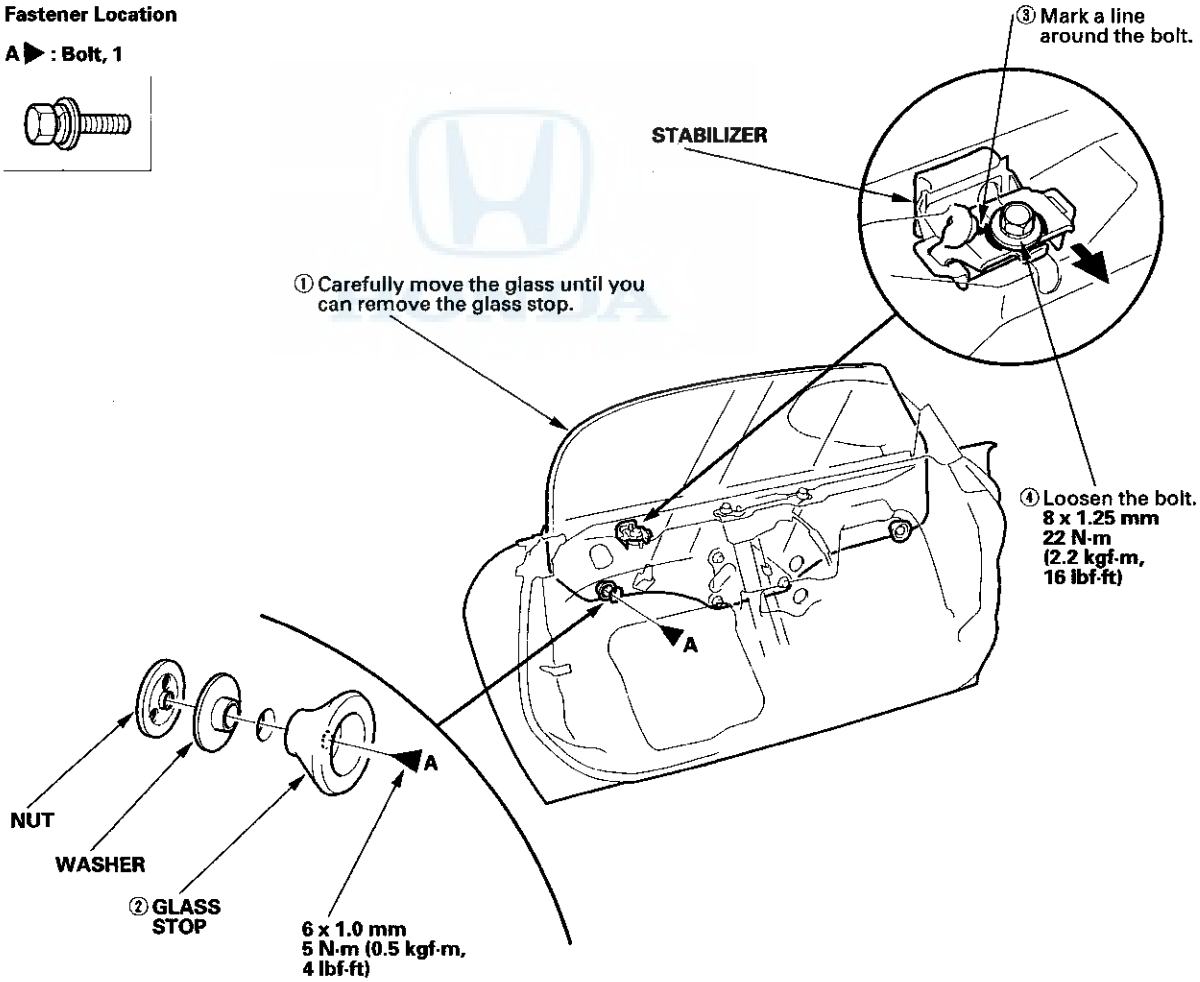
   - Inner handle and rod crank (see page 20-8)
   - Plastic cover (see page 20-3)

2. Remove the door glass and regulator in numbered sequence:

   - Hold the adjusting bolts with a hex wrench when removing the locknuts.
   - Mark a line around the stabilizer mounting bolt, the glass mounting bolts, and the regulator mounting nuts to show the original locations.

Fastener Location

A ▶ : Bolt, 1



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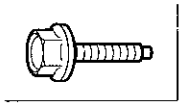
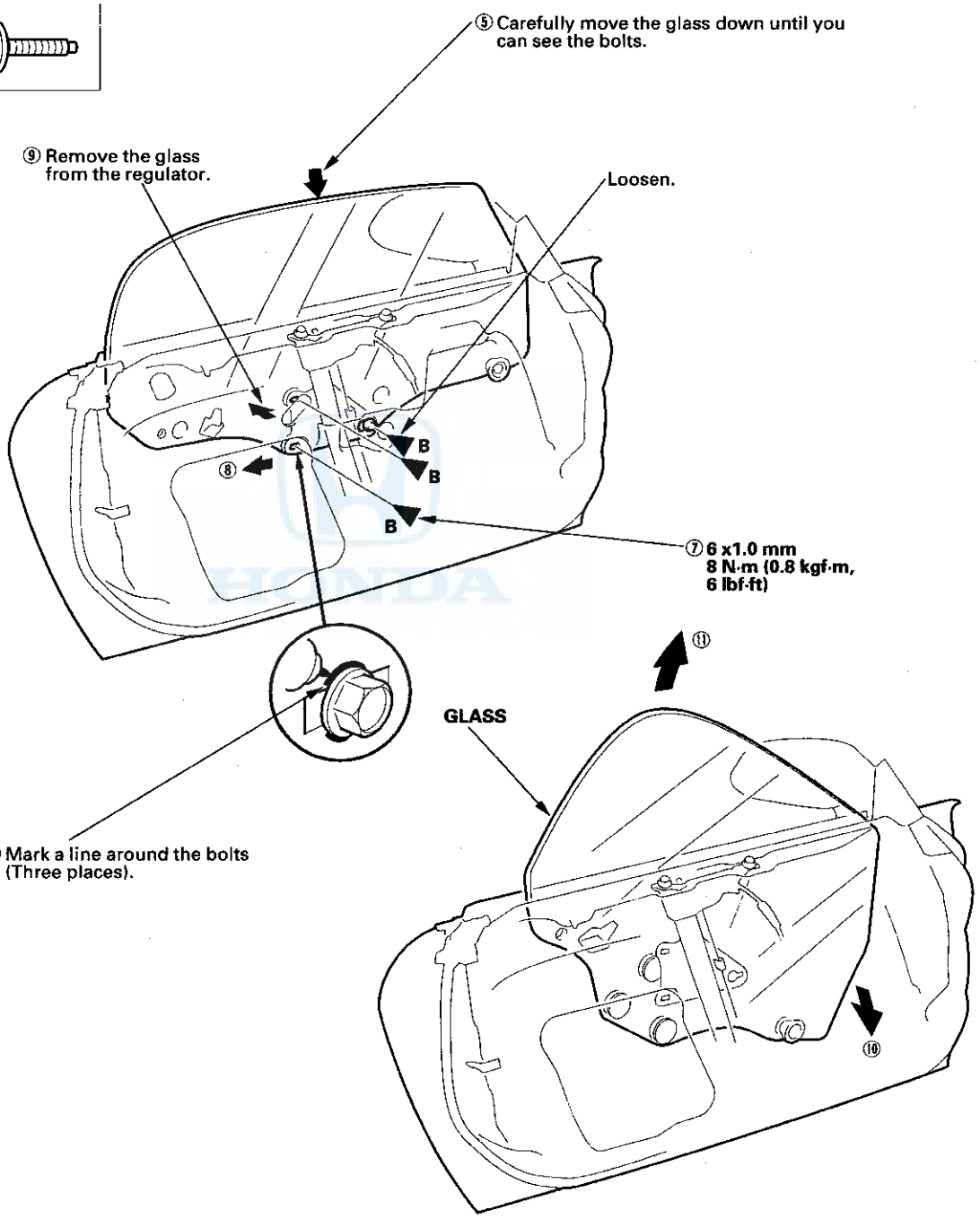
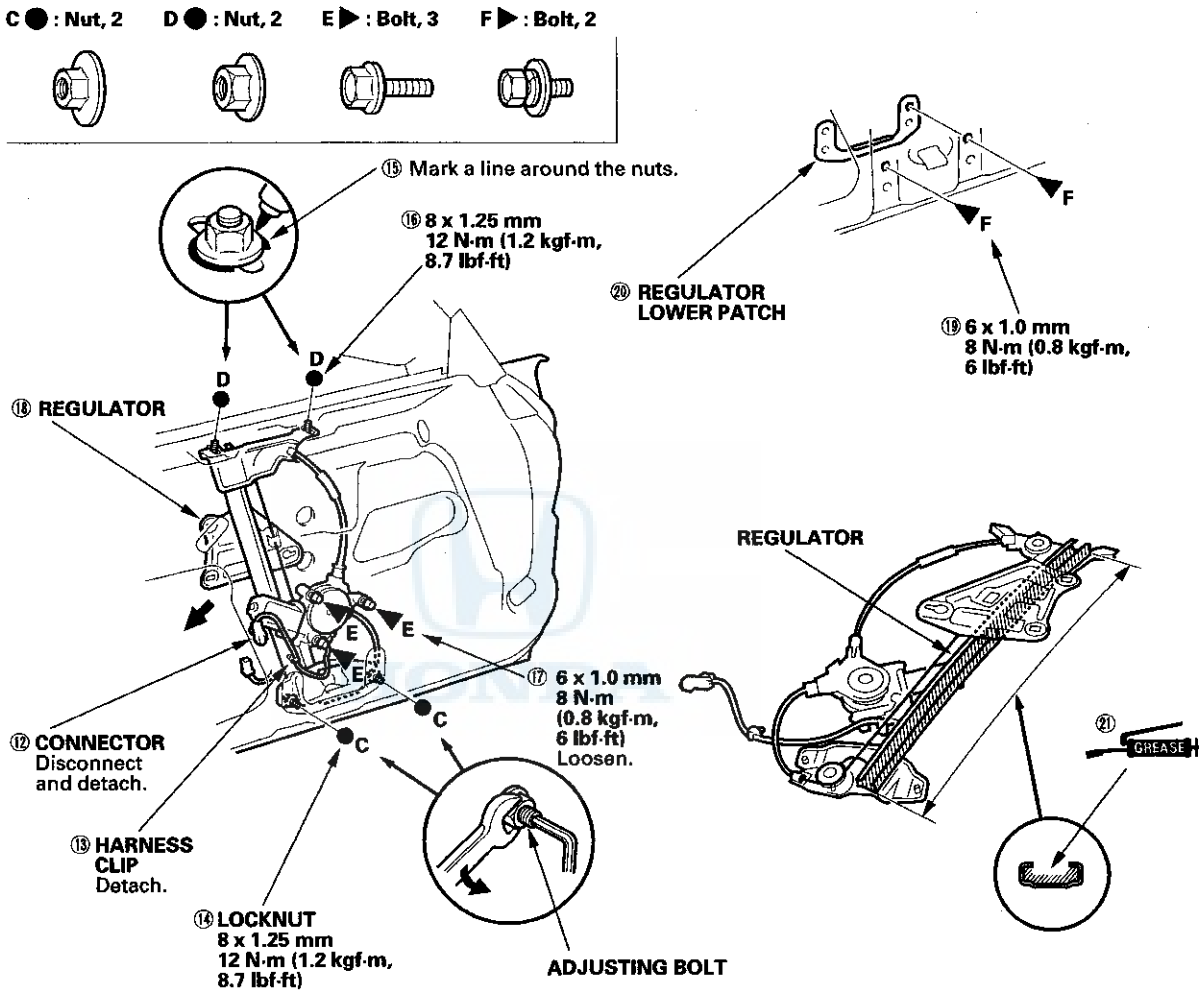
Door Glass and Regulator Replacement (cont'd)

Fastener Locations

B ▶ : Bolt, 3







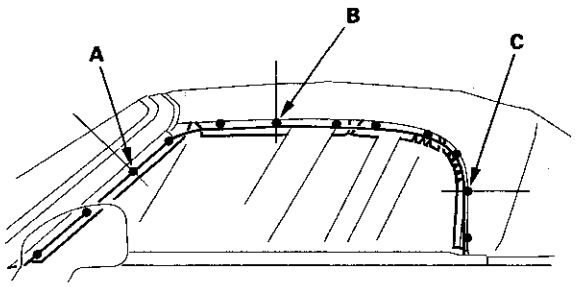
3. Install the glass and regulator in the reverse order of removal, and note these items:

- Hold the adjusting bolts with a hex wrench when installing the locknuts.
- Before installing the regulator, apply multipurpose grease to all the sliding surfaces of the regulator.
- Make sure the connector is plugged in properly.
- Roll the glass up and down to see if it moves freely without binding.
- Make sure that there is no clearance between the glass and roof weatherstrips when the glass is closed.
- Adjust the position of the glass as necessary (see page 20-12).
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
- Check for water leaks (see step 17 on page 20-15).
- Test-drive and check for wind noise and rattles.

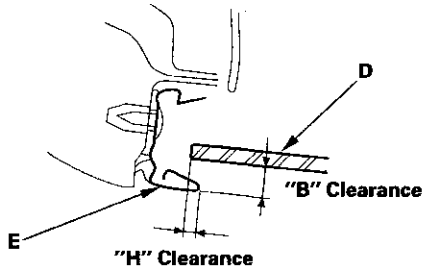
Door Glass Adjustment

NOTE:
- Check the A-pillar-header weatherstrip, roof weatherstrips and B-pillar weatherstrip for damage or deterioration, and replace them if necessary.
- Wipe each weatherstrip and the front lower channel clean with a shop towel.
- Lubricate the front lower channel with Shin-Etsu silicone grease P/N 08798-9013.

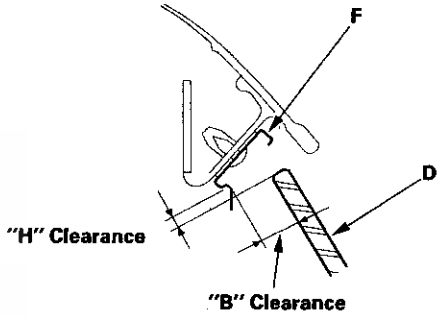
1. Place the vehicle on a firm, level surface.
2. Secure the convertible top with both convertible top lock handles. Make sure they are locked securely.
3. Lower the glass fully.
4. Remove these items:
   - Door panel (see page 20-5)
   - Plastic cover (see page 20-3)
   - A-pillar-header weatherstrip, pillar portion (see page 20-52)
   - Roof side weatherstrip (see page 20-41)
   - Roof corner weatherstrip (see page 20-36)
   - B-pillar weatherstrip (see page 20-41)
5. Close the door. Check the door fit to the body opening.
6. Raise the glass fully.
7. At the measuring points (A, B, C), measure and record clearances "H" and "B" between the glass (D) and the molding (E) and the glass and the retainer (F). Adjust the clearance as described in steps 9 thru 10.



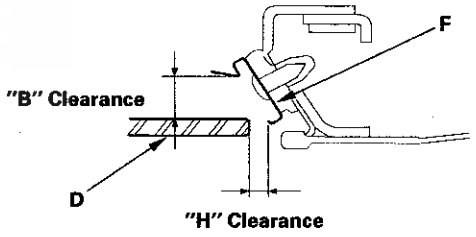
Measuring Point A



Measuring Point B



Measuring Point C



Clearance (Standard clearance)

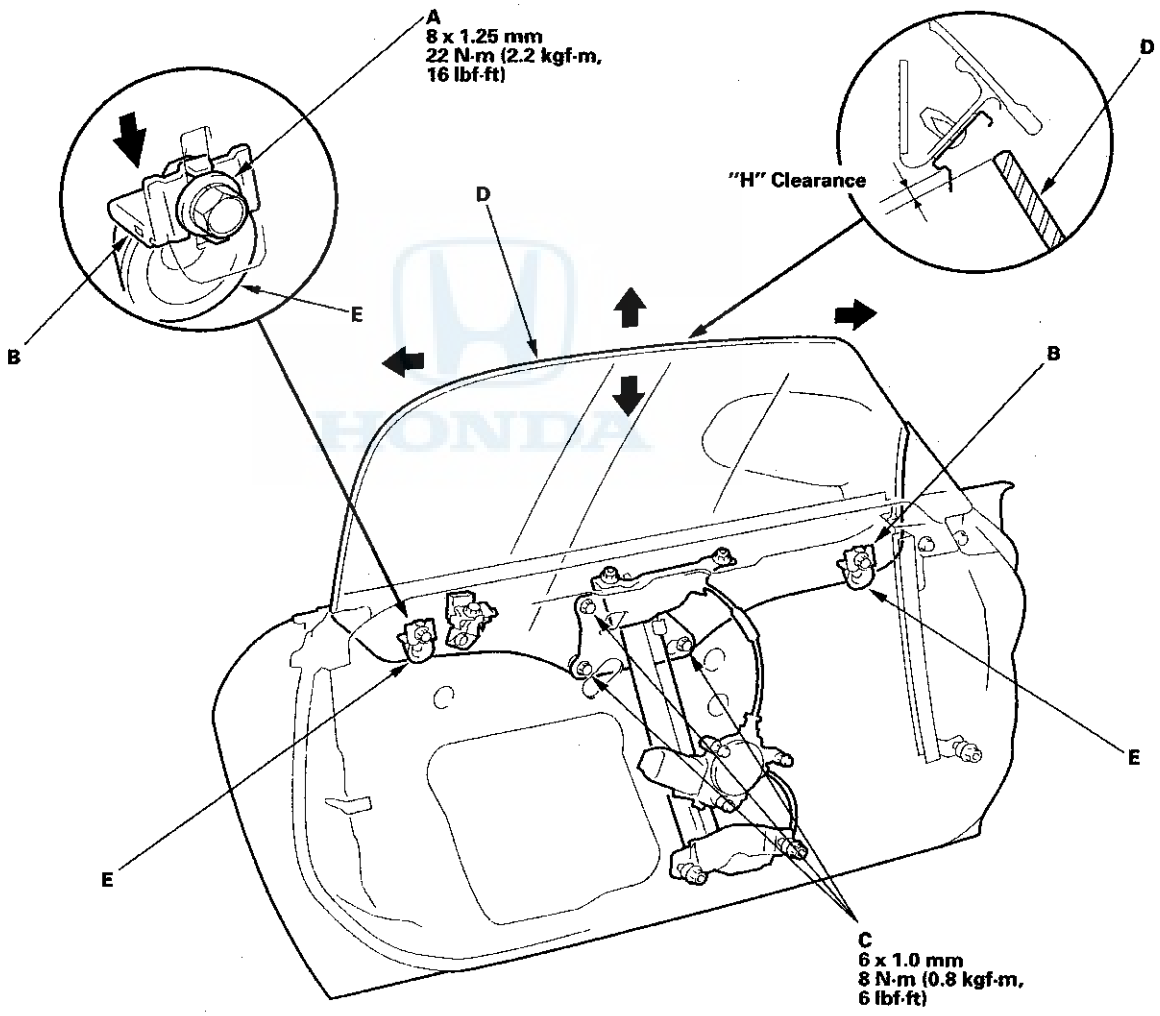
Unit: mm (in.)

Measuring Point		A	B	C
Clearance	"H"	4 (0.16)	3 (0.11)	8 (0.31)
	"B"	11 (0.43)	14 (0.55)	18 (0.71)

8. Move the door sash holder all the way forward (see page 20-16).

9. Adjust clearance "H" as follows:

1. Loosen the bolts (A) securing the stop plates (B).
2. Loosen the bolts (C) securing the glass (D).
3. Move the glass up or down, as well as, forward and rearward to align it with the retainer and molding. Move the glass until clearance "H" is within the specified limits.
4. Tighten the bolts securing the glass.
5. Press the stop plates against the glass stops (E).
6. Fasten the stop plates. Check that the stop plates contact the glass stops evenly.



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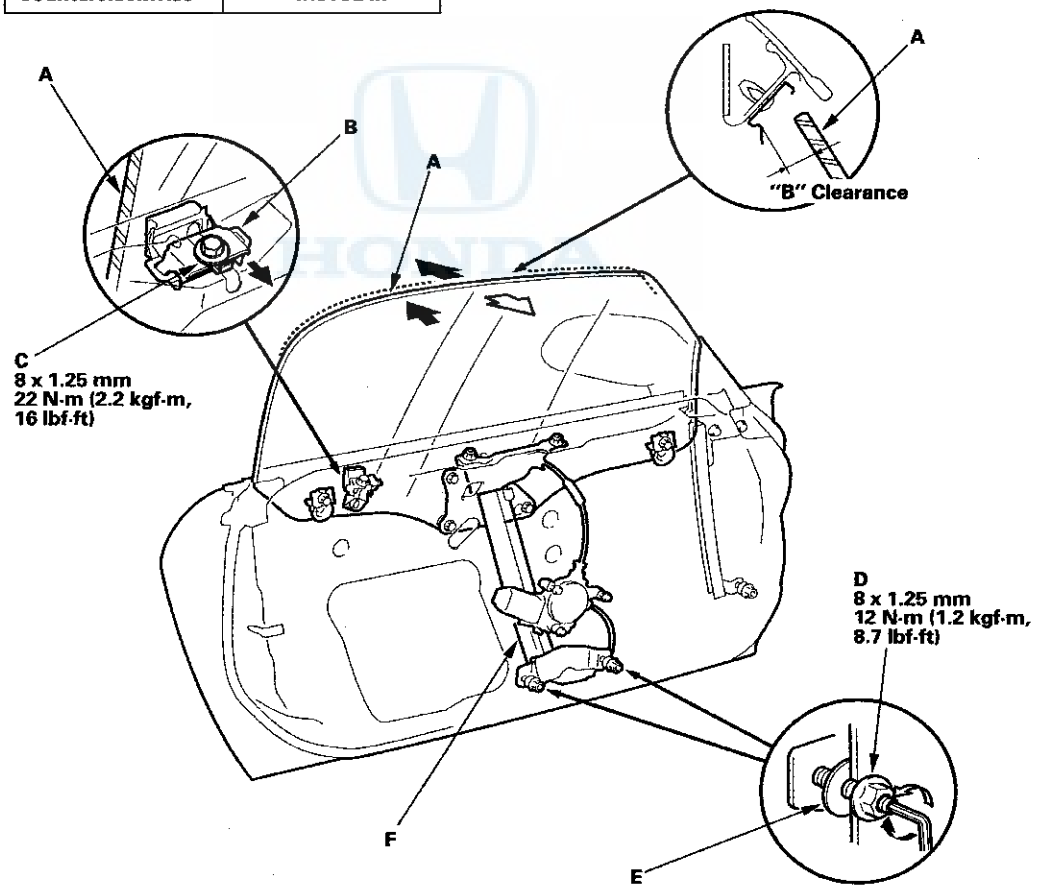
Door Glass Adjustment (cont'd)

10. Adjust clearance "B" as follows:

-1 Push the glass (A) outward 10 mm (0.39 in.), then lightly push the stabilizer (B) against the glass.
-2 Tighten the bolt (C) securing the stabilizer. Check that the glass moves smoothly.
-3 Loosen the locknuts (D).
-4 Turn the adjusting bolts (E) until the clearance "B" is within the specified limits. Turn the front and rear adjusting bolts the same amount to keep the regulator (F) parallel with the seating surface of the door.
-5 Tighten the locknuts. Make sure that the ends of the adjusting bolts still project out of the locknuts.
-6 Move the glass up and down to seat it, then measure clearance "B" at the designated locations.
-7 Measure clearance "H" again to make sure it is still within the specified limits at the designated locations. Repeat the above steps until the correct clearances are obtained.

Adjusting Bolt	Top Edge of Glass
Clockwise	➡ Moved out
Counterclockwise	⇨ Moved in



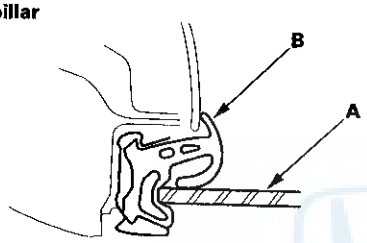
11. Align the door sash holder with the glass using the adjusting bolt at the bottom of the door sash holder (see page 20-17).

12. After the clearances have been adjusted properly, reinstall each weatherstrip.

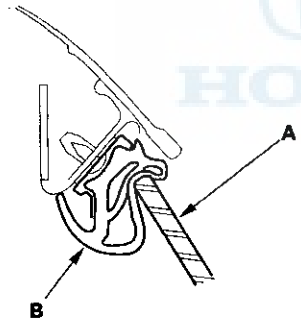
13. Check that the glass moves smoothly.

14. Raise the glass (A) fully, and check that the glass contacts each weatherstrip (B) evenly. Measuring points are described at step 7.

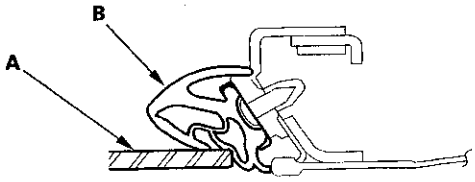
Front roof pillar



Roof



B-pillar

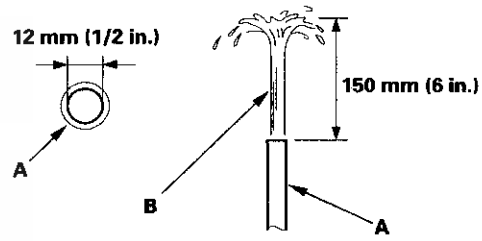


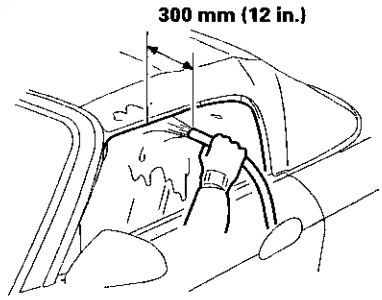
15. Attach the plastic cover making sure it is sealed around its outside perimeter to seal out water, then install the door panel (see page 20-5).

16. Make sure that the top is locked securely, then raise the glass fully, and close the doors.

17. Check for water leaks. Run water over the roof and on the sealing area as shown, and note these items:

    - Use a 12 mm (1/2 in.) diameter hose (A).
    - Adjust the rate of water flow (B).
    - Do not use a nozzle.
    - Hold the hose about 300 mm (12 in.) away from the door.





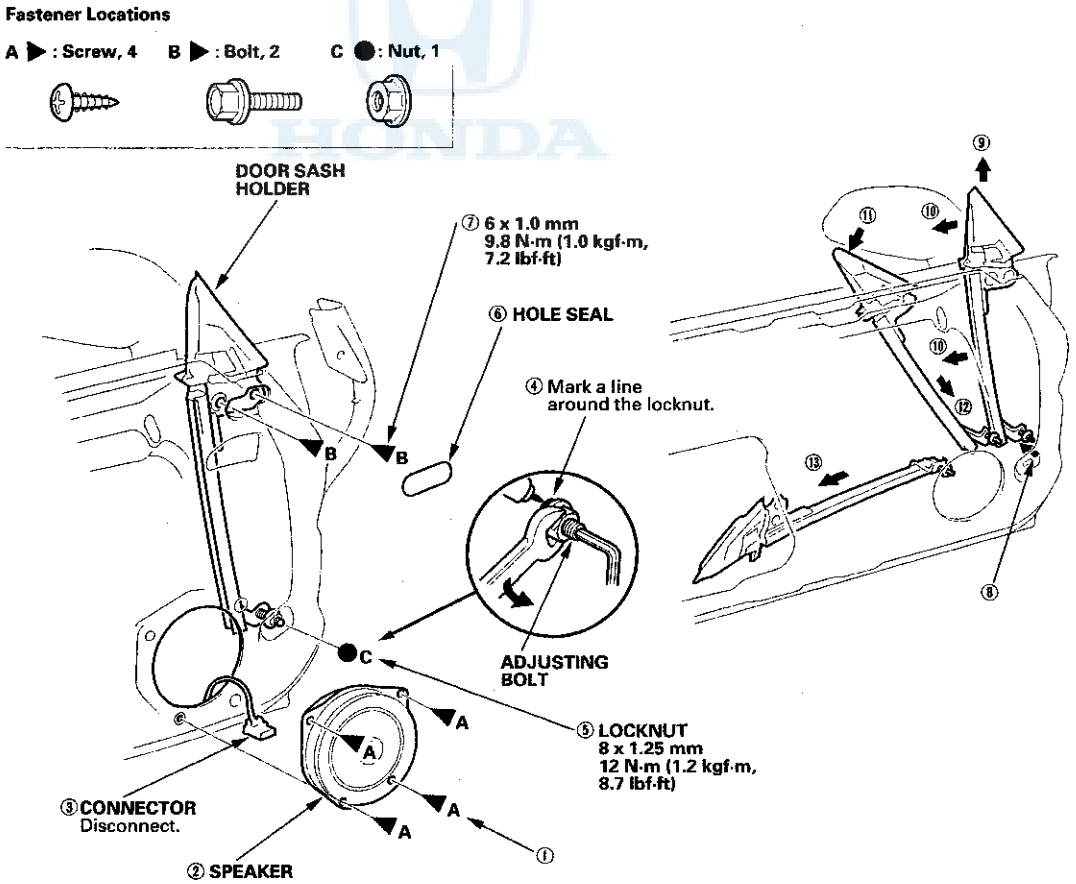
18. If there are leaks, recheck the work performed, and check the door glass, weatherstrip, A-pillar molding, and retainer adjustment.

19. Test-drive and check for wind noise.

Door Sash Holder Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the door.

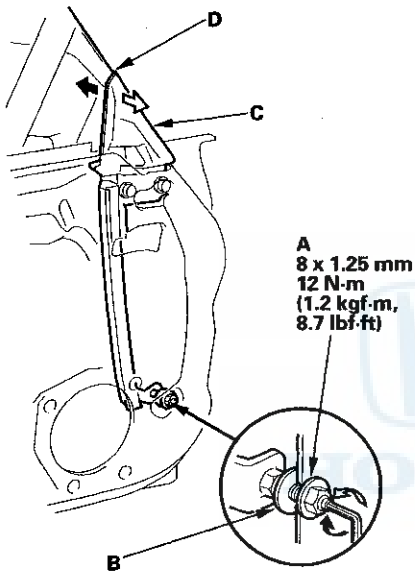
1. Remove these items:
   - Door glass (see page 20-9)
   - Door weatherstrip, as necessary (see page 20-18)
2. Remove the door sash holder in the numbered sequence:
   - Hold the adjusting bolt with a hex wrench when removing the locknut.
   - Mark a line around the locknut to show the original adjustment.
3. Install the holder in the reverse order of removal, and note these items:
   - Adjust the position of the door sash holder (see page 20-17).
   - Test-drive and check for wind noise and rattles.
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks (see step 17 on page 20-15).



Door Sash Holder Adjustment

1. Raise the glass fully.
2. Loosen the locknut (A) while holding the adjusting bolt (B) with a hex wrench.

Adjusting Bolt	Top Edge of Holder
Clockwise	➡ Moved out
Counterclockwise	⇨ Moved in



3. Align the door sash holder (C) with the glass using the adjusting bolt at the bottom of the door sash holder. Make sure that there is no clearance between the end of channel (D) and glass surface.
4. Tighten the locknut securely.
5. Reinstall all remaining removed parts.
6. Check for water leaks (see step 17 on page 20-15).
7. Test-drive and check for wind noise and rattles.

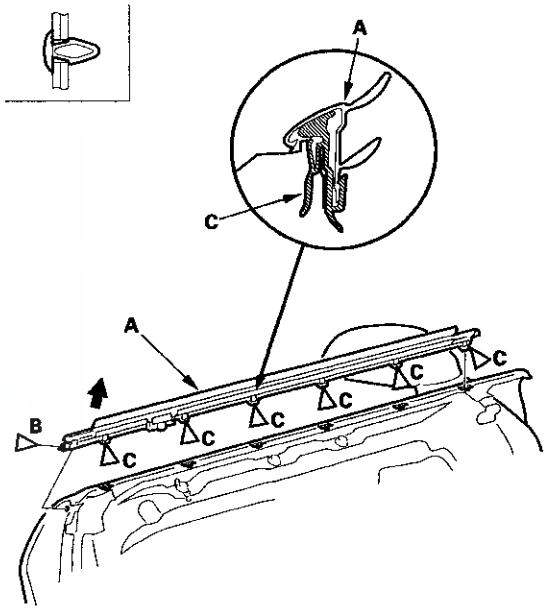
Door Glass Outer Weatherstrip Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the door and door molding.

1. Remove the door sash holder (see page 20-16).
2. Starting at the rear, pry the outer weatherstrip (A) up, and detach the clips (B, C).

Fastener Locations

B ▷ : Clip, 1 C ▷ : Clip, 6



3. Install the weatherstrip in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

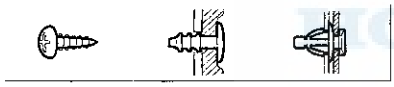
Door Weatherstrip Replacement

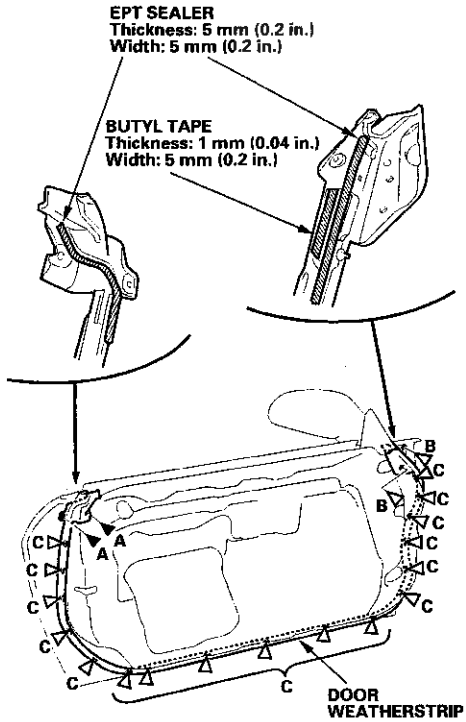
NOTE:
- Take care not to scratch the door.
- Use a clip remover, to remove the clips.

1. Remove the door panel (see page 20-5).
2. Remove the door weatherstrip as shown.
3. Install the weatherstrip in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - If the old weatherstrip will be reinstalled, scrape off all traces of old EPT sealer and butyl tape, then clean the weatherstrip surface with isopropyl alcohol.
   - Attach the new weatherstrip into place using EPT sealer and butyl tape.
   - Check for water leaks.
   - Test-drive and check for wind noise and rattles.

Fastener Locations

A ▶ : Screw, 2 B ▷ : Clip, 2 C ▷ : Clip, 17





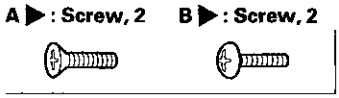
Door Wedge and Door Wedge Holder Replacement

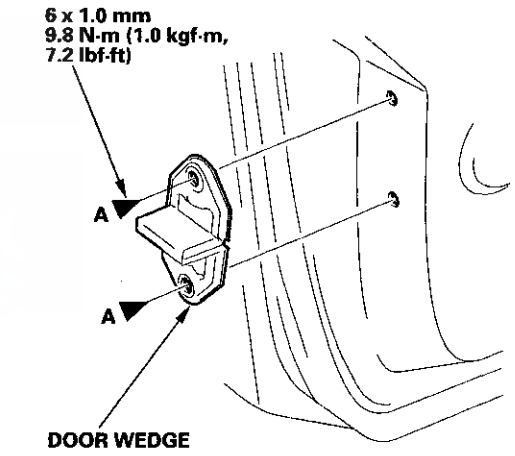
NOTE: Take care not to scratch the door and body.

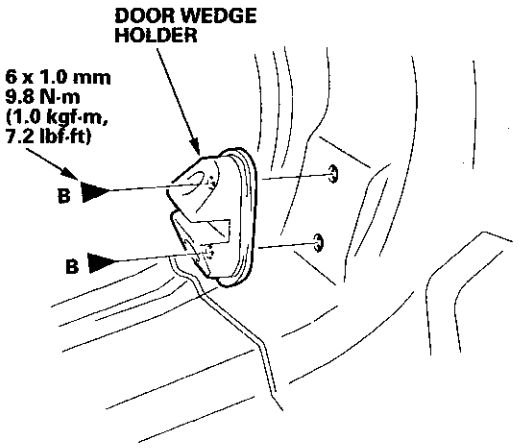
1. Remove the door wedge and the door wedge holder as shown.
2. Install the wedge and wedge holder in the reverse order of removal, and when installing the door wedge holder, adjust it up or down until the door wedge is centered in the holder.

Fastener Locations

A ▶ : Screw, 2 B ▶ : Screw, 2



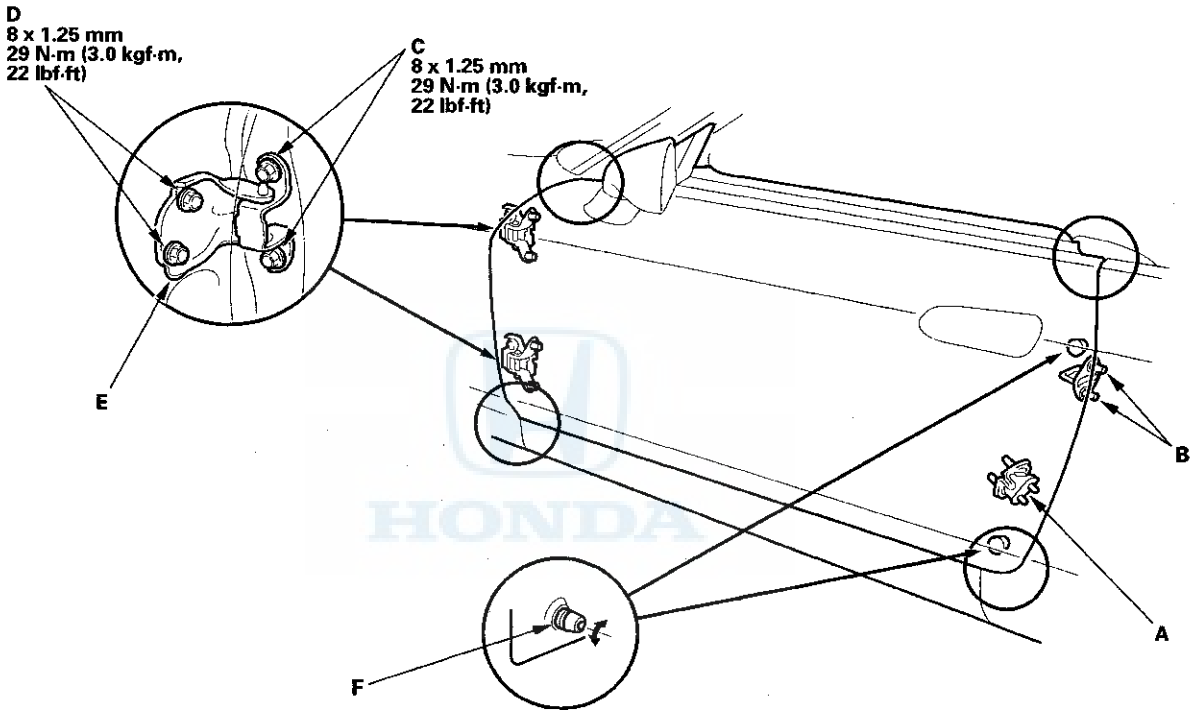




Door Position and Door Striker Adjustment

NOTE:
- Check for a flush fit with the body, then check for equal gaps between the front, rear, and bottom door edges and the body. Check that the door and body edges are parallel.
- Place the vehicle on a firm, level surface when adjusting the door.
- Support the door with a floor jack, and place a shop towel on the jack to prevent damage to the door.

1. Remove the door wedge holder (A) (see page 20-18).



2. Slightly loosen the striker mounting screws (B).

3. If necessary, replace the door mounting bolts (C) and hinge mounting bolts (D) with adjusting bolts (P/N 90101-SZ3-000) made specifically for door adjustment.

4. Adjust the door alignment in this sequence:

   - Adjust at the hinges (E):
     – Loosen the door mounting bolts slightly, and move the door in or out until it's flush with the body.
     – Remove the inner fender (see page 20-126), then slightly loosen the hinge m ounting bolts, and move the door backward or forward, up or down as necessary to equalize the gaps.
   - Turn the door cushions (F) as necessary to make the rear of the door flush with the body.

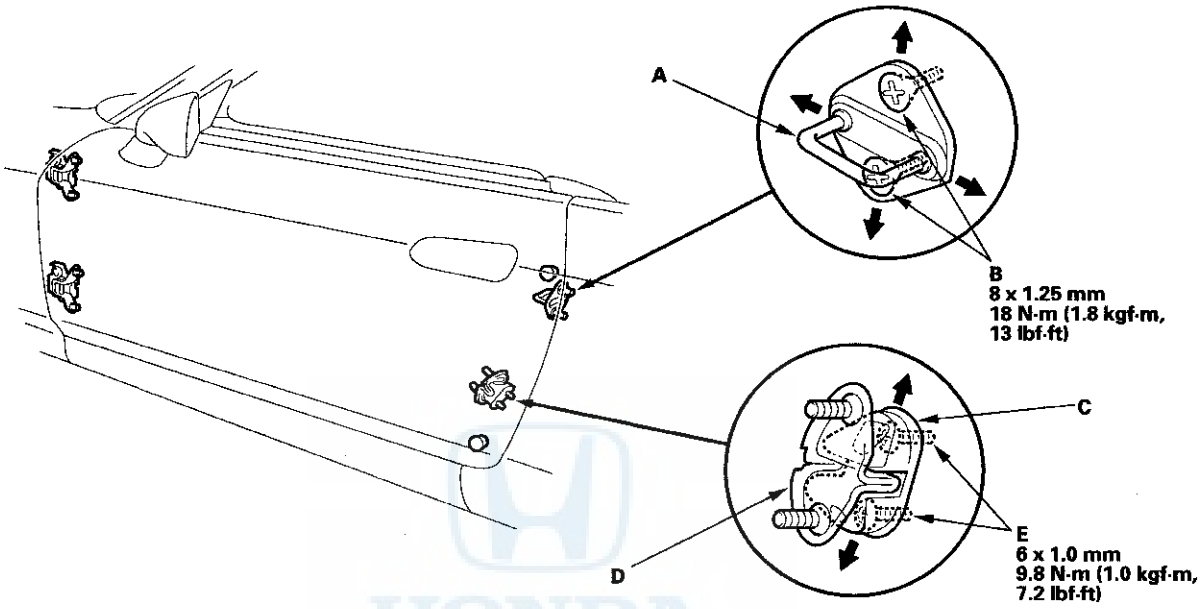
5. Make sure the door and body edges are parallel and the door is flush with the body. Tighten the door and hinge mounting bolts, and recheck.

(cont'd)

Door Position and Door Striker Adjustment (cont'd)

6. Adjust the striker (A):

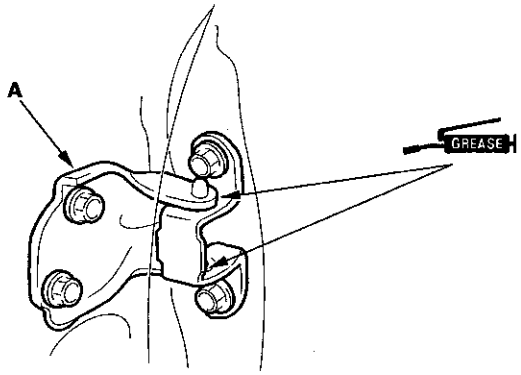
   - Move the striker In or Out to make the latch fit tighter or looser.
   - Move the striker Up or Down to align it with the latch opening.



7. Make sure the door latches properly. Tighten the screws (B), and recheck.

8. Align the door wedge holder (C) up or down until the door wedge (D) is centered in the holder. Tighten the screws (E), and recheck.

9. Apply multipurpose grease to the pivot portions of the hinges (A) indicated by the arrows.

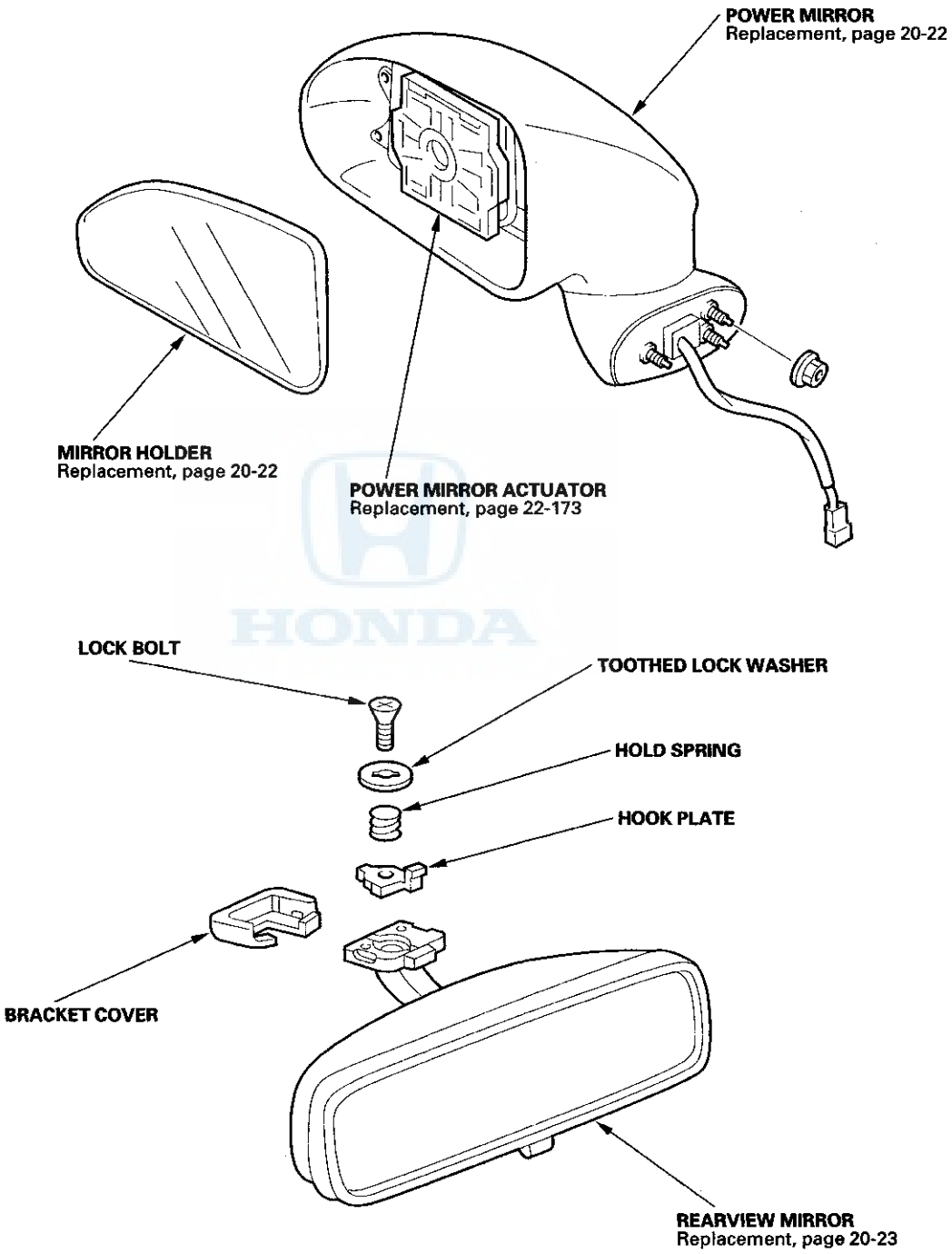


10. Apply touch-up paint to the hinge and door mounting bolts, and around the hinges.

11. Check for water leaks (see step 17 on page 20-15).

12. Test-drive and check for wind noise and rattles.

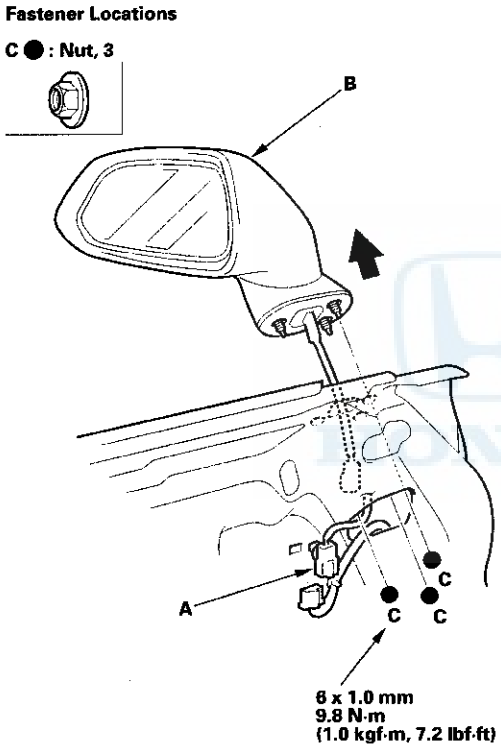
Component Location Index



Power Mirror Replacement

NOTE: To avoid scratching the door, be sure to hold the mirror while removing or installing the nuts.

1. Remove these items:
   - Door sash holder (see page 20-16)
   - Plastic cover, as necessary (see page 20-3)
2. Disconnect the connector (A), and detach it from the door.



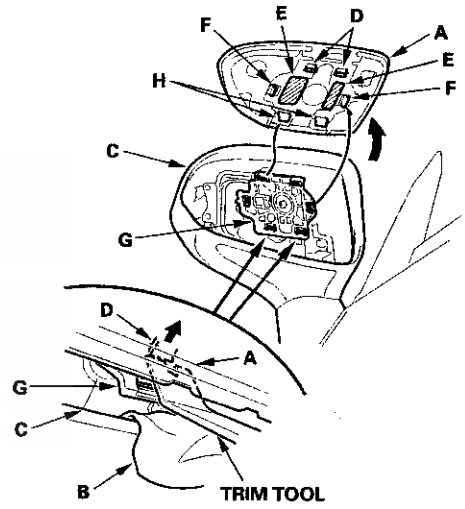
3. Support the mirror (B) with one hand, remove the nuts (C), then remove the mirror.
4. Install the mirror in the reverse order of removal, and note these items:
   - Make sure the connector is plugged in properly.
   - Adjust the position of the door sash holder (see page 20-17).
   - When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
   - Check for water leaks (see step 17 on page 20-15).
   - Test-drive and check for wind noise and rattles.

Mirror Holder Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.

1. Carefully push on the top edge of the mirror holder (A) by hand.



2. Put a shop towel (B) in the opening between the lower edge of the mirror holder and the mirror housing (C) to prevent scratches, and detach the bottom clips (D) with a trim tool.
3. Carefully pull out the bottom edge of the mirror holder to separate the butyl tape (E), and then release the side clips (F).
4. Separate the mirror holder from the actuator (G) by releasing the hooks (H).
5. Scrape off old butyl tapes, then clean the actuator surface with isopropyl alcohol, and apply the new butyl tapes to the actuator.

   Butyl tape: Thickness 1.5 mm (0.059 in.)
6. Insert the hooks on the mirror holder into the slots on the actuator. Position the mirror holder on the actuator, and carefully push the clips into place.
7. Check the actuator operation.

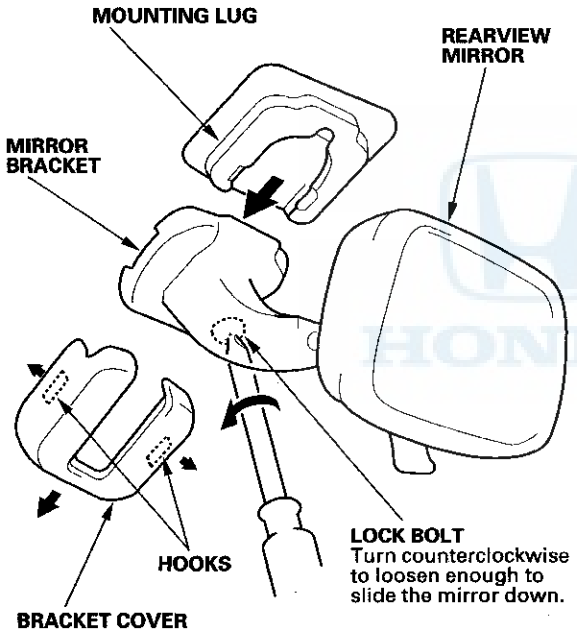
Rearview Mirror Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

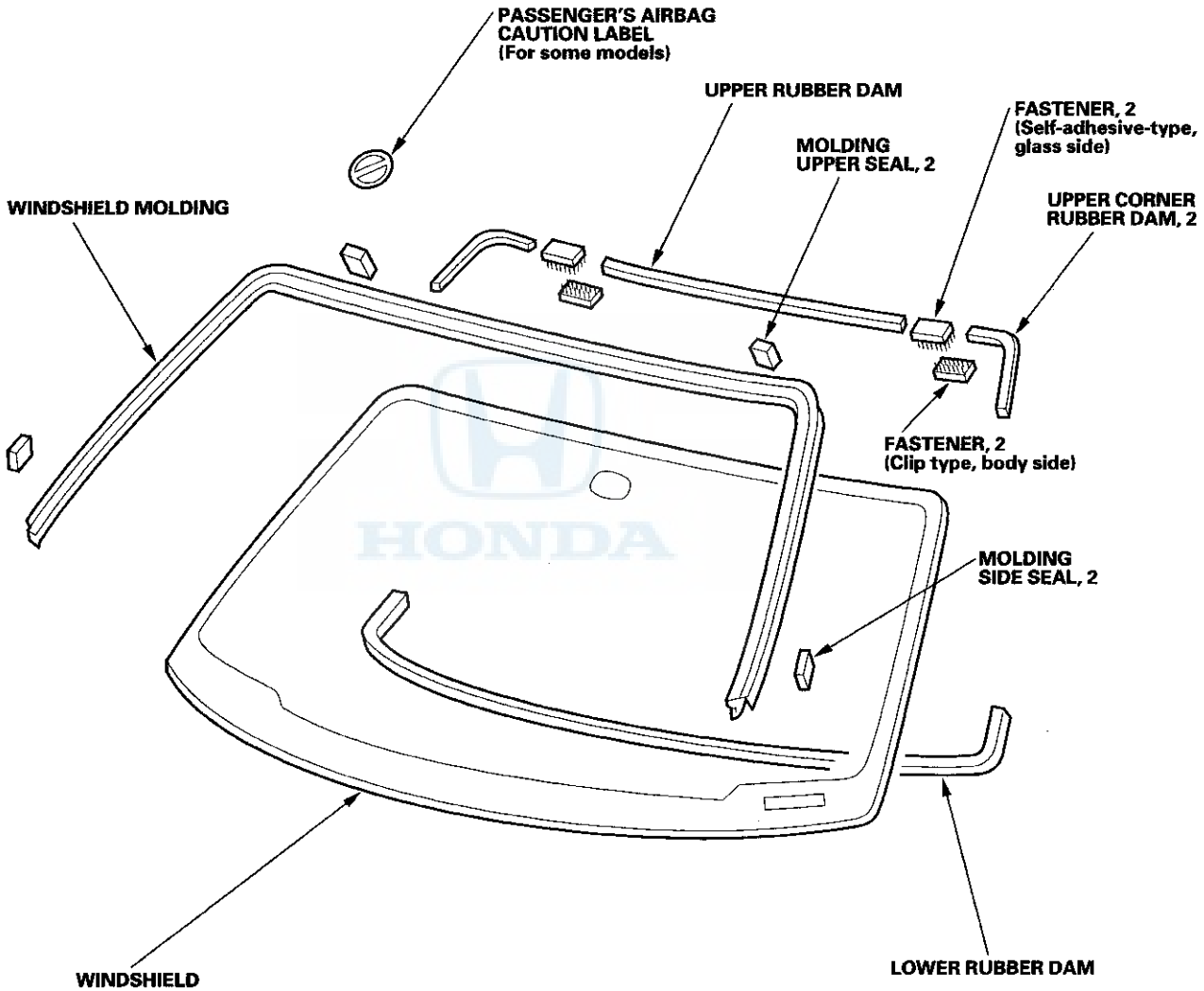
NOTE:
- Take care not to scratch the cover and mirror stay.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.

1. Remove the rearview mirror as shown.

2. Install the mirror in the reverse order of removal.

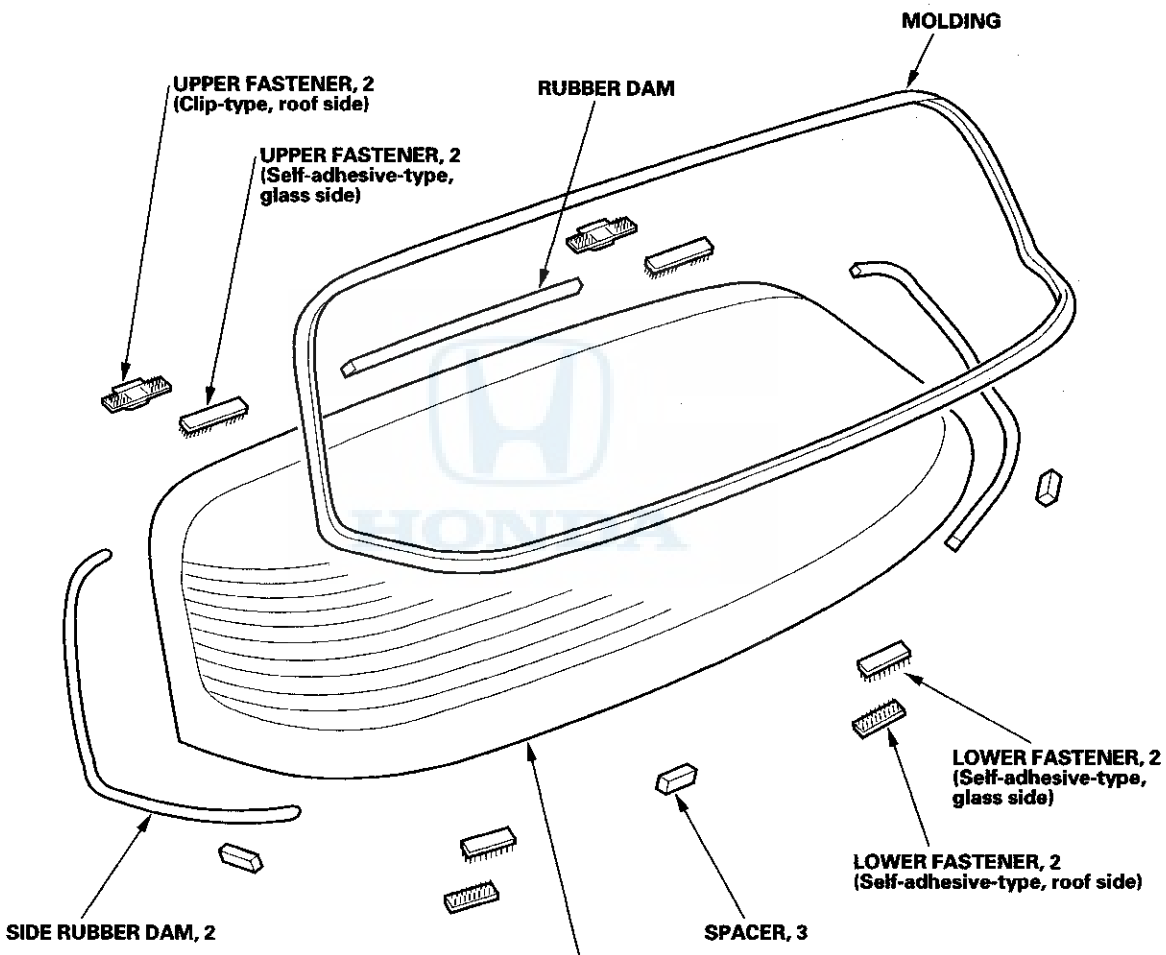


Component Location Index



Glass Replacement Process, page 20-26
Replacement, page 20-30

Removable Hardtop



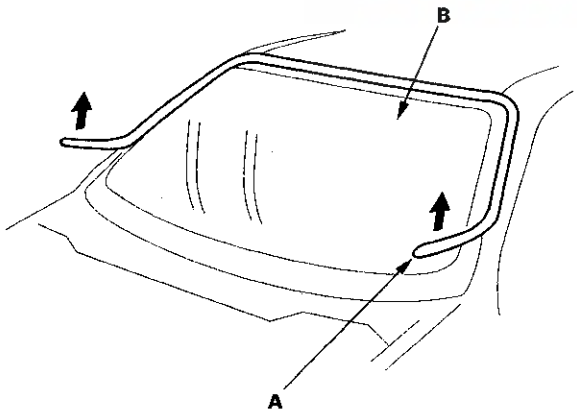
Glass Replacement Process

NOTE:
- This is general description of the glass replacement process using the windshield as an example. For the location of clips, rubber dams, and other details, go to the part of this manual that covers the specific glass you are replacing:
  – Windshield (see page 20-30)
  – Rear window (see page 20-33)
- Put on gloves to protect your hands.
- When replacing a broken windshield, a commercially available windshield cutter can be efficiently used for cutting the adhesive. For details, follow the instructions of the tool manufacturer.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Cover interior surfaces to avoid damaging them.

1. Remove related parts as necessary (see the part of this manual that covers the specific glass you are replacing).

2. Disconnect any connectors from the glass terminals.

3. Remove the molding (A) from the edge of the glass (B). If necessary, cut the molding with a utility knife.



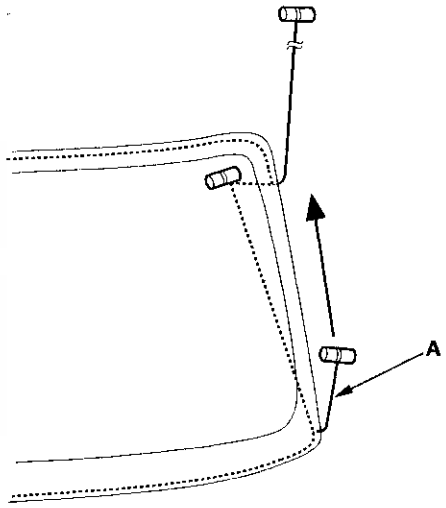
4. If the old glass will be reinstalled, make alignment marks across the glass and body with a grease pencil at four points.

5. Apply protective tape along the edge of the body and related parts.

6. Using an awl, make a hole through the adhesive from inside the vehicle at the corner of the glass.

7. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

8. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the windshield as possible to prevent damage to the body and dashboard. Carefully cut through the rubber dam and adhesive around the entire windshield.



9. Carefully remove the glass.

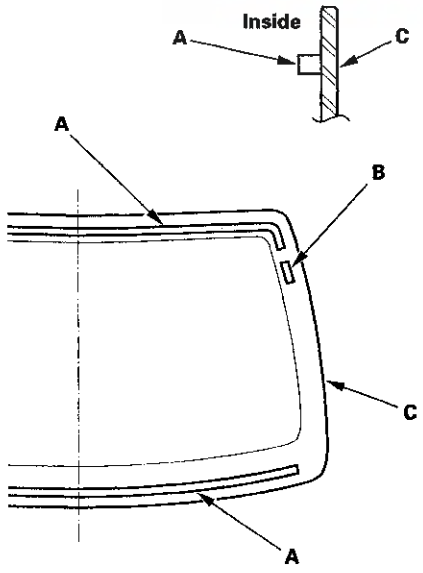
10. With a knife, scrape the old adhesive smooth to a thickness of about 2 mm (0.08 in.) on the bonding surface around the entire glass opening flange:

    - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
    - Remove any remaining fasteners from the body.

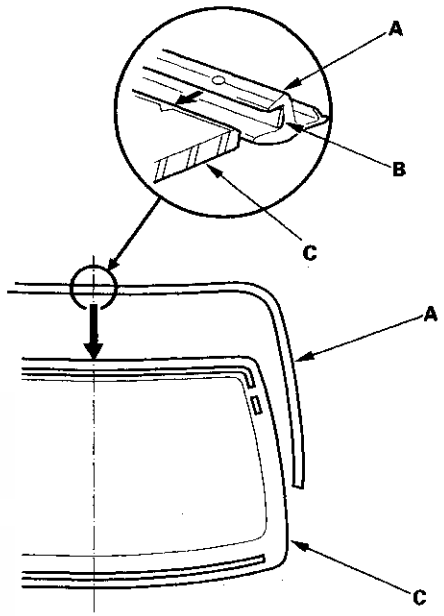
11. Clean the body bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.

12. If the old glass will be reinstalled, use a putty knife to scrape off all of the old adhesive and any remaining parts from the glass. Clean the inside face of the glass with isopropyl alcohol where new adhesive will be applied. Make sure the bonding surface is kept free of water, oil and grease.

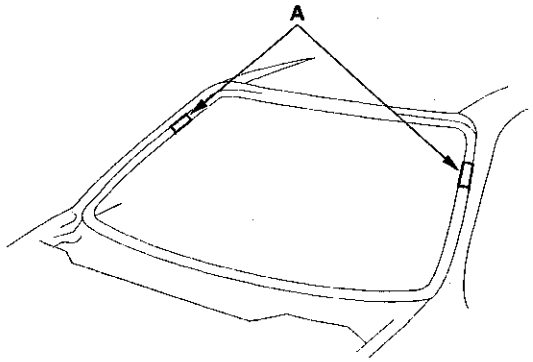
13. Attach rubber dams (A), fasteners (B), and other parts to the inside face of the glass (C). Be careful not to touch the glass where adhesive will be applied.



14. Attach the molding (A) with adhesive tape (B) to the edge of the glass (C). Be careful not to touch the glass where adhesive will be applied.



15. Install the fasteners (A) on the body.



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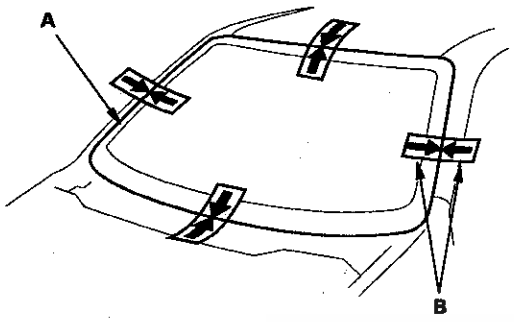
Glass Replacement Process (cont'd)

16. If new glass will be installed, set the glass (A) in the opening, and center it. Make alignment marks (B) across the glass and body with a grease pencil at the four points shown. Be careful not to touch the glass where adhesive will be applied.

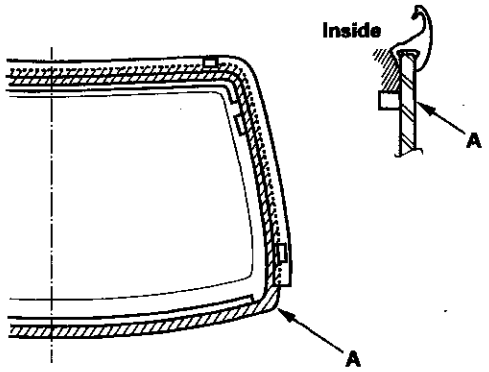


17. Remove the glass.

18. With a sponge, apply a light coat of glass primer around the edge of the glass (A), then lightly wipe it off with gauze or cheesecloth:

    - Apply glass primer to the molding.
    - Do not apply body primer to the glass, and do not get body and glass primer sponges mixed up.
    - Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the glass properly, causing a leak after the glass is installed.
    - Keep water, dust, and abrasive materials away from the primed surfaces.

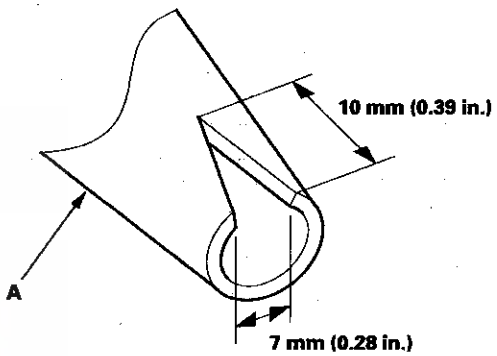
    ////// : **Apply glass primer here.**



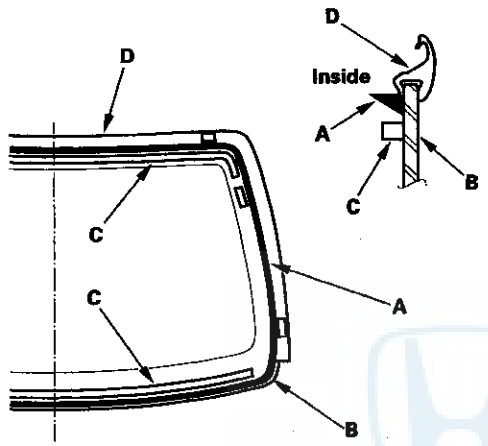
19. With a sponge, carefully apply a light coat of body primer to any exposed paint around the flange where new adhesive will be applied. Let the primer dry for at least 10 minutes:

    - Do not apply primer to any remaining original adhesive on the flange.
    - Be careful not to mix up the body and glass primer sponges.
    - Never touch the primed surface with your hands.

20. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.



21. Put the cartridge in a caulking gun, and run a bead of adhesive (A) around the edge of the glass (B) between the rubber dam (C) and molding (D) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



22. Use suction cups to hold the glass over the opening, align it with the alignment marks made in step 4 or 16, and set it down on the adhesive. Lightly push on the glass until its edges are fully seated on the adhesive all the way around.

    NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.

23. Scrape or wipe any excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the glass, wipe with a soft shop towel dampened with isopropyl alcohol.

24. After the adhesive has dried, spray water over the windshield and check for leaks. Mark the leaking area, let the windshield dry, then seal with sealant:

    - Let the vehicle stand for at least 4 hours after windshield installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
    - Keep the glass dry for the first hour after installation.

25. Reinstall all remaining removed parts. Install the rearview mirror after the adhesive has dried thoroughly.

    NOTE: Advise the customer not to do the following things for 2 to 3 days:
    - Slam the doors with all the windows rolled up.
    - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

Windshield Replacement

NOTE:
- Familiarize yourself with the glass replacement process (see page 20-26).
- When replacing a broken windshield, a commercially available windshield cutter can be efficiently used for cutting the adhesive. For details, follow the instructions of the tool manufacturer.

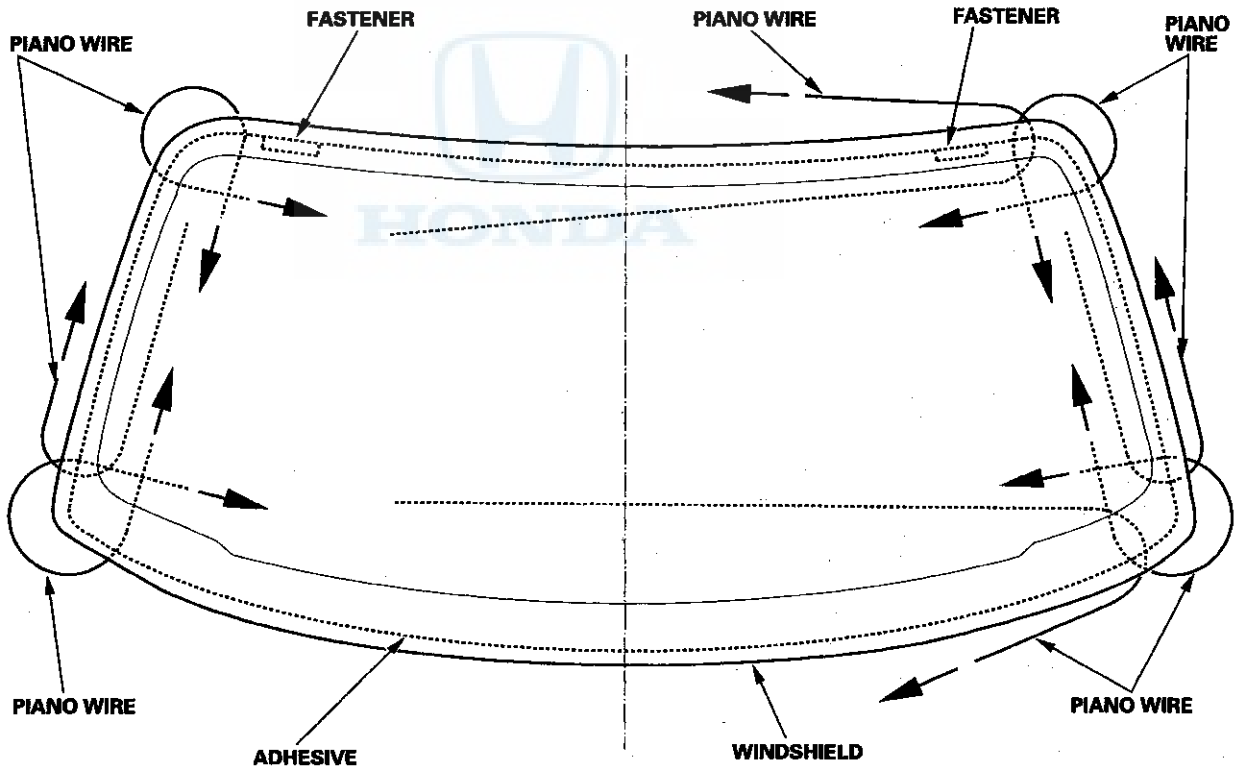
Parts Removal

First remove these items:

- Rearview mirror (see page 20-23)
- Front roof rail trim (see page 20-70)
- Windshield wiper arms (see page 22-185)
- Cowl cover (see page 20-119)

Cutting Positions

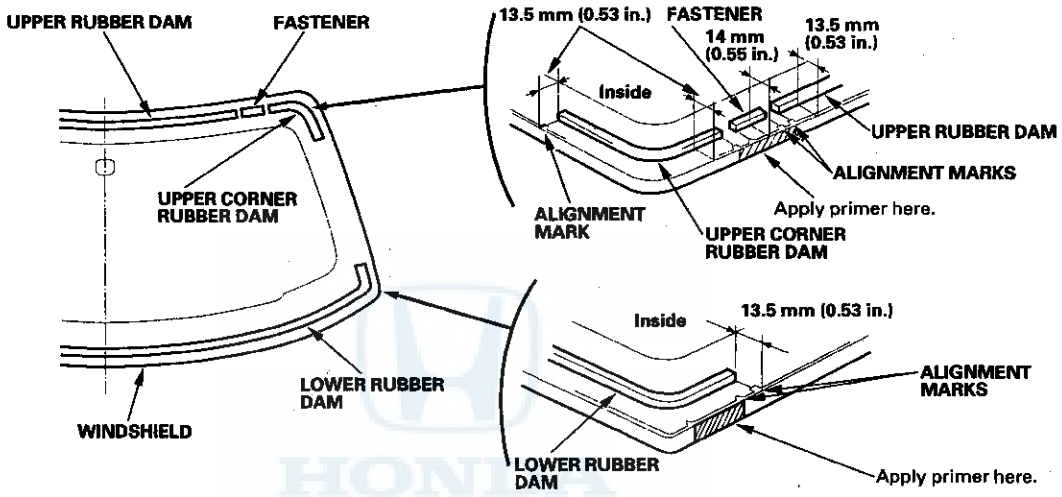
Slip piano wire through the adhesive at each position as shown, and pull it back as indicated by the arrows.



Rubber Dams and Fastener Installation, and Primer Application

- Be sure the rubber dams and fasteners line up with the alignment marks.
- Attach the rubber dams and fasteners with adhesive tape.
- To attach the molding, apply primer to the areas between the alignment marks of the windshield.

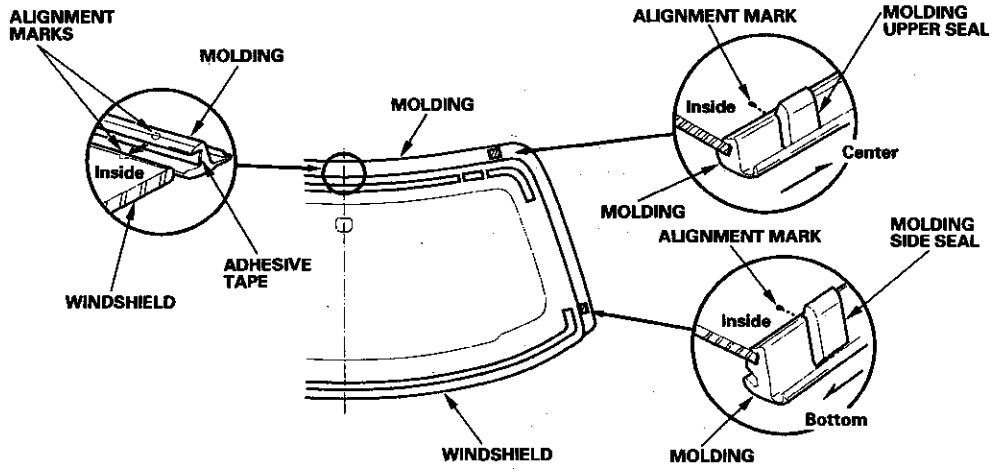
Rubber dam adhesive tape: **Thickness 0.16 mm (0.006 in.)**
Fastener adhesive tape: **Thickness 0.4 mm (0.016 in.)**



Molding Installation

- Be sure the alignment marks on the molding line up with the alignment marks on the windshield.
- Attach the molding with adhesive tape.
- Attach the molding seals to the molding.

Molding adhesive tape: **Thickness 0.8 mm (0.03 in.)**



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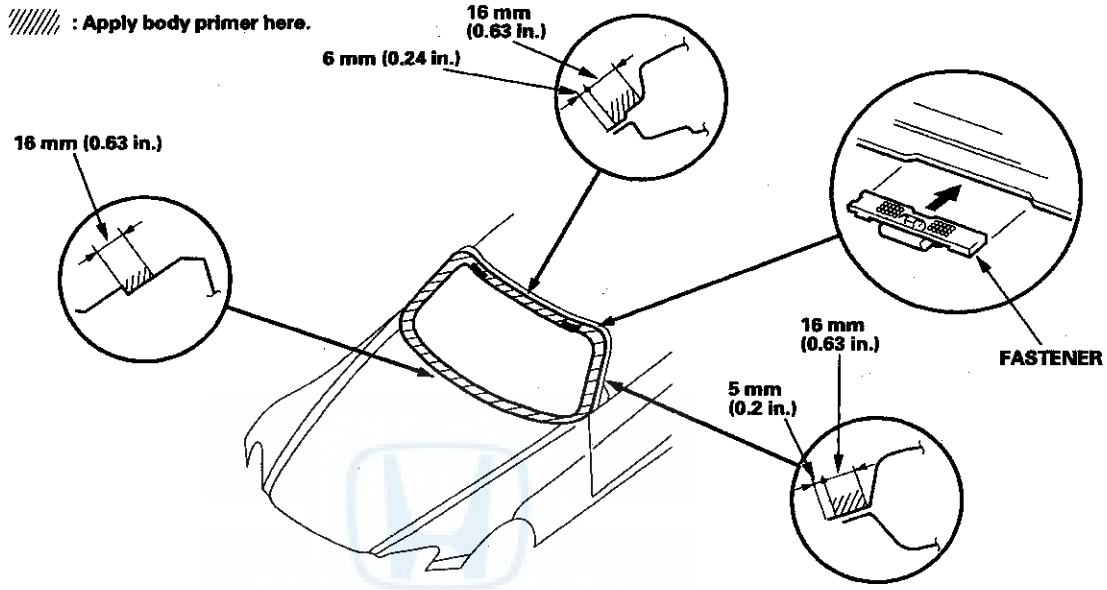
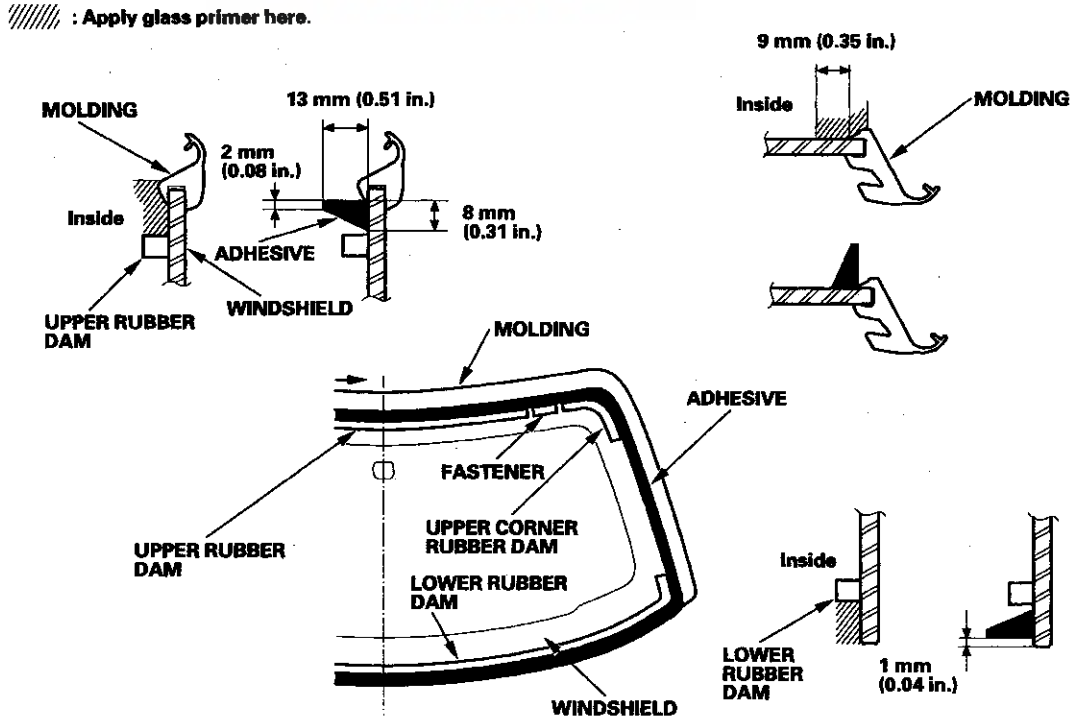
Windshield Replacement (cont'd)

Fastener (body side) Installation/Body Primer Application

NOTE: Apply body primer to exposed painted surfaces only.



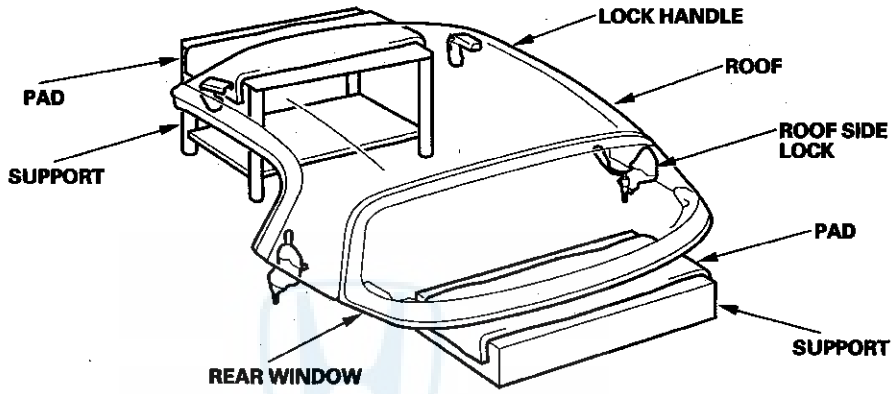
Glass Primer and Adhesive Application



Rear Window Replacement

Removable Hardtop

NOTE:
- To remove and install the rear window, remove the roof from the body.
- Place the roof on padded supports to prevent damage.
- Have an assistant help you remove and install the rear window.
- Familiarize yourself with the glass replacement process (see page 20-26).
- Remove the rear window and molding as an assembly. If the molding is damaged, replace it.



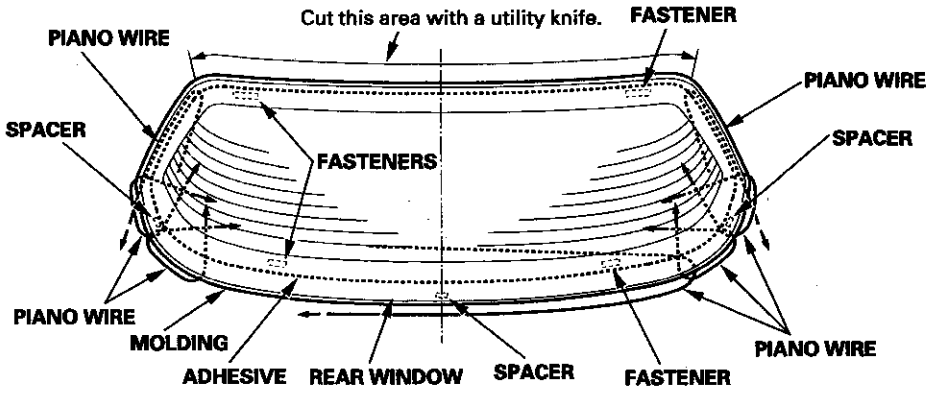
Parts Removal

Remove these items, and disconnect the rear window defogger connectors:

- Headliner (see page 20-57)
- Rear window lower trim (see page 20-56)

Cutting Positions

Slip piano wire through the adhesive at each position as shown, and pull it back as indicated by the arrows. For the upper portion, cut the adhesive with a utility knife from inside while pushing the rear window out.



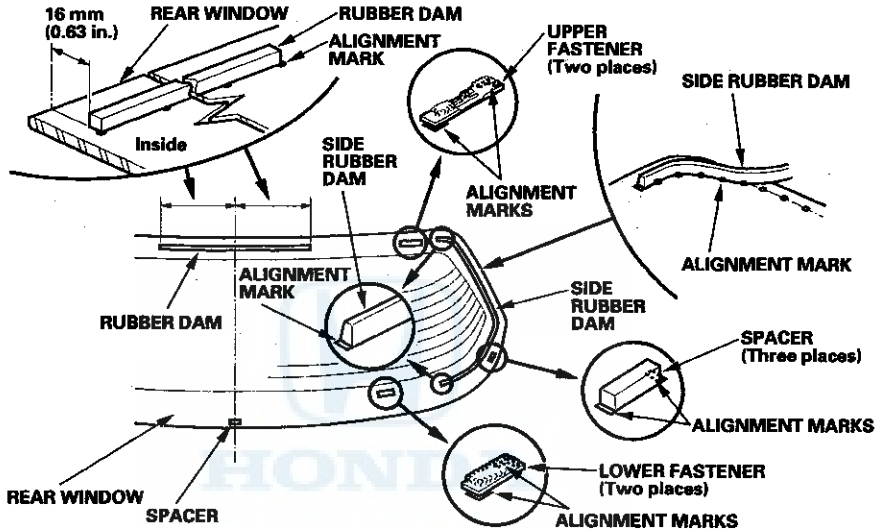
(cont'd)

Rear Window Replacement (cont'd)

Rubber Dams, Fasteners, and Spacers Installation

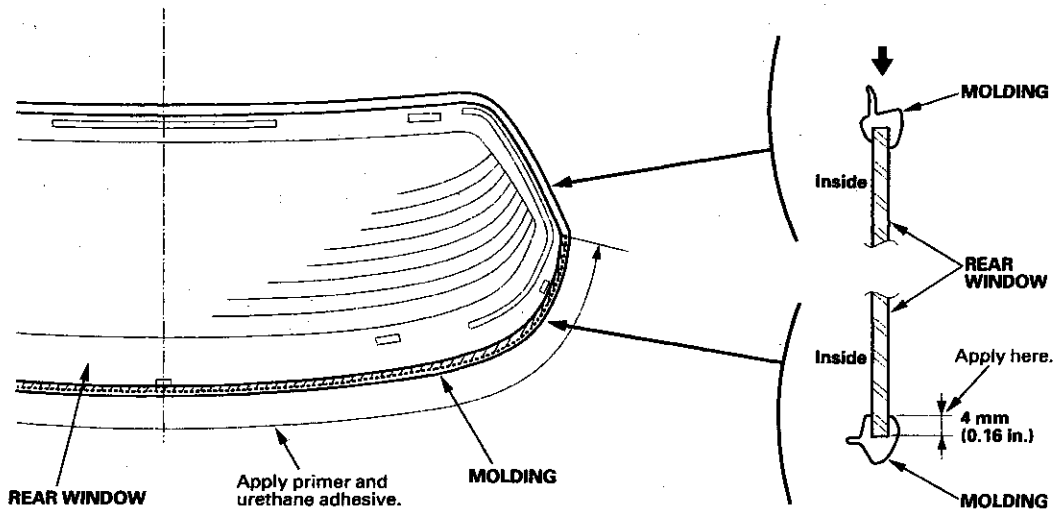
- Be sure the rubber dams, fasteners, and spacers line up with the alignment marks.
- Attach the upper fastener and lower fastener with adhesive tape.
- Attach the rubber dams and spacers with adhesive tape.

Upper fastener adhesive tape: **Thickness 0.4 mm (0.016 in.)**
Lower fastener adhesive tape: **Thickness 0.6 mm (0.024 in.)**
Rubber dam and spacer adhesive tape: **Thickness 0.16 mm (0.006 in.)**



Molding Installation

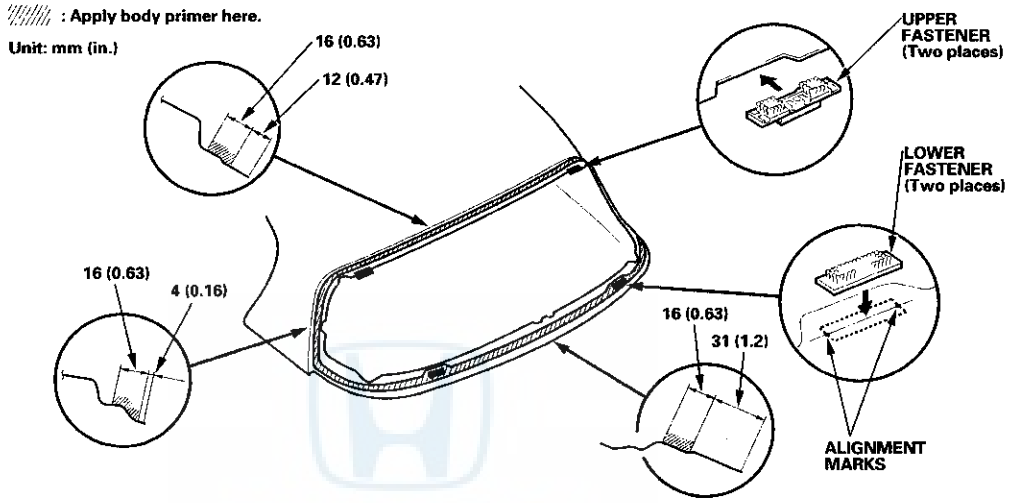
To attach the molding, apply a light coat of primer to the bottom area on the outside of the rear window, and attach the molding with urethane adhesive.



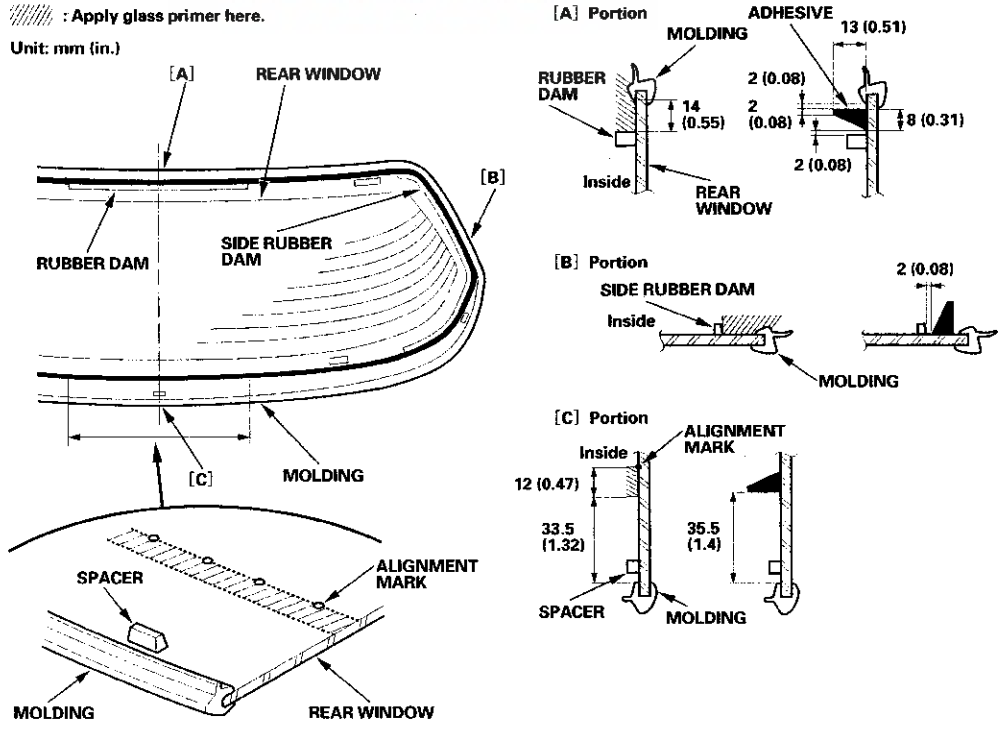
Fastener (roof side) Installation/Body Primer Application

NOTE:
- Apply body primer to exposed painted surfaces only.
- Attach the lower fasteners with adhesive tape.

Lower fastener adhesive tape: Thickness 1.6 mm (0.06 in.)



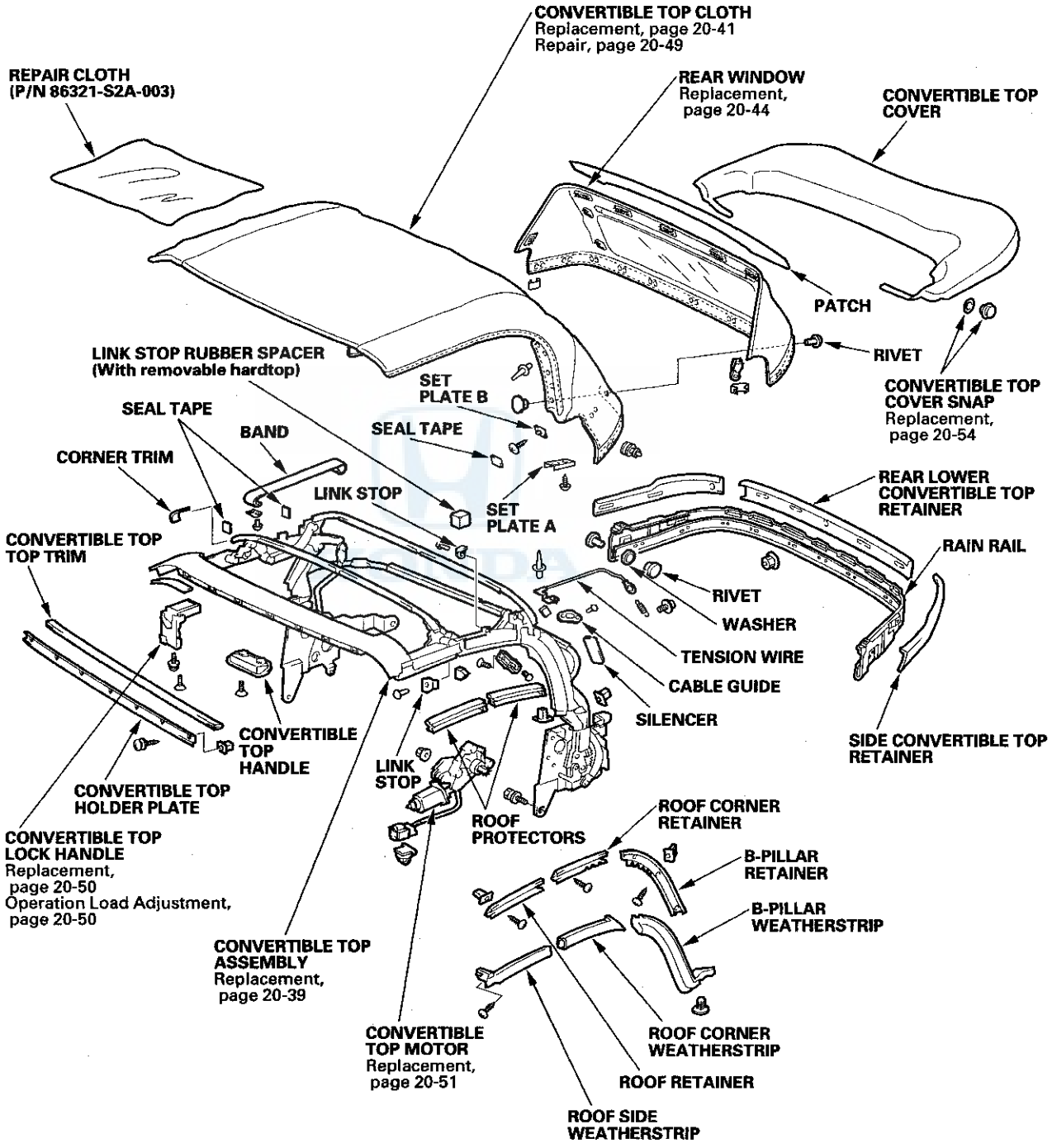
Glass Primer and Adhesive Application



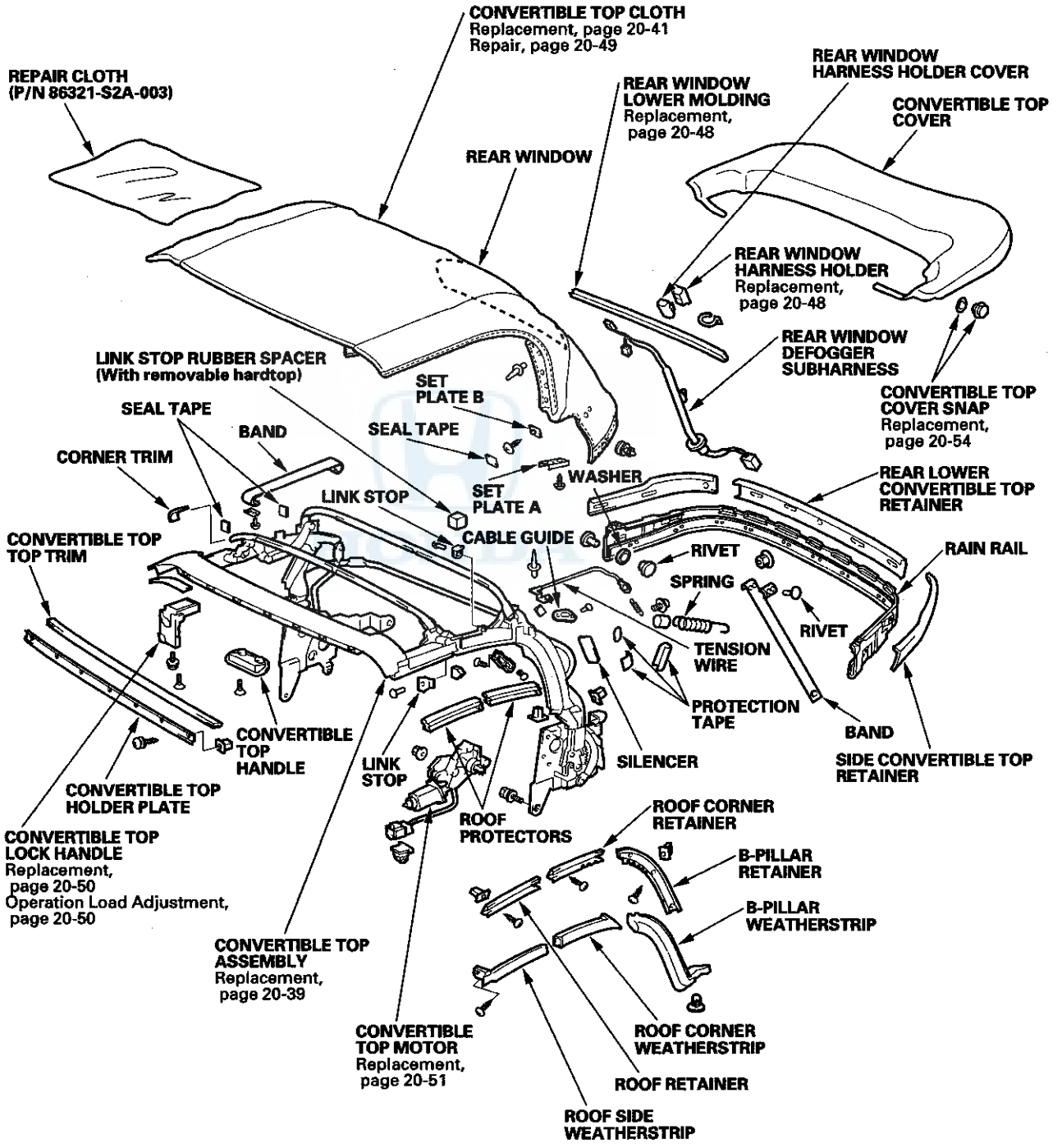
Convertible Top

Component Location Index

'00-01 Models



'02-08 Models



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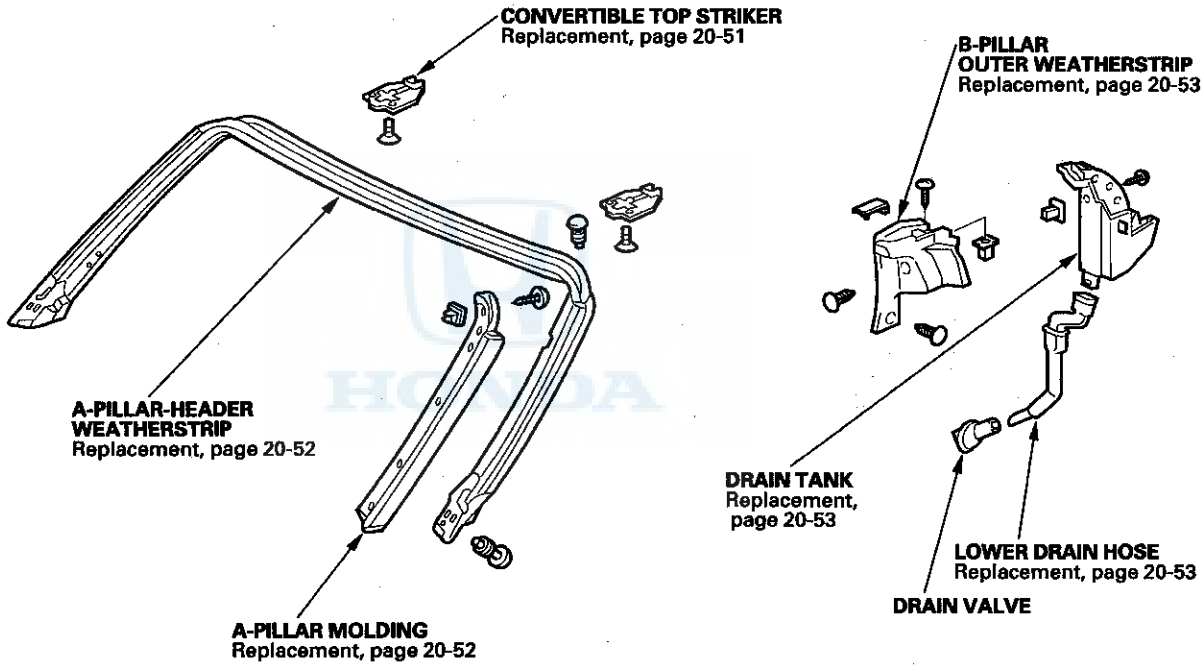
Component Location Index (cont'd)



Convertible Top Assembly Replacement

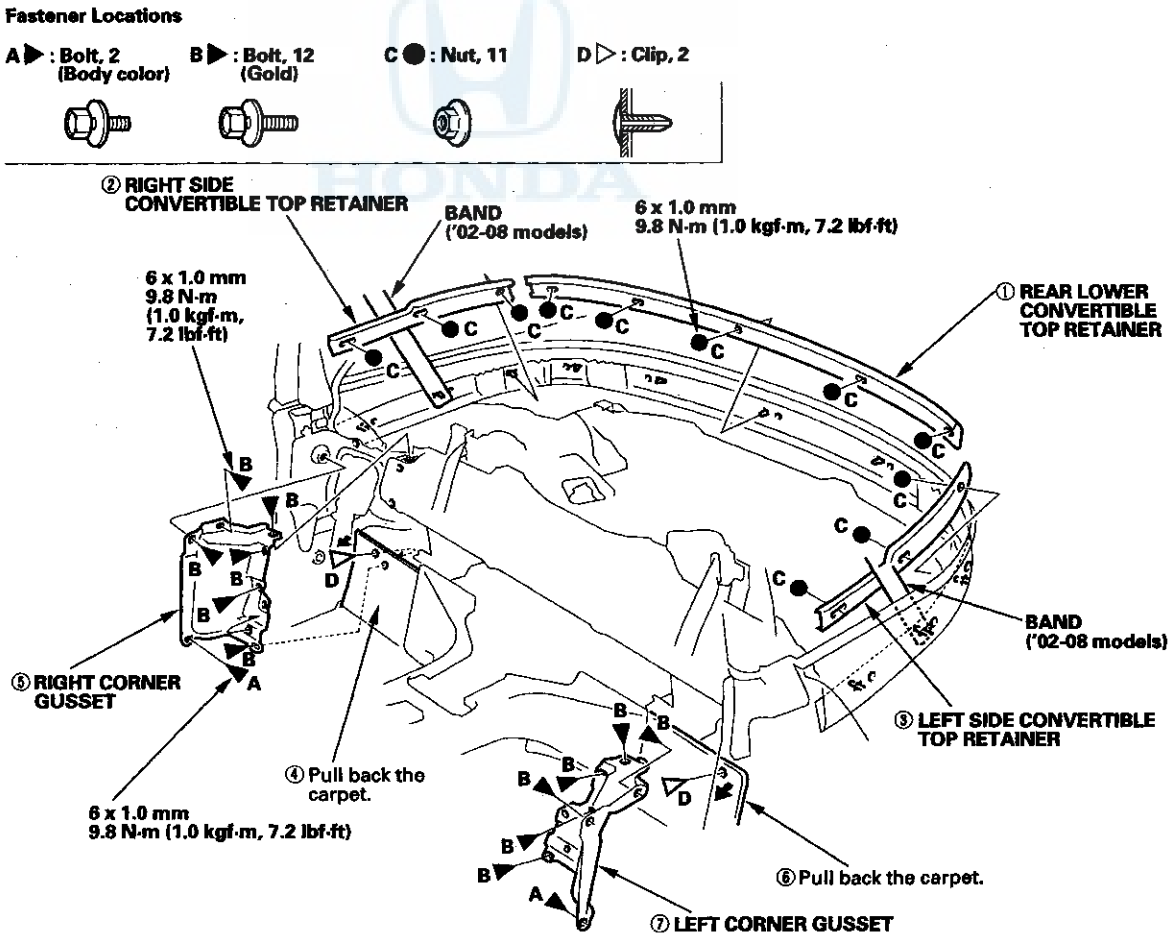
NOTE:
- Have an assistant help you remove the convertible top assembly.
- Take care not to scratch the top cloth and body.
- Put on gloves to protect your hands.
- If the top does not move with the convertible top switch, disconnect the emergency connector near the passenger's kick panel (see page 22-245), and move the top by hand.

1. Remove both rear tray side trims (see page 20-73).

2. Remove the top in the numbered sequence.

3. Install the convertible top in the reverse order of removal, and note these items:

   - Make sure the connectors are plugged in properly.
   - Check operation of the top.
   - Check that each top lock handle works smoothly. If necessary, adjust the hook position (see page 20-50).
   - Check that each door glass contacts the weatherstrips evenly.
   - Check for water leaks (see step 17 on page 20-15).
   - Test-drive and check for wind noise and rattles.



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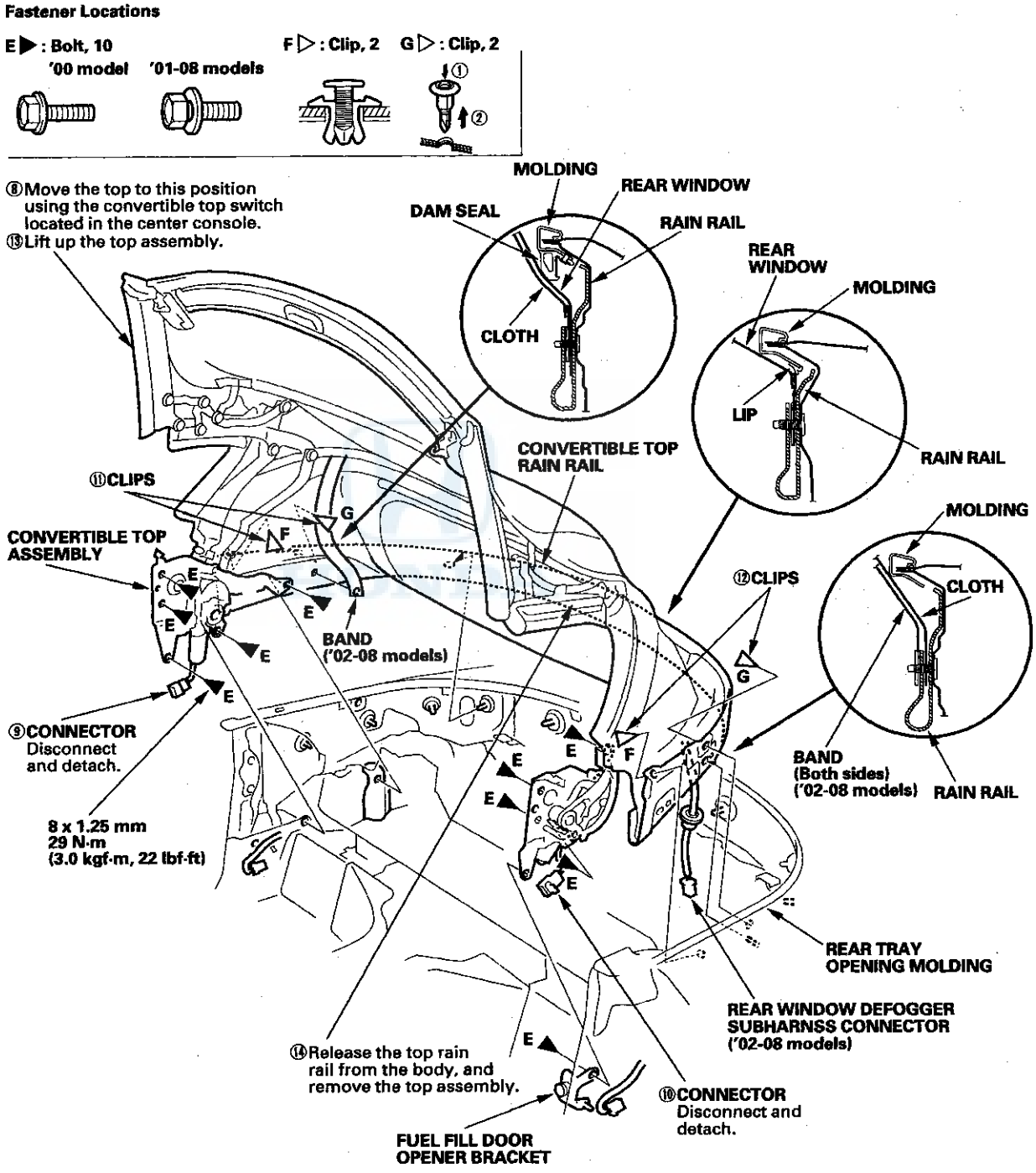
Convertible Top Assembly Replacement (cont'd)



Convertible Top Cloth Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Take care not to scratch the top frame.
- Put on gloves to protect your hands.
- Wear eye protection when removing the rivets with a drill.
- When removing the rivets, drill holes in the rivets with a 4 mm (0.16 in.) drill.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- This illustration shows the left side of the vehicle, repeat the procedure on the right side in the same manner.

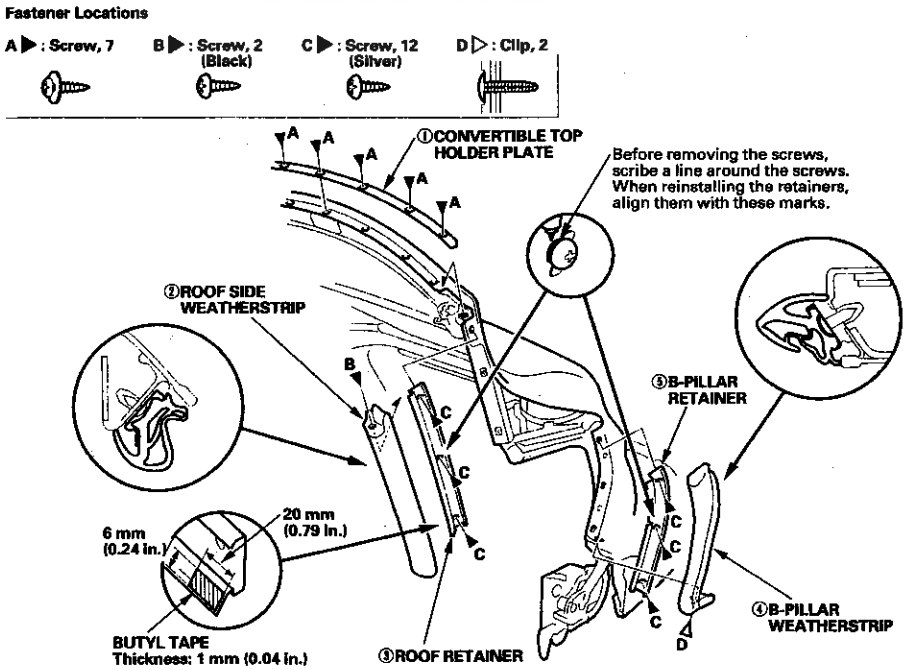
Cloth Replacement

1. Remove the convertible top assembly (see page 20-39).

2. Remove the convertible top cloth in the numbered sequence.

3. Install the cloth in the reverse order of removal, and note these items:

   - To prevent wrinkles when installing the cloth, make sure the material is stretched evenly over the frame before securing the screws and rivets.
   - After installing the cloth, reinstall the top assembly. Check the operation of the top, and inspect the cloth for wrinkles.
   - Check that the weatherstrip fits flush.
   - Check that each door glass contacts the weatherstrips evenly. If necessary, adjust each retainer (see page 20-12).
   - Check for water leaks (see step 17 on page 20-15).
   - Test-drive and check for wind noise and rattles.



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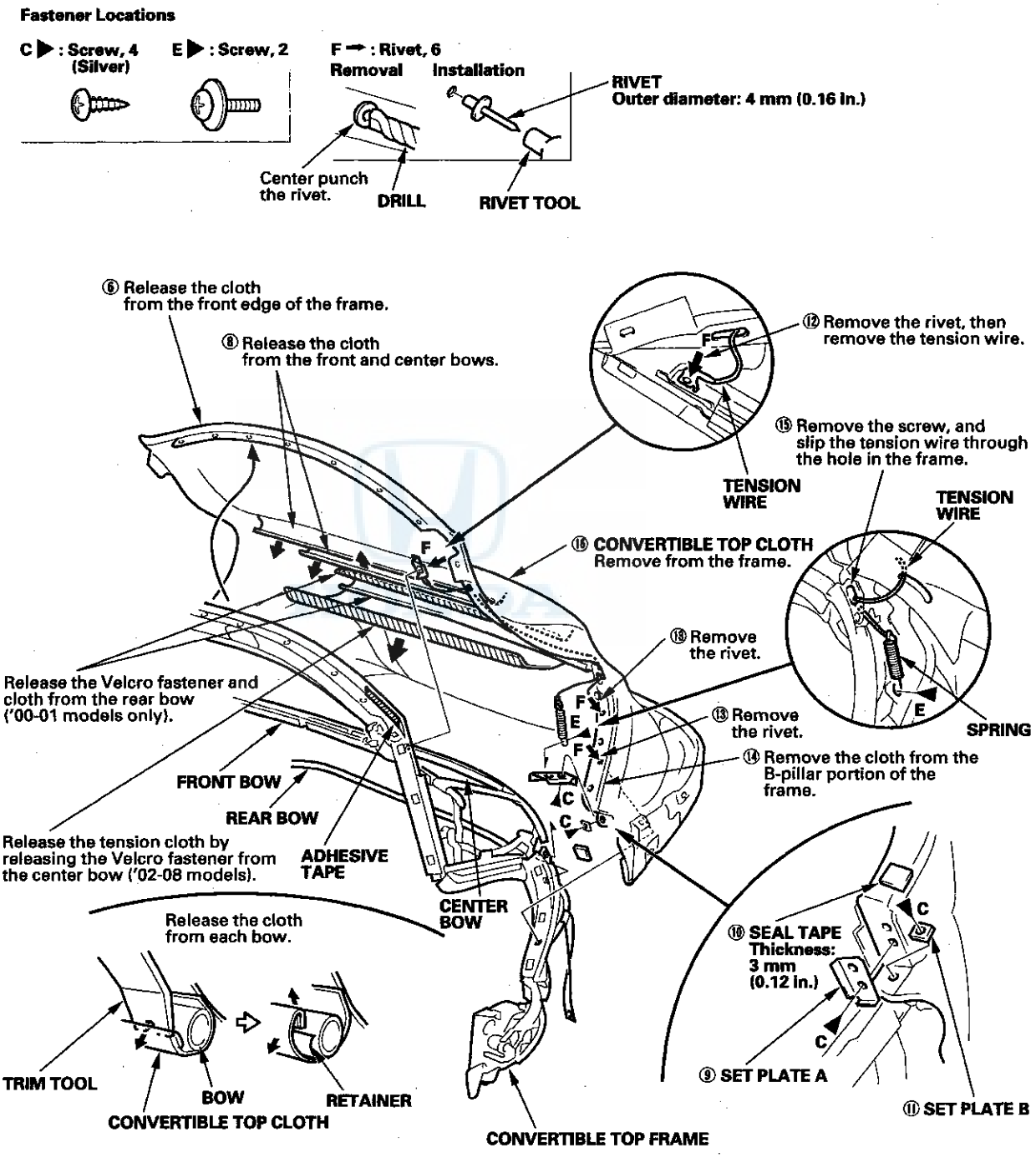
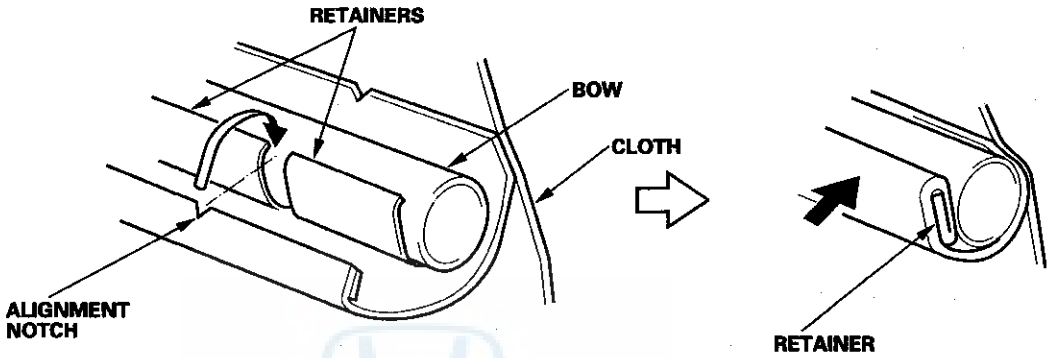
Convertible Top Cloth Replacement (cont'd)



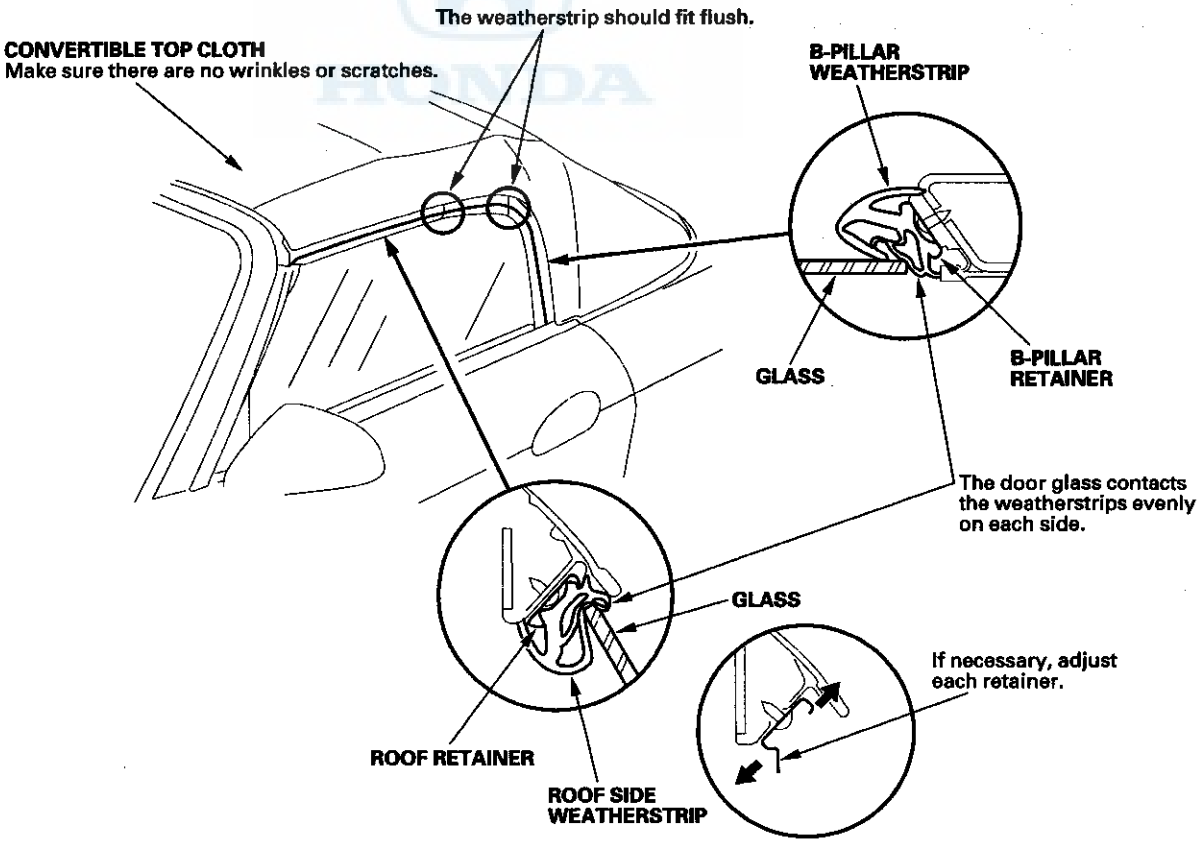
Reinstalling the Cloth to each Bow

Make sure the alignment notch of the cloth is in the center portion of the retainer. After reinstalling, press on the retainers securely.

Center portion



Cloth and Weatherstrip Check

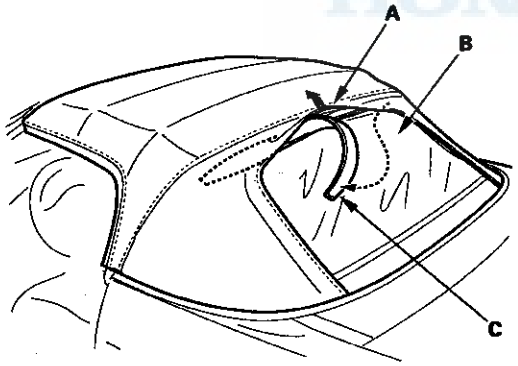


Rear Window Replacement

'00-01 Models

NOTE:
- Take care not to scratch the top frame.
- Wear eye protection when removing the rivets with a drill.

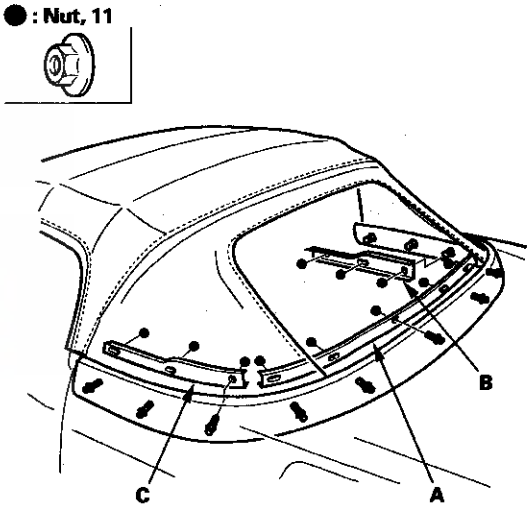
1. Open the roof, and remove these items:
   - Seat, both sides (see page 20-92)
   - Door sill trim, both sides (see page 20-71)
   - Rear side trim, both sides (see page 20-72)
   - Roll bar lower trim, both sides (see page 20-72)
2. Close the roof. Remove the clips that hold the rear tray trim, the rear tray side trim, and the rear tray (see page 20-73).
3. Remove the spare tire cover and the spare tire.
4. Remove the rear tray and the rear tray trim through the trunk opening.
5. Lift the convertible top cloth (A) that overlaps the top of the rear window (B), and remove the patch (C) from the roof zipper.



6. Open the roof, and lift up the center console (see page 20-80).
7. Remove the rear console (see page 20-82) and the rear console box (see page 20-83).
8. Close the roof. Remove the rear tray side trim and both roll bars (see page 20-73).
9. Remove the nuts, then remove the rear lower convertible top retainer (A), right side convertible top retainer (B), and left side convertible top retainer (C).

Fastener Locations

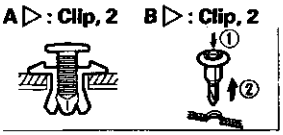
● : **Nut, 11**

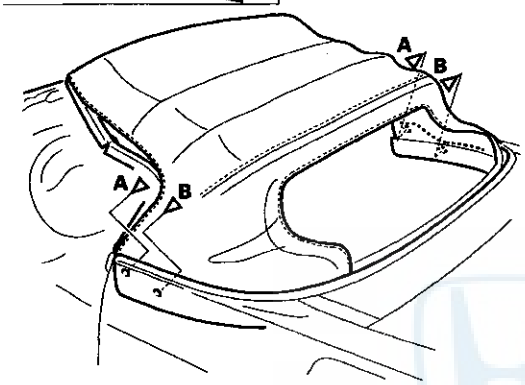


10. Open the roof half-way, and remove the clips (A, B) on each side of the top between the quarter panel and the roof.

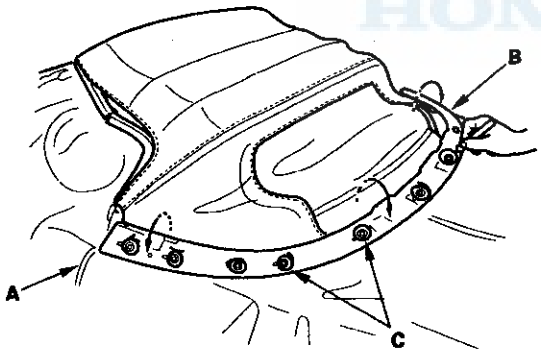
Fastener Locations

A ▷: Clip, 2 B ▷: Clip, 2





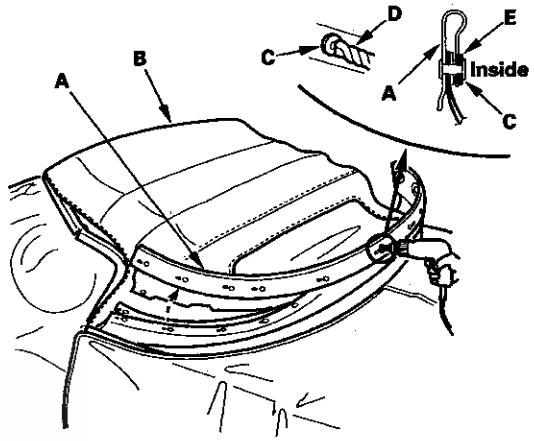
11. Place a fender cover (A) on the trunk.



12. Lift up the rain rail (B), and place it on top of the fender cover.

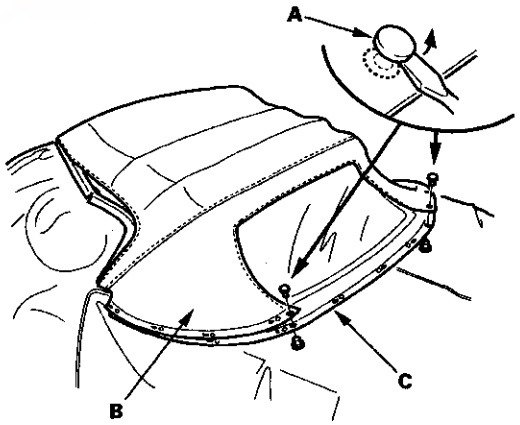
13. Using a marker or white-out, draw a circle (C) around each of the 11 aluminum rivets.

14. Pull the rain rail (A) up, and turn it inside-out. With the rain rail resting on the roof (B), drill out the rivets (C) with a 4 mm (0.16 in.) drill (D). The washers (E) on the rain rail are not reused.



15. Remove the rain rail.

16. Using a flat-tip screwdriver, pry apart the two- piece brass rivets (A) holding the lower roof (B) to the lower part of the window (C).



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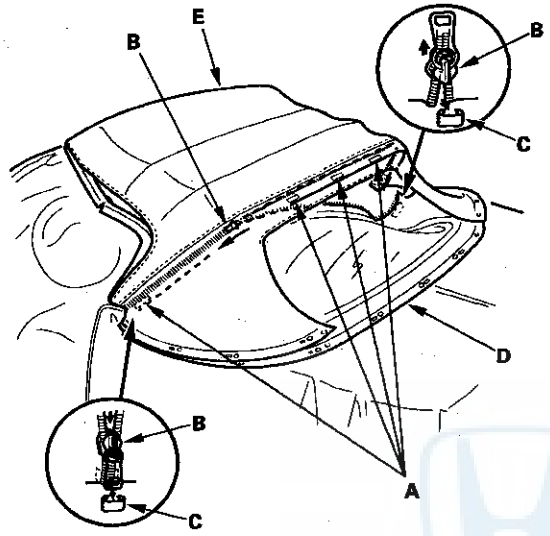
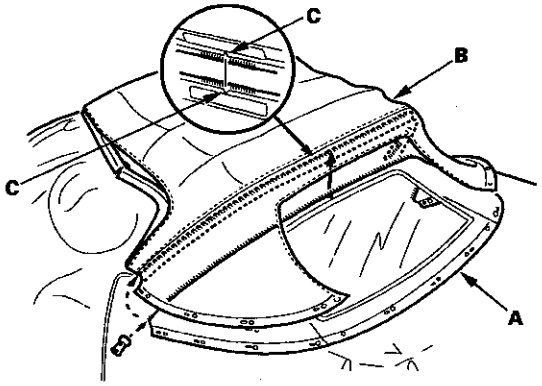
Rear Window Replacement (cont'd)

17. Release the Velcro fasteners (A) to expose the zipper (B), and remove the end stops (C) from both ends of the zipper.

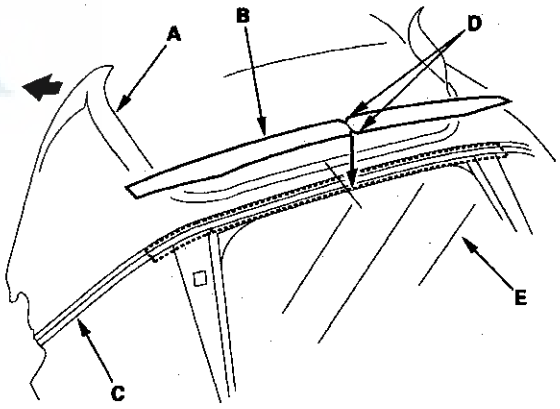


18. Carefully unzip the rear window (D) from the roof (E), then remove the window. Hold the zipper tight to keep it from falling into any crevices.

19. Zip the new window (A) onto the roof (B), making sure the alignment notches (C) line up.
It may take several attempts to line up the marks.

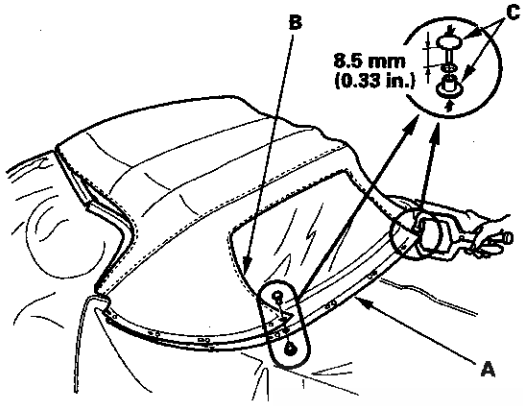


20. Turn the convertible top cloth (A) inside out, and apply a new patch (B) on the zipper (C).
Make sure the alignment notches (D) align with the middle of the rear window (E).

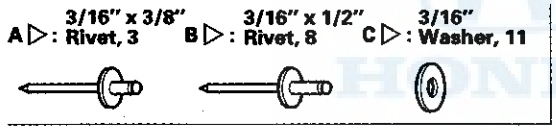


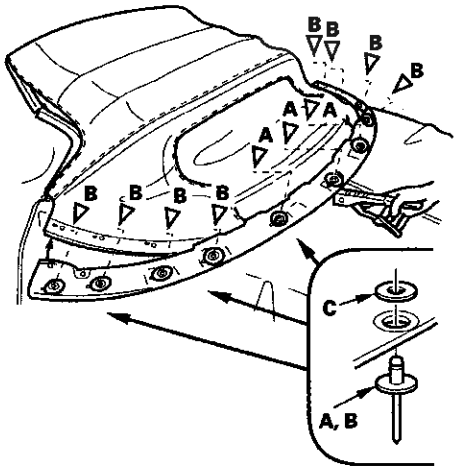
21. Place the convertible top cloth on the rear window.

22. Secure the lower part of the rear window (A) to the lower part of the convertible top cloth (B) with new two-piece brass rivets (C).



23. Attach the convertible top cloth, rear window, and rain rail together with new pop rivets and washers. Make sure the crush end of each rivet is facing the rear of the car when the rain rail is sitting in place.

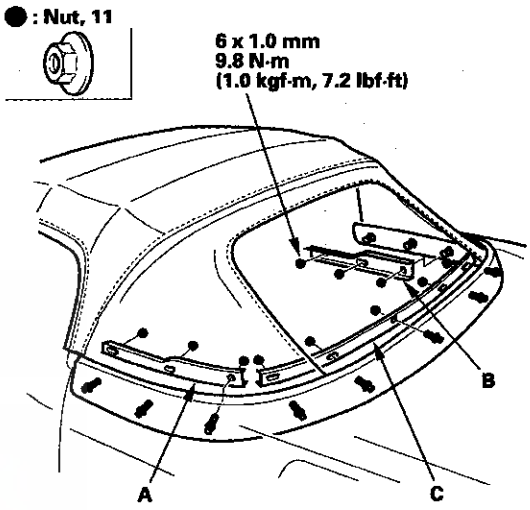




24. Set the rain rail in position, and install the clips between the quarter panel and the roof.

25. Reinstall the left side convertible top retainer (A), right side convertible top retainer (B), and rear lower convertible top retainer (C).

Fastener Locations



26. Reinstall all remaining interior components and trim pieces.

27. Check for water leaks (see step 17 on page 20-15).

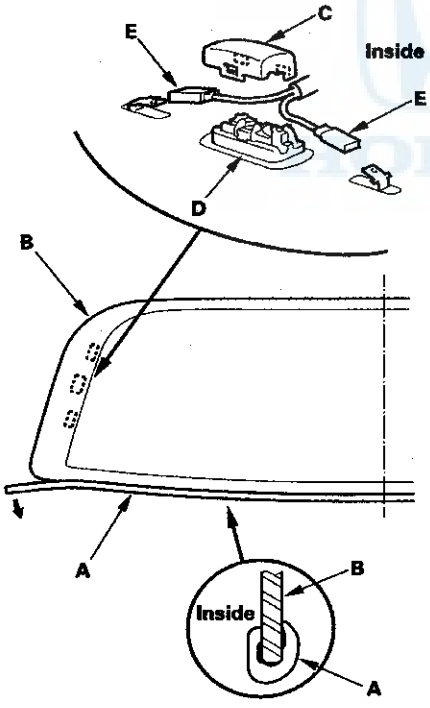
Rear Window Lower Molding/Rear Window Harness Holder Replacement

'02-08 Models

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the top cloth.
- Use seat covers to avoid damaging any surfaces.

1. Lower the convertible top cloth by operating the convertible top.

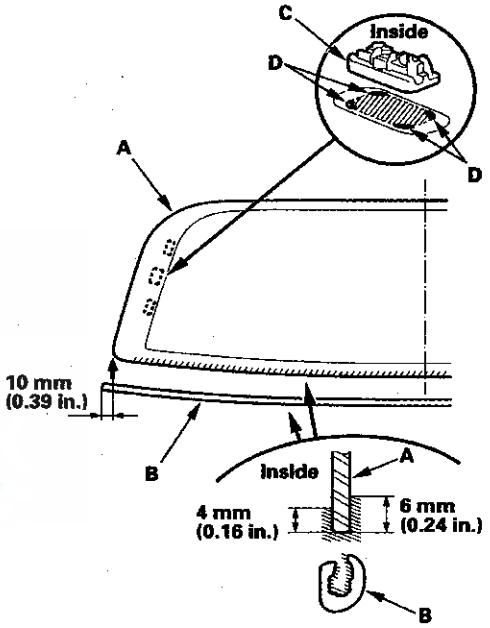
2. From outside the rear window, remove the molding (A) from the edge of the rear window (B). From inside the rear window, remove the rear window harness holder cover (C) from the rear window harness holder (D), and disconnect the rear window defogger connectors (E). Remove the rear window harness holder from the inside face of the rear window. If necessary, cut the molding with a utility knife.



3. Clean the edge of the rear window with isopropyl alcohol where new molding and harness holder are to be installed. Make sure the bonding surface is kept free of water, oil, and grease.

4. Apply primer to the areas of the rear window (A) where the molding and harness holder will be attached, and apply primer to the groove of the molding (B) and to the harness holder (C). Be sure the harness holder lines up with the alignment marks (D).

: Apply primer here.



5. Attach the molding and harness holder to the rear window with urethane adhesive.

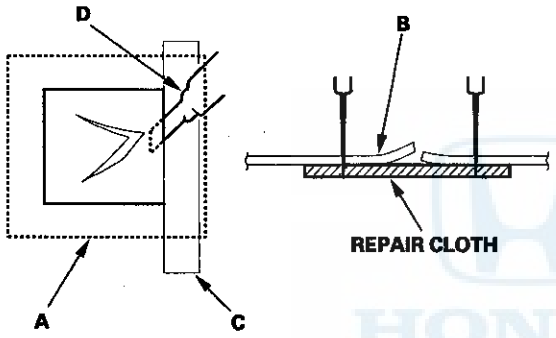
6. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from the rear window, use a soft shop towel dampened with isopropyl alcohol.

Convertible Top Cloth Repair

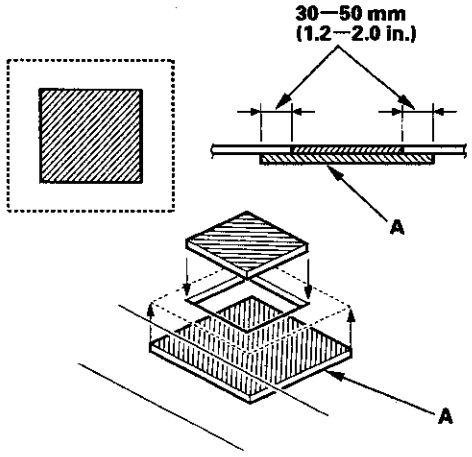
1. The following tools and supplies are required to repair the top cloth.

   - Repair cloth (P/N 86321-S2A-003)
   - Adhesive
   - Utility knife
   - Ruler
   - Sandpaper

2. Apply a piece of the repair cloth (A) to the inside surface of the top cloth at the damaged area. Cut through both the damaged cloth (B) and the repair cloth using a ruler (C) and a utility knife (D).

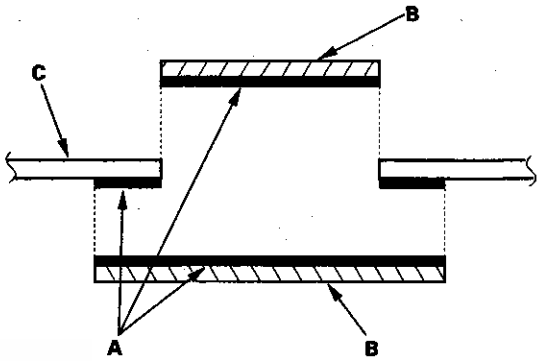


3. Cut a piece of repair cloth (A) so it overlaps the repair opening as shown.

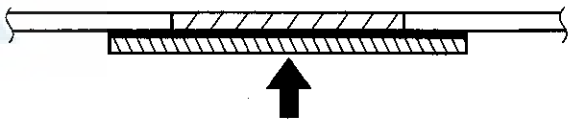


4. Clean the repair cloth where adhesive will be applied.

5. Apply the adhesive (A) to the repair cloth (B) and top cloth (C) as indicated by the arrows.



6. Push firmly on the repair cloth.



7. Scrape or wipe the excess adhesive off with a soft shop towel dampened with isopropyl alcohol.

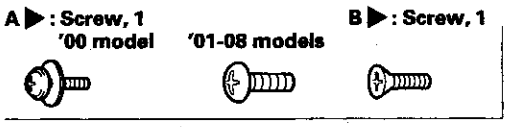
8. Let the adhesive dry. Follow the manufacturer's recommendations for drying time.

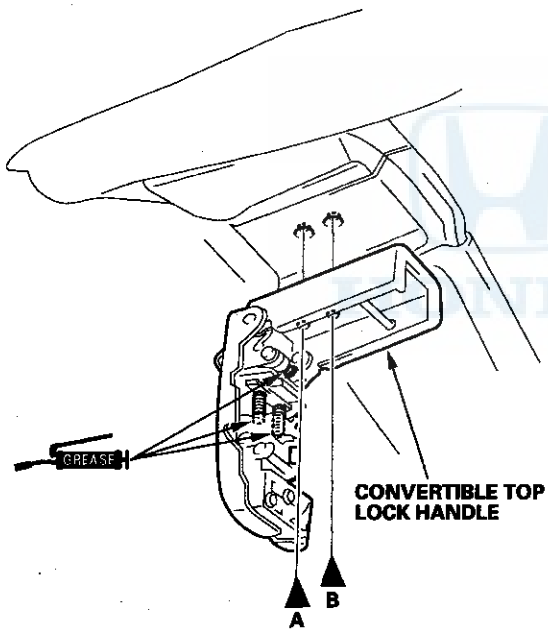
9. Check for water leaks (see step 17 on page 20-15).

Convertible Top Lock Handle Replacement

NOTE: Take care not to scratch the top frame.

1. Remove the convertible top lock handle as shown.
2. Install the handle in the reverse order of removal, and apply multipurpose grease to the springs and moving parts.

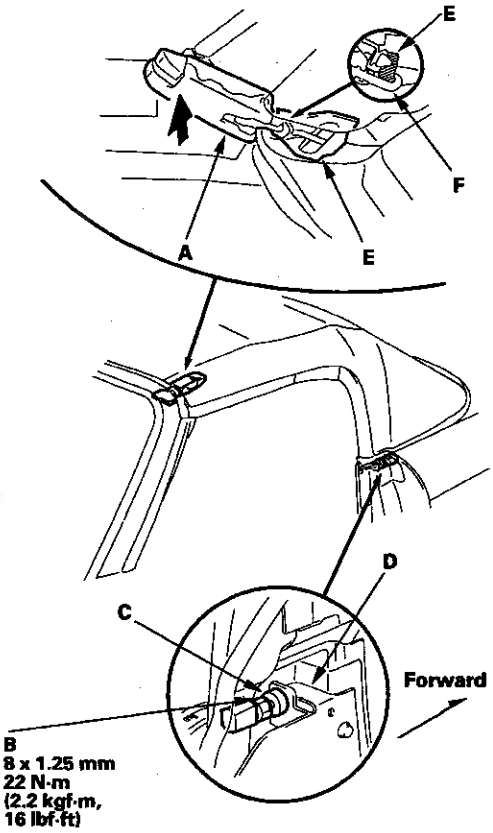




Convertible Top Lock Handle Operation Load Adjustment

NOTE: Take care not to scratch the interior parts.

1. Remove both rear tray side trims (see page 20-73).
2. Close the top, then lock it securely with both lock handles (A).



3. Loosen the locknut (B) on the link stop (C) on each side.
4. Adjust the link stop on each side until it makes contact with the link set bracket (D). There should be no clearance between the convertible top striker (E) and the hook (F).
5. Tighten the locknut, and check that the lock handle works smoothly on each side.
6. Reinstall all removed parts.

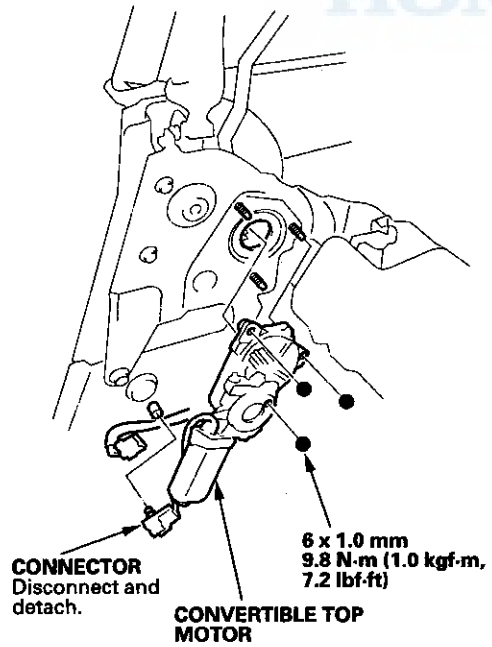
Convertible Top Motor Replacement

NOTE:
- Take care not to scratch the interior parts.
- Put on gloves to protect your hands.

1. Remove these items:
   - Roll bar upper trim (see page 20-73)
   - Corner gusset (see page 20-39)
2. Remove the convertible top motor as shown.
3. Install the motor in the reverse order of removal, and note these items:
   - Make sure the connector is plugged in properly.
   - Apply multipurpose grease to the gear portion.
   - Check the motor operation.

Fastener Locations

●: Nut, 3



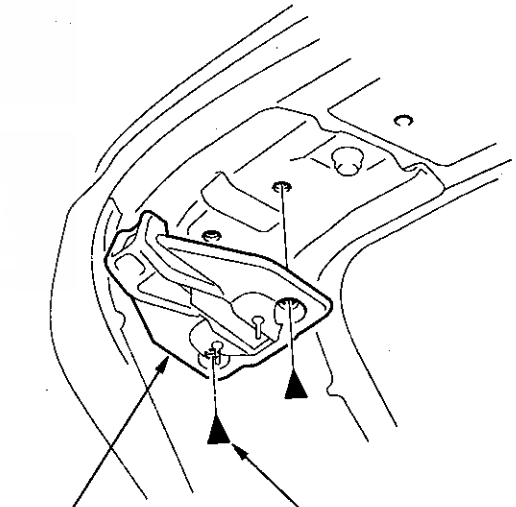
Convertible Top Striker Replacement

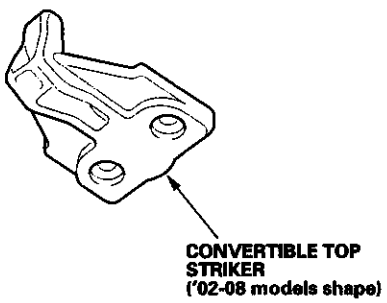
NOTE: Take care not to scratch the interior parts.

1. Remove the windshield header interior trim (see page 20-70).
2. Remove the convertible top striker as shown.
3. Install the striker in the reverse order of removal.

Fastener Locations

▶: Screw, 2





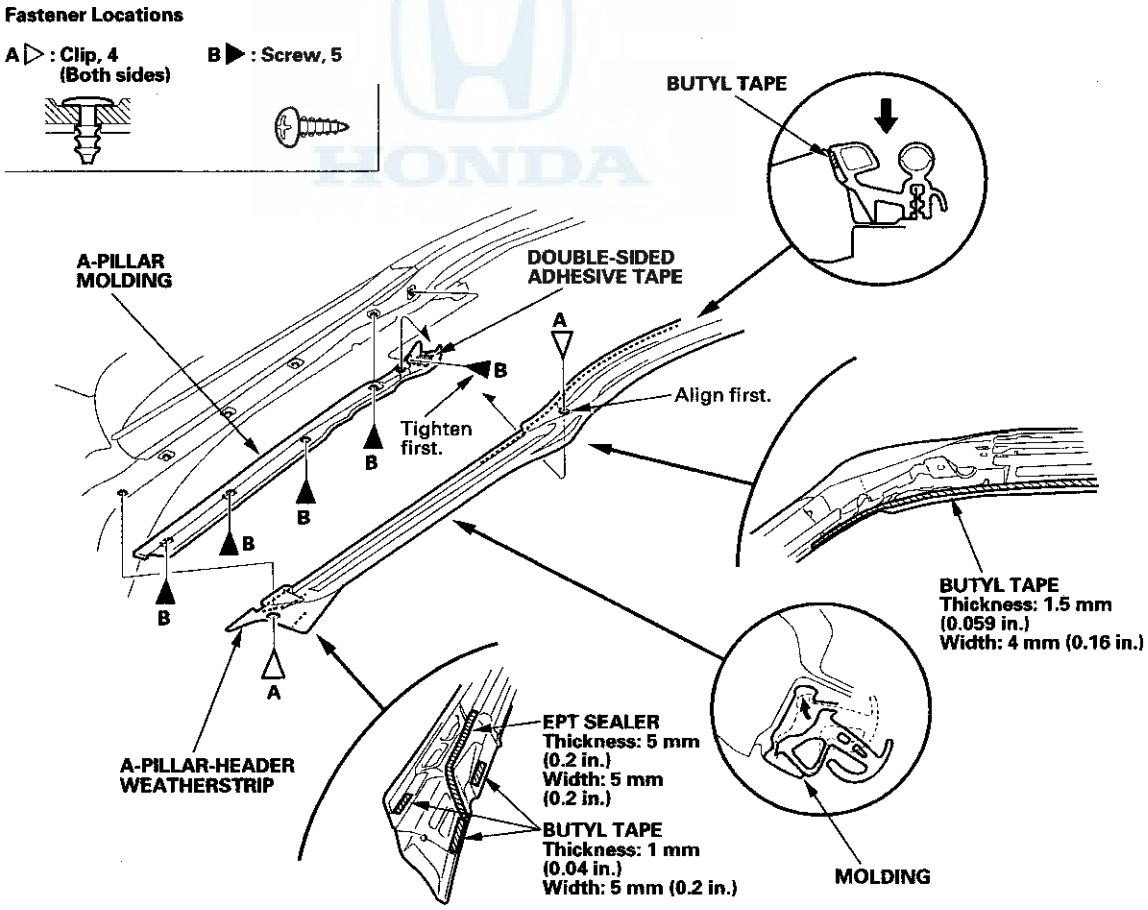
A-Pillar-Header Weatherstrip and A-Pillar Molding Replacement

NOTE:
- Take care not to scratch the body.
- Use a clip remover to remove the clips.

1. Remove the A-pillar-header weatherstrip and A-pillar-molding as shown.

2. Install the weatherstrip and molding in the reverse order of removal, and note these items:

   - If the old molding will be reinstalled, scrape off the double-sided adhesive tape, then clean the molding surface with isopropyl alcohol. Attach new double-sided adhesive tape to the molding.
   - When installing the molding, first tighten the screw at the top of the molding.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - If the old weatherstrip will be reinstalled, scrape off all traces of old EPT sealer and butyl tape, then clean the weatherstrip surface with isopropyl alcohol. Attach new EPT sealer and butyl tape to the weatherstrip.
   - When installing the weatherstrip, align the roof clip hole on the weatherstrip with the hole on the molding.
   - Before installing the weatherstrip, fold the separator of the butyl tape at the roof portion. After installing the weatherstrip, carefully pull the separator away.
   - Press the butyl tape portions to make the adhesive stick.
   - Check that each door glass contacts the weatherstrip evenly.
   - Check for water leaks (see step 17 on page 20-15).



B-Pillar Outer Weatherstrip Replacement

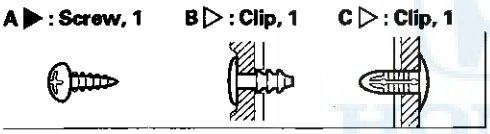
NOTE:
- Take care not to scratch the body.
- Use a clip remover to remove the clips.

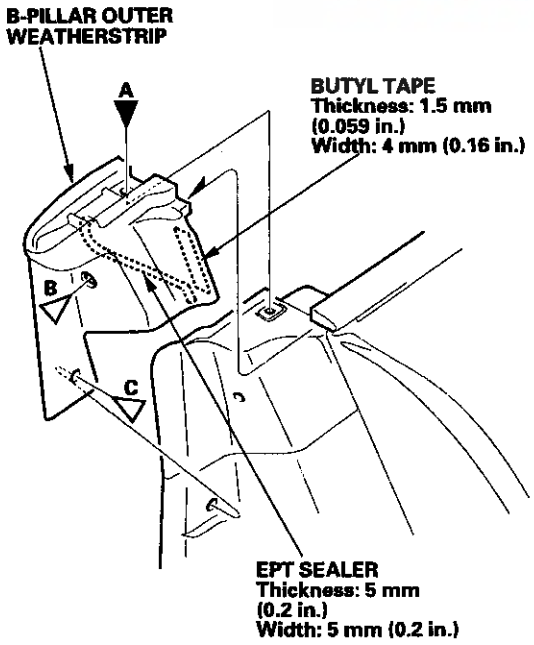
1. Remove the B-pillar outer weatherstrip as shown.

2. Install the weatherstrip in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - If the old weatherstrip will be reinstalled, scrape off all traces of old EPT sealer and butyl tape, then clean the weatherstrip surface with isopropyl alcohol. Attach new EPT sealer and butyl tape into position.

Fastener Locations





Drain Tank and Lower Drain Hose Replacement

NOTE:
- Take care not to scratch the body.
- Take care not to drop the screw.

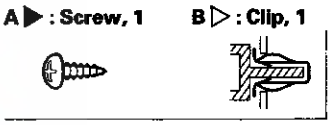
1. Remove the convertible top assembly (see page 20-39).

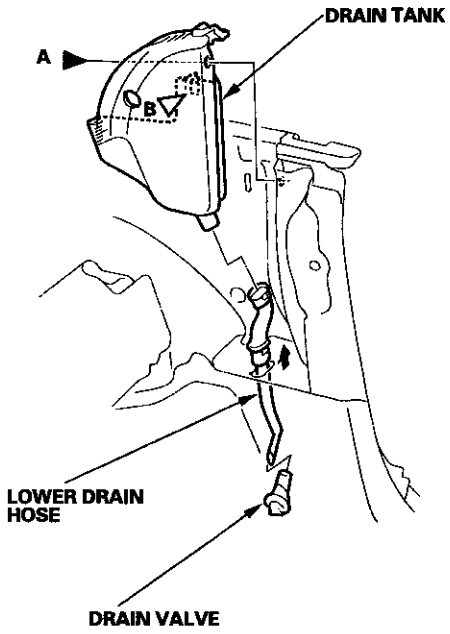
2. Remove the drain tank and lower drain hose as shown.

3. Install in the reverse order of removal, and note these items:

   - Replace the clip if it's damaged.
   - Push the clip into place securely.
   - Make sure the lower drain hose is inserted in the drain valve properly.
   - Make sure the drain tank is connected to the lower drain hose properly.

Fastener Locations

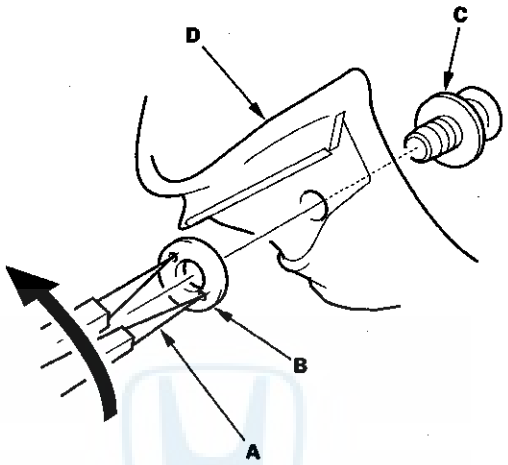




Convertible Top Cover Snap Replacement

NOTE: Take care not to scratch the convertible top cover.

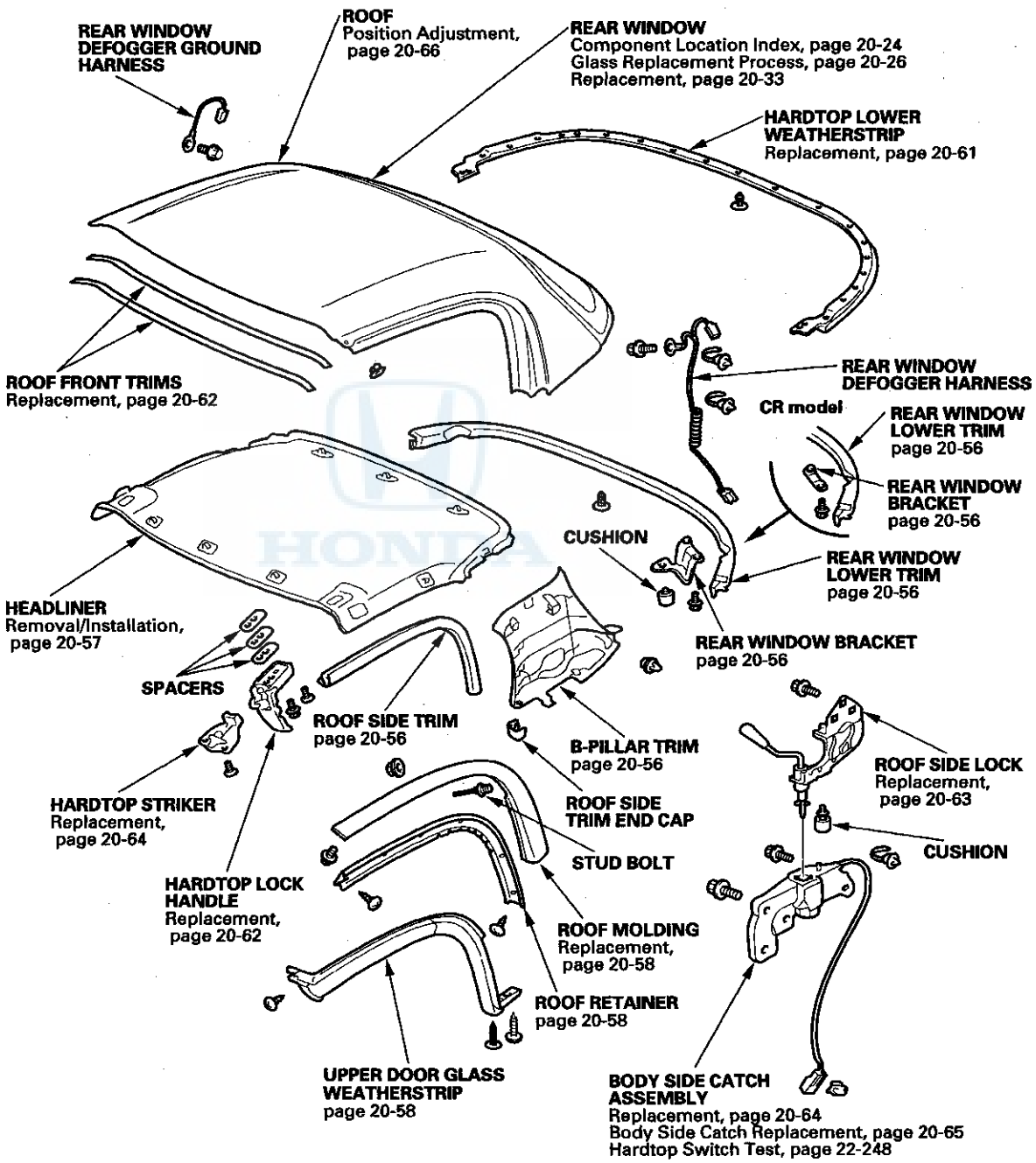
1. Using snap ring pliers (A), remove the nut (B) from the snap (C), then remove the snap from the convertible top cover (D).



2. Install the cover snap in the reverse order of removal.

Removable Hardtop

Component Location Index



Removable Hardtop

Interior Trim Removal/Installation

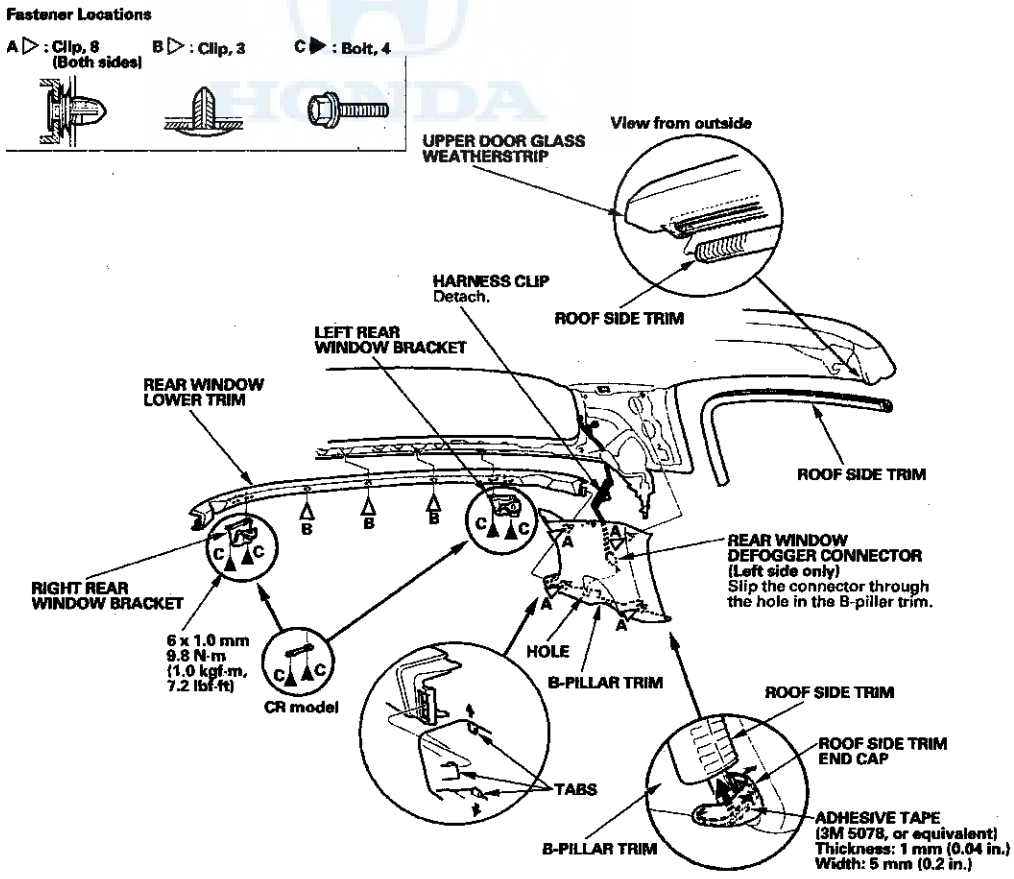
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- To remove and install the interior trim, remove the roof from the body.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Use a clip remover to remove the rear window lower trim clips.
- Take care not to bend or scratch the interior trim.

1. Remove the trim as shown.

2. Install the trim in the reverse order of removal, and note these items:

   - Replace the damaged adhesive tape, and check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Before peeling away the adhesive backing from the adhesive tape on the end cap, install the roof side trim on the roof tentatively to check the position of the trim end.
   - When installing the roof side trim, first install the front end, and insert the lower end into the end cap, then push the corner portion against the roof securely. Make sure there is no clearance between the trim and cap.



Headliner Removal/Installation

NOTE:
- Put on gloves to protect your hands.
- To remove and install the headliner, remove the roof from the body.
- Have an assistant help you remove and install the headliner.
- Take care not to bend or scratch the headliner.

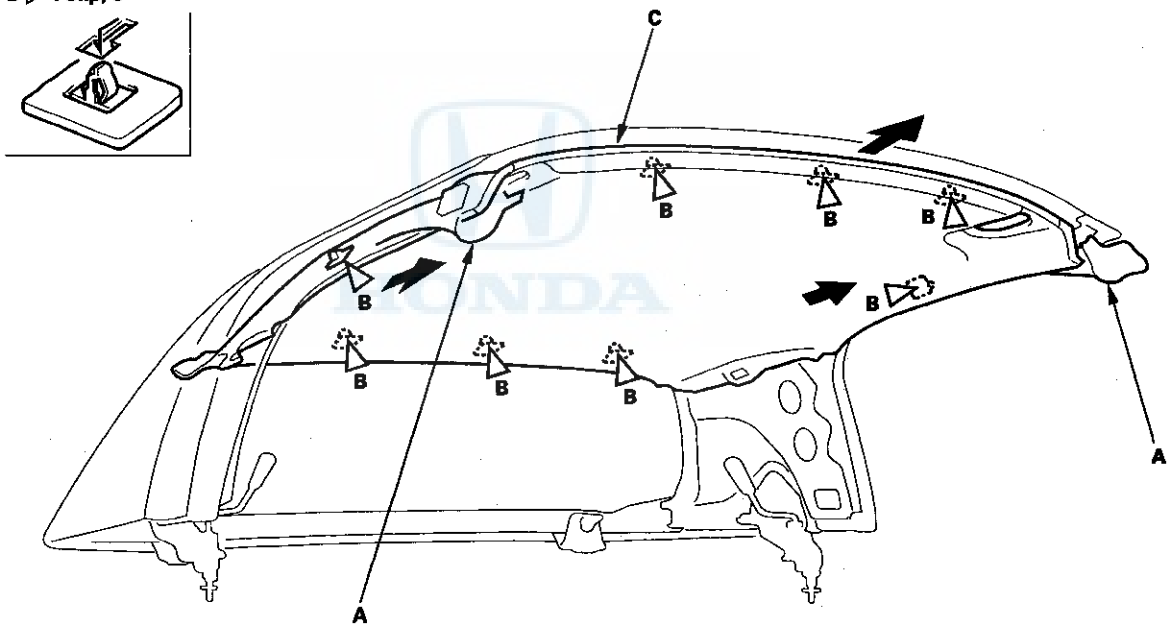
1. Remove these items:

   - B-pillar trim, both sides (see page 20-56)
   - Hardtop lock handle, both sides (see page 20-62)
   - Upper door glass weatherstrip, front edge portions from both sides as necessary (see page 20-58)

2. Remove both front edge portions of the upper door glass weatherstrips (A) (see page 20-58).

Fastener Locations

B ▷ : Clip, 8



3. Release the clips (B) by sliding the headliner (C) forward, then remove the headliner.

4. Install the headliner in the reverse order of removal, and check that the clips are securely attached to the roof.

Removable Hardtop

Roof Molding Replacement

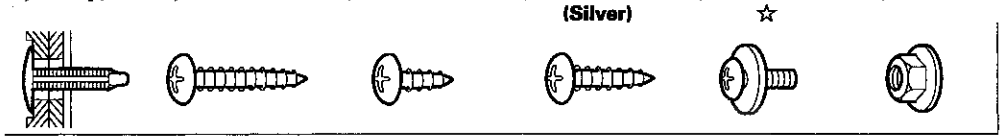
NOTE:
- Put on gloves to protect your hands.
- To remove and install the roof molding, remove the roof from the body.
- Take care not to scratch the roof.
- Use a clip remover to remove the clip.
- If the old retainer is to be installed, scribe a line around the mounting screws before removing the retainer.

Removal

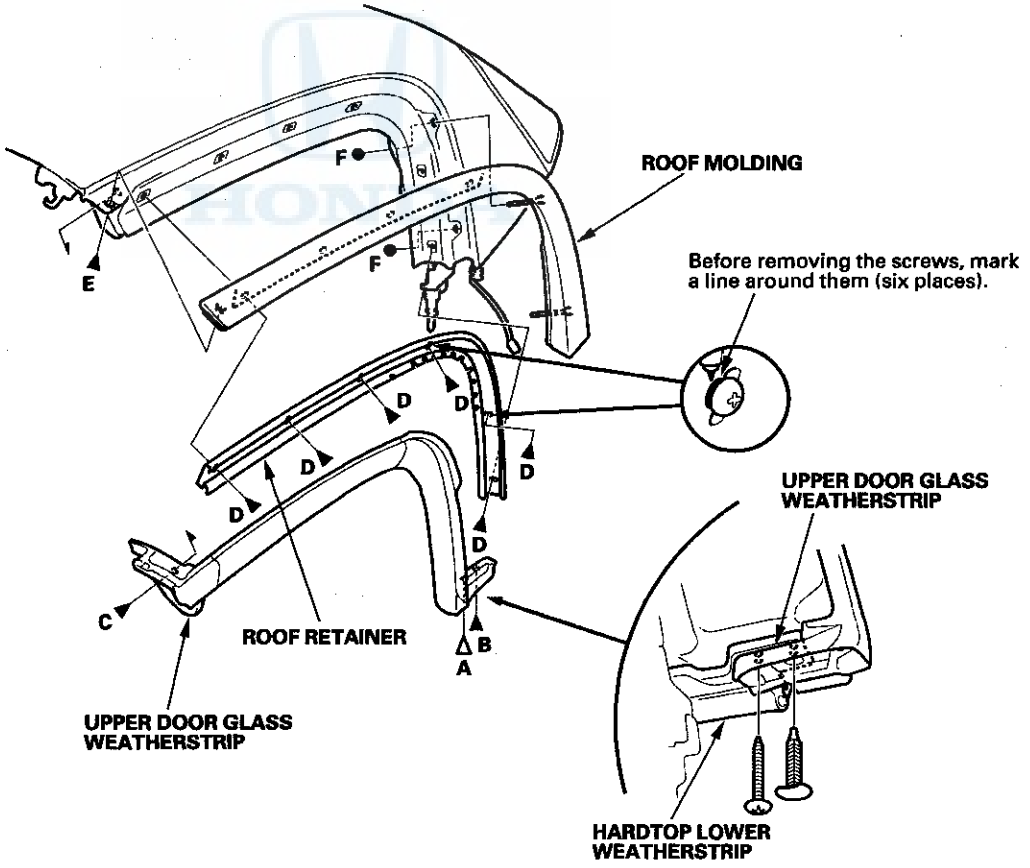
Remove the B-pillar trim (see page 20-56), then remove the roof molding as shown.

Fastener Locations

A ▷ : Clip, 1 B ▶ : Screw, 1 C ▶ : Screw, 1 D ▶ : Screw, 6 (Silver) E ▶ : Screw, 1 ☆ F ● : Nut, 2



☆: CORROSION-RESISTANT SCREW



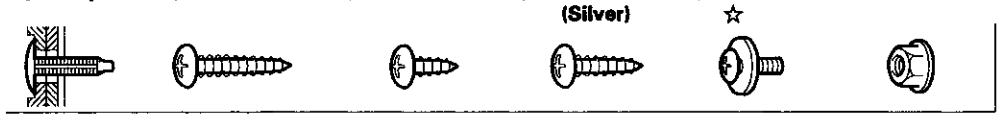
Installation

Install the roof molding in the numbered sequence, and note these items:

- Before reinstalling the roof molding, use isopropyl alcohol to clean the roof surface where the sealant will be applied.
- When reinstalling the roof retainer, align it with the marks made during removal.
- Check that the weatherstrip is securely installed to the retainer.
- Check that the door glass contacts the weatherstrip evenly. If necessary, adjust the retainer.
- Check for water leaks (see step 11 on page 20-67).

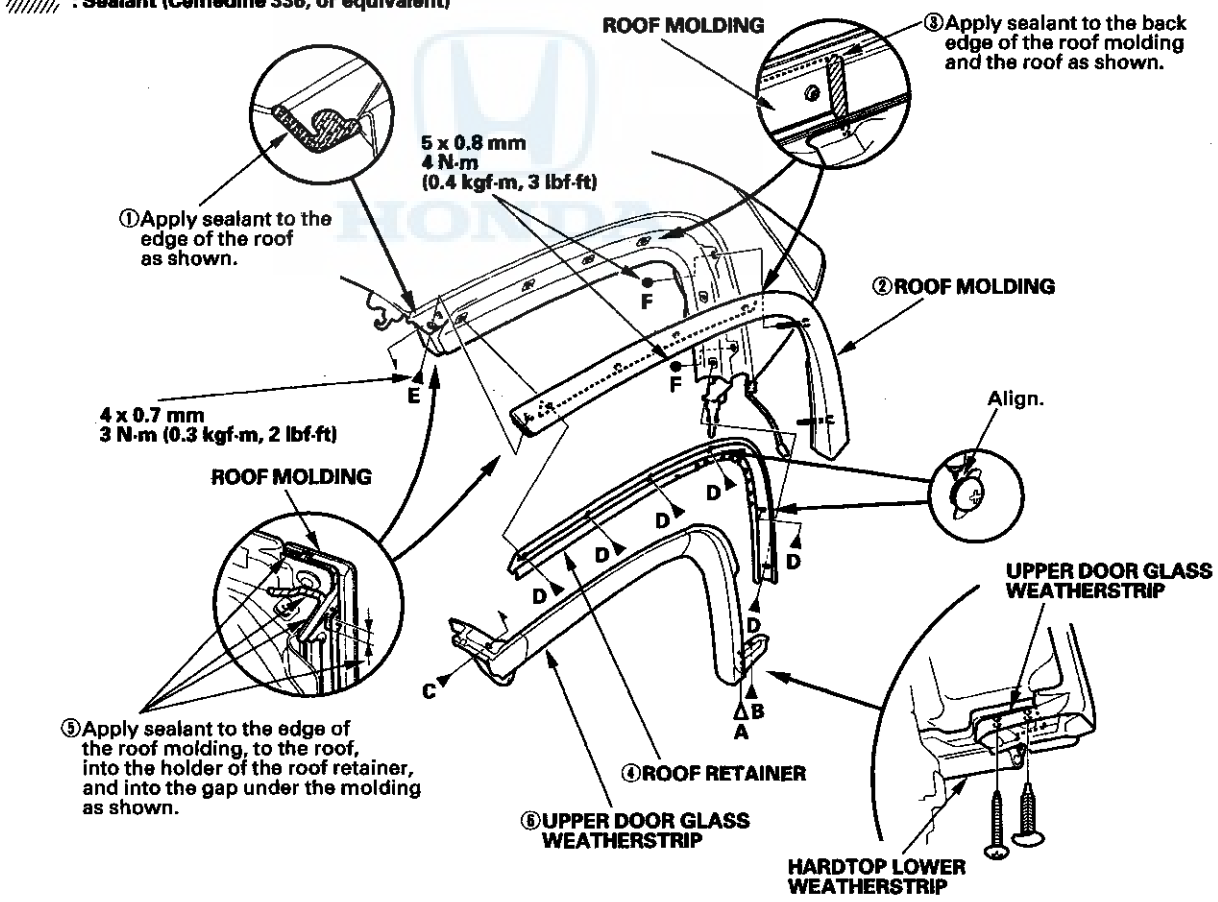
Fastener Locations

A ▷ : Clip, 1 B ▶ : Screw, 1 C ▶ : Screw, 1 D ▶ : Screw, 6 (Silver) E ▶ : Screw, 1 ☆ F ● : Nut, 2



☆: CORROSION-RESISTANT SCREW

: Sealant (Cemedine 336, or equivalent)

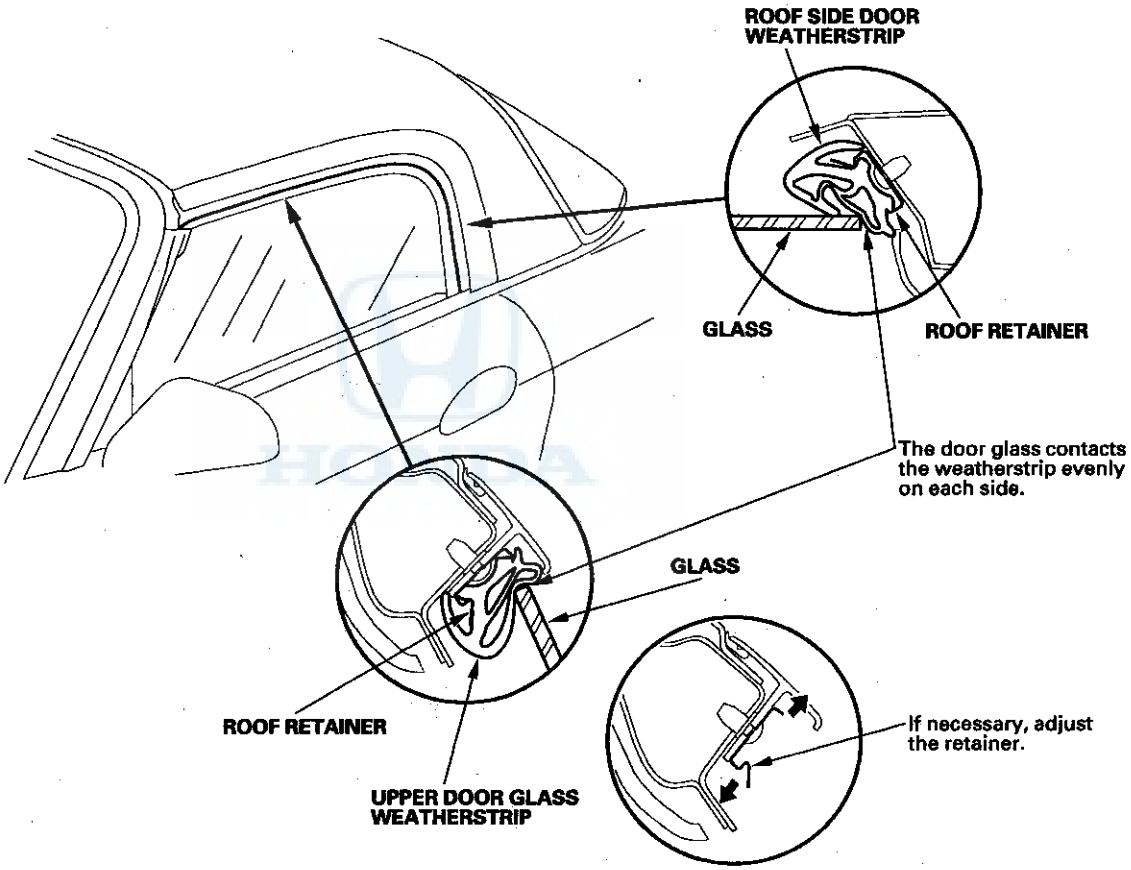


(cont'd)

Roof Molding Replacement (cont'd)

Weatherstrip Check

NOTE:
- Make sure the hardtop is locked securely with both lock handles and both roof side locks.
- Check that the weatherstrip is securely installed to the retainer.
- Raise the glass fully.
- Check that the door glass contacts the weatherstrip evenly.
- Check for water leaks (see step 11 on page 20-67).
- Test-drive and check for wind noise.



Hardtop Lower Weatherstrip Replacement

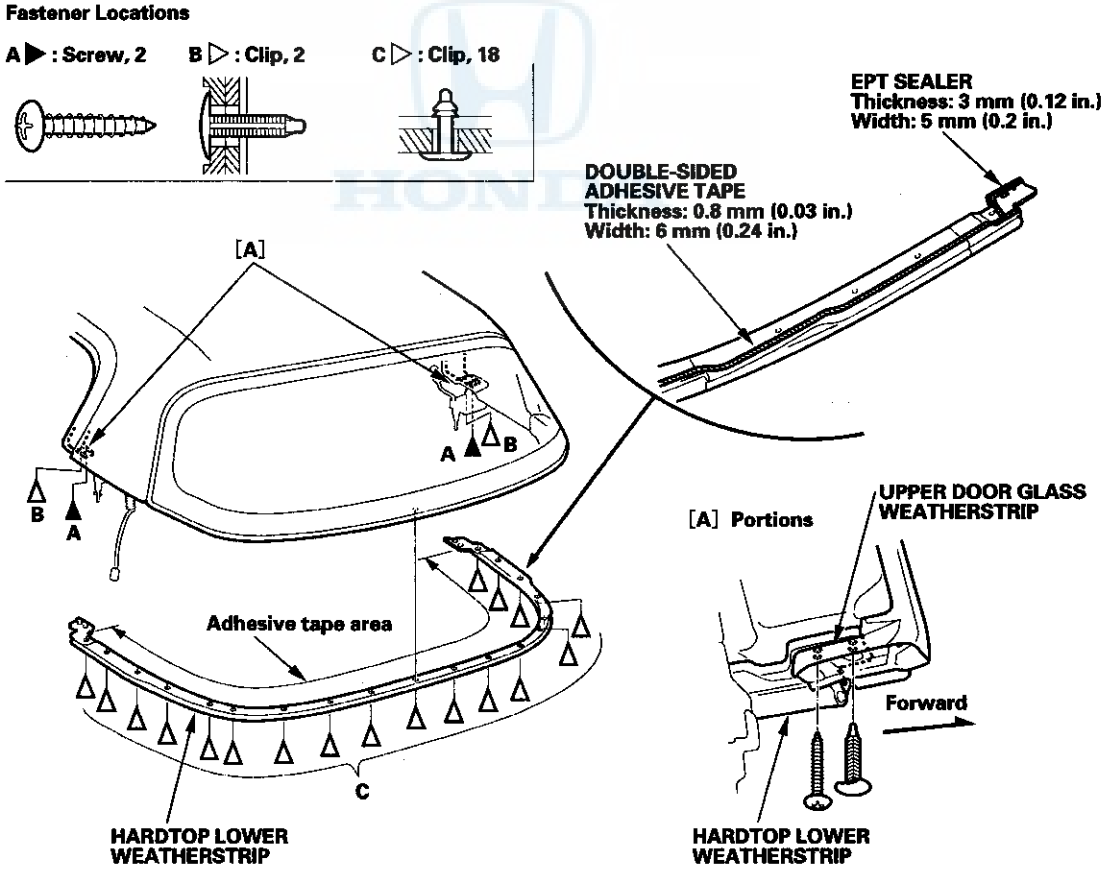
NOTE:
- To remove and install the hardtop lower weatherstrip, remove the roof from the body.
- Take care not to scratch the roof.
- Use a clip remover to remove the clips.

1. Remove the rear window lower trim (see page 20-56).

2. Remove the hardtop lower weatherstrip as shown.

3. Install the weatherstrip in the reverse order of removal, and note these items:

   - Before installing the weatherstrip, clean the roof bonding surface with isopropyl alcohol.
   - If the old weatherstrip will be installed, scrape off the double-sided adhesive tape, then clean the weatherstrip surface with isopropyl alcohol. Attach new double-sided adhesive tape to the weatherstrip.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Before installing the weatherstrip, fold the edge of the adhesive backing from the double-sided adhesive tape. After installing the weatherstrip, carefully pull the adhesive backing away.
   - Press the double-sided adhesive tape portion to make the adhesive stick.



Removable Hardtop

Roof Front Trim Replacement

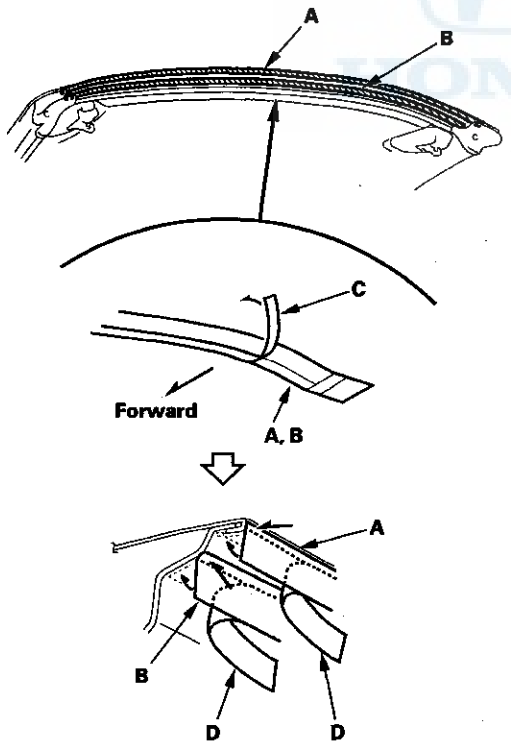
NOTE:
- To remove and install the roof front trim, remove the roof from the body.
- Take care not to scratch the roof.

1. Scrape off all traces of the old trim, then clean the roof bonding surface with a sponge dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.

2. Apply PP primer to the areas where the roof front trim will be applied.

3. Apply the roof front trim (A, B).

   -1 Peel the adhesive backing (C) from the front edge of the trim.
   -2 Center and fit the trim against the roof.
   -3 Apply the trim to the roof while peeling the remaining adhesive backing (D) from it a little at a time. Check that the trim is parallel and free of wrinkles.
   -4 Remove the application tape.



Hardtop Lock Handle Replacement

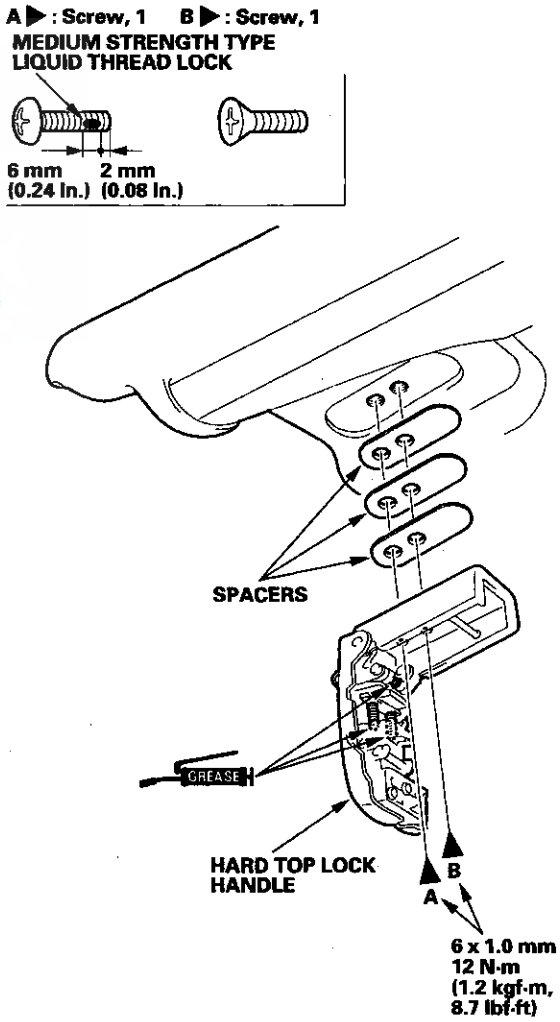
NOTE:
- To remove and install the hardtop lock handle, remove the roof from the body.
- Take care not to scratch the headliner.

1. Remove the hardtop lock handle as shown.

2. Install the handle in the reverse order of removal, and note these items:

   - Apply multipurpose grease to the springs and the moving portions.
   - Apply medium strength type liquid thread lock to the thread of the screw (A) before reinstallation.

Fastener Locations



Roof Side Lock Replacement

NOTE:
- Put on gloves to protect your hands.
- To remove and install the roof side lock, remove the roof from the body.
- Take care not to scratch the roof.
- If the old lock will be installed, mark a line around the mounting bolts before removing the lock.

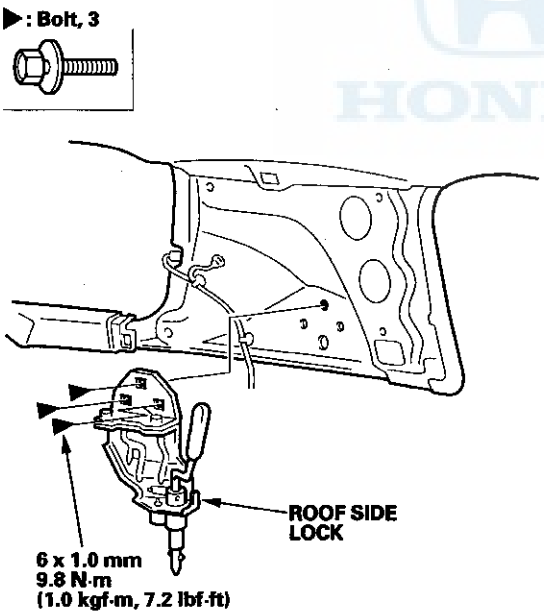
1. Remove the B-pillar trim (see page 20-56).

2. Remove the roof side lock as shown.

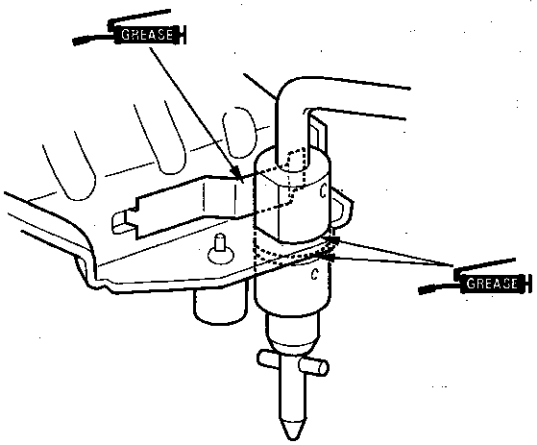
3. Install the lock in the reverse order of removal, and note these items:

   - If reinstalling the old lock, align the lock with the marks made during removal.
   - Apply multipurpose grease to the springs and the moving portions.
   - If necessary, adjust the lock alignment; refer to the roof position adjustment (see page 20-66).

Fastener Locations



Grease Application



Removable Hardtop

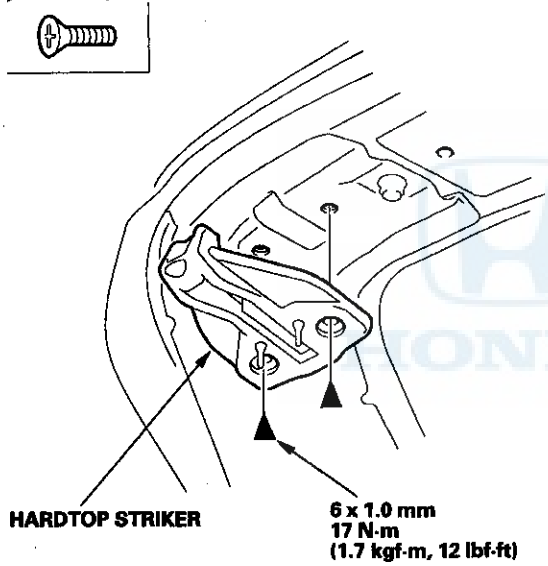
Hardtop Striker Replacement

NOTE:
- To remove and install the hardtop striker, remove the roof from the body.
- Take care not to scratch the interior parts.

1. Remove the windshield header interior trim (see page 20-70).
2. Remove the hardtop striker as shown.
3. Install the striker in the reverse order of removal.

Fastener Locations

▶: Screw, 2



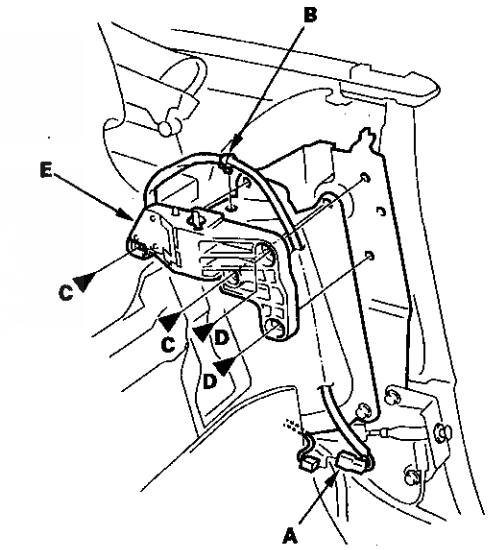
Body Side Catch Assembly Replacement

NOTE: Put on gloves to protect your hands.

1. Remove the roof from the body. Take care not to bend or scratch the trim and panels.
2. Remove the rear side trim (see page 20-72).
3. On the left side, detach and disconnect the connector (A), then detach the harness clip (B).

Fastener Locations

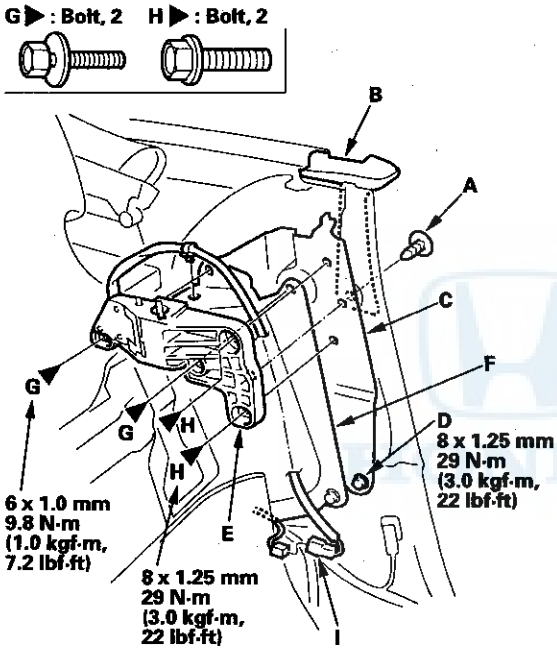
C▶: Bolt, 2 D▶: Bolt, 2



4. Remove the bolts (C, D), then remove the body side catch assembly (E).

5. Remove the lower clip (A) fastening the B-pillar outer weatherstrip (B) from outside of the front door opening. Make sure the center of the clip hole aligns with the center of the hole in the convertible top frame (C). If necessary, loosen the mounting bolt (D), and move the convertible top frame slightly until the holes align. Then tighten the bolt, and install the clip.

Fastener Locations



6. Grease the catch.

7. Reinstall the catch assembly (E) on the corner gusset (F) and the convertible top frame; tighten the bolts (G, H). On left side, reconnect the connector (I).

8. Reinstall all of the removed parts.

Body Side Catch Replacement

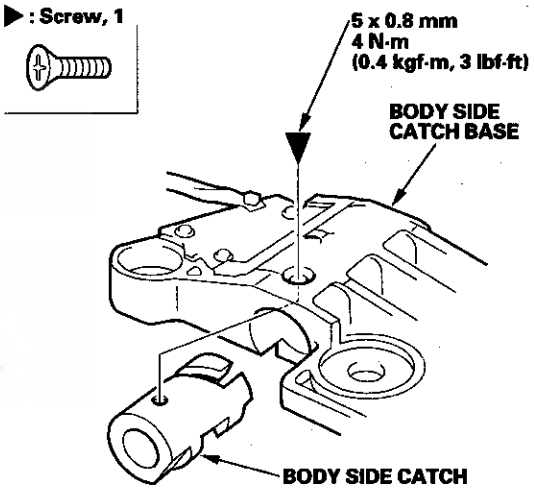
1. Remove the body side catch assembly from the body (see page 20-64).

2. Remove the body side catch as shown.

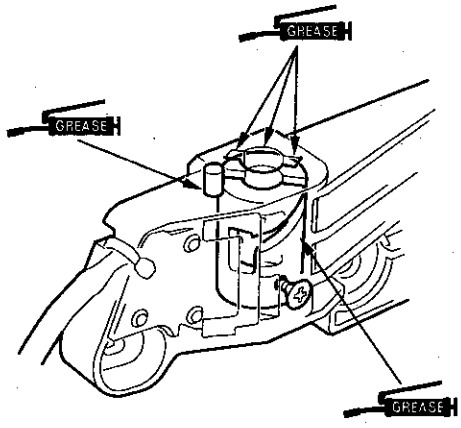
3. Install the catch in the reverse order of removal, and note these items:

   - Apply multipurpose grease to each location as indicated by the arrows.
   - Apply medium strength type liquid thread lock to the screw before reinstallation.

Fastener Location



Grease Application

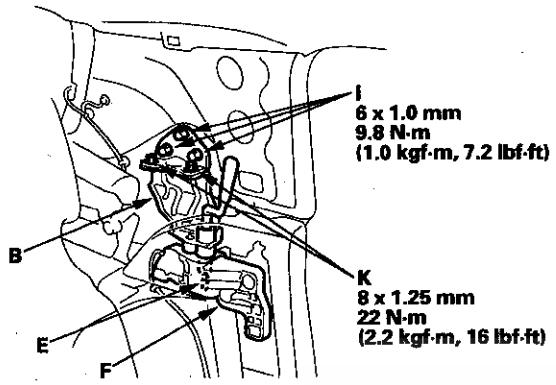


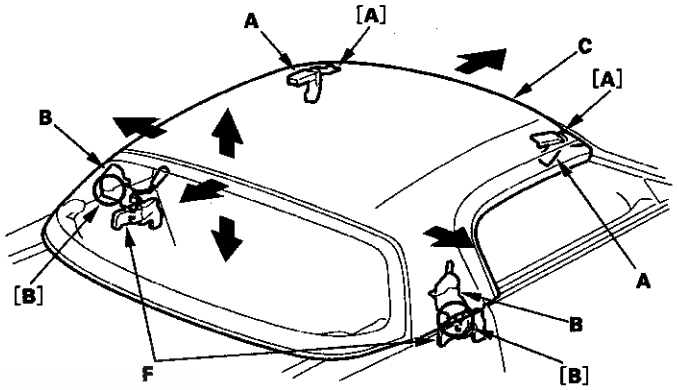
Removable Hardtop

Roof Position Adjustment

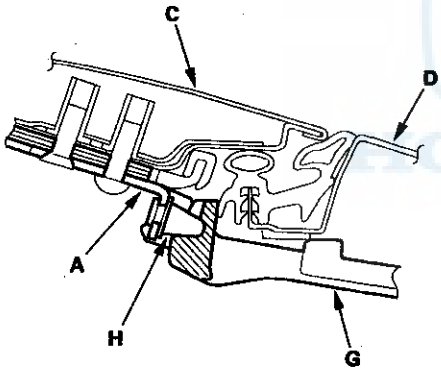
NOTE: Have an assistant help you adjust the roof position.

1. Remove the B-pillar trim from both sides (see page 20-56), and make sure both lock handles (A) and roof side locks (B) are unlocked.

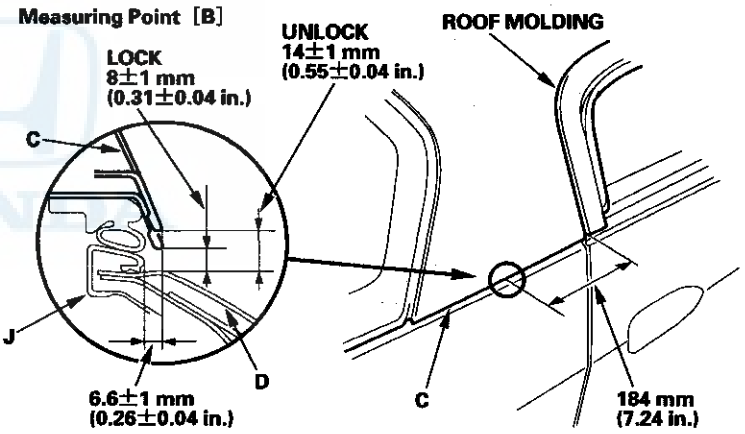




Measuring Point [A]



Measuring Point [B]



2. Set the roof (C) onto the body (D):

   - Make sure the lock pins (E) of both roof side locks are securely inserted into the body side catches (F).
   - Make sure the rear window defogger harnesses are not pinched.

3. Adjust the roof alignment.

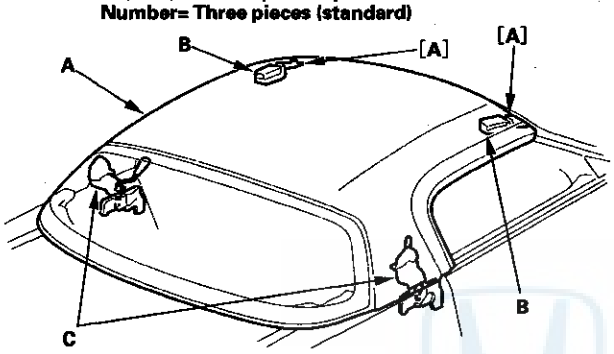
   -1 Check that there is no clearance between the striker (G) and the boss (H) of the lock handle at the measuring points [A], and check that the clearance is within specification at the measuring points [B] on the bottom of both B-pillars.
   -2 To fit the boss into the striker, and to adjust the vertical clearance to the specification, loosen the roof side lock mounting bolts (I), then move the roof up or down, as well as, forward and rearward.
   -3 To adjust the horizontal clearance between both side edges of the roof and the rear tray opening molding (J) to the specification, loosen the holder plate mounting bolts (K), then move the roof to the right or left.
   -4 Fasten both roof side locks.
   -5 Lock the roof securely with both lock handles and roof side locks.
   -6 Recheck the roof alignment.

4. If the roof alignment is still not within specification, unlock the roof, and repeat the preceding steps.

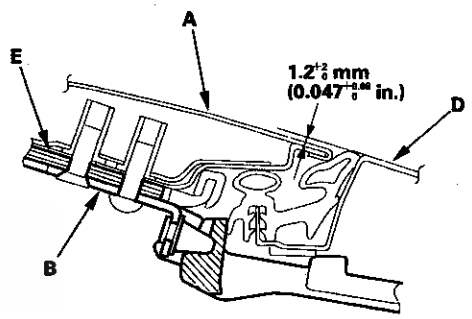
5. If the roof alignment is not within specification, check the body side catches, and check for body deformation.

6. Lock the roof (A) securely with both lock handles (B) and roof side locks (C). Check the level difference between the roof and body (D) at the measuring point [A] . If the difference is not within specification, remove the roof from the body, and adjust the difference with the spacers (E) that are installed between the lock handle and the roof.

SPACER: Thickness= 1 mm (0.04 in.)
Number= Three pieces (standard)



Measuring Point [A]



7. Set the roof onto the body, and lock it securely. Check that the weatherstrip fits flush, and check that each door glass contacts the weatherstrip evenly. If necessary, adjust the retainer; refer to the roof molding replacement (see page 20-58).

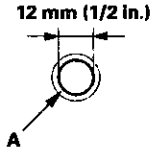
8. Remove the roof from the body, and reinstall the B-pillar trim on the roof.

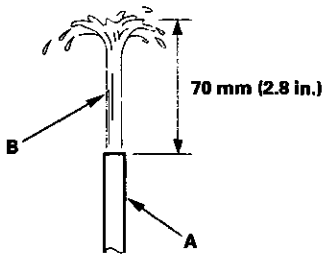
9. Set the roof onto the body, and lock it securely. Reconnect the rear window defogger connectors securely.

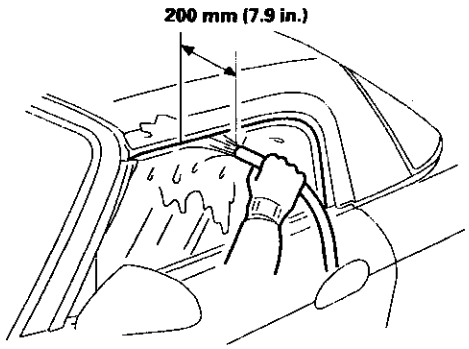
10. Make sure that the roof is locked securely, then raise the door glass fully, and close the doors.

11. Check for water leaks. Run water over the roof and on the sealing area as shown, and note these items:

- Use a 12 mm (1/2 in.) diameter hose (A).
- Adjust the rate of water flow (B).
- Do not use a nozzle.
- Hold the hose about 200 mm (7.9 in.) away from the door.





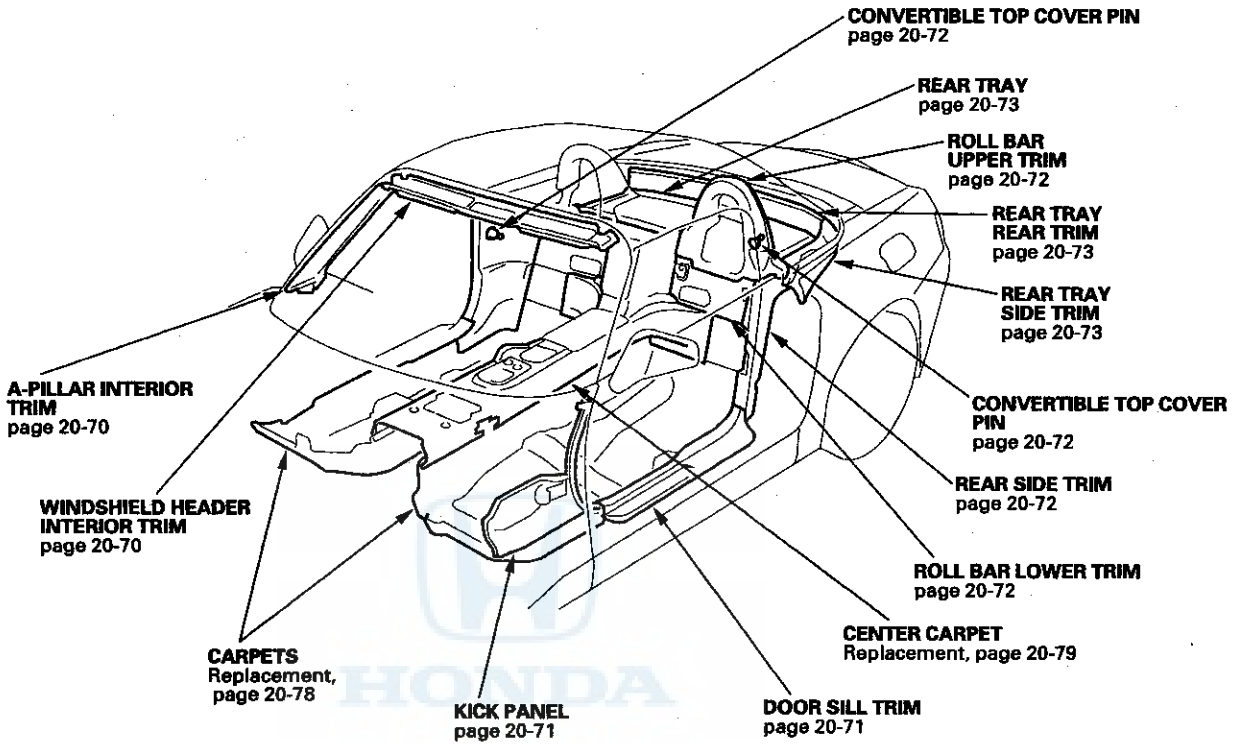


12. Test-drive and check for wind noise.

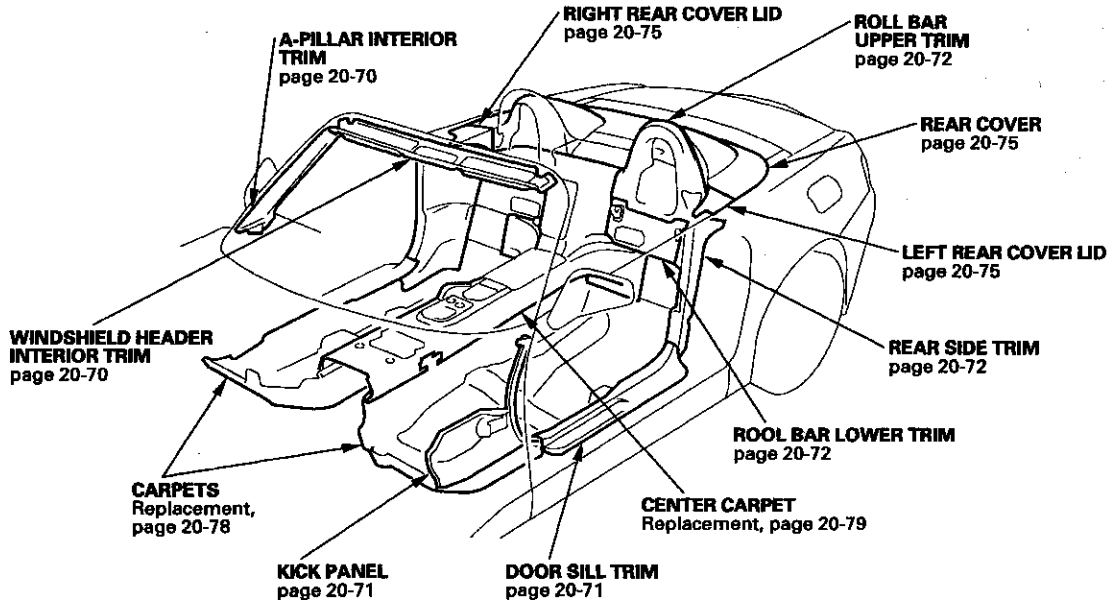
Interior Trim

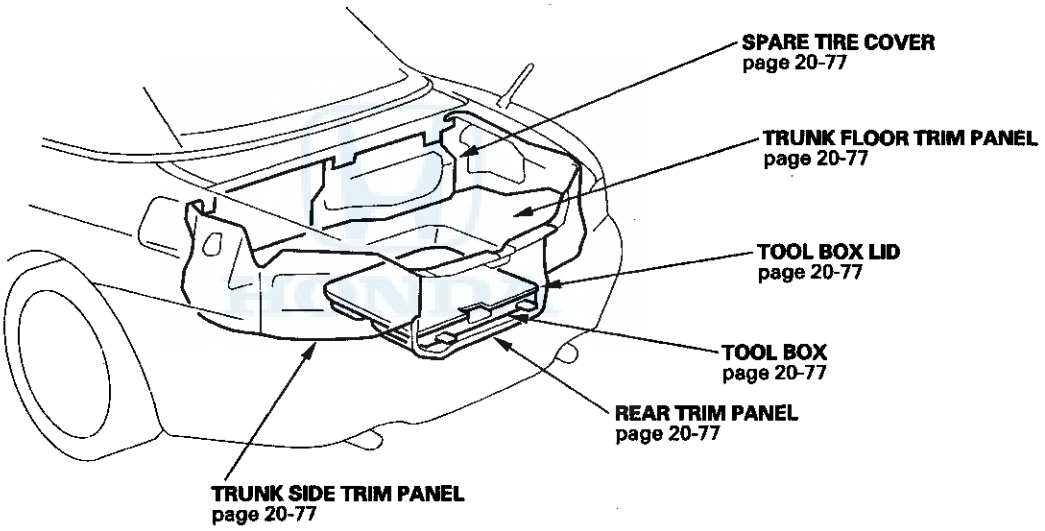
Component Location Index

Except CR Model



CR Model




SPARE TIRE COVER
page 20-77
TRUNK FLOOR TRIM PANEL
page 20-77
TOOL BOX LID
page 20-77
TOOL BOX
page 20-77
REAR TRIM PANEL
page 20-77
TRUNK SIDE TRIM PANEL
page 20-77

Trim Removal/Installation - Front Roof Area

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

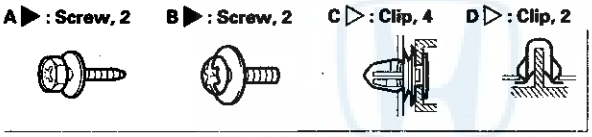
NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to bend or scratch the trim and panels.

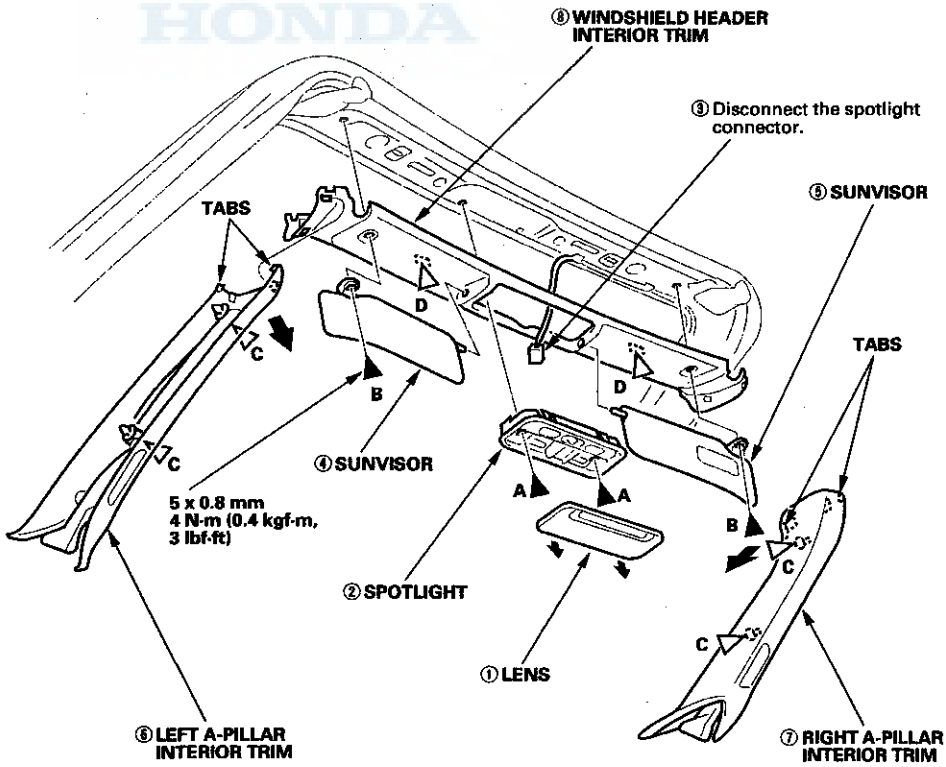
1. Remove the trim in the numbered sequence.

2. Install the trim in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the connector is plugged in properly.
   - Push the clips into place securely.
   - If the threads on the visor screws are worn out, use an oversized screw (P/N 90132-SZ3-003) made specifically for this application.

Fastener Locations





Trim Removal/Installation - Door Areas

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to bend or scratch the trim and panels.

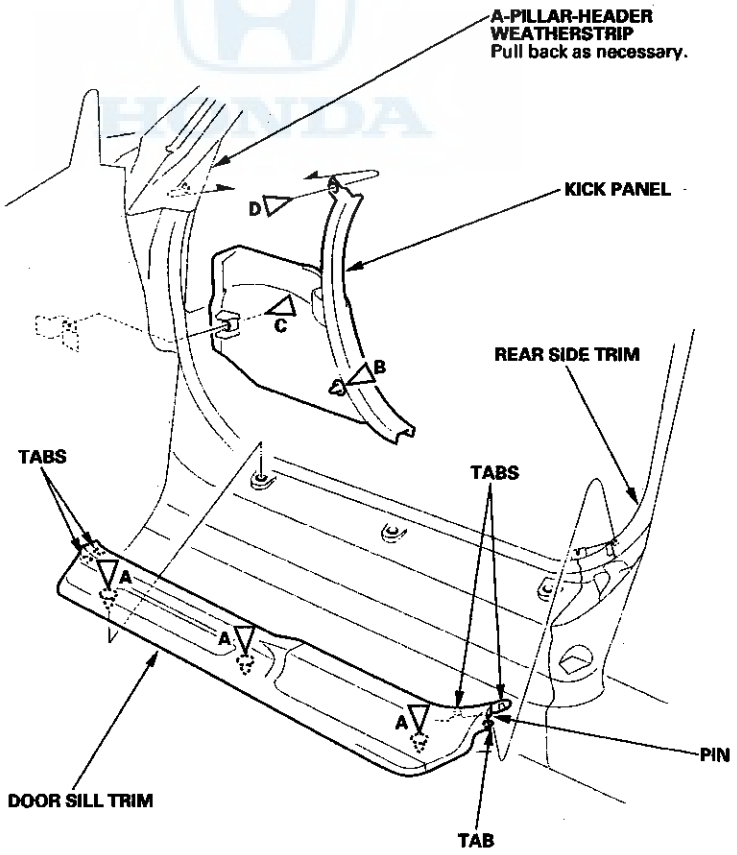
1. Remove the trim as shown.

2. Install the trim in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Fastener Locations

A ▷ : Clip, 3 B ▷ : Clip, 1 C ▷ : Clip, 1 D ▷ : Clip, 1



Trim Removal/Installation - Seat Side Area

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

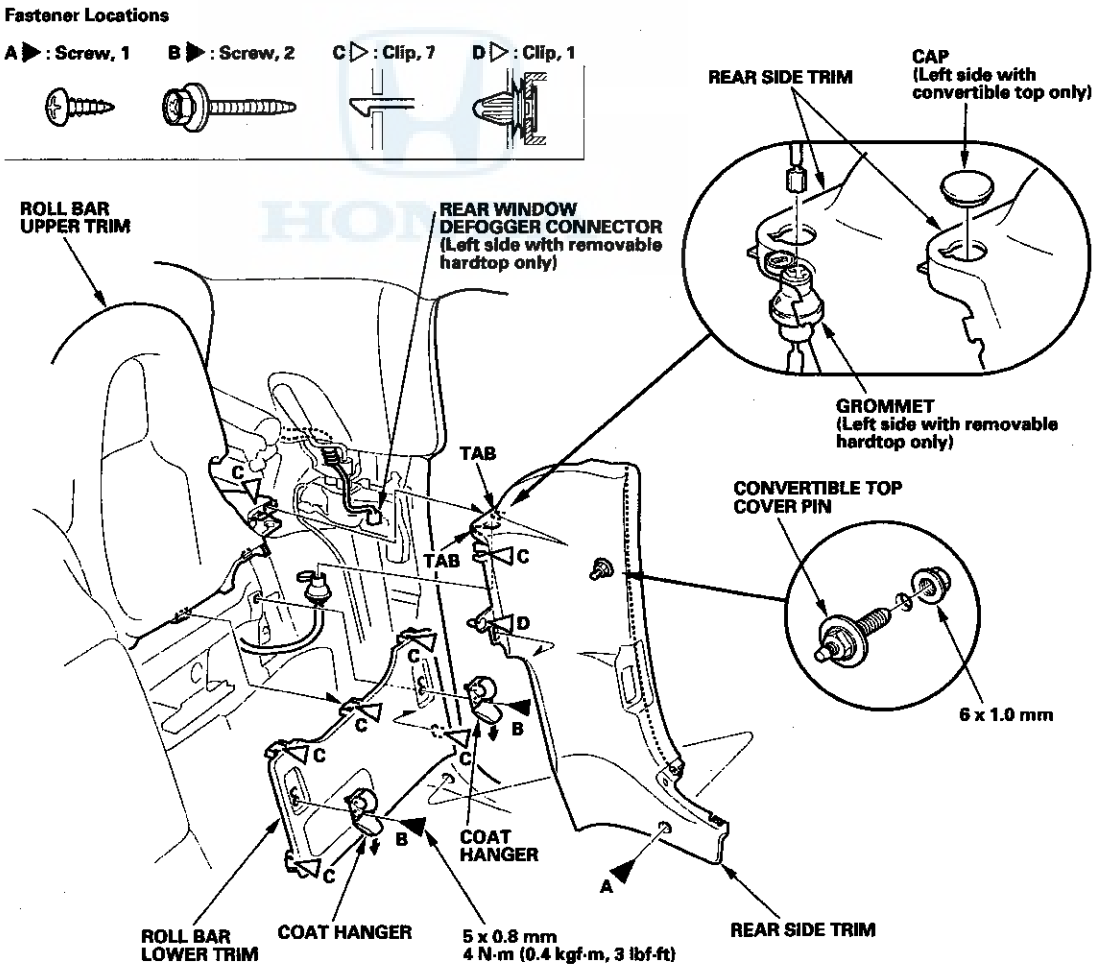
NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to bend or scratch the trim and panels.

1. Remove the door sill trim (see page 20-71).

2. Remove the trim as shown.

3. Install the trim in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - For removable hardtop: Make sure the rear window defogger connector is plugged in properly (left side only).



Trim Removal/Installation - Rear Tray Area

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

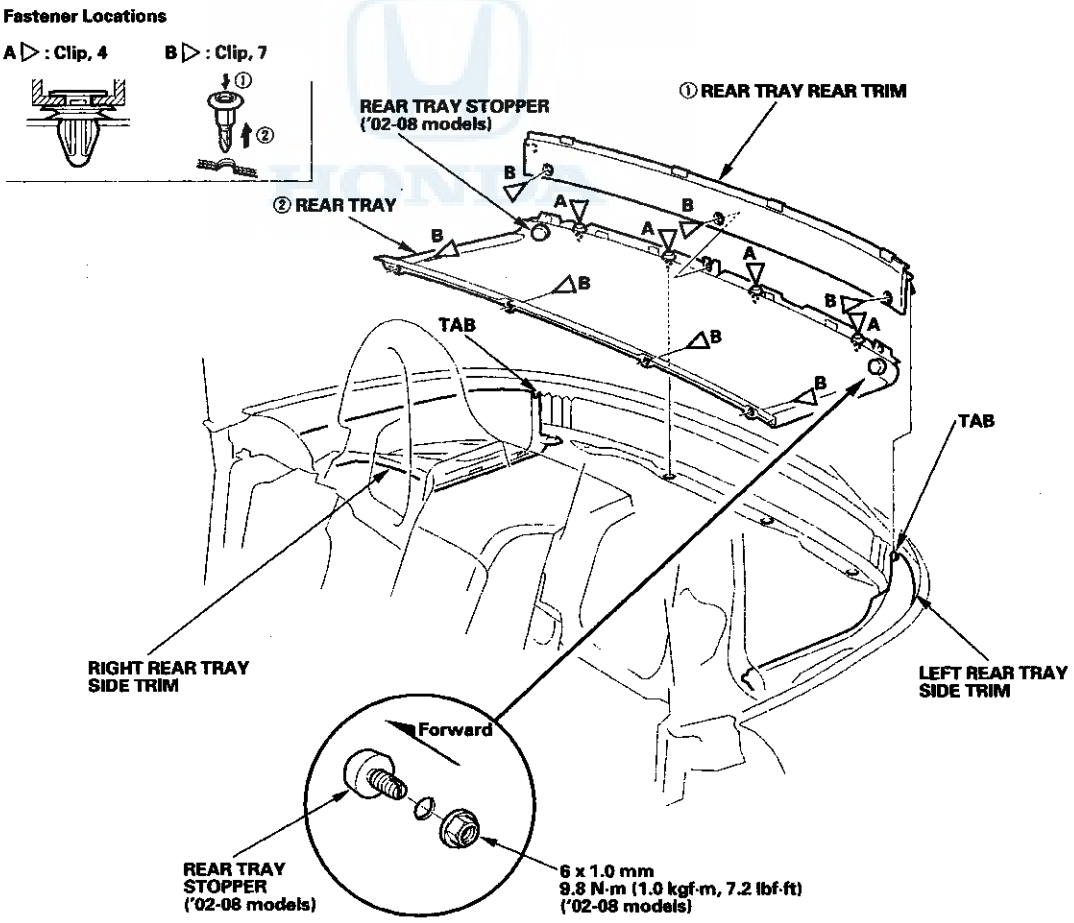
Except CR Model

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to bend or scratch the top cloth, rear window, trim and panels.

1. Remove the trim in numbered sequence.

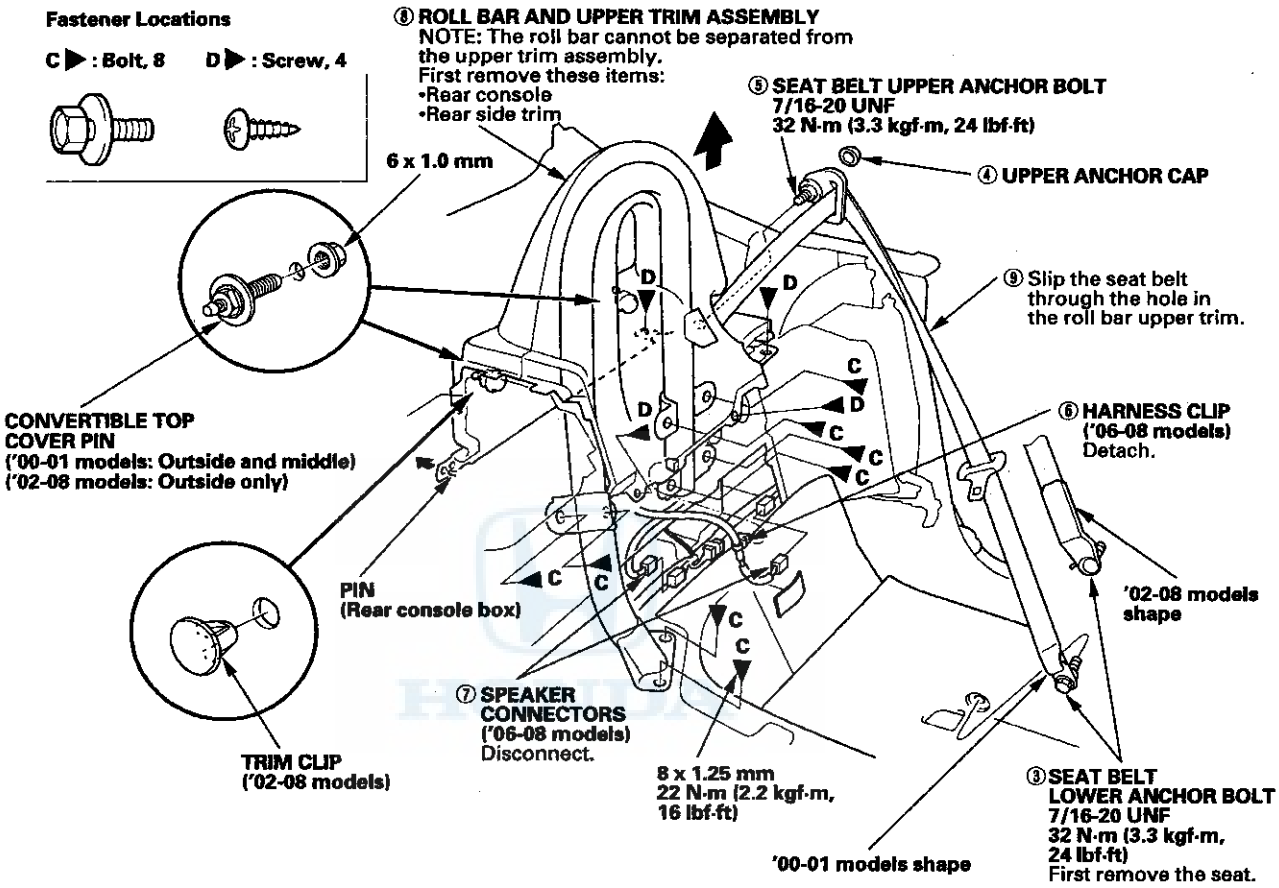
2. Install the trim in the reverse order of removal, and note these items:

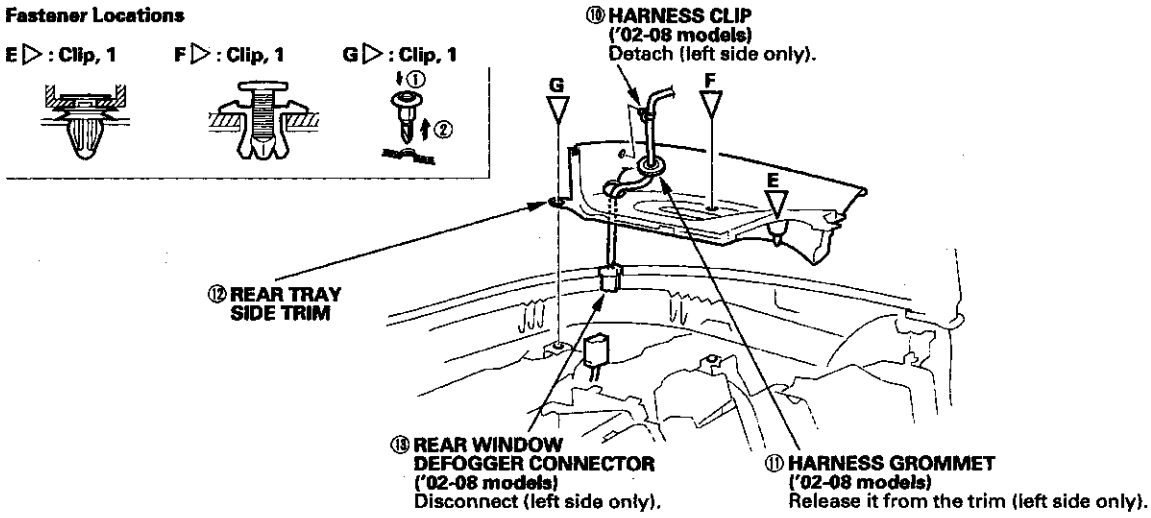
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
   - Push the clips into place securely.



(cont'd)

Trim Removal/Installation - Rear Tray Area (cont'd)





Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

CR Model

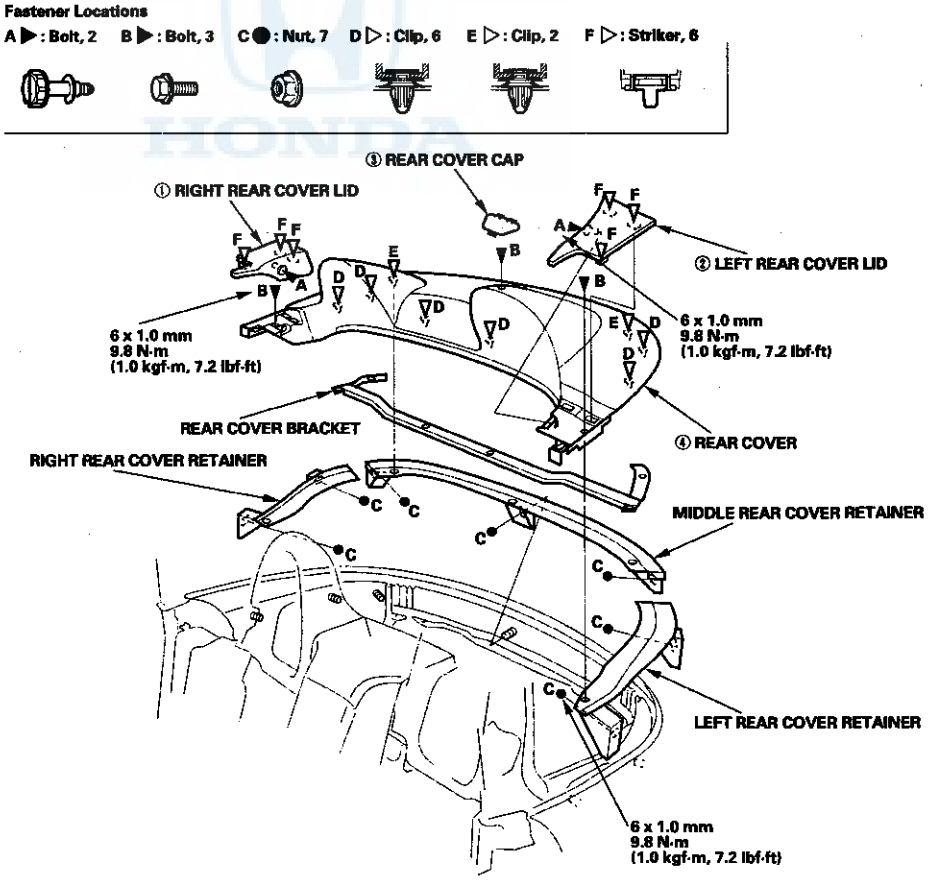
NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.

1. Remove the rear cover in numbered sequence.

2. If necessary, remove the rear cover bracket and the rear cover retainers.

3. Install the rear cover in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
   - Push the clips into place securely.



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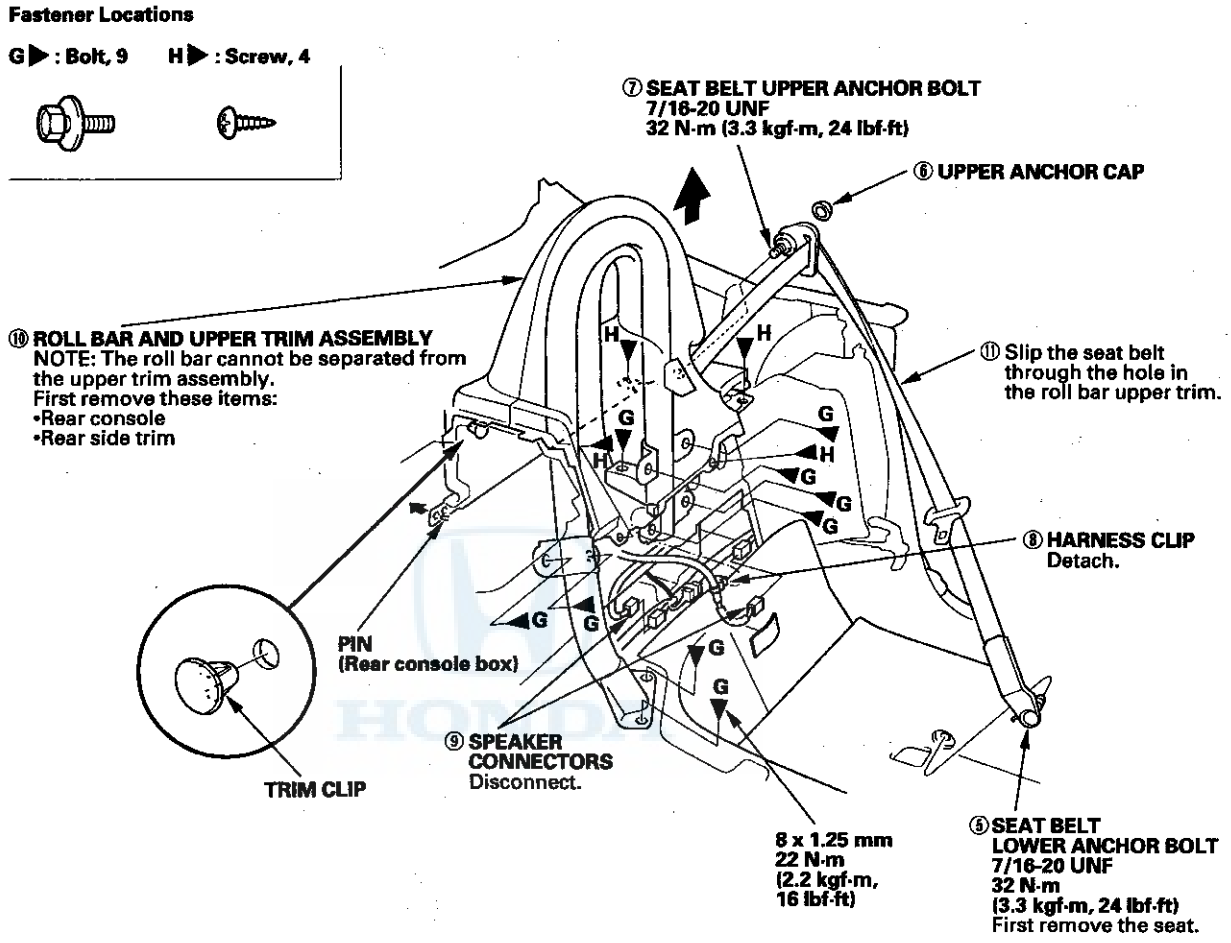
Trim Removal/Installation - Rear Tray Area (cont'd)



Trim Removal/Installation - Trunk Area

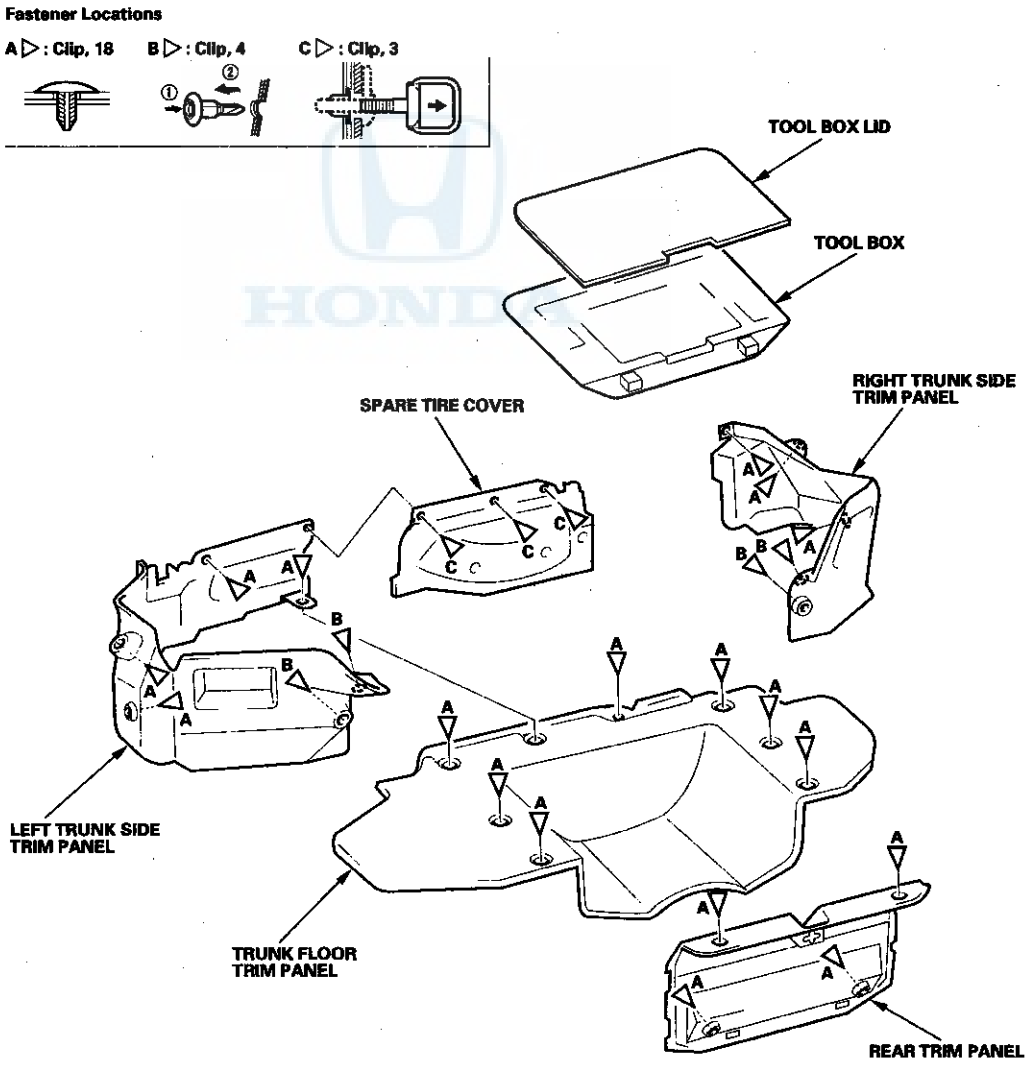
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to bend or scratch the trim and panels.

1. Remove the trim as shown.

2. Install the trim in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.



Carpet Replacement

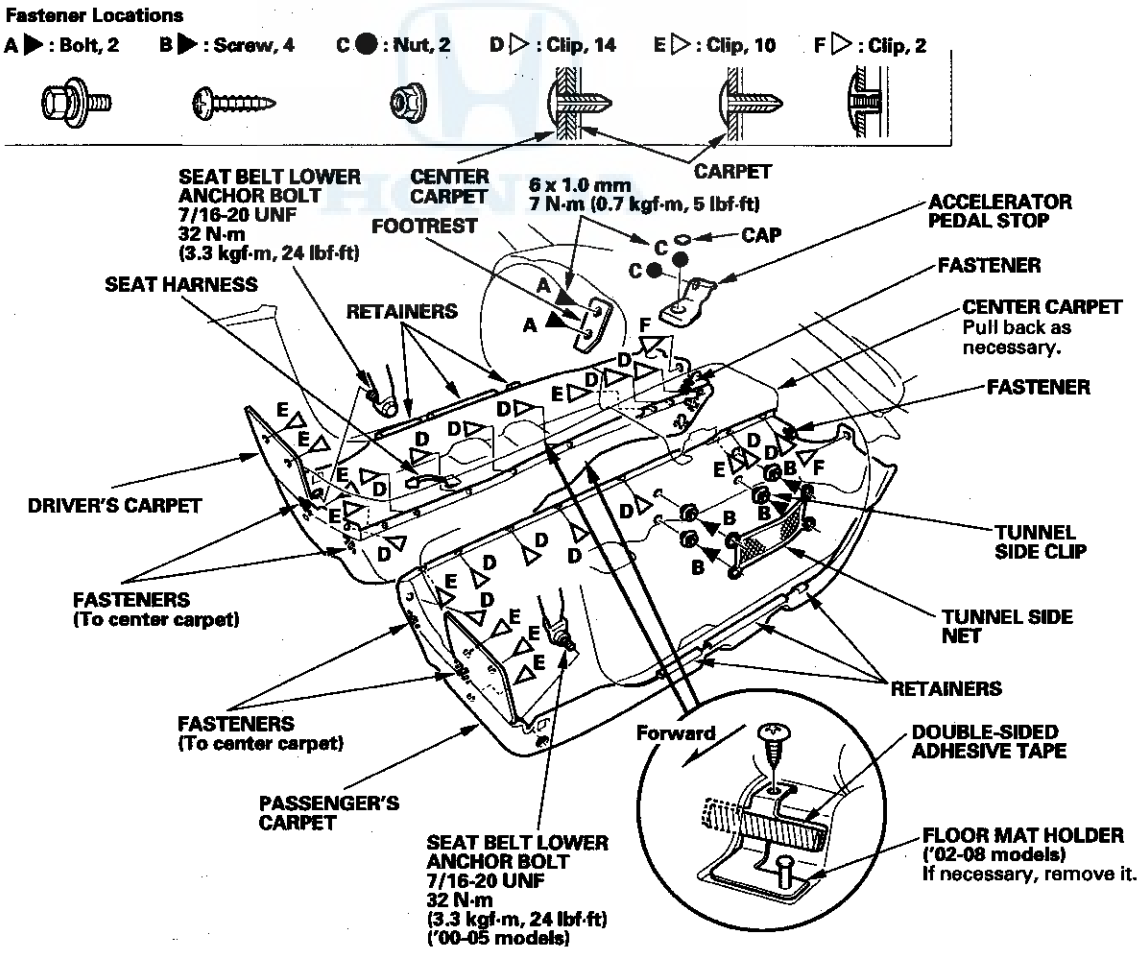
NOTE:
- Put on gloves to protect your hands.
- Take care not to damage, wrinkle, or twist the carpets.
- Be careful not to damage the dashboard or other interior trim pieces.

1. Remove these items, then remove the carpet as shown:

   - Seats, both sides (see page 20-92)
   - Kick panels, both sides (see page 20-71)
   - Front console covers, both sides (see page 20-85)
   - Rear side trims, both sides (see page 20-72)

2. Install the carpet in the reverse order of removal, and note these items:

   - Make sure the seat harness is routed correctly.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Apply medium strength type liquid thread lock to the anchor bolts and seat mounting bolts before reinstallation.
   - Before installing the lower anchor bolts, make sure there are no twists or kinks in the seat belts.
   - Push the clips into place securely.



Center Carpet Replacement

SRS components are located in this area. Review the SRS component locations for the appropriate model:
- '00-05 models (see page 23-11)
- '06-08 models (see page 23-12)

Also review the precautions and procedures (see page 23-13) before doing repairs or service.

NOTE:
- Put on gloves to protect your hands.
- Take care not to damage, wrinkle, or twist the carpet.
- Be careful not to damage the dashboard or other interior trim pieces.
- Before disconnecting the negative cable from the battery, make sure you have the anti-theft code for the audio system, then write down the audio presets.
- Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.

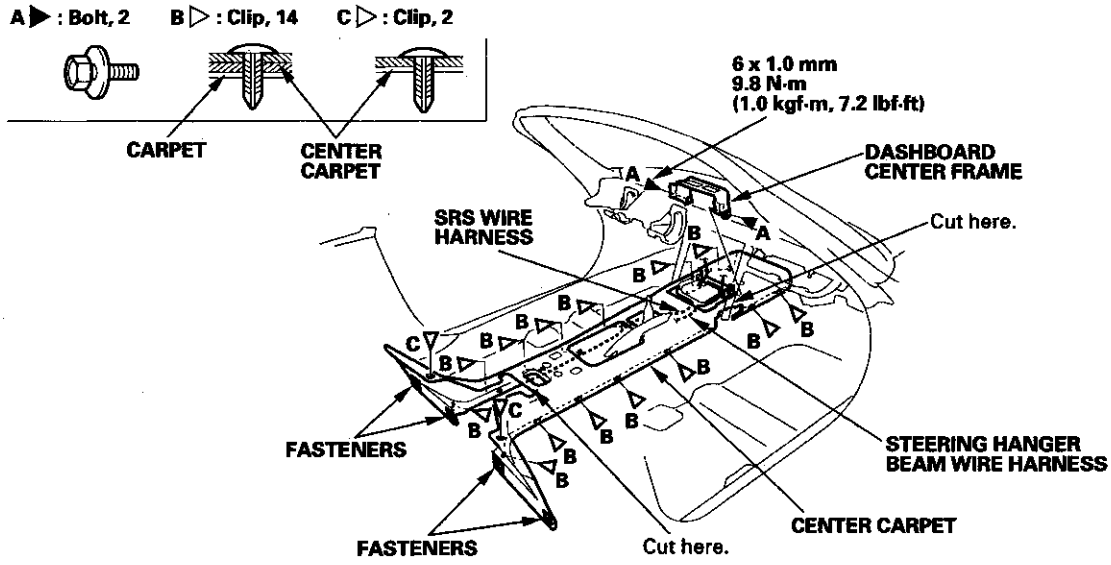
1. Remove these items, then remove the center carpet as shown:

   - Dashboard (see page 20-87)
   - Rear console (see page 20-82)
   - The harness clips securing the SRS wire harness and steering hanger beam wire harness.
   - Cut the carpet in the areas shown.

2. Install the center carpet in the reverse order of removal, and note these items:

   - Make sure the SRS wire harness and steering hanger beam wire harness are routed correctly, and clipped into place.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Refasten the cut areas with wire ties.
   - Reconnect the negative cable to the battery.
   - Enter the anti-theft code for the audio system, then enter the audio presets.
   - Set the clock.
   - '02-05 models: Do the ECM idle learn procedure (see page 11-140).

Fastener Locations



Center Console Removal/Installation

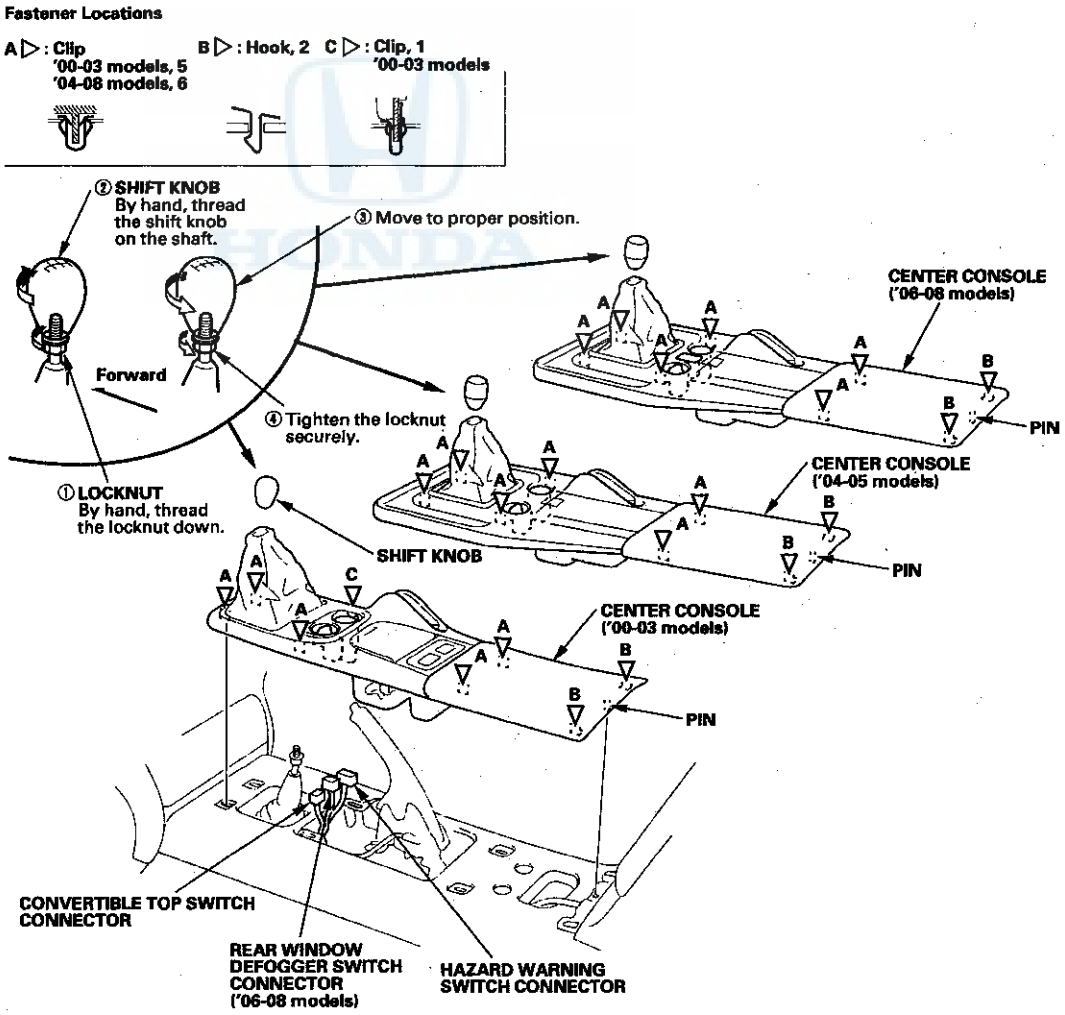
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the front seat, dashboard and related parts.
- Remove the shift knob by turning it counterclockwise.

1. Remove the center console as shown.

2. Install the center console in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the connectors are plugged in properly.
   - Push the clips and hooks into place securely.
   - Install the shift knob in numbered sequence.



Wind Deflector Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

'01-08 Models

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the rear console upper lid and related parts.

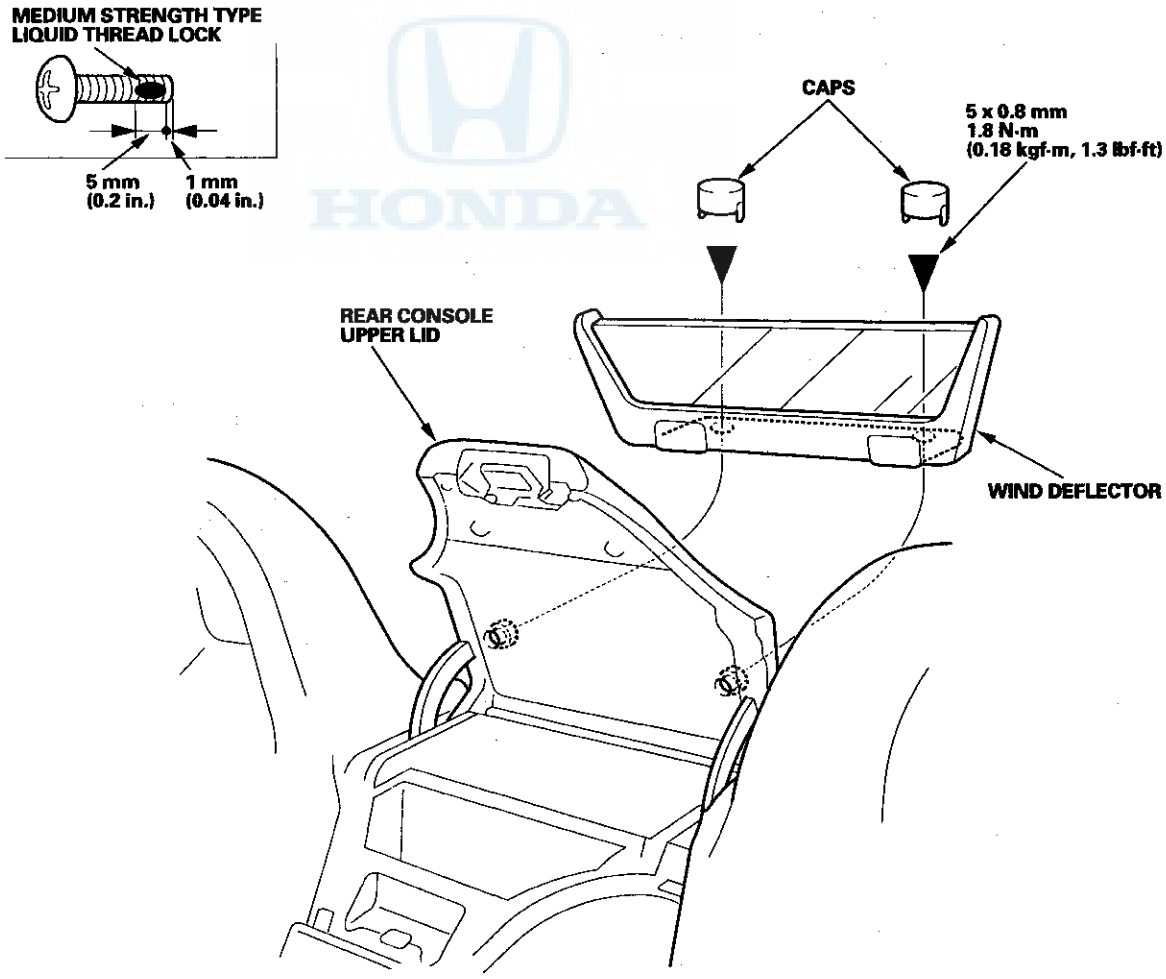
1. Remove the wind deflector as shown.

2. Install the wind deflector in the reverse order of removal.

   - Apply medium strength type liquid thread lock to the thread of the screws before reinstallation.
   - Make sure the caps are installed securely onto the screws.

Fastener Locations

▶ : Screw, 2

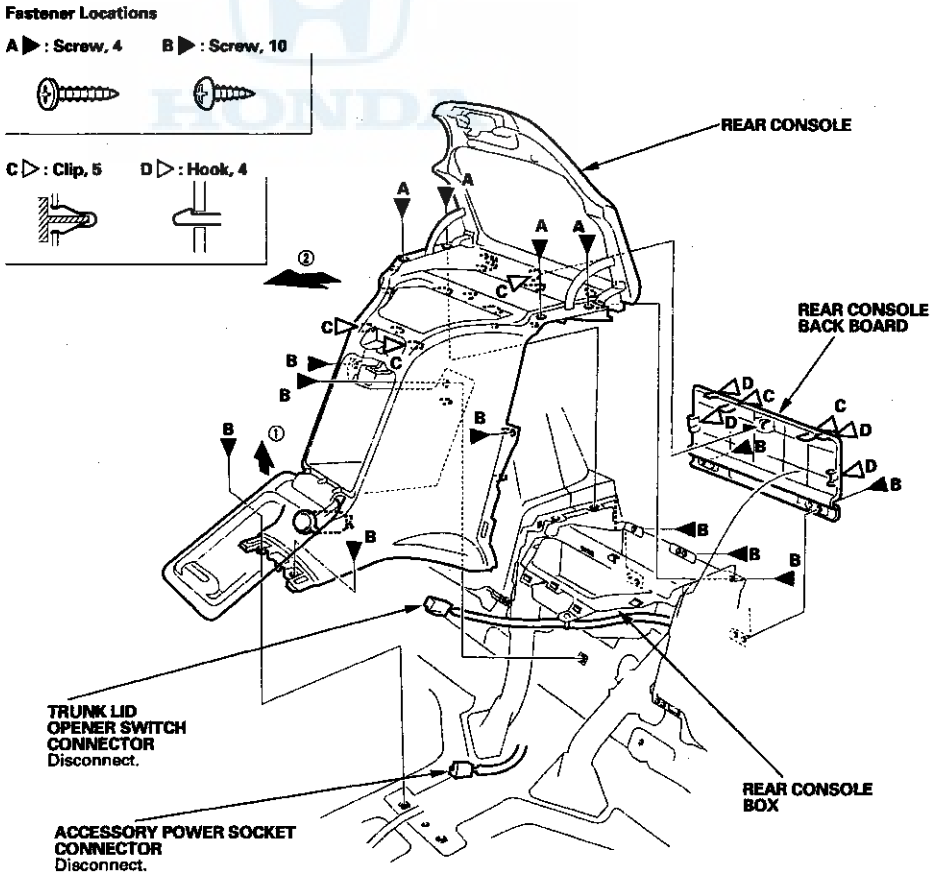


Rear Console Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the front seat and related parts.

1. Remove these items:
   - Center console (see page 20-80)
   - Rear tray (except CR model) (see page 20-73)
   - Rear cover (CR model) (see page 20-75)
   - Roll bar lower trim, both sides (see page 20-72)
2. Remove the rear console as shown.
3. Install the rear console in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the connectors are plugged in properly.
   - Push the clips into place securely.

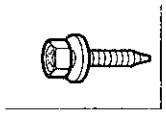


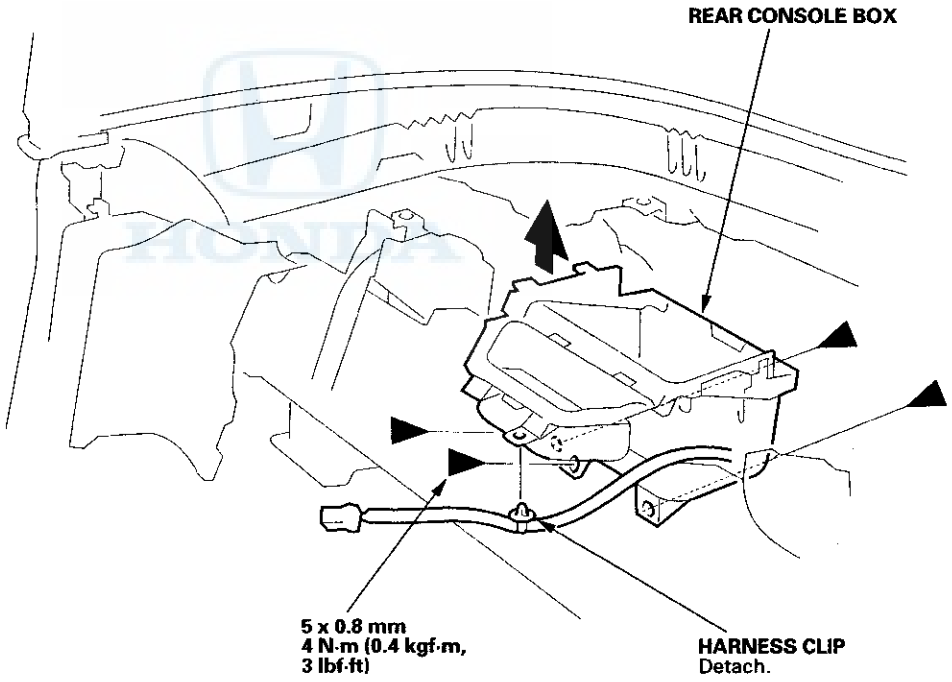
Rear Console Box Replacement

NOTE: Take care not to scratch the front seat and related parts.

1. Remove these items, then remove the rear console box as shown:
   - Roll bar upper trim, both sides (see page 20-72)
   - Spare tire (except CR model)
2. Remove the rear console box as shown.
3. Install the rear console box in the reverse order of removal.

Fastener Locations
▶ : Screw, 4





Instrument Panel Removal/ Installation

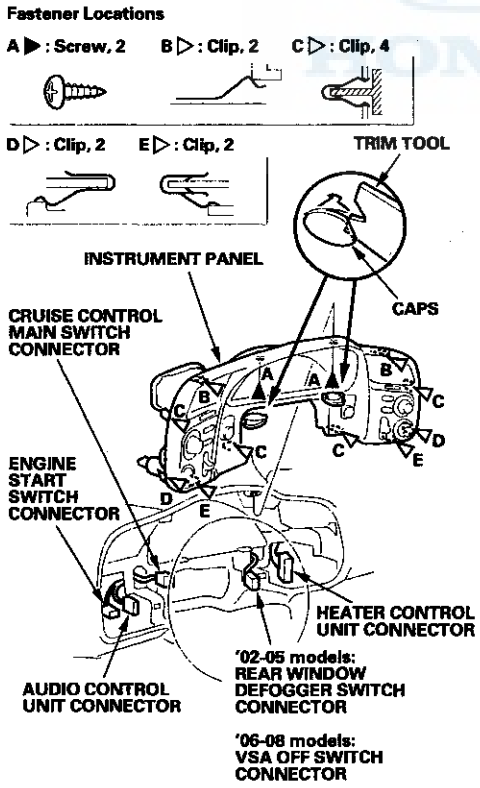
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the dashboard and related parts.

1. Remove the instrument panel as shown.

2. Install the panel in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Make sure the connectors are plugged in properly.
   - Push the clips into place securely.



Radio Panel Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

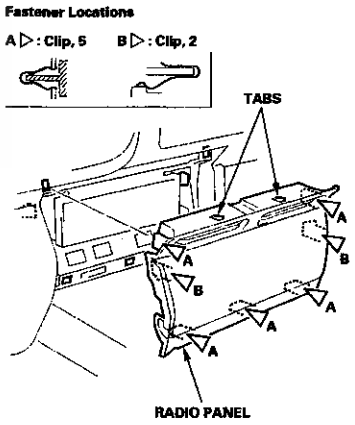
NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the dashboard and related parts.

1. Remove the radio panel as shown.

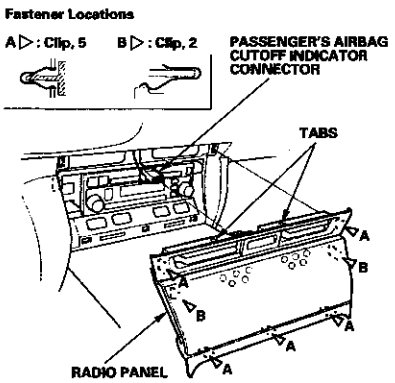
2. Install the panel in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

'00-05 models



'06-08 models



Front Console Cover Removal/ Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the dashboard and related parts.

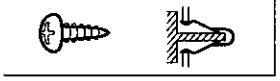
1. Remove the front console cover as shown.

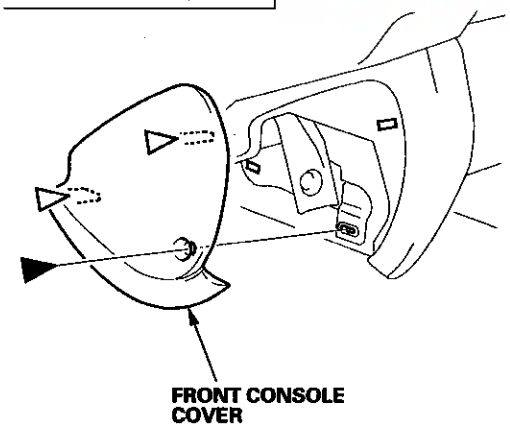
2. Install the cover in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Fastener Locations

▶ : Screw, 1 ▷ : Clip, 2





Driver's Dashboard Lower Cover Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

'06-08 Models

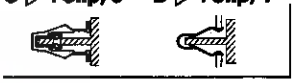
NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the dashboard and related parts.

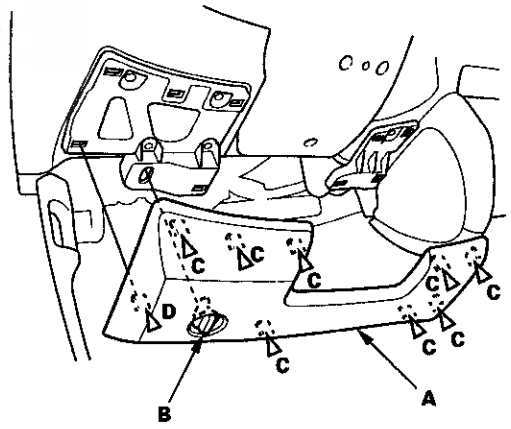
1. Remove the driver's dashboard lower cover (A).

   1 Turn the lock knob (B) 90 °.
   2 Gently pull out on the bottom edge to release the clips (C, D).

Fastener Locations

C ▷ : Clip, 8 D ▷ : Clip, 1





2. Install the cover in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Passenger's Dashboard Lower Cover Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the dashboard and related parts.

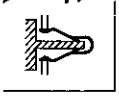
1. Remove the passenger's dashboard lower cover as shown.

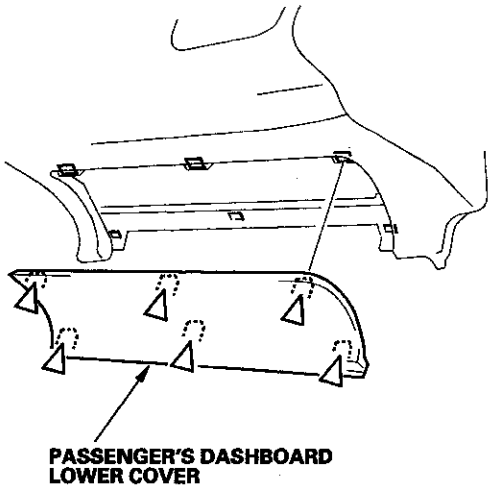
2. Install the cover in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

'00-05 models

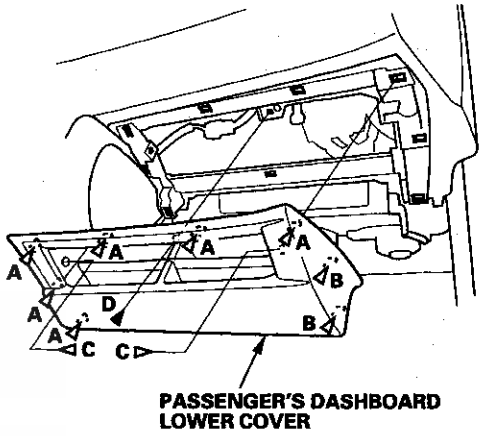
Fastener Locations
▷: Clip, 6





'06-08 models

Fastener Locations
A ▷: Clip, 6 B ▷: Clip, 2 C ▷: Clip, 2 D ▶: Screw, 1



Passenger's Side Vent Removal/ Installation

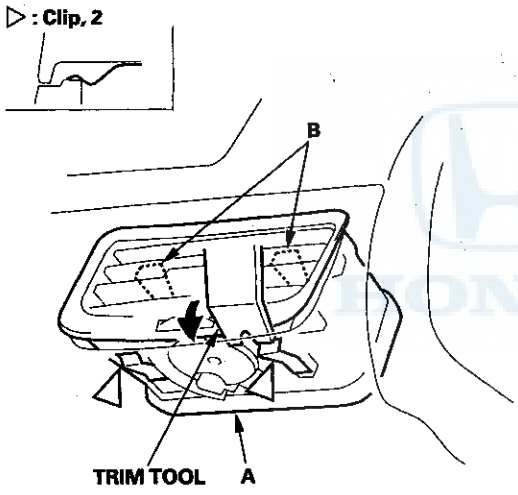
Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

NOTE: Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.

1. Carefully insert a trim tool next to the clips, and detach the clips by prying on the passenger's side vent (A). Take care not to scratch the dashboard and related parts.

Fastener Locations

▷ : Clip, 2



2. Remove the vent by releasing the hooks (B).

3. Reinstall the hook portions of the vent first, then push the clips into place securely.

Dashboard Removal/Installation

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations for the appropriate model:
- '00-05 models (see page 23-11)
- '06-08 models (see page 23-12)

Also review the precautions and procedures (see page 23-13) before doing repairs or service.

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Have an assistant help you when you remove and install the dashboard.
- Take care not to scratch the dashboard, body and other related parts.
- Put on gloves to protect your hands.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.

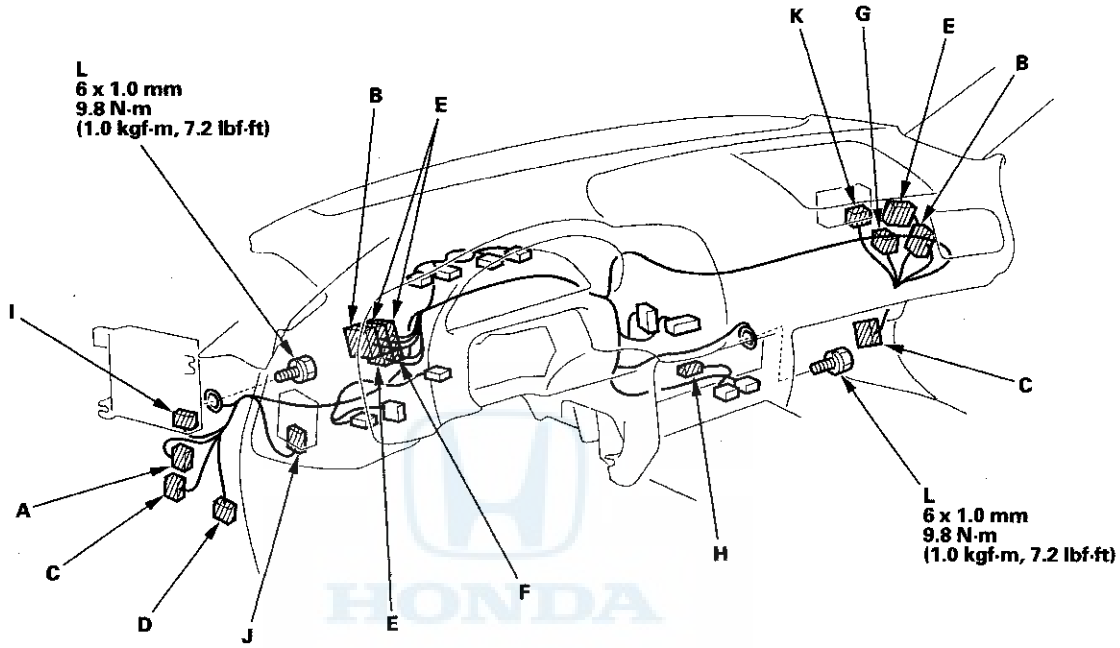
3. Remove these items:

   - Radio panel (see page 20-84)
   - Audio unit (see page 22-288)
   - Steering column (see page 17-9)
   - '06-08 models: Driver's dashboard lower cover (see page 20-85)
   - Passenger's dashboard lower cover (see page 20-86)
   - Front console cover, both sides (see page 20-85)
   - Passenger's airbag assembly (see page 23-166)
   - Kick panel, both sides (see page 20-71)
   - A-pillar trim, both sides (see page 20-70)

(cont'd)

Dashboard Removal/Installation (cont'd)

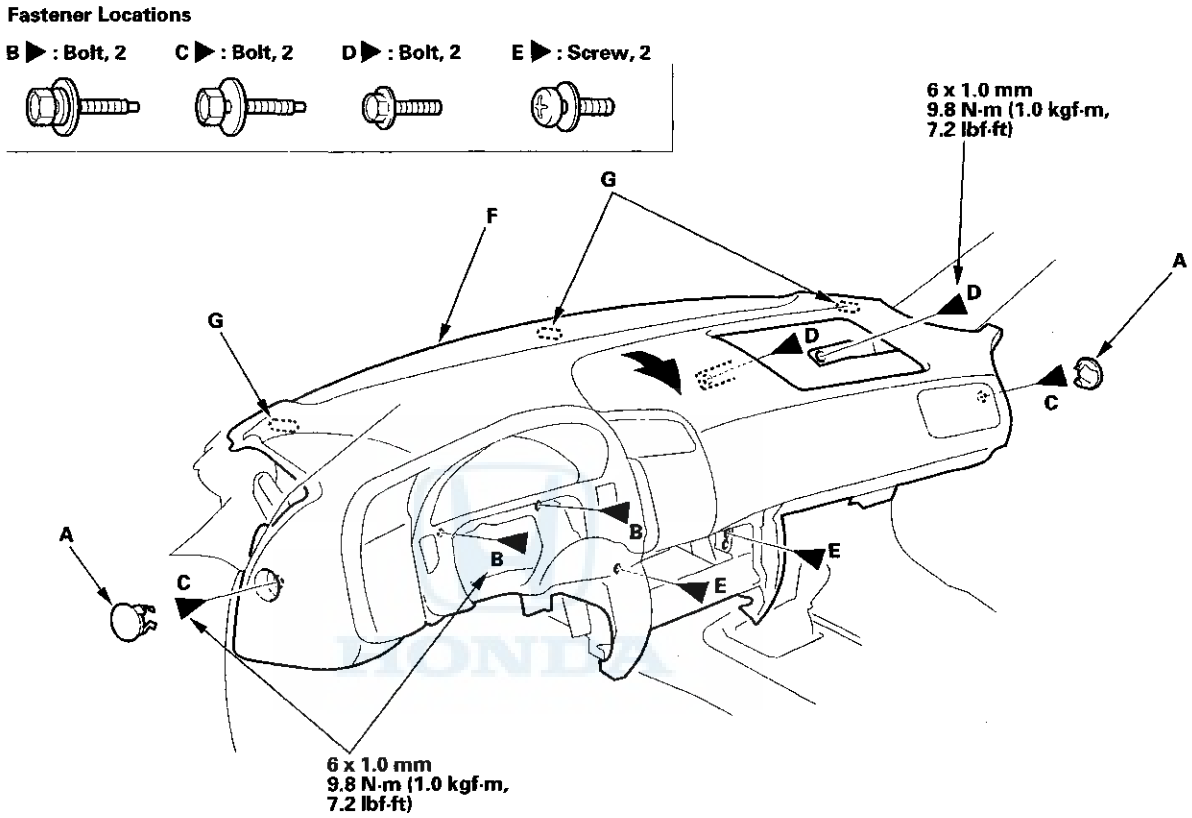
4. Disconnect the engine wire harness connector (A), engine compartment wire harness connectors (B), door wire harness connectors (C), rear wire harness connector (D), steering hanger beam wire harness connectors (E), SRS main harness connector (F), front impact sensor harness connector (G), radio antenna harness connector (H), ECM connector (I), keyless entry control unit connector (J), and convertible top control unit connector (K).



5. Remove the ground bolts (L).

6. Detach all of the harness and connector clips.

7. Open the doors, remove the caps (A), then remove the bolts (B, C, D) and screws (E), and lift up on the dashboard (F) to release it from the guide pins (G). Take care not to scratch the center console and shift knob.



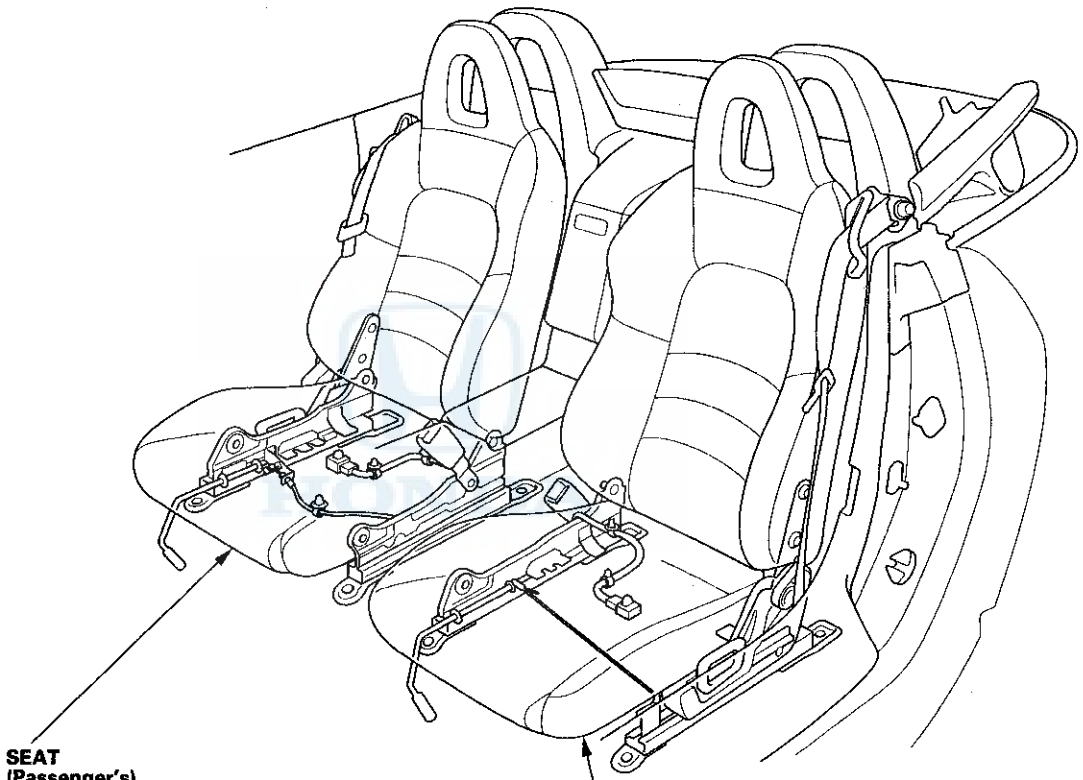
8. Carefully remove the dashboard through the front door opening.

9. Install the dashboard in the reverse order of removal, and note these items:

- Make sure the dashboard fits onto the guide pins correctly.
- Before tightening the bolts, make sure the dashboard wire harness and steering hanger beam wire harness are not pinched.
- Make sure the connectors are plugged in properly.
- Reconnect the negative cable to the battery.
- Enter the anti-theft code for the audio system, then enter the audio presets.
- Set the clock.
- '02-05 models: Do the ECM idle learn procedure (see page 11-140).

Component Location Index

'00-05 Models



SEAT
(Passenger's)
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Disassembly/Reassembly page 20-97
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SEAT
(Driver's)
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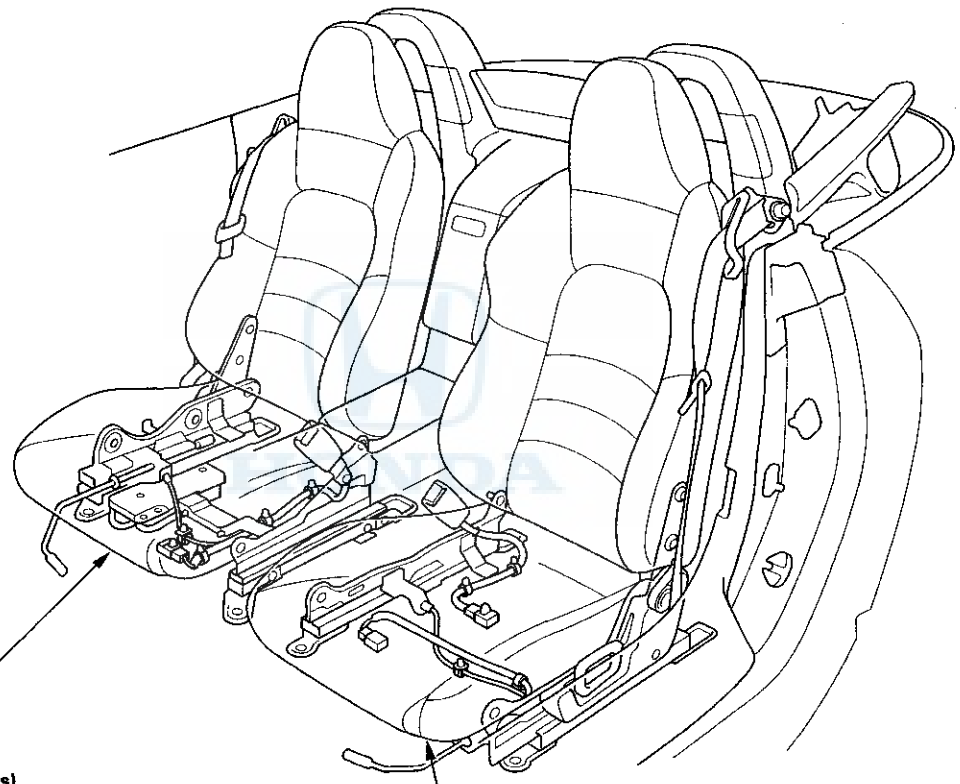
'06-08 Models



SEAT
(Passenger's)
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SEAT
(Driver's)
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Seat Removal/Installation

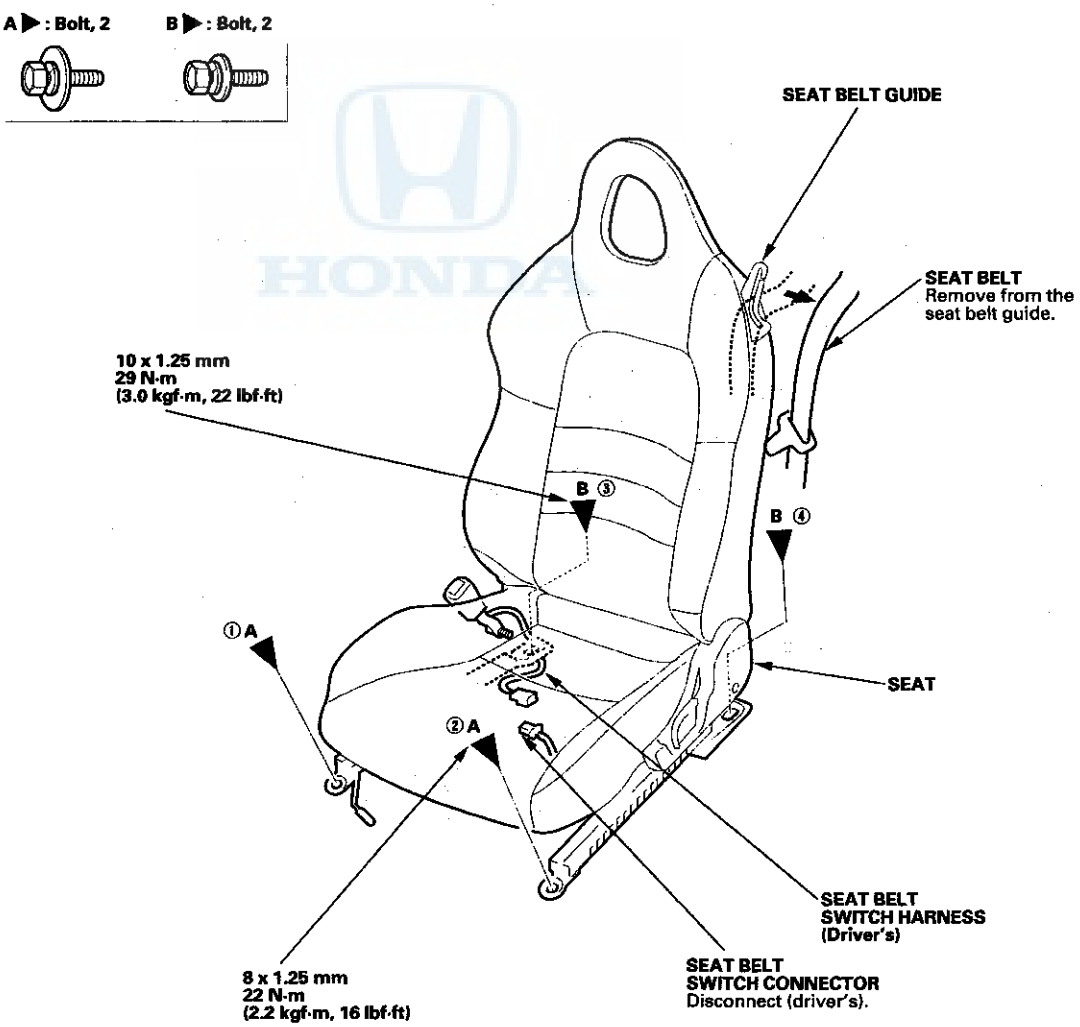
'00-05 Models

NOTE: Take care not to scratch the body or tear the seat covers.

1. Remove the seat as shown.

2. Install the seat in the reverse order of removal, and note these items:

   - Slip the seat belt through the slits in the seat belt guide properly.
   - Make sure the seat belt switch connector is plugged in properly.
   - Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.
   - Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten ① and ②, then slide it forward and tighten ③ and ④. The driver's seat is shown; the passenger's seat is similar.
   - Tighten the bolts by hand first, then tighten them to specification with a torque wrench.



Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

'06-08 Models

SRS components are located in this area. Review the SRS component locations for the appropriate model:
- '00-05 models (see page 23-11)
- '06-08 models (see page 23-12)

Also review the precautions and procedures (see page 23-13) before doing repairs or service.

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the body or tear the seat covers.
- Put on gloves to protect your hands.

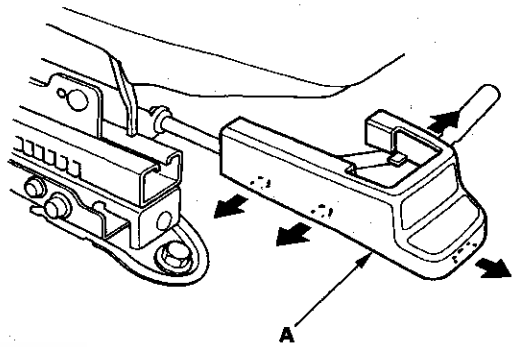
1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.

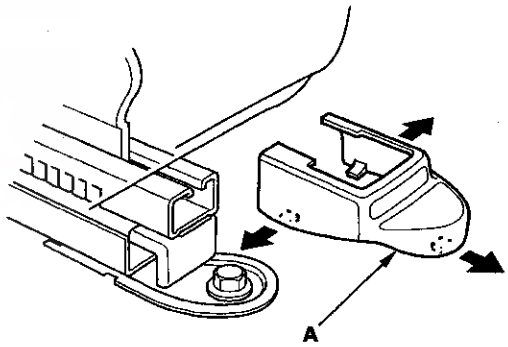
3. Passenger's: Detach the front seat belt lower anchor (see step 4 on page 23-5).

4. Passenger's: Remove the seat track and covers (A) from the front of both seat tracks.

Outer



Inner



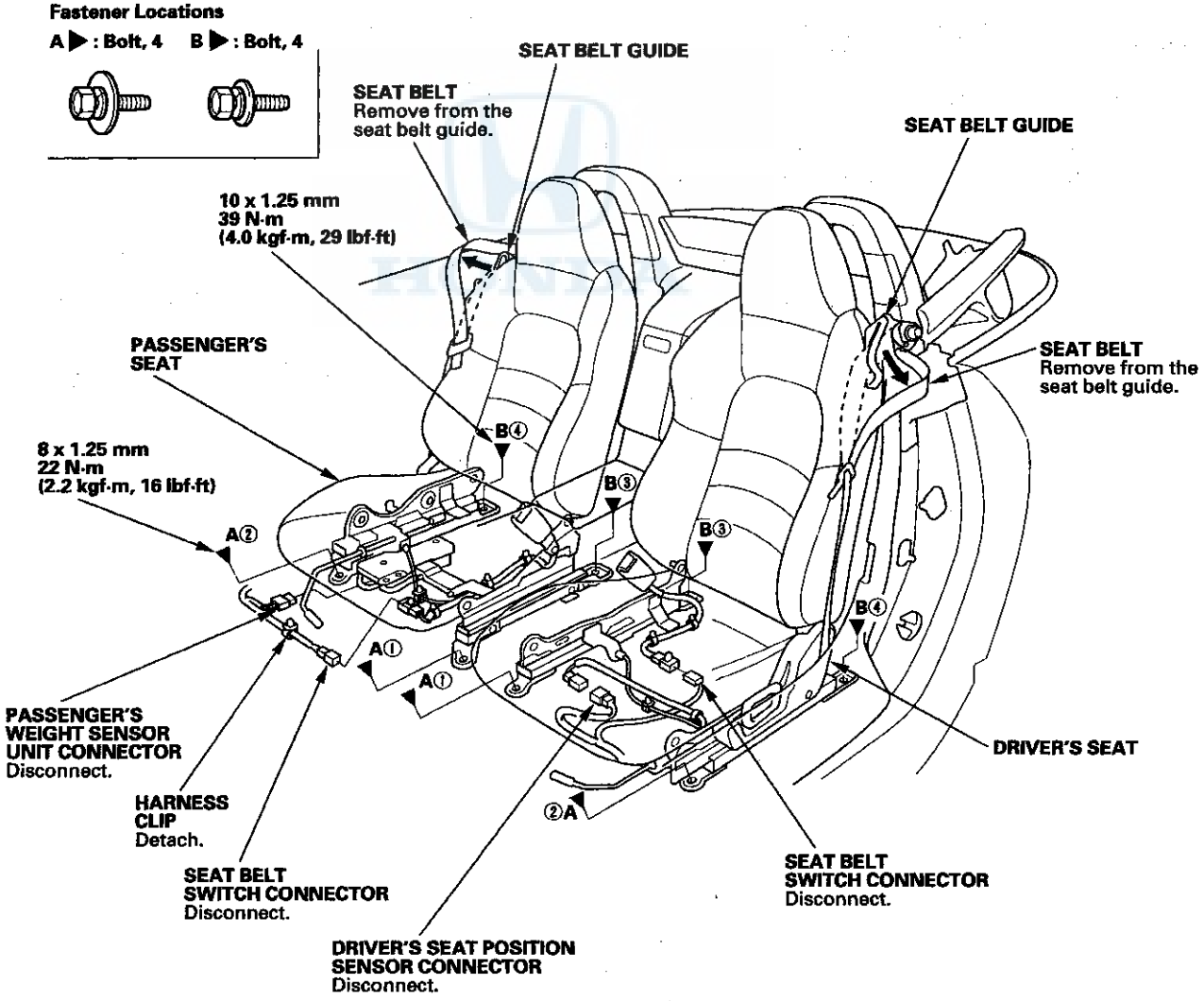
(cont'd)

Seat Removal/Installation (cont'd)

5. Remove the seat as shown.

6. Install the seat in the reverse order of removal, and note these items:

   - Slip the seat belt through the slits in the seat belt guide properly.
   - Make sure the seat belt switch, passenger's weight sensor unit and driver's seat position sensor connector are plugged in properly.
   - Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.
   - Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten ① and ②, then slide it forward and tighten ③ and ④.
   - Tighten the bolts by hand first, then tighten them to specification with a torque wrench.
   - Passenger's: Before attaching the front seat belt lower anchor, make sure there are no twists or kinks in the belts.
   - Reconnect the negative cable to the battery.
   - Enter the anti-theft code for the audio system, then enter the audio presets.
   - Set the clock.

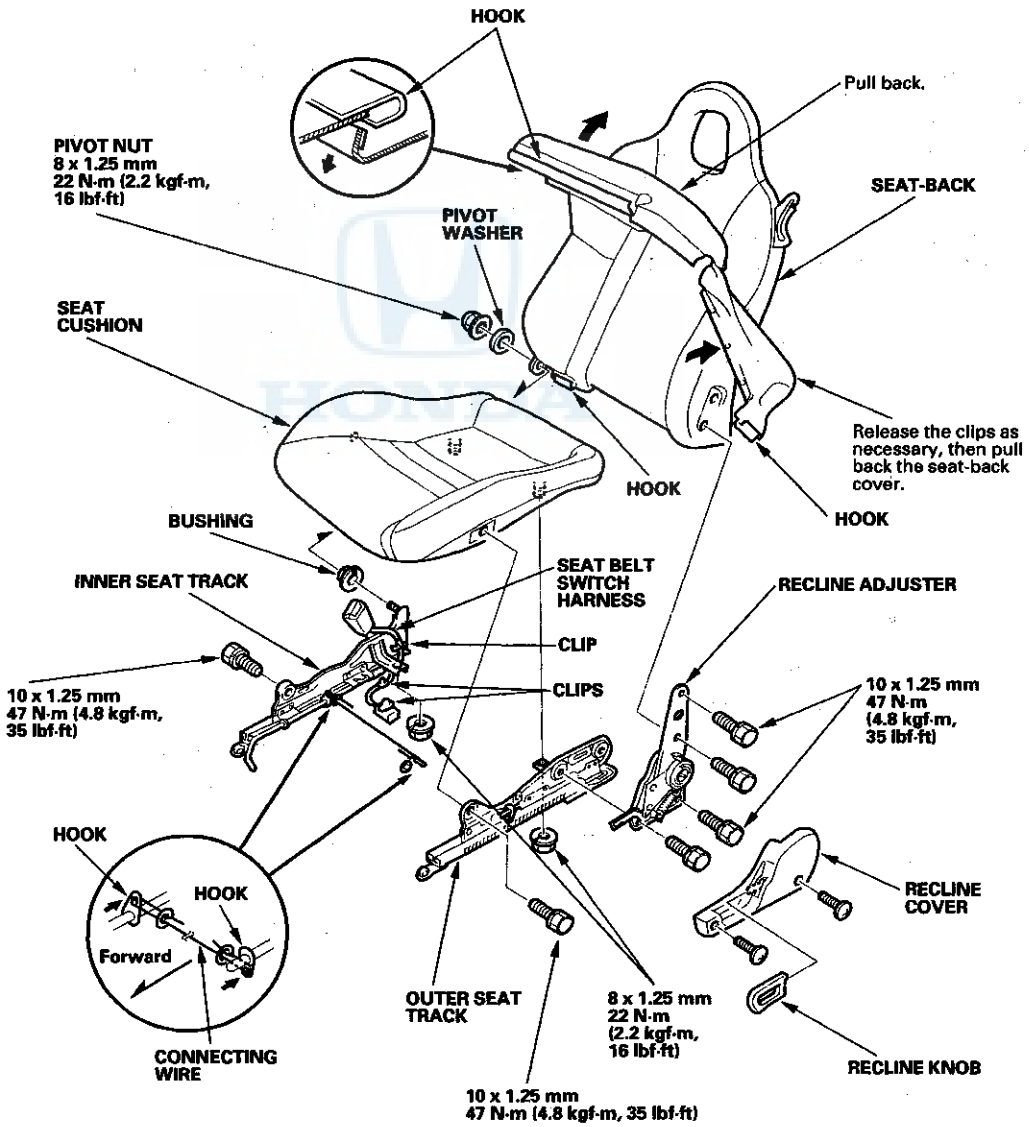


Seat Disassembly/Reassembly - Driver's

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

'00-05 Models

NOTE:
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.
- Reinstall the connecting wire through the holes in the hooks.



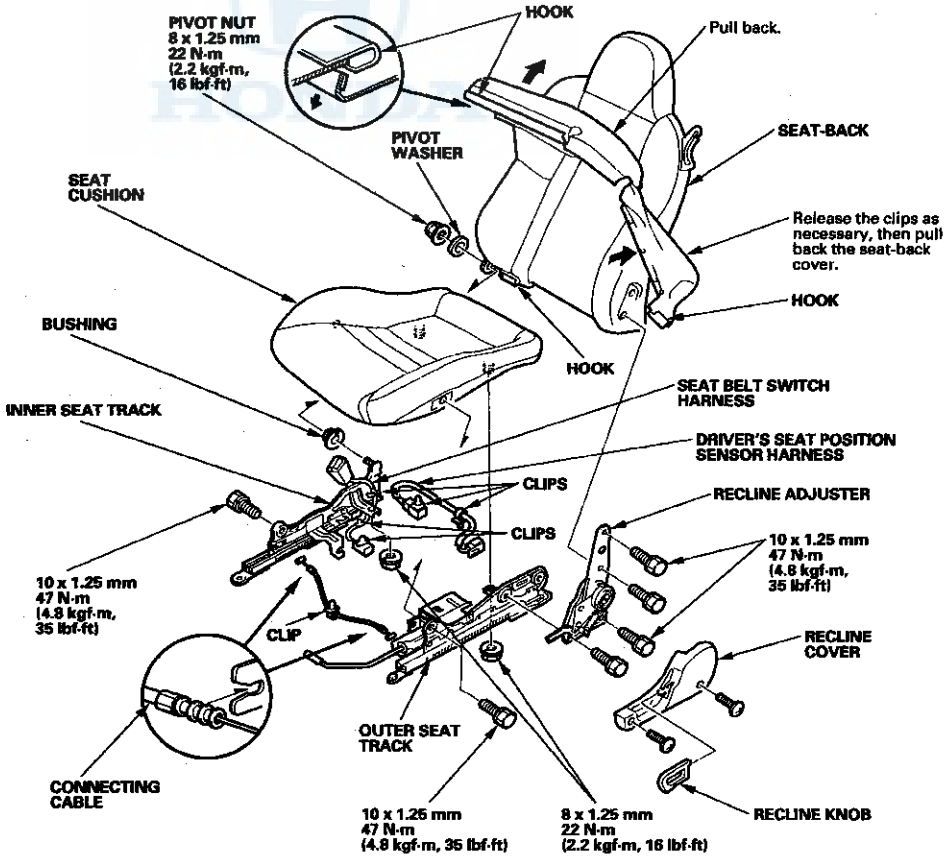
Seat Disassembly/Reassembly - Driver's (cont'd)

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

'06-08 Models

- SRS components are located in this area. Review the SRS component locations for the appropriate model:
  – '00-05 models (see page 23-11)
  – '06-08 models (see page 23-13)
- Also review the precautions and procedures (see page 23-13) before doing repairs or service.
- The operation of the driver's seat position sensor must be checked after any of these actions (see page 23-32):
  – Driver's seat position sensor replacement

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the body or tear the seat covers.
- Put on gloves to protect your hands.
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.
- Adjust the connecting cable as necessary.
- Make sure the connecting cable is connected properly.

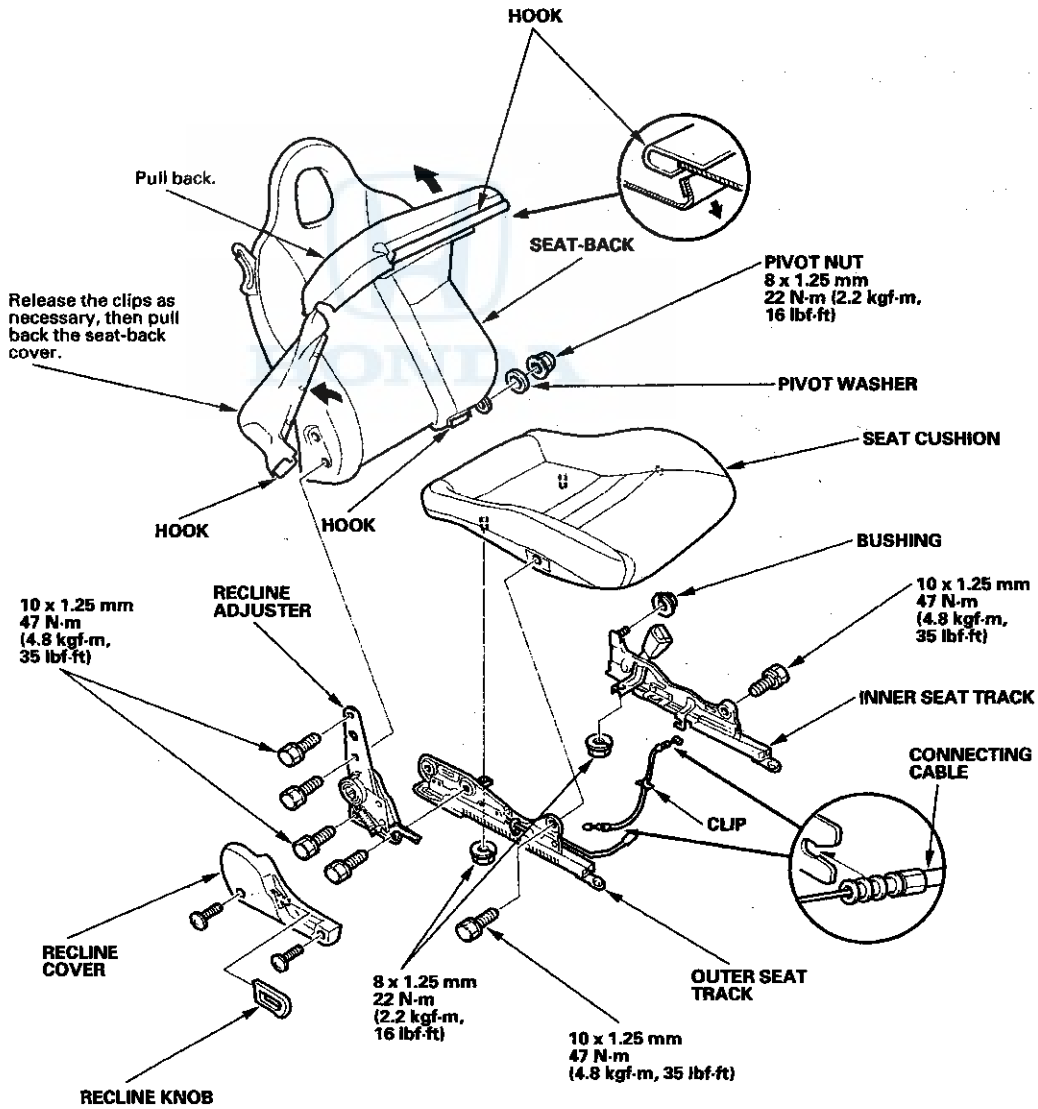


Seat Disassembly/Reassembly - Passenger's

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

'00-05 Models

NOTE:
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.
- Adjust the connecting cable as necessary.
- Make sure the connecting cable is connected properly.



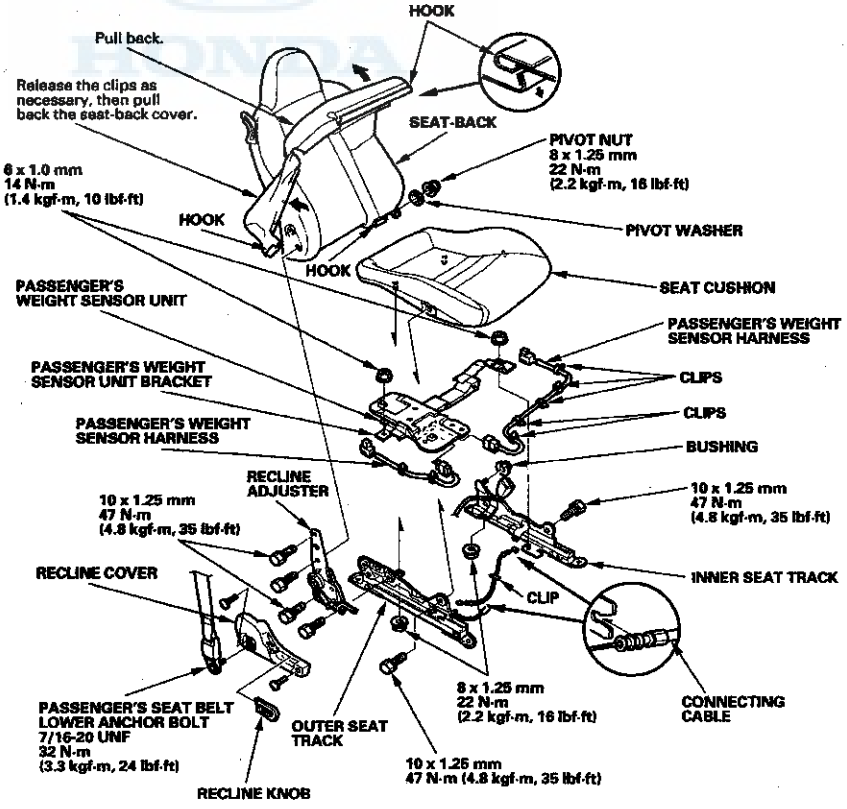
Seat Disassembly/Reassembly - Passenger's (cont'd)

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

'06-08 Models

- SRS components are located in this area. Review the SRS component locations for the appropriate model:
  - '00-05 models (see page 23-11)
  - '06-08 models (see page 23-12)
- Also review the precautions and procedures (see page 23-13) before doing repairs or service.
- The passenger's weight sensor unit must be calibrated after any of these actions (see page 23-31):
  - Replacement of the seat weight sensors
  - Replacement of the seat weight sensor unit

NOTE:
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Take care not to scratch the body or tear the seat covers.
- Put on gloves to protect your hands.
- Make sure the bushing and pivot washer are installed correctly.
- Apply multipurpose grease to the moving portion of the seat track.
- To prevent wrinkles in the seat-back cover, stretch the material evenly over the pad.
- Adjust the connecting cable as necessary.
- Make sure the connecting cable is connected properly.



Seat Cover Replacement

Special Tools Required
KTC trim tool set SOJATP2014 *
* Available through the American Honda Tool and Equipment Program; call 888-424-6857

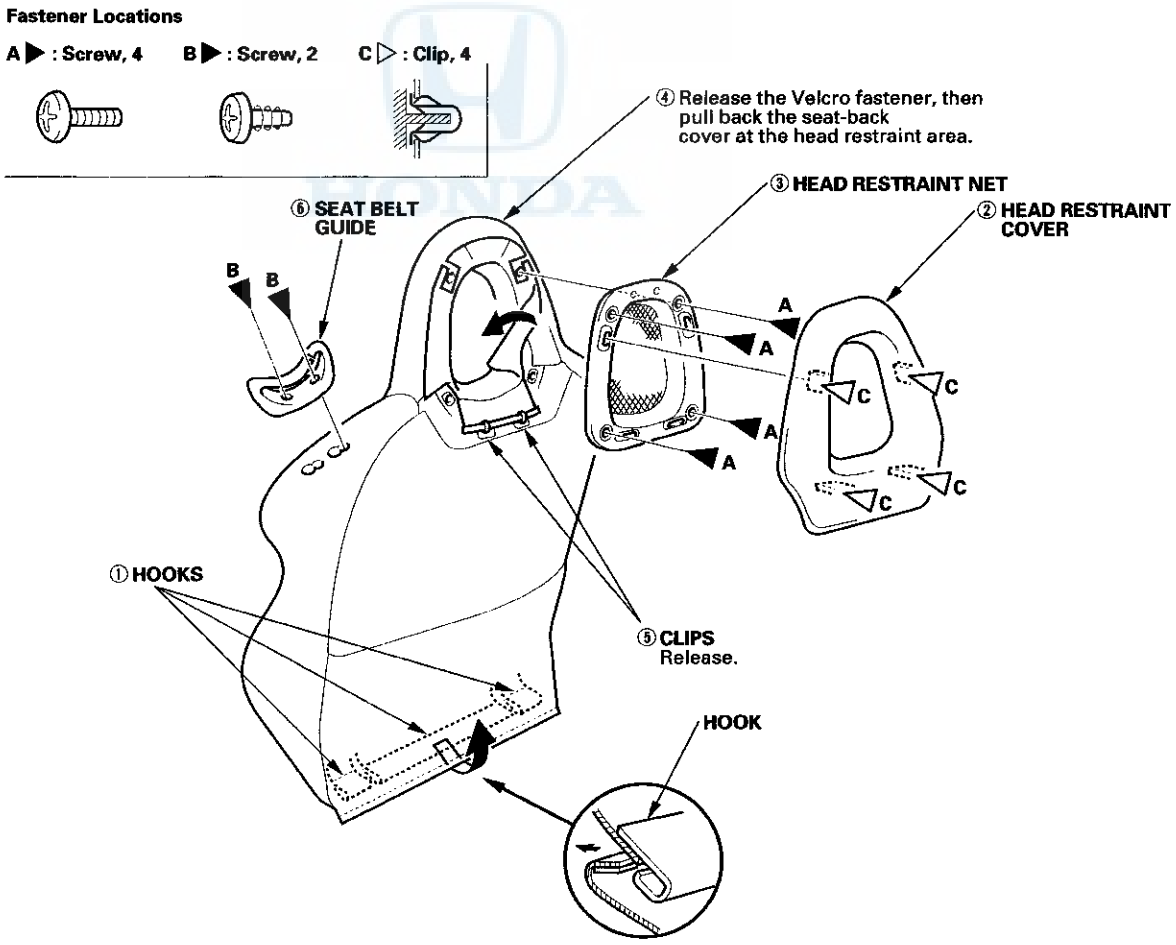
NOTE:
- Take care not to tear the seams or damage the seat covers.
- Use the appropriate tool from the KTC trim tool set to avoid damage when prying components.
- Put on gloves to protect your hands.

Seat-back Cover '00-05 Models

1. Remove the seat-back cover in numbered sequence.

2. Install the cover in the reverse order of removal, and note these items:

   - To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the clips, Velcro fasteners and hooks.
   - Replace the released clips with new ones using commercially available upholstery pliers.
   - Replace any damaged head restraint cover clips.



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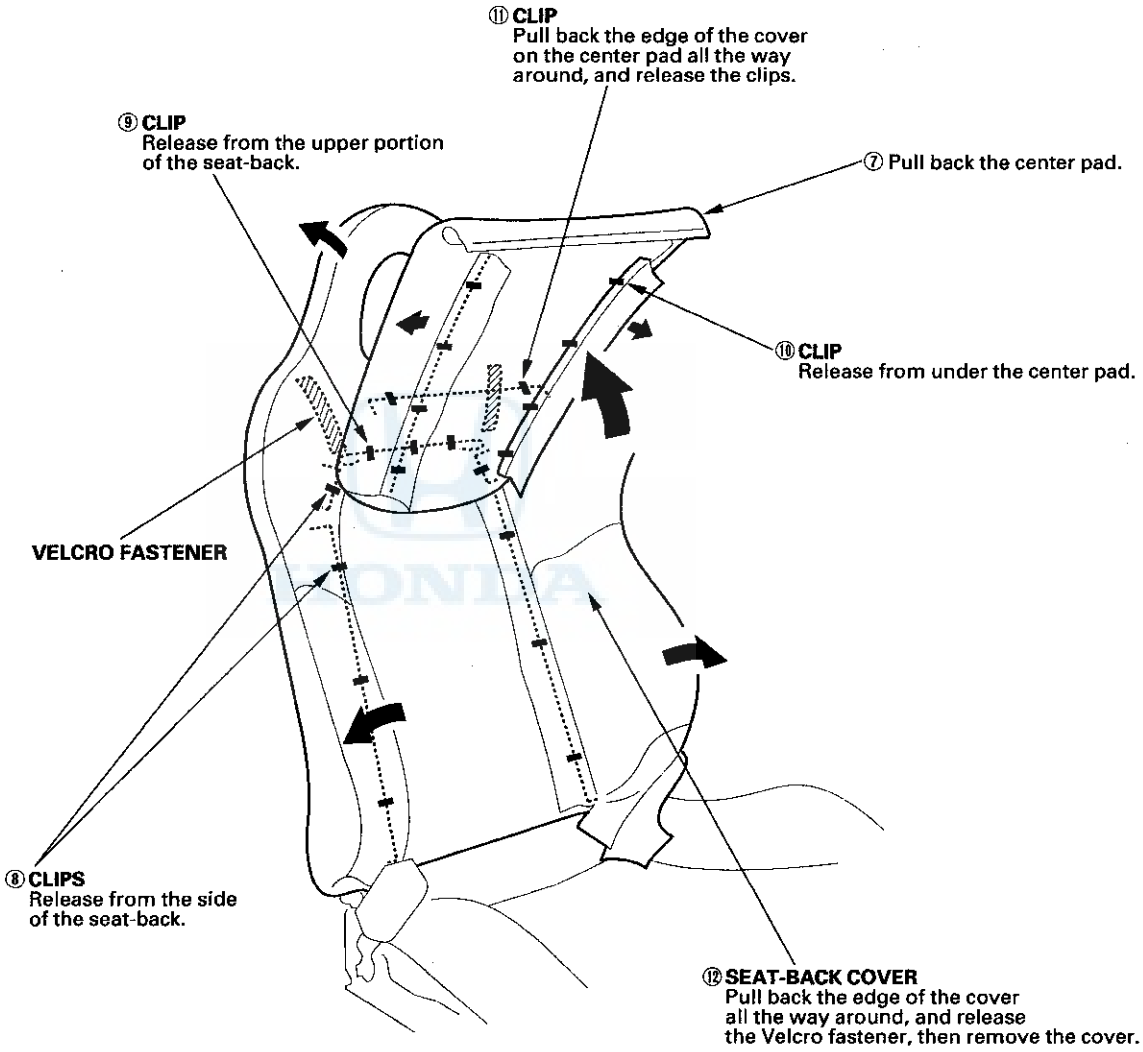
Seat Cover Replacement (cont'd)

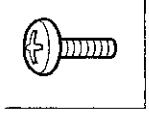


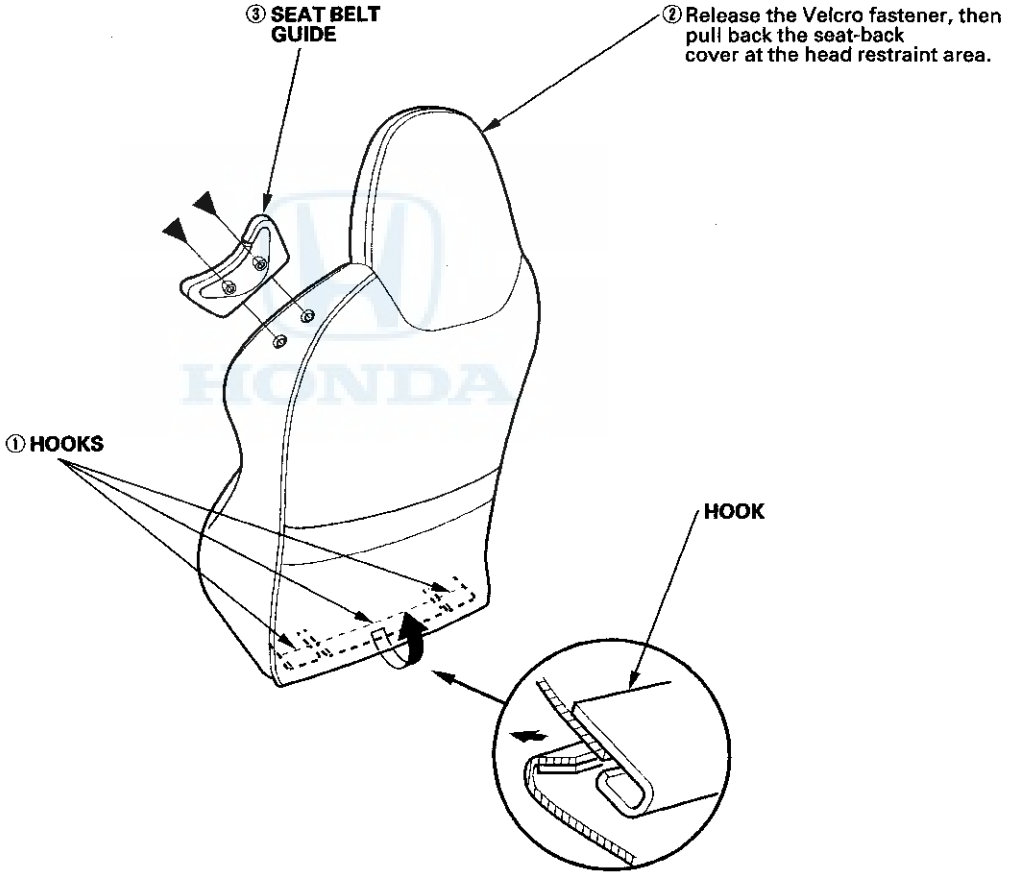
Seat-back Cover '06-08 Models

1. Remove the seat-back cover in numbered sequence.
2. Install the cover in the reverse order of removal, and note these items:
   - To prevent wrinkles when installing a seat-back cover, make sure the material is stretched evenly over the pad before securing the clips, Velcro fasteners and hooks.
   - Replace the released clips with new ones using commercially available upholstery pliers.

Fastener Locations

▶ : Screw, 2





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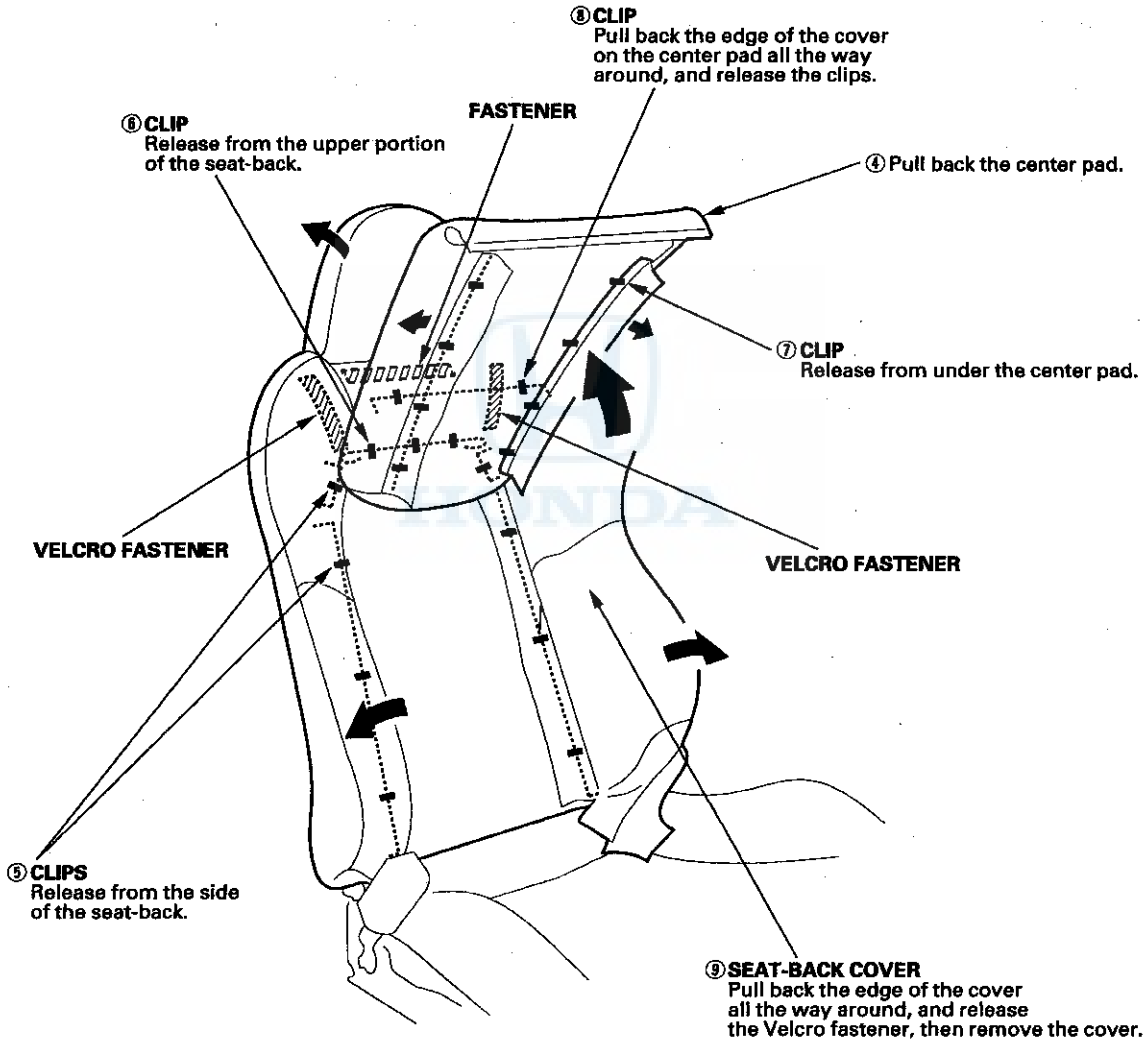
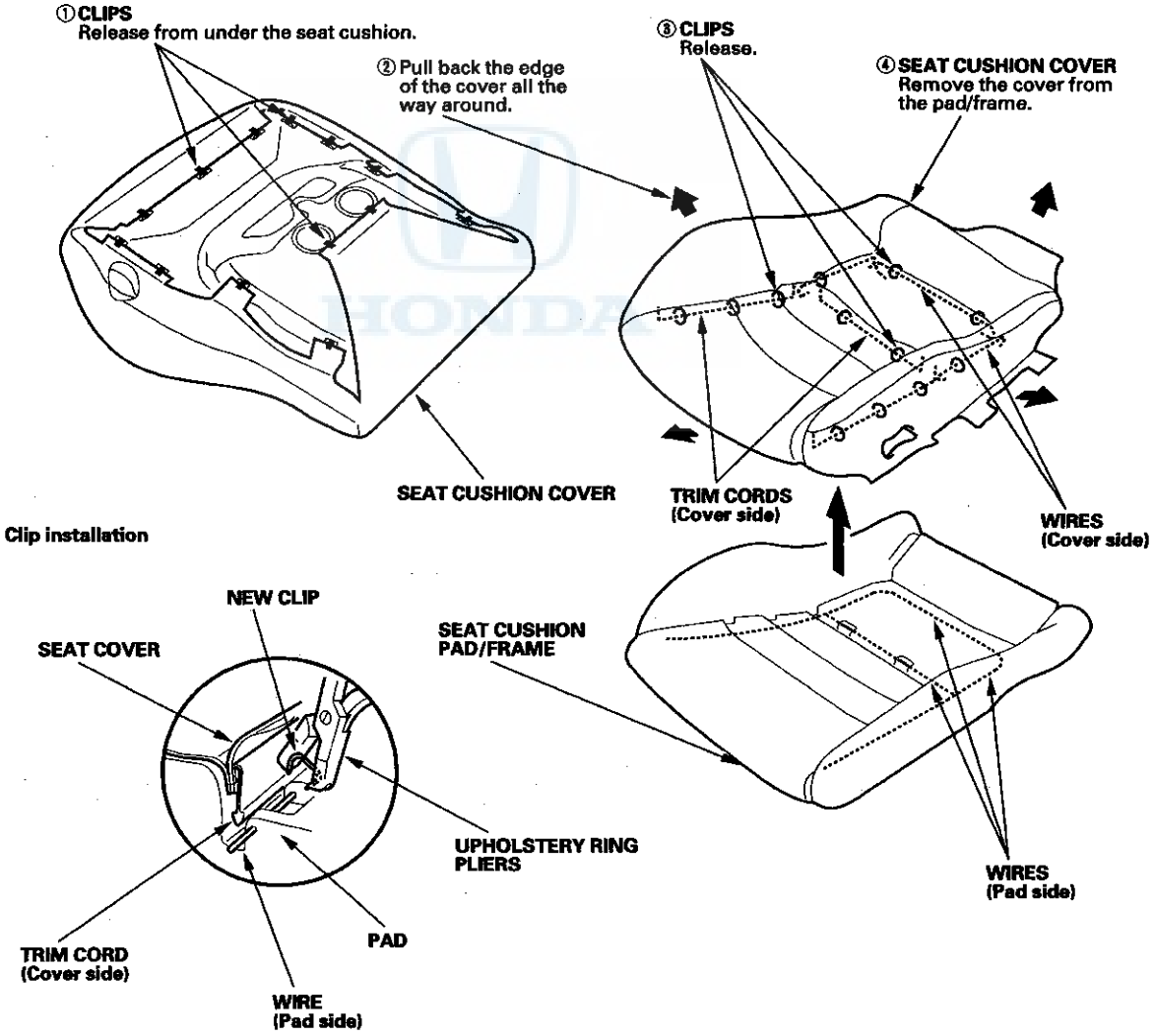
Seat Cover Replacement (cont'd)



Seat Cushion Cover

1. Remove the seat; '00-05 models (see page 20-92), '06-08 models (see page 20-93).
2. Remove the seat cushion, driver's; '00-05 models (see page 20-95), '06-08 models (see page 20-96), passenger's; '00-05 models (see page 20-97), '06-08 models (see page 20-98).
3. Remove the seat cushion cover in numbered sequence.
4. Install the cover in the reverse order of removal, and note these items:
   - To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the clips.
   - Replace the released clips with new ones using commercially available upholstery ring pliers.



Bumpers

Front Bumper Removal/Installation

'00-03 Models

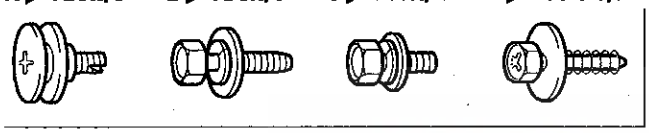
NOTE:
- Have an assistant help you remove and install the front bumper.
- Take care not to scratch the front bumper and body.
- Put on gloves to protect your hands.

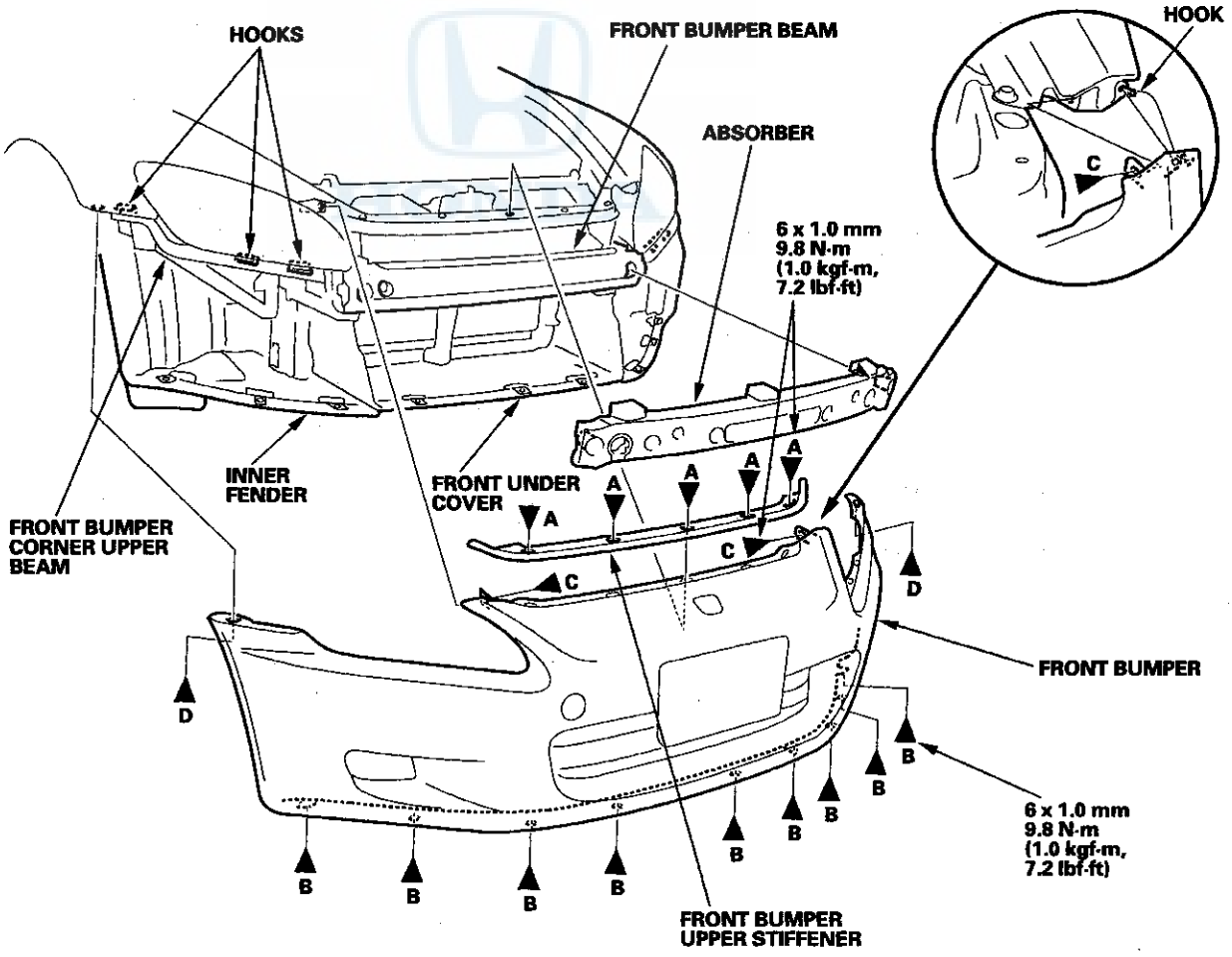
1. Remove the front bumper as shown.

2. Install the bumper in the reverse order of removal, and make sure the front bumper engages the hooks of the corner upper beams and front fenders securely.

Fastener Locations

A ▶ : Bolt, 5 **B ▶ : Bolt, 9** **C ▶ : Bolt, 2** **D ▶ : Screw, 2**





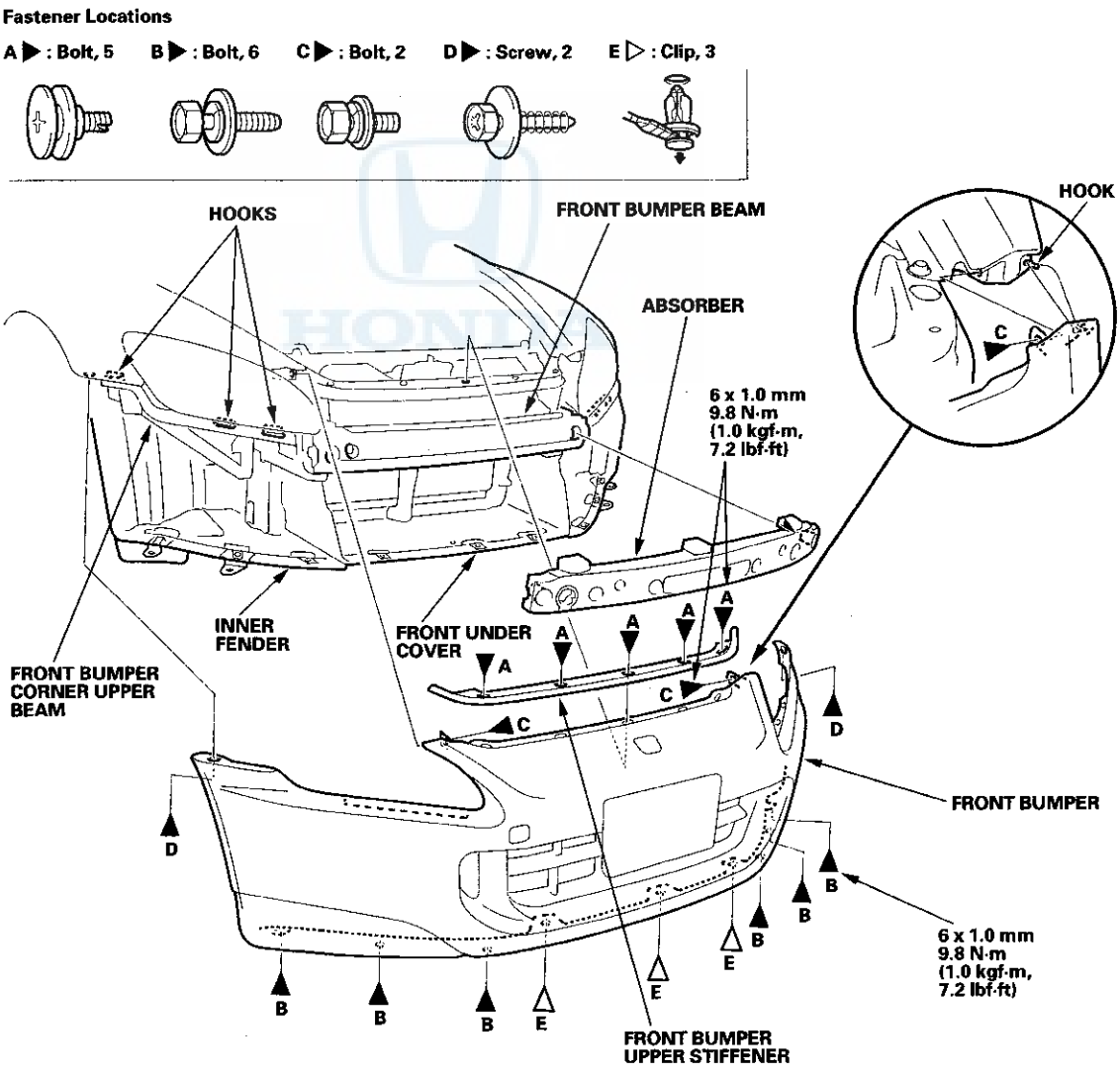
'04-08 Models (Except CR Model)

NOTE:
- Have an assistant help you remove and install the front bumper.
- Take care not to scratch the front bumper and body.
- Put on gloves to protect your hands.

1. Remove the front bumper as shown.

2. Install the bumper in the reverse order of removal, and note these items:

   - Make sure the front bumper engages the hooks of the corner upper beams and front fenders securely.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.



Front Bumper Removal/Installation (cont'd)

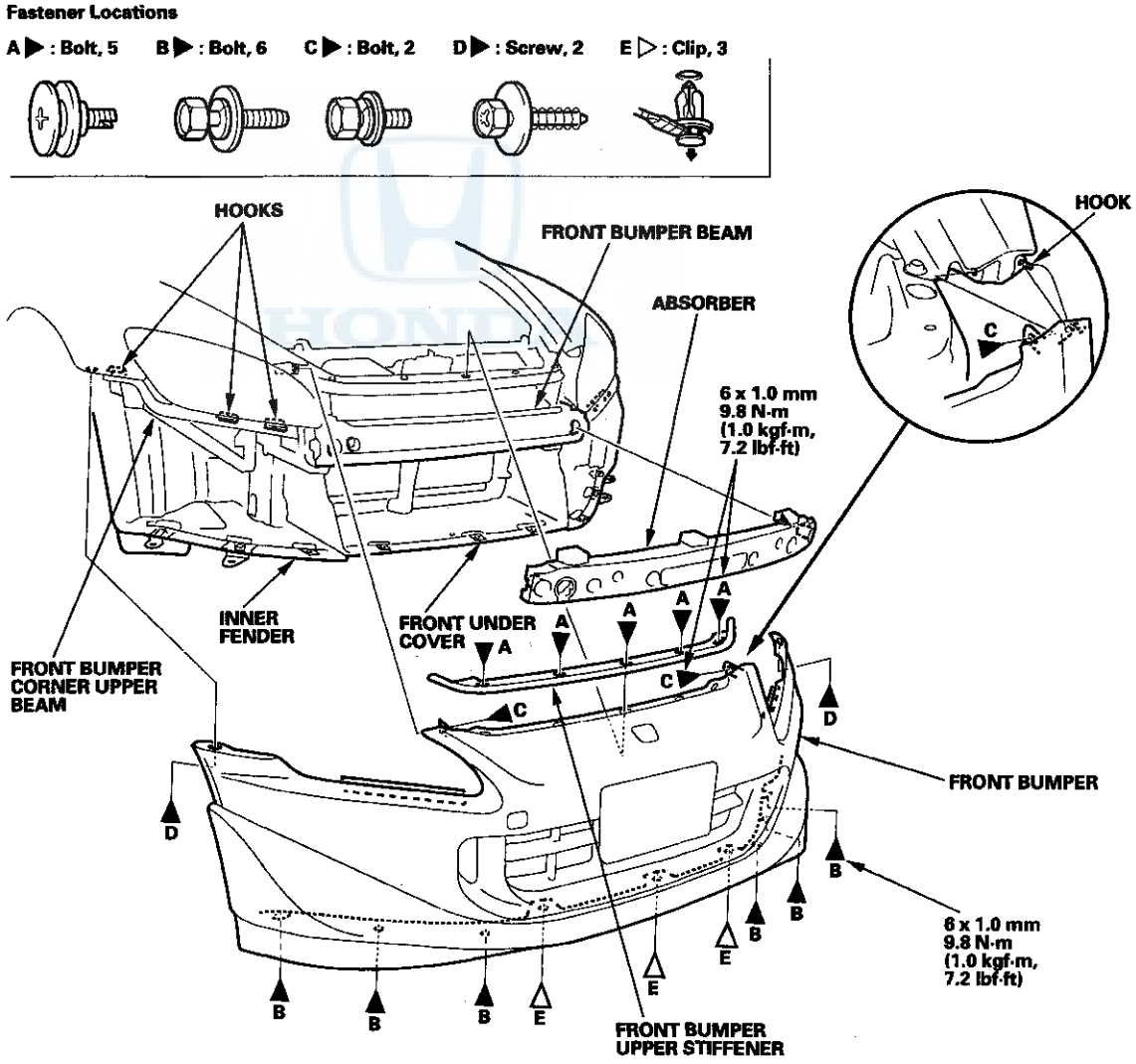
CR Model

NOTE:
- Have an assistant help you remove and install the front bumper.
- Take care not to scratch the front bumper and body.
- Put on gloves to protect your hands.

1. Remove the front bumper as shown.

2. Install the bumper in the reverse order of removal, and note these items:

   - Make sure the front bumper engages the hooks of the corner upper beams and front fenders securely.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

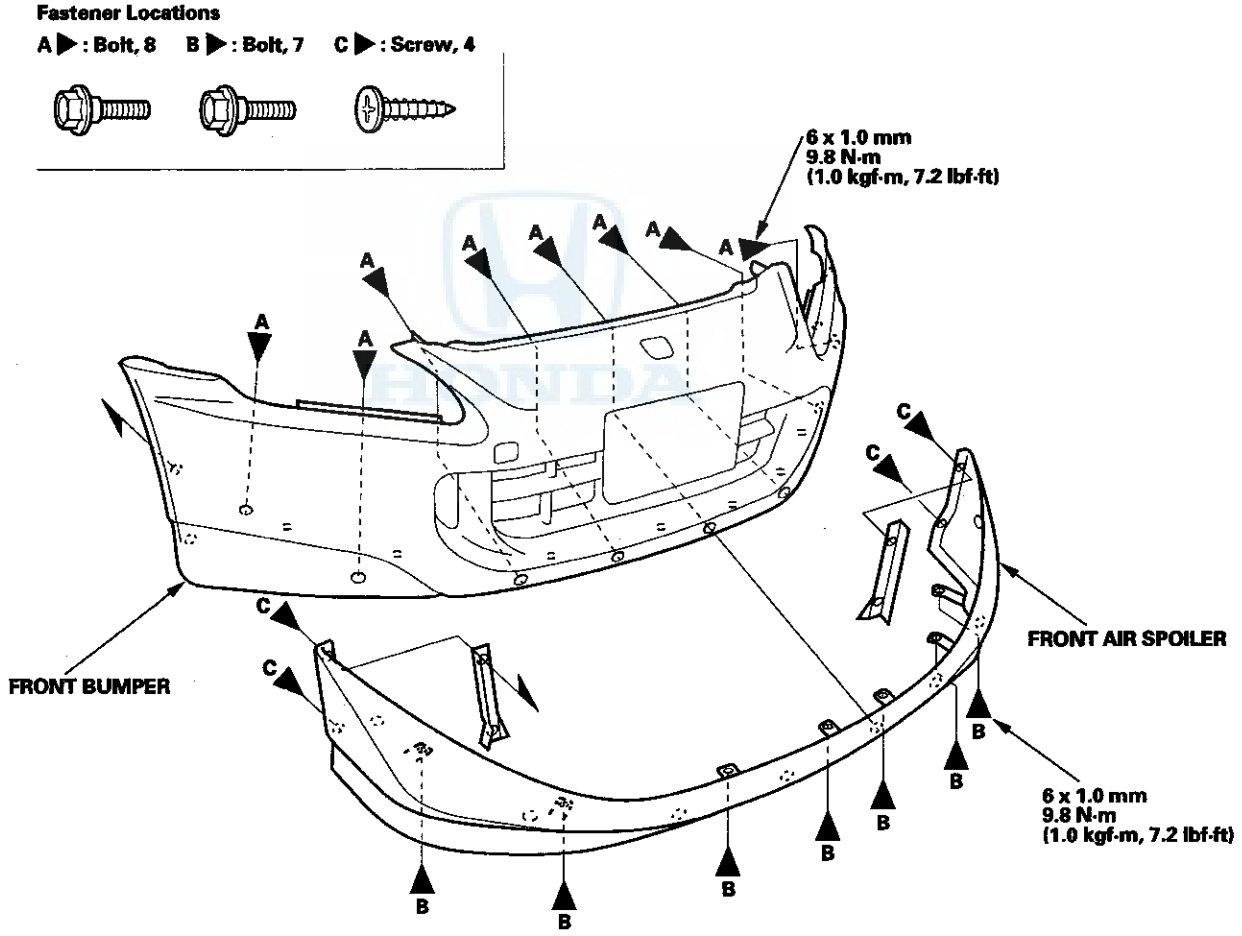


Front Air Spoiler Replacement

CR Model

NOTE:
- Have an assistant help you remove and install the spoiler.
- Take care not to scratch the front bumper and body.
- Put on gloves to protect your hands.

1. Remove the front bumper (see page 20-106).
2. Remove the bolts (A, B) and screws (C) securing the front air spoiler, then remove the front air spoiler.
3. Install the front air spoiler in the reverse order of removal.



Front Grille Replacement

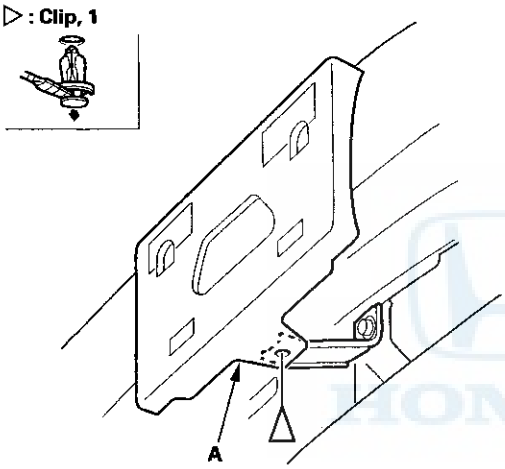
'04-08 Models

NOTE: Take care not to scratch the front bumper.

1. Remove the front bumper.
   - Except CR model (see page 20-105)
   - CR model (see page 20-106)
2. Remove the clip securing the license plate base (A).

Fastener Location

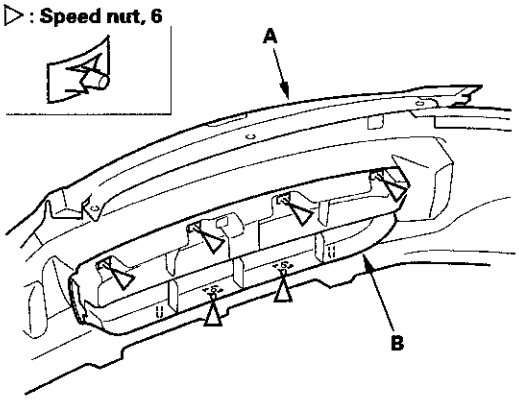
▷: **Clip, 1**



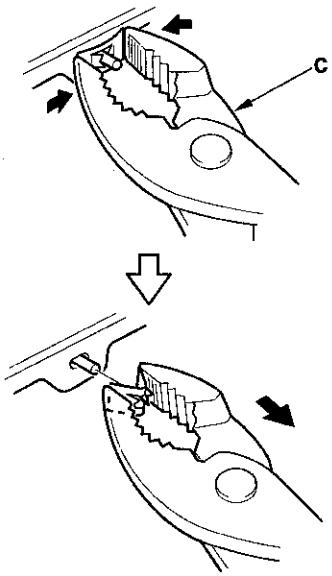
3. From the back of the front bumper (A), release the speed nuts securing the front bumper grille (B) by using pliers (C) as shown.

Fastener Locations

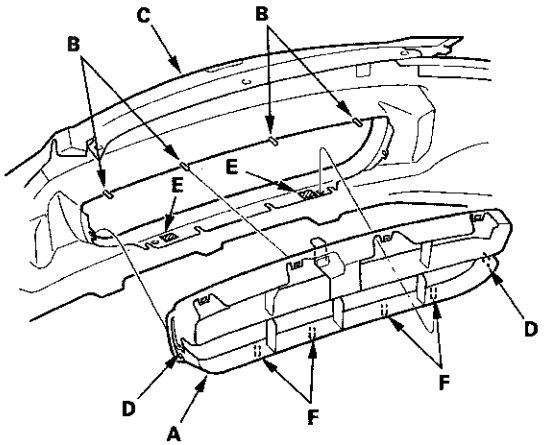
▷: **Speed nut, 6**



Speed nut removal



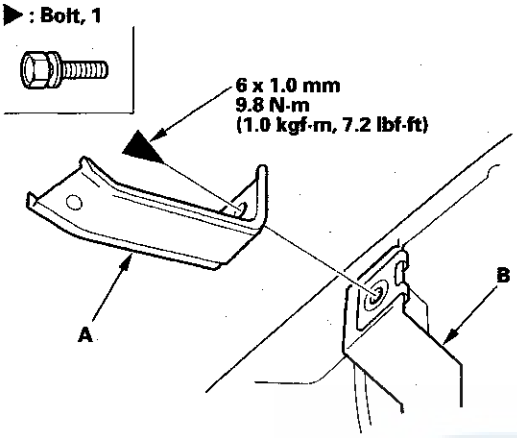
4. Pull the top edge of the grille (A) out to release the pins (B) of the front bumper (C), and then release the tabs (D) on both sides, and release the double-sided adhesive tape (E) and pins (F), then remove the grille from the bumper.



5. Remove the bolt, then remove the license plate base bracket (A) from the grille (B).

Fastener Location

▶ : Bolt, 1



6. Install the grille in the reverse order of removal, and note these items:

- Before installing the grille, clean the grille bonding surface with isopropyl alcohol, and apply primer.
- Before installing the grille, scrape off the double-sided adhesive tape, then clean the front bumper surface with isopropyl alcohol, and attach new double-sided adhesive tape to the bumper.

Adhesive tape: Thickness 0.8 mm (0.03 in.)
Width 10 mm (0.39 in.)

- After installing the grille to the bumper, press the double-sided adhesive tape portions securely.
- Replace the speed nuts with new ones.

Rear Bumper Removal/Installation

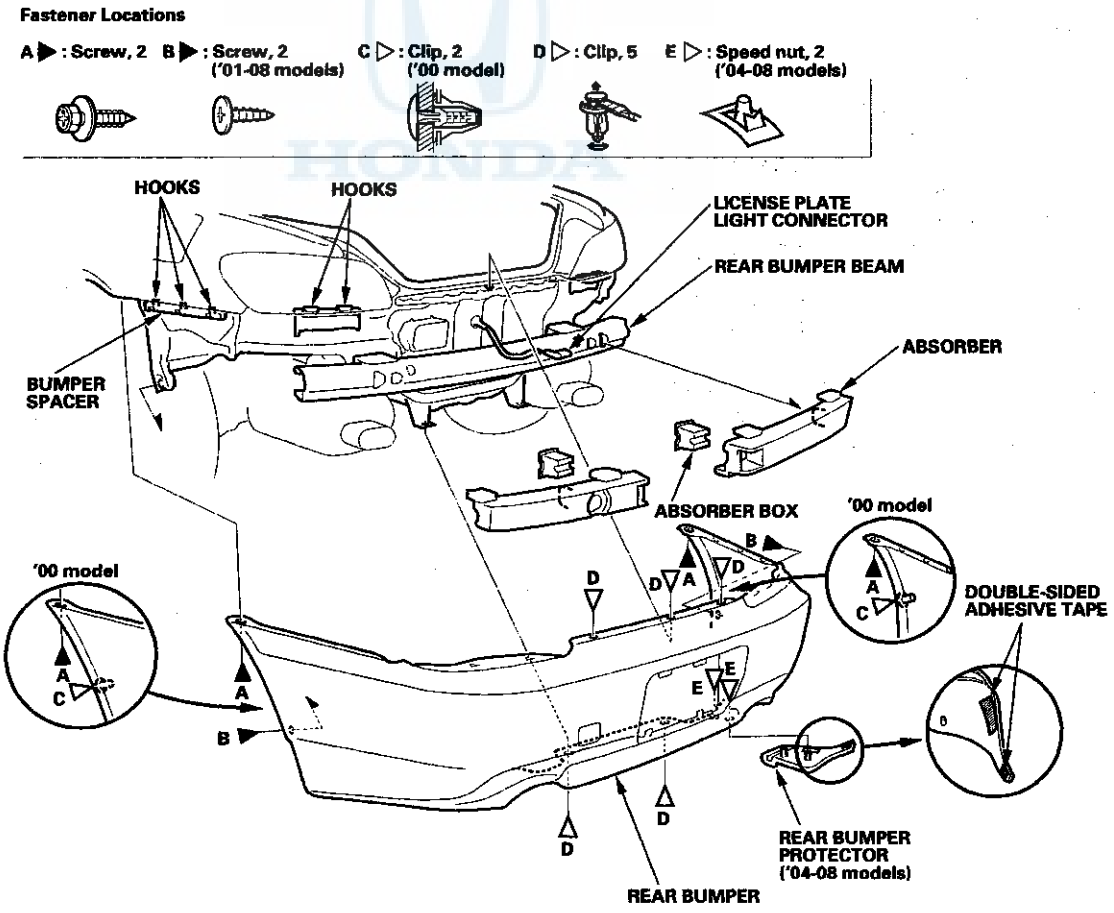
NOTE:
- Have an assistant help you remove and install the rear bumper.
- Take care not to scratch the rear bumper and body.
- Put on gloves to protect your hands.

1. Remove the rear bumper as shown. For '04-08 models, to release the speed nuts, refer to front grille replacement (see page 20-108).

2. Install the bumper in the reverse order of removal, and note these items:

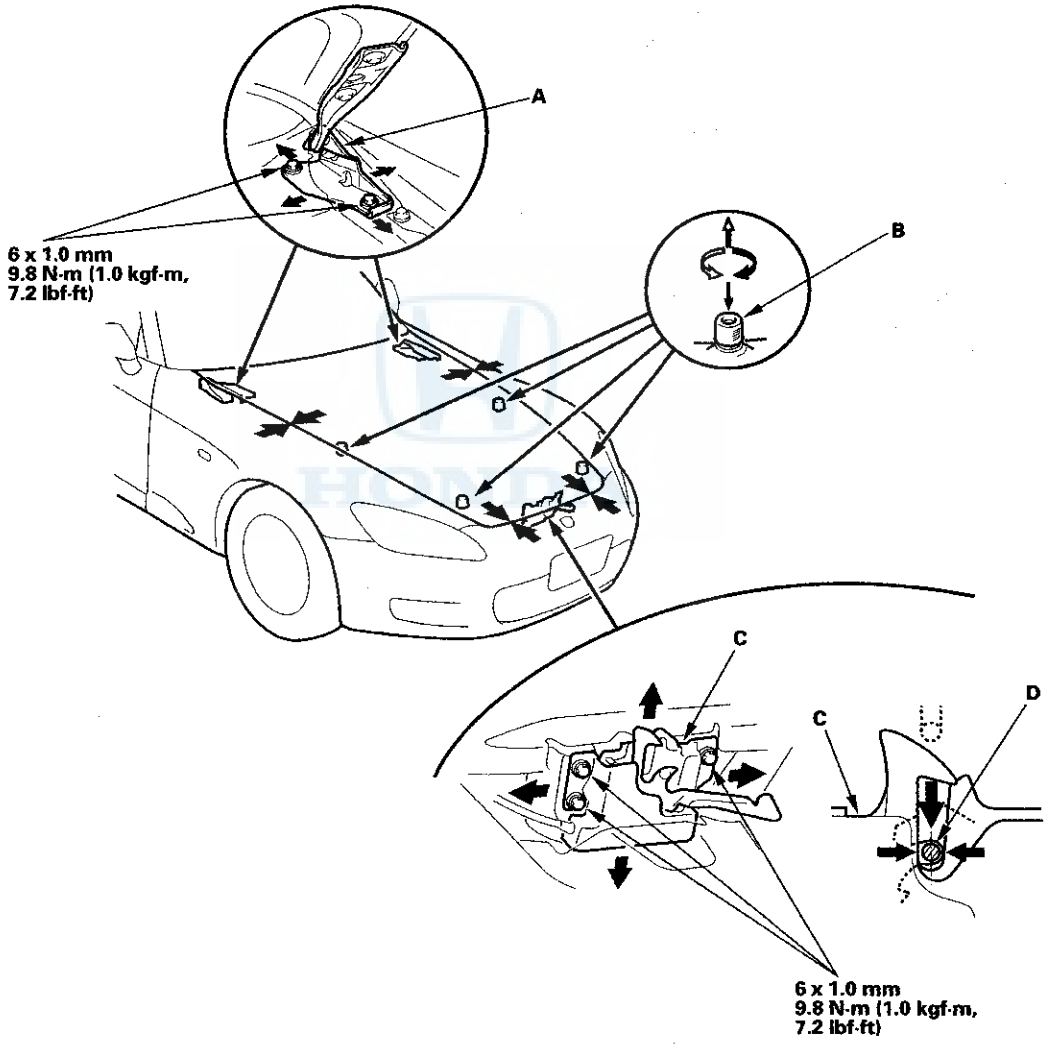
   - Make sure the rear bumper engages the hooks (bumper spacers and under the taillight) on each side securely.
   - Make sure the license plate light connector is plugged in properly.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Replace the speed nuts with new ones ('04-08 models).
   - For '04-08 models: If the rear bumper protector is reinstalled, clean it and the bumper with a sponge dampened in isopropyl alcohol. Apply primer to the protector surface, and then apply new double-sided tape.
   - Push the clips into place securely.

Double-sided adhesive tape: Thickness 0.8 mm (0.03 in.)
Width 10 mm (0.39 in.)



Hood Adjustment

1. Slightly loosen each hood hinge bolt.
2. Adjust the hood alignment:
   - Adjust the hood right and left, as well as forward and rearward, by using the elongated holes on the hood hinges (A).
   - Turn the hood edge cushions (B), as necessary, to make the hood fit flush with the body at front and side edges.



3. Adjust the hood latch (C) to obtain the proper height at the forward edge, and move the hood latch right or left until the striker (D) is centered in the hood latch.
4. Tighten each bolt securely.

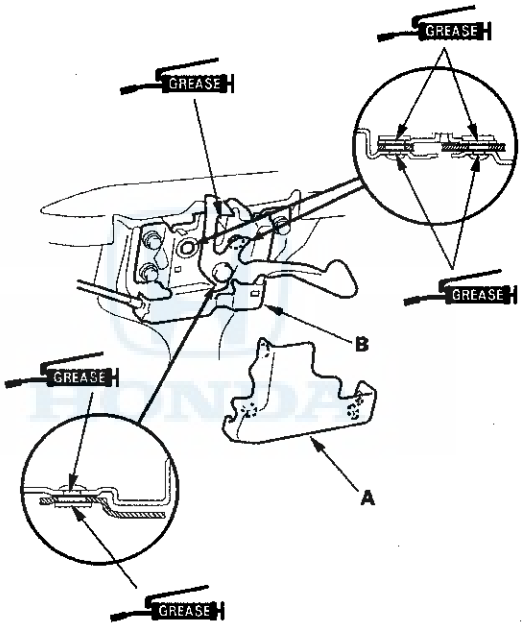
(cont'd)

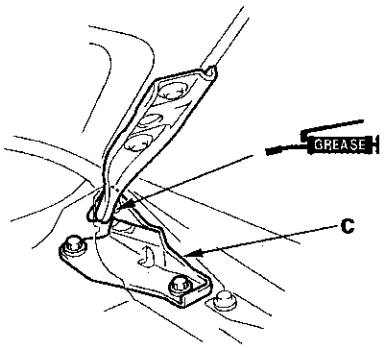
Hood Adjustment (cont'd)

5. Check that the hood opens properly and locks securely.

6. Apply touch-up paint to the hinge mounting bolts and around the hinges.

7. Remove the air guide plate cover (see page 20-132), then remove the latch cover (A). Apply multipurpose grease to each location of the hood latch (B) and hood hinge (C) as indicated by the arrows.





Hood Insulator Replacement

NOTE:
- Take care not to scratch the hood.
- Use a clip remover to remove the clips.

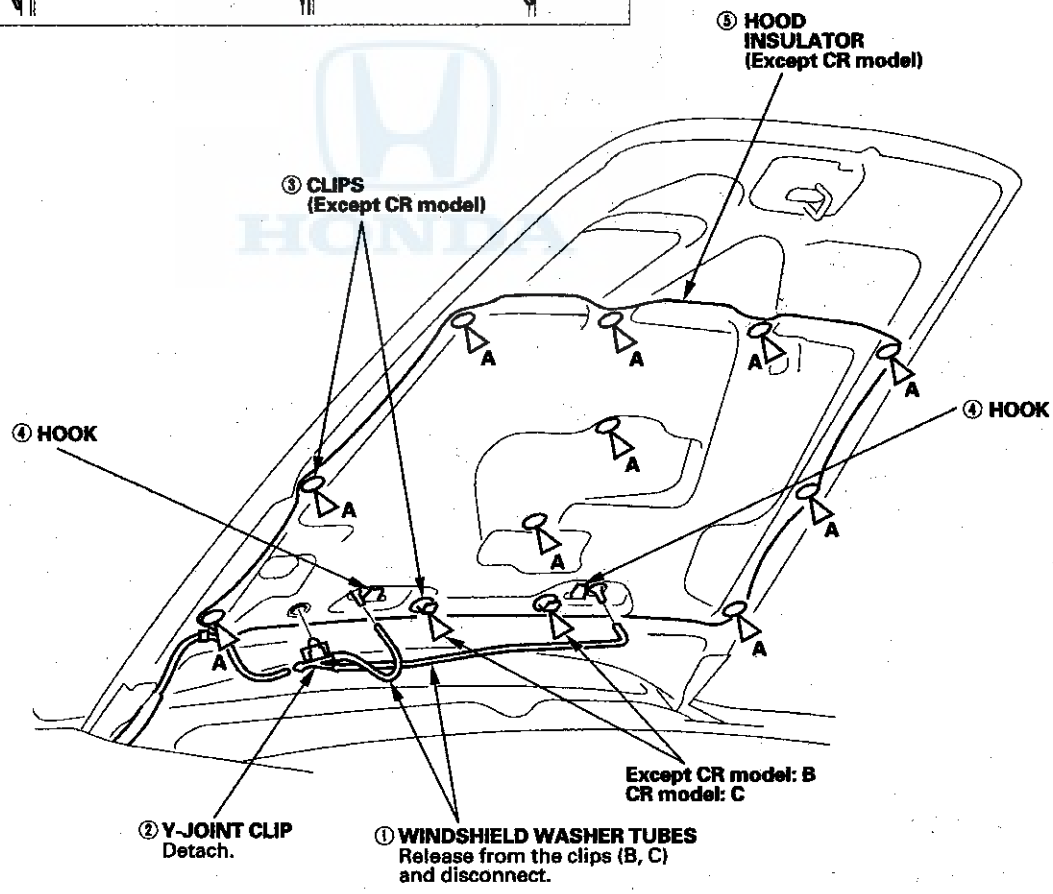
1. Remove the hood insulator in numbered sequence.

2. Install the insulator in the reverse order of removal, and note these items:

   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Make sure the windshield washer tubes are connected properly.

Fastener Locations

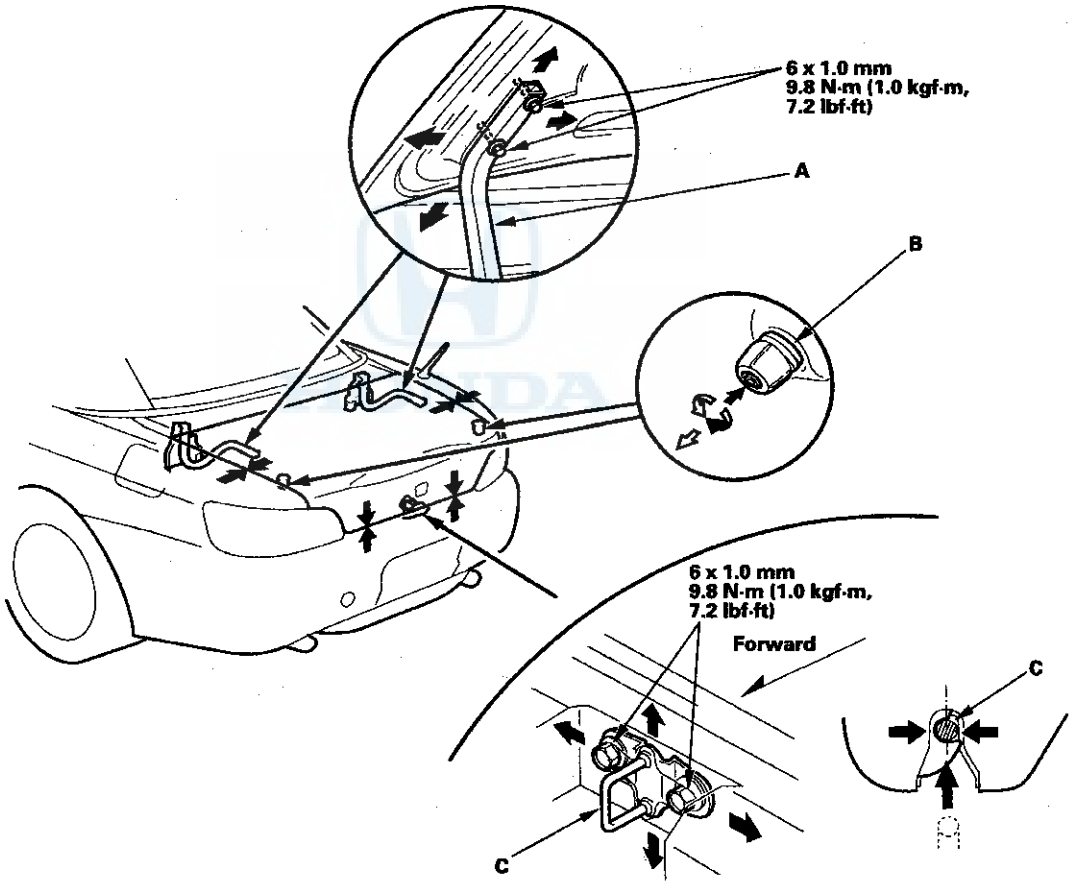
A ▷ : Clip, 10 (Except CR model) **B ▷ : Clip, 2 (Except CR model)** **C ▷ : Clip, 2 (CR model)**



Trunk Lid

Trunk Lid Adjustment

1. Slightly loosen each bolt.
2. Adjust the trunk lid alignment:
   - Adjust the trunk lid right and left, as well as forward and rearward, by using the elongated holes on the trunk lid hinges (A).
   - Turn the trunk lid edge cushions (B) in or out as necessary to make the trunk lid fit flush with the body at the rear and side edges.
   - Adjust the fit between the trunk lid and the trunk lid opening by moving the striker (C).



3. Tighten each bolt securely.
4. Make sure the trunk lid opens properly and locks securely.
5. Apply touch-up paint to the trunk lid mounting bolts and around the hinges.

Trunk Lid Torsion Bar Replacement

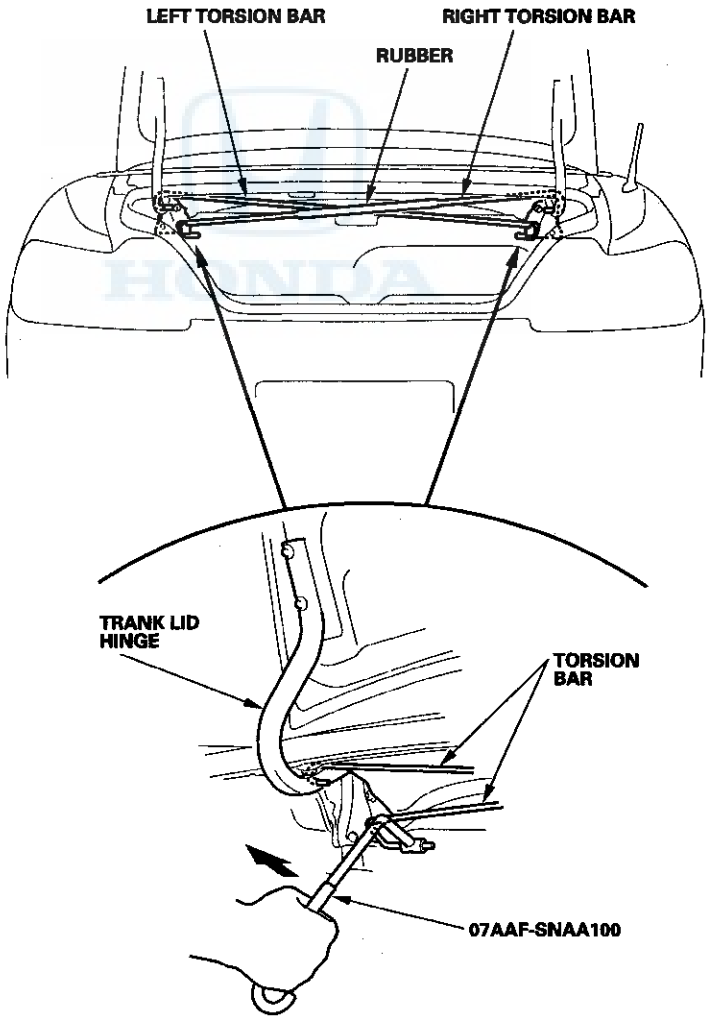
Special Tools Required
Torsion bar assembly tool 07AAF-SNAA100

NOTE:
- Take care not to scratch the body.
- Put on gloves to protect your hands.
- Use a torsion bar tool to remove and install the torsion bars.
- Remove the right torsion bar first, and then remove the left torsion bar.

1. Remove the trunk lid torsion bars as shown.

2. Install the torsion bars in the reverse order of removal, and note these items:

   - The right torsion bar has a piece of rubber on it as shown. Install the right and left torsion bars in their proper locations.
   - Make sure the trunk lid opens properly and locks securely.



Trunk Lid Rubber Protector Replacement

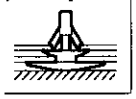
NOTE:
- Take care not to scratch the trunk lid.
- Use a clip remover to remove the clips.

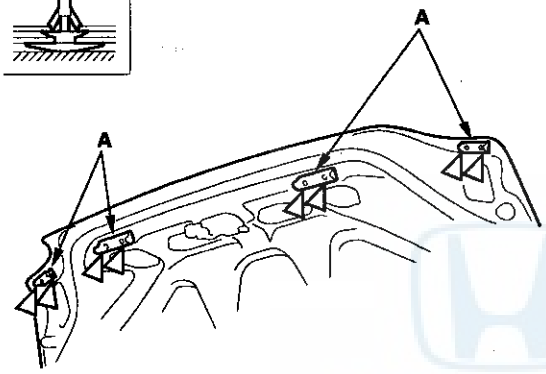
1. Remove the trunk lid rubber protectors (A) as shown.

Except CR model

Fastener Locations

▷: Clip, 8

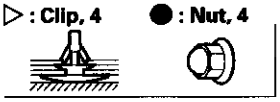


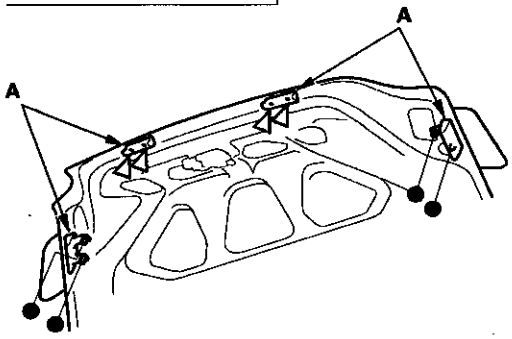


CR model

Fastener Locations

▷: Clip, 4 ●: Nut, 4

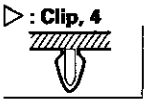


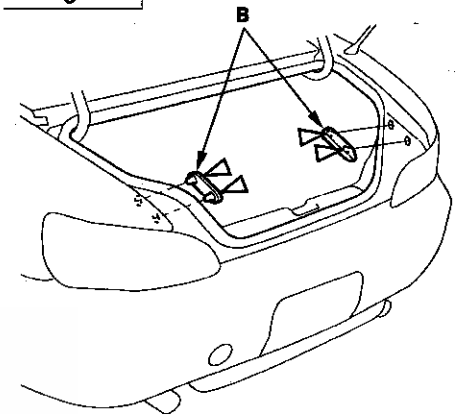


2. CR model: If necessary, remove the trunk side protectors (B).

Fastener Locations

▷: Clip, 4

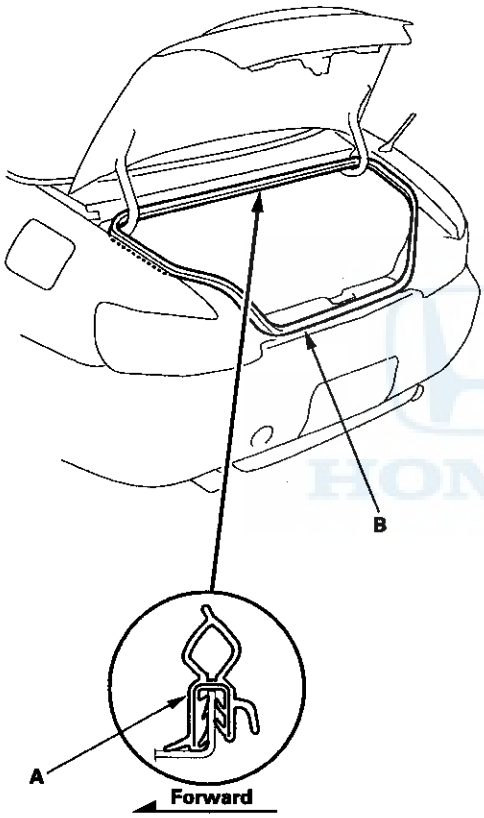




3. Note these items when reinstalling the protectors:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Trunk Lid Weatherstrip Replacement

1. Remove the trunk lid weatherstrip by pulling it off.
2. Locate the painted alignment mark (A) on the trunk lid weatherstrip (B). Align the painted mark with the alignment tab in the center of the trunk, and install the weatherstrip all the way around facing in the direction shown. Make sure there are no wrinkles in the weatherstrip.

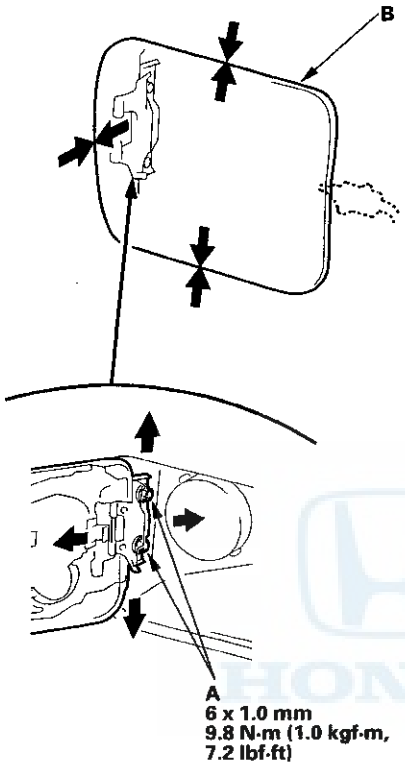


3. Check for water leaks.

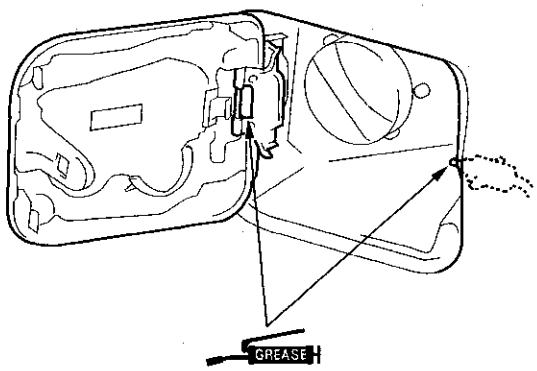
Fuel Fill Door

Fuel Fill Door Adjustment

1. Slightly loosen the hinge mounting bolts (A).



2. Adjust the fuel fill door (B) in or out until it's flush with the body, and up or down as necessary to equalize the gaps.
3. Tighten the hinge mounting bolts.
4. Check that the fuel fill door opens properly and locks securely.
5. Apply multipurpose grease to each location indicated by the arrows.



6. Apply touch-up paint to the hinge mounting bolts and around the hinges.

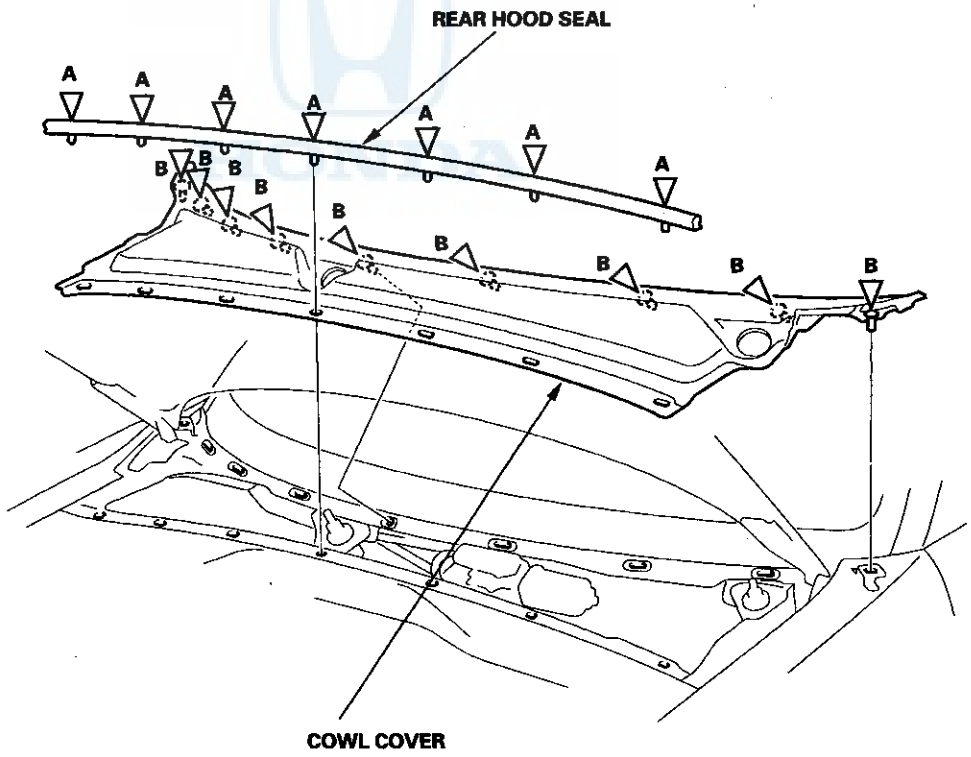
Cowl Cover Replacement

NOTE:
- Take care not to scratch the body.
- Use a clip remover to remove the clips.

1. Remove the windshield wiper arms (see page 22-185).
2. Remove the cowl cover as shown.
3. Install the cover in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Fastener Locations

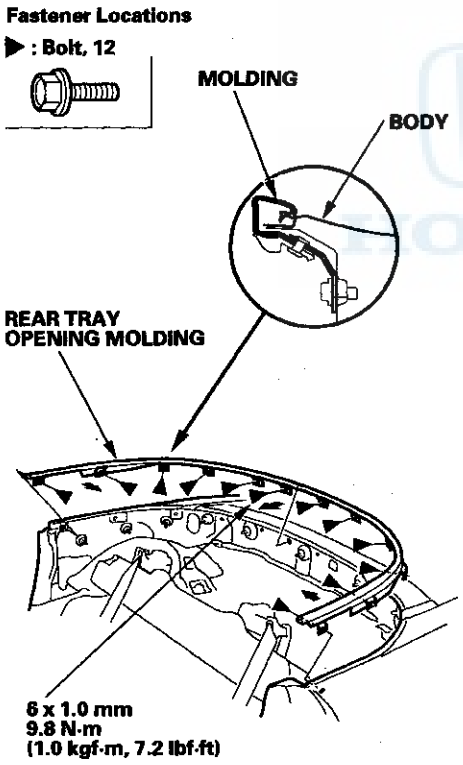
A ▷ : Clip, 7 B ▷ : Clip, 9



Rear Tray Opening Molding Replacement

NOTE:
- Take care not to scratch the body.
- Be careful not to pry too far or you may bend the molding.
- Put on gloves to protect your hands.

1. Remove these items, then remove the rear tray opening molding as shown:
   - Convertible top assembly (see page 20-39)
   - B-pillar outer weatherstrips, both sides (see page 20-53)
   - Drain tank, both sides (see page 20-53)
2. Remove the rear tray opening molding as shown.

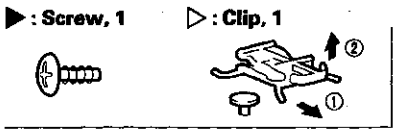


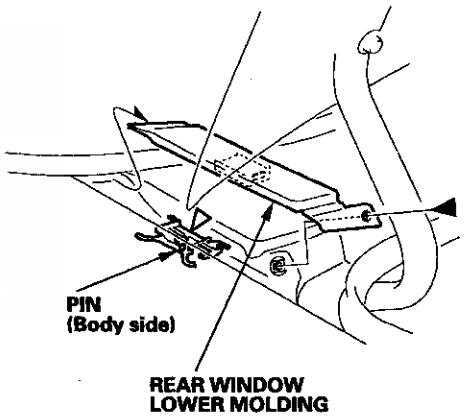
3. Install the molding in the reverse order of removal.

Rear Window Lower Molding Replacement

NOTE: Take care not to scratch the body.

1. Remove the rear window lower molding as shown.
2. Install the molding in the reverse order of removal, and check if the clip is damaged or stress-whitened, and if necessary, replace it with a new one.





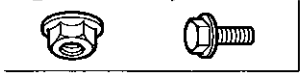
Trunk Lid Spoiler Replacement

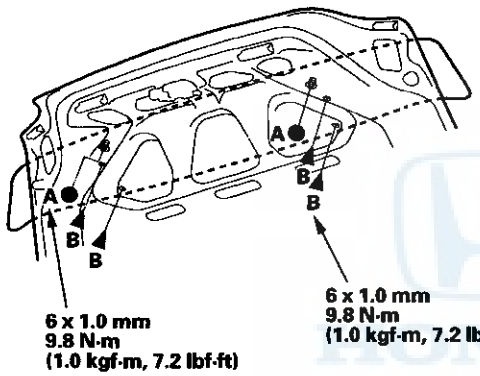
CR model

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the trunk lid.

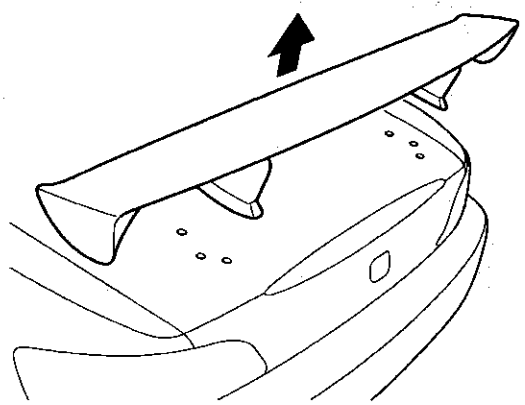
1. Open the trunk lid, and remove the nuts (A) and bolts (B) from inside the trunk lid.

Fastener Locations
A ● : Nut, 2 B ▶ : Bolt, 4





2. Close the trunk lid, then remove the trunk lid spoiler.



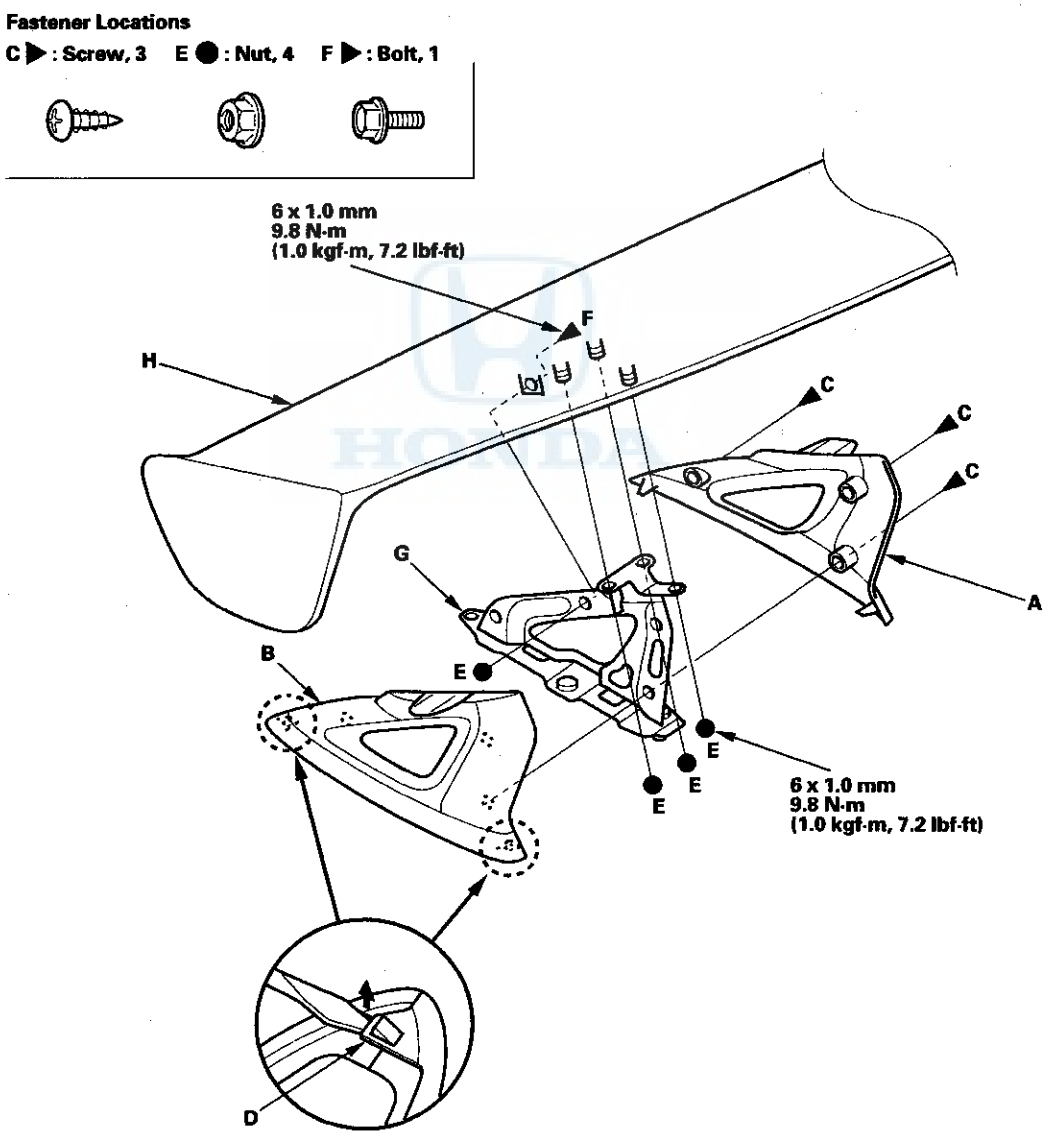
(cont'd)

Trunk Lid Spoiler Replacement (cont'd)

3. If necessary, separate the trunk lid spoiler inner foot (A) and the trunk lid spoiler outer foot (B).

   -1 Remove the screws (C).
   -2 Release the hooks (D) with a flat-tip screwdriver wrapped with protective tape, then separate the trunk lid spoiler inner foot and the trunk lid spoiler outer foot.
   -3 Remove the nuts (E) and the bolts (F), then remove the trunk lid spoiler foot stiffener (G) from the trunk lid spoiler (H).

   NOTE: This illustration shows the left side of the trunk lid spoiler, repeat the procedure on the right side in the same manner.



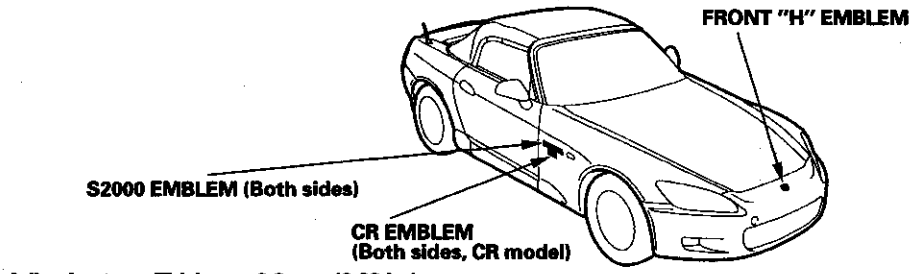
4. Install the trunk lid spoiler in the reverse order of removal.

Emblem Replacement

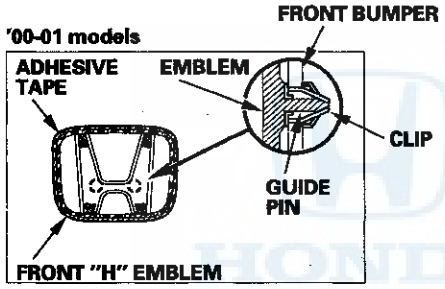
NOTE: When removing the emblems, take care not to scratch the body. Use dental floss to cut the adhesive safely.

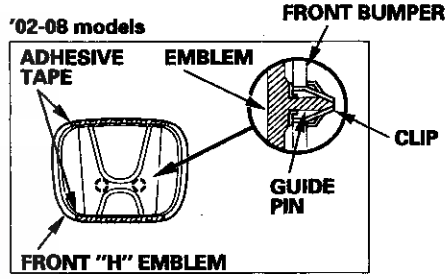
Apply the emblems where shown, and note these items:

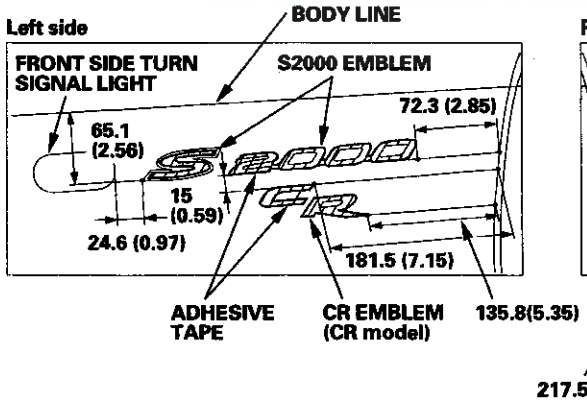
- Clean the body surface with a sponge dampened in alcohol.
- After cleaning, keep oil, grease and water from getting on the surface.

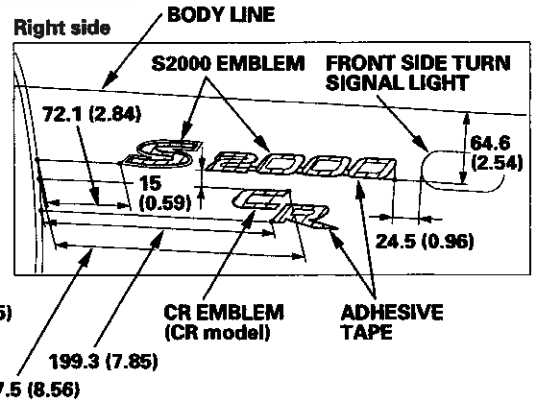


Adhesive tape: Thickness 0.8 mm (0.03 in.)
Unit: mm (in.)









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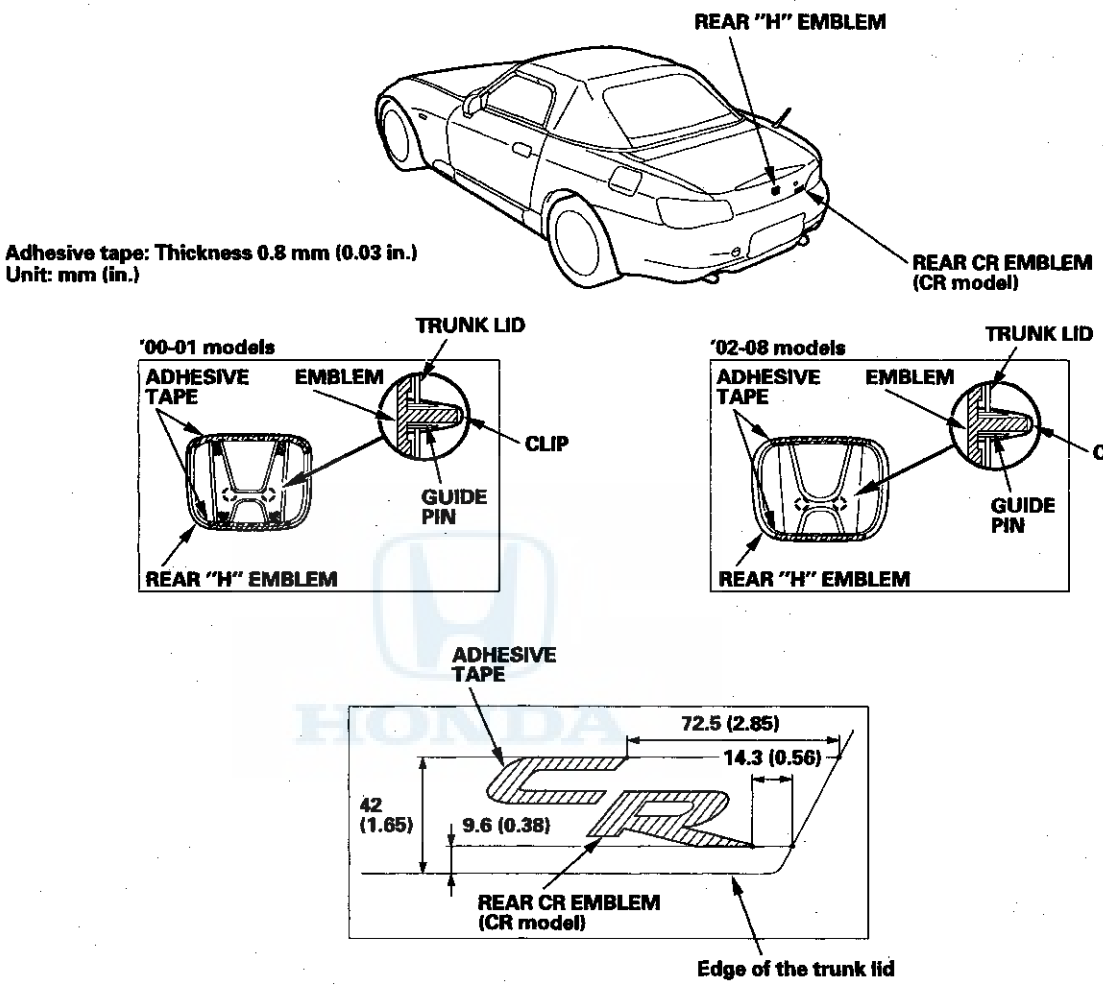
Emblem Replacement (cont'd)



A-Pillar Exterior Trim Replacement

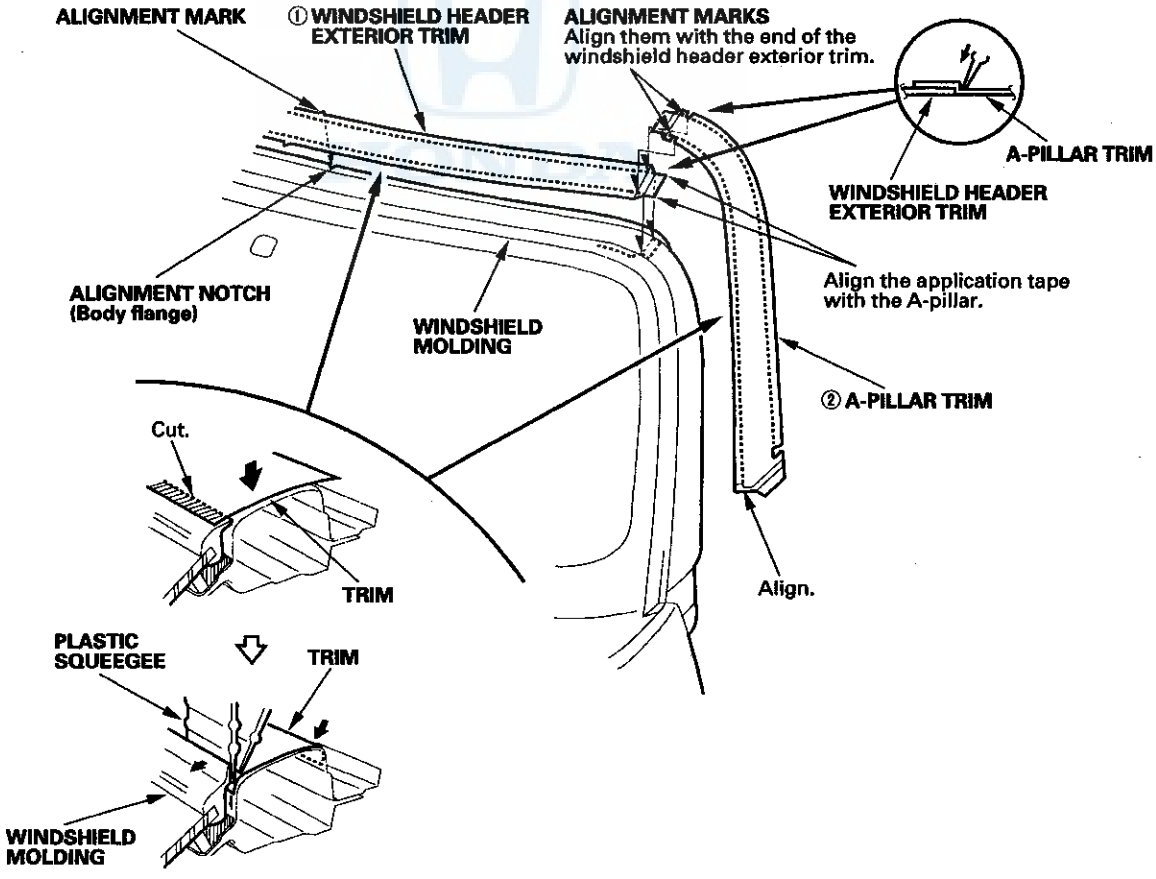
NOTE:
- Keep dust away from the working area.
- When working at lower temperatures, heat the body and trim with a hair dryer.
  Body: about 59 °F (15 °C)
  Trim: about 86 °F (30 °C)
- When heating the trim, heat it evenly and gradually to prevent deformation.
- Clean the body bonding surface with a sponge dampened in isopropyl alcohol.
- After cleaning, keep oil, grease and water from getting on the surface.

1. Remove these items, then peel up the old trim while heating it with a hair dryer:

   - A-pillar-header weatherstrip (see page 20-52)
   - A-pillar molding, both sides (see page 20-52)

2. Apply the trim in the numbered sequence, and note these items:

   - Align the application tape with the A-pillar as shown.
   - When pressing the trim, slowly press it from the corner to prevent air bubbles and wrinkles.
   - If there are air bubbles in the trim, peel up the trim, then reapply it.
   - After reinstalling all removed parts, check that the body color is covered by the trim.



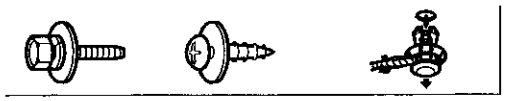
Inner Fender Replacement

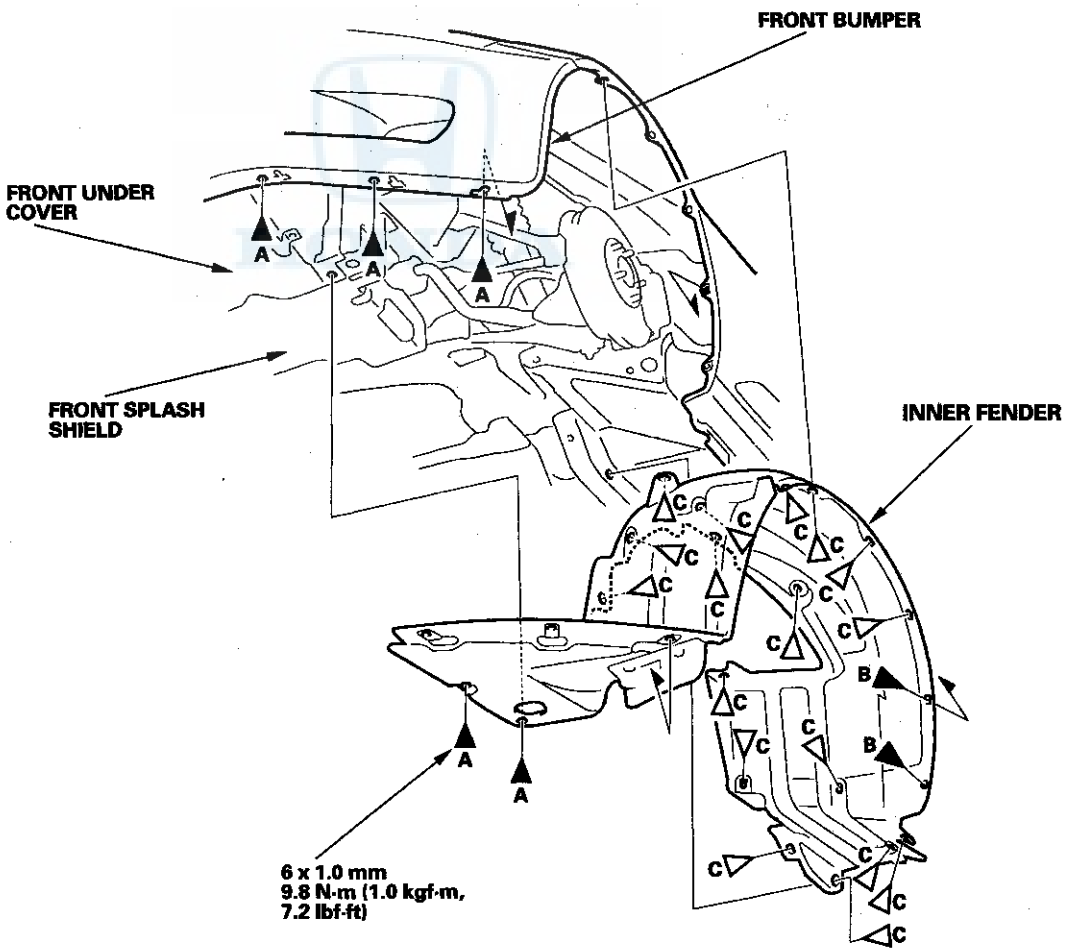
NOTE: Take care not to scratch the body.

1. Remove the front wheel.
2. Remove the inner fender as shown.
3. Install the inner fender in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

Fastener Locations

A ▶ : Bolt, 5 **B ▶ : Screw, 2** **C ▷ : Clip, 17**

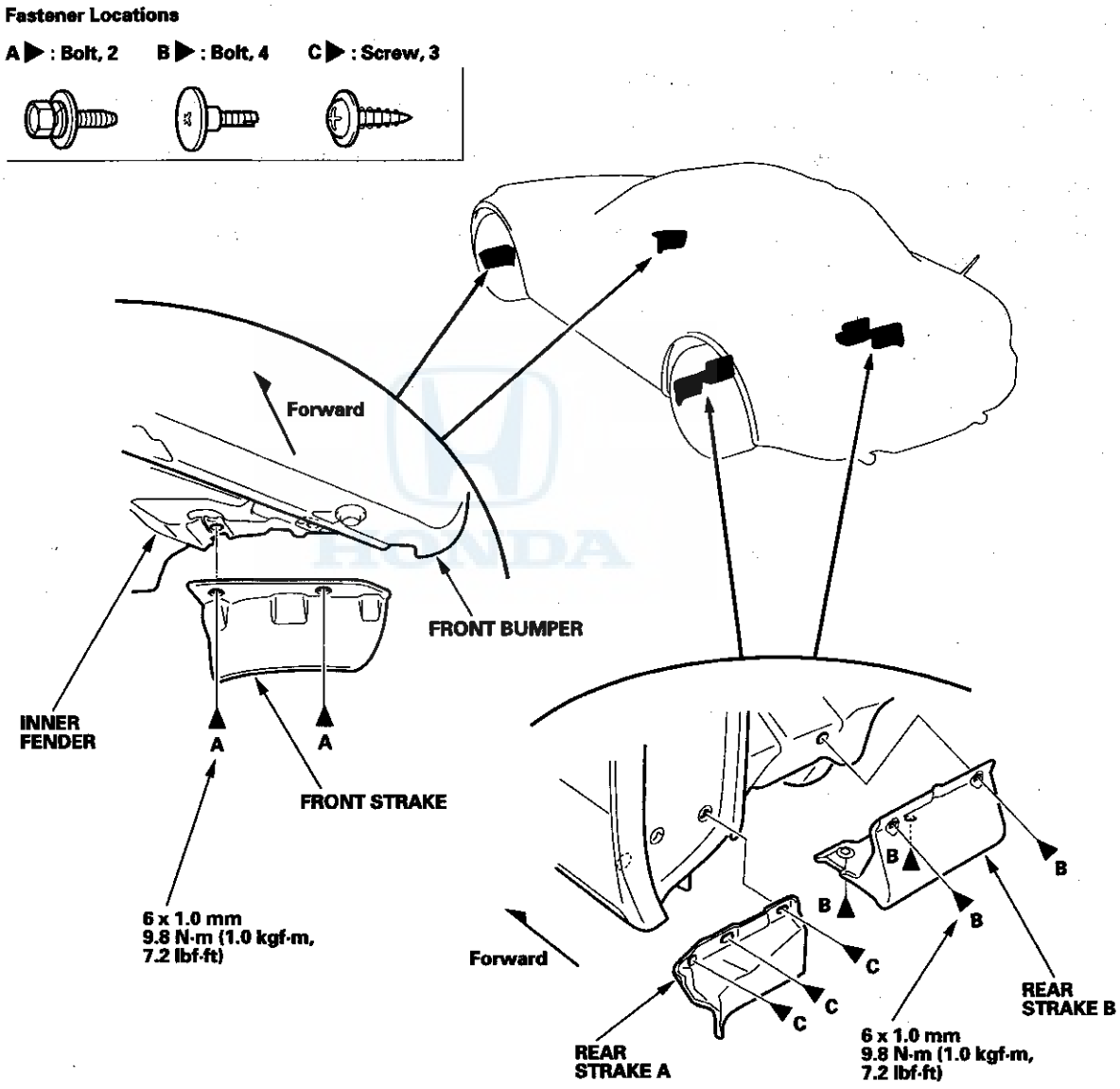




Strake Replacement

NOTE: Take care not to scratch the body.

1. Remove the strakes as shown.
2. Install the strakes in the reverse order of removal.



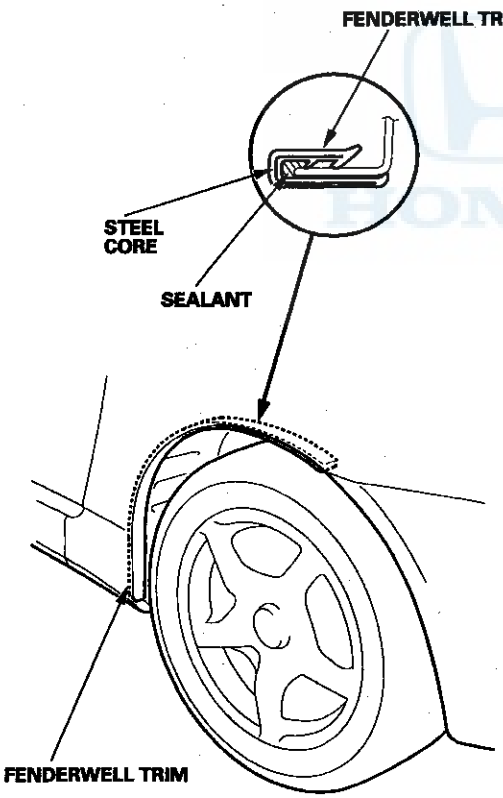
Fenderwell

Fenderwell Trim Replacement

NOTE: The steel core in the fenderwell trim cannot be restored to its original shape once it is bent. Replace the fenderwell trim when the steel core is bent.

1. Remove the fenderwell trim by pulling it out.
2. Install the fenderwell trim, and note these items:
   - Clean the body bonding surface with a sponge dampened in isopropyl alcohol.
   - After cleaning, keep oil, grease and water from getting on the clean surface.
   - Apply clear sealant in the groove of the trim at the area indicated by the arrow.
   - Scrape or wipe the excess sealant off with a soft shop towel dampened in isopropyl alcohol.

Sealant: Cemedine P/N 08712-0004, or equivalent



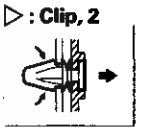
Rear Air Outlet Replacement

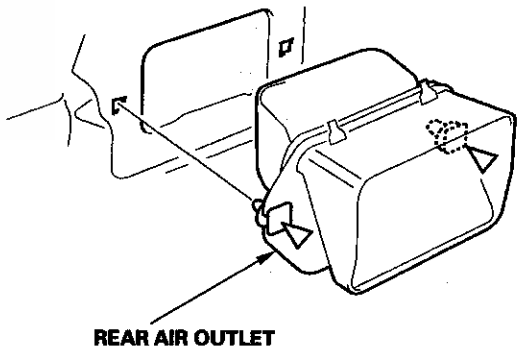
NOTE: Take care not to scratch the body.

1. Remove these items:
   - Rear trim panel (see page 20-77)
   - Rear bumper (see page 20-110)
2. Remove the rear air outlet as shown.
3. Note these items when reinstalling the air outlet:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.

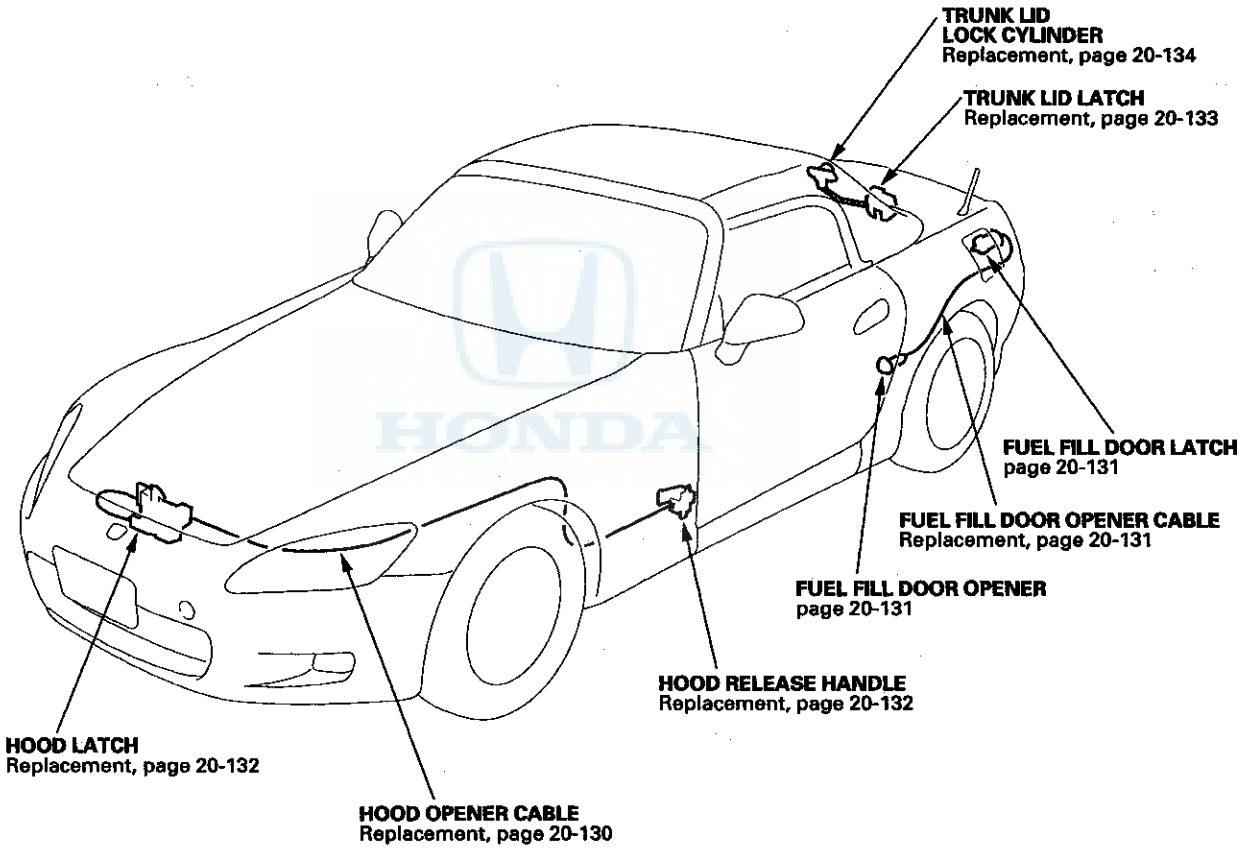
Fastener Locations

▷: Clip, 2





Component Location Index



Hood Opener Cable Replacement

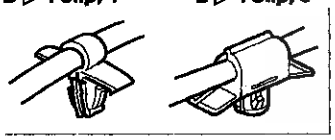
NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.
- Take care not to kink the cable.

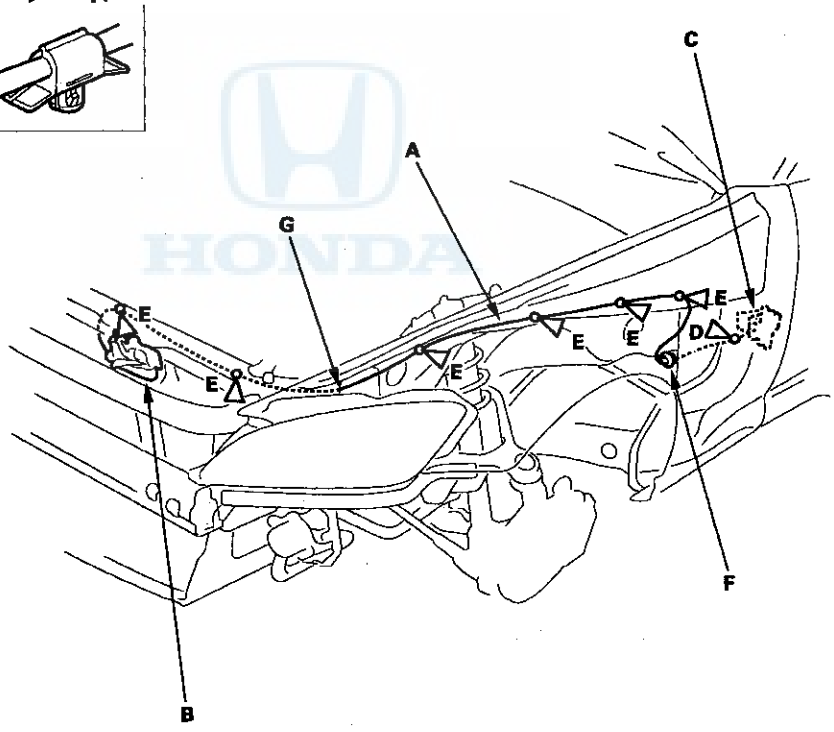
1. Remove these items:
   - Inner fender (see page 20-126)
   - Kick panel (see page 20-71)
   - Front bumper, '00-03 models (see page 20-104), '04-08 models (except CR model) (see page 20-105), CR model (see page 20-106)
   - Air guide plate cover (see page 20-132)

2. Disconnect the hood opener cable (A) from the hood latch (B) and hood release handle (C) (see page 20-132).

Fastener Locations

D▷ : Clip, 1 E▷ : Clip, 6





3. Using a clip remover, detach the clips (D, E) and remove the grommet (F) from the body, then remove the hood opener cable. Take care not to kink the cable.

4. Install the cable in the reverse order of removal, and note these items:
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the clips into place securely.
   - Route the cable through the hole (G) in the body.

Fuel Fill Door Opener Cable Replacement

NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body and related parts.
- Take care not to kink the cable.

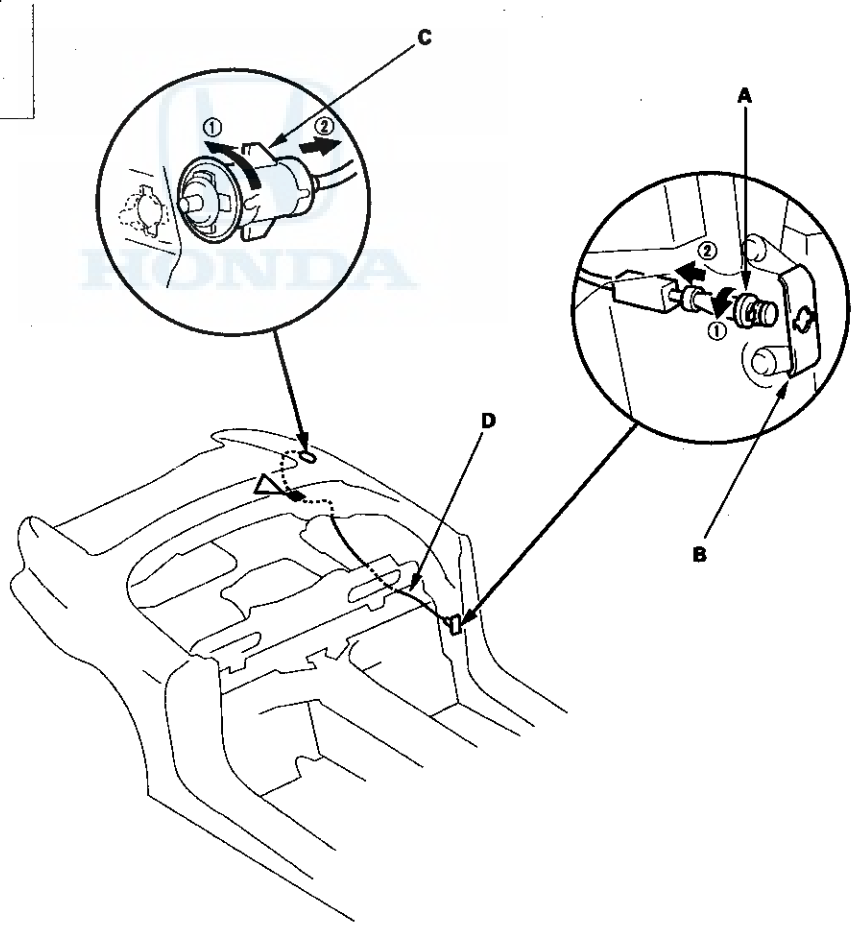
1. Remove these items:

   - Rear side trim (see page 20-72)
   - Rear tray (except CR model) (see page 20-73)
   - Rear cover (CR model) (see page 20-75)
   - Trunk side trim panel, left side (see page 20-77)

2. Remove the fuel fill door opener knob (A) from the fuel fill door opener bracket (B) by turning it 90 °, and remove the fuel fill door latch (C) from the body in the same way.

Fastener Location

▷: Cable cushion tape, 1



3. Remove the fuel fill door opener cable (D).

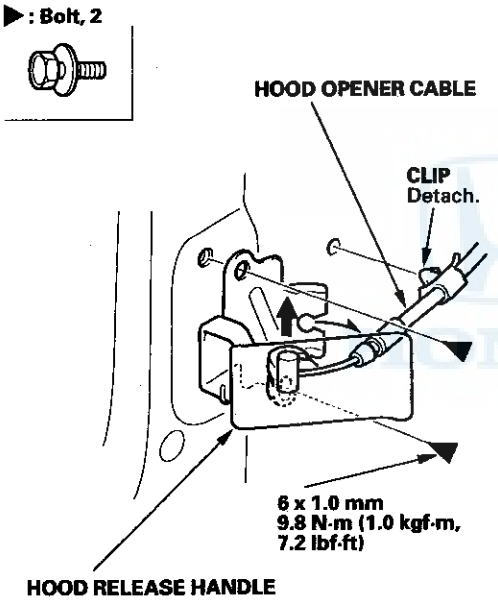
4. Install the cable in the reverse order of removal with a new piece of cable cushion tape.

Hood Release Handle Replacement

NOTE: Take care not to kink the cable.

1. Remove the kick panel (see page 20-71).
2. Remove the hood release handle as shown.
3. Install the handle in the reverse order of removal, and note these items:
   - Make sure the hood opener cable is connected properly.
   - Make sure the hood opens properly.

Fastener Locations



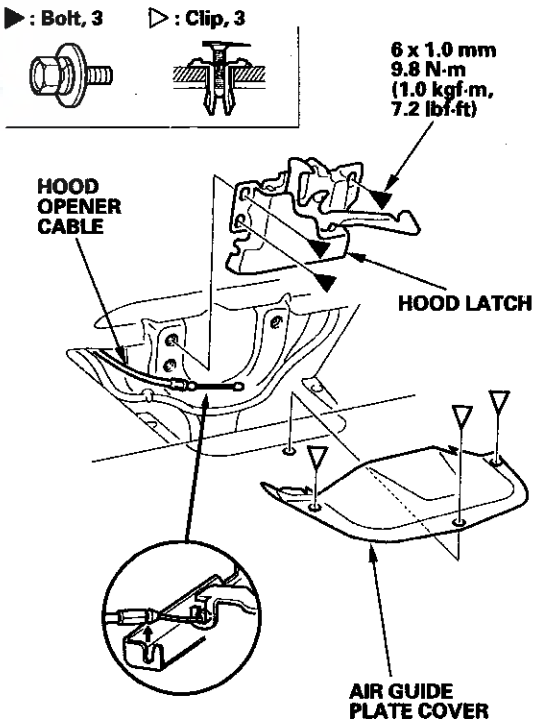
Hood Latch Replacement

NOTE: Take care not to kink the cable.

Replacement

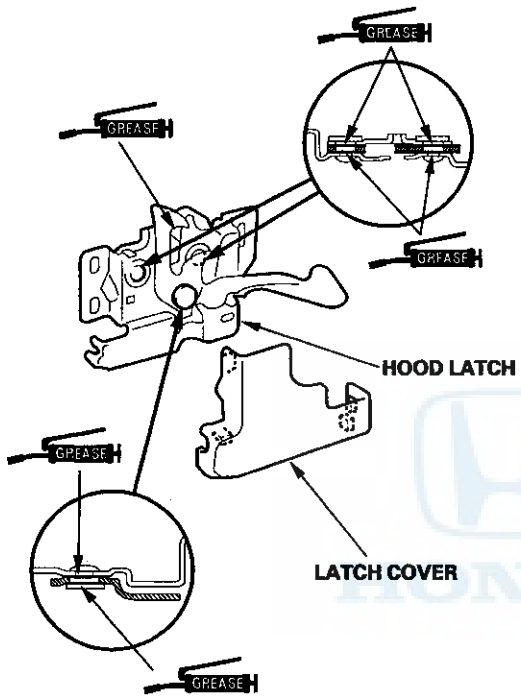
1. Remove the air guide plate cover, then remove the hood latch as shown.
2. Install the latch in the reverse order of removal, and note these items:
   - Apply multipurpose grease to the hood latch.
   - Make sure the hood opener cable is connected properly.
   - Make sure the cable actuates the latch before you close the hood.
   - Adjust the hood latch alignment (see step 3 on page 20-111).
   - Make sure the hood locks securely.
   - Check if the clips are damaged or stress-whitened, and if necessary, replace them with new ones.
   - Push the cover clips into place securely.

Fastener Locations



Grease Application

NOTE: Remove the latch cover, and apply multipurpose grease to each location of the hood latch indicated by the arrows.



Trunk Lid Latch Replacement

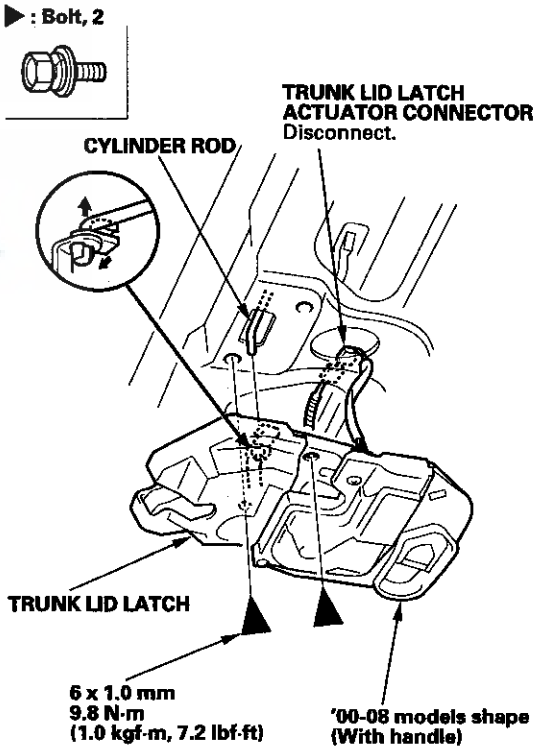
NOTE:
- Put on gloves to protect your hands.
- Take care not to scratch the body.
- Take care not to bend the cylinder rod.

1. Remove the trunk lid latch as shown.

2. Install the latch in the reverse order of removal, and note these items:

   - Make sure the connector is plugged in properly and the opener cable is connected properly.
   - Make sure the rod actuates the latch before you close the trunk lid.
   - Make sure the trunk lid opens properly and locks securely.

Fastener Locations



Trunk Lid Lock Cylinder Replacement

NOTE:
- Take care not to scratch the body.
- Take care not to bend the cylinder rod.

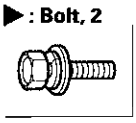
1. Remove the trunk lid lock cylinder as shown.

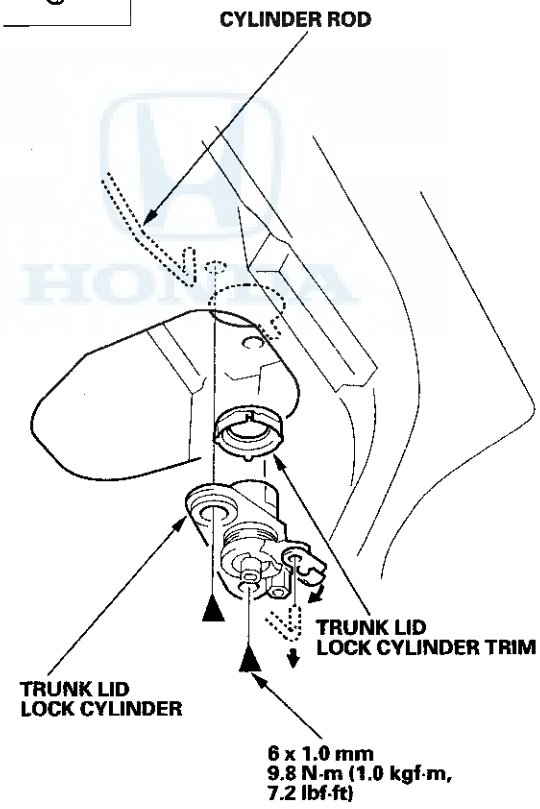
2. Install the cylinder in the reverse order of removal, and note these items:

   - Make sure the cylinder rod is connected properly.
   - Make sure the trunk lid opens properly.

Fastener Locations

▶: Bolt, 2

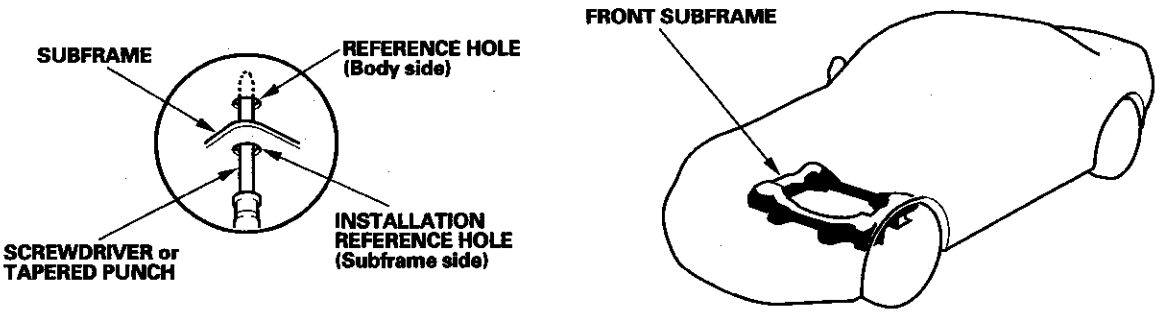


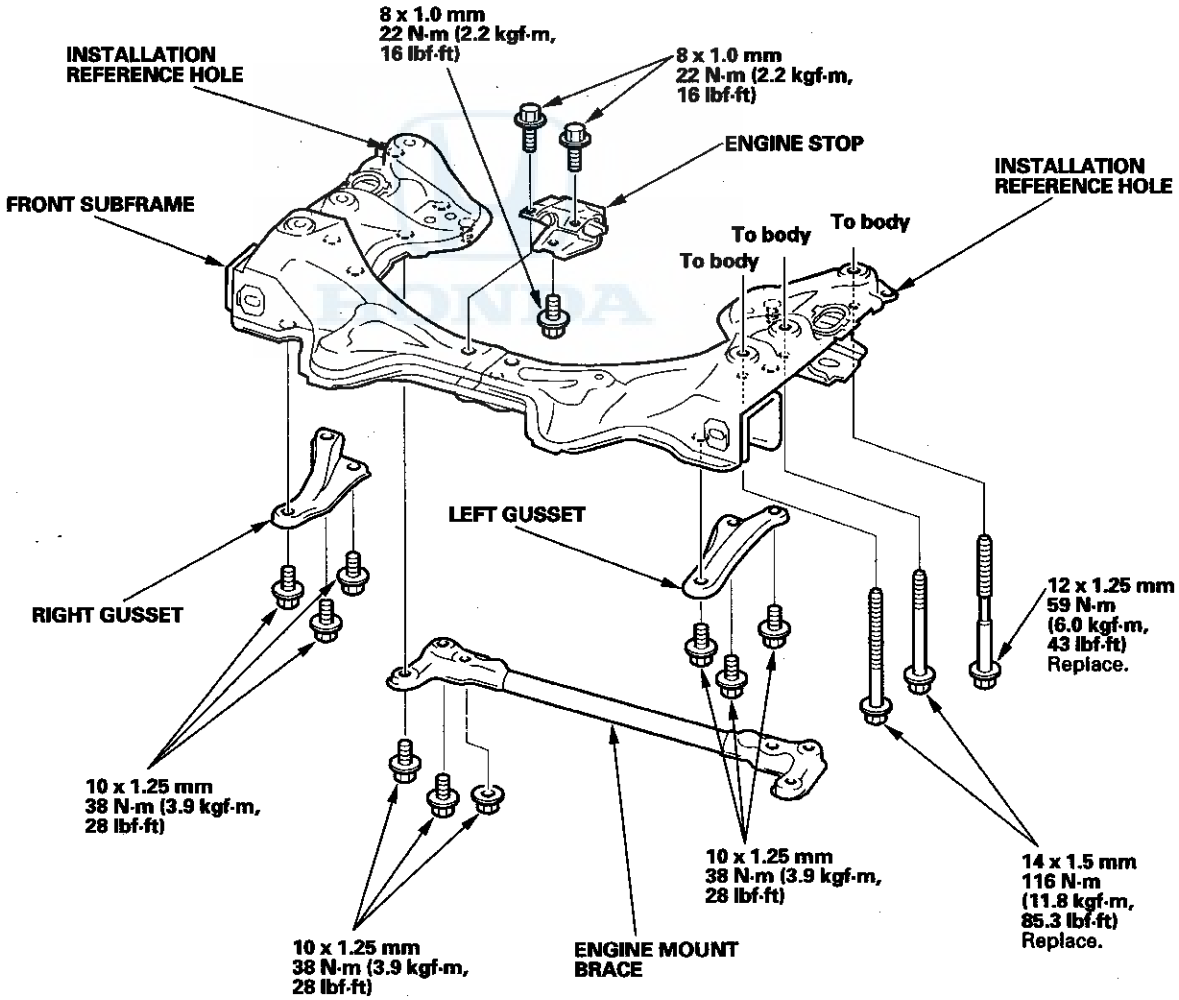


Front Subframe Replacement

After loosening the subframe mounting bolts, be sure to replace them with new ones.

Reference hole alignment

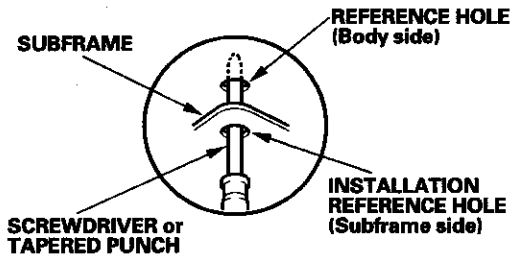


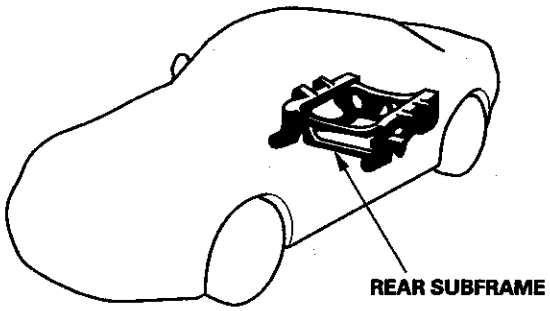


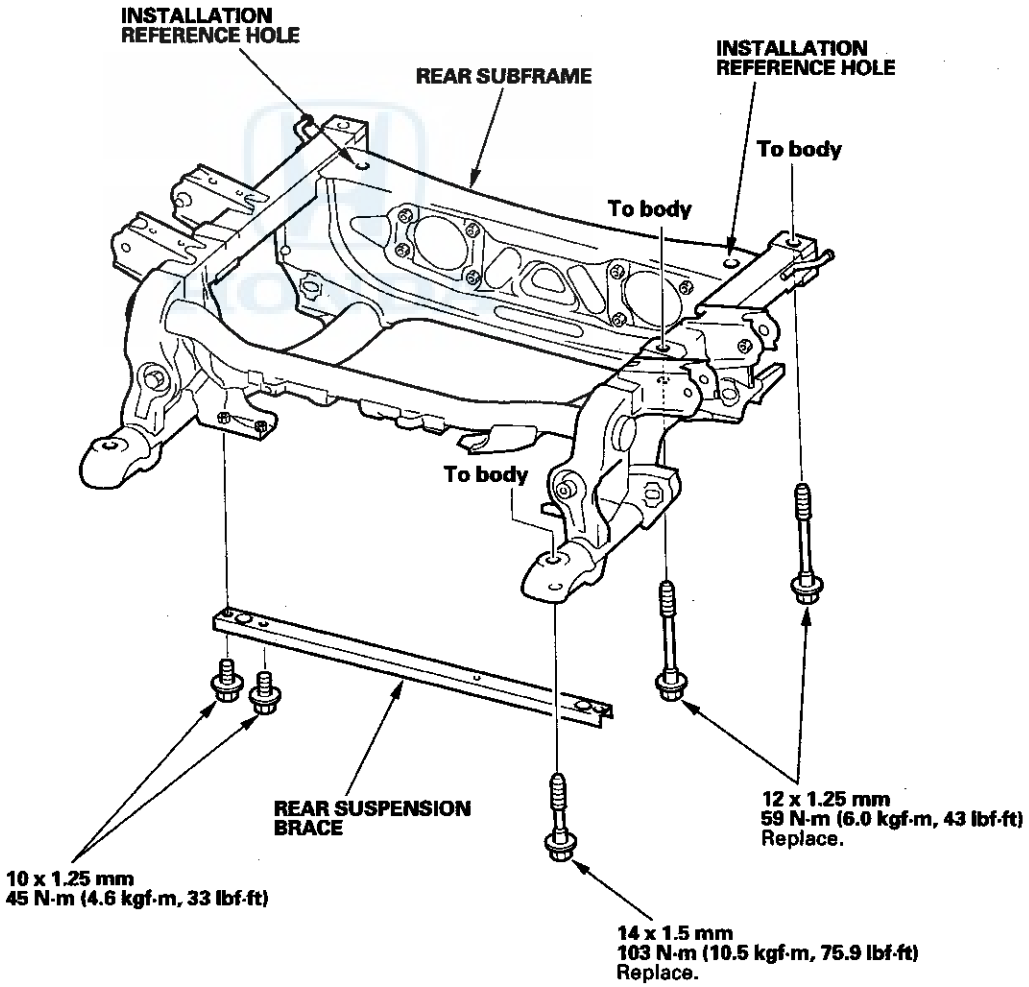
Rear Subframe Replacement

After loosening the subframe mounting bolts, be sure to replace them with new ones.

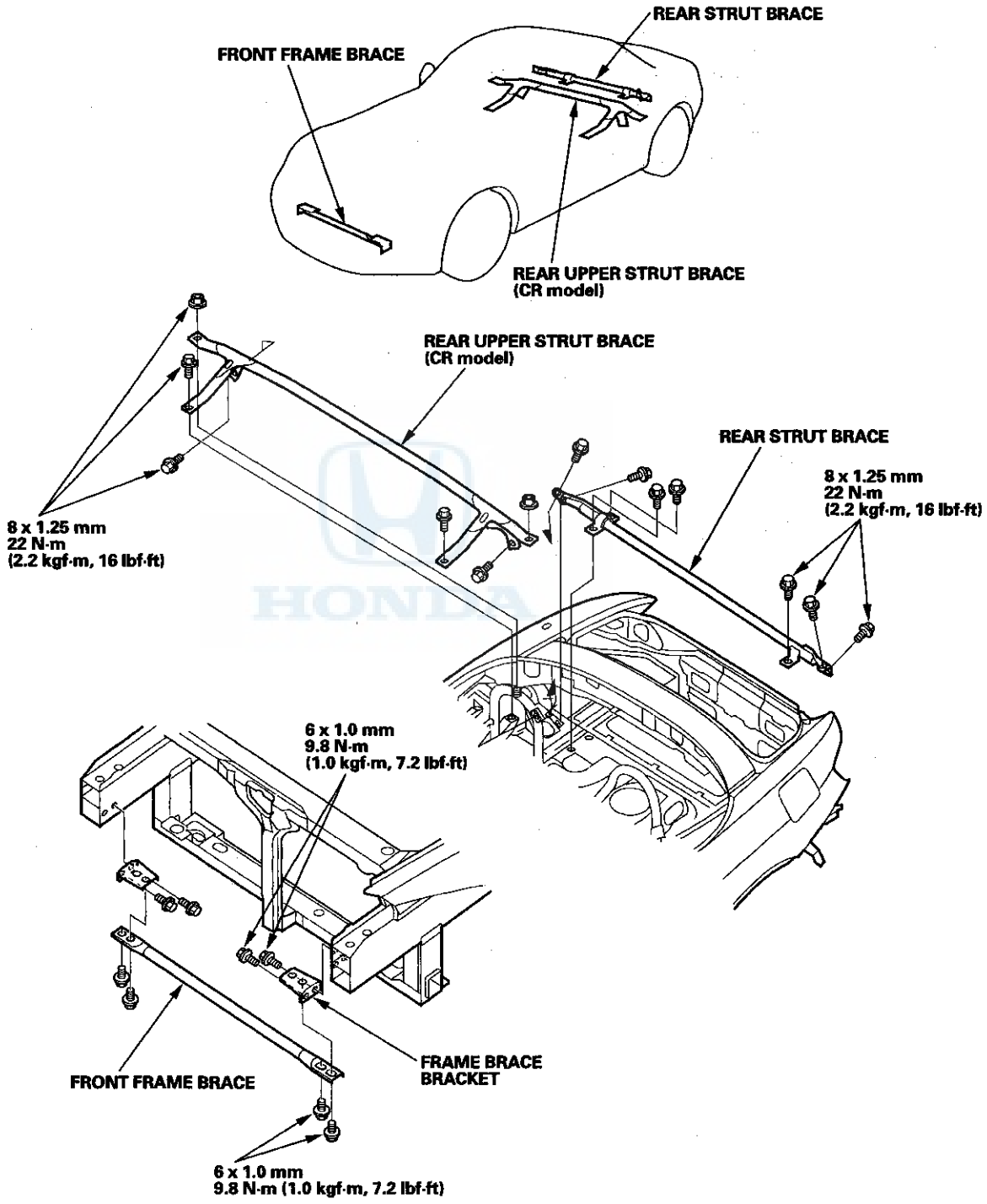
Reference hole alignment







Frame Brace Replacement

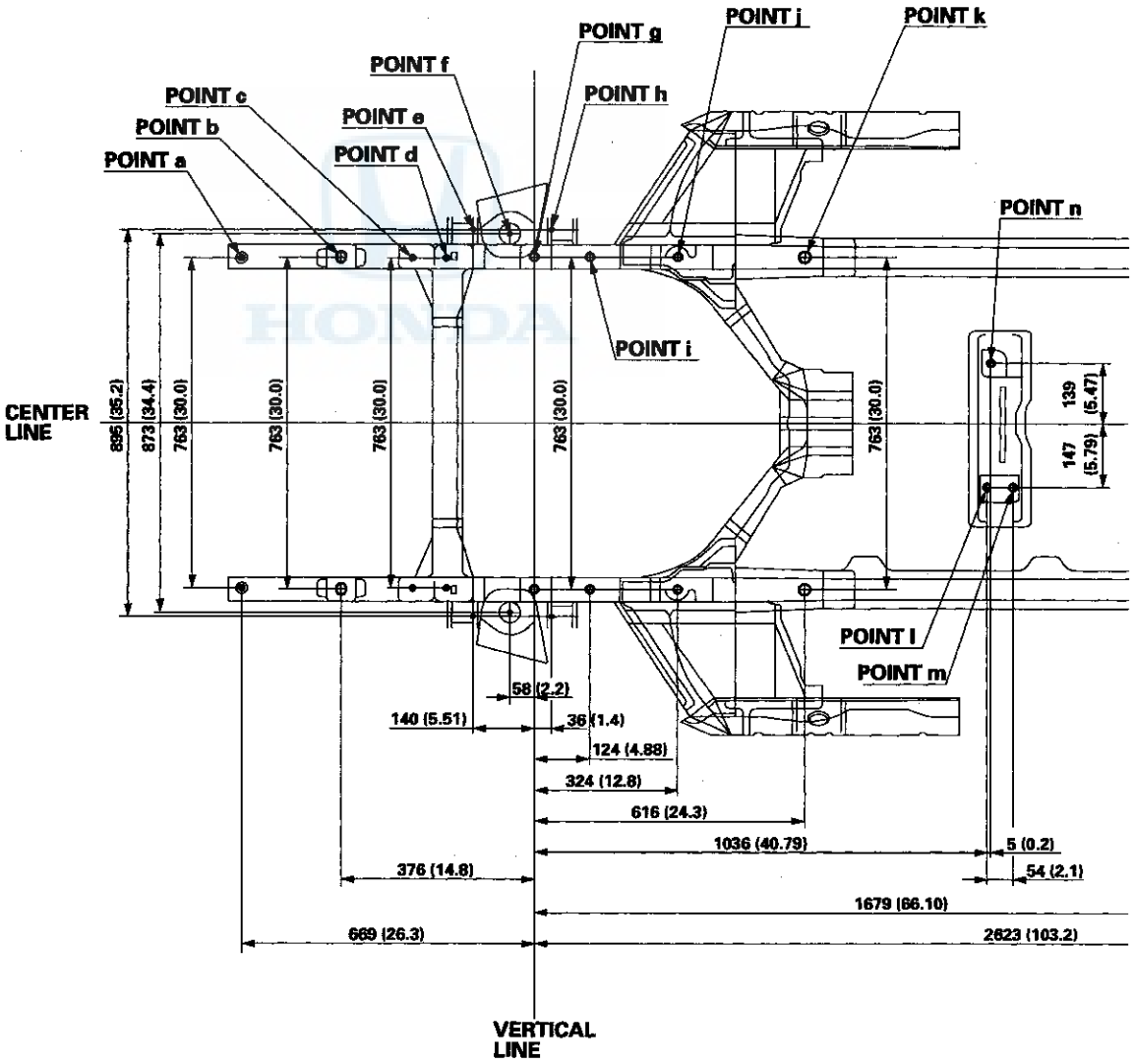


Frame Repair Chart

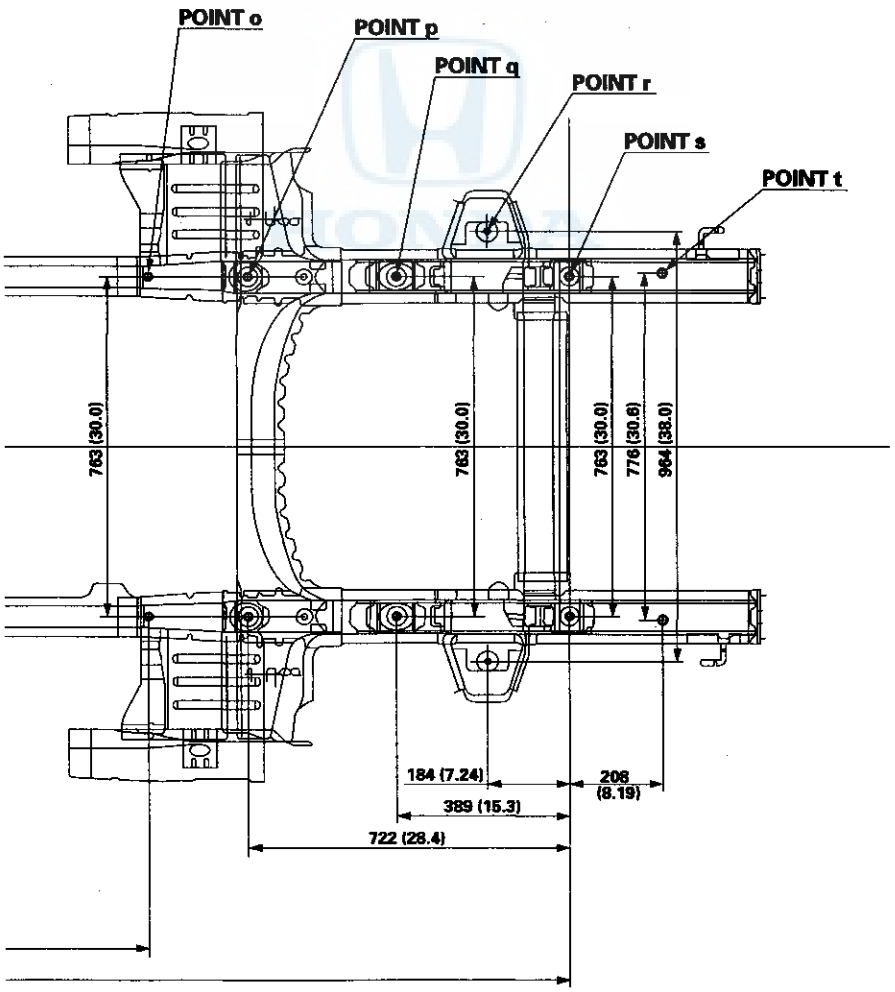
Top View

Unit: mm (in.)
ø: Inner diameter

a	For bumper beam ø10 (0.4)		f	Damper center	
b	For tie down ø23×30 (0.9×1.2)		g	For subframe ø17 (0.7)	
c	For stabilizer ø24 (0.9)		h	For upper arm ø13 (0.5)	
d	For stabilizer ø24 (0.9)		i	For subframe ø17 (0.7)	
e	For upper arm ø13 (0.5)		j	For subframe ø17 (0.7)	



k	Locate hole ø25 (1.0)	p	For rear subframe ø16 (0.63)
l	For transmission mount bracket ø13 (0.5)	q	For rear subframe ø16 (0.63)
m	For transmission mount bracket ø13 (0.5)	r	Rear damper center ø50 (2.0)
n	For transmission mount bracket ø13 (0.5)	s	For rear subframe ø16 (0.63)
o	Locate hole ø15 (0.59)	t	Locate hole ø20 (0.8)



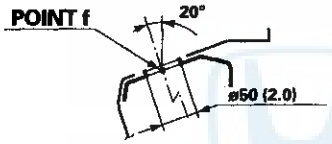
(cont'

Frame Repair Chart (cont'd)

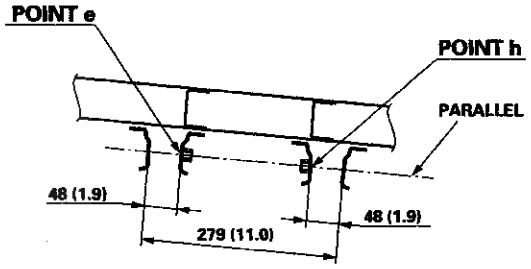
Side View

Unit: mm (in.)
ø: Inner diameter

a For bumper beam ø10 (0.4)
b For tie down ø23×30 (0.9×1.2)
c For stabilizer ø24 (0.9)
d For stabilizer ø24 (0.9)
e For upper arm ø13 (0.5)
f Damper center
g For subframe ø17 (0.7)
h For upper arm ø13 (0.5)
i For subframe ø17 (0.7)
j For subframe ø17 (0.7)



[SECTION: AA]



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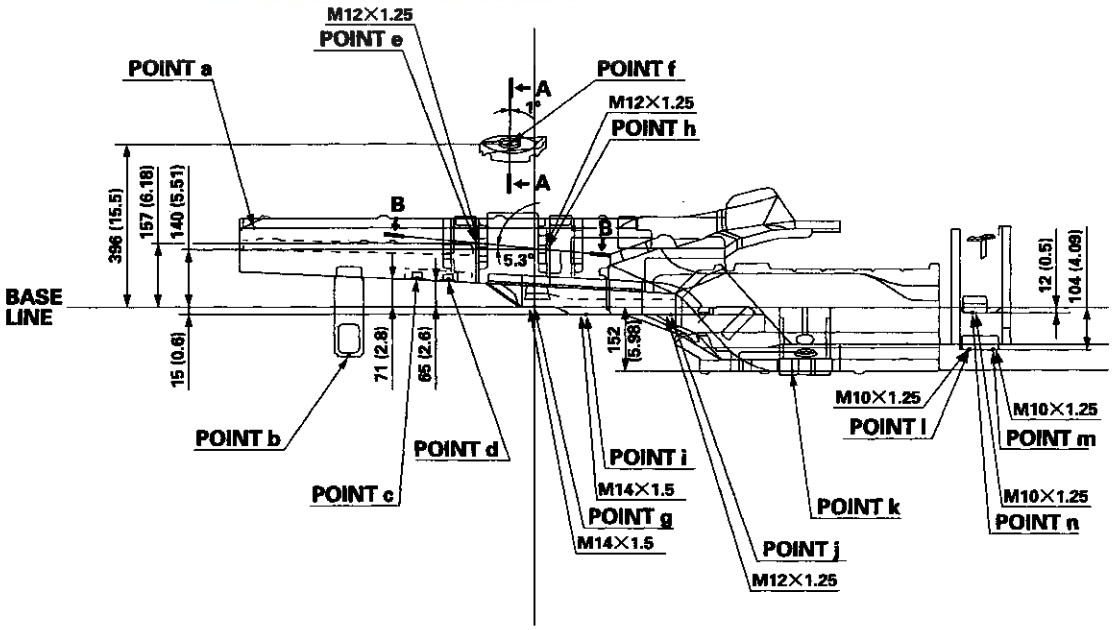
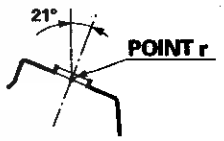


k	Locate hole ø25 (1.0)	p	For rear subframe ø16 (0.63)
l	For transmission mount bracket ø13 (0.5)	q	For rear subframe ø16 (0.63)
m	For transmission mount bracket ø13 (0.5)	r	Rear damper center ø50 (2.0)
n	For transmission mount bracket ø13 (0.5)	s	For rear subframe ø16 (0.63)
o	Locate hole ø15 (0.59)	t	Locate hole ø20 (0.8)



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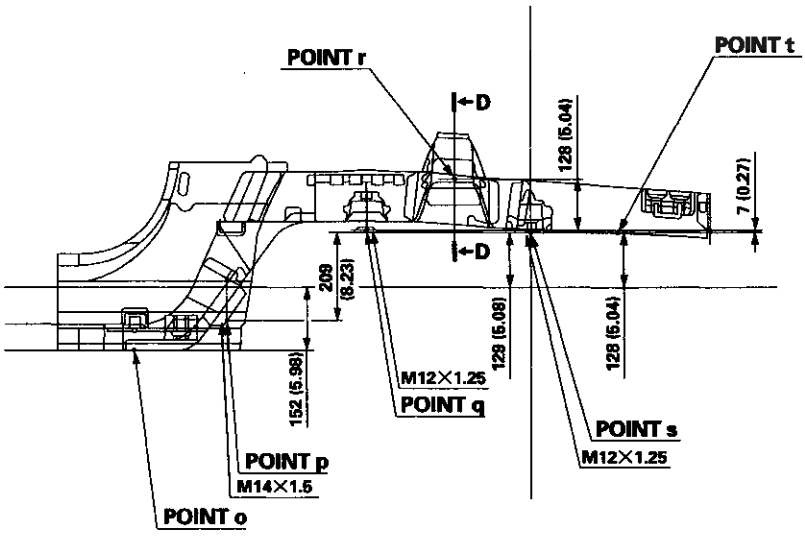


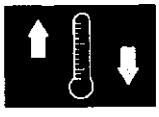
SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If HVAC maintenance is required)

The S2000 SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, and seat belt tensioners in the seat belt retractors. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional activation of the airbags and seat belt tensioners.
- Do not bump or impact the SRS unit, or front impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, console, dashboard, dashboard lower panel, in the dashboard above the glove box. Do not use electrical test equipment on these circuits.

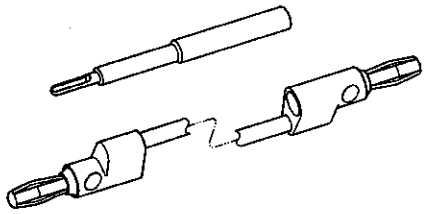
Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

HVAC (Heating, Ventilation, and Air Conditioning)



Special Tools

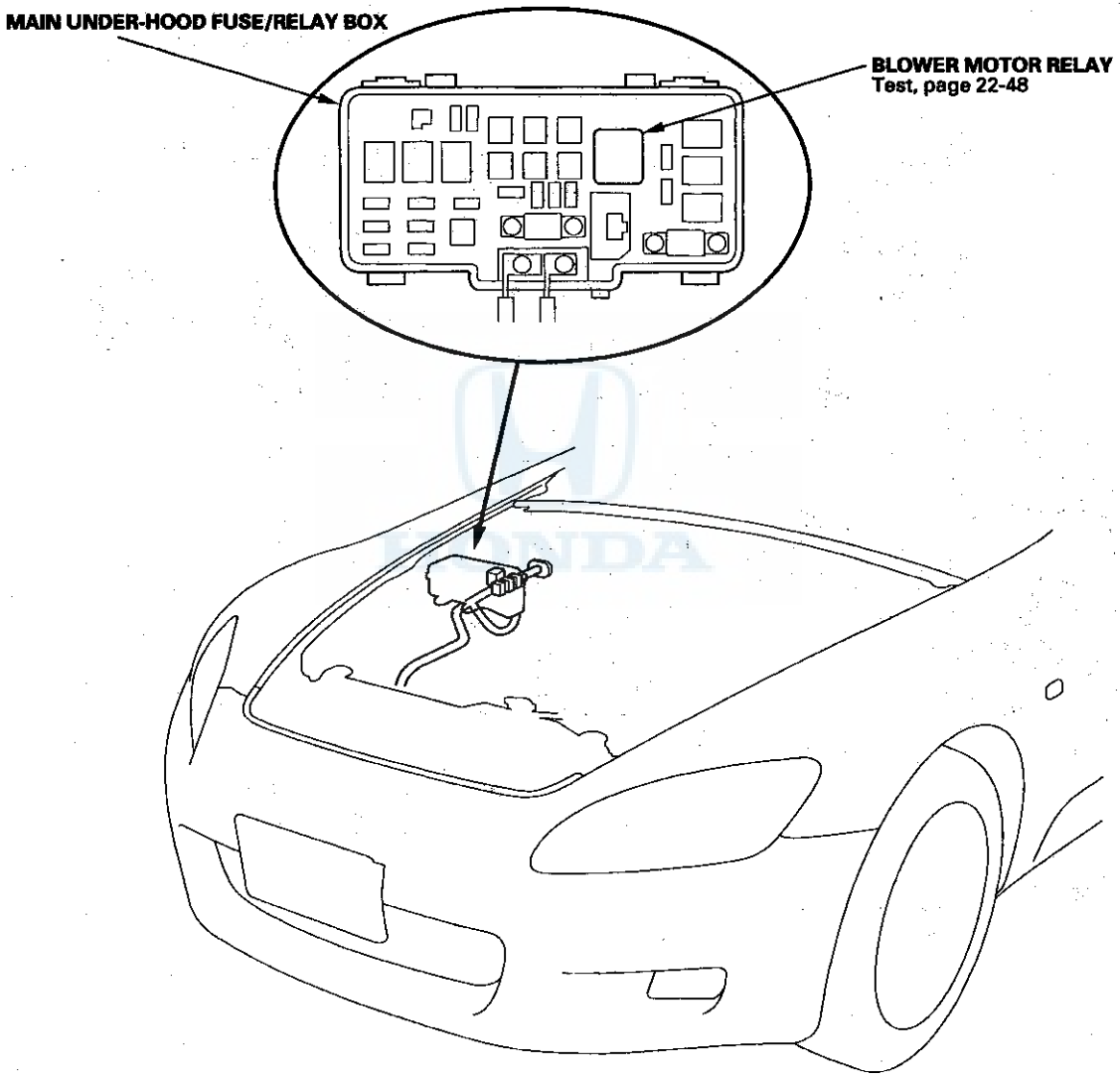
Ref. No.	Tool Number	Description	Qty
①	07SAZ-001000A	Backprobe Set	2



①

Component Location Index

'08 model



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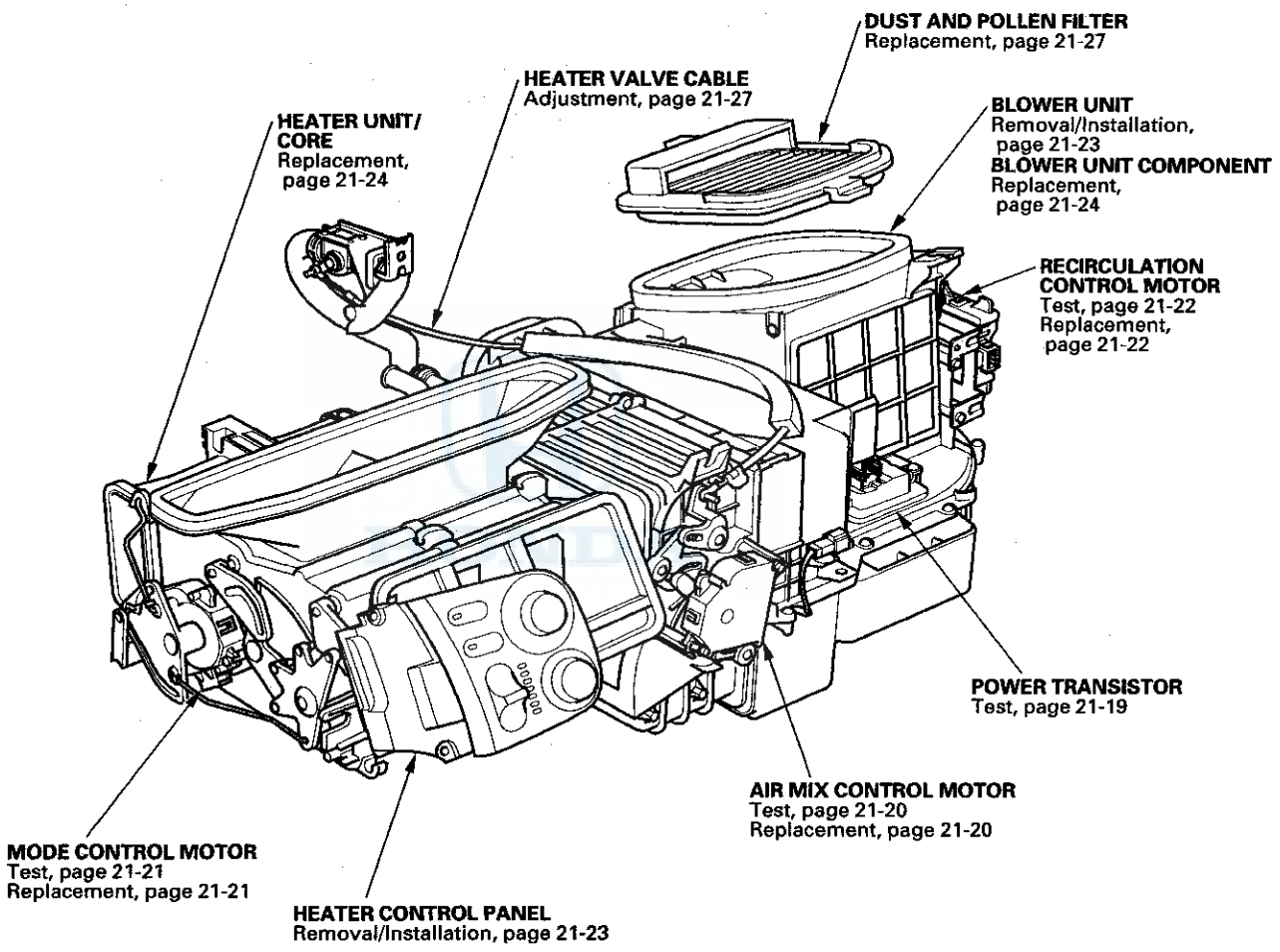
Component Location Index (cont'd)

'08 model



General Troubleshooting Information

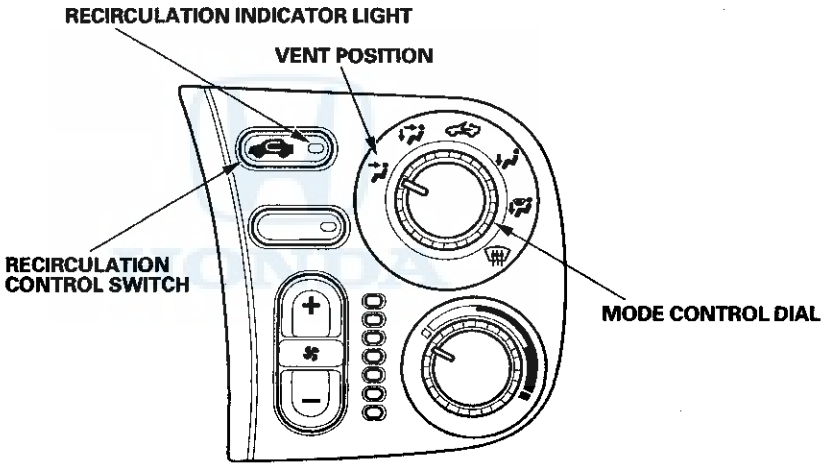
How to Retrieve a DTC

The heater control panel has a self-diagnostic function. To run the self-diagnostic function, do the following:

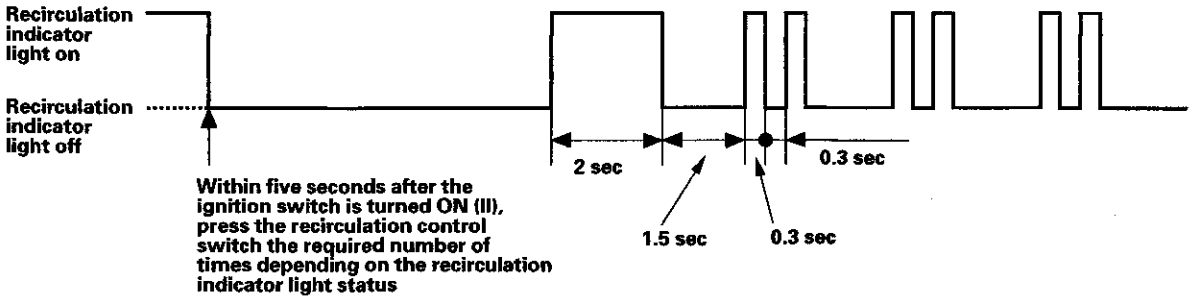
1. Set the mode control dial on the Vent position.
2. Turn the ignition switch to ON (II).
3. Within 5 seconds after turning the ignition switch on, press the recirculation control switch the required number of times depending on the recirculation indicator status:

   - If the indicator is ON, press the recirculation control switch 5 times.
   - If the indicator is OFF, press the recirculation control switch 6 times.

   The recirculation indicator will come on for 2 seconds, then blink the Diagnostic Trouble Code (DTC) to indicate a faulty component. If no DTCs are found, the indicator will not blink after the initial 2 seconds light.



Example of DTC Indication Pattern (DTC 2)



Canceling the Self-diagnosis Function

4. Turn the ignition switch to LOCK (0) to cancel the self-diagnostic function. After completing repair work, run the self-diagnostic function again to make sure that there are no other malfunctions.

DTC Troubleshooting Index

DTC (Recirculation Indicator Blinks)	Detection Item	Page
1	A problem in the air mix control motor circuit	(see page 21-10)
2	A problem in the mode control motor circuit	(see page 21-11)
3	A problem in the blower motor circuit	(see page 21-13)

- In case of multiple problems, the recirculation indicator will indicate only the DTC with the least number of blinks.
- In case of an intermittent failure, the heater control panel will store the DTC until the ignition switch is in LOCK (0).

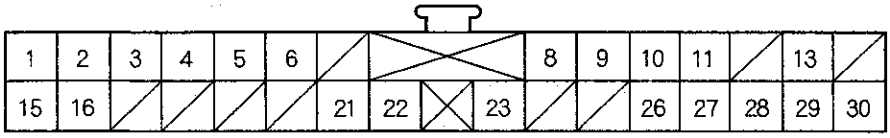
Symptom Troubleshooting Index

For electrical malfunctions which are indicated by the self-diagnostic system, refer to self-diagnostic function (see page 21-5).

Symptom	Diagnostic procedure	Also check for
Recirculation control doors do not change between Fresh and Recirculate	Recirculation Control Motor Circuit Troubleshooting (see page 21-16)	• Blown No. 20 (7.5 A) fuse in the under-dash fuse/relay box • Cleanliness and tightness of all connectors
Blower and heater controls do not work	Heater Control Power and Ground Circuit Troubleshooting (see page 21-18)	• Blown No. 56 (40 A) fuse in the main under-hood fuse/relay box, and No. 20 (7.5 A) fuse in the under-dash fuse/relay box • Poor ground at No. G201, G402 • Cleanliness and tightness of all connectors
Insufficient heating	1. Check the coolant level (see page 10-9) 2. Check the radiator cap (see page 10-6) 3. Check the coolant temperature 4. Check the operation of the air mix control motor and door (see page 21-20) 5. Check the operation of the heater valve (see page 21-27) 6. Check the blower motor for obstructions 7. Check for air leaks around the ducts and vents 8. Check the inlet heater hose temperature • If it is COLD, check for restrictions in the hose, a damaged or leaking thermostat, and a damaged or leaking water pump. • If it is HOT, check for restrictions in the heater core. Back flush the heater core using standard commercially available equipment, or replace the heater core.	Damaged cylinder head gasket

System Description

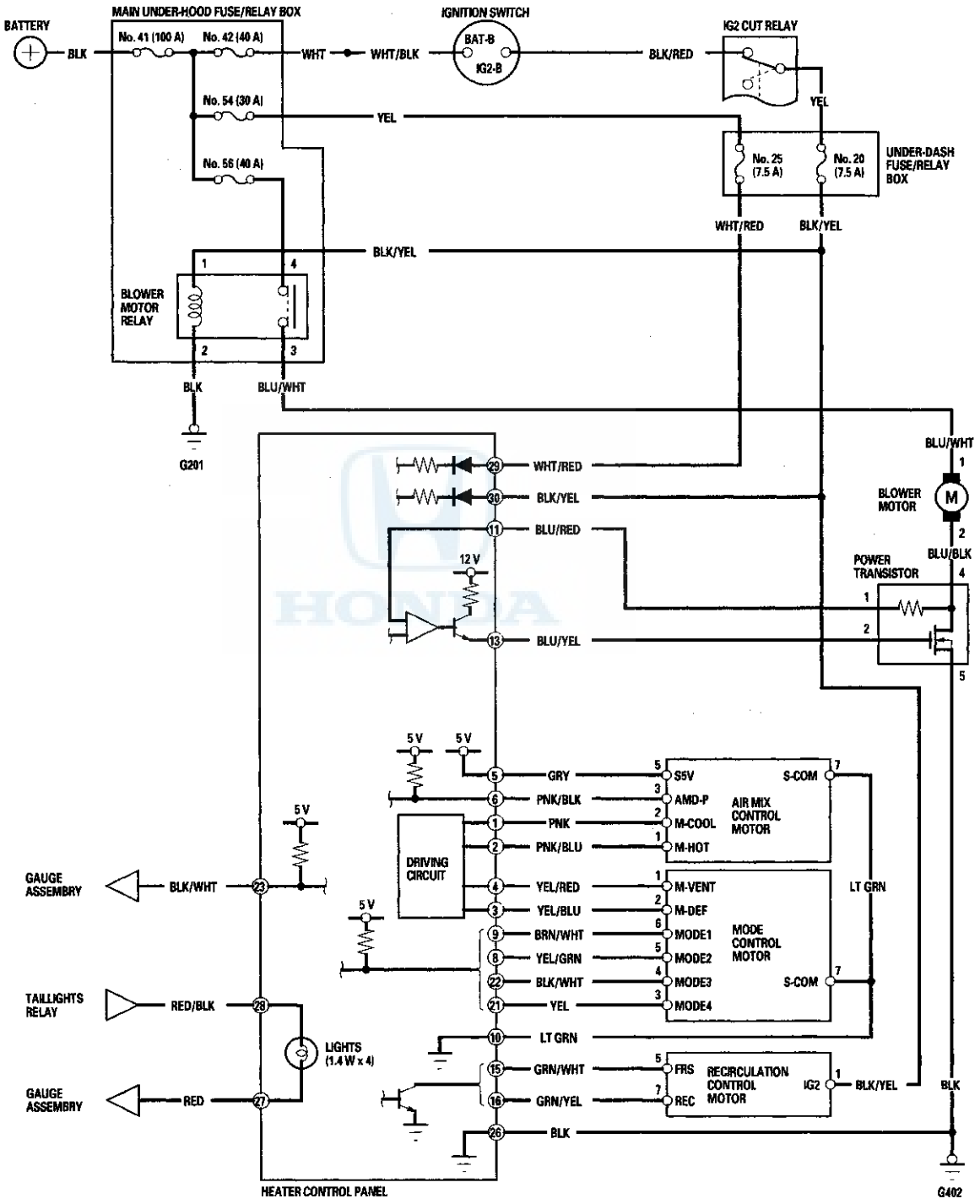
HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

Cavity	Wire color	Signal	
1	PNK	AIR MIX COOL	OUTPUT
2	PNK/BLU	AIR MIX HOT	OUTPUT
3	YEL/BLU	MODE DEF	OUTPUT
4	YEL/RED	MODE VENT	OUTPUT
5	GRY	AIR MIX POTENTIAL +5 V	OUTPUT
6	PNK/BLK	AIR MIX POTENTIAL	OUTPUT
8	YEL/GRN	MODE 2	OUTPUT
9	BRN/WHT	MODE 1	OUTPUT
10	LT GRN	SENSOR COMMON GROUND	INPUT
11	BLU/RED	BLOWER FEEDBACK	INPUT
13	BLU/YEL	POWER TRANSISTOR BASE	OUTPUT
15	GRN/WHT	FRESH	INPUT
16	GRN/YEL	RECIRCULATE	INPUT
21	YEL	MODE 4	OUTPUT
22	BLK/WHT	MODE 3	OUTPUT
23	BLK/WHT	GAUGE ASSEMBLY	OUTPUT
26	BLK	GROUND	INPUT
27	RED	GAUGE ASSEMBLY	OUTPUT
28	RED/BLK	TAILLIGHTS RELAY	INPUT
29	WHT/RED	+B (Power)	INPUT
30	BLK/YEL	IG2 (Power)	INPUT

Circuit Diagram



DTC Troubleshooting

DTC 1: A Problem in the Air Mix Control Motor Circuit

1. Disconnect the air mix control motor 7P connector.
2. Test the air mix control motor (see page 21-20).

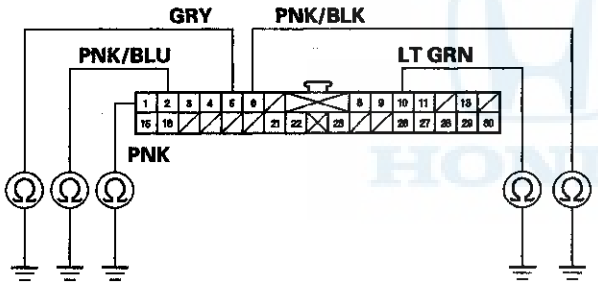
   Is the air mix control motor OK?

   YES—Go to step 3.

   NO—Go to step 7.

3. Disconnect the heater control panel 30P connector.
4. Check for continuity between body ground and the heater control panel 30P connector No. 1, 2, 5, 6, and 10 terminals individually.

HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

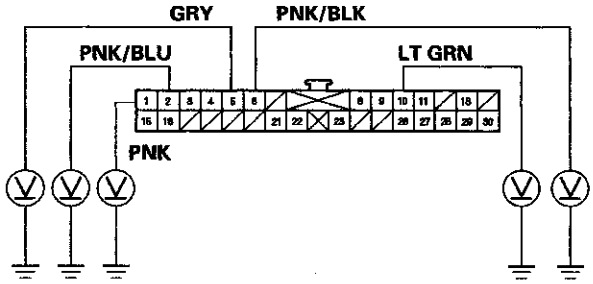
Is there continuity?

YES—Repair short to body ground in the wire(s) between the heater control panel and the air mix control motor.■

NO—Go to step 5.

5. Turn the ignition switch to ON (II), and measure the same terminals for voltage.

HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

Is there any voltage?

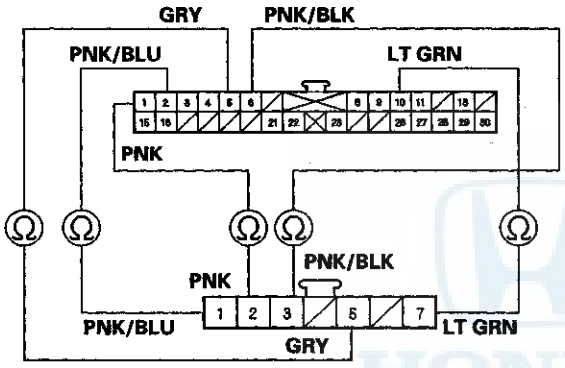
YES—Repair short to power in the wire(s) between the heater control panel and the air mix control motor. This short may also damage the heater control panel. Repair the short to power before replacing the heater control panel.■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0), and check for continuity between the following terminals of the heater control panel 30P connector and the air mix control motor 7P connector.

30P:	7P:
No. 1	No. 2
No. 2	No. 1
No. 5	No. 5
No. 6	No. 3
No. 10	No. 7

HEATER CONTROL PANEL 30P CONNECTOR
Wire side of female terminals



AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the heater control panel 30P connector and at the air mix control motor 7P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

NO—Repair open in the wire(s) between the heater control panel and the air mix control motor. ■

7. Remove the air mix control motor (see page 21-20).

8. Check the air mix control linkage and doors for smooth movement.

Do the air mix control linkage and doors move smoothly?

YES—Replace the air mix control motor. ■

NO—Repair the air mix control linkage or doors. ■

DTC 2: A Problem in the Mode Control Motor Circuit

1. Disconnect the mode control motor 7P connector.

2. Test the mode control motor (see page 21-21).

Is the mode control motor OK?

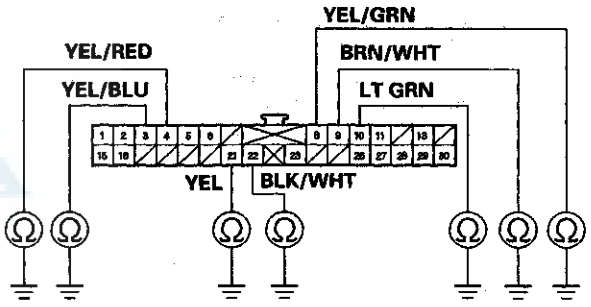
YES—Go to step 3.

NO—Go to step 7.

3. Disconnect the heater control panel 30P connector.

4. Check for continuity between body ground and the heater control panel 30P connector No. 3, 4, 8, 9, 10, 21, and 22 terminals individually.

HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the heater control panel and the mode control motor. ■

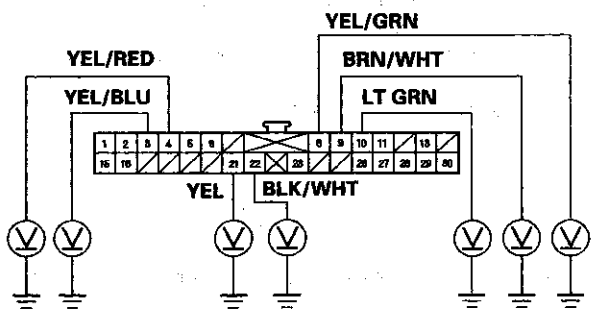
NO—Go to step 5.

(cont'd)

DTC Troubleshooting (cont'd)

5. Turn the ignition switch to ON (II), and measure the same terminals for voltage.

HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

Is there any voltage?

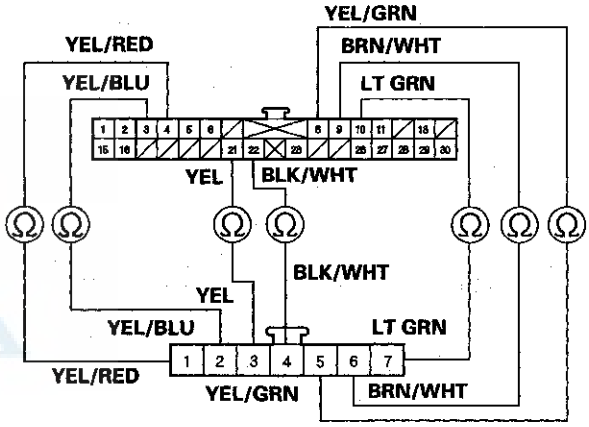
YES—Repair short to power in the wire(s) between the heater control panel and the mode control motor. This short may also damage the heater control panel. Repair the short to power before replacing the heater control panel. ■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0), and check for continuity between the following terminals of the heater control panel 30P connector and the mode control motor 7P connector.

30P:	7P:
No. 3	No. 2
No. 4	No. 1
No. 8	No. 5
No. 9	No. 6
No. 10	No. 7
No. 21	No. 3
No. 22	No. 4

HEATER CONTROL PANEL 30P CONNECTOR
Wire side of female terminals



MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the heater control panel 30P connector and at the mode control motor 7P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

NO—Repair open in the wire(s) between the heater control panel and mode control motor. ■

7. Remove the mode control motor (see page 21-21).

8. Check the mode control linkage and doors for smooth movement.

   Do the mode control linkage and doors move smoothly?

   YES—Replace the mode control motor. ■

   NO—Repair the mode control linkage or doors. ■

DTC 3: A Problem in the Blower Motor Circuit

1. Check the No. 56 (40 A) fuse in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

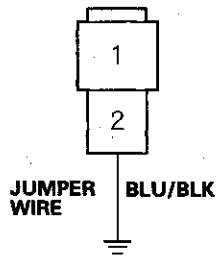
   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. ■

2. Connect the No. 2 terminal of the blower motor 2P connector to body ground with a jumper wire.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

3. Turn the ignition switch to ON (II).

   Does the blower motor run?

   YES—Go to step 4.

   NO—Go to step 17.

4. Turn the ignition switch to LOCK (0).

5. Disconnect the jumper wire.

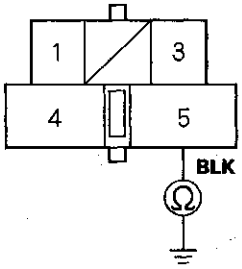
6. Disconnect the power transistor 5P connector.

(cont'd)

DTC Troubleshooting (cont'd)

7. Check for continuity between the No. 5 terminal of the power transistor 5P connector and body ground.

POWER TRANSISTOR 5P CONNECTOR



Wire side of female terminals

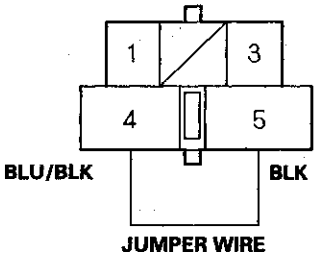
Is there continuity?

YES—Go to step 8.

NO—Check for an open in the wire between the power transistor and body ground. If the wire is OK, check for poor ground at G402.■

8. Connect the No. 4 and No. 5 terminals of the power transistor 5P connector with a jumper wire.

POWER TRANSISTOR 5P CONNECTOR



Wire side of female terminals

9. Turn the ignition switch to ON (II).

Does the blower motor run at high speed?

YES—Go to step 10.

NO—Repair open in the wire between the power transistor and blower motor.■

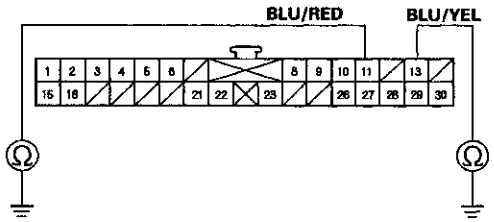
10. Turn the ignition switch to LOCK (0).

11. Disconnect the jumper wire.

12. Disconnect the heater control panel 30P connector.

13. Check for continuity between the No. 11 and No. 13 terminals of the heater control panel 30P connector and body ground individually.

HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

Is there continuity?

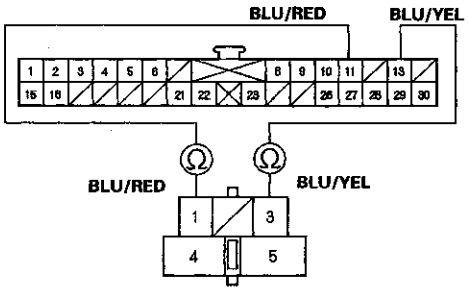
YES—Repair short to body ground in the wire(s) between the heater control panel and the power transistor.■

NO—Go to step 14.

14. Check for continuity between the following terminals of the heater control panel 30P connector and the power transistor 5P connector.

30P:	5P:
No. 11	No. 1
No. 13	No. 3

HEATER CONTROL PANEL 30P CONNECTOR
Wire side of female terminals



POWER TRANSISTOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire(s) between the heater control panel and the power transistor.■

15. Reconnect the heater control panel 30P connector.

16. Test the power transistor (see page 21-19).

Is the power transistor OK?

YES—Check for loose wires or poor connections at the heater control panel 30P connector, blower motor 2P connector and at the power transistor 5P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

NO—Replace the power transistor. ■

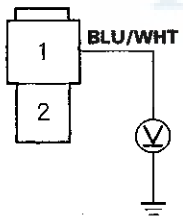
17. Turn the ignition switch to LOCK (0).

18. Disconnect the jumper wire.

19. Disconnect the blower motor 2P connector.

20. Measure the voltage between the No. 1 terminal of the blower motor 2P connector and body ground.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Replace the blower motor. ■

NO—Go to step 21.

21. Turn the ignition switch to LOCK (0).

22. Remove the blower motor relay from the main under-hood fuse/relay box, and test it (see page 22-48).

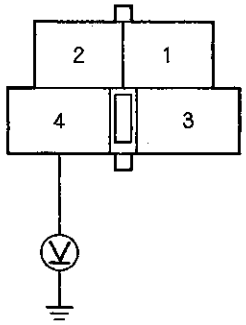
Is the relay OK?

YES—Go to step 23.

NO—Replace the blower motor relay. ■

23. Measure the voltage between the No. 4 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

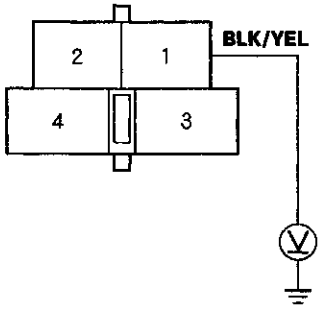
YES—Go to step 24.

NO—Replace the main under-hood fuse/relay box. ■

24. Turn the ignition switch to ON (II).

25. Measure the voltage between the No. 1 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

YES—Go to step 26.

NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the blower motor relay. ■

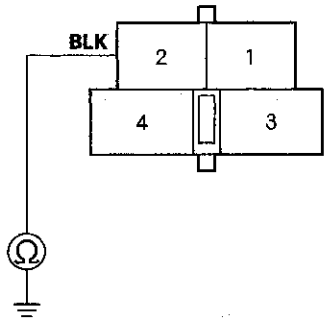
(cont'd)

DTC Troubleshooting (cont'd)

26. Turn the ignition switch to LOCK (0).

27. Check for continuity between the No. 2 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there continuity?

YES—Repair open in the BLU/WHT wire between the blower motor relay and the blower motor.■

NO—Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G201.■

Recirculation Control Motor Circuit Troubleshooting

1. Check the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

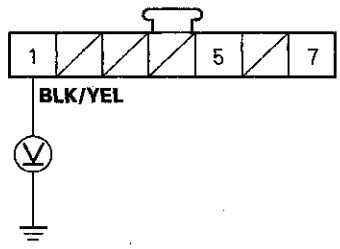
   NO—Replace the fuse, and recheck.■

2. Disconnect the recirculation control motor 7P connector.

3. Turn the ignition switch to ON (II).

4. Measure the voltage between the No. 1 terminal of the recirculation control motor 7P connector and body ground.

RECIRCULATION CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the recirculation control motor.■

5. Turn the ignition switch to LOCK (0).

6. Test the recirculation control motor (see page 21-22).

   Is the recirculation control motor OK?

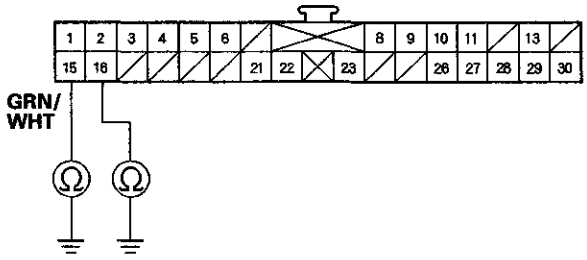
   YES—Go to step 7.

   NO—Go to step 11.

7. Disconnect the heater control panel 30P connector.

8. Check for continuity between the No. 15 and No. 16 terminals of the heater control panel 30P connector and body ground individually.

HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

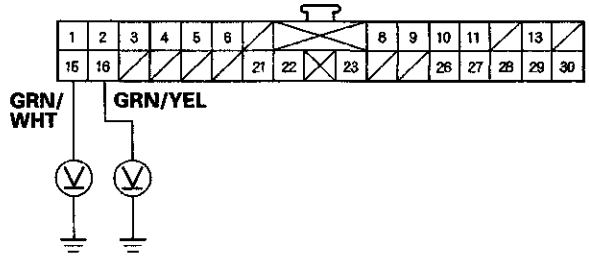
Is there continuity?

YES—Repair short to body ground in the wire(s) between the heater control panel and the recirculation control motor. ■

NO—Go to step 9.

9. Turn the ignition switch to ON (II), and measure the same terminals for voltage.

HEATER CONTROL PANEL 30P CONNECTOR



Wire side of female terminals

Is there any voltage?

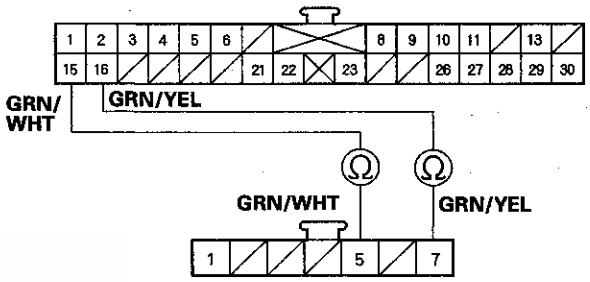
YES—Repair short to power in the wire(s) between the heater control panel and the recirculation control motor. This short may also damage the heater control panel. Repair the short to power before replacing the heater control panel. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0), and check for continuity between the following terminals of the heater control panel 30P connector and the recirculation control motor 7P connector.

30P:	7P:
No. 15	No. 5
No. 16	No. 7

HEATER CONTROL PANEL 30P CONNECTOR
Wire side of female terminals



RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the heater control panel 30P connector and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom/indication goes away, replace the original heater control panel. ■

NO—Repair open in the wire(s) between the heater control panel and the recirculation control motor. ■

11. Remove the recirculation control motor (see page 21-22).

12. Check the recirculation control linkage and doors for smooth movement.

Do the recirculation control linkage and doors move smoothly?

YES—Replace the recirculation control motor. ■

NO—Repair the recirculation control linkage or doors. ■

Heater Control Power and Ground Circuit Troubleshooting

1. Check the No. 54 (30 A) fuse in the main under-hood fuse/relay box, and the No. 20 (7.5 A) and No. 25 (7.5 A) fuses in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

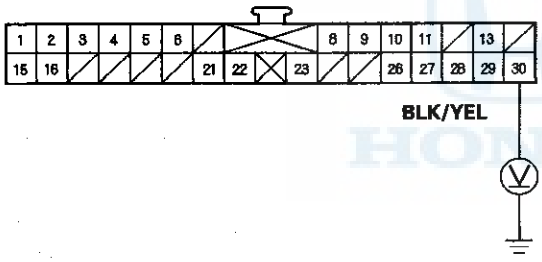
   NO—Replace the fuse(s), and recheck. ■

2. Disconnect the heater control panel 30P connector.

3. Turn the ignition switch to ON (II).

4. Measure the voltage between the No. 30 terminal of the heater control panel 30P connector and body ground.

   HEATER CONTROL PANEL 30P CONNECTOR



   Wire side of female terminals

   Is there battery voltage?

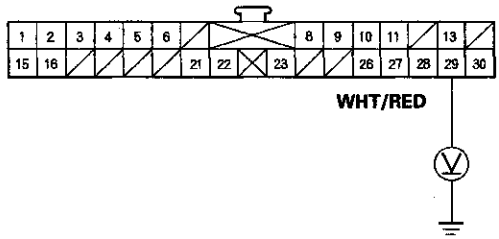
   YES—Go to step 5.

   NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the heater control panel. ■

5. Turn the ignition switch to LOCK (0).

6. Measure the voltage between the No. 29 terminal of the heater control panel 30P connector and body ground.

   HEATER CONTROL PANEL 30P CONNECTOR



   Wire side of female terminals

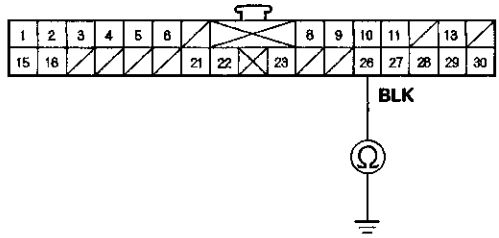
   Is there battery voltage?

   YES—Go to step 7.

   NO—Repair open in the wire between the No. 25 (7.5 A) fuse in the under-dash fuse/relay box and the heater control panel. ■

7. Check for continuity between the No. 26 terminal of the heater control panel 30P connector and body ground.

   HEATER CONTROL PANEL 30P CONNECTOR



   Wire side of female terminals

   Is there continuity?

   YES—Check for loose wires or poor connections at the heater control panel 30P connector. If the connections are good, substitute a known-good heater control panel, and recheck. If the symptom indication goes away, replace the original heater control panel. ■

   NO—Check for an open in the wire between the heater control panel and body ground. If the wire is OK, check for poor ground at G402. ■

Power Transistor Test

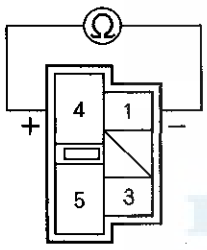
1. Disconnect the 5P connector from the power transistor.

2. Measure the resistance between the No. 1 and No. 4 terminals of the power transistor. It should be about 1.4—1.5 kΩ.

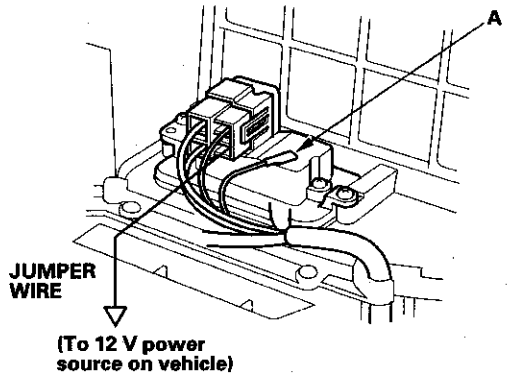
   NOTE: Also check the blower motor. Power transistor failure can be caused by a defective blower motor.

   - If the resistance is within the specifications, go to step 3.
   - If the resistance is not within the specifications, replace the power transistor.

POWER TRANSISTOR



3. Carefully release the lock tab on the No. 3 terminal (BLU/YEL) (A) in the 5P connector, then remove the terminal and insulate it from body ground.



4. Reconnect the 5P connector to the power transistor.

5. Supply 12 V to the No. 3 cavity with a jumper wire.

6. Turn the ignition switch to ON (II), and check that the blower motor runs.

   - If the blower motor does not run, replace the power transistor.

     NOTE: A faulty blower motor can cause the power transistor to fail. If the power transistor is replaced, also check the blower motor for binding, and replace it if necessary.

   - If the blower motor runs, the power transistor is OK.

Air Mix Control Motor Test

1. Disconnect the 7P connector from the air mix control motor.

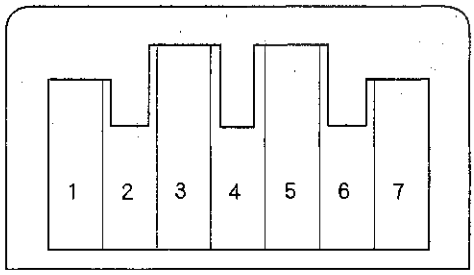
   NOTICE
   Incorrectly applying power and ground to the air mix control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the air mix control motor, and ground the No. 2 terminal; the air mix control motor should run, and stop at Max Hot. If it doesn't, reverse the connections; the air mix control motor should run, and stop at Max Cool.

3. If the air mix control motor does not run in step 2, remove it, then check the air mix control linkage and doors for smooth movement.

   - If the linkage and doors move smoothly, replace the air mix control motor.
   - If the linkage or doors stick or bind, repair them as needed.
   - If the air mix control motor runs smoothly, go to step 4.

AIR MIX CONTROL MOTOR



4. Measure the resistance between the No. 5 and No. 7 terminals. It should be between 4.2 to 7.8 kΩ.

5. Reconnect the air mix control motor 7P connector, then turn the ignition switch to ON (II).

6. Using the backprobe set, measure the voltage between the No. 3 and No. 7 terminals.

   Max Cool: about 1 V
   Max Hot: about 4 V

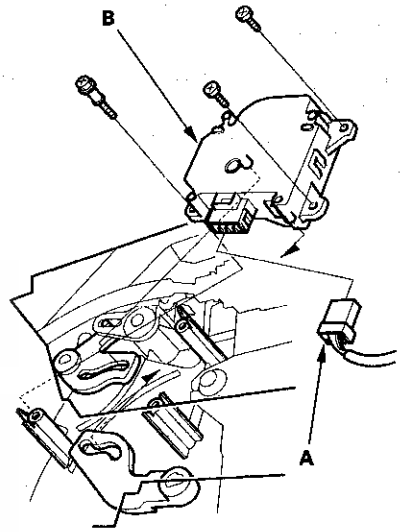
7. If either the resistance or voltage reading are not as specified, replace the air mix control motor.

Air Mix Control Motor Replacement

1. Remove the audio unit (see page 22-288).

2. Remove the passenger's dashboard lower cover (see page 20-86).

3. Disconnect the 7P connector (A) from the air mix control motor (B). Remove the self-tapping screws and the air mix control motor from the heater unit.



4. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

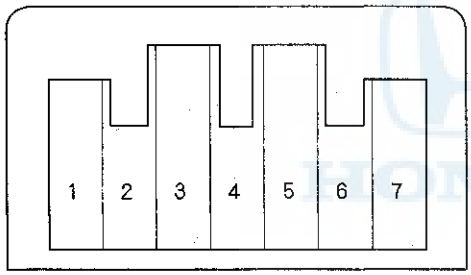
Mode Control Motor Test

1. Disconnect the 7P connector from the mode control motor.

NOTICE
Incorrectly applying power and ground to the mode control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the mode control motor, and ground the No. 2 terminal; the mode control motor should run smoothly, and stop at Vent. If it doesn't, reverse the connections; the mode control motor should run smoothly, and stop at Defrost. When the mode control motor stops running, disconnect battery power immediately.

MODE CONTROL MOTOR



3. If the mode control motor does not run in step 2, remove it, then check the mode control linkage and doors for smooth movement.

   - If the linkage and doors move smoothly, replace the mode control motor.
   - If the linkage or doors stick or bind, repair them as needed.
   - If the mode control motor runs smoothly, go to step 4.

4. Use a digital multimeter with an output of 1 mA or less at the 20 kΩ range. With the mode control motor running as in step 2, check for continuity between the No. 7 terminal and the No. 3, 4, 5, and 6 terminals individually. There should be continuity for a moment at each terminal as the motor moves past each switch terminal.

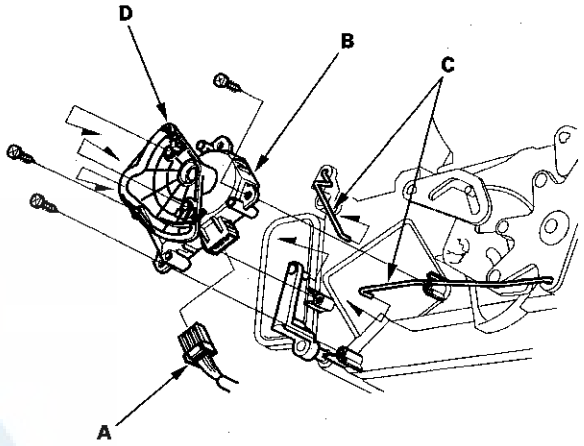
5. If there is no continuity for a moment at each terminal, replace the mode control motor.

Mode Control Motor Replacement

1. Set the mode control dial on DEF with the ignition switch to ON (II).

2. Remove the driver's heater outlet.

3. Disconnect the 7P connector (A) from the mode control motor (B). Remove the rods (C) from the mode control linkage (D). Remove the self-tapping screws and the mode control motor from the heater unit.



4. Install the motor in the reverse order of removal. Make sure the pin on the linkage is properly engaged with the motor. After installation, make sure the motor runs smoothly.

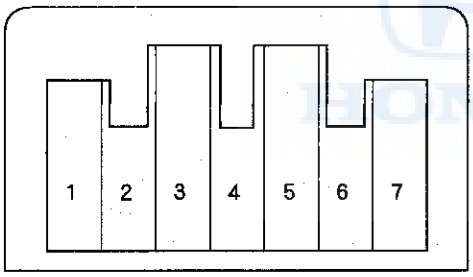
Recirculation Control Motor Test

1. Disconnect the 7P connector from the recirculation control motor.

   NOTICE
   Incorrectly applying power and ground to the recirculation control motor will damage it. Follow the instructions carefully.

2. Connect battery power to the No. 1 terminal of the recirculation control motor, and ground the No. 5 and No. 7 terminals; the recirculation control motor should run smoothly. To avoid damaging the recirculation control motor, do not reverse power and ground. Disconnect the No. 5 or No. 7 terminals from ground; the recirculation control motor should stop at Fresh (when the No. 7 terminal is disconnected) or Recirculate (when the No. 5 terminal is disconnected). Don't cycle the recirculation control motor for a long time.

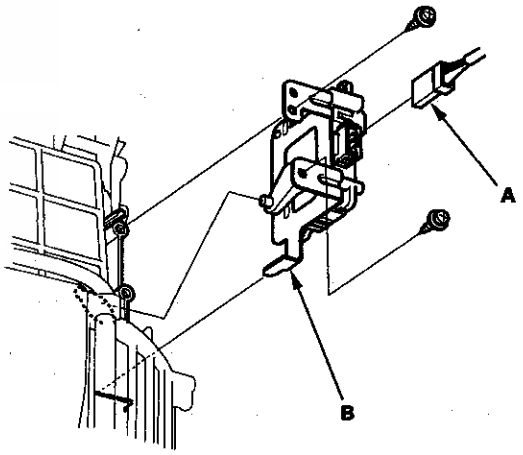
RECIRCULATION CONTROL MOTOR



3. If the recirculation control motor does not run in step 2, remove it, then check the recirculation control linkage and doors for smooth movement.
   - If the linkage and doors move smoothly, replace the recirculation control motor.
   - If the linkage or doors stick or bind, repair them as needed.

Recirculation Control Motor Replacement

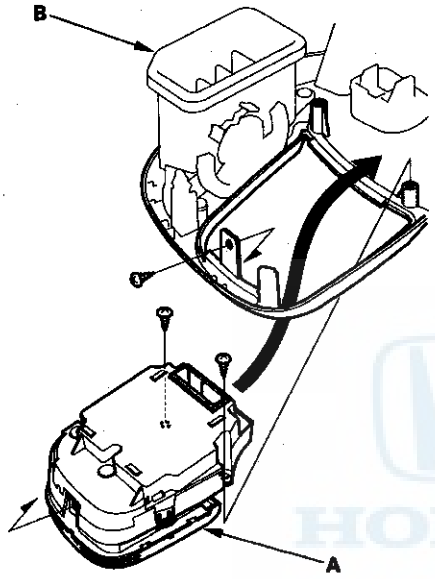
1. Remove the passenger's dashboard lower cover (see page 20-86).
2. Remove the passenger's airbag (see page 23-166).
3. Remove the convertible top control unit (see page 22-242).
4. Disconnect the dashboard wire harness B connectors C201, C202, C203, and C451 (see page 22-24).
5. Disconnect the 7P connector (A) from the recirculation control motor (B). Remove the self-tapping screws and the recirculation control motor from the blower unit.



6. Install the motor in the reverse order of removal. Make sure the pin on the motor is properly engaged with the linkage. After installation, make sure the motor runs smoothly.

Heater Control Panel Removal/ Installation

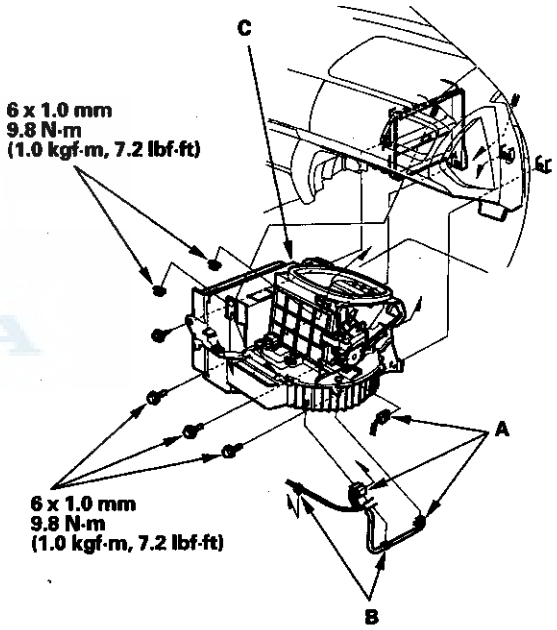
1. Remove the instrument panel together with the heater control panel (see page 20-84).
2. Remove the self-tapping screws and the heater control panel (A) from the instrument panel (B).



3. Install the control panel in the reverse order of removal. After installation, operate the control panel controls to see whether it works properly.
4. Run the self-diagnostic function to confirm that there are no problems in the system (see page 21-5).

Blower Unit Removal/Installation

1. Remove the passenger's dashboard lower cover and the right kick panel (see page 20-86).
2. Disconnect the dashboard wire harness connector from the passenger's door wire harness connector, then remove it. Remove the wire harness connectors and the convertible top control unit from the steering hanger beam.
3. Disconnect the connectors (A) from the blower motor, the power transistor and the recirculation control motor, then remove the wire harness clips (B). Remove the self-tapping screw, the mounting bolts, the mounting nuts and the blower unit (C).

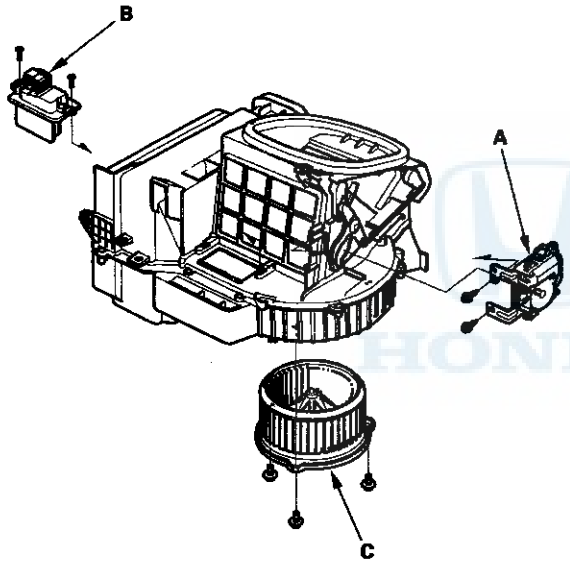


4. Install in the reverse order of removal. Make sure that there is no air leakage.

Blower Unit Component Replacement

Note these items when overhauling the blower unit:

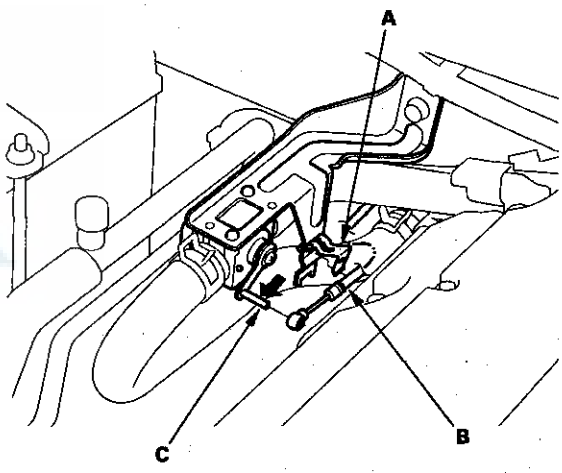
- The recirculation control motor (A), the power transistor (B) and the blower motor (C) can be replaced without removing the blower unit.
- Before reassembly, make sure that the recirculation control doors and linkage move smoothly without binding.
- After reassembly, make sure the recirculation control motor runs smoothly (see page 21-22).
- Make sure that there is no air leakage.



Heater Unit/Core Replacement

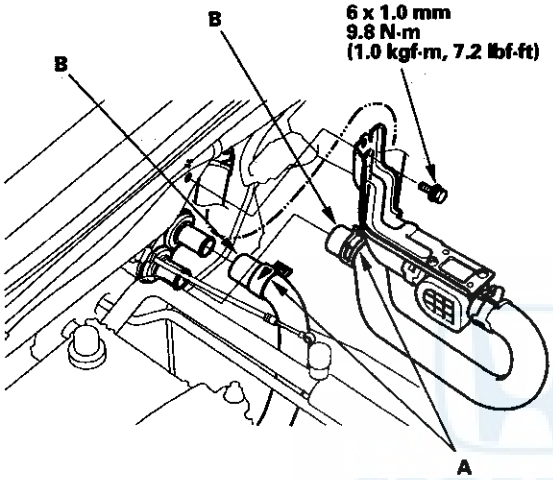
SRS components are located in this area. Review the SRS component locations: '00-05 models (see page 23-11), '06-08 models (see page 23-12) and the precautions and procedures (see page 23-13) before doing repairs or service.

1. Make sure you have the anti-theft code for the audio system, then write down the audio preset.
2. Disconnect the negative cable from the battery.
3. Remove the heat shield of the exhaust manifold.
4. From under the hood, open the cable clamp (A), then disconnect the heater valve cable (B) from the heater valve arm (C). Turn the heater valve arm to the fully opened position as shown.

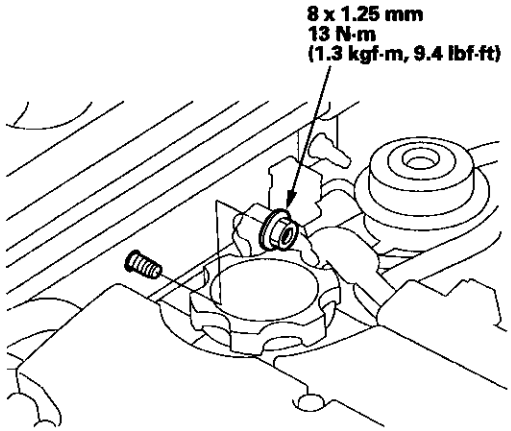


5. When the engine is cool, drain the engine coolant from the radiator (see page 10-9).

6. Remove the mounting bolt from the heater valve. Slide the clamps (A) back, then disconnect the inlet and outlet heater hoses (B) from the heater unit. Engine coolant will run out when the hoses are disconnected; drain it into a clan drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.



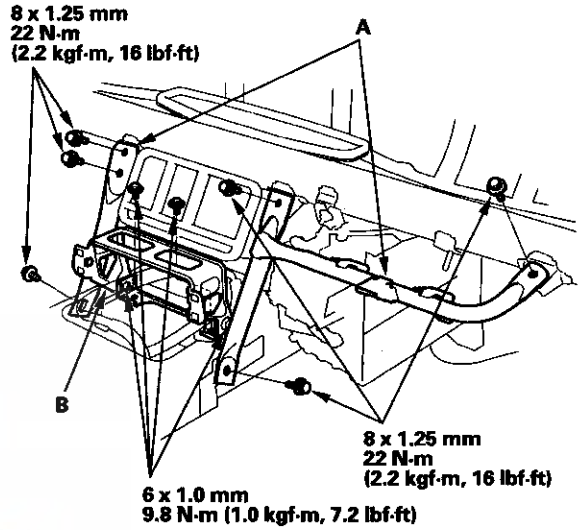
7. Remove the mounting nut from the heater unit. Take care not to damage or bend the fuel and brake lines, etc..



8. Remove the dashboard (see page 20-87).

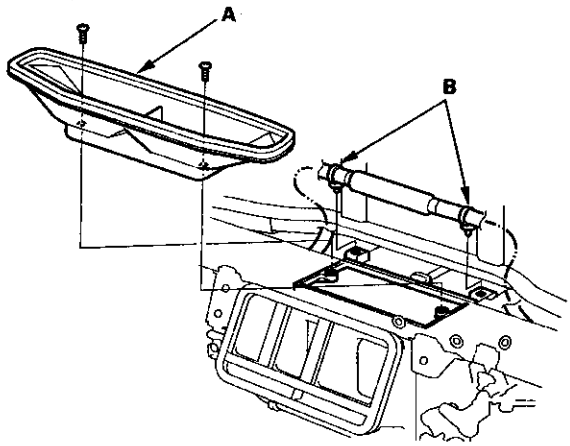
9. Remove the blower unit (see page 21-23).

10. Remove the mounting bolts, the center brackets (A) and the audio brackets (B).



11. Remove the SRS unit (see page 23-179).

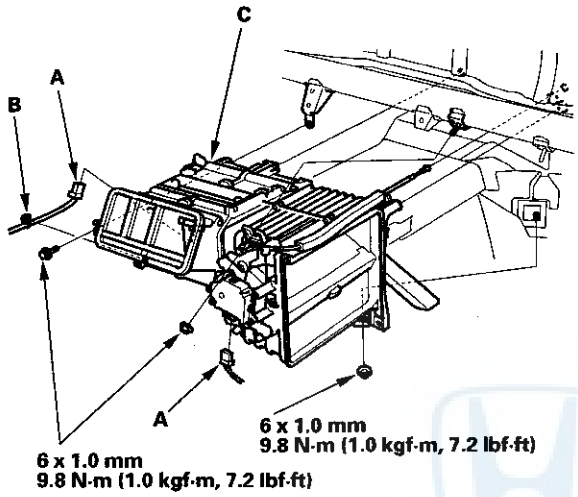
12. Remove the self-tapping screws and the defroster outlet (A), then remove the wire harness clips (B).



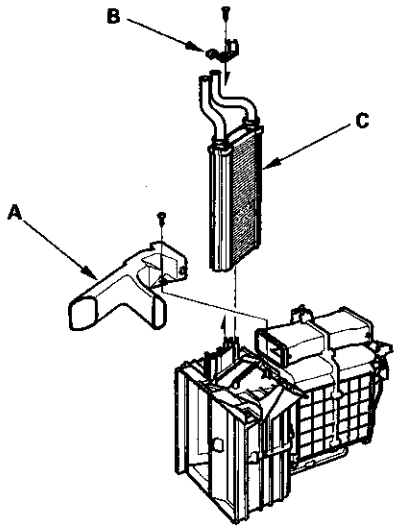
(cont'd)

Heater Unit/Core Replacement (cont'd)

13. Disconnect the connectors (A) from the mode control motor and the air mix control motor, then remove the wire harness clip (B). Remove the mounting nuts, the mounting bolt and the heater unit (C).



14. Remove the self-tapping screw and the passenger's heater outlet (A), then remove the self-tapping screw and the clamp (B). Be careful not to bend the inlet and outlet pipes during the heater core (C) removal, and pull out the heater core.



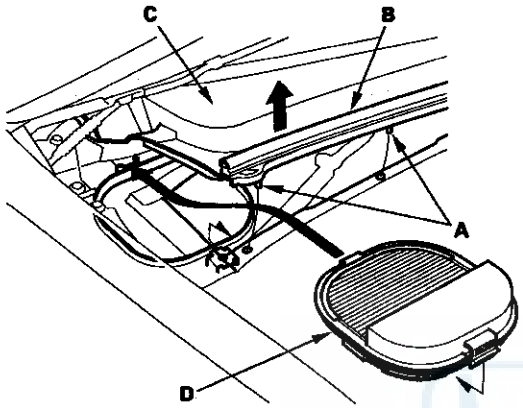
15. Install the heater core in the reverse order of removal.

16. Install the heater unit in the reverse order of removal, and note these items:

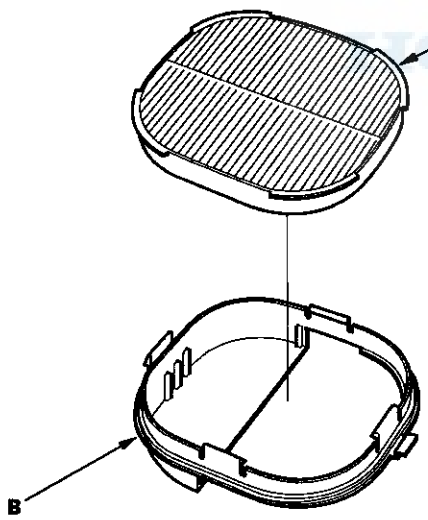
- Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
- Refill the cooling system with engine coolant (see page 10-9).
- Adjust the heater valve cable (see page 21-27).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.
- Enter the anti-theft code for the audio system, then enter the audio presets.

Dust and Pollen Filter Replacement

1. Open the hood.
2. Remove the clips (A) and the hood seal (B). Lift the right side of the cowl cover (C) up, and remove the dust and pollen filter (D) as shown. Be careful not to damage the hood seal when removing the clips.



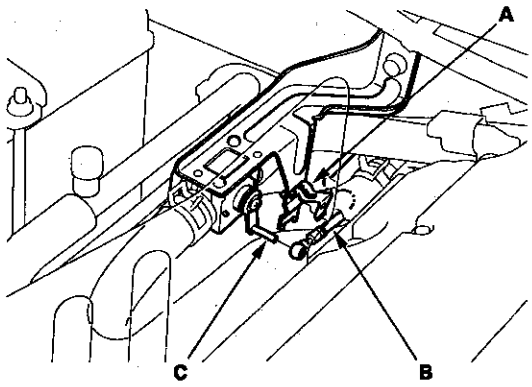
3. Remove the filter (A) from the housing (B). Replace the filter.



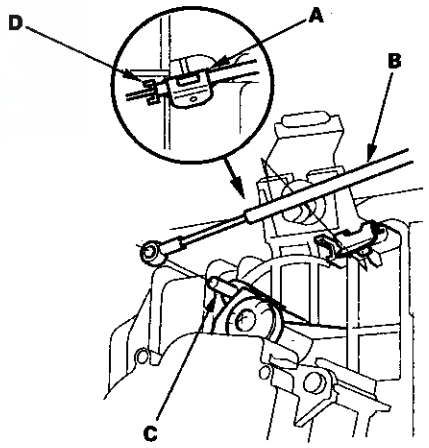
4. Install the filter in the reverse order of removal.

Heater Valve Cable Adjustment

1. From under the hood, open the cable clamp (A), then disconnect the heater valve cable (B) from the heater valve arm (C).



2. From under the dash, disconnect the heater valve cable housing from the cable clamp (A), and disconnect the heater valve cable (B) from the air mix control linkage (C).

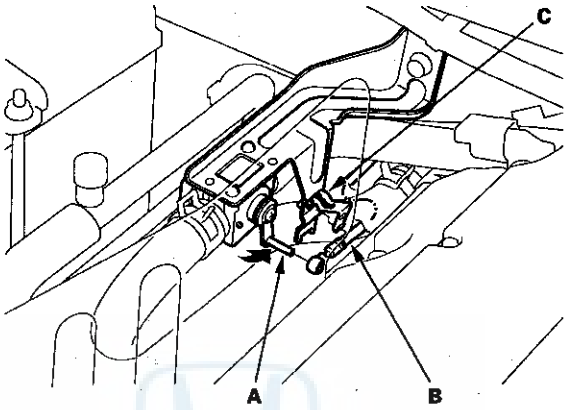


3. With the heater valve cable detached at both ends, make sure the cable moves freely with no binding. Replace the heater valve cable if it does not move freely.
4. Set the temperature control dial on Max Cool with the ignition switch to ON (II).
5. Attach the heater valve cable to the air mix control linkage as shown. Hold the end of the heater valve cable housing against the stop (D), then snap the heater valve cable housing into the cable clamp.

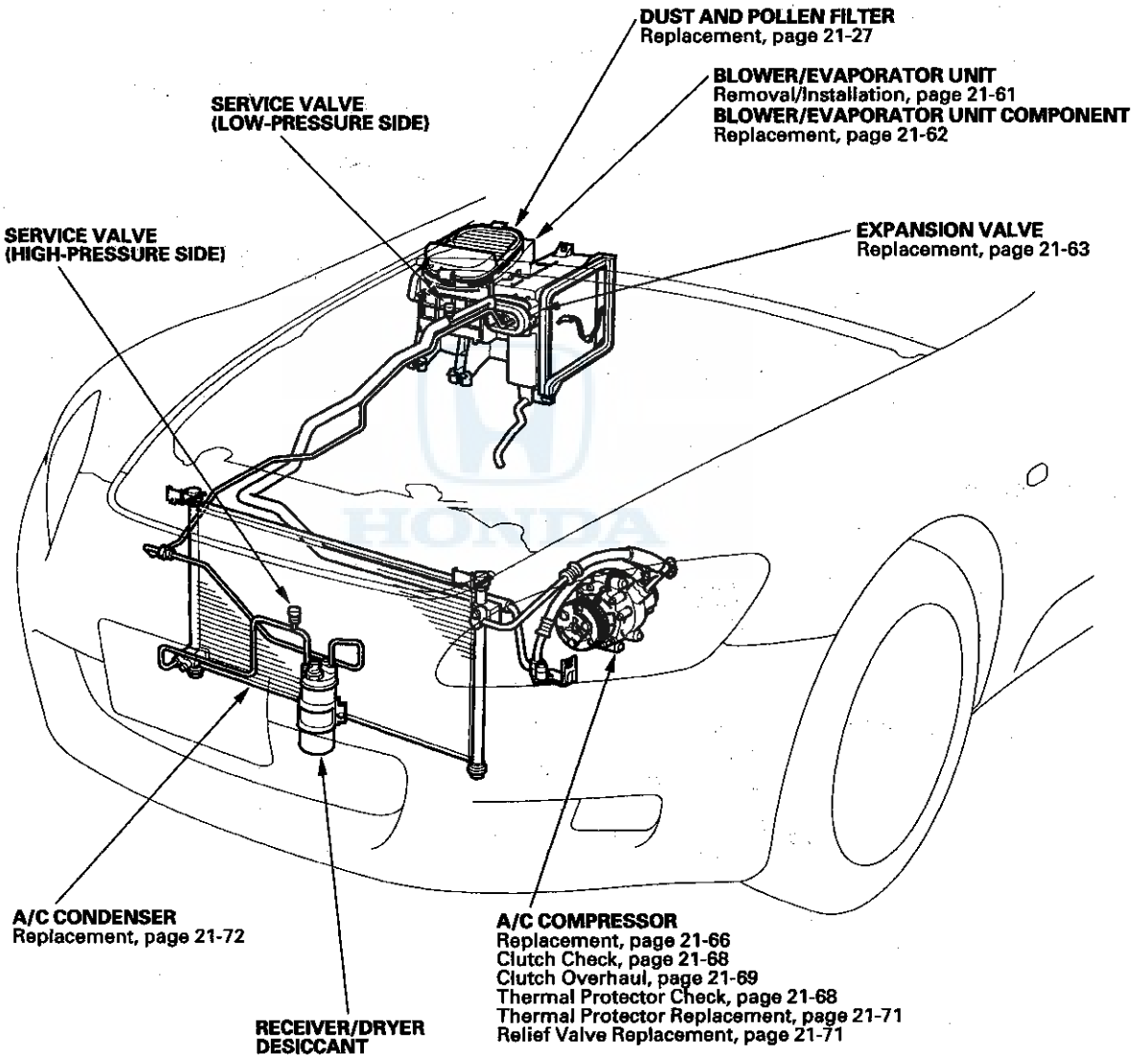
(cont'd)

Heater Valve Cable Adjustment (cont'd)

6. From under the hood, turn the heater valve arm (A) to the fully closed position as shown, and hold it. Attach the heater valve cable (B) to the heater valve arm, and gently pull on the heater valve cable housing to take up any slack, then install the heater valve cable housing into the cable clamp (C).



Component Location Index



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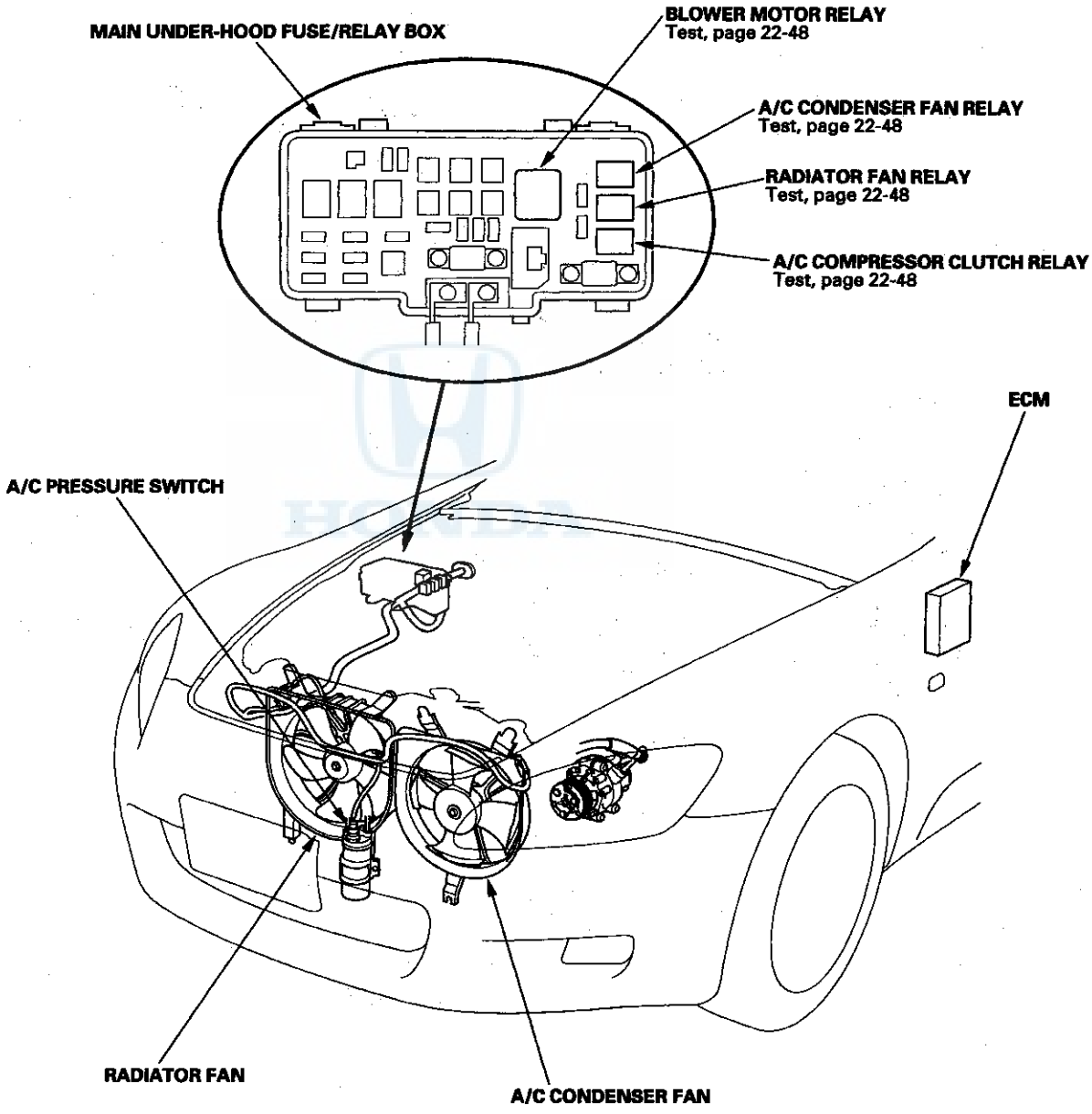
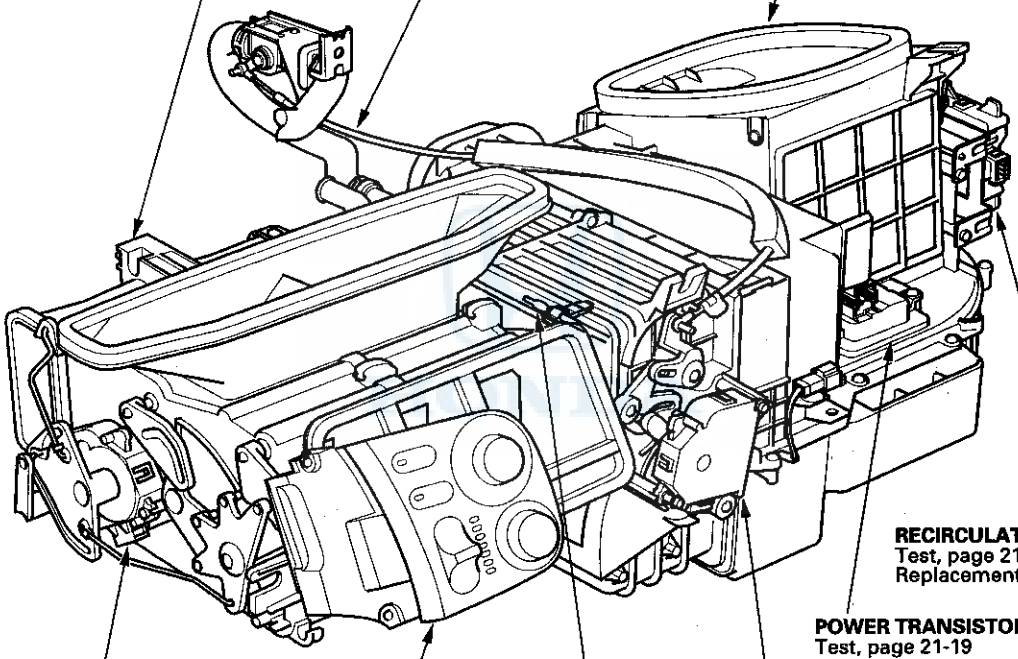
Component Location Index (cont'd)





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HEATER VALVE CABLE
Adjustment, page 21-27

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BLOWER/EVAPORATOR UNIT COMPONENT
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RECIRCULATION CONTROL MOTOR
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POWER TRANSISTOR
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AIR MIX CONTROL MOTOR
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EVAPORATOR TEMPERATURE SENSOR
Test, page 21-60

HVAC CONTROL UNIT
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MODE CONTROL MOTOR
Test, page 21-21
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A/C Service Tips and Precautions

⚠WARNING

- Compressed air mixed with R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The air conditioning system uses HFC-134a (R-134a) refrigerant and polyalkyleneglycol (PAG) refrigerant oil, which are not compatible with CFC-12 (R-12) refrigerant and mineral oil. Do not use R-12 refrigerant or mineral oil in this system, and do not attempt to use R-12 servicing equipment; damage to the air conditioning system or your servicing equipment will result.
Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove R-134a from the air conditioning system.

If accidental system discharge occurs, ventilate the work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

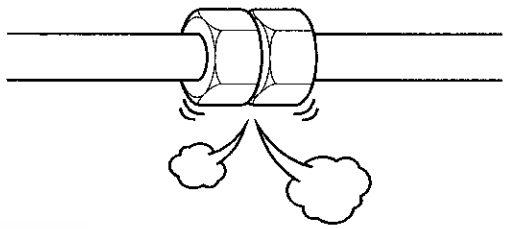
Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

- Always disconnect the negative cable from the battery whenever replacing air conditioning parts.
- Keep moisture and dirt out of the system. When disconnecting any lines, plug or cap the fittings immediately; don't remove the caps or plugs until just before you reconnect each line.
- Before connecting any hose or line, apply a few drops of refrigerant oil to the O-ring.
- When tightening or loosening a fitting, use a second wrench to support the matching fitting.
- When discharging the system, use an R-134a refrigerant recovery/recycling/charging station; don't release refrigerant into the atmosphere.

A/C System Inspection

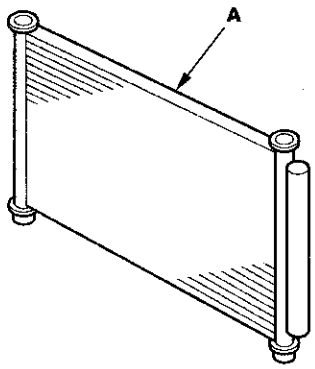
Before troubleshooting any problem with the air conditioning system, do the following:

1. With the ignition switch in the LOCK (0), inspect the A/C components, pressure lines and hoses for stains that may indicate a refrigerant or a compressor oil leak.



2. Check the A/C condenser for material clogging the fins or for damage to the fins:

   - Carefully clean any material from the A/C condenser (A) fins with water and detergent.
   - Be sure to dry the A/C condenser completely.

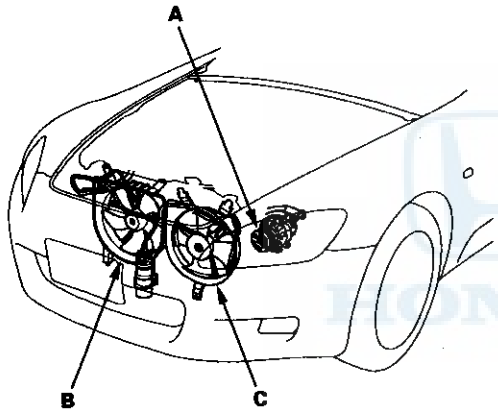


3. Inspect the drive belt (see page 4-42).

4. Make sure no material is blocking the air flow to the A/C condenser.

5. Start the engine, turn the air conditioning system on, and allow it to normalize for a few minutes:

   - Check that the A/C operates at each position of the blower fan switch (except OFF).
   - Check that the A/C compressor clutch (A) is engaged. The pressure plate should be rotating at the same speed as the pulley.
   - Check that the radiator fan (B) and A/C condenser fan (C) operate when the A/C compressor clutch is engaged.
   - Check that the engine idle speed is correctly maintained when the A/C is switched on and off and the A/C compressor clutch is engaged and disengaged.



A/C Refrigerant Oil Replacement

Recommended PAG oil: SP-10:

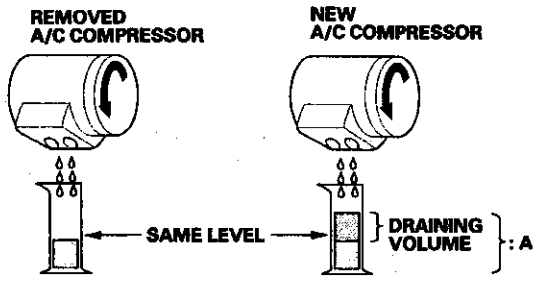
- P/N 38897-P13-A01AH: 120 mL (4 fl·oz)
- P/N 38899-P13-A01: 40 mL (1 1/3 fl·oz)

Add the recommended refrigerant oil in the amount listed if you replace any of the following parts.

- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.

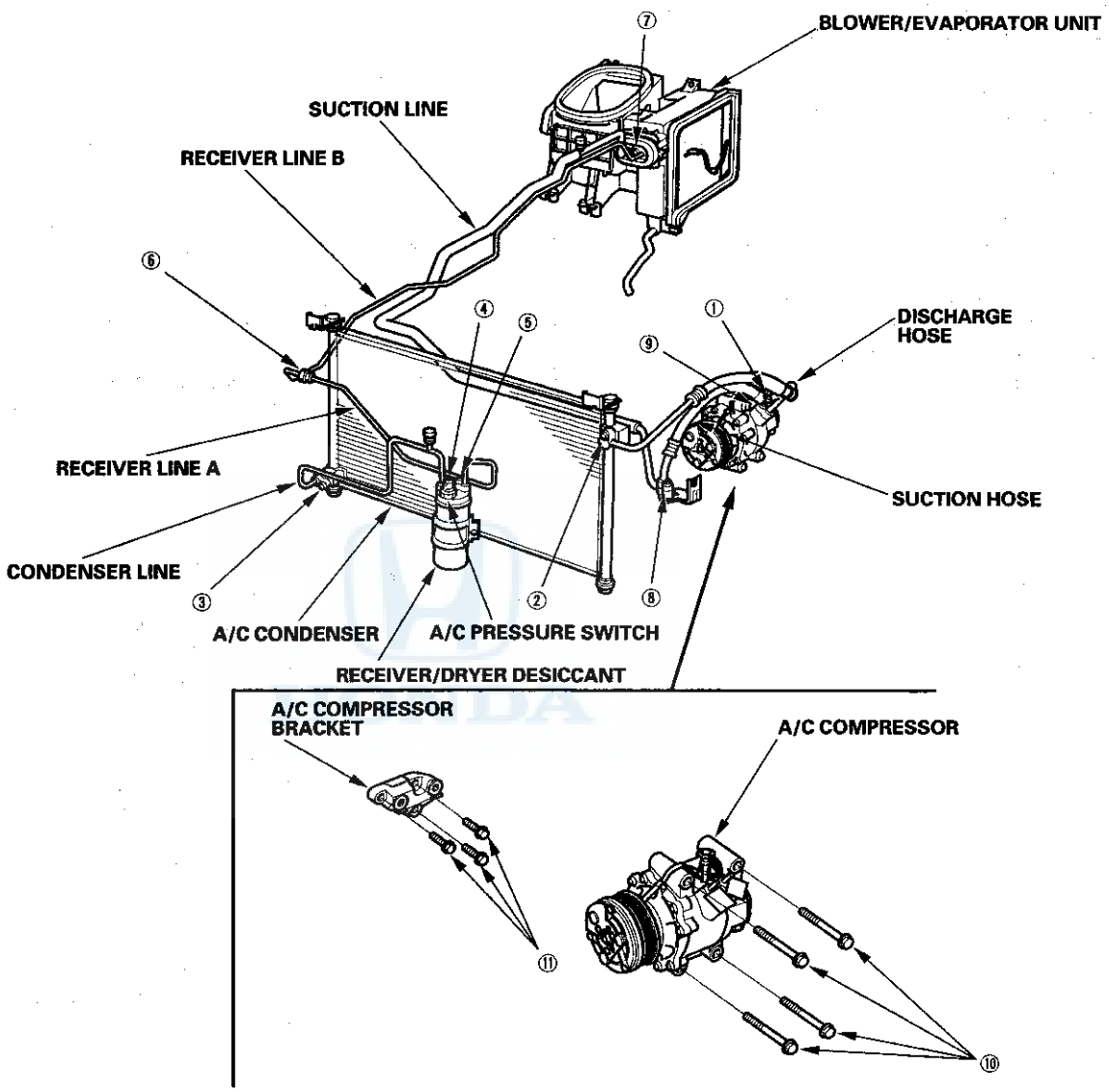
A/C Condenser ..... 25 mL (5/6 fl·oz)
Evaporator ..... 40 mL (1 1/3 fl·oz)
Line or hose ..... 10 mL (1/3 fl·oz)
Receiver/Dryer ..... 10 mL (1/3 fl·oz)
Leakage repair ..... 25 mL (5/6 fl·oz)
A/C Compressor ..... For A/C compressor replacement, subtract the volume of oil drained from the removed A/C compressor from 130 mL (4 1/3 fl·oz), and drain the calculated volume of oil from the new A/C compressor: 130 mL (4 1/3 fl·oz) — Volume of removed A/C compressor = Volume to drain from new A/C compressor.

NOTE: Even if no oil is drained from the removed A/C compressor, don't drain more than 50 mL (1 2/3 fl·oz) from the new A/C compressor.



A: 130 mL (4 1/3 fl·oz)

A/C Line Replacement



① Discharge hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
② Discharge hose to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
③ A/C condenser line to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
④ A/C condenser line to the receiver/dryer (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑤ Receiver line A to the receiver/dryer (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑥ Receiver line A to receiver line B: 1.3 N·m (1.3 kgf·m, 9.4 lbf·ft)
⑦ Receiver line B and the suction line to the evaporator (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑧ Suction hose to the suction line (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑨ Suction hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
⑩ A/C compressor to the A/C compressor bracket (10 x 1.25 mm): 44 N·m (4.5 kgf·m, 33 lbf·ft)
⑪ A/C compressor bracket to the engine block (8 x 1.25 mm): 22 N·m (2.2 kgf·m, 16 lbf·ft)

General Troubleshooting Information

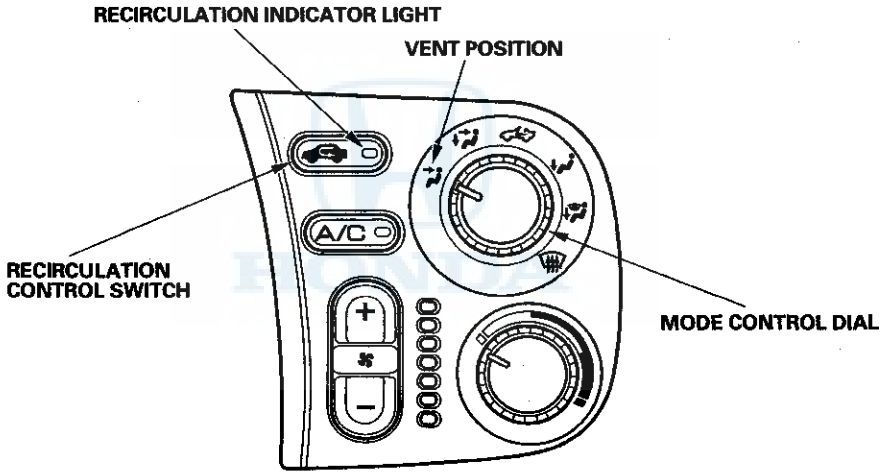
How to Retrieve a DTC

The HVAC control unit has a self-diagnostic function. To run the self-diagnostic function, do the following:

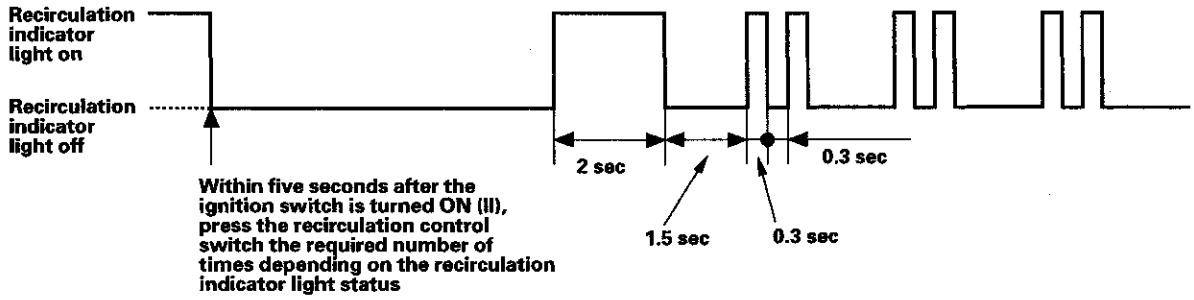
1. Set the mode control dial on the Vent position.
2. Turn the ignition switch to ON (II).
3. Within 5 seconds after turning the ignition switch on, press the recirculation control switch the required number of times depending on the recirculation indicator status:

   - If the indicator is ON, press the recirculation control switch 5 times.
   - If the indicator is OFF, press the recirculation control switch 6 times.

   The recirculation indicator will come on for 2 seconds, then blink the Diagnostic Trouble Code (DTC) to indicate a faulty component. If no DTCs are found, the indicator will not blink after the initial 2 seconds light.



Example of DTC Indication Pattern (DTC 2)



Canceling the Self-diagnostic Function

4. Turn the ignition switch to LOCK (0) to cancel the self-diagnostic function. After completing repair work, run the self-diagnostic function again to make sure that there are no other malfunctions.

DTC Troubleshooting Index

DTC (Recirculation Indicator Blinks)	Detection Item	Page
1	A problem in the air mix control motor circuit	(see page 21-42)
2	A problem in the mode control motor circuit	(see page 21-43)
3	A problem in the blower motor circuit	(see page 21-45)
4	A problem in the evaporator temperature sensor circuit	(see page 21-48)

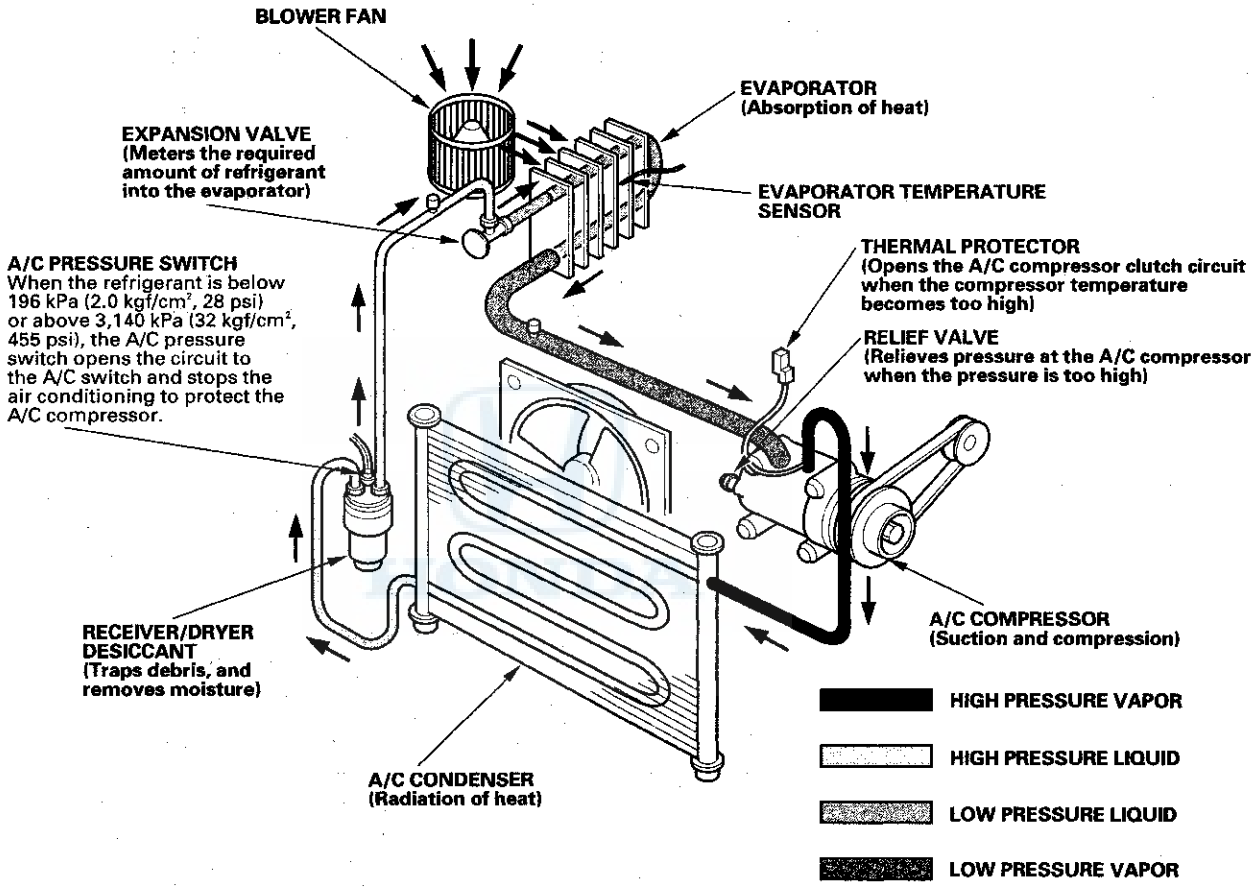
- In case of multiple problems, the recirculation indicator will indicate only the DTC with the least number of blinks.
- In case of an intermittent failure, the heater control panel will store the DTC until the ignition switch to LOCK (0).

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Recirculation control doors do not change between Fresh and Recirculate	Recirculation control motor circuit troubleshooting (see page 21-50)	• HVAC DTCs (see page 21-35) • Blown No. 20 (7.5 A) fuse in the under-dash fuse/relay box • Cleanliness and tightness of all connectors
Blower, heater controls, and A/C do not work	HVAC control power and ground circuit troubleshooting (see page 21-51)	• HVAC DTCs (see page 21-35) • Blown No. 54 (30 A) fuse in the main under-hood fuse/relay box, and No. 20 (7.5 A) and No. 25 (7.5 A) fuses in the under-dash fuse/relay box • Poor ground at G402 • Cleanliness and tightness of all connectors
The A/C condenser fan does not run at all (but radiator fan runs with the A/C on)	A/C condenser fan circuit troubleshooting (see page 21-53)	• HVAC DTCs (see page 21-35) • Blown No. 58 (20 A) fuse in the main under-hood fuse/relay box, and No. 20 (7.5 A) fuse in the under-dash fuse/relay box • Poor ground at G201 • Cleanliness and tightness of all connectors
Both fans do not run with the A/C on (but the A/C compressor runs with the A/C on)	Radiator and A/C condenser fan common circuit troubleshooting (see page 21-54)	• HVAC DTCs (see page 21-35) • Blown No. 57 (20 A) and No. 58 (20 A) fuses in the main under-hood fuse/relay box, and No. 20 (7.5 A) fuse in the under-dash fuse/relay box • Poor ground at G201 • Cleanliness and tightness of all connectors
The A/C compressor clutch does not engage (but both fans run with the A/C on)	A/C compressor clutch circuit troubleshooting (see page 21-55)	• HVAC DTCs (see page 21-35) • Blown No. 58 (20 A) fuse in the main under-hood fuse/relay box, and No. 20 (7.5 A) fuse in the under-dash fuse/relay box • Cleanliness and tightness of all connectors
A/C system does not come on (both fans and the A/C compressor do not work); heater is OK	A/C pressure switch circuit troubleshooting (see page 21-58)	• HVAC DTCs (see page 21-35) • Cleanliness and tightness of all connectors

System Description

The air conditioning system removes heat from the passenger compartment by transferring heat from the ambient air to the evaporator. The evaporator cools the air with the refrigerant that is circulating through the evaporator. The refrigerant expands in the evaporator, and the evaporator becomes very cold and absorbs the heat from the ambient air. The blower fan pushes air across the evaporator where the heat is absorbed, and then it blows the cool air into the passenger compartment.

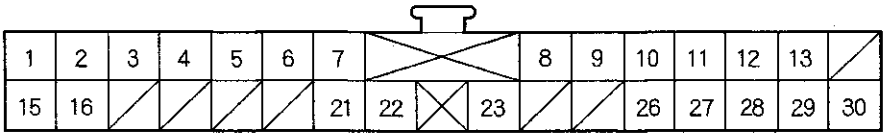


This vehicle uses HFC-134a (R-134a) refrigerant which does not contain chlorofluorocarbons. Pay attention to the following service items:

- Do not mix refrigerants CFC-12 (R-12) and HFC-134a (R-134a). They are not compatible.
- Use only the recommended polyalkyleneglycol (PAG) refrigerant oil (SP-10) designed for the R-134a A/C compressor. Intermixing the recommended (PAG) refrigerant oil with any other refrigerant oil will result in A/C compressor failure.
- All A/C system parts (A/C compressor, discharge line, suction line, evaporator, A/C condenser, receiver/dryer, expansion valve, O-rings for joints) are designed for refrigerant R-134a. Do not exchange with R-12 parts.
- Use a halogen gas leak detector designed for refrigerant R-134a.
- R-12 and R-134a refrigerant servicing equipment are not interchangeable. Use only a recovery/recycling/charging station that is U.L.-listed and is certified to meet the requirements of SAE J2210 to service R-134a air conditioning systems.
- Always recover refrigerant R-134a with an approved recovery/recycling/charging station before disconnecting any A/C fitting.

HVAC Control Unit Inputs and Outputs

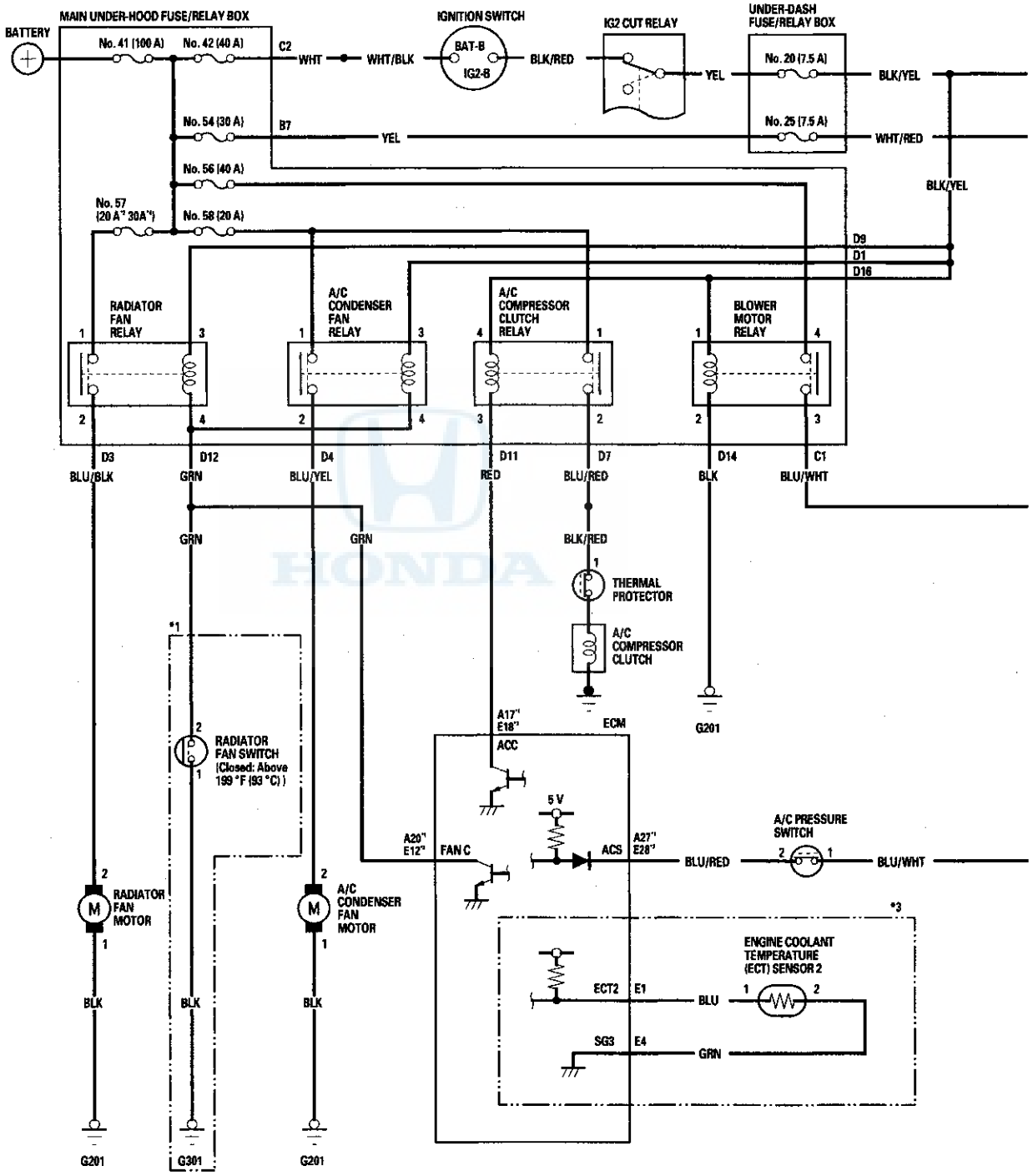
HVAC CONTROL UNIT 30P CONNECTOR

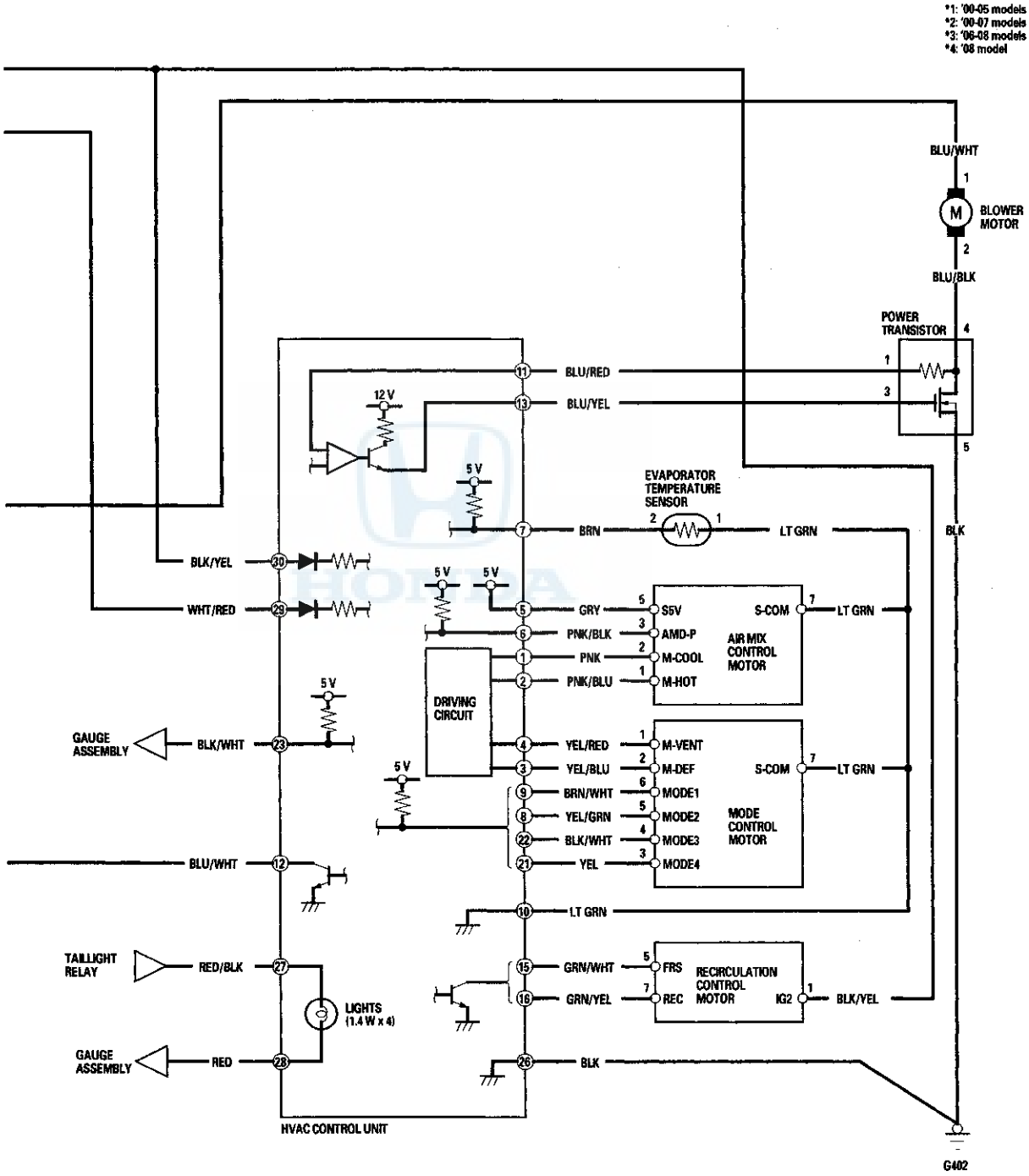


Wire side of female terminals

Cavity	Wire color	Signal	
1	PNK	AIR MIX COOL	OUTPUT
2	PNK/BLU	AIR MIX HOT	OUTPUT
3	YEL/BLU	MODE DEF	OUTPUT
4	YEL/RED	MODE VENT	OUTPUT
5	GRY	AIR MIX POTENTIAL +5 V	OUTPUT
6	PNK/BLK	AIR MIX POTENTIAL	INPUT
7	BRN	EVAPORATOR TEMPERATURE SENSOR	INPUT
8	YEL/GRN	MODE 2	INPUT
9	BRN/WHT	MODE 1	INPUT
10	LT GRN	SENSOR COMMON GROUND	OUTPUT
11	BLU/RED	BLOWER FEEDBACK	INPUT
12	BLU/WHT	A/C PRESSURE SWITCH	OUTPUT
13	BLU/YEL	POWER TRANSISTOR CONTROL	OUTPUT
15	GRN/WHT	FRESH	OUTPUT
16	GRN/YEL	RECIRCULATE	OUTPUT
21	YEL	MODE 4	INPUT
22	BLK/WHT	MODE 3	INPUT
23	BLK/WHT	GAUGE ASSEMBLY	OUTPUT
26	BLK	GROUND (G402)	INPUT
27	RED/BLK	TAILLIGHT RELAY	INPUT
28	RED	GAUGE ASSEMBLY	OUTPUT
29	WHT/RED	+B (Power)	INPUT
30	BLK/YEL	IG2 (Power)	INPUT

Circuit Diagram




*1: '00-05 models
*2: '00-07 models
*3: '06-08 models
*4: '08 model
BLU/WHT
BLOWER MOTOR
BLU/BLK
POWER TRANSISTOR
BLU/RED
BLU/YEL
12 V
5 V
EVAPORATOR TEMPERATURE SENSOR
BRN
LT GRN
BLK
BLK/YEL
WHT/RED
GRY
PNK/BLK
PNK
PNK/BLU
S5V
AMD-P
M-COOL
M-HOT
S-COM
AIR MIX CONTROL MOTOR
DRIVING CIRCUIT
GAUGE ASSEMBLY
BLK/WHT
YEL/RED
YEL/BLU
BRN/WHT
YEL/GRN
BLK/WHT
YEL
M-VENT
M-DEF
MODE1
MODE2
MODE3
MODE4
MODE CONTROL MOTOR
BLU/WHT
LT GRN
TAILLIGHT RELAY
RED/BLK
LIGHTS (1.4 W x 4)
GRN/WHT
GRN/YEL
FRS
REC
RECIRCULATION CONTROL MOTOR
IG2
BLK/YEL
GAUGE ASSEMBLY
RED
BLK
HVAC CONTROL UNIT
G402

DTC Troubleshooting

DTC 1: A Problem in the Air Mix Control Motor Circuit

1. Disconnect the air mix control motor 7P connector.
2. Test the air mix control motor (see page 21-20).

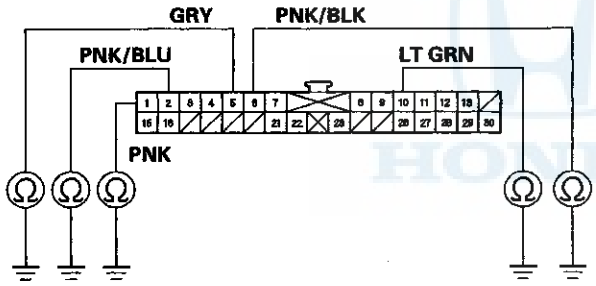
   Is the air mix control motor OK?

   YES—Go to step 3.

   NO—Go to step 7.

3. Disconnect the HVAC control unit 30P connector.
4. Check for continuity between body ground and the HVAC control unit 30P connector No. 1, 2, 5, 6, and 10 terminals individually.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

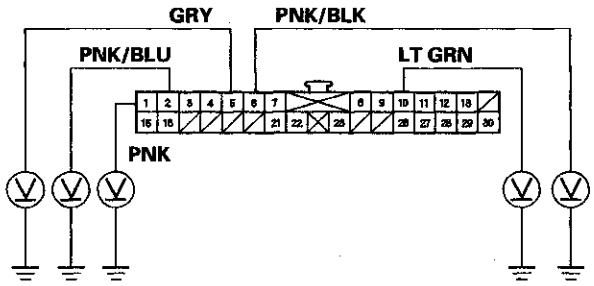
Is there continuity?

YES—Repair short to body ground in the wire(s) between the HVAC control unit and the air mix control motor.■

NO—Go to step 5.

5. Turn the ignition switch to ON (II), and measure the same terminals for voltage.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there any voltage?

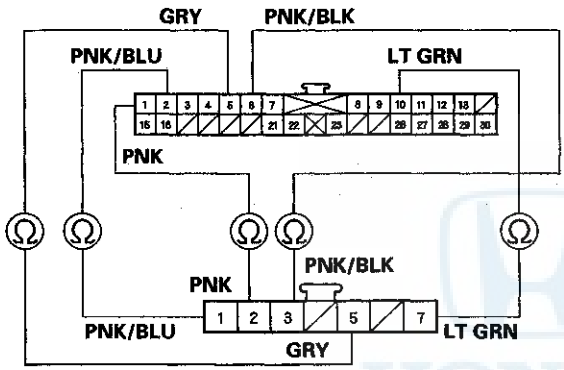
YES—Repair short to power in the wire(s) between the HVAC control unit and the air mix control motor. This short may also damage the HVAC control unit. Repair the short to power before replacing the HVAC control unit.■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0), and check for continuity between the following terminals of the HVAC control unit 30P connector and the air mix control motor 7P connector.

30P:	7P:
No. 1	No. 2
No. 2	No. 1
No. 5	No. 5
No. 6	No. 3
No. 10	No. 7

HVAC CONTROL UNIT 30P CONNECTOR
Wire side of female terminals



AIR MIX CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the HVAC control unit 30P connector and at the air mix control motor 7P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit. ■

NO—Repair open in the wire(s) between the HVAC control unit and the air mix control motor. ■

7. Remove the air mix control motor (see page 21-20).

NO—Repair the air mix control linkage or doors. ■

DTC 2: A Problem in the Mode Control Motor Circuit

1. Disconnect the mode control motor 7P connector.
2. Test the mode control motor (see page 21-21).

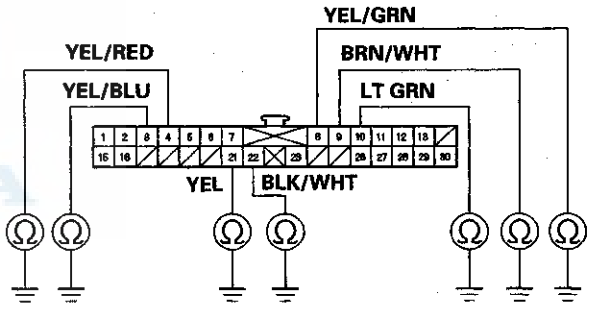
Is the mode control motor OK?

YES—Go to step 3.

NO—Go to step 7.

3. Disconnect the HVAC control unit 30P connector.
4. Check for continuity between body ground and the heater control panel 30P connector No. 3, 4, 8, 9, 10, 21, and 22 terminals individually.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to body ground in the wire(s) between the HVAC control unit and the mode control motor. ■

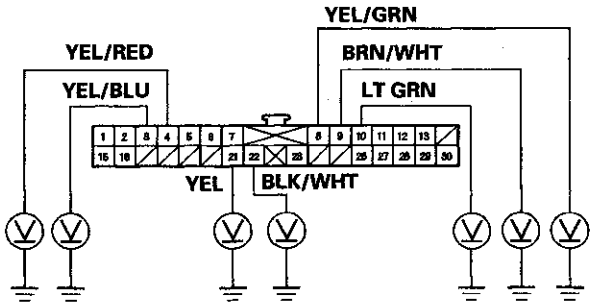
NO—Go to step 5.

(cont'd)

DTC Troubleshooting (cont'd)

5. Turn the ignition switch to ON (II), and measure the same terminals for voltage.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there any voltage?

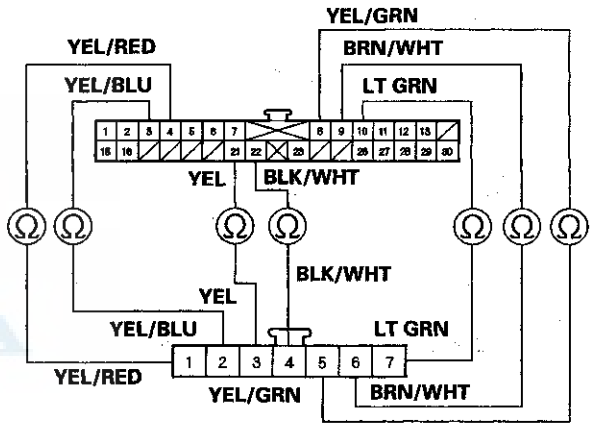
YES—Repair short to power in the wire(s) between the HVAC control unit and the mode control motor. This short may also damage the HVAC control unit. Repair the short to power before replacing the HVAC control unit. ■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0), and check for continuity between the following terminals of the HVAC control unit 30P connector and the mode control motor 7P connector.

30P:	7P:
No. 3	No. 2
No. 4	No. 1
No. 8	No. 5
No. 9	No. 6
No. 10	No. 7
No. 21	No. 3
No. 22	No. 4

HVAC CONTROL UNIT 30P CONNECTOR
Wire side of female terminals



MODE CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the HVAC control unit 30P connector and at the mode control motor 7P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit. ■

NO—Repair open in the wire(s) between the HVAC control unit and mode control motor. ■

7. Remove the mode control motor (see page 21-21).

8. Check the mode control linkage and doors for smooth movement.

   Do the mode control linkage and doors move smoothly?

   YES—Replace the mode control motor.■

   NO—Repair the mode control linkage or doors.■

DTC 3: A Problem in the Blower Motor Circuit

1. Check the No. 56 (40 A) fuse in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

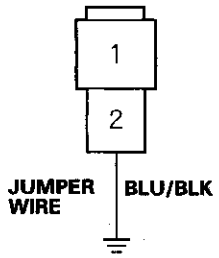
   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck.■

2. Connect the No. 2 terminal of the blower motor 2P connector to body ground with a jumper wire.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

3. Turn the ignition switch to ON (II).

   Does the blower motor run?

   YES—Go to step 4.

   NO—Go to step 17.

4. Turn the ignition switch to LOCK (0).

5. Disconnect the jumper wire.

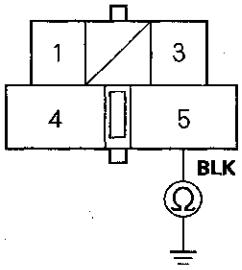
6. Disconnect the power transistor 5P connector.

(cont'd)

DTC Troubleshooting (cont'd)

7. Check for continuity between the No. 5 terminal of the power transistor 5P connector and body ground.

POWER TRANSISTOR 5P CONNECTOR



Wire side of female terminals

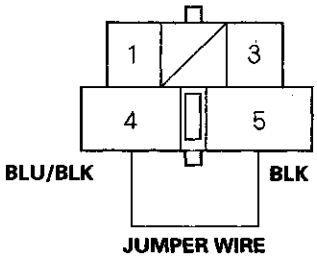
Is there continuity?

YES—Go to step 8.

NO—Check for an open in the wire between the power transistor and body ground. If the wire is OK, check for poor ground at G402.■

8. Connect the No. 4 and No. 5 terminals of the power transistor 5P connector with a jumper wire.

POWER TRANSISTOR 5P CONNECTOR



Wire side of female terminals

9. Turn the ignition switch to ON (II).

Does the blower motor run at high speed?

YES—Go to step 10.

NO—Repair open in the wire between the power transistor and blower motor.■

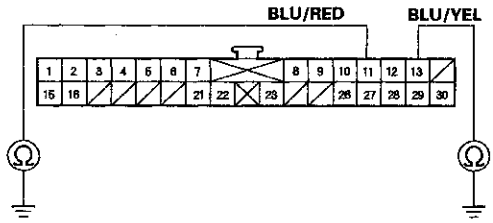
10. Turn the ignition switch to LOCK (0).

11. Disconnect the jumper wire.

12. Disconnect the HVAC control unit 30P connector.

13. Check for continuity between the No. 11 and No. 13 terminals of the HVAC control unit 30P connector and body ground individually.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there continuity?

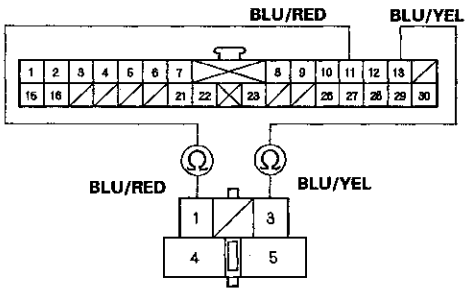
YES—Repair short to body ground in the wire(s) between the HVAC control unit and the power transistor.■

NO—Go to step 14.

14. Check for continuity between the following terminals of the HVAC control unit 30P connector and the power transistor 5P connector.

30P:	5P:
No. 11	No. 1
No. 13	No. 3

HEATER CONTROL PANEL 30P CONNECTOR
Wire side of female terminals



POWER TRANSISTOR 5P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire(s) between the HVAC control unit and the power transistor.■

15. Reconnect the HVAC control unit 30P connector.

16. Test the power transistor (see page 21-19).

    Is the power transistor OK?

    YES—Check for loose wires or poor connections at the HVAC control unit 30P connector, blower motor 2P connector and at the power transistor 5P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit.■

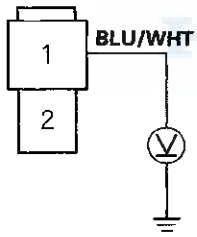
    NO—Replace the power transistor.■

17. Disconnect the jumper wire.

18. Disconnect the blower motor 2P connector.

19. Measure the voltage between the No. 1 terminal of the blower motor 2P connector and body ground.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Replace the blower motor.■

NO—Go to step 20.

20. Turn the ignition switch to LOCK (0).

21. Remove the blower motor relay from the main under-hood fuse/relay box, and test it (see page 22-48).

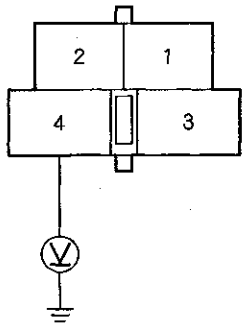
    Is the relay OK?

    YES—Go to step 22.

    NO—Replace the blower motor relay.■

22. Measure the voltage between the No. 4 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

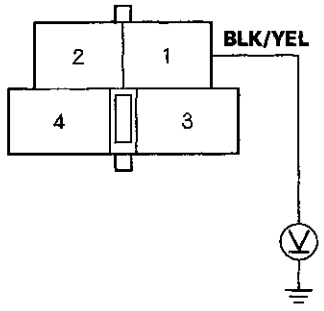
YES—Go to step 23.

NO—Replace the main under-hood fuse/relay box.■

23. Turn the ignition switch to ON (II).

24. Measure the voltage between the No. 1 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there battery voltage?

YES—Go to step 25.

NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the blower motor relay.■

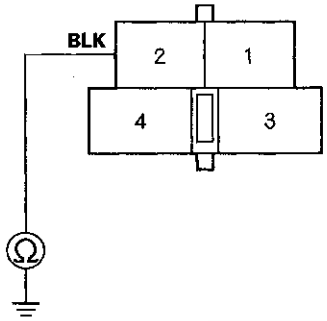
(cont'd)

DTC Troubleshooting (cont'd)

25. Turn the ignition switch to LOCK (0).

26. Check for continuity between the No. 2 terminal of the blower motor relay 4P socket and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Is there continuity?

YES—Repair open in the BLU/WHT wire between the blower motor relay and the blower motor. ■

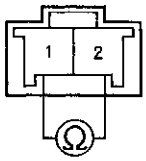
NO—Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G201. ■

DTC 4: A Problem in the Evaporator Temperature Sensor Circuit

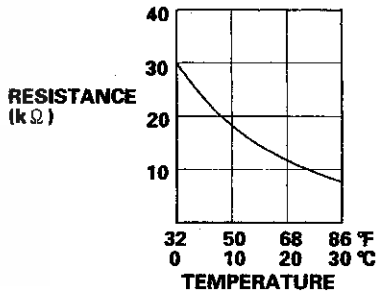
1. Disconnect the evaporator temperature sensor 2P connector.

2. Measure the resistance between the No. 1 and No. 2 terminals of the evaporator temperature sensor.

EVAPORATOR TEMPERATURE SENSOR



Wire side of female terminals



Is the resistance within the specifications shown on the graph?

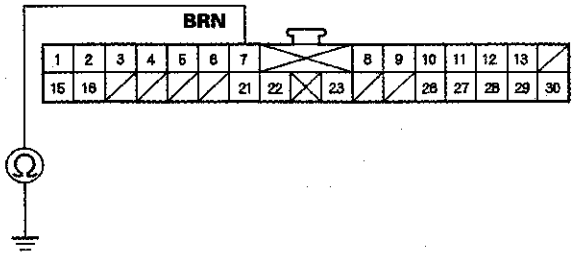
YES—Go to step 3.

NO—Replace the evaporator temperature sensor. ■

3. Disconnect the HVAC control unit 30P connector.

4. Check for continuity between the No. 7 terminal of the HVAC control unit 30P connector and body ground.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

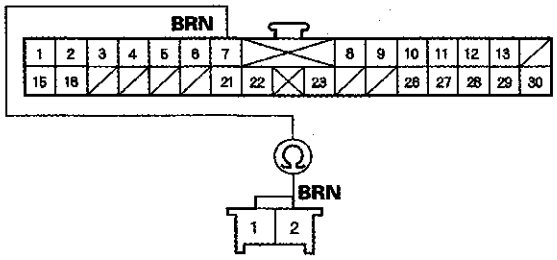
Is there continuity?

YES—Repair short to body ground in the wire between the HVAC control unit and the evaporator temperature sensor. ■

NO—Go to step 5.

5. Check for continuity between the No. 7 terminal of the HVAC control unit 30P connector and the No. 2 terminal of the evaporator temperature sensor 2P connector.

HVAC CONTROL UNIT 30P CONNECTOR
Wire side of female terminals



EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

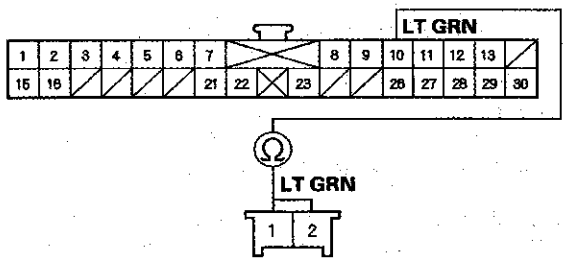
Is there continuity?

YES—Go to step 6.

NO—Repair open in the wire between the HVAC control unit and the evaporator temperature sensor. ■

6. Check for continuity between the No. 10 terminal of the HVAC control unit 30P connector and the No. 1 terminal of the evaporator temperature sensor 2P connector.

HVAC CONTROL UNIT 30P CONNECTOR
Wire side of female terminals



EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the HVAC control unit 30P connector and at the evaporator temperature sensor 2P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit. ■

NO—Repair open in the wire between the HVAC control unit and the evaporator temperature sensor. ■

Recirculation Control Motor Circuit Troubleshooting

1. Check the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

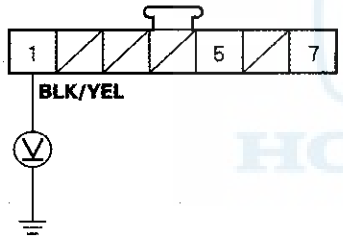
   NO—Replace the fuse, and recheck.■

2. Disconnect the recirculation control motor 7P connector.

3. Turn the ignition switch to ON (II).

4. Measure the voltage between the No. 1 terminal of the recirculation control motor 7P connector and body ground.

RECIRCULATION CONTROL MOTOR 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the recirculation control motor.■

5. Turn the ignition switch to LOCK (0).

6. Test the recirculation control motor (see page 21-22).

   Is the recirculation control motor OK?

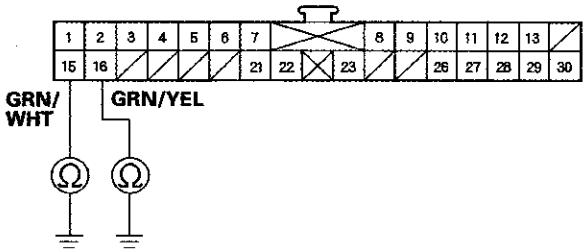
   YES—Go to step 7.

   NO—Go to step 11.

7. Disconnect the HVAC control unit 30P connector.

8. Check for continuity between the No. 15 and No. 16 terminals of the HVAC control unit 30P connector and body ground individually.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

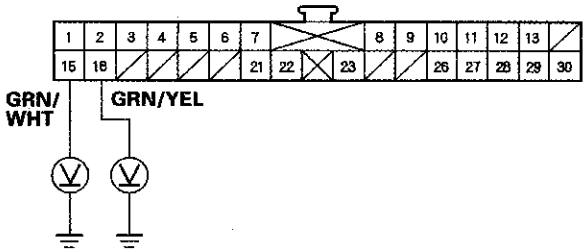
Is there continuity?

YES—Repair short to body ground in the wire(s) between the HVAC control unit and the recirculation control motor.■

NO—Go to step 9.

9. Turn the ignition switch to ON (II), and measure the same terminals for voltage.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

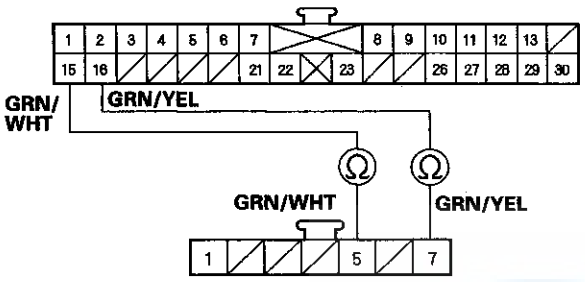
Is there any voltage?

YES—Repair short to power in the wire(s) between the HVAC control unit and the recirculation control motor. This short may also damage the HVAC control unit. Repair the short to power before replacing the HVAC control unit.■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0), and check for continuity between the following terminals of the HVAC control unit 30P connector and the recirculation control motor 7P connector.
    30P: 7P:
    No. 15 No. 5
    No. 16 No. 7

HVAC CONTROL UNIT 30P CONNECTOR
Wire side of female terminals



RECIRCULATION CONTROL MOTOR 7P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the HVAC control unit 30P connector and at the recirculation control motor 7P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit. ■

NO—Repair open in the wire(s) between the HVAC control unit and the recirculation control motor. ■

11. Remove the recirculation control motor (see page 21-22).

12. Check the recirculation control linkage and doors for smooth movement.

    Do the recirculation control linkage and doors move smoothly?

    YES—Replace the recirculation control motor. ■

    NO—Repair the recirculation control linkage or doors. ■

HVAC Control Power and Ground Circuit Troubleshooting

1. Check the No. 54 (30 A) fuse in the main under-hood fuse/relay box, and the No. 20 (7.5 A) and No. 25 (7.5 A) fuses in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

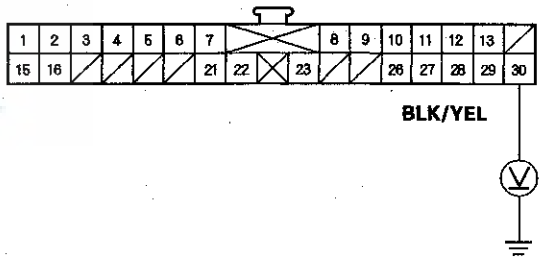
   NO—Replace the fuse(s), and recheck. ■

2. Disconnect the HVAC control unit 30P connector.

3. Turn the ignition switch to ON (II).

4. Measure the voltage between the No. 30 terminal of the HVAC control unit 30P connector and body ground.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the HVAC control unit. ■

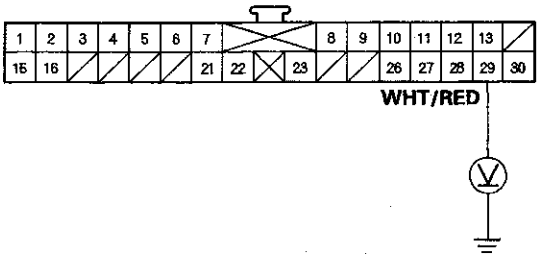
5. Turn the ignition switch to LOCK (0).

(cont'd)

HVAC Control Power and Ground Circuit Troubleshooting (cont'd)

6. Measure the voltage between the No. 29 terminal of the HVAC control unit 30P connector and body ground.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

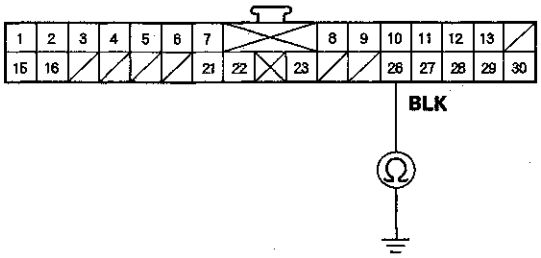
Is there battery voltage?

YES—Go to step 7.

NO—Repair open in the wire between the No. 25 (7.5 A) fuse in the under-dash fuse/relay box and the HVAC control unit. ■

7. Check for continuity between the No. 26 terminal of the HVAC control unit 30P connector and body ground.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Check for loose wires or poor connections at the HVAC control unit 30P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom indication goes away, replace the original HVAC control unit. ■

NO—Check for an open in the wire between the HVAC control unit and body ground. If the wire is OK, check for poor ground at G402. ■

A/C Condenser Fan Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if the radiator fan and/or the A/C compressor is inoperative. Refer to the symptom troubleshooting.
- Before performing symptom troubleshooting, check for powertrain DTCs: '00-05 models (see page 11-3); '06-08 models (see page 11-213).

1. Check the No. 58 (20 A) fuse in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck.■

2. Remove the A/C condenser fan relay from the main under-hood fuse/relay box, and test it (see page 22-48).

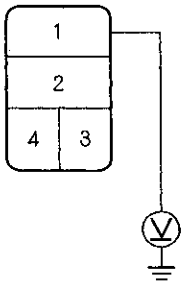
   Is the relay OK?

   YES—Go to step 3.

   NO—Replace the A/C condenser fan relay.■

3. Measure the voltage between the No. 1 terminal of the A/C condenser fan relay 4P socket and body ground.

   A/C CONDENSER FAN RELAY 4P SOCKET



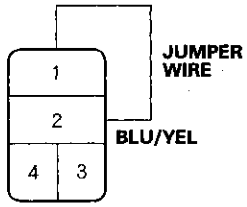
   Is there battery voltage?

   YES—Go to step 4.

   NO—Replace the main under-hood fuse/relay box.■

4. Connect the No. 1 and No. 2 terminals of the A/C condenser fan relay 4P socket with a jumper wire.

   A/C CONDENSER FAN RELAY 4P SOCKET



   Does the A/C condenser fan run?

   YES—Go to step 5.

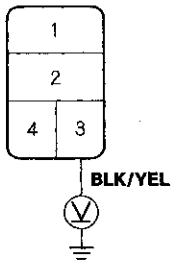
   NO—Go to step 8.

5. Disconnect the jumper wire.

6. Turn the ignition switch to ON (II).

7. Measure the voltage between the No. 3 terminal of the A/C condenser fan relay 4P socket and body ground.

   A/C CONDENSER FAN RELAY 4P SOCKET



   Is there battery voltage?

   YES—Replace the main under-hood fuse/relay box.■

   NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the A/C condenser fan relay.■

8. Disconnect the jumper wire.

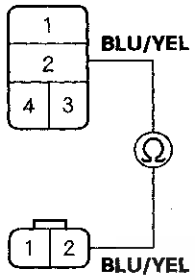
(cont'd)

A/C Condenser Fan Circuit Troubleshooting (cont'd)

9. Disconnect the A/C condenser fan 2P connector.

10. Check for continuity between the No. 2 terminal of the A/C condenser fan relay 4P socket and the No. 2 terminal of the A/C condenser fan 2P connector.

A/C CONDENSER FAN RELAY 4P SOCKET



A/C CONDENSER FAN 2P CONNECTOR
Wire side of female terminals

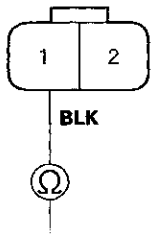
Is there continuity?

YES—Go to step 11.

NO—Repair open in the wire between the A/C condenser fan relay and the A/C condenser fan.■

11. Check for continuity between the No. 1 terminal of the A/C condenser fan 2P connector and body ground.

A/C CONDENSER FAN 2P CONNECTOR



NO—Check for an open in the wire between the A/C condenser fan and body ground. If the wire is OK, check for poor ground at G201.■

Radiator and A/C Condenser Fan Common Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if only one fan is inoperative, or if the A/C compressor is inoperative. Refer to the symptom troubleshooting.
- Before performing symptom troubleshooting, check for powertrain DTCs: '00-05 models (see page 11-3); '06-08 models (see page 11-213).

1. Check the No. 57 (20 A) and No. 58 (20 A) fuses in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

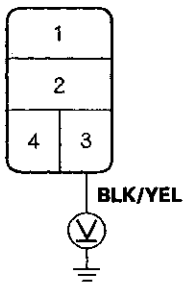
   NO—Replace the fuse(s), and recheck.■

2. Remove the A/C condenser fan relay from the main under-hood fuse/relay box.

3. Turn the ignition switch to ON (II).

4. Measure the voltage between the No. 3 terminal of the A/C condenser fan relay 4P socket and body ground.

A/C CONDENSER FAN RELAY 4P SOCKET



5. Turn the ignition switch to LOCK (0).

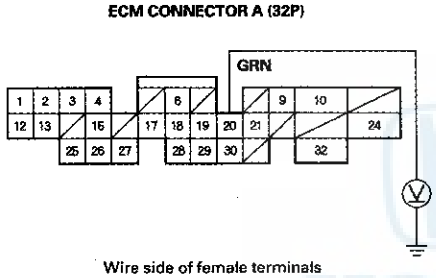
6. Reinstall the A/C condenser fan relay.

7. Make sure the A/C switch is OFF.

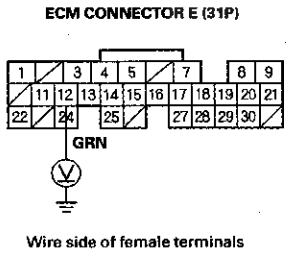
8. Turn the ignition switch to ON (II).

9. Using a backprobe set, measure the voltage between the No. 20 terminal of ECM connector A (32P) and body ground with the ECM connectors connected ('00-05 models) or between the No. 12 terminal of ECM connector E (31P) and body ground with the ECM connectors connected ('06-08 models).

'00-05 models



'06-08 models



Is there battery voltage?

YES—Check for loose wires or poor connections at ECM connector A (32P) ('00-05 models), or ECM connector E (31P) ('06-08 models). If the connections are good, substitute a known-good ECM, and recheck. If the symptom/indication goes away, replace the original ECM: '00-05 models (see page 11-115); '06-08 models (see page 11-389). ■

NO—Repair open in the wire between the radiator fan relay, the A/C condenser fan relay and the ECM. ■

A/C Compressor Clutch Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if the fans are also inoperative with the A/C on. Refer to the symptom troubleshooting.
- Before performing symptom troubleshooting, check for powertrain DTCs: '00-05 models (see page 11-3); '06-08 models (see page 11-213).

1. Check the No. 58 (20 A) fuse in the main under-hood fuse/relay box, and the No. 20 (7.5 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. ■

2. Using the HDS, confirm the following values in the PGM-FI Data List at idle.

ECT Sensor	169—194 °F (76—90 °C)
TP Sensor	About 0.5 V
RPM	More than 800
A/C Switch	ON
A/C Clutch	ON

   Are all the values within specifications?

   YES—Go to step 3.

   NO—Troubleshooting the value that is not within the specifications. ■

3. Remove the A/C compressor clutch relay from the main under-hood fuse/relay box, and test it (see page 22-48).

   Is the relay OK?

   YES—Go to step 4.

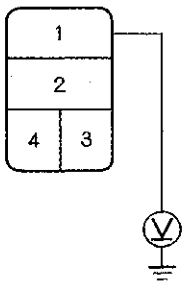
   NO—Replace the A/C compressor clutch relay. ■

(cont'd)

A/C Compressor Clutch Circuit Troubleshooting (cont'd)

4. Measure the voltage between the No. 1 terminal of the A/C compressor clutch relay 4P socket and body ground.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



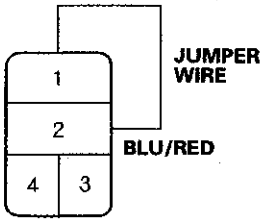
Is there battery voltage?

YES—Go to step 5.

NO—Replace the main under-hood fuse/relay box. ■

5. Connect the No. 1 and No. 2 terminals of the A/C compressor clutch relay 4P socket with a jumper wire.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



Does the A/C compressor clutch click?

YES—Go to step 6.

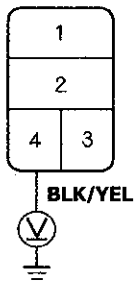
NO—Go to step 14.

6. Disconnect the jumper wire.

7. Turn the ignition switch to ON (II).

8. Measure the voltage between the No. 4 terminal of the A/C compressor clutch relay 4P socket and body ground.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the No. 20 (7.5 A) fuse in the under-dash fuse/relay box and the A/C compressor clutch relay. ■

9. Turn the ignition switch to LOCK (0).

10. Reinstall the A/C compressor clutch relay.

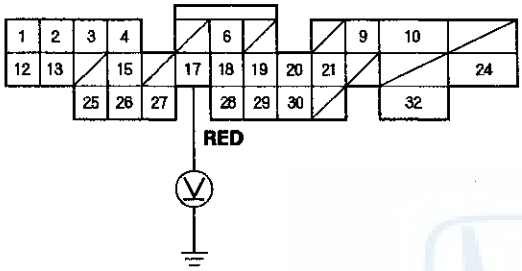
11. Make sure the A/C switch is OFF.

12. Turn the ignition switch to ON (II).

13. Using a backprobe set, measure the voltage between the No. 17 terminal of ECM connector A (32P) and body ground with the ECM connectors connected ('00-05 models) or between the No. 18 terminal of ECM connector E (31P) and body ground with the ECM connectors connected ('06-08 models).

'00-05 models

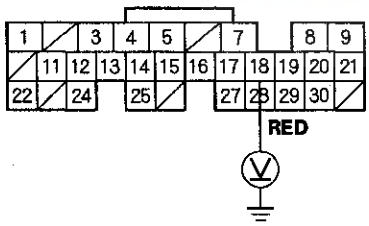
ECM CONNECTOR A (32P)



Wire side of female terminals

'06-08 models

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there battery voltage?

YES—Check for loose wires or poor connections at ECM connector A (32P) ('00-05 models), or ECM connector E (31P) ('06-08 models). If the connections are good, substitute a known-good ECM, and recheck. If the symptom/indication goes away, replace the original ECM: '00-05 models (see page 11-115); '06-08 models (see page 11-389). ■

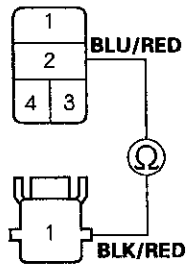
NO—Repair open in the wire between the A/C compressor clutch relay and the ECM. ■

14. Disconnect the jumper wire.

15. Disconnect the A/C compressor clutch 1P connector.

16. Check for continuity between the No. 2 terminal of the A/C compressor clutch relay 4P socket and the No. 1 terminal of the A/C compressor clutch 1P connector.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



A/C COMPRESSOR CLUTCH 1P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check the A/C compressor clutch clearance, the thermal protector, and the A/C compressor clutch field coil (see page 21-68). ■

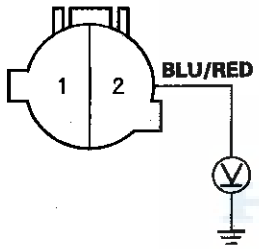
NO—Repair open in the wire between the A/C compressor clutch relay and the A/C compressor clutch. ■

A/C Pressure Switch Circuit Troubleshooting

NOTE:
- Do not use this troubleshooting procedure if any of the following items are operative; A/C condenser fan, radiator fan, A/C compressor, or if the heater is inoperative. Refer to the symptom troubleshooting.
- Before performing symptom troubleshooting, check for powertrain DTCs: '00-05 models (see page 11-3); '06-08 models (see page 11-213).

1. Disconnect the A/C pressure switch 2P connector.
2. Turn the ignition switch to ON (II).
3. Measure the voltage between the No. 2 terminal of the A/C pressure switch 2P connector and body ground.

A/C PRESSURE SWITCH 2P CONNECTOR



Wire side of female terminals

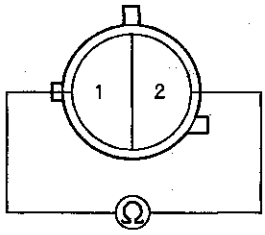
Is there about 5 V?

YES—Go to step 4.

NO—Go to step 15.

4. Turn the ignition switch to LOCK (0).
5. Check for continuity between the No. 1 and No. 2 terminals of the A/C pressure switch.

A/C PRESSURE SWITCH



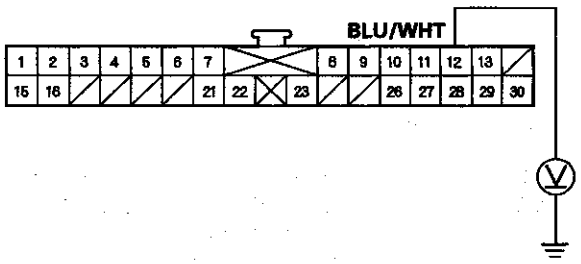
Is there continuity?

YES—Go to step 6.

NO—Go to step 17.

6. Reconnect the A/C pressure switch 2P connector.
7. Disconnect the HVAC control unit 30P connector.
8. Turn the ignition switch to ON (II).
9. Measure the voltage between the No. 12 terminal of the HVAC control unit 30P connector and body ground.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is there about 5 V?

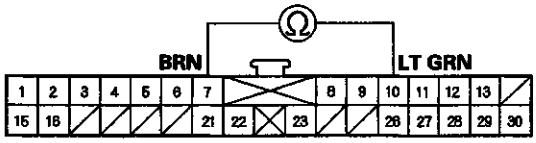
YES—Go to step 10.

NO—Repair open in the wire between the HVAC control unit and the A/C pressure switch. ■

10. Turn the ignition switch to LOCK (0).

11. Measure the resistance between the No. 7 and No. 10 terminals of the HVAC control unit 30P connector.

HVAC CONTROL UNIT 30P CONNECTOR



Wire side of female terminals

Is the resistance less than 24 k Ω ?

YES—Go to step 12.

NO—Repair cause of high resistance in the evaporator temperature circuit. ■

12. Reconnect the HVAC control unit 30P connector.

13. Turn the ignition switch to ON (II).

14. Check the blower motor operation at several speeds.

Does the blower motor operate at all speeds?

YES—Check for loose wires or poor connections at the HVAC control unit 30P connector and at the A/C pressure switch 2P connector. If the connections are good, substitute a known-good HVAC control unit, and recheck. If the symptom/indication goes away, replace the original HVAC control unit. ■

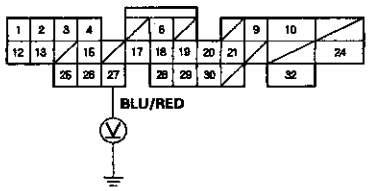
NO—Repair the problem in the blower motor circuit. ■

15. Make sure the A/C switch is OFF.

16. Using a backprobe set, measure the voltage between the No. 27 terminal of ECM connector A (32P) and body ground with the ECM connectors connected ('00-05 models) or between the No. 28 terminal of ECM connector E (31P) and body ground with the ECM connectors connected ('06-08 models).

'00-05 models

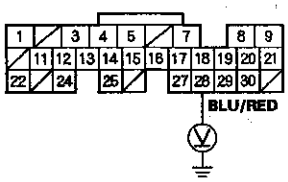
ECM CONNECTOR A (32P)



Wire side of female terminals

'06-08 models

ECM CONNECTOR E (31P)



Wire side of female terminals

Is there about 5 V ?

YES—Repair open in the wire between the ECM and the A/C pressure switch. ■

NO—Check for loose wires or poor connections at ECM connector A (32P) ('00-05 models), or ECM connector E (31P) ('06-08 models). If the connections are good, substitute a known-good ECM, and recheck. If the symptom/indication goes away, replace the original ECM: '00-05 models (see page 11-115); '06-08 models (see page 11-389). ■

17. Check for proper A/C system pressure.

Is the pressure within specifications?

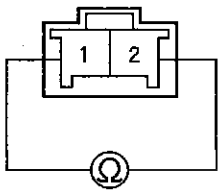
YES—Replace the A/C pressure switch. ■

NO—Repair the A/C pressure problem. ■

Evaporator Temperature Sensor Test

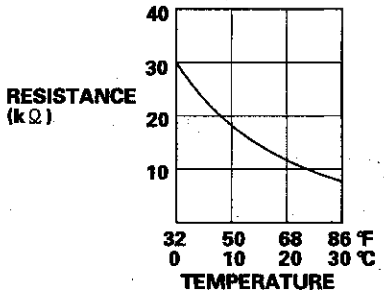
1. Remove the evaporator core and the evaporator temperature sensor (see page 21-62).
2. Dip the sensor in ice water, and measure the resistance between its terminals.

EVAPORATOR TEMPERATURE SENSOR



Terminal side of male terminals

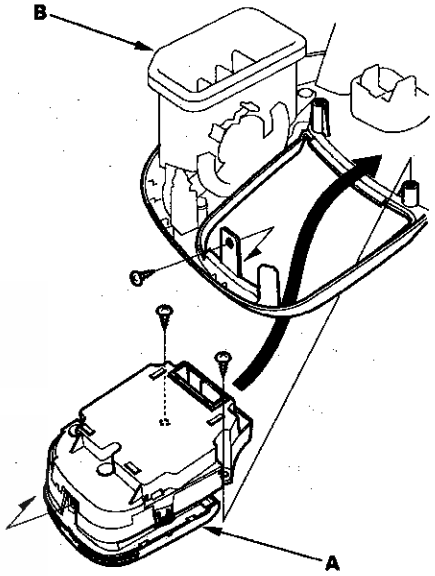
3. Then pour warm water on the sensor, and check for a change in resistance.
4. Compare the resistance readings with the specifications shown in the graph; the resistance should be within the specifications.



5. If the resistance is not as specified, replace the evaporator temperature sensor (see page 21-62).

HVAC Control Unit Removal/ Installation

1. Remove the instrument panel together with the HVAC control unit (see page 20-84).
2. Remove the self-tapping screws and the HVAC control unit (A) from the instrument panel (B).



3. Install the control unit in the reverse order of removal. After installation, operate the control unit controls to see whether it works properly.
4. Run the self-diagnostic function to confirm that there are no problems in the system (see page 21-35).

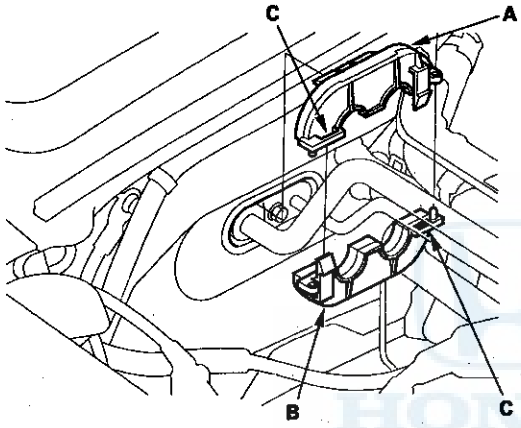
Blower/Evaporator Unit Removal/Installation

1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-73).

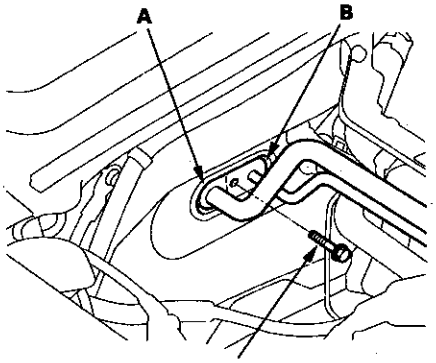
2. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

3. Remove the battery.

4. Pull out the grommets, then carefully separate the upper grommet (A) from the lower grommet (B) by releasing the locktabs (C).



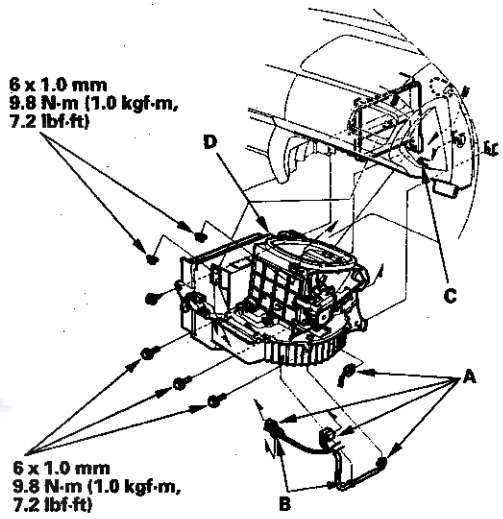
5. Remove the bolt, then disconnect the suction line (A) and the receiver line (B) from the blower/evaporator unit. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



6. Remove the passenger's dashboard lower cover (see page 20-86) and the right kick panel (see page 20-71).

7. Disconnect the dashboard wire harness connector from the passenger's door wire harness connector, then remove it. Remove the wire harness connectors and the convertible top control unit from the steering hanger beam.

8. Disconnect the connectors (A) from the blower motor, the power transistor, the evaporator sensor, and the recirculation control motor, then remove the wire harness clips (B). Remove the drain hose (C), the self-tapping screw, the mounting bolts, the mounting nuts, and the blower/evaporator unit (D).



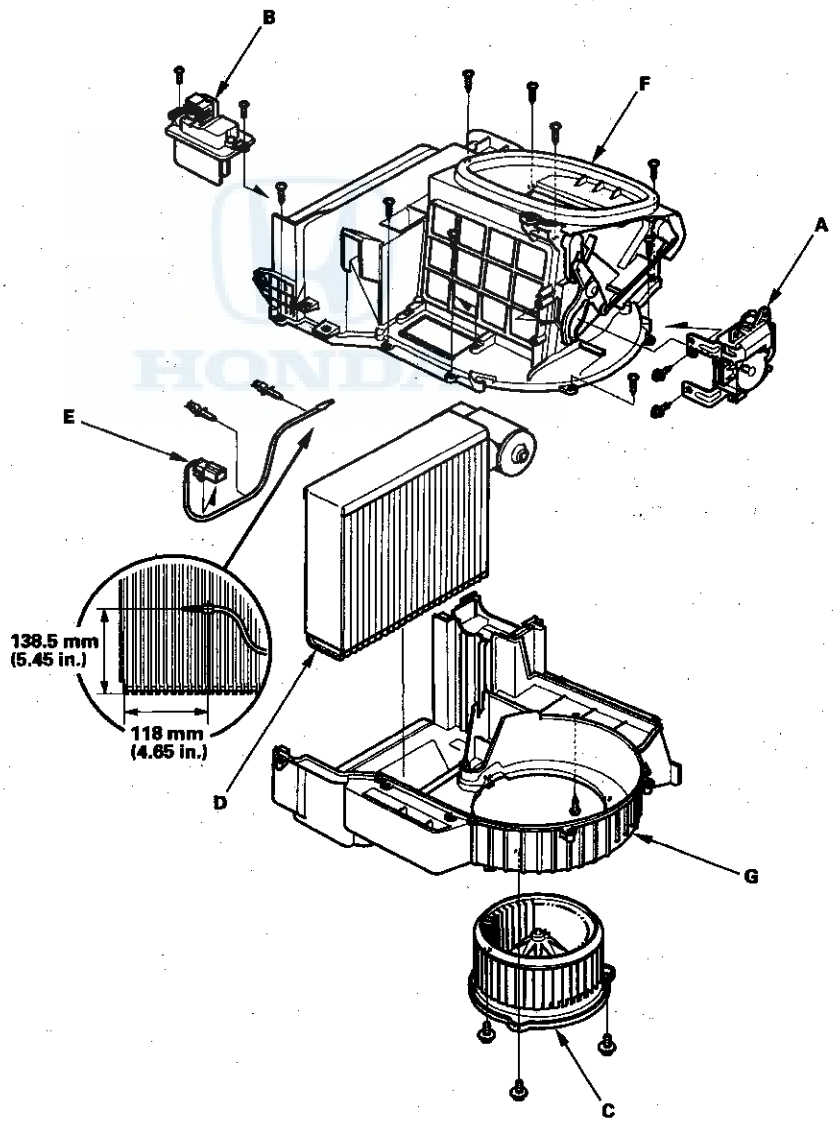
9. Install the unit in the reverse order of removal, and note these items:

- If you're installing a new blower/evaporator unit, add refrigerant oil (SP-10) (see page 21-33).
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.
- Make sure that there is no air leakage.
- Charge the system (see page 21-75).
- Do the ECM idle learn procedure: '00-05 models (see page 11-140); '06-08 models (see page 11-462).
- Enter the anti-theft code for the audio system, then enter the audio presets.

Blower/Evaporator Unit Component Replacement

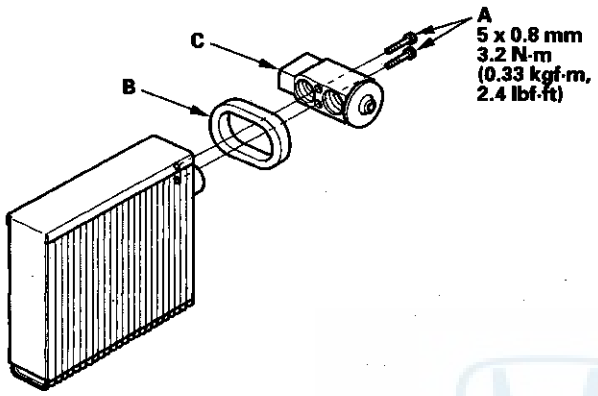
Note these items when overhauling the blower/evaporator unit:

- The recirculation control motor (A), the power transistor (B), and the blower motor (C) can be replaced without removing the blower/evaporator unit.
- If you're installing a new evaporator core (D), add refrigerant oil (SP-10) (see page 21-33).
- Replace the O-rings with new ones at each fitting and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Reinstall the evaporator temperature sensor (E) in its original location.
- Before reassembly, make sure that the recirculation control linkage and doors move smoothly.
- After reassembly, make sure the recirculation control motor runs smoothly (see page 21-22).
- Make sure no air is leaking from the upper housing (F) and the lower housing (G) fitting.



Expansion Valve Replacement

1. Remove the blower/evaporator unit (see page 21-61).
2. Remove the evaporator core (see page 21-62).
3. Remove the bolts (A).

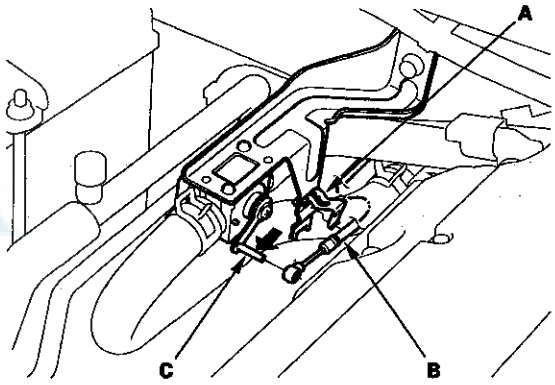


4. Remove the outer seal (B) and expansion valve (C).
5. Install the expansion valve in the reverse order of removal and note these items:
   - If you're installing a new expansion valve, add refrigerant oil (SP-10) (see page 21-33).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
   - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
   - Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
   - Make sure that there is no air leakage.
   - Charge the system (see page 21-75).

Heater Unit/Core Replacement

SRS components are located in this area. Review the SRS component locations: '00-05 models (see page 23-11), '06-08 models (see page 23-12) and the precautions and procedures (see page 23-13) before doing repairs or service.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Disconnect the negative cable from the battery.
3. Remove the heat shield of the exhaust manifold (see step 23 on page 6-29).
4. From under the hood, open the cable clamp (A), then disconnect the heater valve cable (B) from the heater valve arm (C). Turn the heater valve arm to the fully opened position as shown.

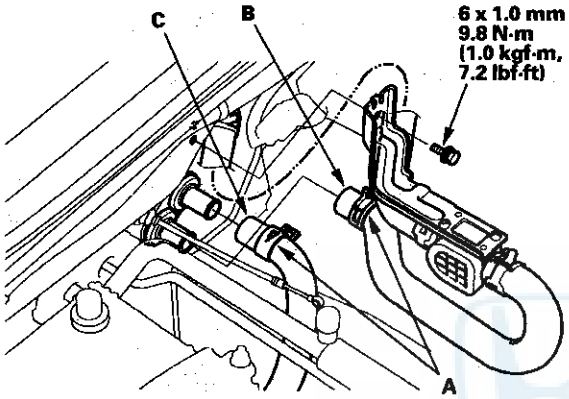


5. When the engine is cool, drain the engine coolant from the radiator (see page 10-9).

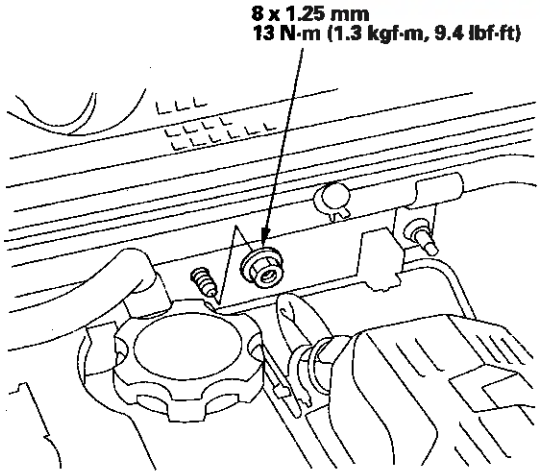
(cont'd)

Heater Unit/Core Replacement (cont'd)

6. Remove the mounting bolt from the heater valve. Slide the hose clamps (A) back, then disconnect the inlet heater hose (B) and the outlet heater hose (C) from the heater unit. Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.



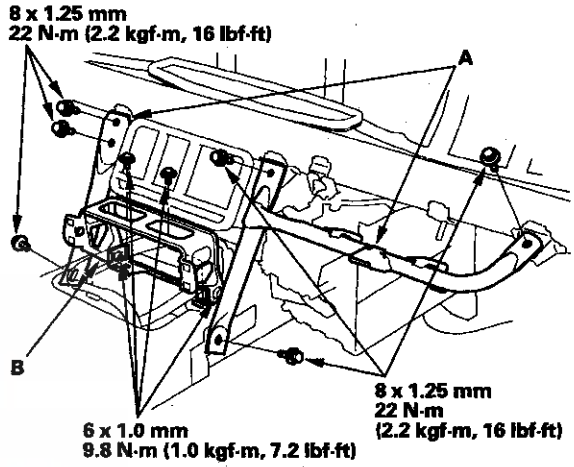
7. Remove the mounting nut from the heater unit. Take care not to damage or bend the fuel lines, the brake lines, etc..



8. Remove the dashboard (see page 20-87).

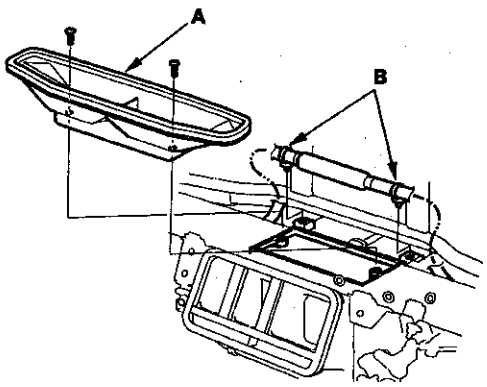
9. Remove the blower/evaporator unit (see page 21-61).

10. Remove the mounting bolts, the center brackets (A), and the audio brackets (B).

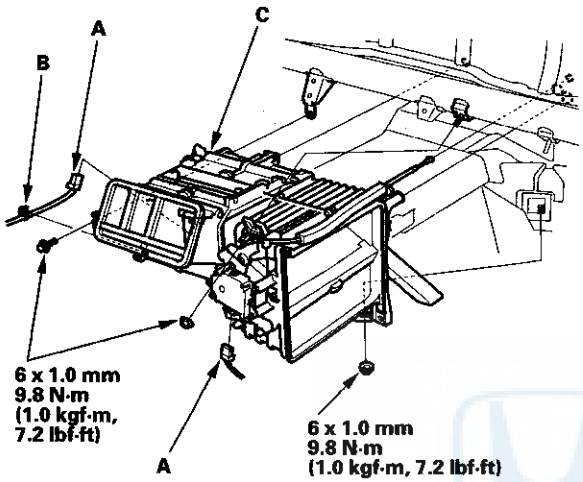


11. Remove the SRS unit (see page 23-179).

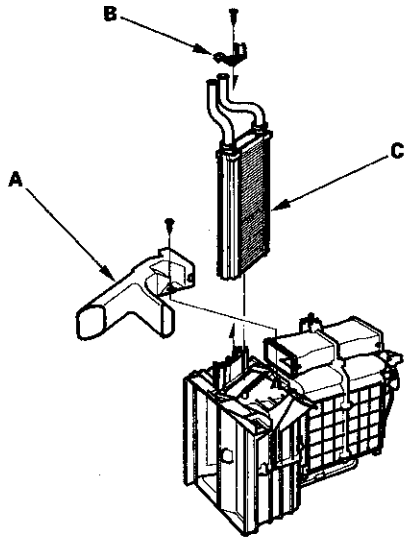
12. Remove the self-tapping screws and the defroster outlet (A), then remove the wire harness clips (B).



13. Disconnect the connectors (A) from the mode control motor and the air mix control motor, then remove the wire harness clip (B). Remove the mounting nuts, the mounting bolt, and the heater unit (C).



14. Remove the self-tapping screws and the passenger's heater outlet (A), then remove the self-tapping screw and the clamp (B). Be careful not to bend the inlet and outlet pipes during the heater core (C) removal, and pull out the heater core.



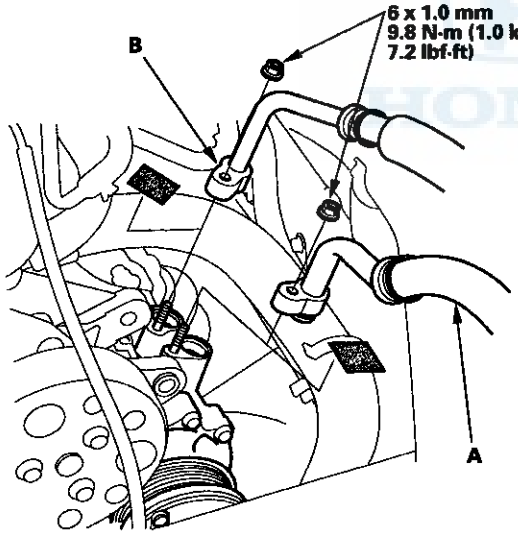
15. Install the heater core in the reverse order of removal.

16. Install the heater unit in the reverse order of removal, and note these items:

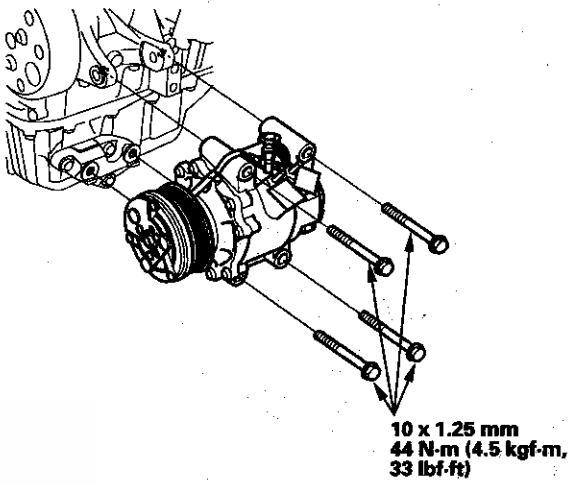
- Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
- Refill the cooling system with engine coolant (see page 10-9).
- Adjust the heater valve cable (see page 21-27).
- Make sure that there is no engine coolant leakage.
- Make sure that there is no air leakage.
- For evaporator and A/C-related information, refer to blower /evaporator unit removal and installation (see page 21-61).
- Do the ECM idle learn procedure: '00-05 models (see page 11-140); '06-08 models (see page 11-462).
- Enter the anti-theft code for the audio system, then enter the audio presets.

A/C Compressor Replacement

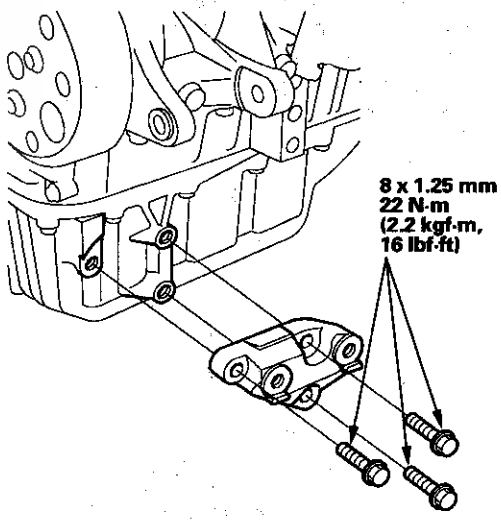
1. If the A/C compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.
2. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
3. Disconnect the negative cable from the battery.
4. Recover the refrigerant with a recovery/recycling/charging station (see page 21-73).
5. Remove the air cleaner housing (see page 6-25).
6. Remove the alternator (see page 4-45).
7. Remove the nuts, then disconnect the suction line (A) and the discharge line (B) from the A/C compressor. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



8. Disconnect the A/C compressor clutch connector, then remove the mounting bolts and the A/C compressor.



9. If necessary, remove the mounting bolts and the A/C compressor bracket.



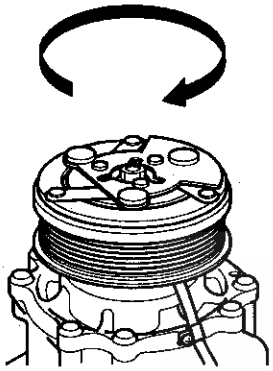
10. Install the A/C compressor in the reverse order of removal, and note these items:

    - If you're installing a new A/C compressor, you must calculate the amount of refrigerant oil to be removed from it (see page 21-33).
    - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
    - Use refrigerant oil (SP-10) for HFC-134a KEIHIN spiral type A/C compressor only.
    - To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
    - Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
    - Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.
    - Charge the system (see page 21-75).
    - Do the ECM idle learn procedure: '00-05 models (see page 11-140); '06-08 models (see page 11-462).
    - Enter the anti-theft code for the audio system, then enter the audio presets.

A/C Compressor Clutch Check

1. Check the armature plate for discoloration, peeling, or other damage. If there is damage, replace the clutch set (see page 21-69).

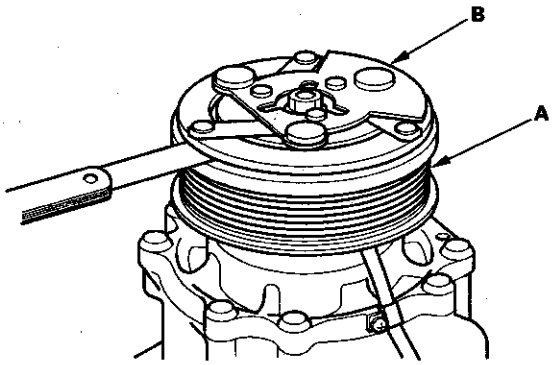
2. Check the rotor pulley bearing play and drag by rotating the rotor pulley by hand. Replace the clutch set with a new one if it is noisy or has excessive play/drag (see page 21-69).



3. Measure the clearance between the rotor pulley (A) and the armature plate (B) all the way around. If the clearance is not within specified limits, remove the armature plate (see page 21-69) and add or remove shims as needed to increase or decrease clearance.

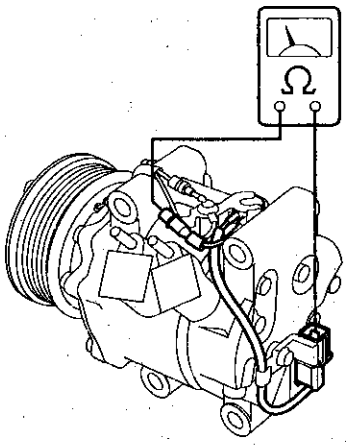
   Clearance: 0.35—0.65 mm (0.014±0.026 in.)

   NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.



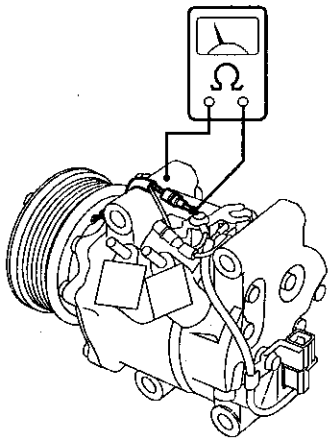
4. Release the field coil connector from the holder, then disconnect it. Check the thermal protector for continuity. If there is no continuity, replace the thermal protector (see page 21-71).

   NOTE: The thermal protector will have no continuity above 252 to 262 °F (122 to 128 °C). When the temperature drops below 241 to 219 °F (116 to 104 °C), the thermal protector will have continuity.



5. Check resistance of the field coil. If resistance is not within specifications, replace the coil (see page 21-69).

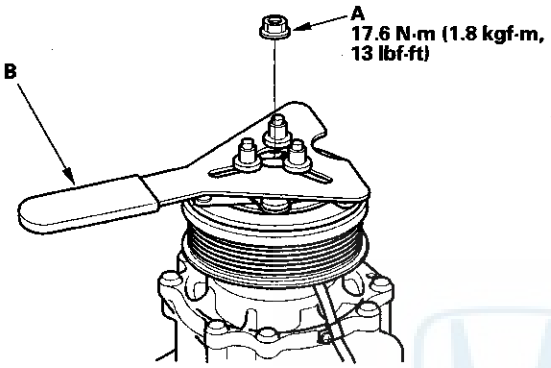
   Field Coil Resistance: 3.05—3.35 Ω at 68 °F (20 °C)



A/C Compressor Clutch Overhaul

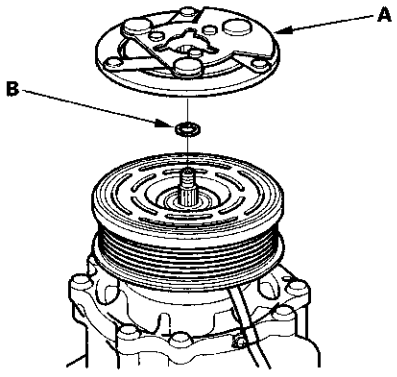
Special Tools Required
A/C clutch holder, Robinair 10204 or Kent-Moore J37872, or Honda Tool and Equipment KMT-J33939, commercially available

1. Remove the center nut (A) while holding the armature plate with a commercially available A/C clutch holder (B).

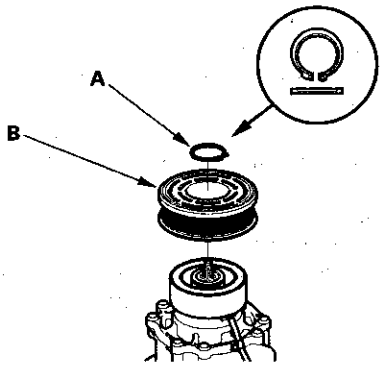


2. Remove the armature plate (A) and shim(s) (B), taking care not to lose the shim(s). If the clutch needs adjustment, increase or decrease the number and thickness of shims as necessary, then reinstall the armature plate, and recheck its clearance (see page 21-68).

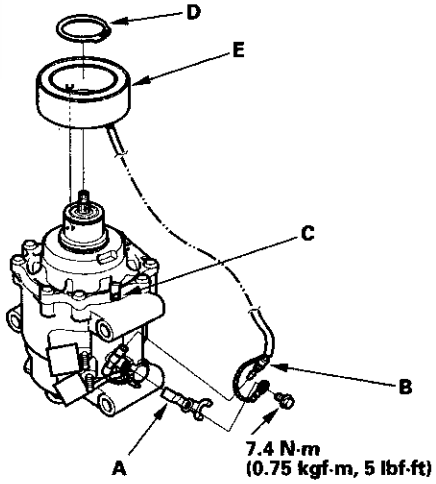
   NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.



3. If you are replacing the field coil, remove the snap ring (A) with snap ring pliers, then remove the rotor pulley (B). Be careful not to damage the pulley and A/C compressor.



4. Remove the bolt and holder (A), then disconnect the field coil connector (B). Loosen the clamp screw (C) to free the field coil wire. Remove the snap ring (D) with snap ring pliers, then remove the field coil (E). Be careful not to damage the field coil and A/C compressor.



(cont'd)

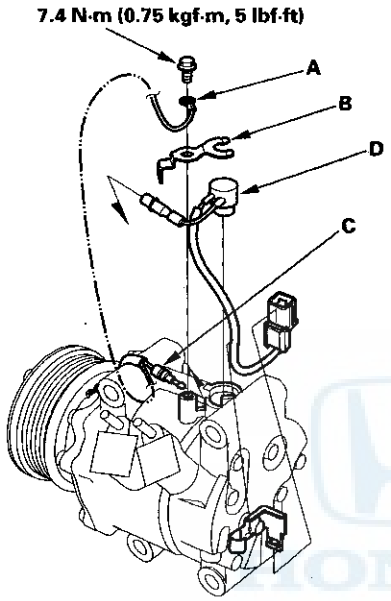
A/C Compressor Clutch Overhaul (cont'd)

5. Reassemble the clutch in the reverse order of disassembly, and note these items:

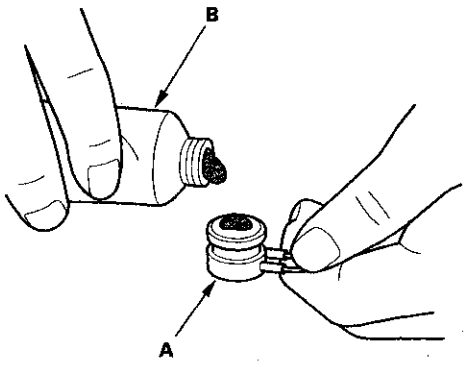
   - Install the field coil with the wire side facing down, and align the boss on the A/C field coil with the hole in the A/C compressor.
   - Clean the rotor pulley and A/C compressor sliding surfaces with contact cleaner or other non-petroleum solvent.
   - Install new snap rings, note the installation direction, and make sure they are fully seated in the groove.
   - Make sure that the rotor pulley turns smoothly after it's reassembled.
   - Route and clamp the wires properly or they can be damaged by the rotor pulley.

A/C Compressor Thermal Protector Replacement

1. Remove the bolt, the ground terminal (A), and the holder (B). Disconnect the field coil connector (C), then remove the thermal protector (D).



2. Replace the thermal protector (A) with a new one, and apply silicone sealant (B) to the bottom of the thermal protector.



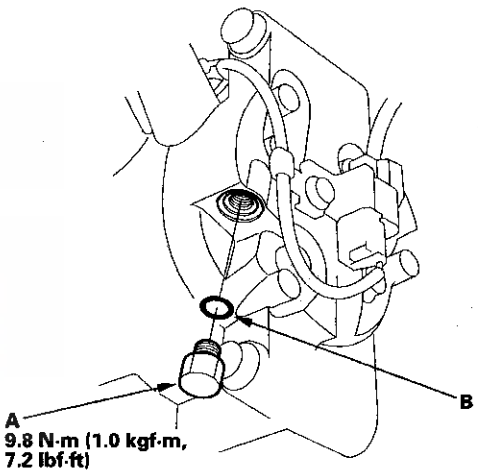
3. Install the thermal protector in the reverse order of removal.

A/C Compressor Relief Valve Replacement

NOTE: If the A/C compressor relief valve released refrigerant to the atmosphere, determine and correct the cause of the excessive system pressure, then replace the relief valve.

1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-73).

2. Remove the relief valve (A), and the O-ring (B). Plug the opening to keep foreign matter from entering the system and the A/C compressor oil from running out.



3. Clean the mating surfaces.

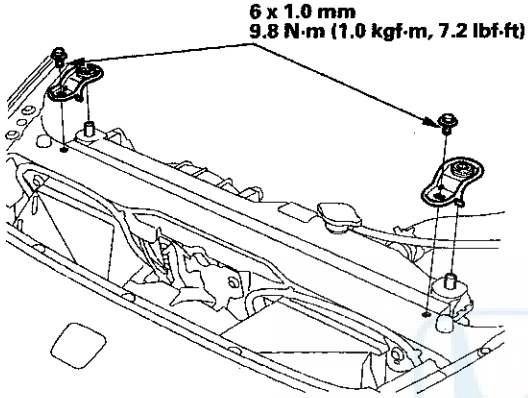
4. Replace the O-ring with a new one at the relief valve, and apply a thin coat of refrigerant oil before installing it.

5. Remove the plug, and install and tighten the relief valve.

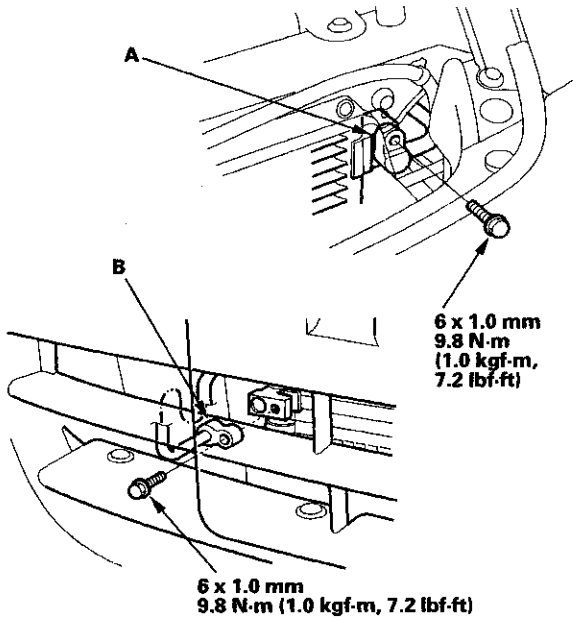
6. Charge the system (see page 21-75).

A/C Condenser Replacement

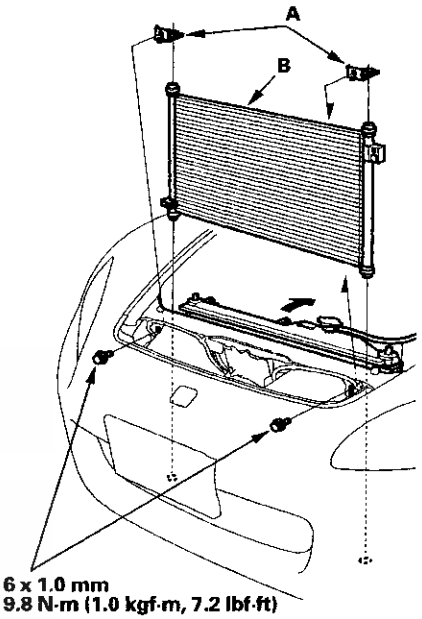
1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-73).
2. Remove the air cleaner housing (see page 6-25).
3. Remove the bolts, then remove the upper mount brackets from the radiator.



4. Remove the bolts, then disconnect the discharge line (A) and the A/C condenser line (B) from the A/C condenser. Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



5. Remove the bolts and the upper mount brackets (A), then remove the A/C condenser (B) by lifting it up. Be careful not to damage the radiator or the A/C condenser fins when removing the A/C condenser.



6. Install the A/C condenser in the reverse order of removal, and note these items:

- If you're installing a new A/C condenser, add refrigerant oil (SP-10) (see page 21-33).
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint. If the refrigerant oil contacts the paint, wash it off immediately.
- Be careful not to damage the radiator or the A/C condenser fins when installing the A/C condenser.
- Charge the system (see page 21-75).

Refrigerant Recovery

⚠CAUTION

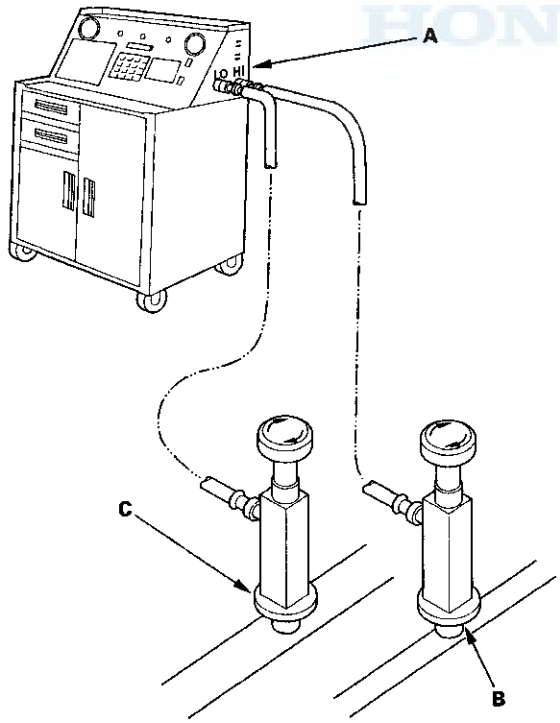
- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate the work area before resuming service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Measure the amount of refrigerant oil removed from the A/C system after the recovery process is completed. Be sure to put the same amount of new refrigerant oil back into the A/C system before charging.

System Evacuation

⚠CAUTION

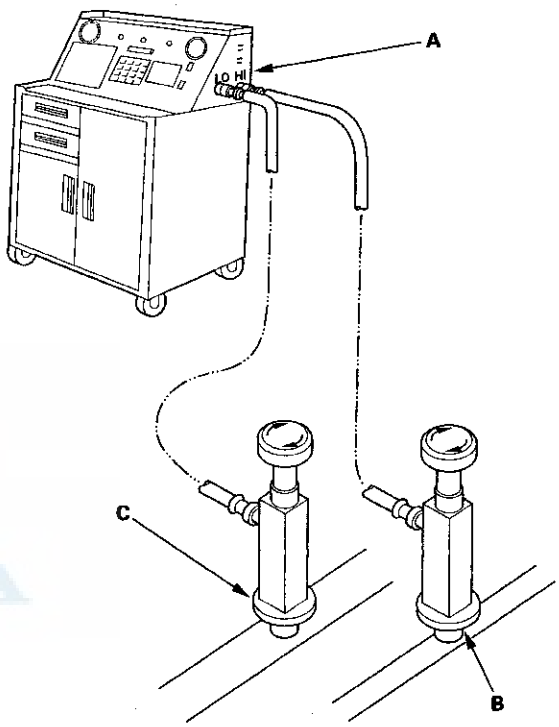
- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate the work area before resuming service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. When an A/C system has been opened to the atmosphere, such as during installation or repair, it must be evacuated using an R-134a refrigerant recovery/recycling/charging station (If the system has been open for several days, the receiver/dryer should be replaced, and the system should be evacuated for several hours.)
2. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions. Evacuate the system.



3. If the low-pressure does not reach more than 93.3 kPa (700 mmHg, 27.6 in.Hg) within 15 minutes, there is probably a leak in the system. Partially charge the system, and check for leaks (see step 3 on page 21-76).

System Charging

⚠CAUTION

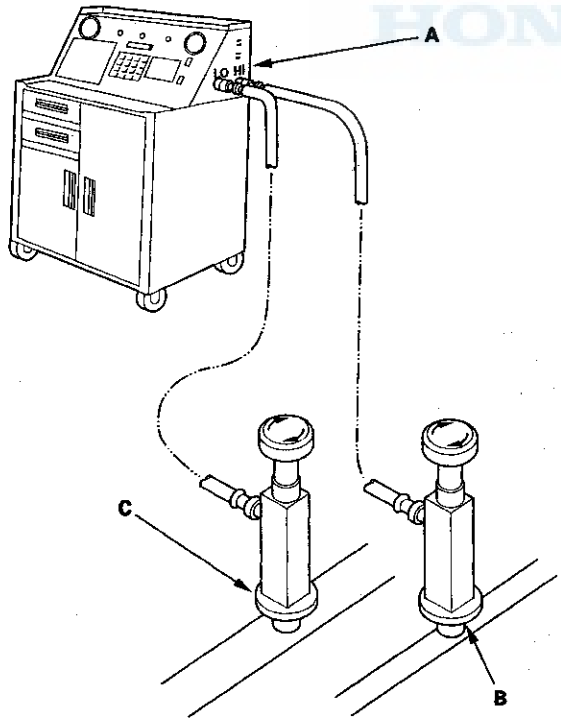
- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate the work area before resuming service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect a R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Evacuate the system (see page 21-74).
3. Add the same amount of new refrigerant oil to the system that was removed during recovery. Use only SP-10 refrigerant oil.
4. Charge the system with the specified amount of R-134a refrigerant. Do not overcharge the system; the A/C compressor will be damaged.

   Select the appropriate units of measure for your refrigerant charging station.

   Refrigerant Capacity:
   550 to 600 g
   0.55 to 0.60 kg
   1.2 to 1.3 lbs
   19.4 to 21.2 oz

5. Check for refrigerant leaks (see page 21-76).
6. Check for system performance (see page 21-78).

Refrigerant Leak Test

Special Tools Required
Leak detector, Honda Tool and Equipment YGK-H-10PM commercially available

⚠WARNING

- Compressed air mixed with R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

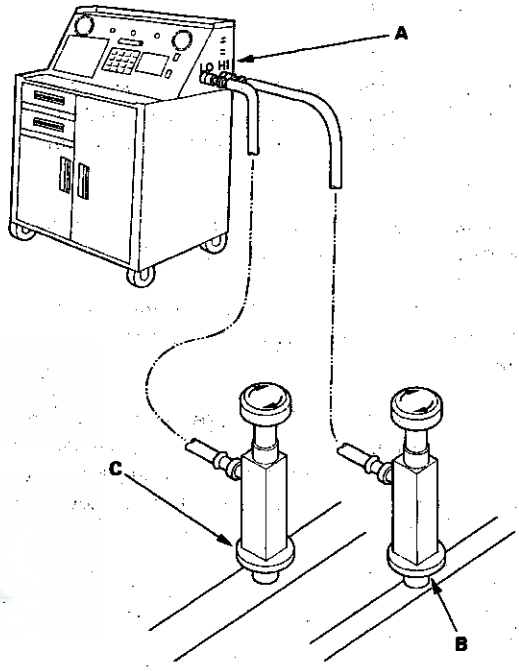
Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate the work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Open the high pressure valve to charge the system to the specified capacity, then close the supply valve, and remove the charging station fittings.

   Select the appropriate units of measurement for your refrigerant charging station.

   Refrigerant Capacity:
   550 to 600 g
   0.55 to 0.60 kg
   1.2 to 1.3 lbs
   19.4 to 21.2 oz

3. Check the system for leaks using an R-134a refrigerant leak detector with an accuracy of 14 g (0.5 oz) per year or better.

4. If you find leaks that require the system to be opened (to repair or replace hoses, fittings, etc.), do the refrigerant recovery the system.

5. After checking and repairing leaks, the system must be evacuated.

A/C System Test

Pressure Test

Test results	Related symptoms	Probable cause	Remedy
Driver's and passenger's side vent temperature vary by more than 20 °F (20 °C)	Poor A/C performance. Discharge (high) and suction (low) pressure are low.	Low refrigerant charge	Recover, evacuate (see page 21-73), and recharge with specified amount (see page 21-75).
		Air mix door inoperable	Repair or replace.
Discharge (high) pressure abnormally high	After stopping A/C compressor, pressure drops to about 196 kPa (2.0 kgf/cm², 28 psi) quickly, and then falls gradually.	Air in system	Recover, evacuate (see page 21-73), and recharge with specified amount (see page 21-75).
	Reduced or no airflow through A/C condenser.	• Clogged A/C condenser or radiator fins • A/C condenser or radiator fan not working properly	• Clean. • Check voltage and fan rpm. • Check fan direction.
	Line to A/C condenser is excessively hot.	Restricted flow of refrigerant in system	Replace restricted lines.
Discharge pressure abnormally low	High and low pressures are balanced soon after stopping A/C compressor. Low side is higher than normal.	• Faulty A/C compressor discharge valve • Faulty A/C compressor seal	Replace the A/C compressor.
	Outlet of expansion valve is not frosted, low-pressure gauge indicates vacuum.	• Faulty expansion valve • Moisture in system	• Replace. • Recover, evacuate, and recharge with specified amount.
Suction (low) pressure abnormally low	Expansion valve is not frosted, and low-pressure line is not cold. Low-pressure gauge indicates vacuum.	• Frozen expansion valve (Moisture in system) • Faulty expansion valve	• Recover, evacuate, and recharge with specified amount. • Replace.
	Discharge temperature is low, and the airflow from vents is restricted.	Frozen evaporator	Run the fan with A/C compressor off, then check evaporator temperature sensor.
	Expansion valve is frosted.	Clogged expansion valve	Clean or replace.
	Receiver/dryer outlet is cool, and inlet is warm (should be warm during operation).	Clogged receiver/dryer	Replace.
Suction pressure abnormally high	Low-pressure hose and check joint are cooler than the temperature around evaporator.	Expansion valve open too long	Repair or replace.
	Suction pressure is lowered when A/C condenser is cooled by water.	Excessive refrigerant in system	Recover, evacuate, and recharge with specified amount.
	High and low-pressures are equalized as soon as the A/C compressor is stopped, and both gauges fluctuate while running.	• Faulty gasket • Faulty high-pressure valve • Foreign particle stuck in high-pressure valve	Replace the A/C compressor.
Suction and discharge pressures abnormally high	Reduced airflow through A/C condenser.	• Clogged A/C condenser or radiator fins • A/C condenser or radiator fan not working properly	• Clean. • Check voltage and fan rpm. • Check fan direction.
Suction and discharge pressures abnormally low	Low-pressure hose and metal end areas are cooler than evaporator.	Clogged or kinked low-pressure hose parts	Repair or replace.
	Temperature around expansion valve is too low compared with that around receiver/dryer.	Clogged high-pressure line	Repair or replace.
Refrigerant leaks	A/C compressor clutch is dirty.	A/C compressor shaft seal leaking	Replace the A/C compressor.
	A/C compressor bolt(s) are dirty.	Leaking around bolt(s)	Tighten bolt(s) or replace the A/C compressor.
	A/C compressor gasket is wet with oil.	Gasket leaking	Replace the A/C compressor.
	A/C fitting is dirty.	Leaking O-ring	Clean A/C fitting and replace O-ring.

(cont'd)

A/C System Test (cont'd)

Performance Test

⚠WARNING

- Compressed air mixed with R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The performance test will help determine if the air conditioner system is operating within specifications.

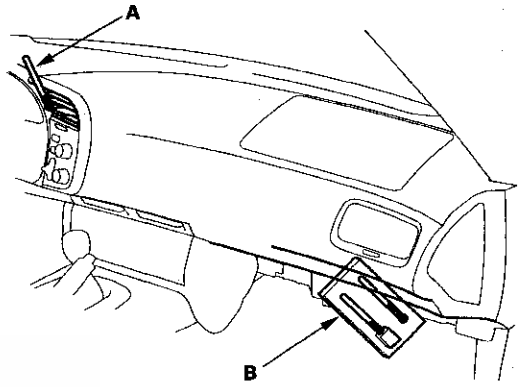
Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

If accidental system discharge occurs, ventilate the work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station to the high-pressure service port and the low-pressure service port, following the equipment manufacturer's instructions.
2. Determine the relative humidity and air temperature.
3. Remove the passenger's dashboard lower cover (see page 20-86).
4. Insert a thermometer (A) in the center vent, and place another thermometer (B) near the blower unit.



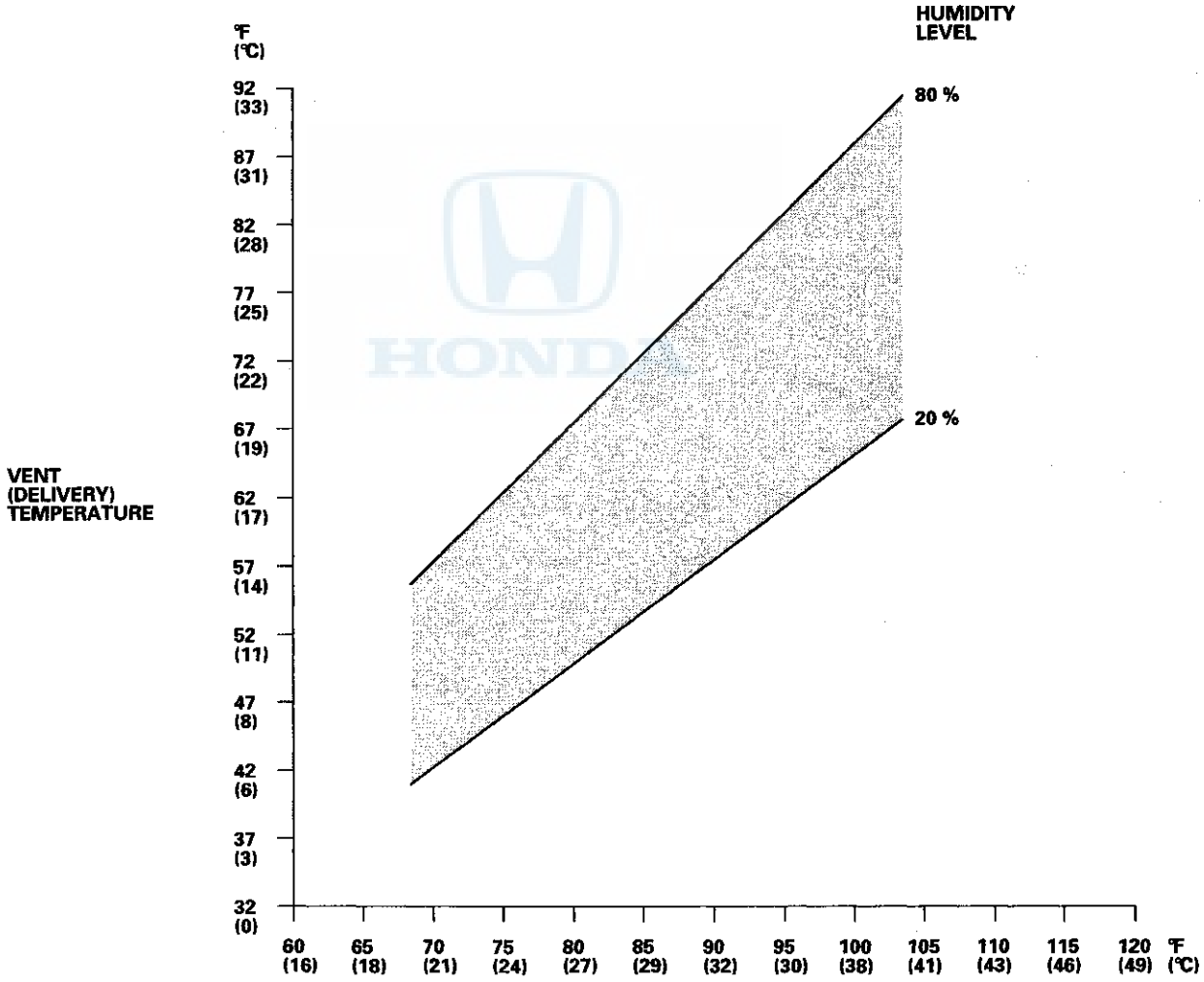
5. Test conditions:
   - Avoid direct sunlight, put the top up.
   - Open the hood.
   - Open the front doors.
   - Set the temperature control dial on Max Cool, the mode control dial on Vent, and the recirculation control switch on Recirculate.
   - Turn the A/C switch on and the fan switch on Max.
   - Run the engine speed at 1,500 rpm.
   - No driver or passengers in vehicle.
6. After running the air conditioning for 10 minutes under the above test conditions, read the delivery temperature from the thermometer in the center vent, the intake temperature near the blower unit, and the high and low system pressure from the A/C gauges.

7. To complete the vent (delivery)/ambient air (intake) temperature chart:

   - Mark the vent (delivery) temperature on the vertical line.
   - Mark the ambient air (intake) temperature on the bottom line.
   - Draw a vertical line from the ambient air (intake) temperature mark.
   - Draw a horizontal line from the vent (delivery) temperature mark until it intersects the vertical line.

   NOTE: The low side and intake temperatures should intersect in the shaded area within about 10 % of the measured humidity level. Any measurements outside the line may indicate the need for further inspection.

Ambient (Intake) Temperature vs. Vent (Delivery) Temperature



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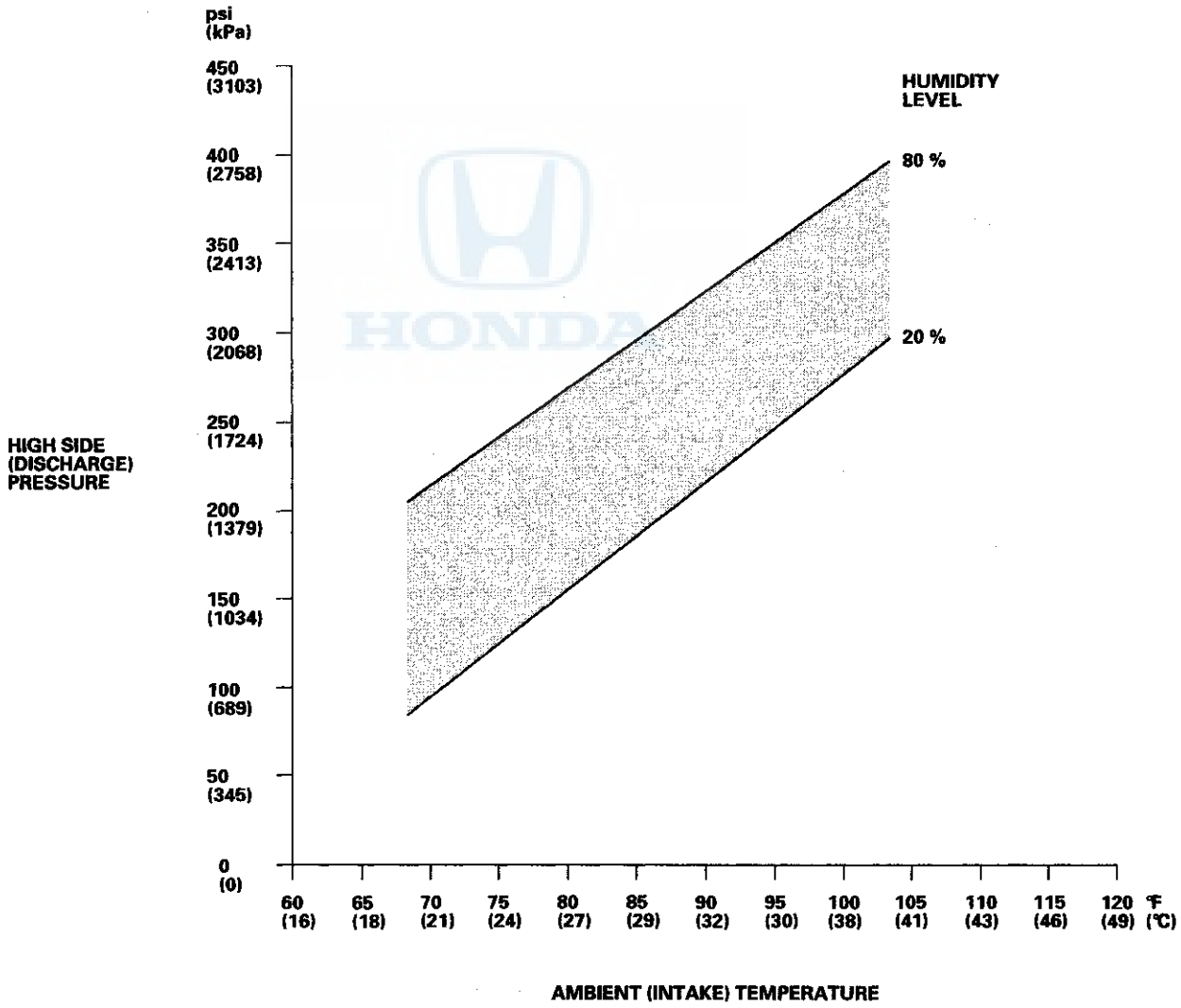
A/C System Test (cont'd)

8. To complete the high side (discharge pressure)/ambient air (intake) temperature chart:

   - Mark the high side (discharge pressure) temperature on the vertical line.
   - Mark the ambient air (intake) temperature on the bottom line.
   - Draw a vertical line from the high side (discharge pressure) temperature mark.
   - Draw a horizontal line from the vent (delivery) temperature mark until it intersects the vertical line.

   NOTE: The low side and intake temperatures should intersect in the shaded area within about 10 % of the measured humidity level. Any measurements outside the line may indicate the need for further inspection.

Ambient (Intake) Temperature vs. High Side (Discharge) Pressure

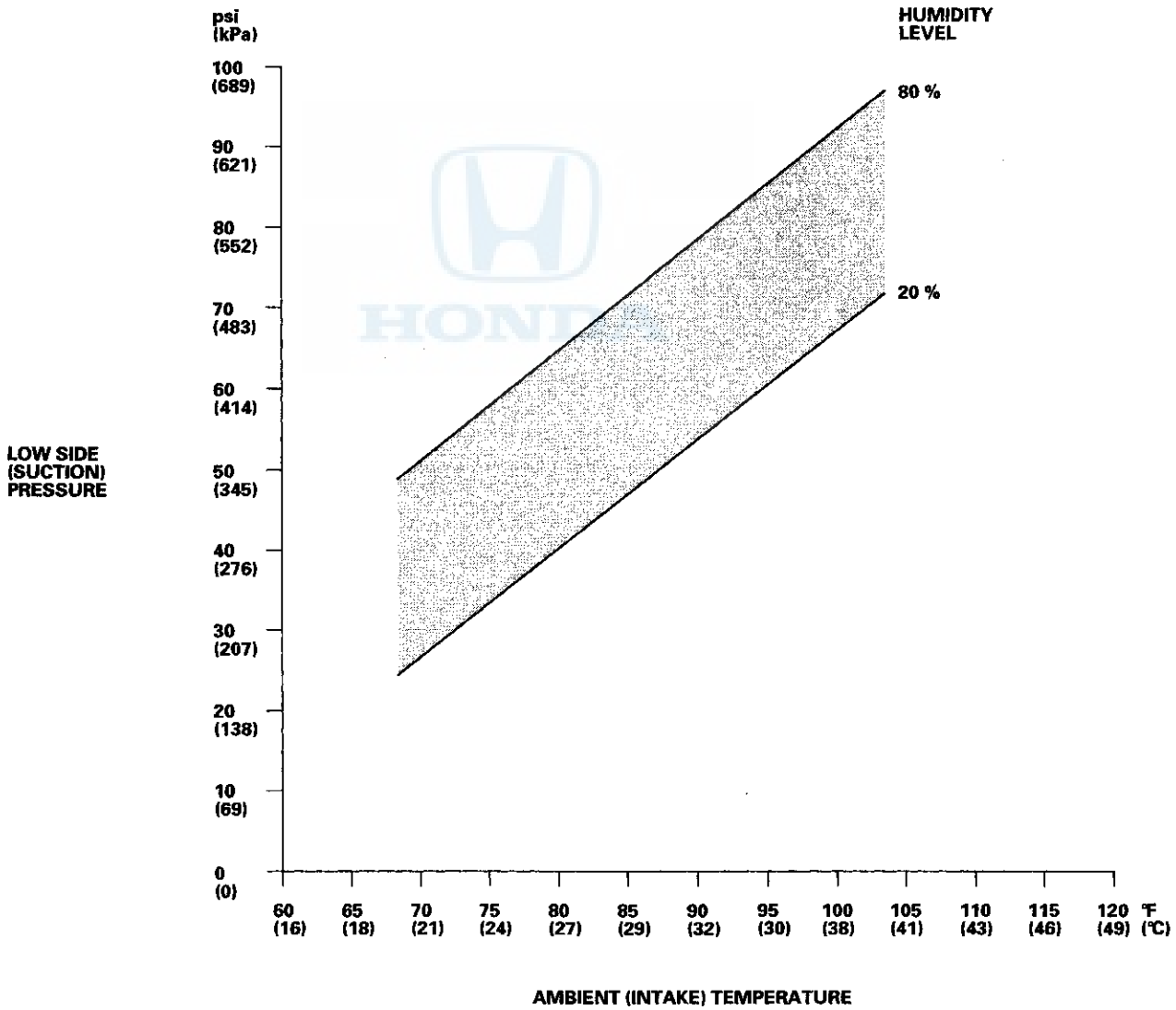


9. To complete the low side (suction pressure)/ambient air (intake) temperature chart:

   - Mark the low side (suction pressure) temperature along the vertical line.
   - Mark the ambient air (intake) temperature along the bottom line.
   - Draw a vertical line from the ambient air (intake) temperature mark.
   - Draw a horizontal line from the vent (delivery) temperature mark until it intersects the vertical line.

   NOTE: The low side and intake temperatures should intersect in the shaded area within about 10 % of the measured humidity level. Any measurements outside the line may indicate the need for further inspection.

Ambient (Intake) Temperature vs. Low Side (Suction) Pressure




HONDA

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If electrical maintenance is required)

The S2000 SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, and seat belt tensioners in the seat belt retractors. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional activation of the airbags and seat belt tensioners.
- Do not bump or impact the SRS unit, or front impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, console, dashboard, dashboard lower panel, in the dashboard above the glove box. Do not use electrical test equipment on these circuits.

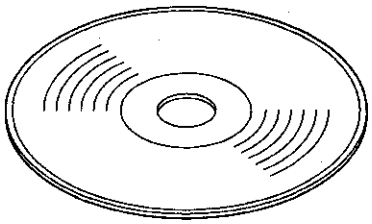
Navigation Tools: Click on the "Table of Contents" below, or use the Bookmarks to the left.

Body Electrical

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

Special Tools

Ref. No.	Tool Number	Description	Qty
①	07AAZ-SDBA100	Diagnostics CD	1
②	07AAZ-SDBA200 (ABEX-TCD-725B)	Skip Test CD	1
③	07AAZ-SDBA300 (ABEX-TCD-721)	Skip Test CD	1
④	07AAJ-S3MA100	HID Bulb Test Light	1
⑤	07TAZ-001020A	Back Probe Adaptor	1



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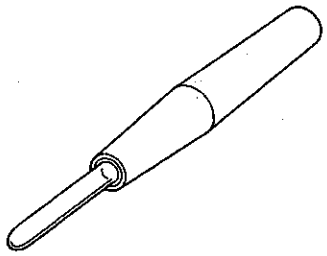
④



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General Troubleshooting Information

Tips and Precautions

Before Troubleshooting

1. Check applicable fuses in the appropriate fuse/relay box.
2. Check the battery for damage, state of charge, and clean and tight connections.

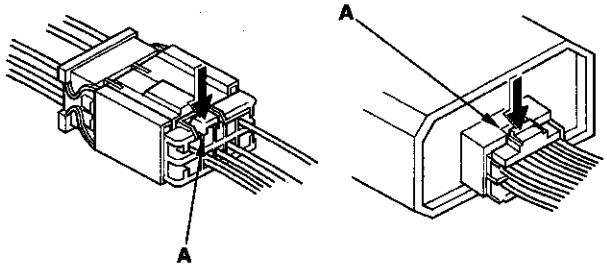
NOTICE

- Do not quick-charge a battery unless the battery ground cable has been disconnected, otherwise you will damage the alternator diodes.
- Do not attempt to crank the engine with the battery ground cable loosely connected or you will severely damage the wiring.

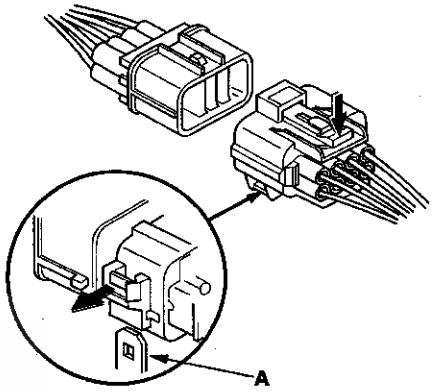
3. Check the alternator-compressor belt tension.

Handling Connectors

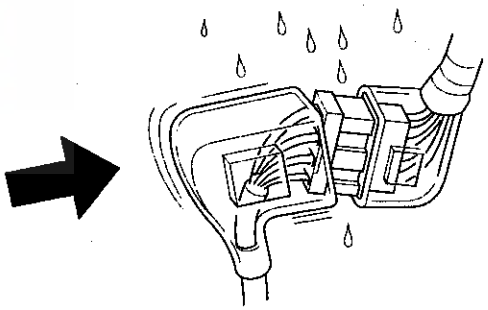
- Make sure the connectors are clean and have no loose wire terminals.
- Make sure multiple cavity connectors are packed with dielectric grease (except watertight connectors).
- All connectors have push-down release type locks (A).



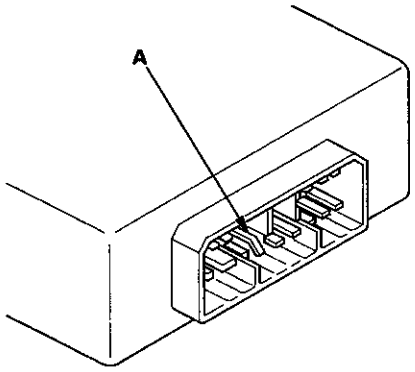
- Some connectors have a clip on their side used to attach them to a mount bracket on the body or on another component. This clip has a pull type lock.
- Some mounted connectors cannot be disconnected unless you first release the lock and remove the connector from its mount bracket (A).



- Never try to disconnect connectors by pulling on their wires; pull on the connector halves instead.
- Always reinstall plastic covers.



- Before connecting connectors, make sure the terminals (A) are in place and not bent.



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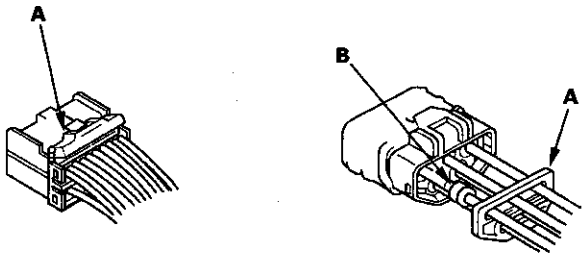
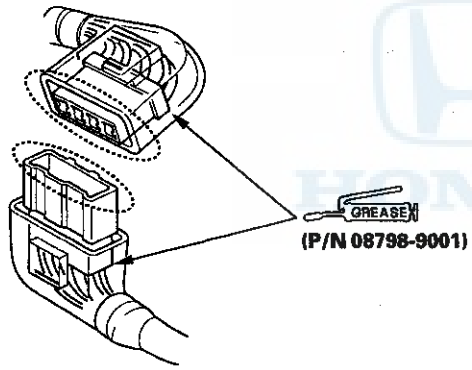
General Troubleshooting Information (cont'd)

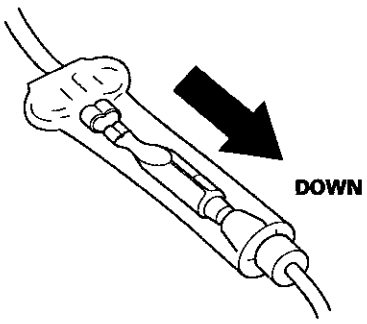
- Check for loose retainers (A) and rubber seals (B).



- The backs of some connectors are packed with dielectric grease. Add grease if necessary. If the grease is contaminated, replace it.

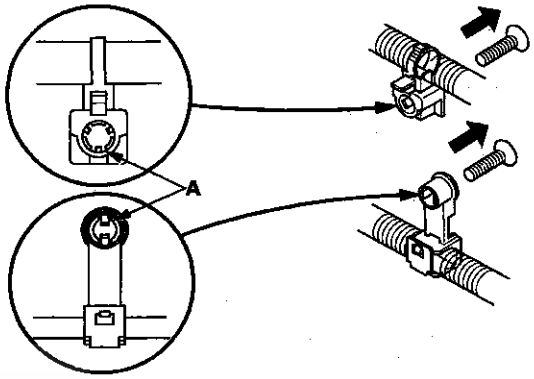


- Insert the connector all the way and make sure it is securely locked.
- Position wires so that the open end of the cover faces down.

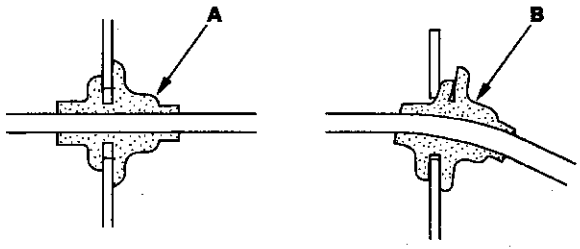


Handling Wires and Harnesses

- Secure wires and wire harnesses to the frame with their respective wire ties at the designated locations.
- Remove clips carefully; don't damage their locks (A).

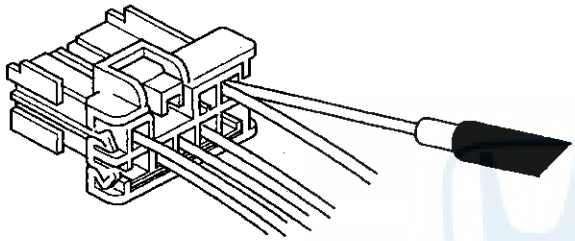


- After installing harness clips, make sure the harness doesn't interfere with any moving parts.
- Keep wire harnesses away from exhaust pipes and other hot parts, from sharp edges of brackets and holes, and from exposed screws and bolts.
- Seat grommets in their grooves properly (A). Do not leave grommets distorted (B).

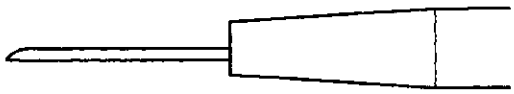


Testing and Repairs

- Do not use wires or harnesses with broken insulation. Replace them or repair them by wrapping the break with electrical tape.
- After installing the parts, make sure that no wires are pinched under them.
- When using electrical test equipment, follow the manufacturer's instructions and those described in this manual.
- If possible, insert the probe of the tester from the wire side (except waterproof connector).



- Use back probe adapter 07TAZ-001020A.



- Refer to the instructions in the Honda Terminal Kit for identification and replacement of connector terminals.

Five-step Troubleshooting

1. Verify The Complaint
   Turn on all the components in the problem circuit to verify the customer complaint. Note the symptoms. Do not begin disassembly or testing until you have narrowed down the problem area.

2. Analyze The Schematic
   Look up the schematic for the problem circuit. Determine how the circuit is supposed to work by tracing the current paths from the power feed through the circuit components to ground. If several circuits fail at the same time, the fuse or ground is a likely cause.

   Based on the symptoms and your understanding of the circuit operation, identify one or more possible causes of the problem.

3. Isolate The Problem By Testing The Circuit
   Make circuit tests to check the diagnosis you made in step 2. Keep in mind that a logical, simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points that are easily accessible.

4. Fix The Problem
   Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.

5. Make Sure The Circuit Works
   Turn on all components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on the fuse. Make sure no new problems turn up and the original problem does not recur.

(cont'd)

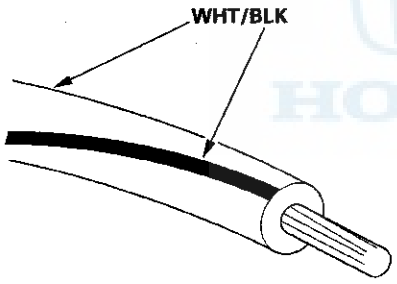
General Troubleshooting Information (cont'd)

Wire Color Codes

The following abbreviations are used to identify wire colors in the circuit schematics:

WHT	White
YEL	Yellow
BLK	Black
BLU	Blue
GRN	Green
RED	Red
ORN	Orange
PNK	Pink
BRN	Brown
GRY	Gray
PUR	Purple
LT BLU	Light Blue
LT GRN	Light Green

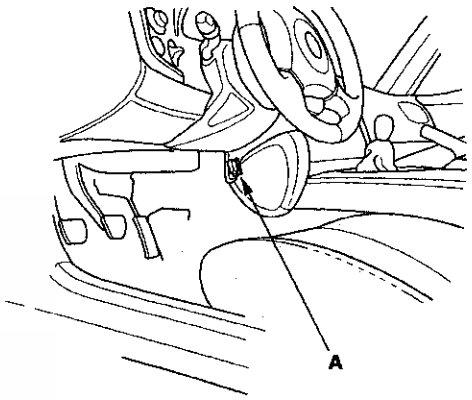
The wire insulation has one color or one color with another color stripe. The second color is the stripe.



How to Check for DTCs with the Honda Diagnostic System (HDS) ('06-08 models)

1. Connect the Honda Diagnostic System (HDS) to the Data Link Connector (DLC) (A) located behind the driver's side of the front console.

   NOTE: For specific operations, refer to the user's manual that came with the Honda Diagnostic System (HDS).



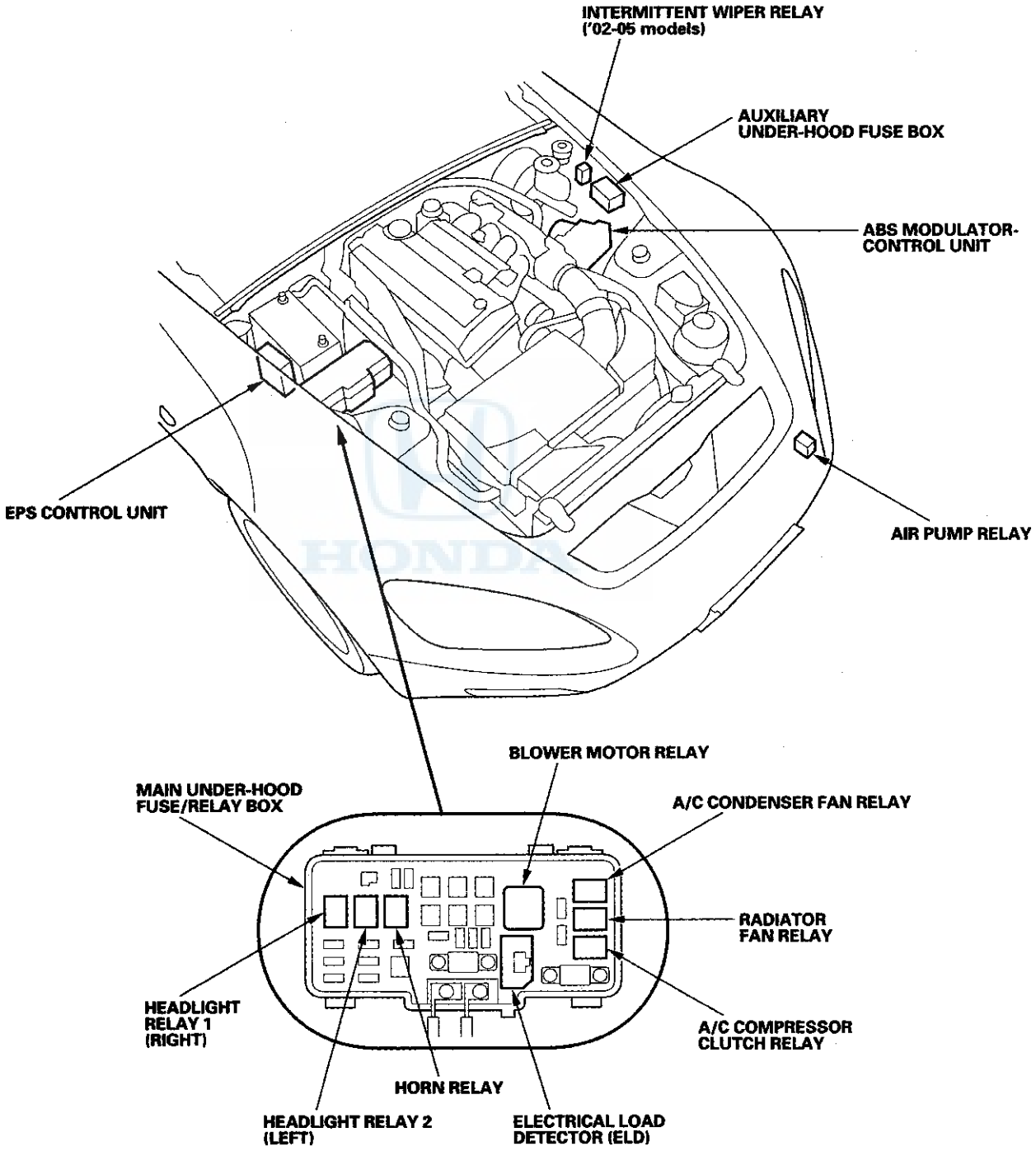
2. Make sure the HDS communicates with the vehicle and the gauge assembly. If it doesn't, troubleshoot the DLC circuit (see page 11-367).

3. Select the TEST MODE MENU and check for Diagnostic Trouble Code (DTCs), and note them. Refer to the Troubleshooting Index and begin the appropriate troubleshooting procedure.

Relay and Control Unit Locations

Engine Compartment

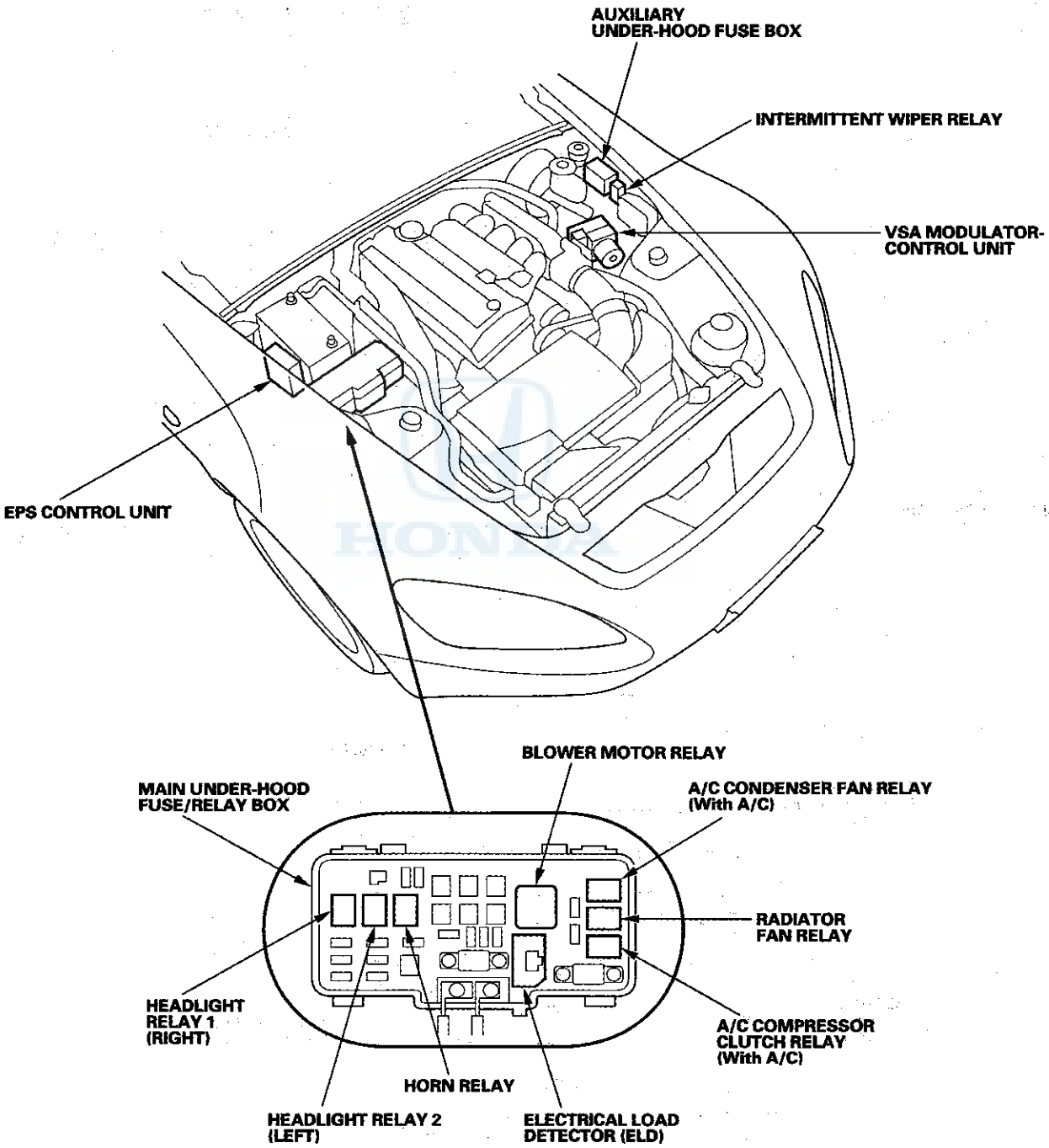
'00-05 models



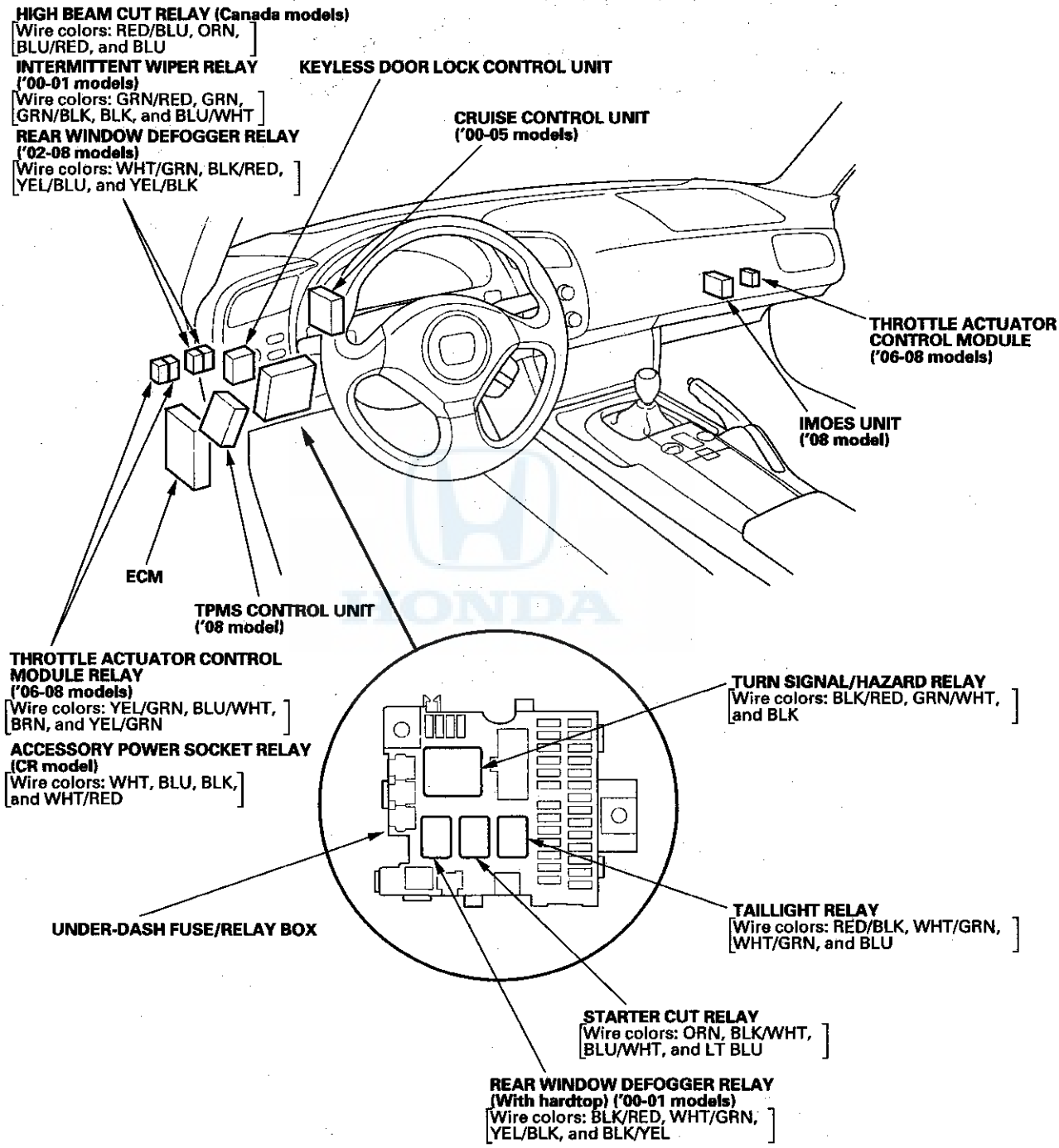
Relay and Control Unit Locations

Engine Compartment (cont'd)

'06-08 models

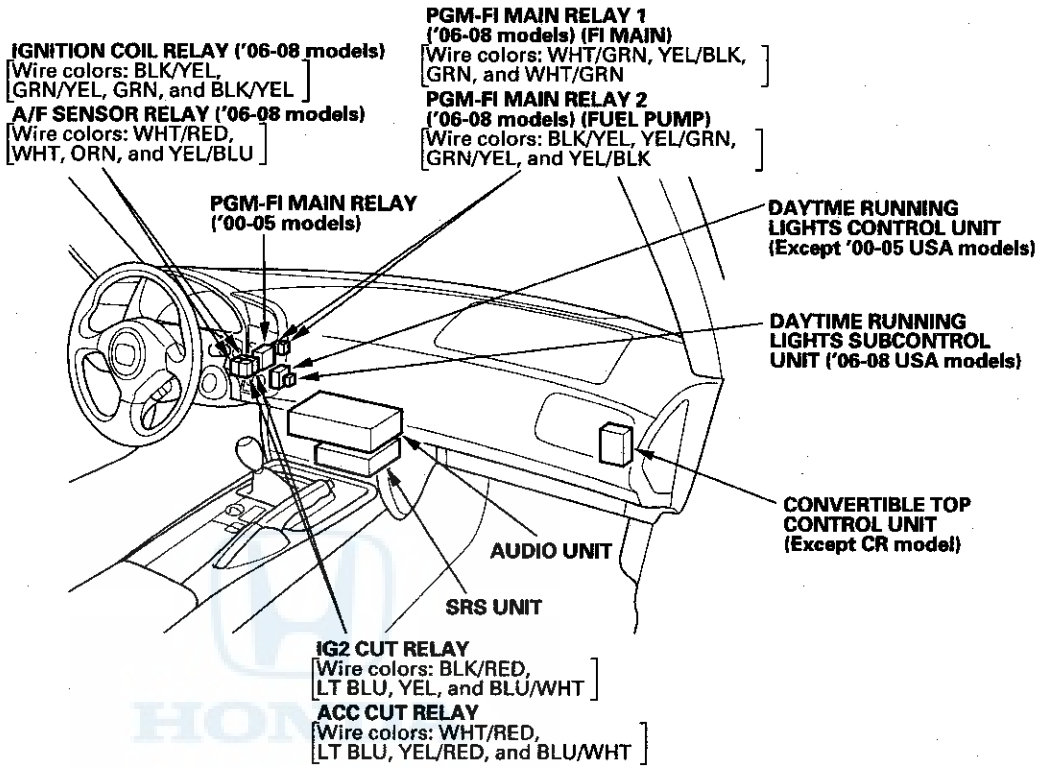


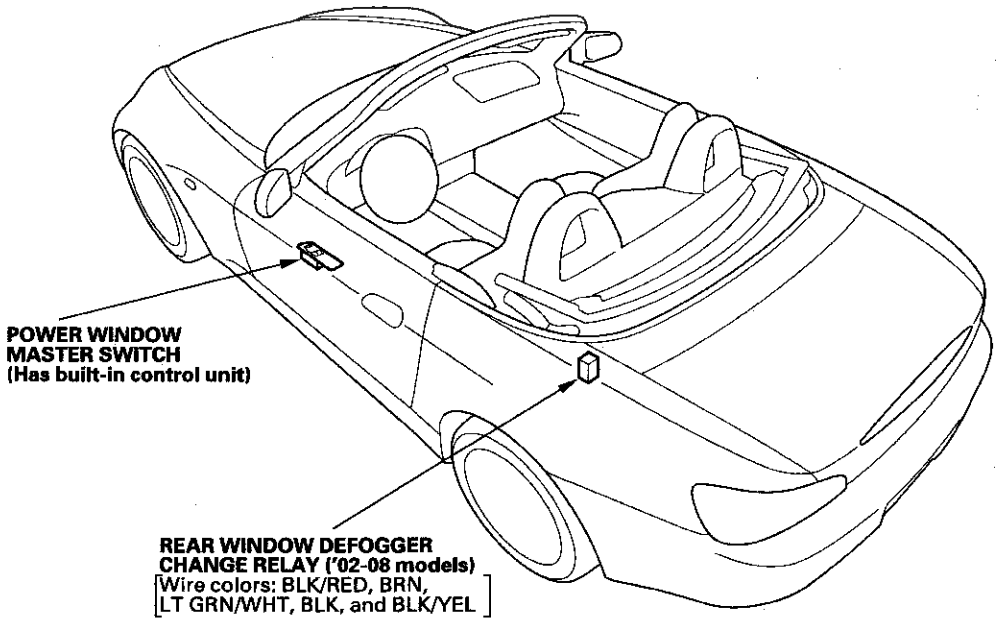
Dashboard


HIGH BEAM CUT RELAY (Canada models)
Wire colors: RED/BLU, ORN, BLU/RED, and BLU
INTERMITTENT WIPER RELAY ('00-01 models)
Wire colors: GRN/RED, GRN, GRN/BLK, BLK, and BLU/WHT
REAR WINDOW DEFOGGER RELAY ('02-08 models)
Wire colors: WHT/GRN, BLK/RED, YEL/BLU, and YEL/BLK
KEYLESS DOOR LOCK CONTROL UNIT
CRUISE CONTROL UNIT ('00-05 models)
THROTTLE ACTUATOR CONTROL MODULE ('06-08 models)
IMOES UNIT ('08 model)
ECM
TPMS CONTROL UNIT ('08 model)
THROTTLE ACTUATOR CONTROL MODULE RELAY ('06-08 models)
Wire colors: YEL/GRN, BLU/WHT, BRN, and YEL/GRN
ACCESSORY POWER SOCKET RELAY (CR model)
Wire colors: WHT, BLU, BLK, and WHT/RED
TURN SIGNAL/HAZARD RELAY
Wire colors: BLK/RED, GRN/WHT, and BLK
UNDER-DASH FUSE/RELAY BOX
TAILLIGHT RELAY
Wire colors: RED/BLK, WHT/GRN, WHT/GRN, and BLU
STARTER CUT RELAY
Wire colors: ORN, BLK/WHT, BLU/WHT, and LT BLU
REAR WINDOW DEFOGGER RELAY (With hardtop) ('00-01 models)
Wire colors: BLK/RED, WHT/GRN, YEL/BLK, and BLK/YEL

Relay and Control Unit Locations

Dashboard and Door





Connector Index

Identification numbers have been assigned to in-line connectors, junction connectors, and terminals. The number is preceded by the letter "C" for connectors, "G" for ground terminals, or "T" for non-ground terminals.

Harness	Location			
	Engine Compartment	Dashboard	Others (Floor, Door, Trunk and Roof)	Notes
Antenna amplifier subharness		C551		(see page 22-32)
Battery ground cable	G1 and (−)			(see page 22-12)
CKP sensor subharness *3	C105			(see page 22-16)
Dashboard wire harness A		C101 through C103, C204, C303, C304, C402 through C404, C451, C453, C501 through C506 G501 and G502		(see page 22-26)
Dashboard wire harness B (left branch)		C301, C302, C401 through C404 G401		(see page 22-22)
Dashboard wire harness B (right branch)		C201 through C203, C451 through C453 G402		(see page 22-24)
Driver's door wire harness		C502		(see page 22-34)
Engine ground cable	T5 G2			(see page 22-12)
Engine wire harness *4	T101 through T103 G101	C101 through C104		(see page 22-14)
Engine wire harness *3	C105 T101 and T103 G101	C101 through C104		(see page 22-16)
EPS gearbox ground cable	T4 G4			(see page 22-12)
EPS subharness	C351 T1, T6, and (+) G351			(see page 22-12)
Hardtop subharness *1			C601 and C901	(see page 22-36)
Hardtop wire harness *1			C901 G901	(see page 22-36)
Ignition switch lead				(see page 22-33)
Left engine compartment wire harness	C351 G301 through G305	C301 through C305		(see page 22-20)
Passenger's door wire harness		C504		(see page 22-35)
Rear window defogger ground wire *1			G902	(see page 22-36)
Rear window defogger subharness *2			C602	(see page 22-37)
Rear wire harness (left branch)		C401, C501, C505	C601 through C603 G601	(see page 22-30)
Rear wire harness (right branch)			G602	(see page 22-32)
Right engine compartment wire harness	G201	C201 through C205		(see page 22-18)
Roof wire harness		C452		(see page 22-32)
SRS main harness		C205, C305, C503	C603, G801	(see page 22-33)
Starter cable	T2, T3, and T7 G3			(see page 22-12)

* 1: With hardtop
* 2: '02-08 models
* 3: '06-08 models
* 4: '00-05 models

Connector to Harness Index

EPS Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
EPS control unit connector C	2	2	Right side of engine compartment		
C351	8	2	Left side of engine compartment	Left engine compartment wire harness (see page 22-20)	
T1	1		Right side of engine compartment	Main under-hood fuse/relay box	
T6	7		Left side of engine compartment	Auxiliary under-hood fuse box	
G351	3		Right side of engine compartment	Body ground, via EPS subharness	
(+)			Battery	Battery positive terminal	

Battery Ground Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
G1	4		Right side of engine compartment	Body ground, via battery ground cable	
(−)			Battery	Battery negative terminal	

Starter Cable

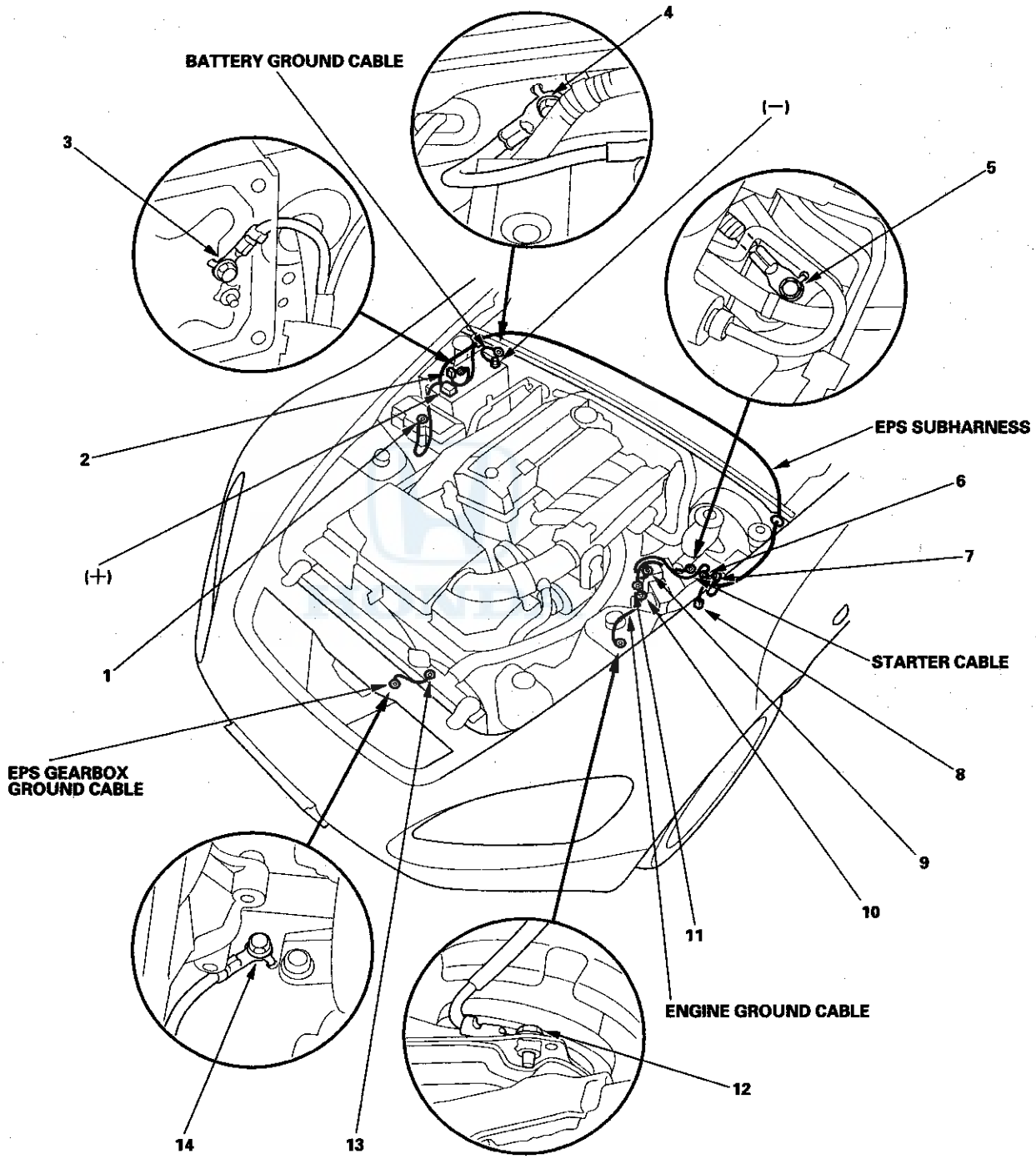
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T2	9		Left side of engine compartment	Starter motor	
T3	11		Left side of engine compartment	Engine block	
T7	6		Left side of engine compartment	Auxiliary under-hood fuse box	
G3	5		Left side of engine compartment	Body ground, via starter cable	

Engine Ground Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T5	10		Left side of engine compartment	Engine block	
G2	12		Rear beam	Rear beam ground, via engine ground cable	

EPS Gearbox Ground Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T4	13		Left side of engine compartment	EPS gearbox	
G4	14		Front beam	Front beam ground, via EPS gearbox ground cable	


BATTERY GROUND CABLE
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(−)
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EPS SUBHARNESS
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(+)
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STARTER CABLE
EPS GEARBOX
GROUND CABLE
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ENGINE GROUND CABLE
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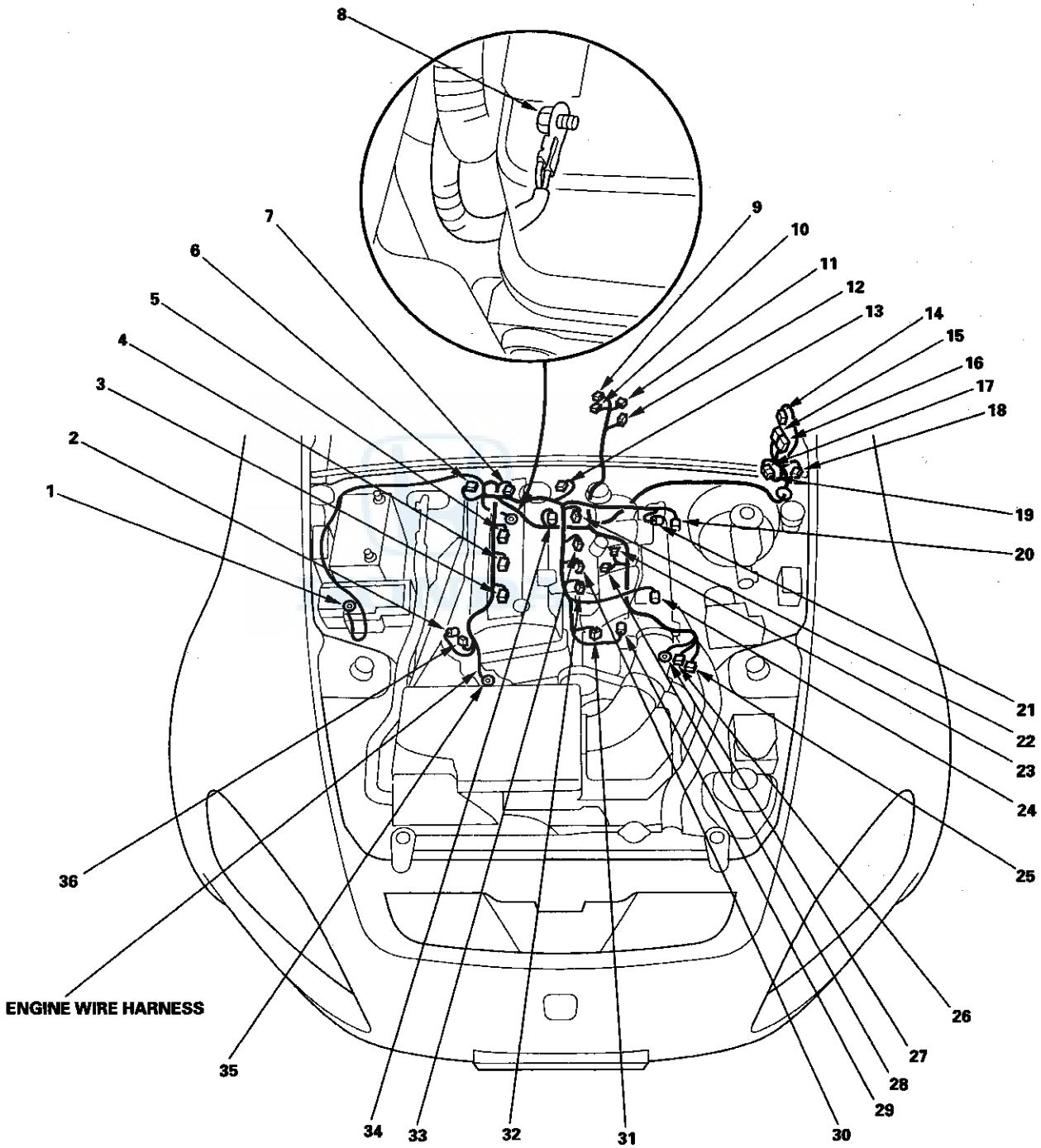
Connector to Harness Index (cont'd)

Engine Wire Harness ('00-05 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C compressor	25	1	Left side of engine compartment		
Alternator	26	4	Left side of engine compartment		
Back-up light switch	10	2	Middle of transmission		
CKP sensor	31	3	Middle of engine		
CMP (TDC) sensor A	13	2	Middle of engine		
CMP (TDC) sensor B	6	2	Right side of engine compartment		
ECM connector B	15	25	Behind left kick panel		
ECM connector C	16	31	Behind left kick panel		
Engine coolant temperature (ECT) sensor	34	2	Middle of engine		
Idle air control (IAC) valve	20	3	Left side of engine compartment		
Intake air temperature (IAT) sensor	21	2	Left side of engine compartment		
Knock sensor	28	1	Middle of engine		
MAP sensor	24	3	Left side of engine compartment		
No. 1 ignition coil	3	3	Middle of engine		
No. 2 ignition coil	4	3	Middle of engine		
No. 3 ignition coil	5	3	Middle of engine		
No. 4 ignition coil	7	3	Middle of engine		
No. 1 injector	32	2	Middle of engine		
No. 2 injector	30	2	Middle of engine		
No. 3 injector	33	2	Middle of engine		
No. 4 injector	22	2	Middle of engine		
Primary heated oxygen sensor (PHO2S)	9	4	Middle of transmission		
Rocker arm oil control solenoid (VTEC solenoid valve)	36	1	Right side of engine compartment		
Rocker arm oil pressure switch (VTEC oil pressure switch)	2	2	Right side of engine compartment		
Secondary heated oxygen sensor (SHO2S)	11	4	Middle of transmission		
Starter solenoid	23	1	Left side of engine compartment		
Throttle position (TP) sensor	29	3	Left side of engine compartment		
Vehicle speed sensor (VSS)	12	3	Middle of transmission		
C101	14	16	Behind left kick panel	Dashboard wire harness A (see page 22-26)	
C102 (Junction connector)	18	20	Behind left kick panel		
C103 (Connect to C104)	17	2	Behind left kick panel		
C104 (Connect to C103)	19	2	Behind left kick panel		
T101	1		Main under-hood fuse/relay box		
T102	27		Alternator		
T103	35		Oil pressure switch		
G101	8		Rear of engine	Engine ground, via engine wire harness	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ENGINE WIRE HARNESS

Connector to Harness Index (cont'd)

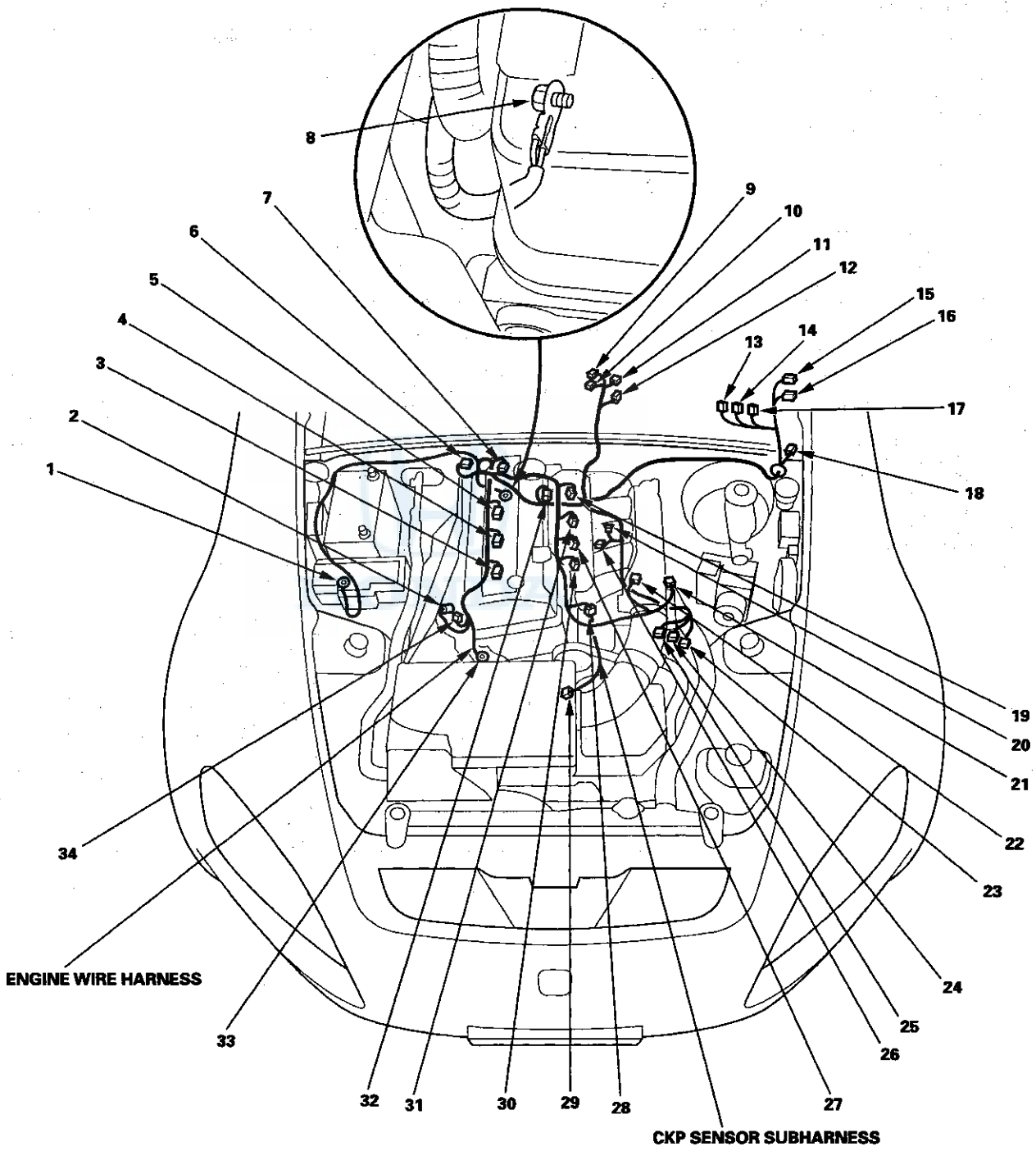
Engine Wire Harness ('06-08 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C compressor	23	1	Left side of engine compartment		*
A/F sensor	9	4	Middle of transmission		
Alternator	24	4	Left side of engine compartment		
Alternator	25	1	Left side of engine compartment		
Back-up light switch	10	2	Middle of transmission		
CMP sensor	6	3	Right side of engine compartment		
ECM connector A	15	31	Behind left kick panel		
ECM connector B	16	24	Behind left kick panel		
Engine coolant temperature (ECT) sensor 1	32	2	Middle of engine		
Knock sensor	26	1	Middle of engine		
MAP sensor	22	3	Left side of engine compartment		
No. 1 ignition coil	3	3	Middle of engine		
No. 2 ignition coil	4	3	Middle of engine		
No. 3 ignition coil	5	3	Middle of engine		
No. 4 ignition coil	7	3	Middle of engine		
No. 1 injector	30	2	Middle of engine		
No. 2 injector	27	2	Middle of engine		
No. 3 injector	31	2	Middle of engine		
No. 4 injector	19	2	Middle of engine		
Output shaft (countershaft) speed sensor	12	3	Middle of transmission		
Rocker arm oil control solenoid (VTEC solenoid valve)	2	1	Right side of engine compartment		
Rocker arm oil pressure switch (VTEC oil pressure switch)	34	2	Right side of engine compartment		
Secondary heated oxygen sensor (SHO2S)	11	4	Middle of transmission		
Starter solenoid	20	1	Left side of engine compartment		
Throttle body	21	6	Left side of engine compartment		
C101	14	16	Behind left kick panel	Dashboard wire harness A (see page 22-26)	
C102	13	6	Behind left kick panel	Dashboard wire harness A (see page 22-26)	
C103	17	13	Behind left kick panel	Dashboard wire harness A (see page 22-26)	
C104 (Junction connector)	18	20	Behind left kick panel		
C105	28	3	Middle of engine	CKP sensor subharness	
T101	1		Main under-hood fuse/relay box		
T103	33		Oil pressure switch		
G101	8		Rear of engine	Engine ground, via engine wire harness	

*: With A/C

CKP Sensor Subharness ('06-08 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
CKP sensor	29	3	Middle of engine		
C105	28	3	Middle of engine	Engine wire harness	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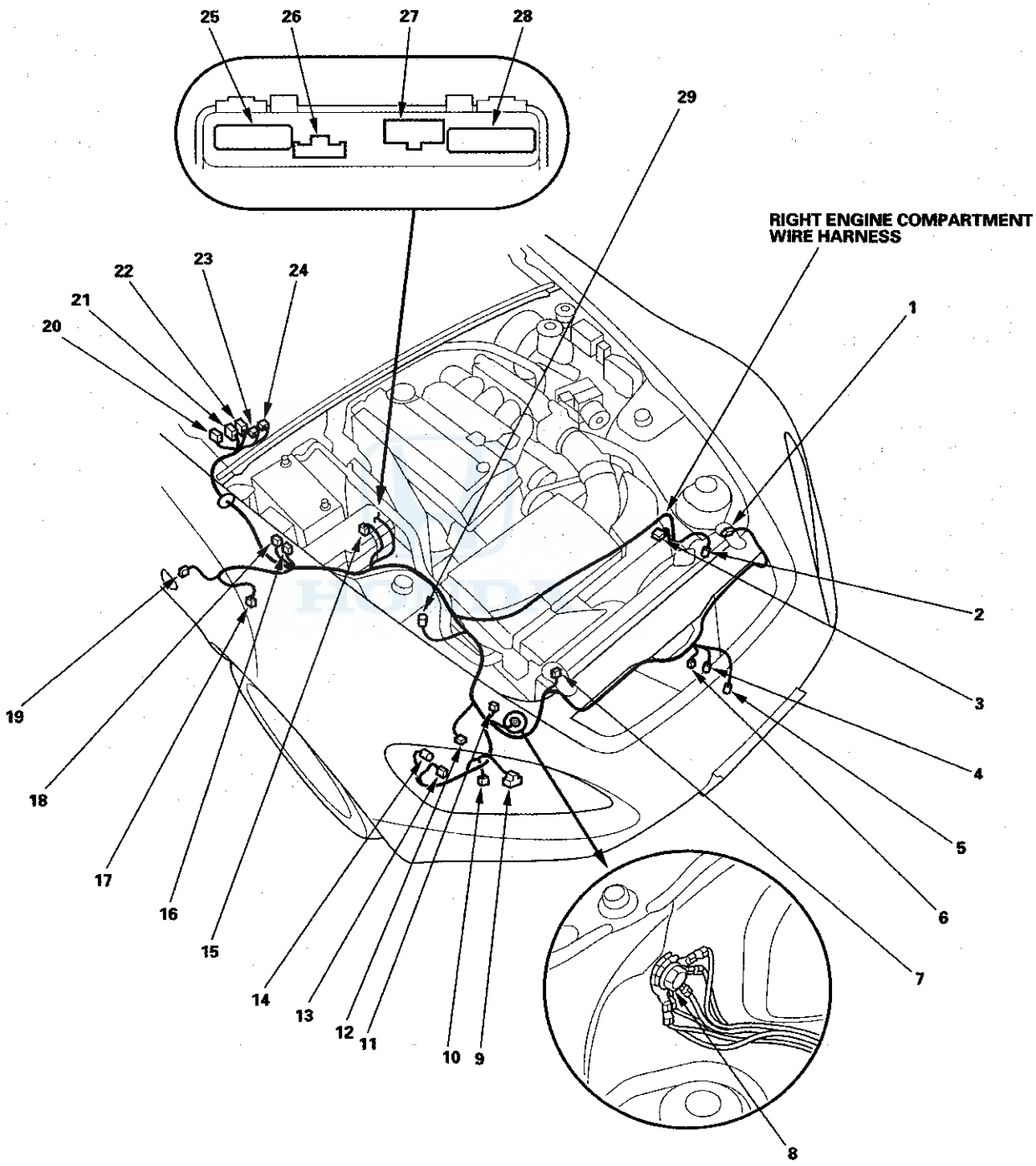
ENGINE WIRE HARNESS
CKP SENSOR SUBHARNESS

Connector to Harness Index (cont'd)

Right Engine Compartment Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C pressure switch	4	2	Middle of engine compartment		*
A/C condenser fan motor	1	2	Left side of engine compartment		*
Electrical load detector (ELD) (see page 22-38)	15	3	Under-hood fuse/relay box		
EPS control unit connector A	16	2	Right side of engine compartment		
EPS control unit connector B	18	14	Right side of engine compartment		
EPS torque sensor	2	3	Left side of engine compartment		
EPS motor	3	2	Left side of engine compartment		
Horn (low)	6	1	Middle of engine compartment		
Horn (high)	29	1	Right side of engine compartment		'02-08 models
Main under-hood fuse/relay box connector A (see page 22-38)	28	18	Right side of engine compartment		
Main under-hood fuse/relay box connector B (see page 22-38)	27	7	Right side of engine compartment		
Main under-hood fuse/relay box connector C (see page 22-38)	26	3	Right side of engine compartment		
Main under-hood fuse/relay box connector D (see page 22-38)	25	16	Right side of engine compartment		
Outside air temperature sensor	5	2	Behind front bumper		'06-08 models
Radiator fan motor	7	2	Right side of engine compartment		
Right front impact sensor	12	2	Right side of engine compartment		'06-08 models
Right front parking light	14	2	Behind right headlight		'00-03 models
Right front parking/side marker light	14	2	Behind right headlight		'04-08 models
Right front turn signal light	13	2	Behind right headlight		
Right front wheel speed sensor	11	2	Right side of engine compartment		
Right headlight (high beam)	9	3	Behind right headlight		
Right headlight (low beam)	10	2	Behind right headlight		
Right side turn signal light	19	2	Right side of engine compartment		
Windshield washer motor	17	2	Right side of engine compartment		
C201	22	16	Behind right side of dash	Dashboard wire harness B (see page 22-24)	
C202	23	6	Behind right side of dash	Dashboard wire harness B (see page 22-24)	'00-05 models
C202	23	8	Behind right side of dash	Dashboard wire harness B (see page 22-24)	'06-08 models
C203	21	7	Behind right side of dash	Dashboard wire harness B (see page 22-24)	
C204	20	18	Behind right side of dash	Dashboard wire harness A (see page 22-26)	'00-05 models
C204	20	20	Behind right side of dash	Dashboard wire harness A (see page 22-26)	'06-08 models
C205	24	4	Behind right side of dash	SRS main harness (see page 22-33)	'06-08 models
G201	8		Right side of engine compartment	Body ground, via right engine compartment wire harness	

*: With A/C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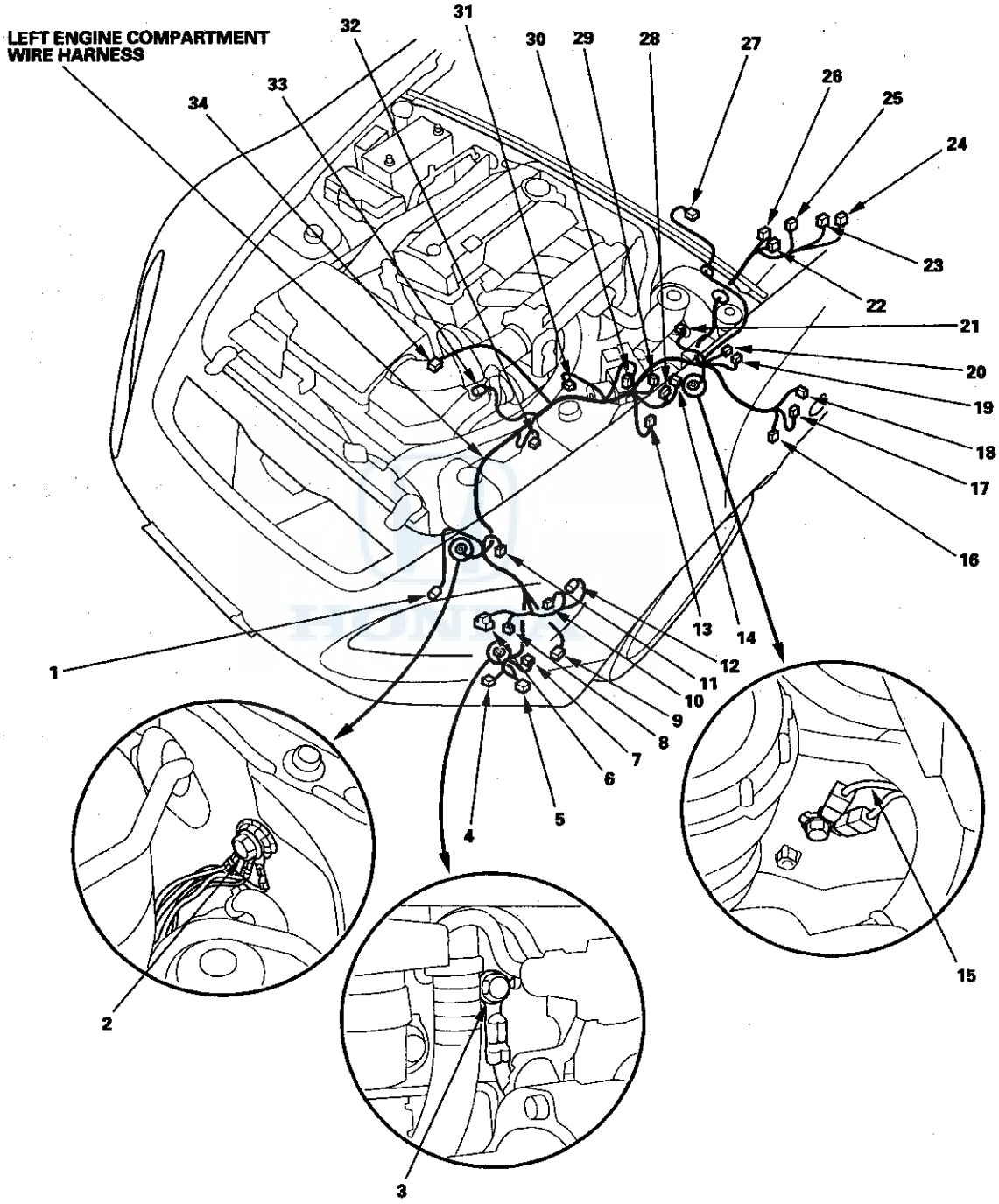
Connector to Harness Index (cont'd)

Left Engine Compartment Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ABS modulator-control unit	30	25	Left side of engine compartment		'00-05 models
Accelerator pedal position sensor	13	6	Left side of engine compartment		'06-08 models
Air control solenoid valve	33	2	Left side of engine compartment		
Air pump electric current sensor connector A	16	2	Left side of engine compartment		'00-05 models
Air pump electric current sensor connector B	17	3	Left side of engine compartment		'00-05 models
Air pump motor	5	2	Left side of engine compartment		'00-05 models
Air pump relay connector A	7	2	Left side of engine compartment		'00-05 models
Air pump relay connector B	4	2	Left side of engine compartment		'00-05 models
Auxiliary under-hood fuse box connector A (see page 22-40)	28	2	Auxiliary under-hood fuse box		
Auxiliary under-hood fuse box connector B (see page 22-40)	14	3	Auxiliary under-hood fuse box		
Brake fluid level switch	21	2	Left side of engine compartment		
Cruise control actuator	32	4	Left side of engine compartment		'00-05 models
Engine coolant temperature (ECT) sensor 2	1	2	Left side of engine compartment		'06-08 models
EVAP canister purge valve	31	2	Left side of engine compartment		
Intake air temperature (IAT) sensor	34	2	Middle of engine compartment		'06-08 models
Intermittent wiper relay	19	5	Left side of engine compartment		'02-08 models
Left front impact sensor	9	2	Left side of engine compartment		'06-08 models
Left front parking light	12	2	Behind left headlight		'00-03 models
Left front parking/side marker light	12	2	Behind left headlight		'04-08 models
Left front turn signal light	10	2	Behind left headlight		
Left front wheel speed sensor	11	2	Left side of engine compartment		
Left headlight (high beam)	6	3	Behind left headlight		
Left headlight (low beam)	8	2	Behind left headlight		
Left side turn signal light	18	2	Left side of engine compartment		
Radiator fan switch	1	2	Left side of engine compartment		'00-05 models
Test tachometer connector	20	2	Left side of engine compartment		
VSA modulator-control unit	30	47	Left side of engine compartment		'06-08 models
Windshield wiper motor	27	5	Left side of engine compartment		
C301	22	14	Under left side of dash	Dashboard wire harness B (see page 22-22)	
C302	26	16	Under left side of dash	Dashboard wire harness B (see page 22-22)	
C303	25	14	Under left side of dash	Dashboard wire harness A (see page 22-26)	'00-05 models
C303	25	20	Under left side of dash	Dashboard wire harness A (see page 22-26)	'06-08 models
C304	23	8	Under left side of dash	Dashboard wire harness A (see page 22-26)	'06-08 models
C305	24	4	Under left side of dash	SRS main harness (see page 22-33)	'06-08 models
C351	29	2	Left side of engine compartment	EPS subharness (see page 22-12)	
G301	2		Left side of engine compartment	Body ground, via left engine compartment wire harness	
G302	3		Left side of engine compartment	Body ground, via left engine compartment wire harness	
G303	13		Left side of engine compartment	Body ground, via left engine compartment wire harness	


LEFT ENGINE COMPARTMENT WIRE HARNESS
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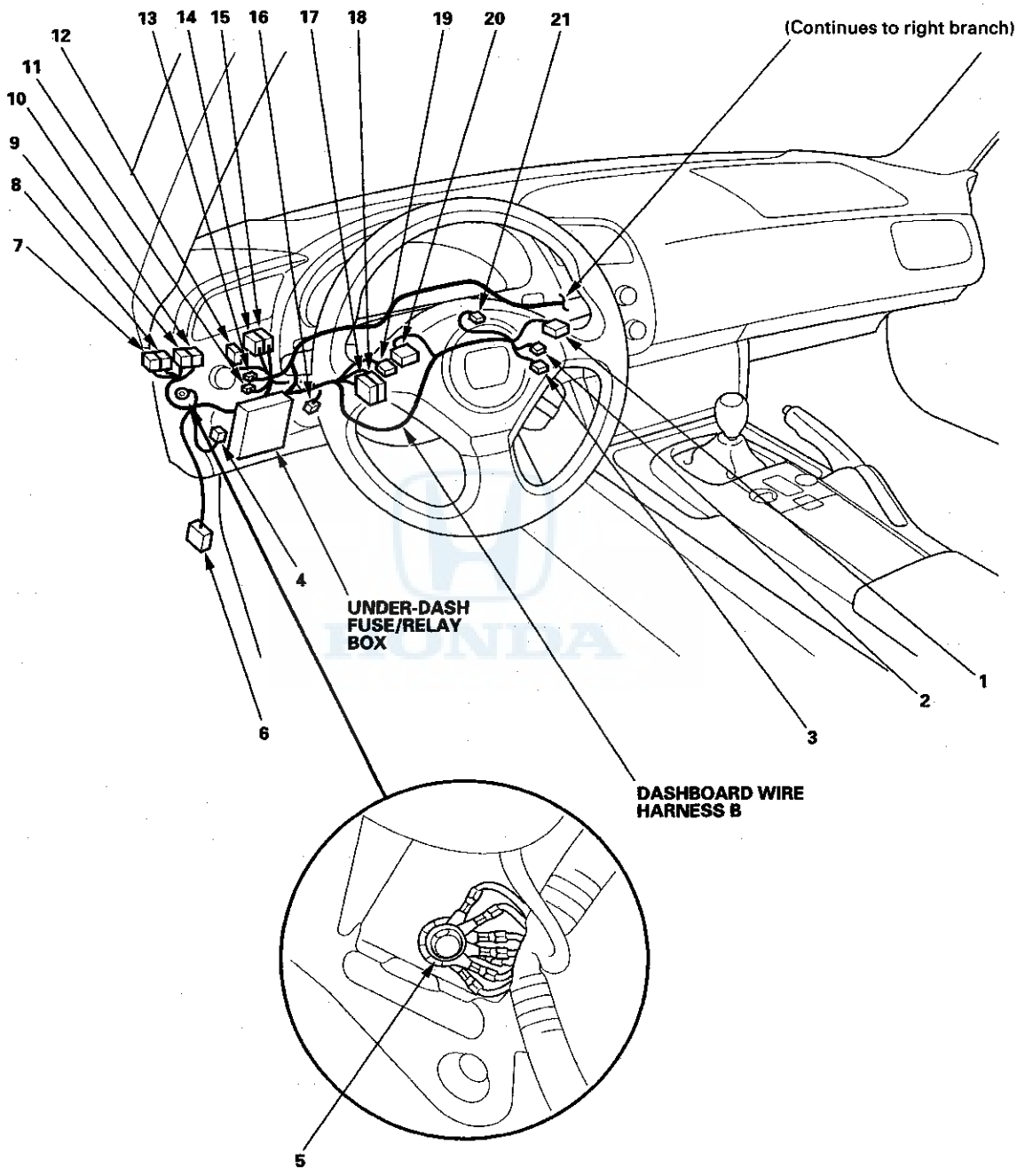
Connector to Harness Index (cont'd)

Dashboard Wire Harness B (Left branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Accessory power socket relay	8	4	Under left side of dash		* 2
Brake pedal position switch	16	4	Under left side of dash		
Cable reel	21	4	Under left side of dash		
Clutch pedal position switch	11	2	Under left side of dash		
Clutch interlock switch	13	2	Under left side of dash		
Combination light switch	20	16	Under left side of dash		
Cruise control unit	12	14	Under left side of dash		
High beam cut relay	9	4	Under left side of dash		* 1
Ignition key switch	3	7	Under left side of dash		
Intermittent wiper relay	10	5	Under left side of dash		'00-01 models
Immobilizer receiver unit	2	5	Under left side of dash		'00-05 models
Immobilizer control unit-receiver	2	7	Under left side of dash		'06-08 models
Rear window defogger relay	10	5	Under left side of dash		'02-08 models
Throttle actuator control module relay	7	4	Under left side of dash		'06-08 models
TPMS control unit	4	20	Under left side of dash		'08 model
Wiper/washer switch	1	14	Under left side of dash		
C301	14	14	Under left side of dash	Left engine compartment wire harness (see page 22-20)	
C302	15	16	Under left side of dash	Left engine compartment wire harness (see page 22-20)	
C401	6	22	Behind left kick panel	Rear wire harness (see page 22-30)	
C402	19	4	Under left side of dash	Dashboard wire harness A (see page 22-26)	'00-01 models
C402	19	6	Under left side of dash	Dashboard wire harness A (see page 22-26)	'02-07 models
C402	18	6	Under left side of dash	Dashboard wire harness A (see page 22-26)	'08 model
C403	18	16	Under left side of dash	Dashboard wire harness A (see page 22-26)	'00-07 models
C403	19	16	Under left side of dash	Dashboard wire harness A (see page 22-26)	'08 model
G404	17	24	Under left side of dash	Dashboard wire harness A (see page 22-26)	
G401	5		Under left side of dash	Body ground, via dashboard wire harness B	

* 1: Except '00-05 USA models
* 2: CR model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UNDER-DASH
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DASHBOARD WIRE
HARNESS B
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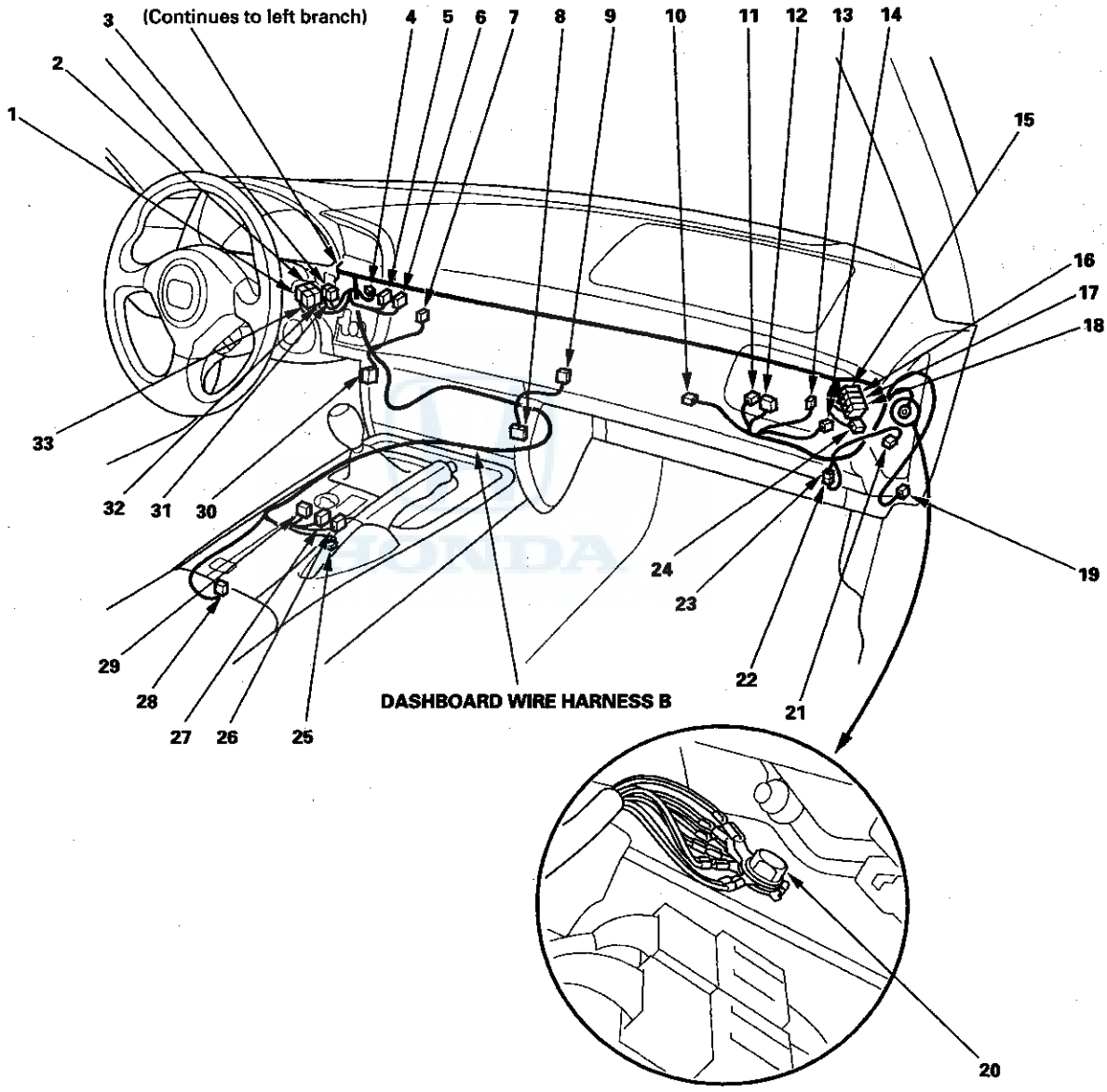
Connector to Harness Index (cont'd)

Dashboard Wire Harness B (Right branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/F sensor relay	2	5	Under middle of dash		'06-08 models
ACC cut relay	32	5	Under middle of dash		
Air mix control motor	9	7	Under middle of dash		
Blower motor	13	2	Under right side of dash		
Convertible top motor emergency connector A	22	2	Under right side of dash		
Convertible top motor emergency connector B	23	2	Under right side of dash		
Convertible top control unit connector A	12	14	Under right side of dash		
Convertible top switch	30	6	Middle of floor between seats		
Daytime running lights control unit	5	14	Under middle of dash		Except '00-05 USA models
Daytime running lights subcontrol unit	6	14	Under middle of dash		'06-08 USA models
Data link connector (DLC)	8	16	Under middle of dash		'00-01 models
Data link connector (DLC)	30	16	Under middle of dash		'02-08 models
Diode (DRL)	4	2	Under middle of dash		Canada models
Evaporator temperature sensor	10	2	Under right side of dash		
Hazard warning switch	26	10	Middle of floor between seats		
IG2 cut relay	33	5	Under middle of dash		
Ignition coil relay	1	5	Under middle of dash		'06-08 models
Imoes unit	19	5	Under right side of dash		'08 model
Mode control motor	7	7	Under middle of dash		
Parking brake switch	25	1	Middle of floor between seats		'00-03 models
Parking brake switch	25	2	Middle of floor between seats		'04-08 models
PGM-FI main relay	31	7	Under middle of dash		'00-05 models
PGM-FI main relay 1 (FI main)	3	4	Under middle of dash		'06-08 models
PGM-FI main relay 2 (fuel pump)	31	4	Under middle of dash		'06-08 models
Power transistor	11	5	Under right side of dash		
Rear window defogger switch	28	5	Middle of floor between seats		Hardtop*
Rear window defogger switch	27	6	Middle of floor between seats		'06-08 models
Recirculation control motor	14	7	Under right side of dash		
C201	17	16	Under right side of dash	Right engine compartment wire harness (see page 22-18)	
C202	24	6	Under right side of dash	Right engine compartment wire harness (see page 22-18)	'00-05 models
C202	24	8	Under right side of dash	Right engine compartment wire harness (see page 22-18)	'06-08 models
C203	16	7	Under right side of dash	Right engine compartment wire harness (see page 22-18)	
C451	18	16	Under right side of dash	Dashboard wire harness A (see page 22-26)	
C452	21	2	Under right side of dash	Roof wire harness (see page 22-32)	
C453	15	12	Under right side of dash	Dashboard wire harness A (see page 22-26)	'06-08 models
G402	20		Under right side of dash	Body ground, via dashboard wire harness B	

*: '00-01 models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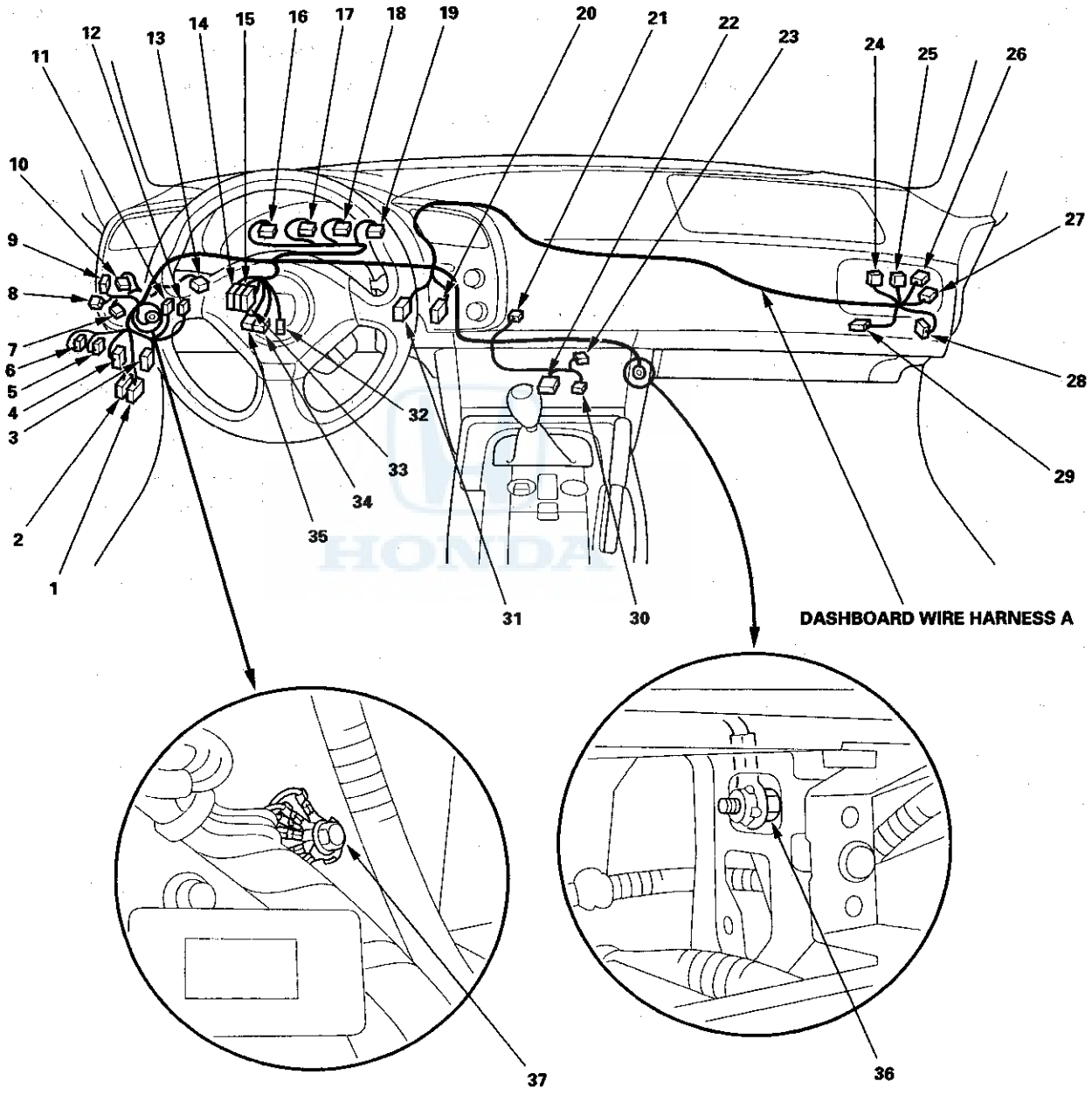
Connector to Harness Index (cont'd)

Dashboard Wire Harness A

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Audio remote switch	10	6	Under left side of dash		
Audio unit connector A	22	20	Behind audio unit		
Audio unit connector B	30	14	Behind audio unit		Option*1
Convertible top control unit connector B	25	10	Under right side of dash		
Cruise control main switch	13	6	Under left side of dash		
ECM connector A	11	32	Behind left kick panel		'00-05 models
ECM connector D	11	17	Behind left kick panel		'06-08 models
ECM connector E	12	31	Behind left kick panel		'06-08 models
Engine start switch	7	5	Under left side of dash		
Gauge assembly connector A	19	14	Behind gauge assembly		'00-03 models
Gauge assembly connector B	18	12	Behind gauge assembly		'00-03 models
Gauge assembly connector C	17	20	Behind gauge assembly		'00-03 models
Gauge assembly connector D	16	16	Behind gauge assembly		'00-03 models
Gauge assembly connector A	19	22	Behind gauge assembly		'04-08 models
Gauge assembly connector B	16	30	Behind gauge assembly		'04-08 models
Heater control panel	20	30	Under middle of dash		
Keyless door lock control unit	9	18	Under left side of dash		
Rear window defogger switch	31	6	Under middle of dash		'02-05 models
Security LED connector	8	2	Under left side of dash		Option*1
Throttle actuator control module	29	16	Behind right kick panel		'06-08 models
VSA OFF switch	31	6	Under middle of dash		'06-08 models
C101	4	16	Behind left kick panel	Engine wire harness (see page 22-14)	
C102	5	6	Behind left kick panel	Engine wire harness (see page 22-16)	'06-08 models
C103	6	13	Behind left kick panel	Engine wire harness (see page 22-16)	'06-08 models
C204	27	18	Under left side of dash	Right engine compartment wire harness (see page 22-18)	'00-05 models
C204	27	20	Under left side of dash	Right engine compartment wire harness (see page 22-18)	'06-08 models
C303	33	14	Under left side of dash	Left engine compartment wire harness (see page 22-20)	'00-05 models
C303	33	20	Under left side of dash	Left engine compartment wire harness (see page 22-20)	'06-08 models
C304	32	8	Under left side of dash	Left engine compartment wire harness (see page 22-20)	'06-08 models
C402	34	4	Under left side of dash	Dashboard wire harness B (see page 22-22)	'00-01 models
C402	34	6	Under left side of dash	Dashboard wire harness B (see page 22-22)	'02-07 models
C402	14	6	Under left side of dash	Dashboard wire harness B (see page 22-22)	'08 model
C403	14	16	Under left side of dash	Dashboard wire harness B (see page 22-22)	'00-07 models
C403	34	16	Under left side of dash	Dashboard wire harness B (see page 22-22)	'08 model
C404	15	24	Under left side of dash	Dashboard wire harness B (see page 22-22)	
C451	26	16	Under right side of dash	Dashboard wire harness B (see page 22-24)	
C453	24	12	Under right side of dash	Dashboard wire harness B (see page 22-24)	'06-08 models

* 1: '04-08 models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DASHBOARD WIRE HARNESS A

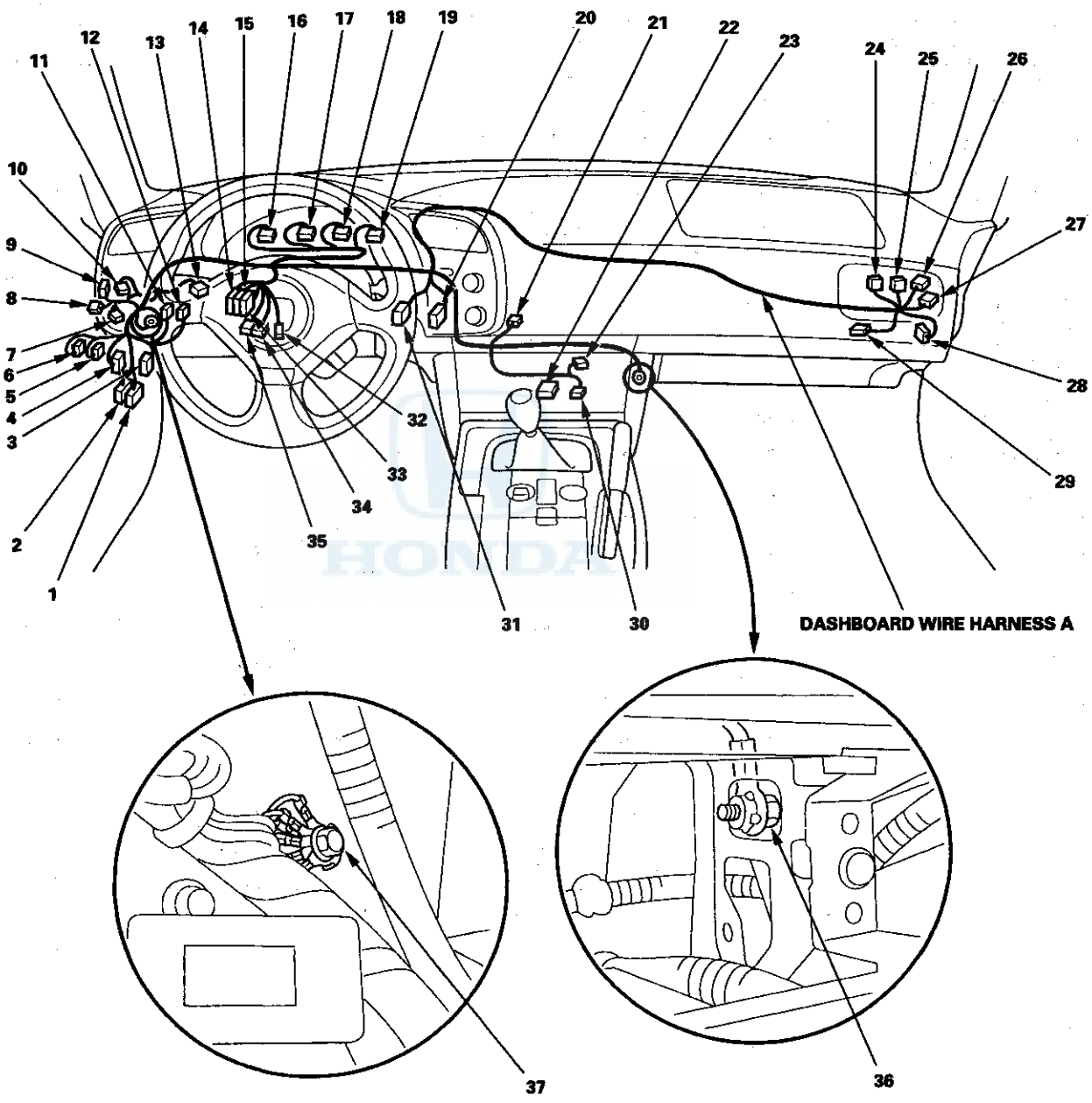
(cont'd)

Connector to Harness Index (cont'd)

Dashboard Wire Harness A (cont'd)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
C501	2	14	Behind left kick panel	Rear wire harness (see page 22-30)	'00-03 models
C501	2	17	Behind left kick panel	Rear wire harness (see page 22-30)	'04-05 models
C501	2	21	Behind left kick panel	Rear wire harness (see page 22-30)	'06-08 models
C502	3	18	Behind left kick panel	Driver's door wire harness (see page 22-34)	'00-03 models
C502	3	20	Behind left kick panel	Driver's door wire harness (see page 22-34)	'04-08 models
C503	35	3	Under left side of dash	SRS main harness (see page 22-33)	'00-05 models
C503	35	6	Under left side of dash	SRS main harness (see page 22-33)	'06-08 models
C504	28	14	Behind right kick panel	Passenger's door wire harness (see page 22-35)	'00-03 models
C504	28	16	Behind right kick panel	Passenger's door wire harness (see page 22-35)	'04-08 models
C505	1	6	Behind left kick panel	Rear wire harness (see page 22-30)	'04-05 models
C505	1	12	Behind left kick panel	Rear wire harness (see page 22-30)	'06-08 models
C506	21	4	Behind audio unit	Headrest speaker subharness	Option*1
C551	23	2	Behind audio unit	Antenna amplifier subharness (see page 22-32)	
G501	37			Body ground, via dashboard wire harness A	
G502	36			Body ground, via dashboard wire harness A	

* 1: '04-08 models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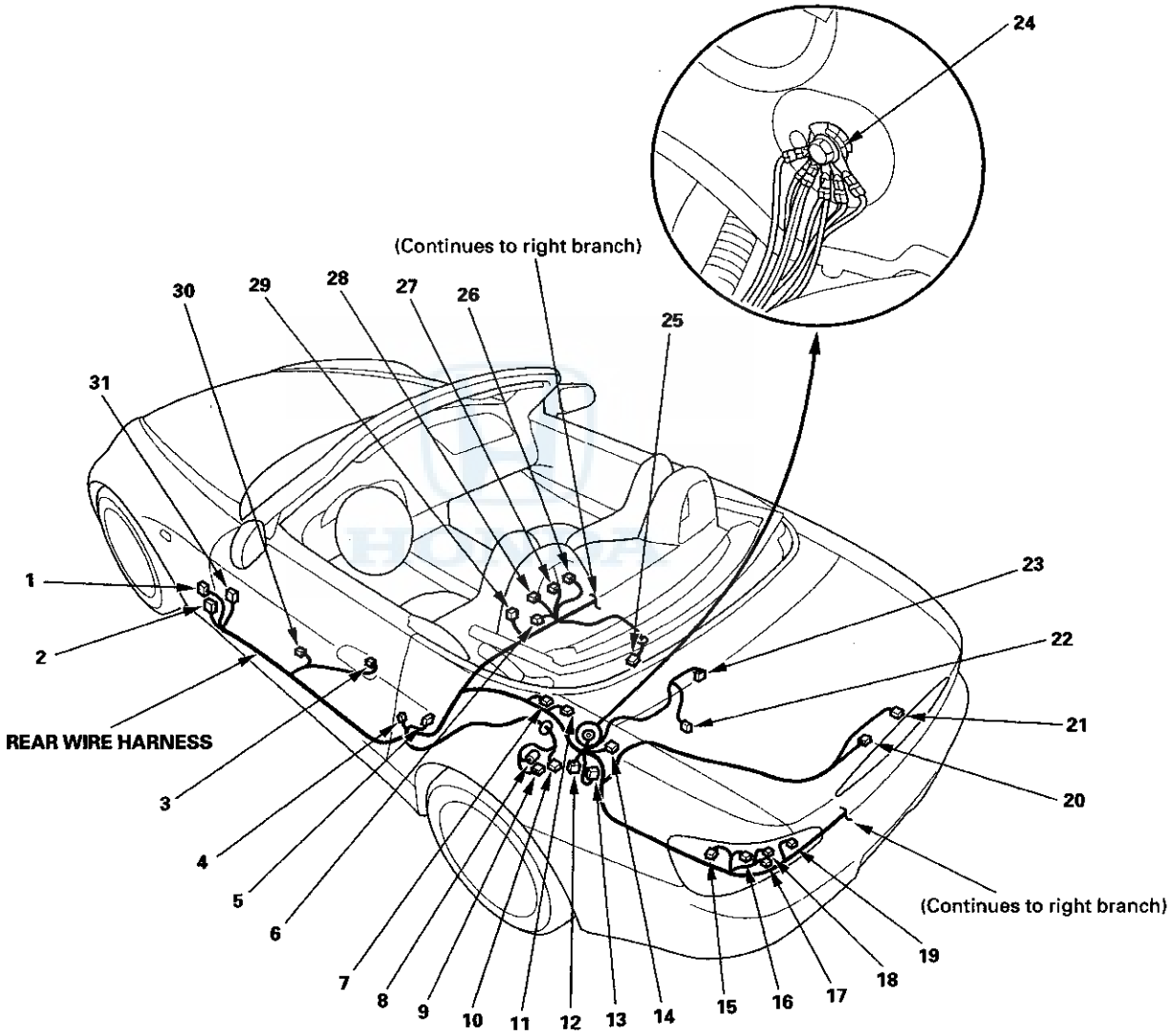
DASHBOARD WIRE HARNESS A

Connector to Harness Index (cont'd)

Rear Wire Harness (Left branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's door switch	4	1	Behind left corner gusset		
Driver's left rear speaker	28	3	Under driver's roll bar		'06-08 models
Driver's right rear speaker	29	2	Under driver's roll bar		'06-08 models
Driver's seat belt buckle switch	3	2	Under driver's seat		
Driver's seat position sensor	30	2	Under driver's seat		'06-08 models
EVAP bypass solenoid valve	9	2	Left side of under floor		
EVAP canister vent shut valve	10	2	Left side of under floor		
Fuel pump/fuel gauge sending unit	25	5	Middle of fuel tank		
Fuel tank pressure sensor	8	3	Left side of under floor		
High mount brake light	21	2	Middle of trunk lid		
Left convertible top motor	5	2	Behind left corner gusset		
Left back-up light	17	2	Behind left taillight assembly		'00-03 models
Left back-up light	19	2	Behind left taillight assembly		'04-08 models
Left brake/taillight	16	3	Behind left taillight assembly		'00-03 models
Left brake/side marker/taillight	16	3	Behind left taillight assembly		'04-08 models
Left rear side marker light	15	2	Behind left taillight assembly		'00-03 models
Left rear turn signal light	18	2	Behind left taillight assembly		
Left rear wheel speed sensor	7	2	Left side of trunk		
Noise condenser	11	2	Left side of trunk		'02-08 models
Rear window defogger change relay	13	5	Left side of trunk		'02-08 models
Rear window defogger diode	12	2	Left side of trunk		'02-08 models
Sensor cluster	27	6	Behind rear console		'06-08 models
Trunk light	23	2	Middle of trunk		
Trunk lid opener solenoid/latch switch	20	3	Middle of trunk lid		
Trunk lid opener switch	26	2	Behind rear console between seat-back		
XM receiver	22	14	Left side of trunk		Option*1
C401	1	22	Behind left kick panel	Dashboard wire harness B (see page 22-22)	
C501	2	14	Behind left kick panel	Dashboard wire harness A (see page 22-26)	'00-03 models
C501	2	17	Behind left kick panel	Dashboard wire harness A (see page 22-26)	'04-05 models
C501	2	21	Behind left kick panel	Dashboard wire harness A (see page 22-26)	'06-08 models
C505	31	6	Behind left kick panel	Dashboard wire harness A (see page 22-26)	'04-05 models
C505	31	12	Behind left kick panel	Dashboard wire harness A (see page 22-26)	'06-08 models
C601	6	4	Left side of trunk	Hardtop subharness (see page 22-36)	'00-05 models
C601	6	3	Left side of trunk	Hardtop subharness (see page 22-36)	'06-08 models
C602	14	2	Left side of trunk	Rear window defogger subharness (see page 22-37)	'02-08 models
C603	27	8	Behind rear console	SRS main harness (see page 22-33)	'06-08 models
G601	24			Body ground, via rear wire harness	

* 1: '04-08 models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(Continues to right branch)

Connector to Harness Index (cont'd)

Rear Wire Harness (Right branch)

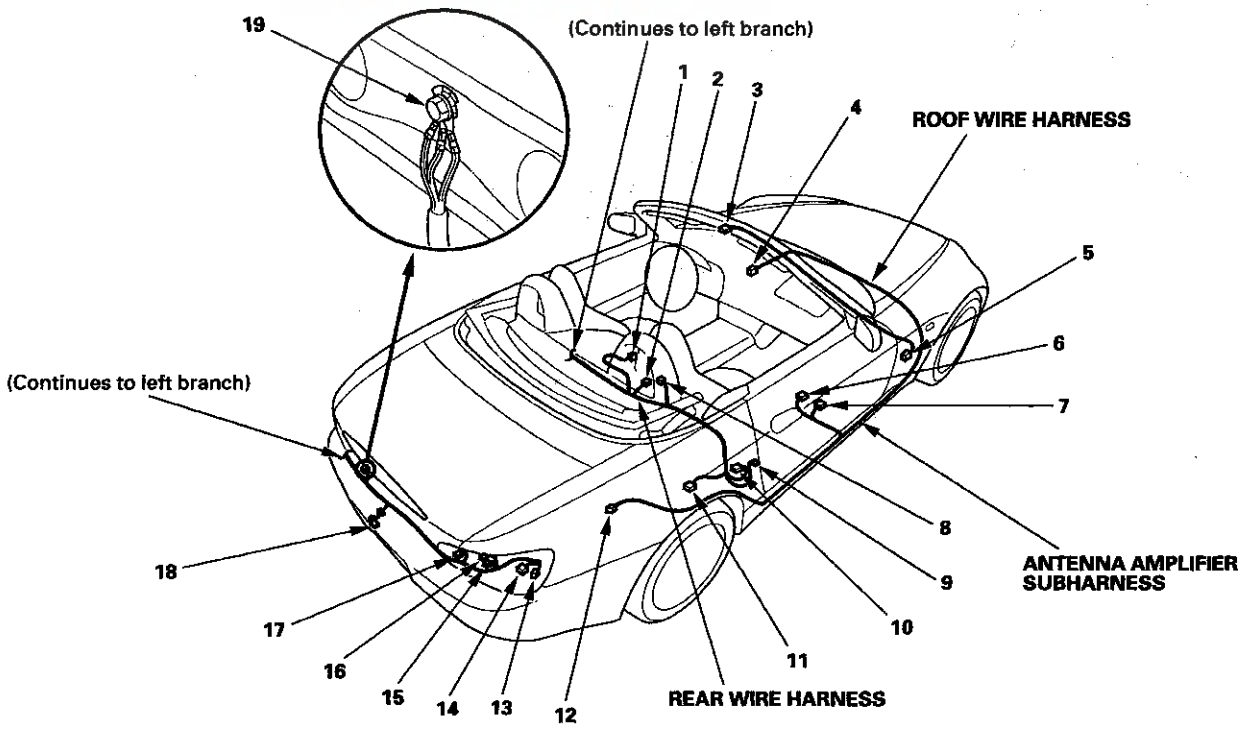
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Accessory power socket	1	2	Behind rear console between seat-back		
License plate light	18	2	Behind rear bumper		
Passenger's door switch	9	1	Behind right corner gusset		
Passenger's left rear speaker	8	2	Under passenger's roll bar		'06-08 models
Passenger's right rear speaker	2	3	Under passenger's roll bar		'06-08 models
Passenger's seat belt buckle switch	6	3	Under passenger's seat		'06-08 models
Passenger's weight sensor unit	7	6	Under passenger's seat		'06-08 models
Right convertible top motor	10	2	Behind right corner gusset		
Right back-up light	15	2	Behind right taillight		'00-03 models
Right back-up light	17	2	Behind right taillight		'04-08 models
Right brake/taillight	14	3	Behind right taillight		'00-03 models
Right brake/side marker/taillight	14	3	Behind right taillight		'04-08 models
Right rear side marker light	13	2	Behind right taillight		'00-03 models
Right rear turn signal light	16	2	Behind right taillight		
Right rear wheel speed sensor	11	2	Right side of trunk		
G602	19			Body ground, via rear wire harness	

Roof Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Ceiling light/spotlight	3	4	Roof area		
C452	5	2	Under right side of dash	Dashboard wire harness B (see page 22-24)	

Antenna Amplifier Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Antenna amplifier	12	2	Right front of trunk		
C551	4	2	Behind audio unit	Dashboard wire harness A (see page 22-26)	

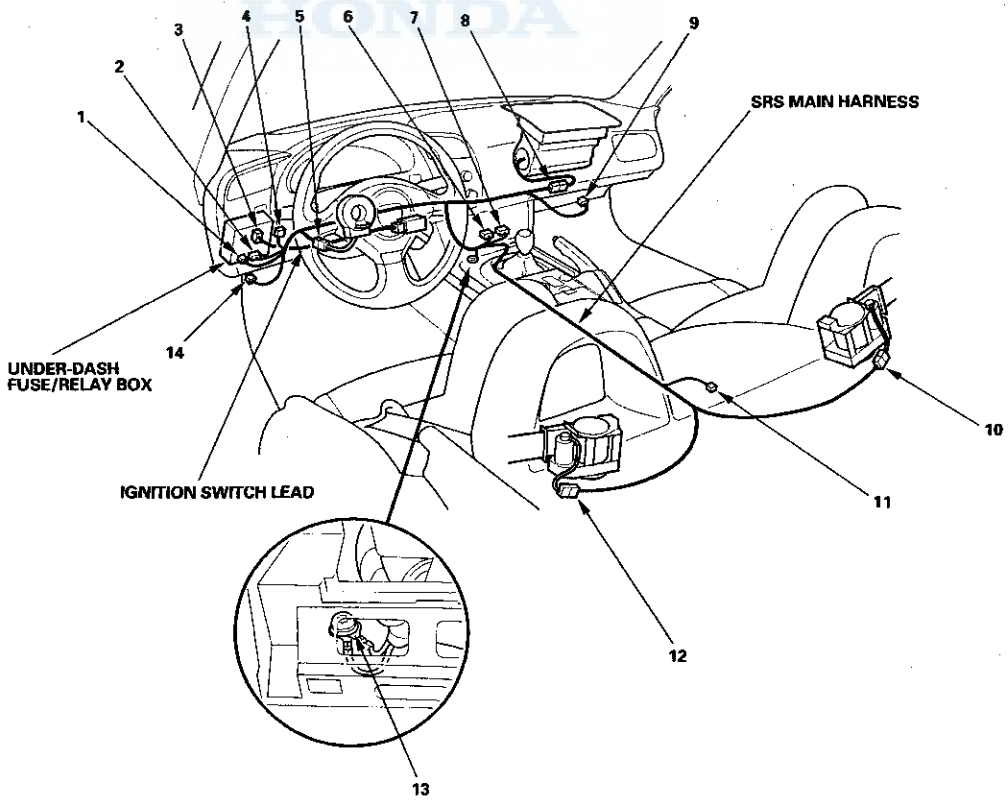


SRS Main Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Cable reel	5	2	Under left side of dash		'00-05 models
Cable reel	5	4	Under left side of dash		'06-08 models
Driver's seat belt tensioner	12	2	Behind driver's seat-back		
Memory erase signal (MES) connector	1	2	Under-dash fuse/relay box		
Passenger's airbag inflator	8	2	Under right side of dash		'00-05 models
Passenger's airbag inflator	8	4	Under right side of dash		'06-08 models
Passenger's seat belt tensioner	10	2	Behind passenger's seat-back		
SRS unit	6	18	Middle of floor		'00-05 models
SRS unit connector A	6	28	Middle of floor		'06-08 models
SRS unit connector B	7	28	Middle of floor		'06-08 models
Under-dash fuse/relay box connector A (see page 22-39)	2	2	Under-dash fuse/relay box		
C205	9	4	Under right side of dash	Right engine compartment harness (see page 22-18)	'06-08 models
C305	14	4	Under left side of dash	Left engine compartment harness (see page 22-20)	'06-08 models
C503	4	3	Under left side of dash	Dashboard wire harness A (see page 22-26)	'00-05 models
C503	4	6	Under left side of dash	Dashboard wire harness A (see page 22-26)	'06-08 models
C603	11	8	Behind rear console	Rear wire harness (see page 22-30)	'06-08 models
G801	13		Middle of floor	Body ground, via SRS main harness	

Ignition Switch Lead

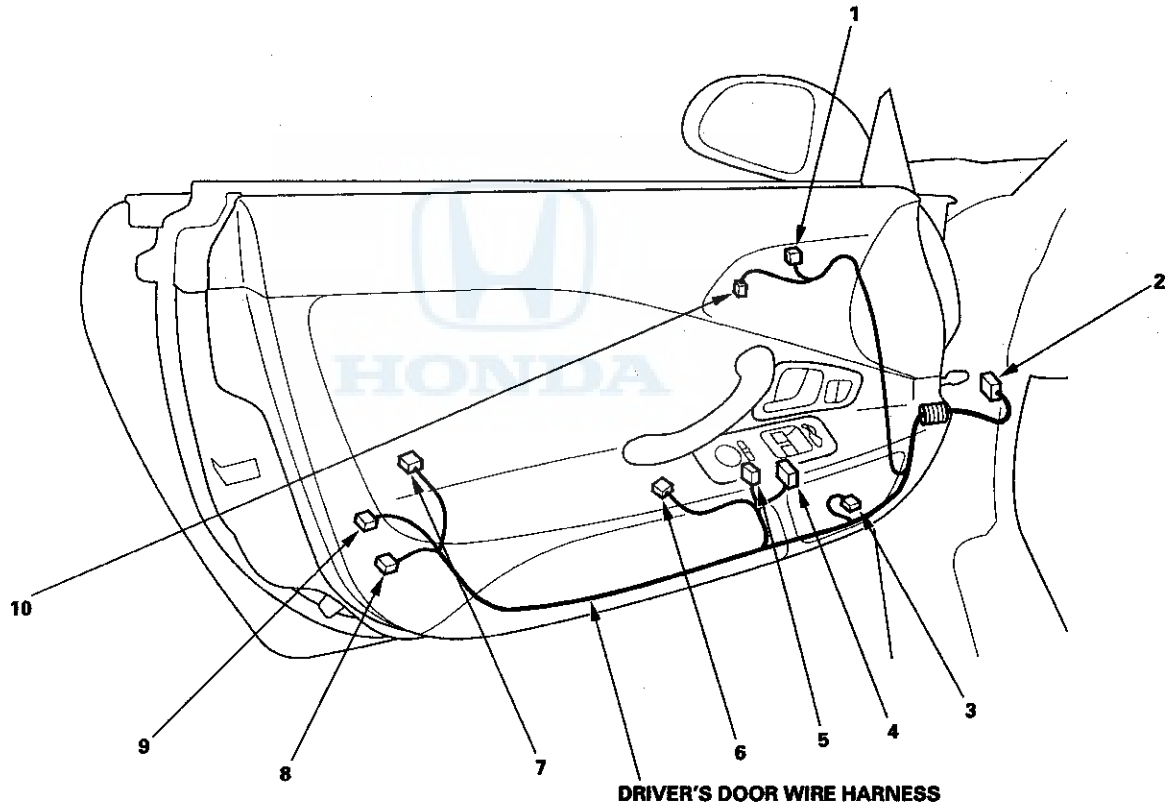
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Under-dash fuse/relay box connector B (see page 22-39)	3	7	Under left side of dash		



Connector to Harness Index (cont'd)

Driver's Door Wire Harness

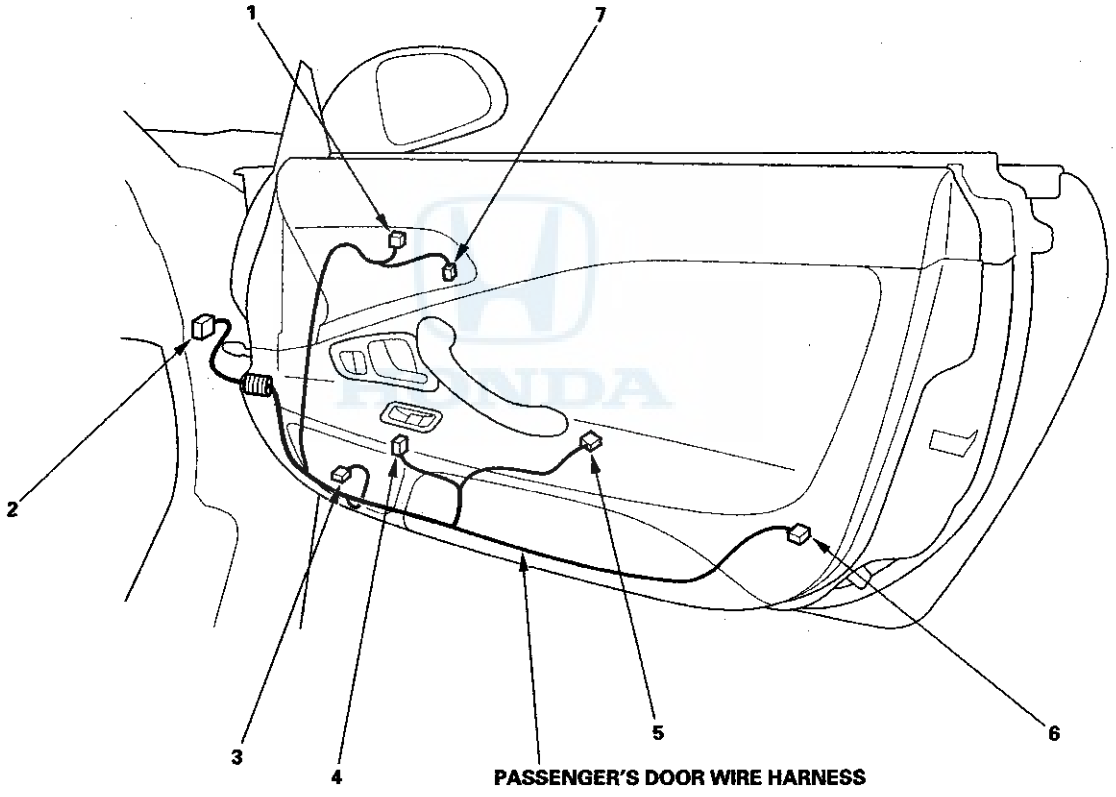
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's door key cylinder switch	7	2	Driver's door		
Driver's door lock actuator	8	2	Driver's door		
Driver's door lock knob switch	9	3	Driver's door		
Driver's door speaker	3	2	Driver's door		
Driver's power window motor	6	4	Driver's door		
Left power mirror actuator	1	3	Driver's door		
Left tweeter	10	2	Driver's door		'02-08 models
Power mirror switch	5	10	Driver's door		
Power window master switch	4	14	Driver's door		
C502	2	18	Behind left kick panel	Dashboard wire harness A (see page 22-26)	'00-03 models
C502	2	20	Behind left kick panel	Dashboard wire harness A (see page 22-26)	'04-08 models



DRIVER'S DOOR WIRE HARNESS

Passenger's Door Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Passenger's door lock actuator	6	2	Passenger's door		
Passenger's door speaker	3	2	Passenger's door		
Passenger's power window motor	5	2	Passenger's door		
Passenger's power window switch	4	6	Passenger's door		
Right power mirror actuator	1	3	Passenger's door		
Right tweeter	7	2	Passenger's door		'02-08 models
C504	2	14	Behind right kick panel	Dashboard wire harness A (see page 22-26)	'00-03 models
C504	2	16	Behind right kick panel	Dashboard wire harness A (see page 22-26)	'04-08 models



PASSENGER'S DOOR WIRE HARNESS

Connector to Harness Index (cont'd)

HARDTOP

Hardtop Subharness

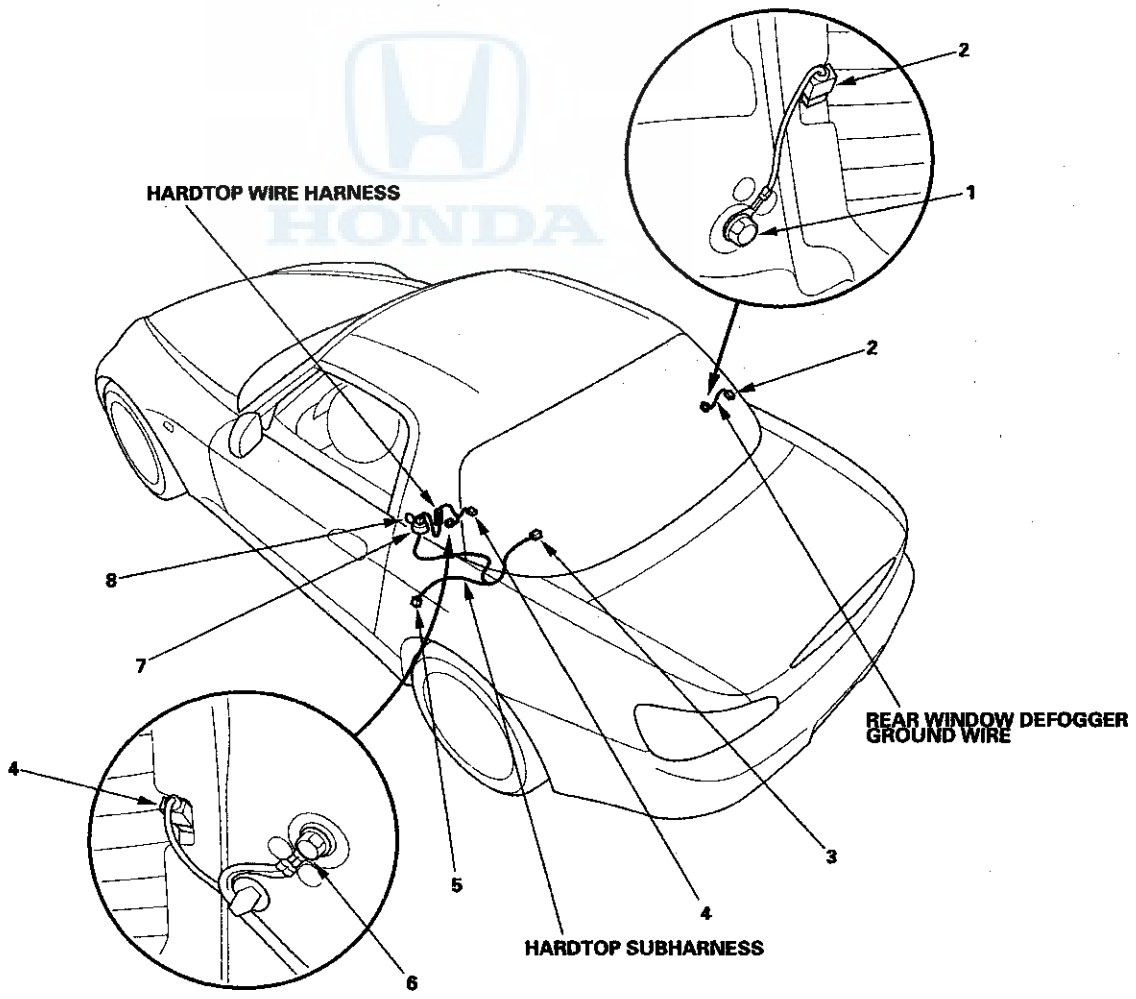
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Convertible top disable switch	5	2	Behind left corner gusset		
C601	3	4	Behind left rear side trim	Rear wire harness (see page 22-30)	'00-05 models
C601	3	3	Behind left rear side trim	Rear wire harness (see page 22-30)	'06-08 models
C901	7	3	Behind left rear side trim	Hardtop wire harness	

Hardtop Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Rear window defogger connector (+)	4	1	Left side of hardtop		
C901	8	3	Left side of hardtop	Hardtop subharness	
G901	6		Left C-pillar	Body ground, via hardtop wire harness	

Rear Window Defogger Ground Wire

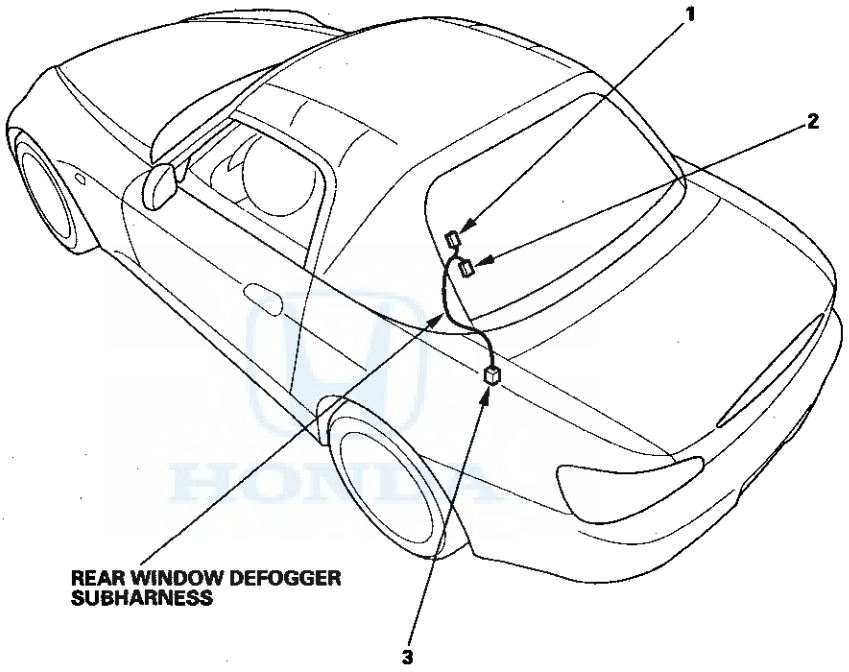
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Rear window defogger connector (−)	2	1	Right side of hardtop		
G902	1		Right side of hardtop	Body ground, via rear window defogger ground wire	



CONVERTIBLE TOP

Rear Window Defogger Subharness ('02-08 models)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Rear window defogger connector (+)	1	1	Left side of rear window		
Rear window defogger connector (−)	2	1	Left side of rear window		
C602	3	2	Left side of trunk	Rear wire harness (see page 22-30)	

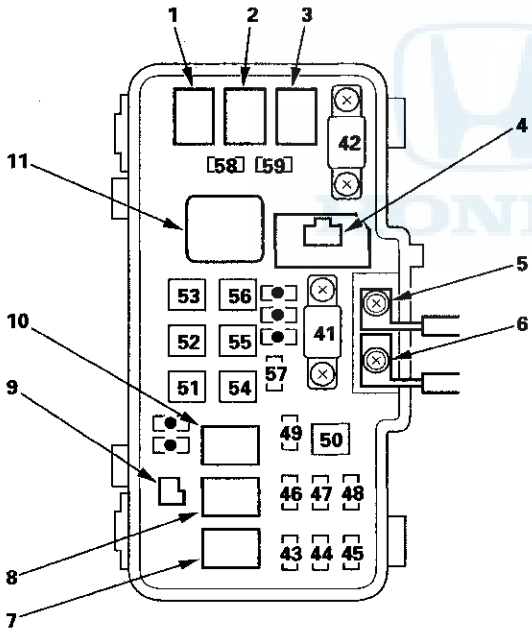


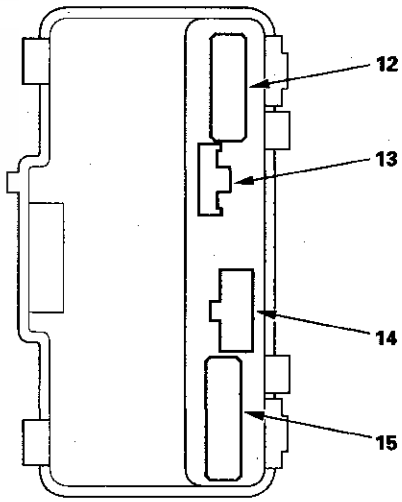
Fuse/Relay Boxes

Connector to Fuse/Relay Box Index

Main Under-hood Fuse/Relay Box

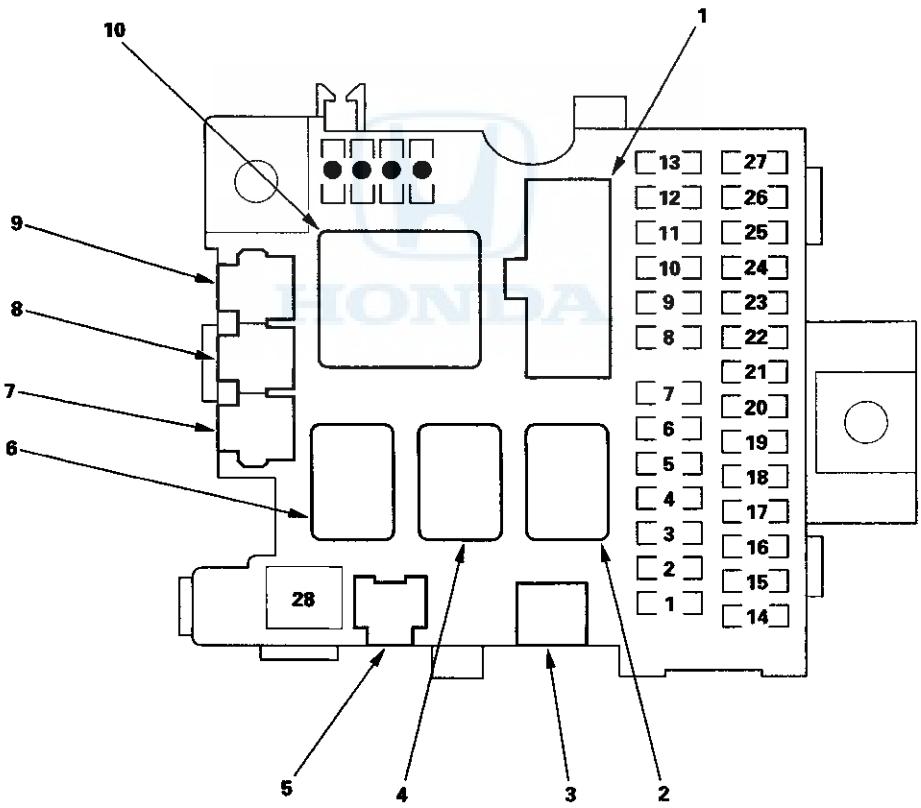
Socket	Ref	Terminal	Connects to
A	15	18	Right engine compartment wire harness (see page 22-18)
A/C compressor clutch relay	3	4	
A/C condenser fan relay	1	4	
B	14	7	Right engine compartment wire harness (see page 22-18)
Blower motor relay	11	4	
C	13	3	Right engine compartment wire harness (see page 22-18)
D	12	16	Right engine compartment wire harness (see page 22-18)
Diode	9	2	
Electrical load detector (ELD)	4	3	Right engine compartment wire harness (see page 22-18)
Horn relay	10	4	
Headlight relay 1	7	4	
Headlight relay 2	8	4	
Radiator fan relay	2	4	
T1	6		EPS subharness (see page 22-12)
T101	5		Engine wire harness (see page 22-14, 22-16)





Under-dash Fuse/Relay Box

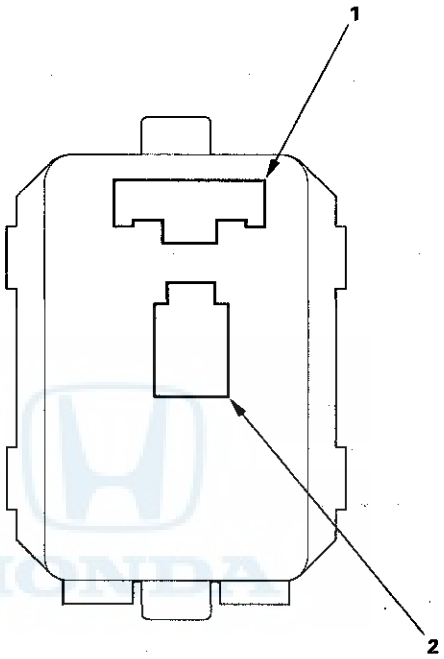
Socket	Ref	Terminal	Connects to
A	3	2	SRS main harness (see page 22-33)
B	1	7	Ignition switch harness (see page 22-33)
C	7	1	Optional connector
D	8	1	Optional connector
E	9	1	Optional connector
Memory erase signal (MES) connector	5	2	SRS main harness (see page 22-33)
Rear window defogger relay ('00-01 models)	6	4	
Starter cut relay	4	4	
Taillight relay	2	4	
Turn signal/hazard relay	10	3	



Connector to Fuse/Relay Box Index (cont'd)

Auxiliary Under-hood Fuse Box

Socket	Ref	Terminal	Connects to
A	2	2	Left engine compartment wire harness (see page 22-20)
B	1	3	Left engine compartment wire harness (see page 22-20)



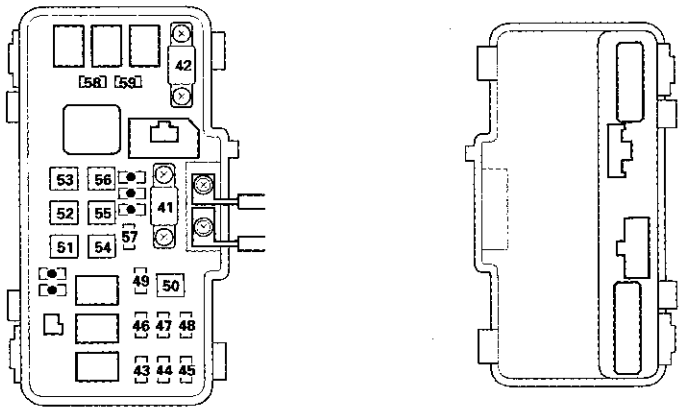
Power Distribution

Fuse to Components Index

Main Under-hood Fuse/Relay Box

Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
41	100 A	———	Battery, Power distribution
42	40 A	WHT	Ignition switch (BAT)
43	20 A	RED/WHT	Daytime running lights control unit*3, Right headlight (high/low beam)
44	———	———	Not used
45	20 A	RED/YEL	Daytime running lights control unit*3, Gauge assembly, High beam indicator, High beam cut relay*3, Left headlight (high/low beam)
46	15 A	WHT/GRN	Data link connector (DLC), PGM-FI main relay ('00-05 models), CMP sensor ('06-08 models), CKP sensor ('06-08 models), ECM ('06-08 models)
47	10 A*1	WHT/GRN	ABS modulator-control unit ('00-05 models), Brake lights, Cruise control unit ('00-05 models), ECM, High mount brake light, Horn(s)
	15 A*2		
48	20 A	WHT/RED	ABS modulator-control unit ('00-05 models), VSA modulator-control unit ('06-08 models)
49	10 A	WHT/BLK	Hazard warning lights
50	30 A	WHT/BLU	ABS modulator-control unit ('00-05 models), VSA modulator-control unit ('06-08 models)
51	40 A	WHT/BLK	No. 17 and 18 fuses (in the under-dash fuse/relay box)
52	20 A	GRY/RED	Right convertible top motor
53	20 A*5	BLU	Accessory power socket (CR model)
54	30 A	YEL	No. 22, 23, 24, 25, 26, and 27 fuses (in the under-dash fuse/relay box)
55	20 A	GRY	Left convertible top motor
56	40 A	BLU/WHT	Blower motor
57	20 A*4	BLU/BLK	Radiator fan motor
	30 A*5		
58	20 A	BLU/YEL	A/C condenser fan motor (with A/C)
		BLU/RED	A/C compressor clutch (with A/C)
59	20 A	YEL	No. 14, 15, 16, and 21 fuses (in the under-dash fuse/relay box)

* 1: '00-01 models
* 2: '02-07 models
* 3: Except '00-05 USA models
* 4: '00-07 models
* 5: '08 model



(cont'd)

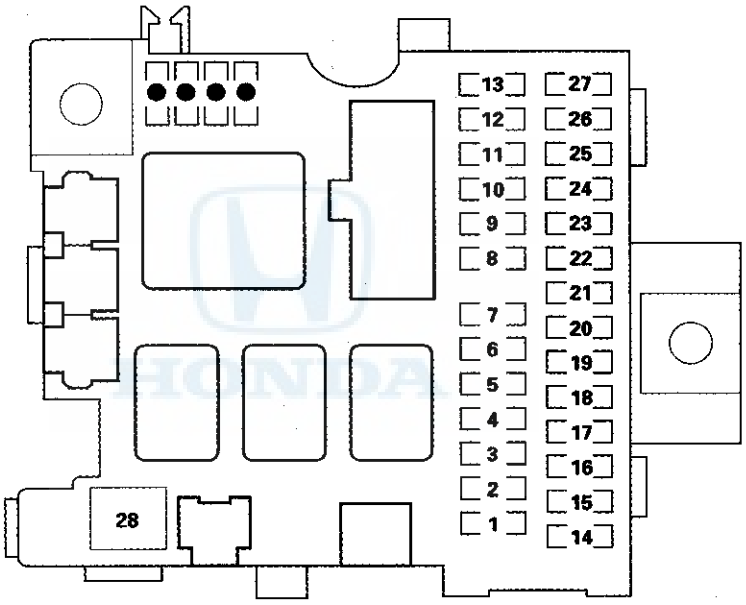
Fuse to Components Index (cont'd)

Under-dash Fuse/Relay Box

Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
1	10 A	GRN or PNK	SRS unit (VB)
2	15 A	GRN or BLK/YEL	SRS unit (VA)
		BLK/YEL	Fuel pump, Immobilizer control unit-receiver ('06-08 models), PGM-FI main relay ('00-05 models), Imoes unit ('08 model), Passenger's weight sensor ('06-08 models), Passenger's airbag cut off indicator ('08 model)
3	7.5 A	BLK/WHT	ACC cut relay ('08 model), Engine start switch
4	15 A	BLK/YEL	Ignition coils ('00-05 models)
5	7.5 A	YEL	Back-up lights, Charging system light ('04-05 models), DRL indicator, EPS control unit, Gauge assembly, Keyless door lock control unit, Convertible top control unit, TPMS control unit ('08 model)
6	15 A	BLK/YEL	Air control solenoid valve, Alternator, Charging system indicator ('00-03 models), Cruise control unit, Cruise controlmain switch, ELD, EVAP bypass solenoid valve, EVAP canister vent shut valve, EVAP canister purge valve, Primary and secondary heated oxygen sensors, Rear window defogger change relay ('02-05 models)
7	7.5 A	RED/BLU	Turn signal/hazard relay
8	20 A	GRN/BLK	Power window master switch, Windshield wiper motor, Intermittent wiper relay
9	10 A	YEL/RED	Accessory power socket (Except '08 model without spare tire), Accessory power socket relay ('08 model without spare tire), Audio unit, Audio remote switch, Convertible top switch light
10	7.5 A	YEL/BLU	A/F sensor relay (LAF) ('06-08 models)
11	7.5 A	YEL/GRN	Throttle actuator control module relay ('06-08 models)
12	15 A	BLK/WHT	Windshield washer motor, Convertible top switch
13	7.5 A	BLU/ORN	Intermittent wiper driving circuit (in the gauge assembly)
14	15 A	BLU/WHT	Throttle actuator control module ('06-08 models)
15	20 A*2	WHT/RED	A/F sensor (sensor 1) ('06-08 models), EVAP canister vent shut valve ('06-08 models)
	15 A*3		
16	15 A	BLK/YEL	Ignition coils ('06-08 models), Ignition coil relay ('06-08 models)
17	20 A	GRN/WHT	Driver's power window motor
18	20 A	BLU/BLK	Passenger's power window motor, Convertible top control unit
19	7.5 A	YEL/BLK	ABS modulator-control unit ('00-05 models), Daytime running lights control unit*1, Daytime running lights subcontrol unit ('06-08 USA models), Power mirror actuator, Rear window defogger relay
20	7.5 A	BLK/YEL	A/C compressor clutch relay, A/C condenser fan relay, Blower motor relay, Heater control panel, Radiator fan relay, Recirculation control motor
21	7.5 A	BLU/ORN*2	ECM, PGM-FI main relay ('00-05 models), TPMS control unit ('08 model)
		RED*3	
22	15 A	WHT/BLU	Audio unit
23	10 A	WHT/GRN	Audio remote switch lights, Audio unit light, Convertible top switch lights, Cruise control, main switch light, Front parking lights, Gauge lights, Hazard warning switch light, Heater control panel lights, Keyless door lock control unit, License plate light, Option connector, Rear side marker lights, Taillights, Rear window defogger switch light, Passenger's airbag cutoff indicator illumination light ('06-08 models), VSA OFF switch light
24	7.5 A	WHT/BLU	Ceiling/spotlights, Trunk light
25	7.5 A	WHT/RED	ECM, Gauge assembly, Heater control panel, Immobilizer indicator light, Convertible top control unit, Immobilizer control unit-receiver ('06-08 models), Imoes unit ('08 model)
26	15 A	WHT	Keyless door lock control unit, Trunk lid opener solenoid
27	10 A	RED/BLU	Daytime running lights control unit*1
28	—	—	Not used

* 1: Except '00-05 USA models
* 2: '00-07 models
* 3: '08 model

UNDER-DASH FUSE/RELAY BOX



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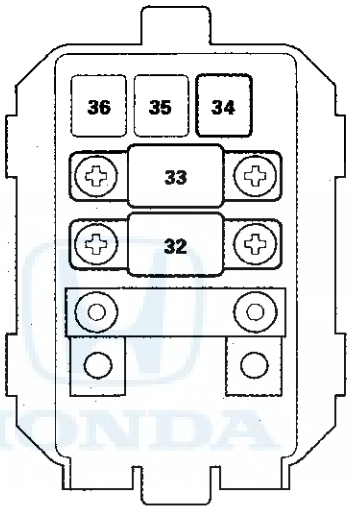
Fuse to Components Index (cont'd)

Auxiliary Under-hood Fuse Box

Fuse Number	Amps	Wire Color	Component(s) or Circuit(s) Protected
32	60 A	WHT	Air pump electric current sensor ('00-05 models)
33	70 A	WHT/RED	EPS control unit
34	20 A	WHT/GRN	Rear window defogger
35	———	———	Not used
36	———	———	Not used



Ground Distribution

BODY

Ground to Components Index

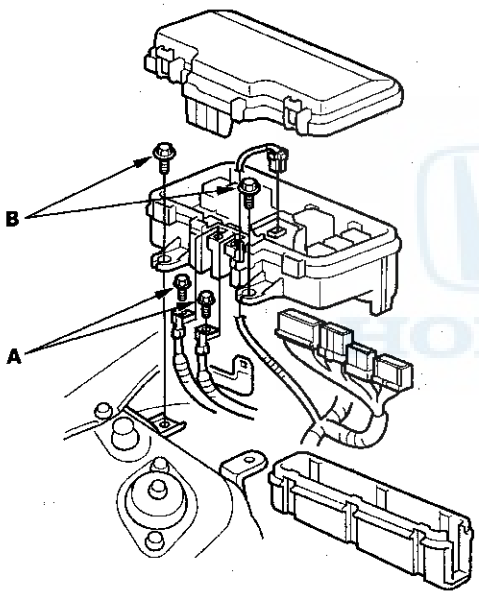
Ground	Component or circuit grounded
G1	Battery
G2	Engine block
G3	Engine block
G4	EPS gearbox
G101	CKP sensor, Data link connector (DLC) ('00-05 models), ECM (PG1 and PG2 are BLK; LG1 and LG2 are BRN/YEL), IAC valve ('00-05 models), Ignition coils, Immobilizer control unit-receiver, PGM-FI main relay ('00-05 models), Rocker arm oil pressure switch (VTEC oil pressure switch), Throttle actuator control module, VSS ('00-05 models)
	Shielding between the ECM and these components have BRN/YEL wires: CKP sensor, TDC sensor 1 and 2 (CMP sensor A and B) ('00-05 models), Primary HO2S ('00-05 models), Secondary HO2S, Knock sensor
G201	A/C condenser fan motor (with A/C), Blower motor relay, ELD, EPS control unit, Radiator fan motor, Right front parking light ('00-03 models), Right front parking/side marker light ('04-08 models), Right front turn signal light, Right headlight (low beam) ('00-03 models), Right side turn signal light, Windshield washer motor
G301	Air pump relay, Brake fluid level switch, Cruise control actuator, Intermittent wiper relay ('02-08 models), Left front parking light ('00-03 models), Left front parking/side marker light ('04-08 models), Left front turn signal light, Left headlight (low beam) ('00-03 models), Left side turn signal light, Radiator fan switch ('00-05 models), Windshield wiper motor
G302	Air pump ('00-05 models)
G303	ABS modulator-control unit ('00-05 models) (2 wires), VSA modulator-control unit ('06-08 models)
G351	EPS control unit
G401	Accessory power socket relay (CR model), Clutch interlock switch, Clutch pedal position switch, Combination light switch, Data link connector (DLC), Daytime running lights subcontrol unit ('06-08 USA models) (2 wires), Ignition key switch, Intermittent wiper relay ('00-03 models), Rear window defogger switch ('00-01 models), TPMS control unit ('08 models), Turn signal/hazard relay, Windshield wiper/washer switch
G402	Convertible top control unit (3 wires), Cruise control unit ('00-05 models), Daytime running lights control unit (Except '00-05 USA models) (2 wires), EPS control unit, Heater control panel, Power transistor, Rear window defogger swicth ('06-08 models)
G501	Audio remote switch, Convertible top control unit, Cruise main switch, Driver's door key cylinder switch, Driver's door lock actuator, Engine start switch, Gauge assembly (2 wires), Headlights (low beam) ('04-08 models), Keyless door lock control unit, Passenger's power window switch, Power mirror switch, Power window master switch, Rear window defogger switch ('02-05 models)
G502	Audio unit
G601	Accessory power socket, Condenser ('02-08 models), Convertible top disable switch, Driver's seat belt buckle switch, Fuel gauge sending unit ('00-05 models) (2 wires), Fuel pump, High mount brake light, Passenger's seat belt buckle switch, Passenger's weight sensor unit, Rear window defogger (convertible top for '02-08 models), Rear window defogger (with hard top), Rear window defogger subharness connector (option) ('00-01 models), Trunk lid opener solenoid/latch switch, plus everything grounded through G901
G602	Back-up lights, License plate light, Rear side marker lights, Rear turn signal lights, Taillights
G801	SRS unit (2 wires)
G901	Convertible top disable switch, Rear window defogger relay ('00-01 models), plus everything grounded through G601
G902	Rear window defogger

Under-hood Fuse/Relay Box

Removal and Installation

Removal

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Make sure the ignition switch is OFF.
3. Disconnect the negative battery cable, then disconnect the positive cable, and wait at least 3 minutes.
4. Remove the bolts (A) for the EPS subharness and engine wire harness terminals from the main under-hood fuse/relay box.



5. Remove the bolts (B) securing the main under-hood fuse/relay box.
6. Remove the bottom cover from the main under-hood fuse/relay box.
7. Disconnect the connectors from the main under-hood fuse/relay box.
8. Carefully remove the relays by prying under the base of the relay.

   NOTE: Do not use pliers. Pliers will damage the relays, which could cause the engine to stall or not start.

Installation

1. Install the relays and connect the connectors to the under-hood fuse/relay box, then install the under-hood fuse/relay box in the reverse order of removal.
2. Install the removed parts in the reverse order of removal.
3. Connect the positive cable to the battery, then connect the negative cable to the battery.
4. Enter the anti-theft code for the audio system, then enter the audio presets, and set the clock.
5. Confirm that all systems work properly.

Battery

Battery Test

⚠ WARNING

A battery can explode if you do not follow the proper procedure, causing serious injury to anyone nearby. Follow all procedures carefully and keep sparks and open flames away from the battery.

Use either a JCI or Bear ARBST tester, and follow the manufacturer's procedures. If you don't have one of these computerized testers, follow this conventional test procedure:

1. Be sure the temperature of the electrolyte is between 70 °F (21 °C) and 100 °F (38 °C).
2. Inspect the battery case for cracks or leaks.
   - If the case is damaged, replace the battery.■
   - If the case looks OK, go to step 3.
3. Check the indicator EYE.
   - If the EYE indicates the battery is charged, go to step 4.
   - If the EYE indicates a low charge, go to step 7.
4. Apply a 300 A load for 15 seconds to remove the surface charge.
5. Wait 15 seconds, then apply a test load of 280 A for 15 seconds.
6. Record battery voltage.
   - If voltage is above 9.6 V, the battery is OK.■
   - If voltage is below 9.6 V, go to step 7.
7. Charge the battery on High (40 A) until the EYE shows the battery is charged, plus an additional 30 minutes. If the battery charge is very low, it may be necessary to bypass the charger's polarity protection circuitry.
   - If the EYE indicates the battery is charged within 3 hours, the battery is OK.■
   - If the EYE indicates the battery is not charged within 3 hours, replace the battery.■

Power Relay Test

Use this chart to identify the type of relay, then do the test listed for it.

NOTE: For the turn signal/hazard relay input test (see page 22-147).

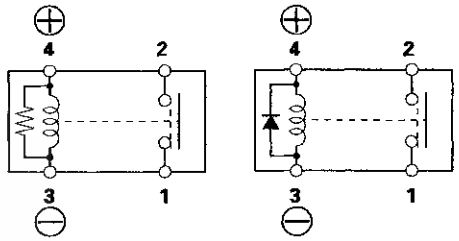
Relay	Test
Accessory power socket relay*4	Normally open type A
A/C compressor clutch relay	
A/C condenser fan relay	
A/F sensor relay*3	
Throttle actuator control module relay*3	
Headlight relay 1	
Headlight relay 2	
High beam cut relay (Except '00-05 USA models)	
Horn relay	
Ignition coil relay*3	
PGM-FI main relay 1*3	
PGM-FI main relay 2*3	
Radiator fan relay	
Starter cut relay	
Taillight relay	
Rear window defogger relay	
Blower motor relay	Normally open type B
Intermittent wiper relay*2	Five terminal type A
ACC cut relay	Five terminal type B
IG2 cut relay	
Intermittent wiper relay*1	
Rear window defogger change relay*2	
Rear window defogger relay	

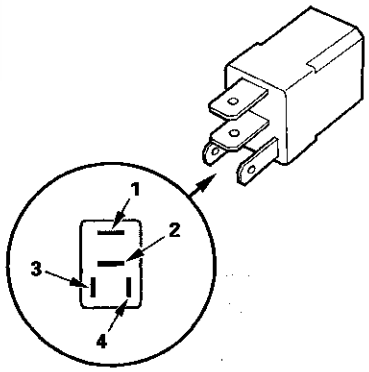
* 1: '00-01 models
* 2: '02-08 models
* 3: '06-08 models
* 4: CR model

Normally-open type A

Check for continuity between the terminals.

- There should be continuity between the No. 1 and No. 2 terminals when battery positive terminal is connected to the No. 4 terminal, and battery negative terminal is connected to the No. 3 terminal.
- There should be no continuity between the No. 1 and No. 2 terminals when power is disconnected.

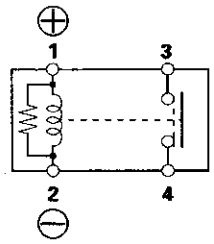


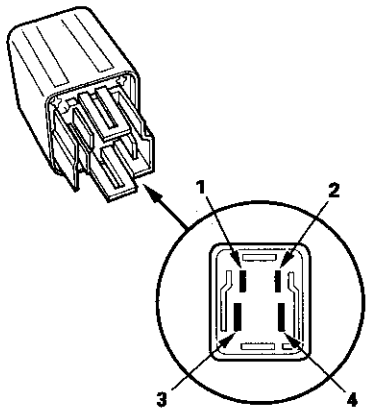


Normally-open type B

Check for continuity between the terminals.

- There should be continuity between the No. 3 and No. 4 terminals when battery positive terminal is connected to the No. 1 terminal, and battery negative terminal is connected to the No. 2 terminal.
- There should be no continuity between the No. 3 and No. 4 terminals when power is disconnected.



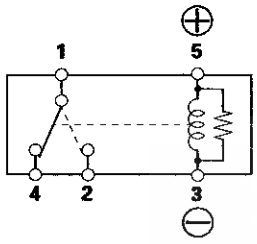


Power Relay Test (cont'd)

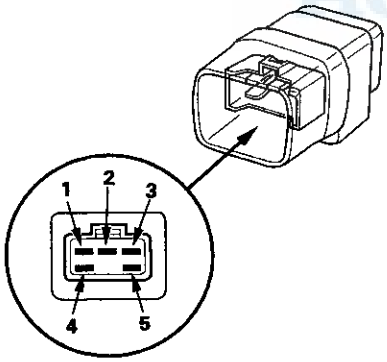
Five-terminal type A

Check for continuity between the terminals.

- There should be continuity between the No. 1 and No. 2 terminals when battery positive terminal is connected to the No. 5 terminal, and battery negative terminal is connected to the No. 3 terminal.
- There should be continuity between the No. 1 and No. 4 terminals when power is disconnected.



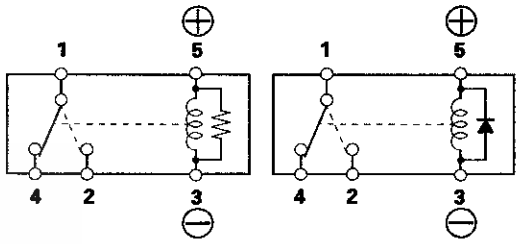
Intermittent wiper relay ('02-08 models)



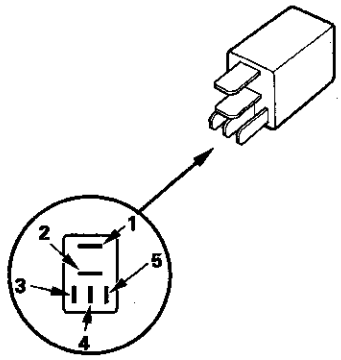
Five-terminal type B

Check for continuity between the terminals.

- There should be continuity between the No. 1 and No. 2 terminals when battery positive terminal is connected to the No. 5 terminal, and battery negative terminal is connected to the No. 3 terminal.
- There should be continuity between the No. 1 and No. 4 terminals when power is disconnected.



- Intermittent wiper relay ('00-01 models)
- Rear window defogger relay ('02-08 models)
- Rear window defogger change relay ('02-08 models)

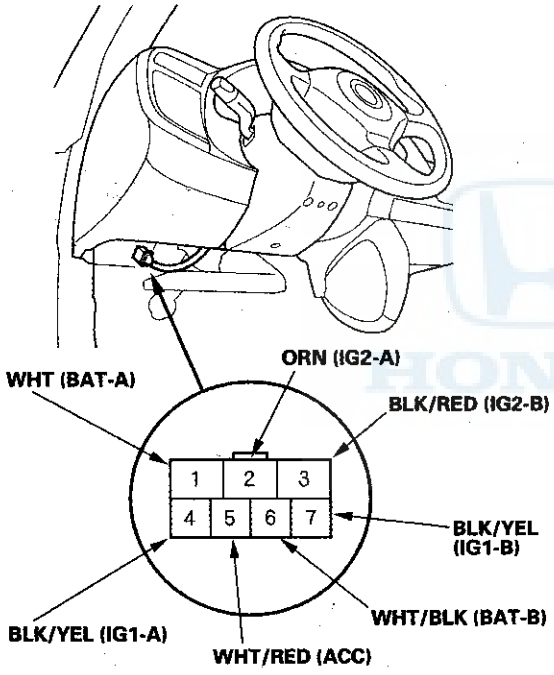


Ignition Switch

Test

SRS components are located in this area. Review the SRS component locations (see page 23-11), and precautions, and procedures (see page 23-13) before performing repairs or service.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Disconnect the battery negative cable.
3. Disconnect the 7P connector from the under-dash fuse/relay box.



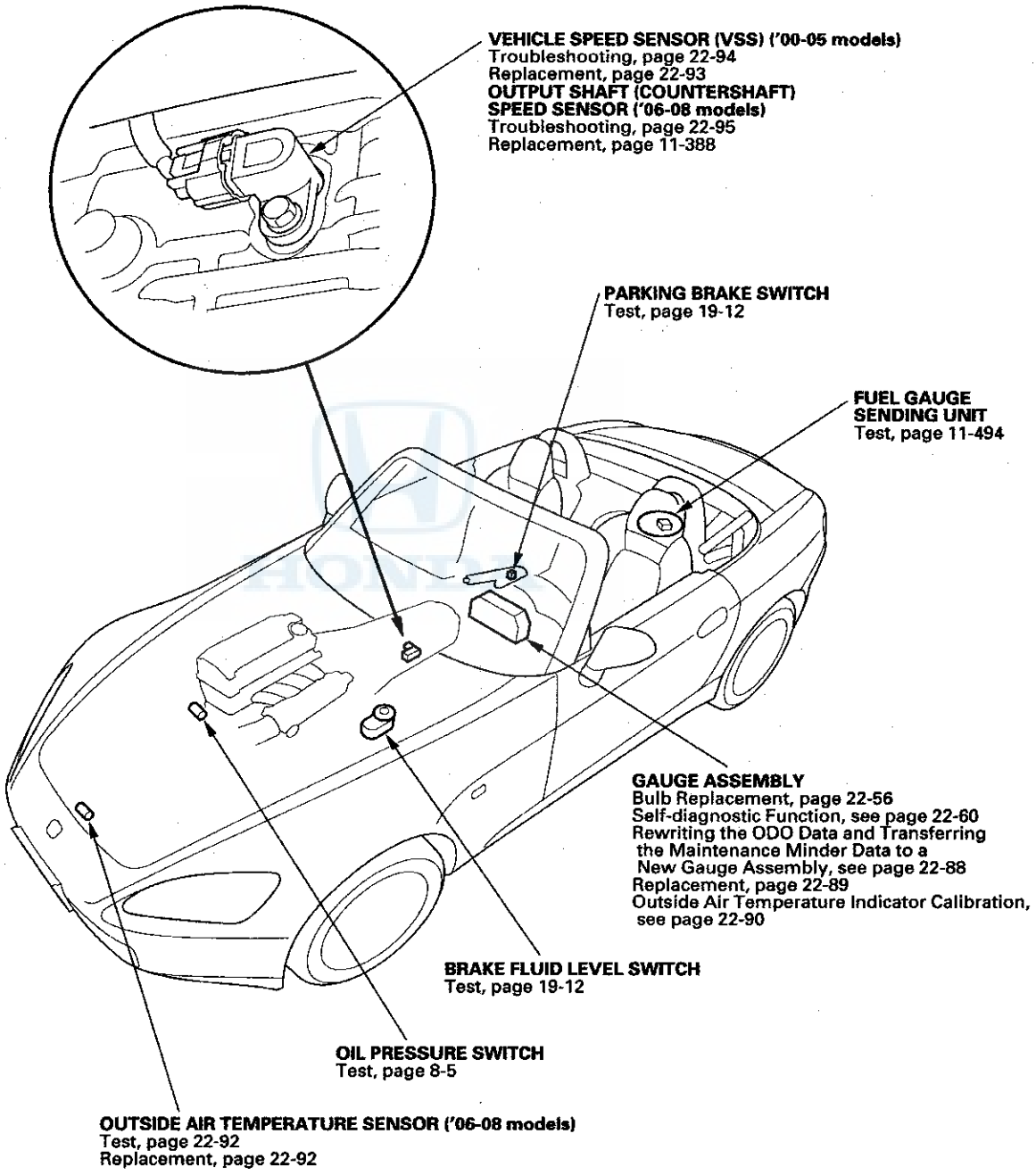
Wire side of female terminals

4. Check for continuity between the terminals in each switch position according to the table.

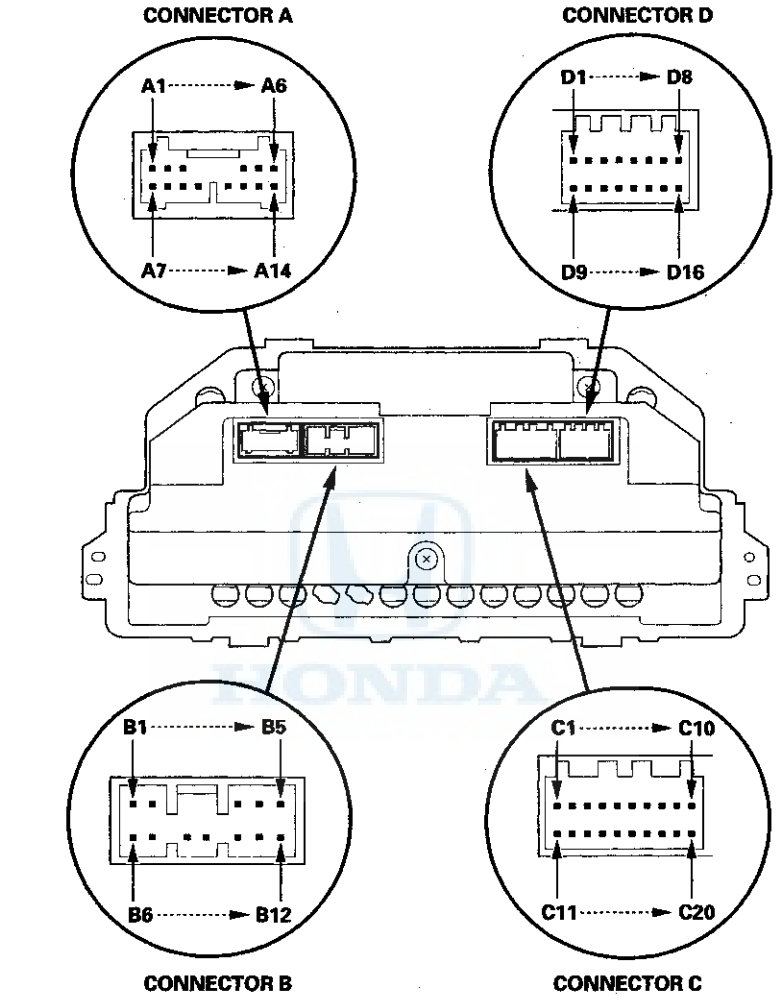
Terminal / Position	WHT/RED (ACC)	WHT/BLK (BAT-B)	BLK/RED (IG2-B)	WHT (BAT-A)	BLK/YEL (IG1-A) (IG1-B)	ORN (IG2-A)
0 (LOCK)						
I (ACC)	○—○					
II (ON)	○—○	○—○	○—○	○—○	○—○	○—○

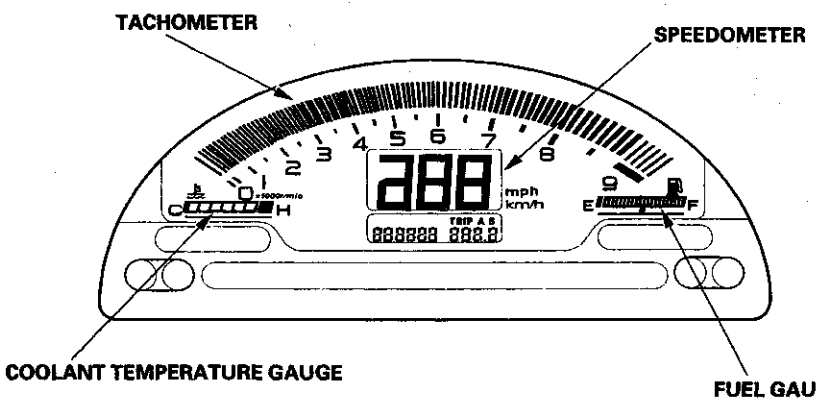
5. If the continuity checks do not agree with the table, replace the electrical switch.
6. After reconnecting the battery, enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Component Location Index



Gauge/Terminal Location Index ('00-03 models)





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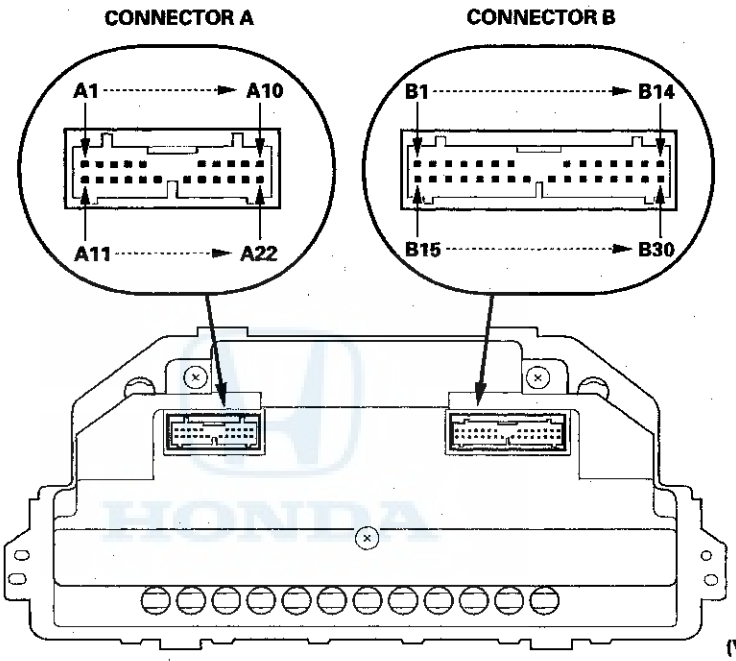
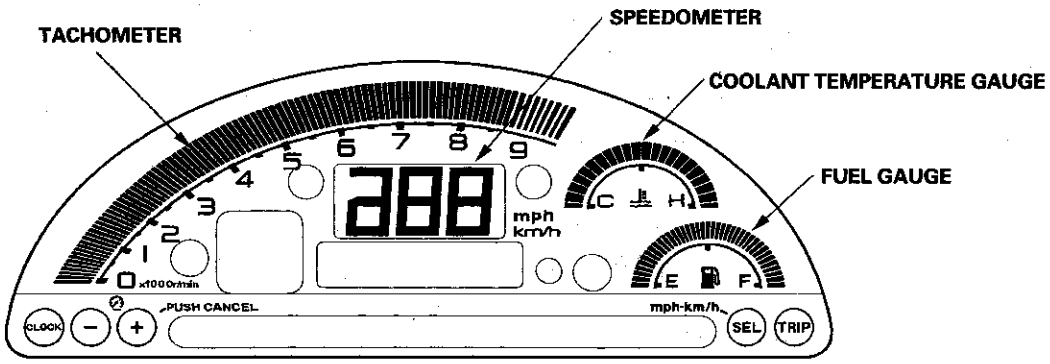
Component Location Index (cont'd)

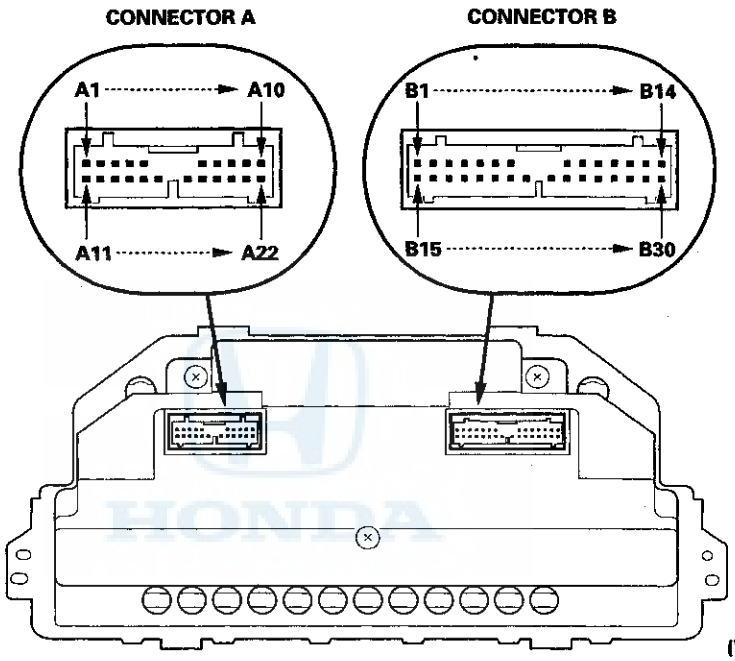
Gauge/Terminal Location Index ('04-07 models)



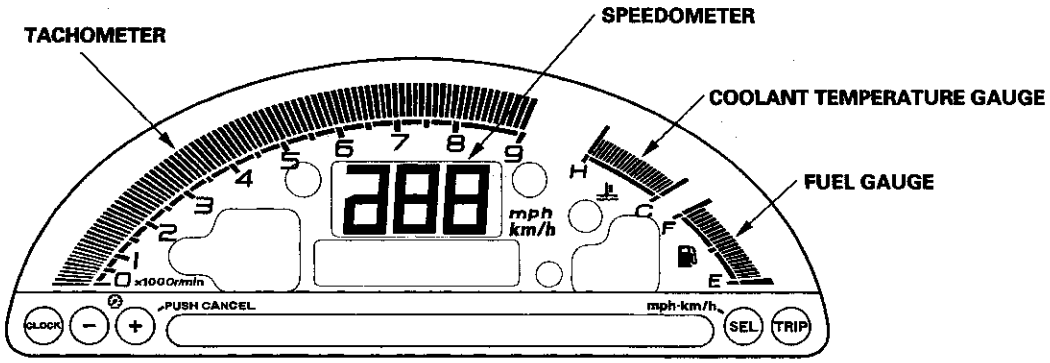
(Viewed from the back side)



Gauge/Terminal Location Index ('08 model)

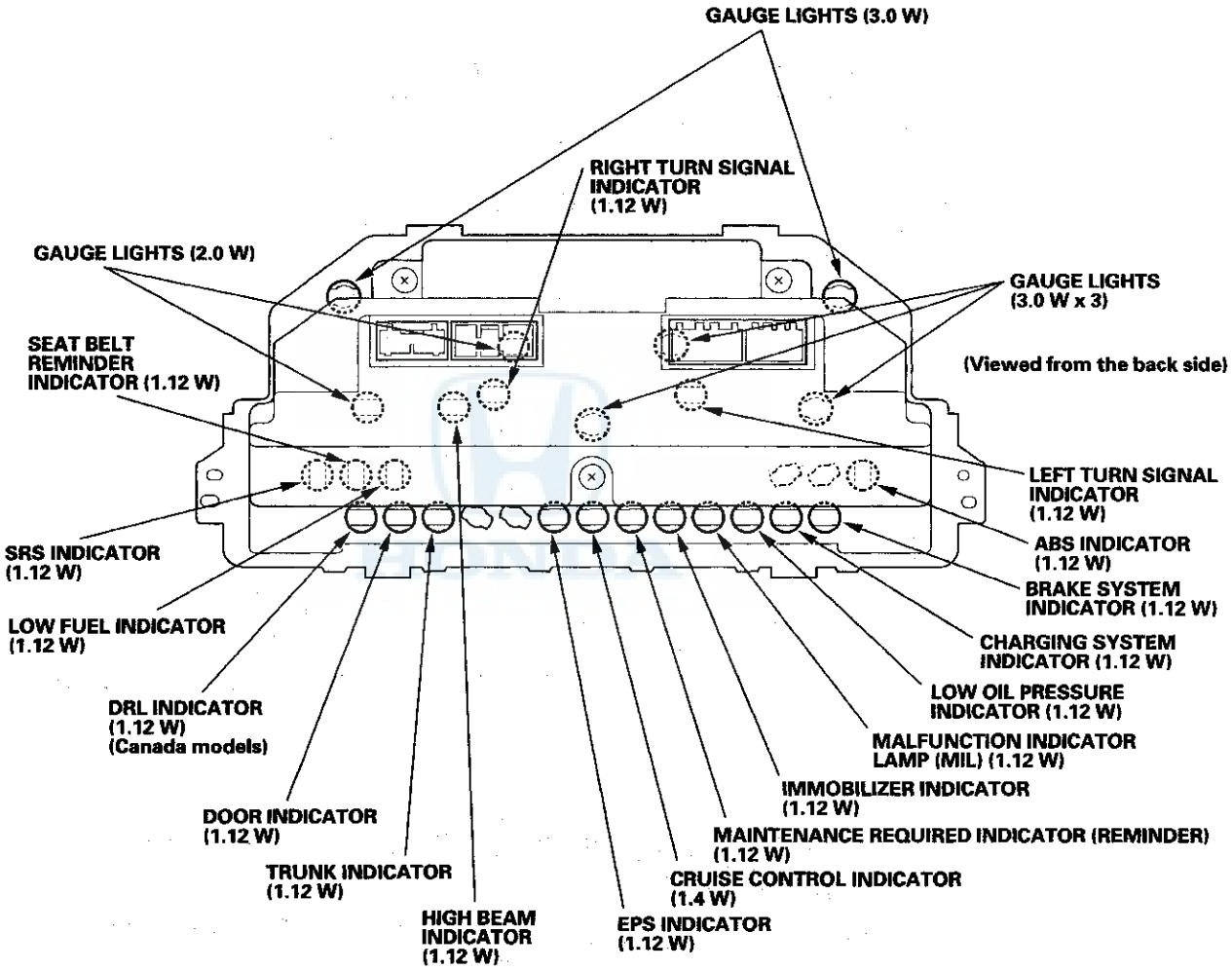


(Viewed from the back side)

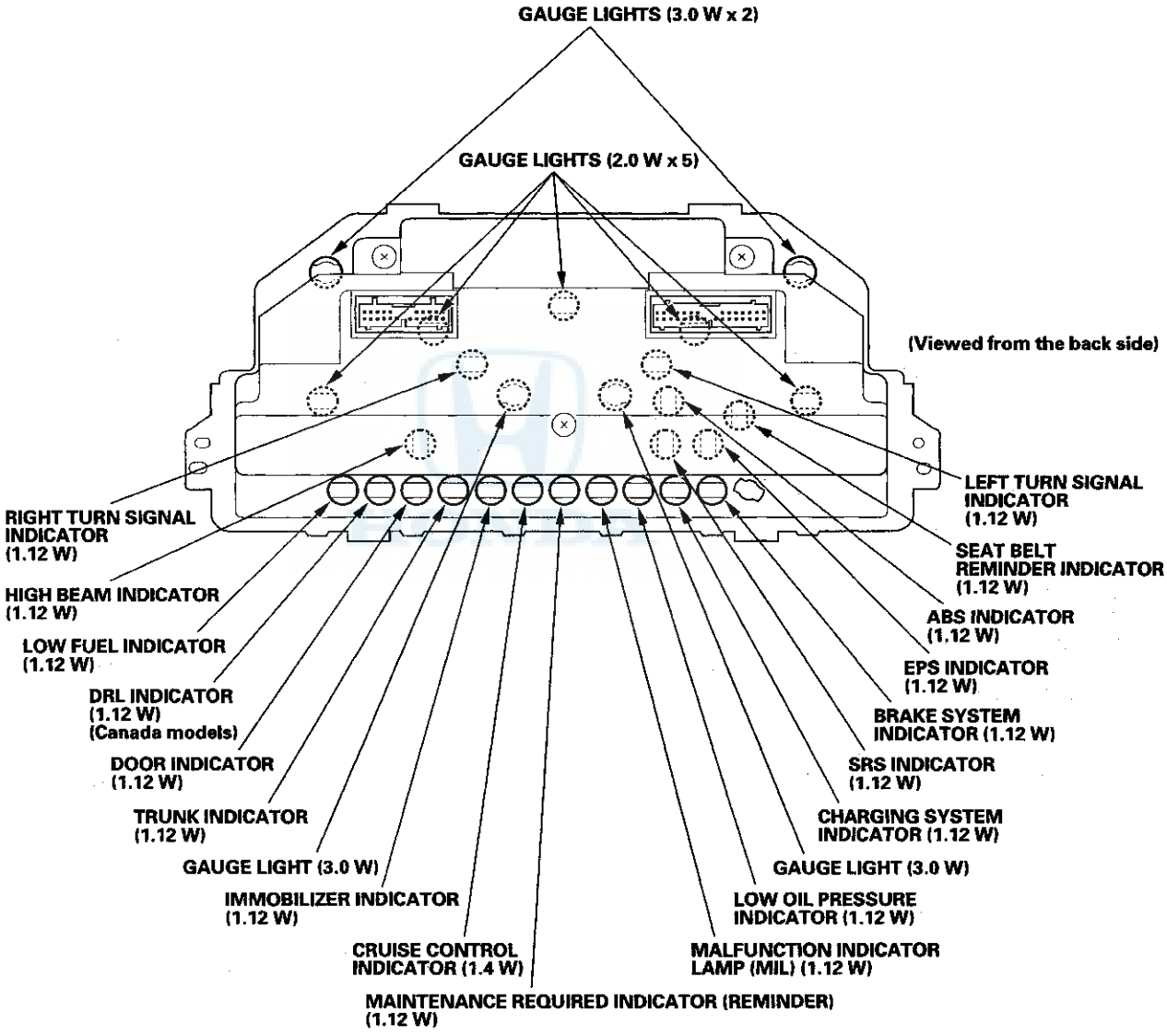


Gauge Bulb Replacement

'00-03 models

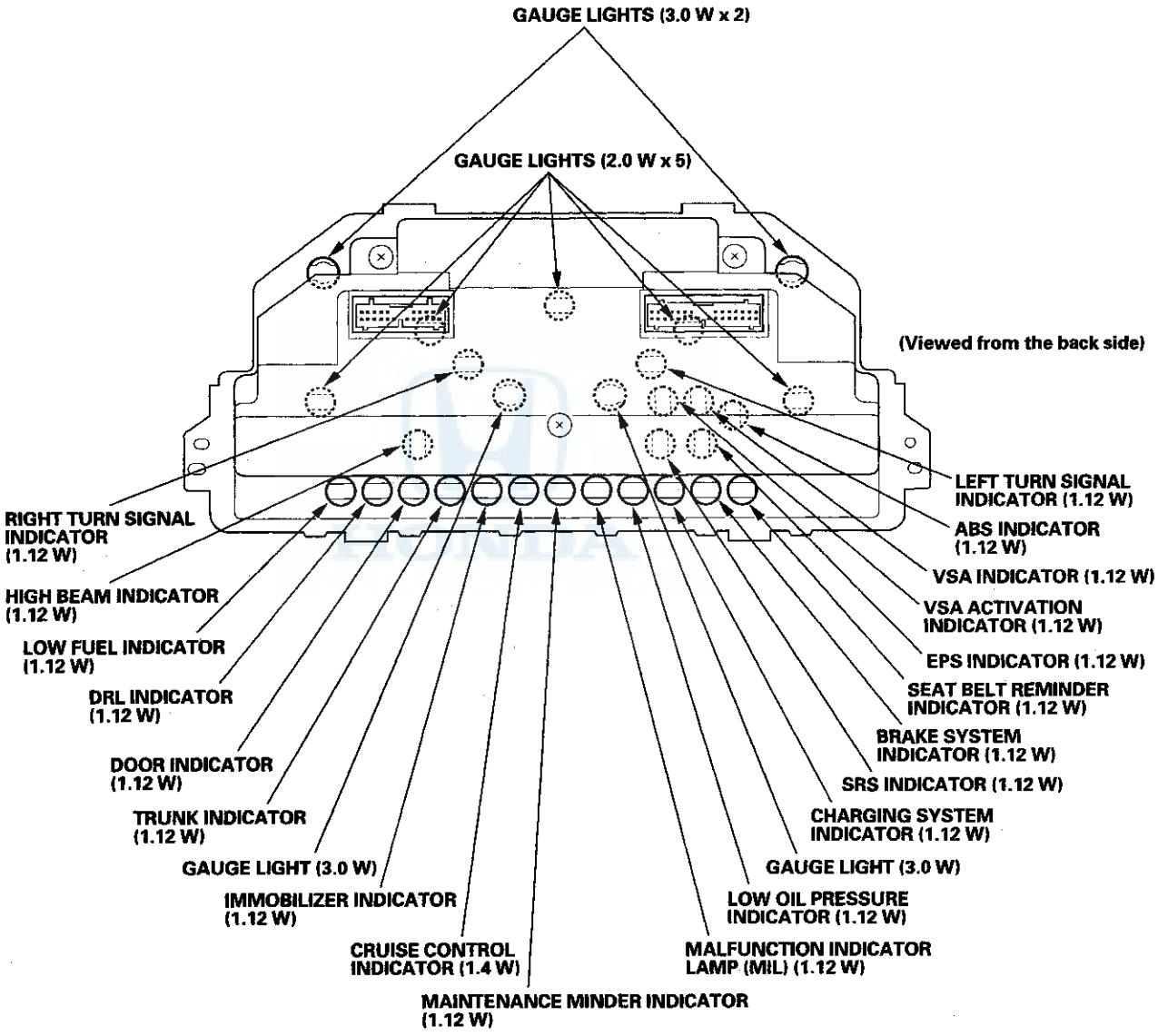


'04-05 models

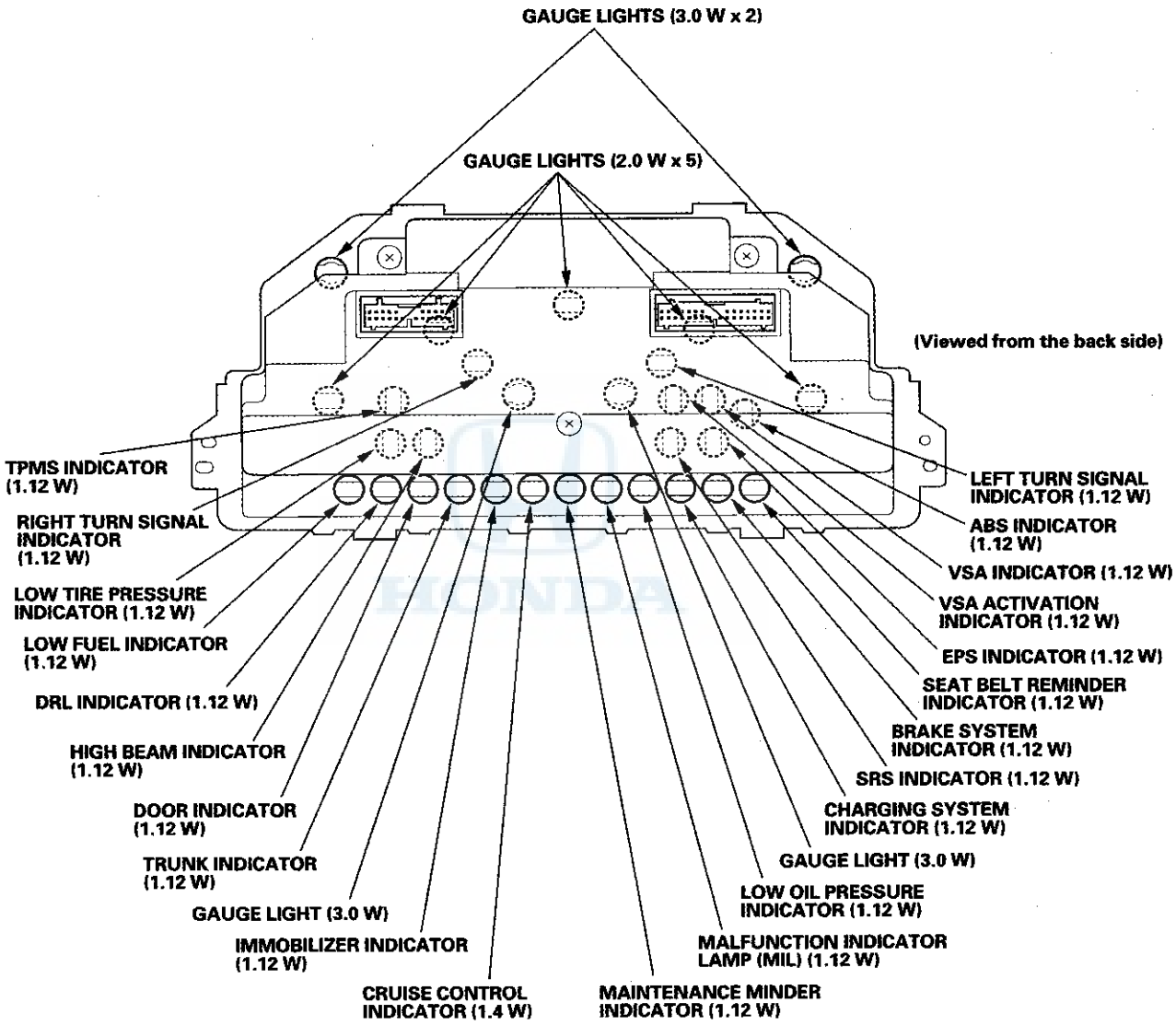

GAUGE LIGHTS (3.0 W x 2)
GAUGE LIGHTS (2.0 W x 5)
(Viewed from the back side)
RIGHT TURN SIGNAL INDICATOR (1.12 W)
HIGH BEAM INDICATOR (1.12 W)
LOW FUEL INDICATOR (1.12 W)
DRL INDICATOR (1.12 W) (Canada models)
DOOR INDICATOR (1.12 W)
TRUNK INDICATOR (1.12 W)
GAUGE LIGHT (3.0 W)
IMMOBILIZER INDICATOR (1.12 W)
CRUISE CONTROL INDICATOR (1.4 W)
MAINTENANCE REQUIRED INDICATOR (REMINDER) (1.12 W)
MALFUNCTION INDICATOR LAMP (MIL) (1.12 W)
LOW OIL PRESSURE INDICATOR (1.12 W)
GAUGE LIGHT (3.0 W)
CHARGING SYSTEM INDICATOR (1.12 W)
SRS INDICATOR (1.12 W)
BRAKE SYSTEM INDICATOR (1.12 W)
EPS INDICATOR (1.12 W)
ABS INDICATOR (1.12 W)
SEAT BELT REMINDER INDICATOR (1.12 W)
LEFT TURN SIGNAL INDICATOR (1.12 W)

Gauge Bulb Replacement (cont'd)

'06-07 models



'08 model


GAUGE LIGHTS (3.0 W x 2)
GAUGE LIGHTS (2.0 W x 5)
(Viewed from the back side)
TPMS INDICATOR (1.12 W)
RIGHT TURN SIGNAL INDICATOR (1.12 W)
LOW TIRE PRESSURE INDICATOR (1.12 W)
LOW FUEL INDICATOR (1.12 W)
DRL INDICATOR (1.12 W)
HIGH BEAM INDICATOR (1.12 W)
DOOR INDICATOR (1.12 W)
TRUNK INDICATOR (1.12 W)
GAUGE LIGHT (3.0 W)
IMMOBILIZER INDICATOR (1.12 W)
CRUISE CONTROL INDICATOR (1.4 W)
MAINTENANCE MINDER INDICATOR (1.12 W)
MALFUNCTION INDICATOR LAMP (MIL) (1.12 W)
LOW OIL PRESSURE INDICATOR (1.12 W)
GAUGE LIGHT (3.0 W)
CHARGING SYSTEM INDICATOR (1.12 W)
SRS INDICATOR (1.12 W)
BRAKE SYSTEM INDICATOR (1.12 W)
SEAT BELT REMINDER INDICATOR (1.12 W)
EPS INDICATOR (1.12 W)
VSA ACTIVATION INDICATOR (1.12 W)
VSA INDICATOR (1.12 W)
ABS INDICATOR (1.12 W)
LEFT TURN SIGNAL INDICATOR (1.12 W)

Self-diagnostic Function

'06-08 models

The gauge assembly has a self-diagnostic function shown, and also has a customizeable reset function.

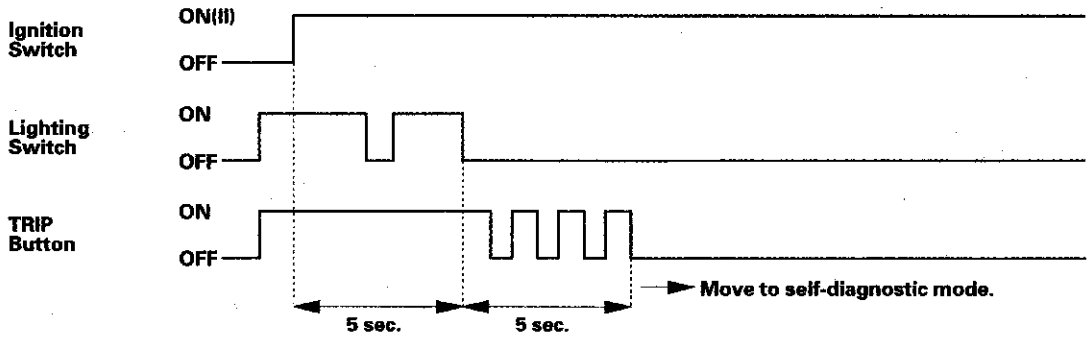
- The beeper drive circuit check.
- The indicator drive circuit check.
- The switch input test.
- The LCD segments check.
- The communication line check the engine coolant temperature signal, engine oil life index, fuel data request signal, CHECK FUEL CAP signal, charging system indicator ON/OFF signal, MIL ON/OFF signal, and cruise control system ON/OFF signal line between the gauge assembly and the ECM).

Entering the self-diagnostic function

Before doing the self-diagnostic function, check the No. 5 (7.5 A) fuse and the No. 25 (7.5 A) fuse in the under-dash fuse/relay box.

1. Push and hold the TRIP button.
2. Turn the headlights ON.
3. Turn the ignition switch ON (II).
4. Within 5 sec., turn the headlights OFF, then ON and OFF again.
5. Within 5 sec., release the TRIP button, and then push and release the button three times repeatedly.

NOTE:
- While in the self-diagnostic mode, the dash lights brightness controller operates normally.
- While in the self-diagnostic mode, the TRIP button is used to start the Beeper Drive Circuit Test.
- If the vehicle speed exceeds 1.2 mph (2 km/h) or the ignition switch is turned OFF, the self-diagnostic mode ends.



The Indicator Drive Circuit Check

While in the self-diagnostic mode, the following indicators blink:
Brake system indicator, charging system indicator, cruise control indicator, low fuel indicator, low tire pressure indicator*1, maintenance minder indicator, malfunction indicator lamp (MIL), peak power indicator*2, seat belt reminder indicator, and TPMS indicator*1.

* 1: '08 model
* 2: '08 CR model

Switch Input Check

After the intermittent beeper sounds at the initial stage of self-diagnosis, a beeper sounds continuously while any of the following switch inputs are switched from OFF to ON:
CLOCK button, driver's seat belt buckle switch, illumination (+) button, illumination (—) button, parking brake switch, rear window defogger switch, SEL button, TRIP button, windshield washer switch, and windshield wiper INT switch.

The Beeper Drive Circuit Check

When entering the self-diagnostic mode, the beeper sounds five times.

The LCD Segment Check

When entering the self-diagnostic mode, the all segments blink five times.

(cont'd)

Self-diagnostic Function (cont'd)

The Communication Line Check

'06-07 models

While in the self-diagnostic mode, the Communication Line Check starts after the LCD Segments Check.
If all segments come on, the communication line is OK. If there is a communication line error, the word "Error" will be indicated on the LCD display.

Normal

Faulty

If the communication line error is found, go to symptom troubleshooting (see page 22-86).

'08 model

While in the self-diagnostic mode, the Communication Line Check starts after the LCD Segments Check.
If all segments come on, the communication line is OK. If faulty, the word "Err" will be indicated on the odometer display followed by number(s).

Error Code List

Error code	Type of communication line(s) error
Err 1	F-CAN communication
Err 3	ECM communication
Err 13	F-CAN and ECM communication

Example Indication

Normal (all segments come on.):

Faulty (Err 13):

- If the word "Err 1" is indicated, there is a malfunction in the communication line between the gauge assembly, the fast-controller area network (F-CAN). Check for DTCs in the ECM and troubleshoot any DTCs found.
  If no DTCs are found, go to indicated troubleshooting.
- If the word "Err 3" is indicated, there is a malfunction in the communication line between the gauge assembly, the ECM. Check for DTCs in the ECM and troubleshoot any DTCs found.
  If no DTCs are found, go to indicated troubleshooting.
- If the word "Err 13" is indicated, there is a malfunction in the communication line between the gauge assembly, the ECM and the fast-controller area network (F-CAN). Check for DTCs in the ECM and troubleshoot any DTCs found.
  If no DTCs are found, go to indicated troubleshooting.

If any F-CAN or ECM communication line error is found, go to DTC check using HDS.

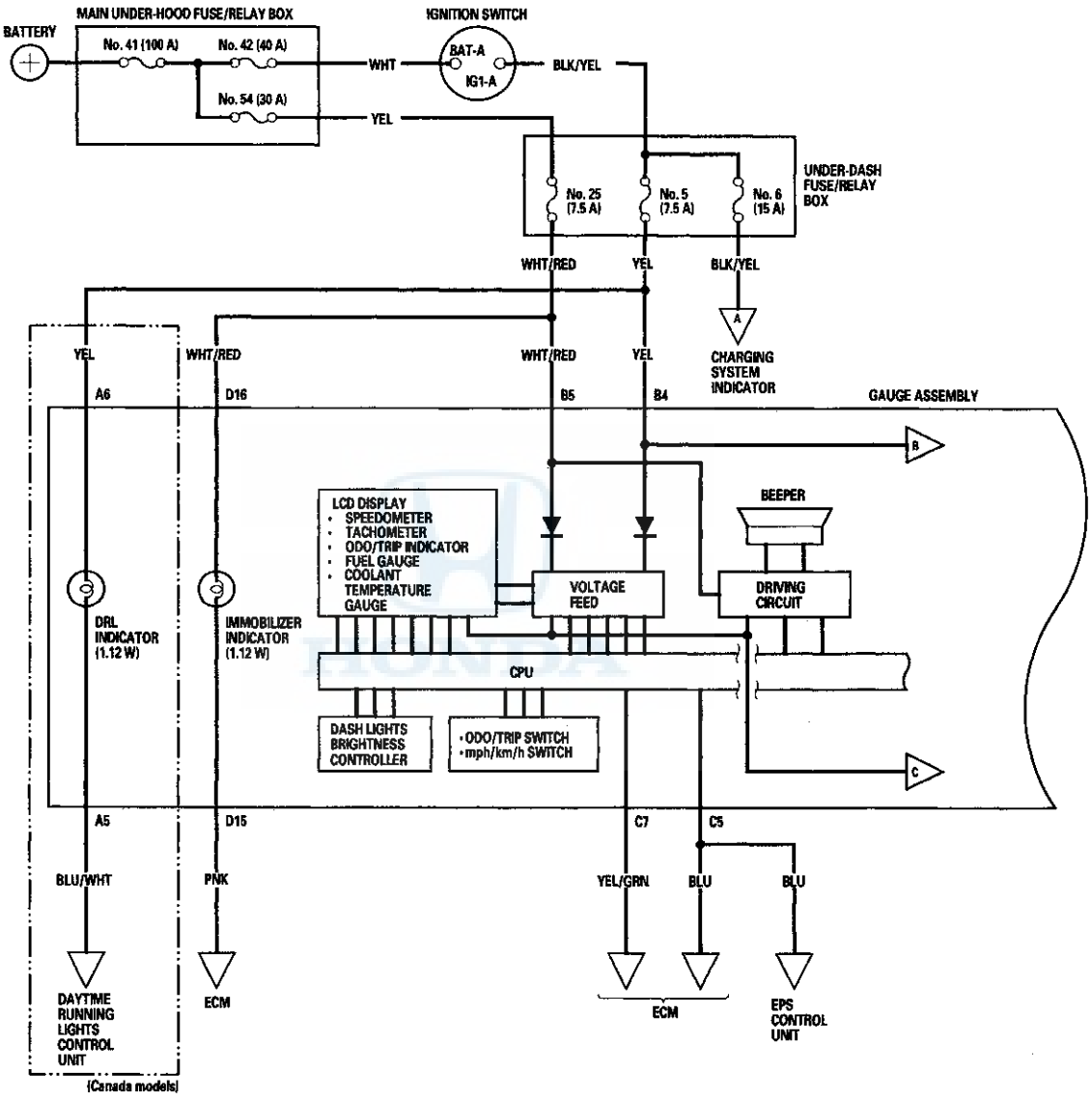
Ending the self-diagnostic function

Turn the ignition switch OFF.

NOTE: If the vehicle speed exceeds 1.2 mph (2 km/h), the self-diagnostic function ends.

Circuit Diagram

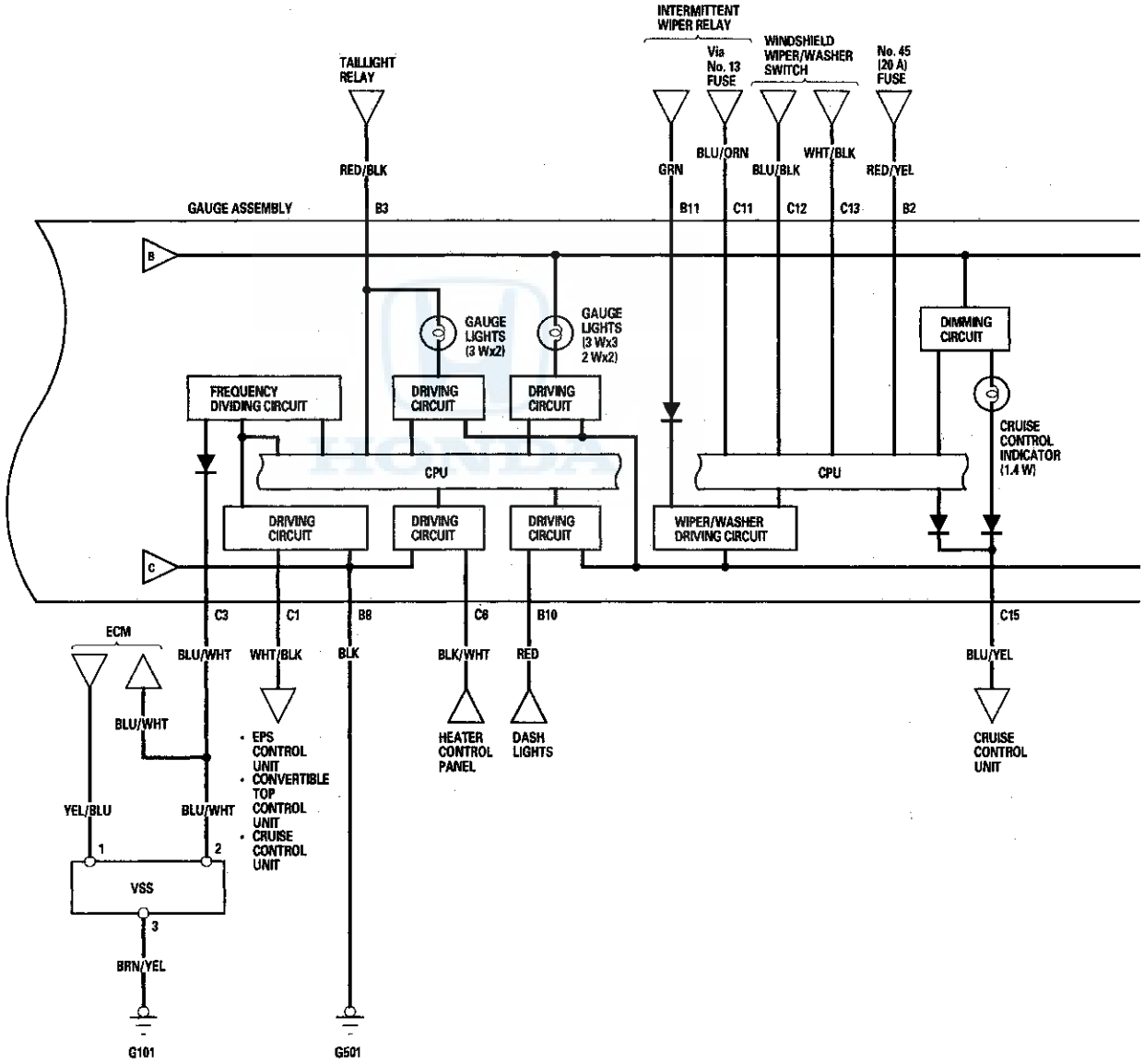
'00-03 models

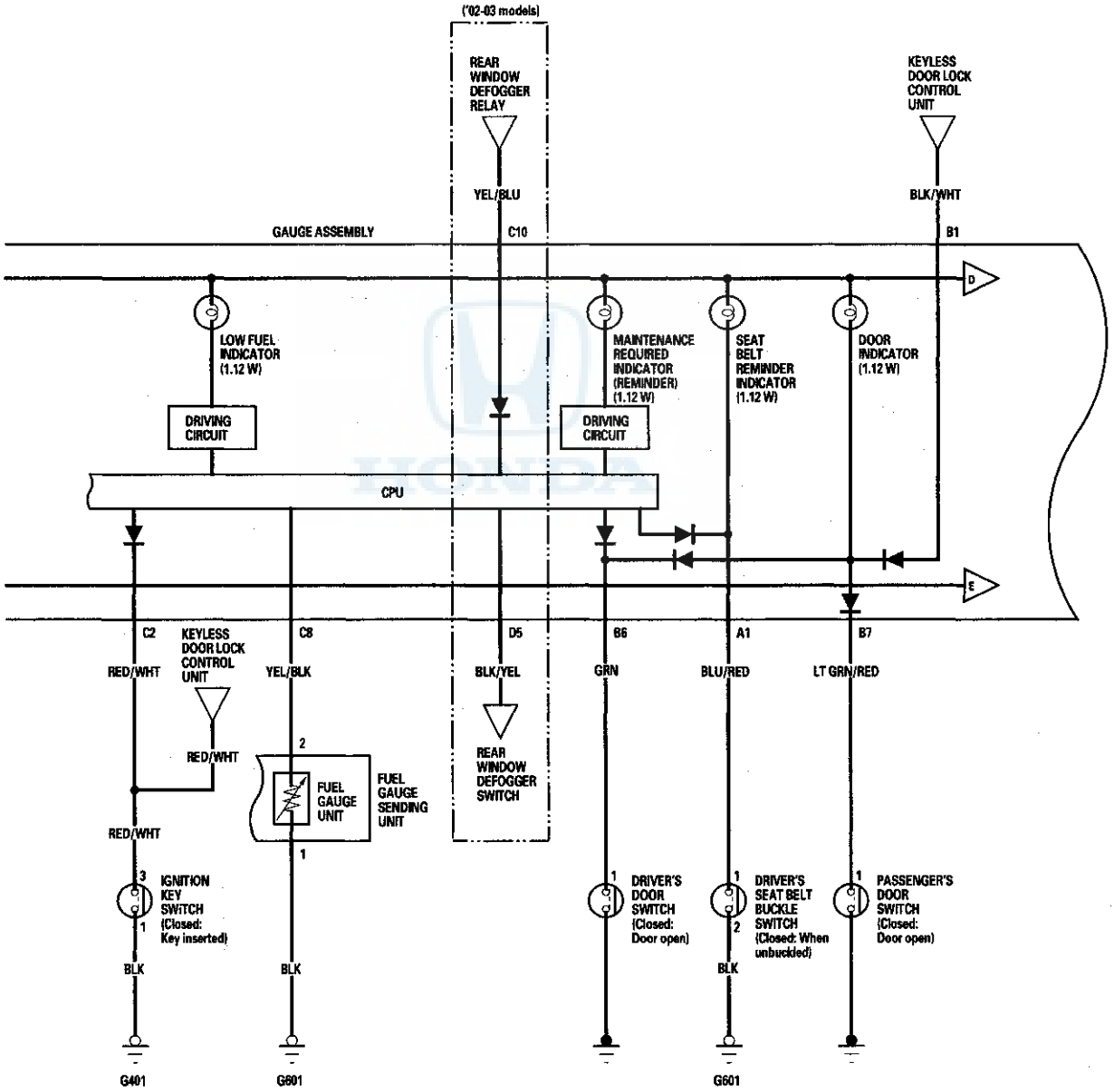


(cont'd)

Circuit Diagram (cont'd)

'00-03 models

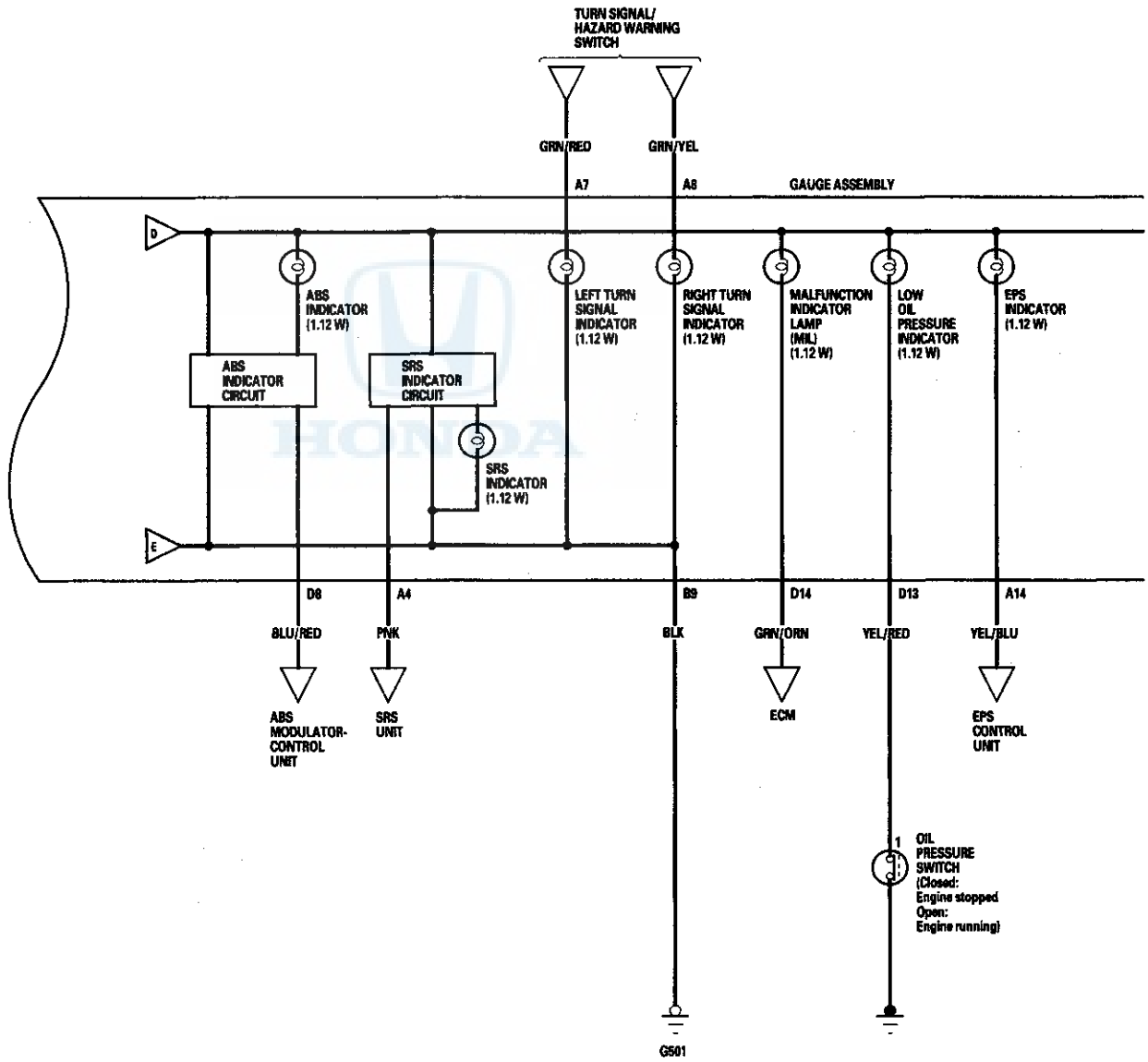


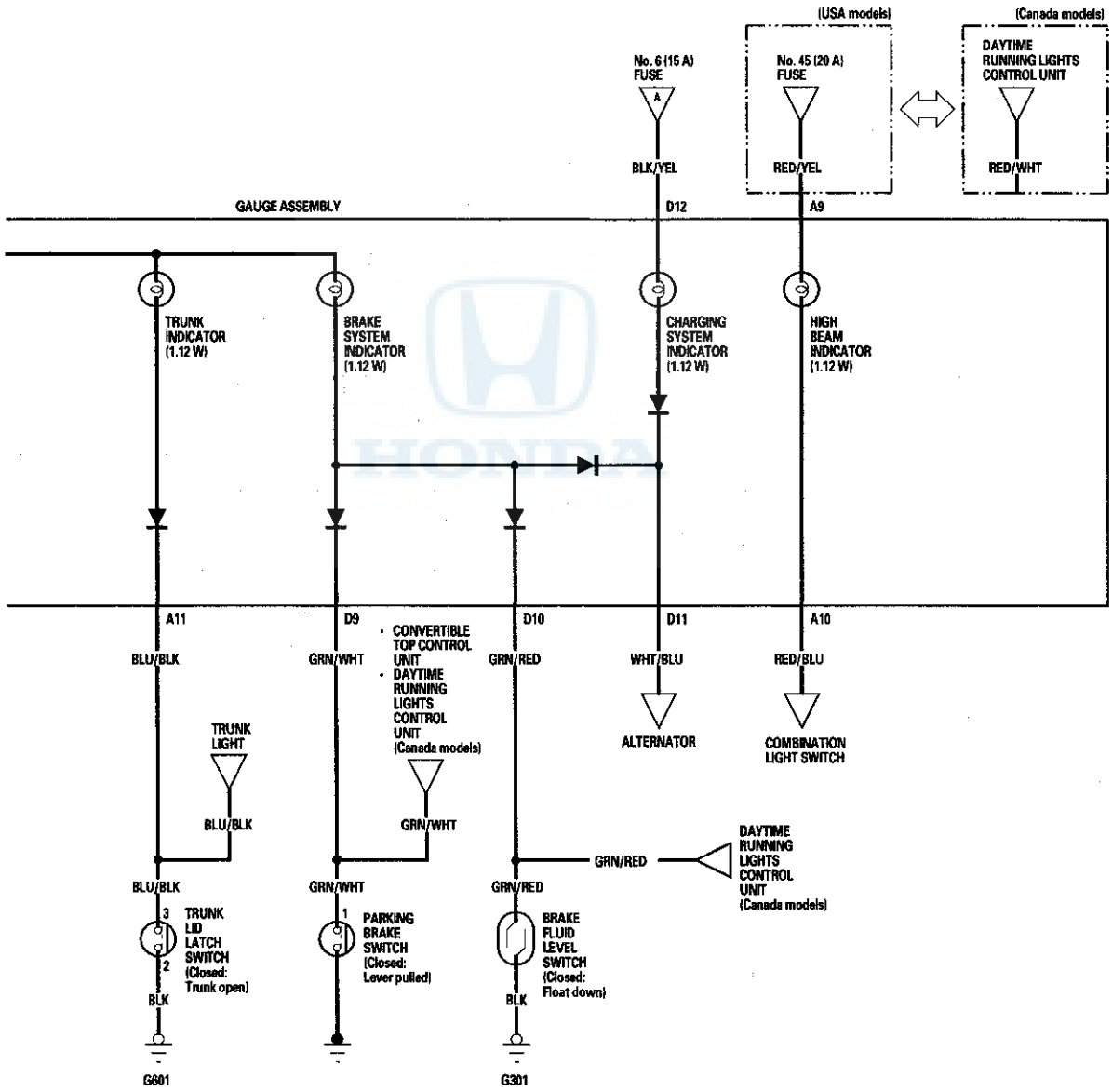

('02-03 models)
REAR WINDOW DEFOGGER RELAY
KEYLESS DOOR LOCK CONTROL UNIT
YEL/BLU
BLK/WHT
GAUGE ASSEMBLY
C10
B1
D
LOW FUEL INDICATOR (1.12 W)
MAINTENANCE REQUIRED INDICATOR (REMINDER) (1.12 W)
SEAT BELT REMINDER INDICATOR (1.12 W)
DOOR INDICATOR (1.12 W)
DRIVING CIRCUIT
DRIVING CIRCUIT
CPU
E
C2
KEYLESS DOOR LOCK CONTROL UNIT
C8
D5
B6
A1
B7
RED/WHT
YEL/BLK
BLK/YEL
GRN
BLU/RED
LT GRN/RED
RED/WHT
2
FUEL GAUGE UNIT
FUEL GAUGE SENDING UNIT
REAR WINDOW DEFOGGER SWITCH
RED/WHT
1
3
IGNITION KEY SWITCH (Closed: Key inserted)
1
DRIVER'S DOOR SWITCH (Closed: Door open)
DRIVER'S SEAT BELT BUCKLE SWITCH (Closed: When unbuckled)
PASSENGER'S DOOR SWITCH (Closed: Door open)
BLK
BLK
BLK
G401
G601
G601

(cont'd)

Circuit Diagram (cont'd)

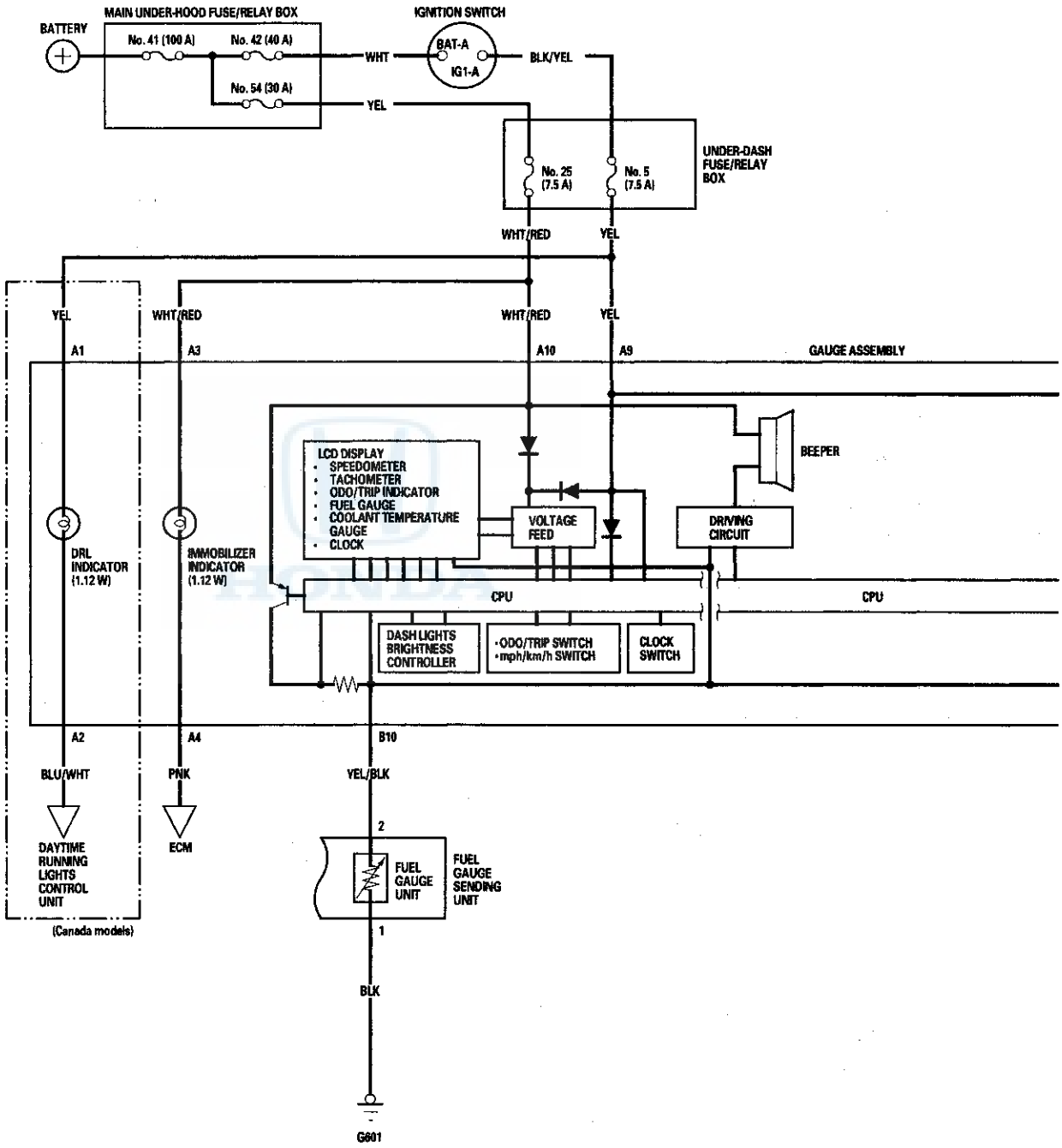
'00-03 models

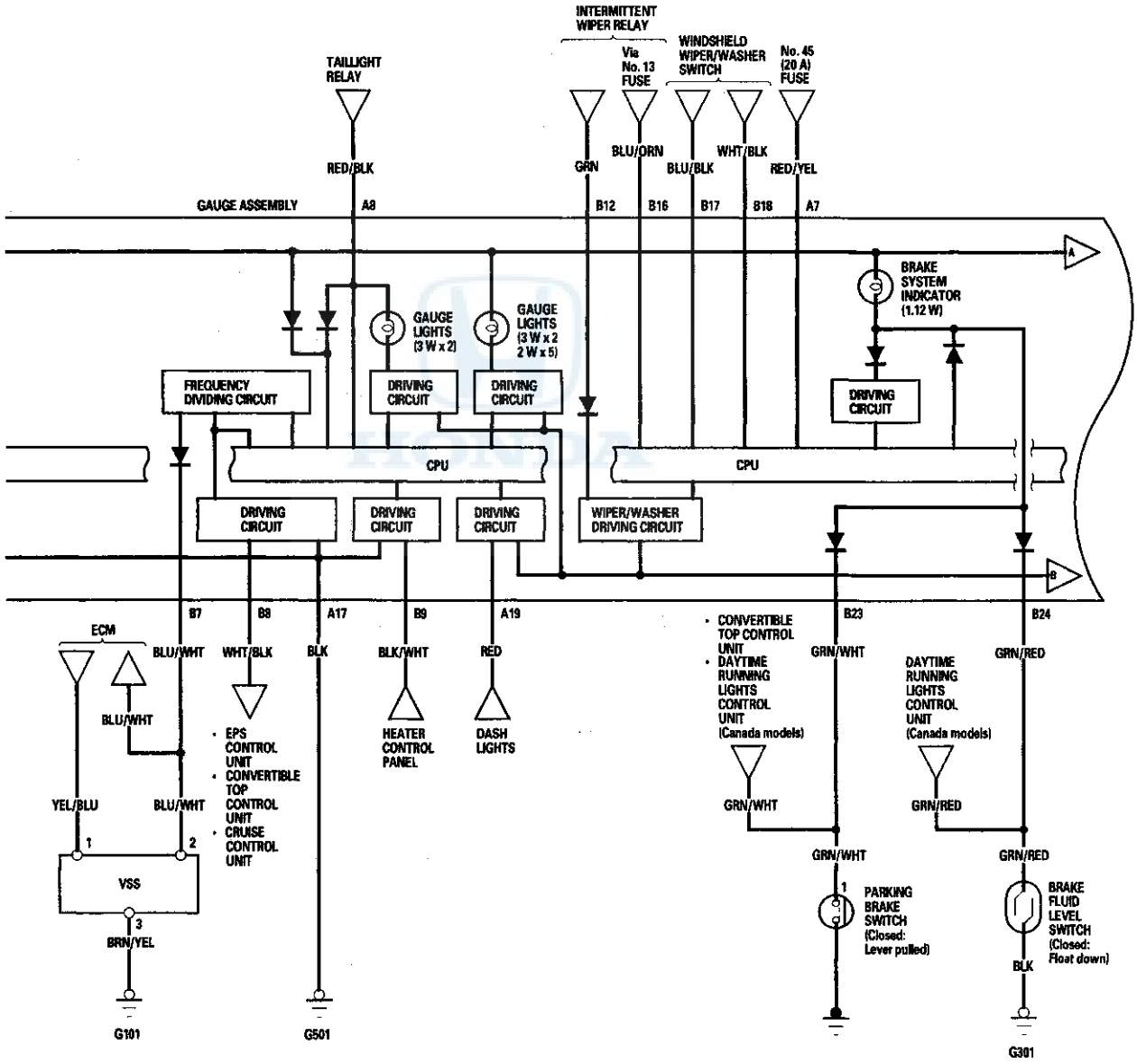



(USA models)
(Canada models)
No. 6 (15 A) FUSE
No. 45 (20 A) FUSE
DAYTIME RUNNING LIGHTS CONTROL UNIT
BLK/YEL
RED/YEL
RED/WHT
GAUGE ASSEMBLY
D12
A9
TRUNK INDICATOR (1.12 W)
BRAKE SYSTEM INDICATOR (1.12 W)
CHARGING SYSTEM INDICATOR (1.12 W)
HIGH BEAM INDICATOR (1.12 W)
A11
D9
D10
D11
A10
BLU/BLK
GRN/WHT
GRN/RED
WHT/BLU
RED/BLU
• CONVERTIBLE TOP CONTROL UNIT
• DAYTIME RUNNING LIGHTS CONTROL UNIT (Canada models)
ALTERNATOR
COMBINATION LIGHT SWITCH
TRUNK LIGHT
BLU/BLK
GRN/WHT
GRN/RED
DAYTIME RUNNING LIGHTS CONTROL UNIT (Canada models)
3
2
TRUNK LID LATCH SWITCH (Closed: Trunk open)
BLK
1
PARKING BRAKE SWITCH (Closed: Lever pulled)
BRAKE FLUID LEVEL SWITCH (Closed: Float down)
G601
G301

Circuit Diagram (cont'd)

'04-05 models

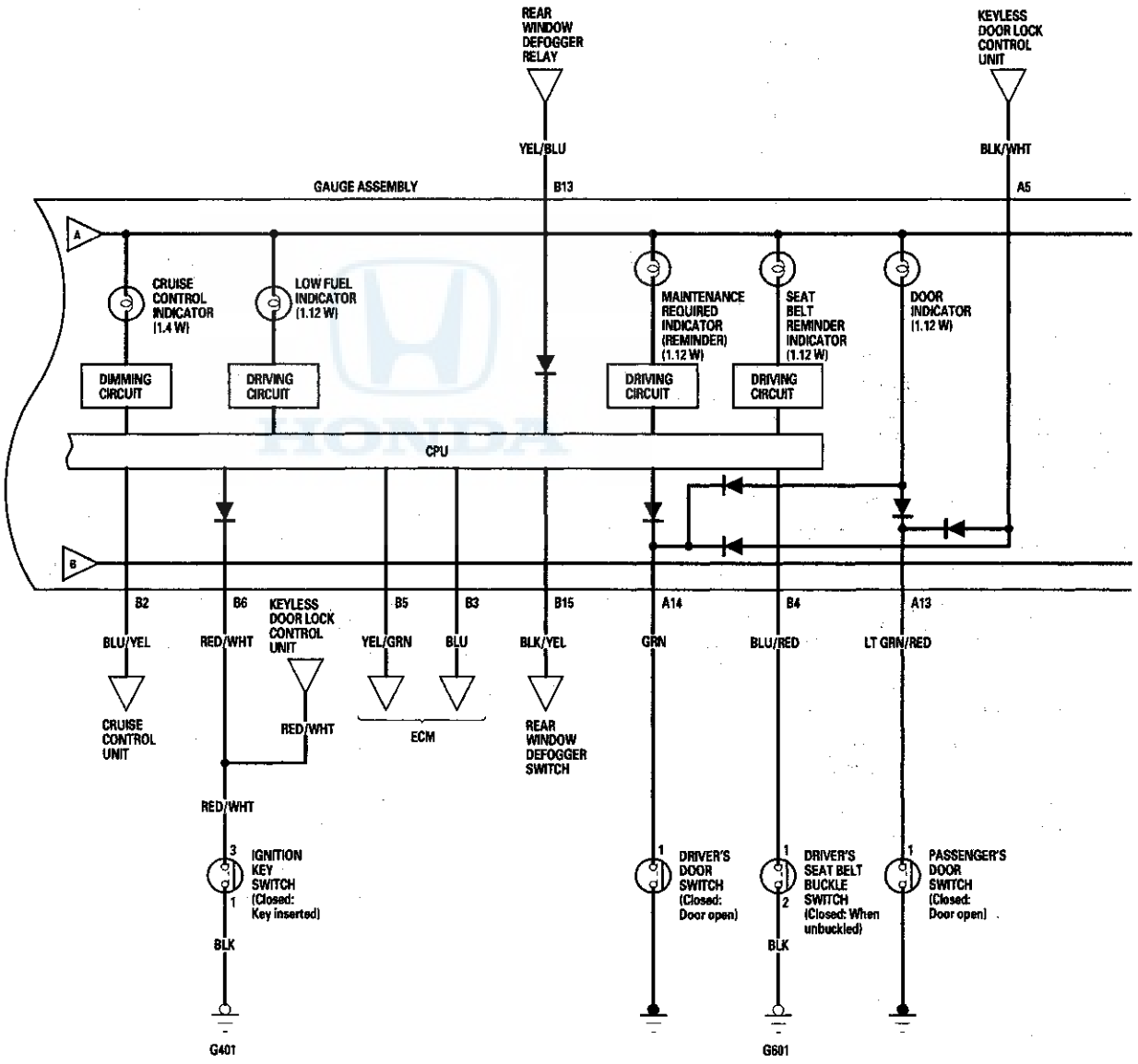


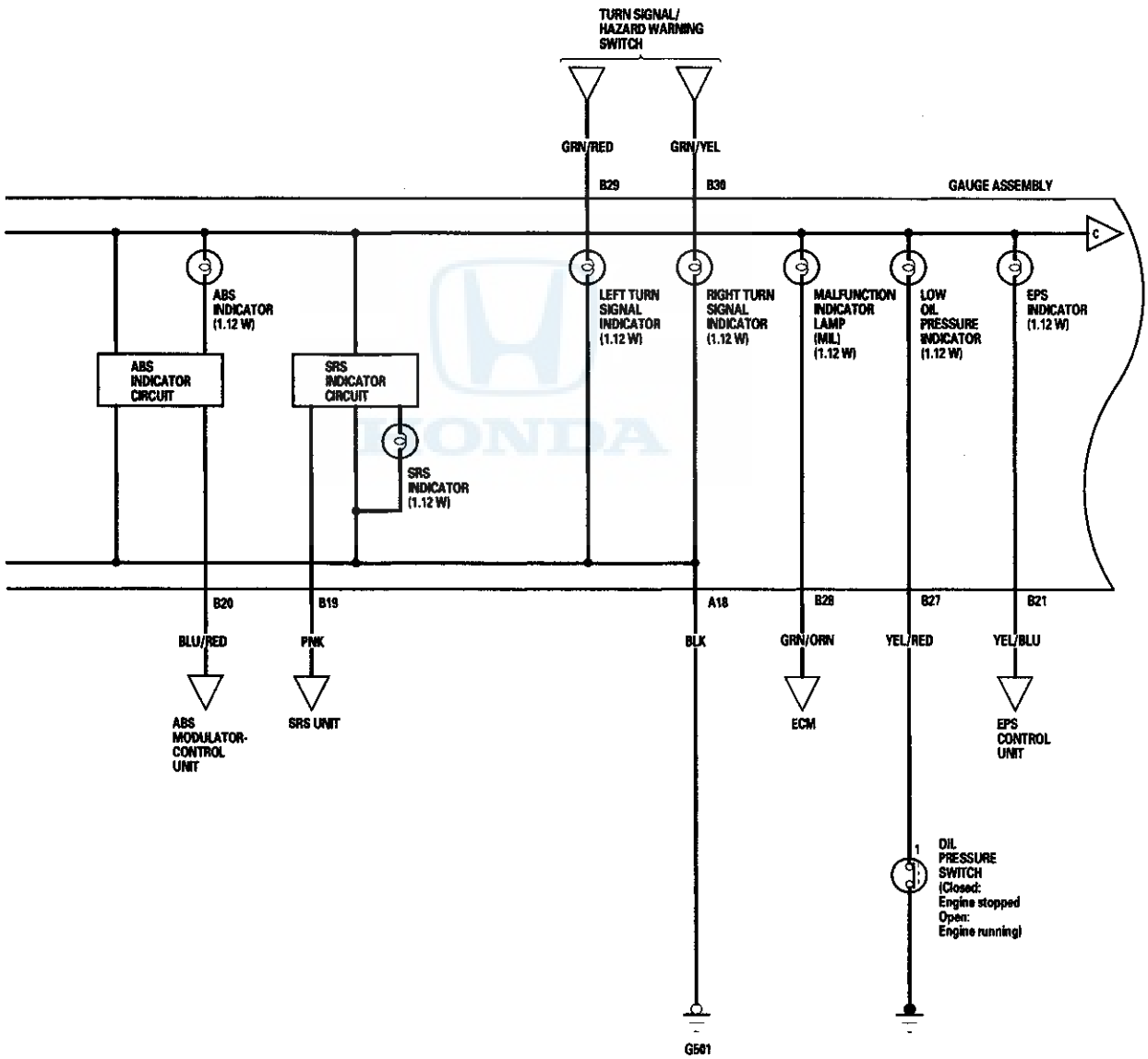

INTERMITTENT WIPER RELAY
TAILLIGHT RELAY
Via No. 13 FUSE
WINDSHIELD WIPER/WASHER SWITCH
No. 45 (20 A) FUSE
RED/BLK
GRN
BLU/ORN
BLU/BLK
WHT/BLK
RED/YEL
GAUGE ASSEMBLY
A8
B12
B16
B17
B18
A7
A
BRAKE SYSTEM INDICATOR (1.12 W)
GAUGE LIGHTS (3 W x 2)
GAUGE LIGHTS (3 W x 2 2 W x 5)
FREQUENCY DIVIDING CIRCUIT
DRIVING CIRCUIT
CPU
WIPER/WASHER DRIVING CIRCUIT
B
B7
B8
A17
B9
A19
B23
B24
ECM
BLU/WHT
WHT/BLK
BLK
BLK/WHT
RED
GRN/WHT
GRN/RED
• CONVERTIBLE TOP CONTROL UNIT
• DAYTIME RUNNING LIGHTS CONTROL UNIT (Canada models)
• EPS CONTROL UNIT
• CONVERTIBLE TOP CONTROL UNIT
• CRUISE CONTROL UNIT
HEATER CONTROL PANEL
DASH LIGHTS
YEL/BLU
VSS
BRN/YEL
PARKING BRAKE SWITCH (Closed: Lever pulled)
BRAKE FLUID LEVEL SWITCH (Closed: Float down)
G101
G501
G301

(cont'd)

Circuit Diagram (cont'd)

'04-05 models

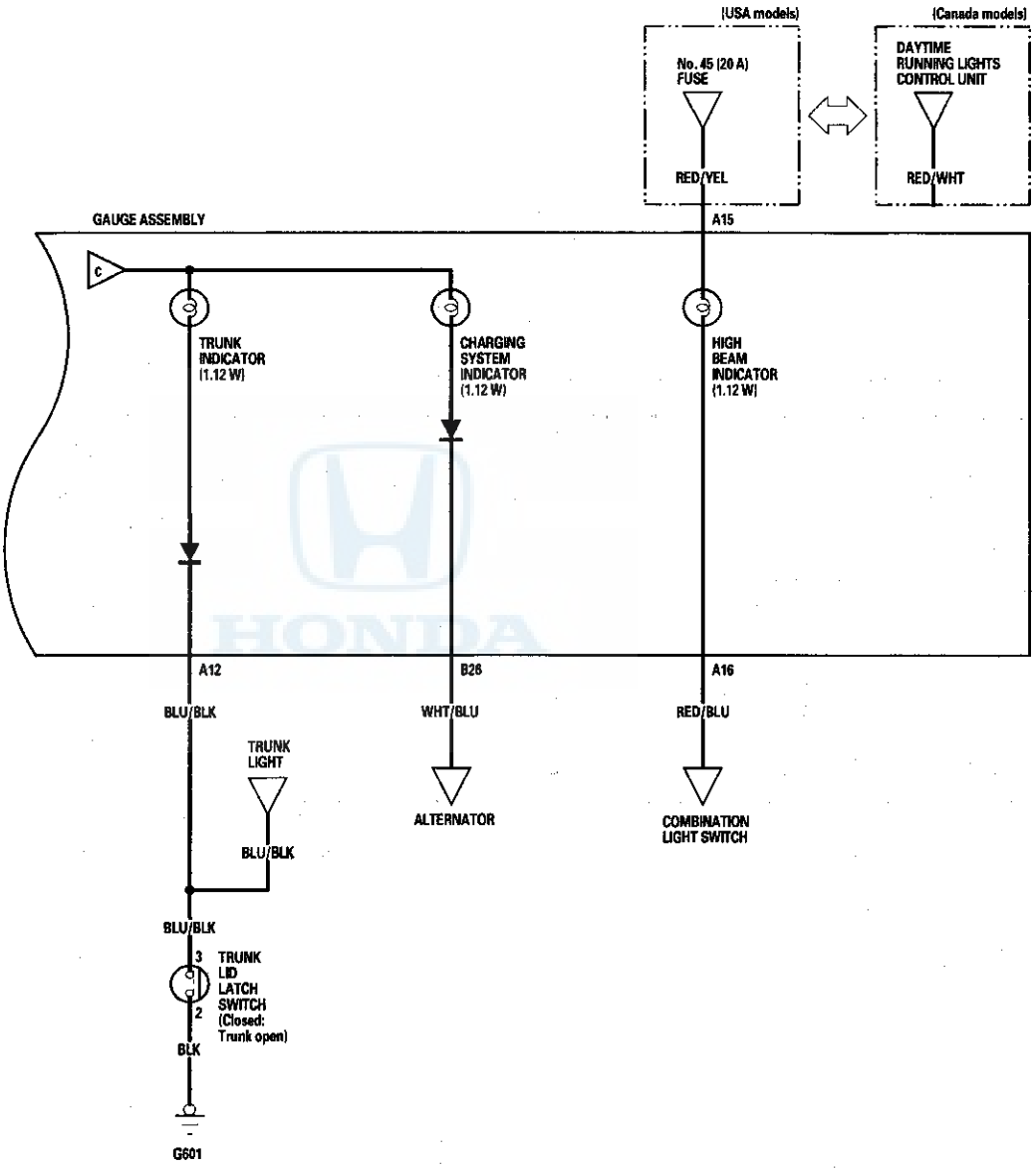



TURN SIGNAL/
HAZARD WARNING
SWITCH
GRN/RED
GRN/YEL
B29
B36
GAUGE ASSEMBLY
C
ABS
INDICATOR
(1.12 W)
ABS
INDICATOR
CIRCUIT
SRS
INDICATOR
CIRCUIT
SRS
INDICATOR
(1.12 W)
LEFT TURN
SIGNAL
INDICATOR
(1.12 W)
RIGHT TURN
SIGNAL
INDICATOR
(1.12 W)
MALFUNCTION
INDICATOR
LAMP
(MIL)
(1.12 W)
LOW
OIL
PRESSURE
INDICATOR
(1.12 W)
EPS
INDICATOR
(1.12 W)
B20
B19
A18
B28
B27
B21
BLU/RED
PINK
BLK
GRN/ORN
YEL/RED
YEL/BLU
ABS
MODULATOR-
CONTROL
UNIT
SRS UNIT
ECM
EPS
CONTROL
UNIT
1
OIL
PRESSURE
SWITCH
(Closed:
Engine stopped
Open:
Engine running)
G501

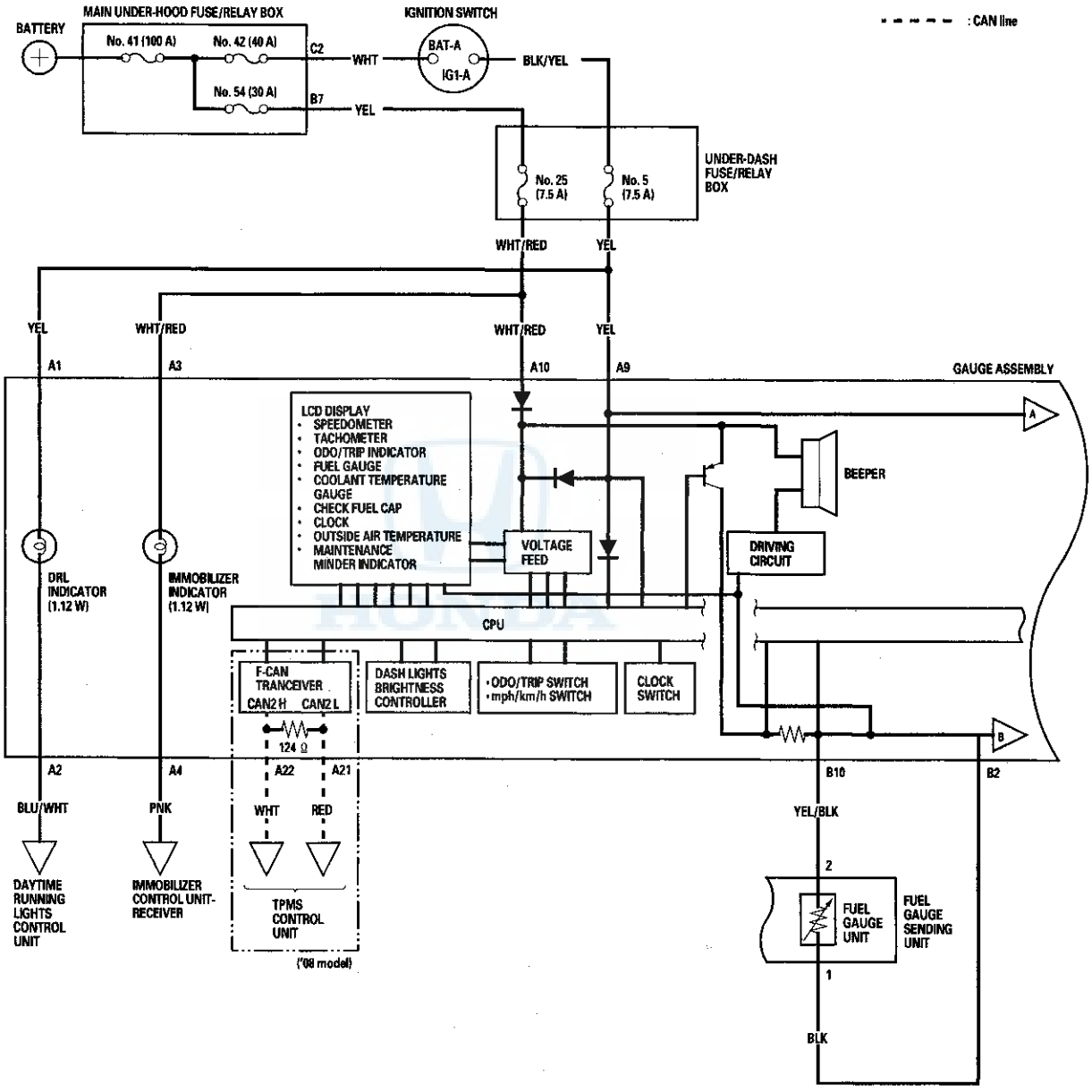
(cont'd)

Circuit Diagram (cont'd)

'04-05 models



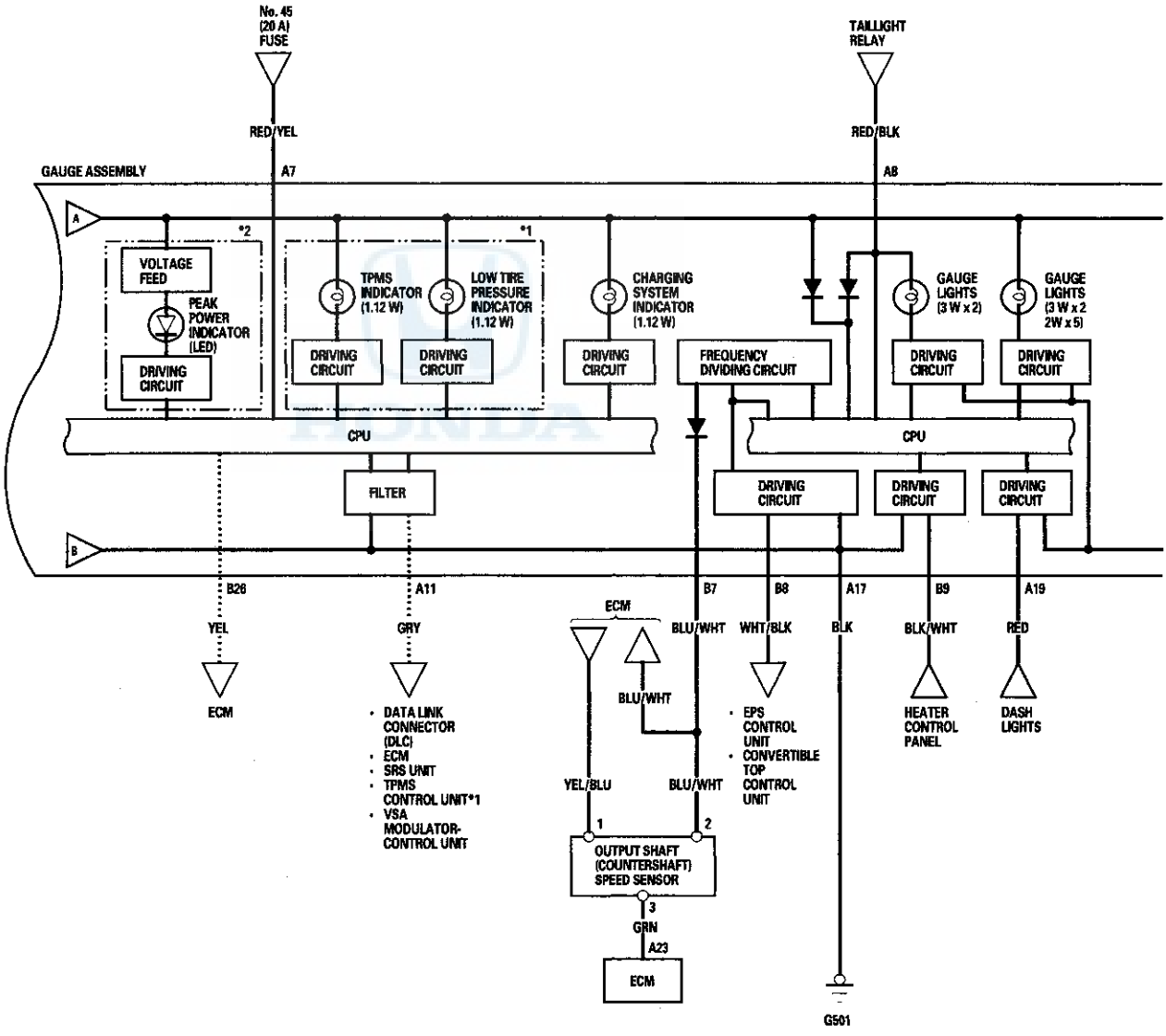
'06-08 models



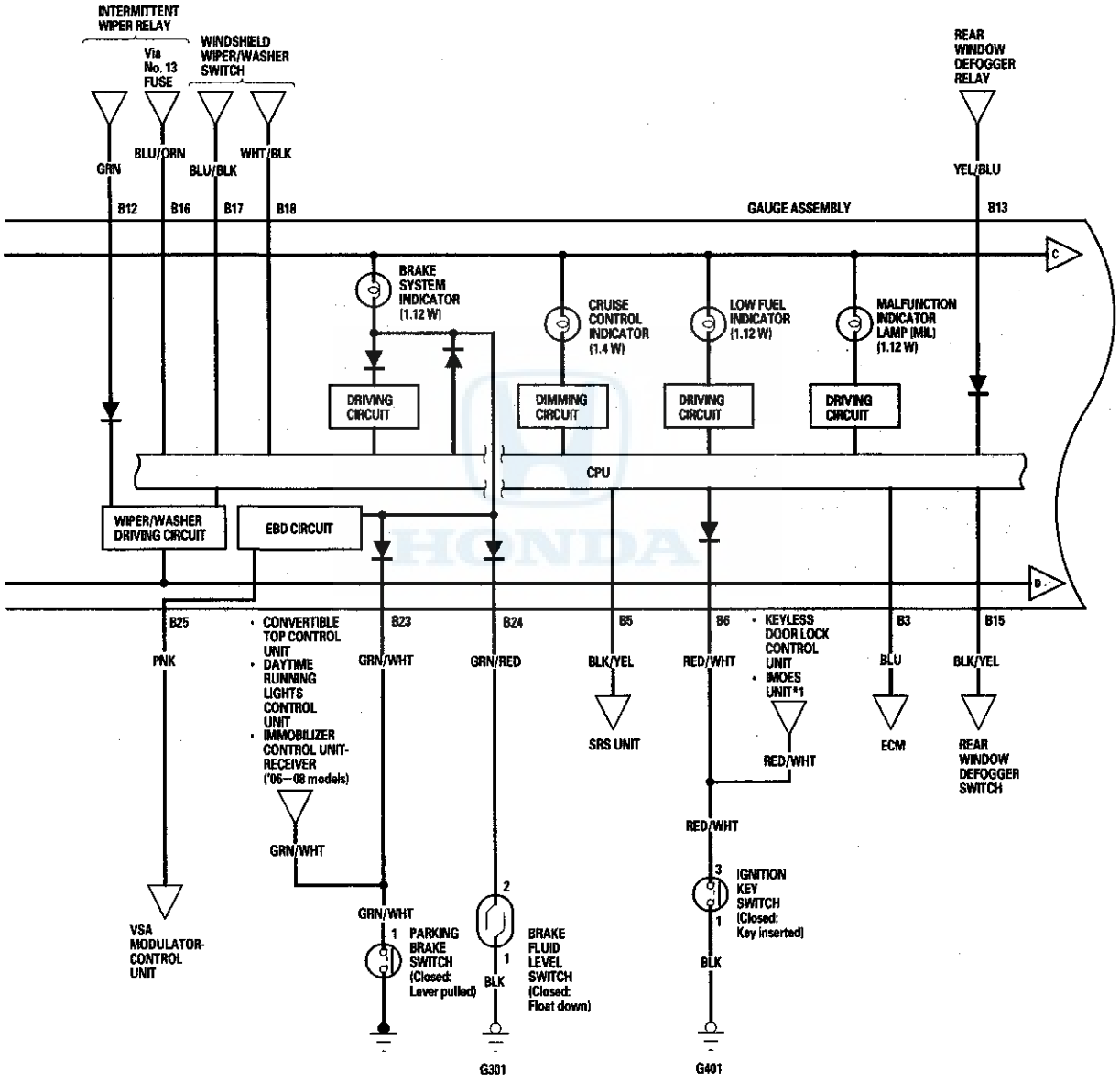
(cont'd)

Circuit Diagram (cont'd)

'06-08 models



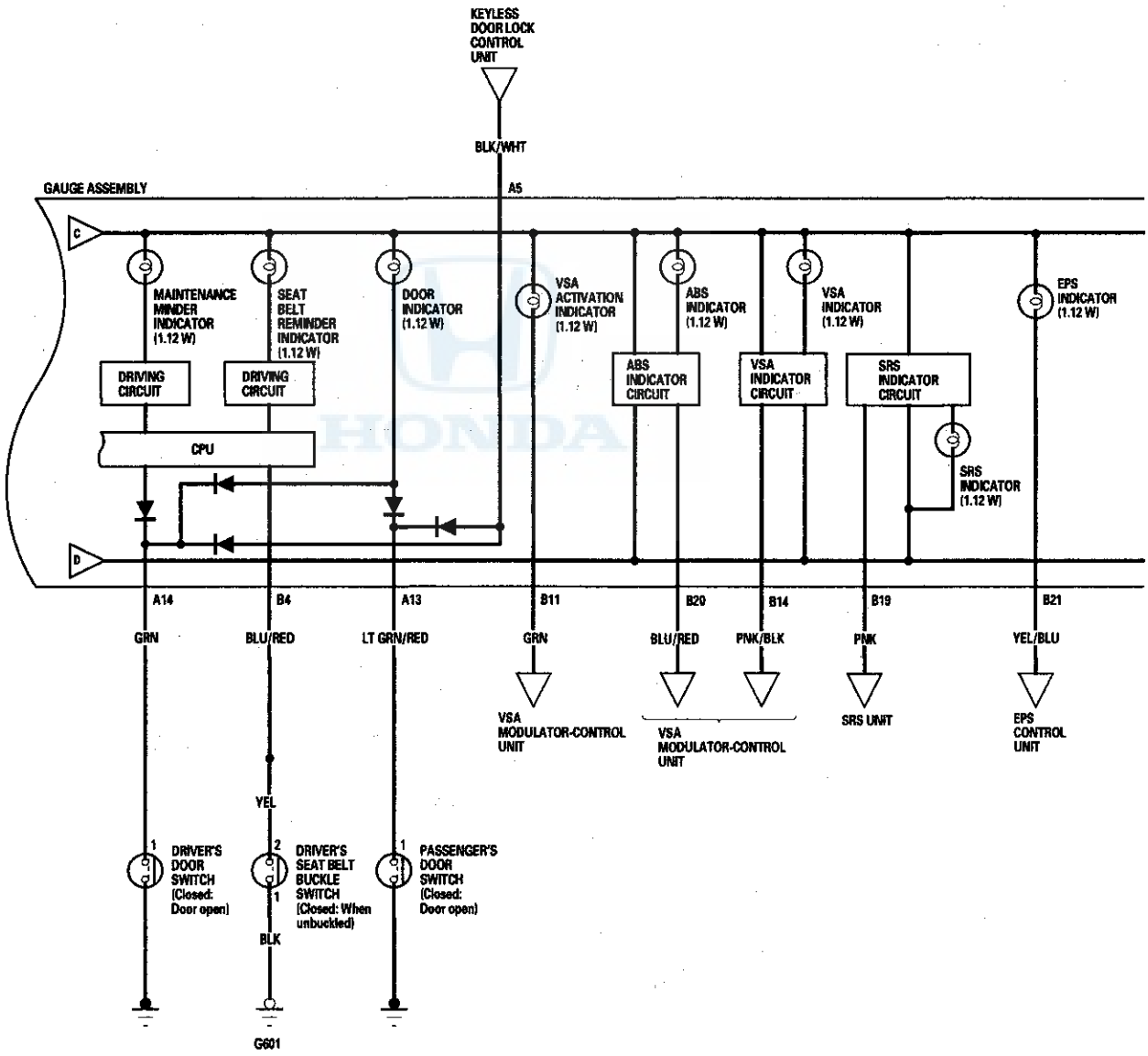
*1: '08 model
*2: CR model
..... : Other communication line

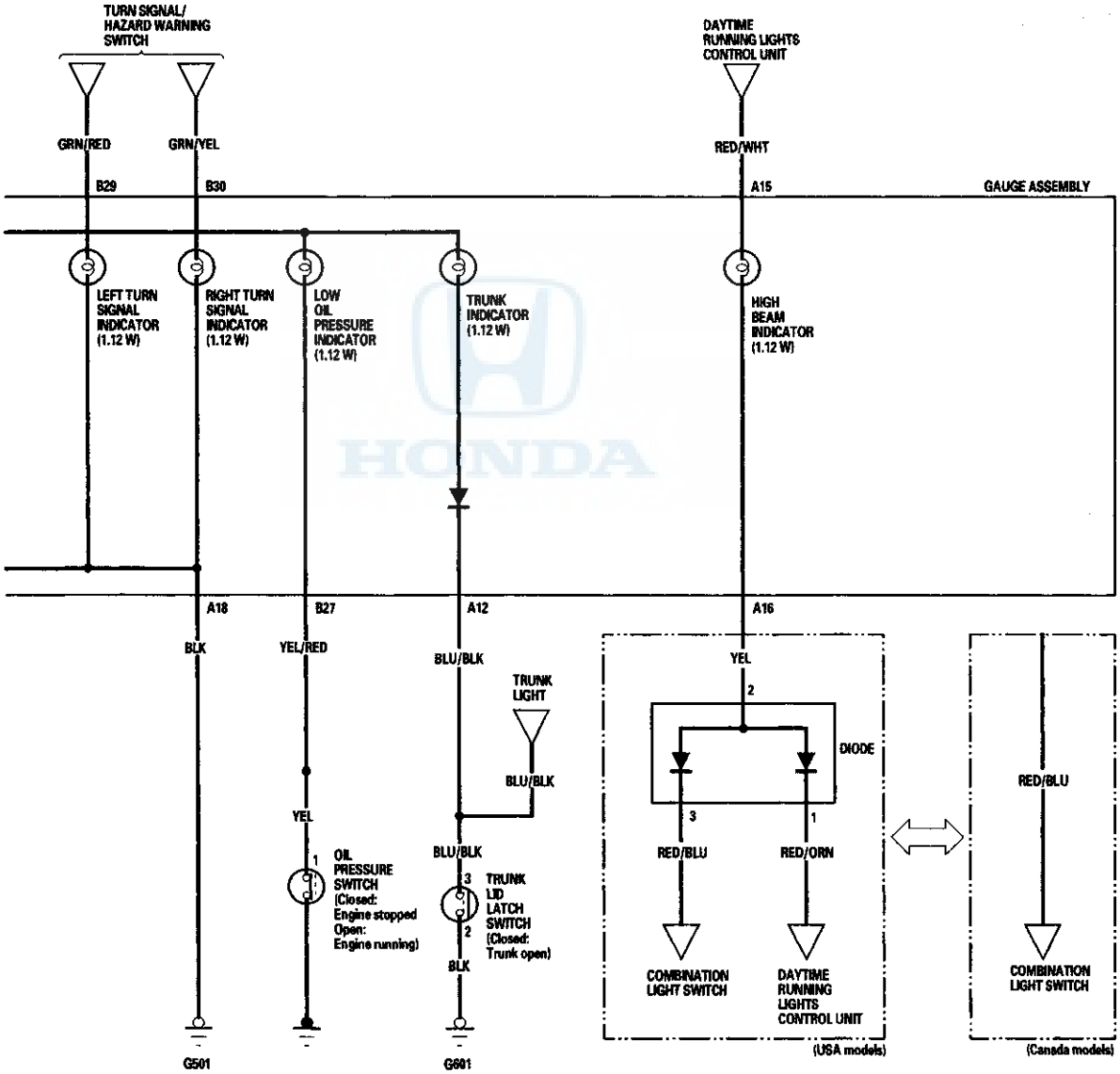


(cont'd)

Circuit Diagram (cont'd)

'06-08 models




TURN SIGNAL/
HAZARD WARNING
SWITCH
GRN/RED
GRN/YEL
B29
B30
LEFT TURN
SIGNAL
INDICATOR
(1.12 W)
RIGHT TURN
SIGNAL
INDICATOR
(1.12 W)
LOW
OIL
PRESSURE
INDICATOR
(1.12 W)
TRUNK
INDICATOR
(1.12 W)
DAYTIME
RUNNING LIGHTS
CONTROL UNIT
RED/WHT
A15
GAUGE ASSEMBLY
HIGH
BEAM
INDICATOR
(1.12 W)
A18
B27
A12
A16
BLK
YEL/RED
BLU/BLK
TRUNK
LIGHT
BLU/BLK
YEL
1
OIL
PRESSURE
SWITCH
(Closed:
Engine stopped
Open:
Engine running)
BLU/BLK
3
2
TRUNK
LID
LATCH
SWITCH
(Closed:
Trunk open)
BLK
G501
G601
YEL
2
DIODE
3
1
RED/BLU
RED/ORN
COMBINATION
LIGHT SWITCH
DAYTIME
RUNNING
LIGHTS
CONTROL UNIT
(USA models)
RED/BLU
COMBINATION
LIGHT SWITCH
(Canada models)

DTC Troubleshooting Index

DTC	Description	Note
B1152*1	Gauge assembly CPU abnormality	(see page 22-80)
B1173*3	Gauge assembly lost communication with TPMS control unit (TPMS message)	(see page 22-80)
B1175*1	Fuel gauge unit circuit open	(see page 22-82)
B1176*1	Fuel gauge unit circuit short	(see page 22-83)
B1177*2	IG1 circuit low voltage	(see page 22-84)
B1178*3	F-CAN communication line error	(see page 22-80)

* 1: '06-08 models
* 2: '06-07 models
* 3: '08 model

Symptom Troubleshooting Index

'06-08 models

Symptom	Diagnostic procedure
Error is indicated on the LCD display	Symptom Troubleshooting (see page 22-86)

DTC Troubleshooting

DTC B1152: Gauge Assembly CPU Abnormality

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II).
4. Check for DTCs with the HDS.

   Is DTC B1152 indicated?

   YES—Replace the gauge assembly (see page 22-89).■

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge assembly.■

DTC B1173: Gauge Assembly Lost Communication with TPMS Control Unit (TPMS message)

DTC B1178: F-CAN Communication Line Error

1. Clear the DTCs with the HDS.
2. Turn the ignition switch OFF, and then back ON (II).
3. Wait for 6 seconds or more.
4. Check for DTCs with the HDS.

   Are DTCs B1173 or 1178 indicated?

   YES—Go to step 5.

   NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections.■

5. Check for TPMS DTCs with the HDS.

   Is any DTCs indicated?

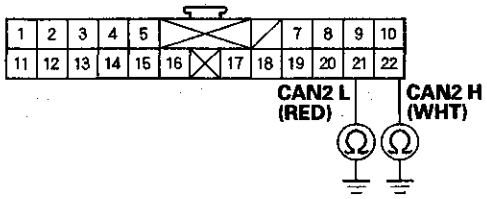
   YES—Go to the indicated DTCs, then recheck.

   NO—Go to step 6.

6. Turn the ignition switch OFF.
7. Disconnect gauge assembly connector A (22P).
8. Disconnect the TPMS control unit 20P connector.

9. Check for continuity between gauge assembly connector A (22P) No. 21 and No. 22 terminals and body ground individually.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

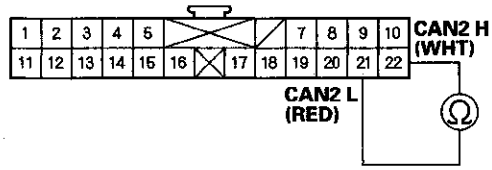
Is there continuity?

YES—Repair the short to body ground on the appropriate write. ■

NO—Go to step 10.

10. Check for continuity between gauge assembly connector A (22P) No. 21 and No. 22 terminals.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

Is there continuity?

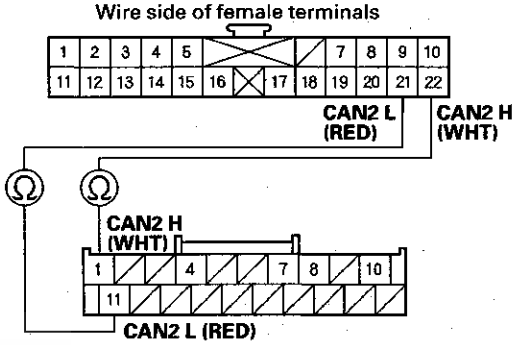
YES—Repair short in the wire between gauge assembly A (22P) connector No. 21 (CAN2 L Line) and No. 22 (CAN2 H Line) terminals. ■

NO—Go to step 11.

11. Check for continuity between gauge assembly connector A (22P) No. 21 and No. 22 terminals and the TPMS control unit 20P connector No. 1 and No. 11 terminals respectively.

GAUGE ASSEMBLY CONNECTOR A (22P)

Wire side of female terminals



TPMS CONTROL UNIT 20P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Substitute a known-good TPMS control unit, and recheck. If the indication goes away, replace the original TPMS control unit. If the DTC is still present, replace the gauge assembly (see page 22-89). ■

NO—Repair an open in the wire. ■

DTC Troubleshooting (cont'd)

DTC B1175: Fuel Gauge Unit Circuit Open

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II).
4. Wait more than 30 seconds.
5. Check for DTCs with the HDS.

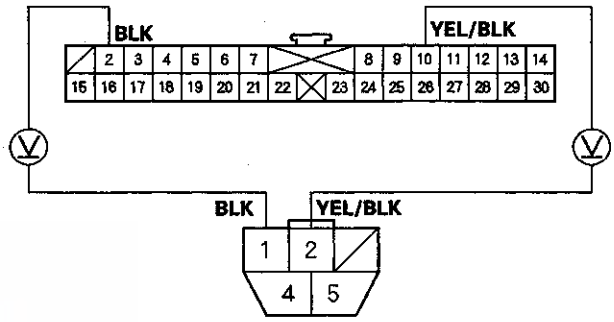
   Is DTC B1175 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge assembly and the fuel gauge sending unit.■

6. Without disconnecting the gauge assembly or fuel gauge sending unit connector, measure the voltage between gauge assembly connector B (30P) No. 10 terminal and fuel gauge sending unit 5P connector No. 2 terminal, and between gauge assembly connector B (30P) No. 2 terminal and fuel gauge sending unit 5P connector No. 1 terminal.

GAUGE ASSEMBLY CONNECTOR B (30P)
Wire side of female terminals



FUEL GAUGE SENDING UNIT 5P CONNECTOR
Wire side of female terminals

Is there less than 0.1 V?

YES—Go to step 7.

NO—Repair an open in the wire between the gauge assembly and the fuel gauge sending unit.■

7. Test the fuel gauge sending unit (see page 11-494).

   Is the fuel gauge sending unit normal?

   YES—Replace the gauge assembly (see page 22-89).■

   NO—Replace the fuel gauge sending unit (see page 11-488).■

DTC B1176: Fuel Gauge Unit Circuit Short

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II).
4. Wait more than 30 seconds.
5. Check for DTCs with the HDS.

   Is DTC B1176 indicated?

   YES—Go to step 6.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge assembly and the fuel gauge sending unit. ■

6. Turn the ignition switch OFF.
7. Disconnect the fuel gauge sending unit 5P connector.
8. Turn the ignition switch ON (II).
9. Clear the DTCs with the HDS.
10. Wait more than 30 seconds.
11. Check for DTCs with the HDS.

    Is DTC B1176 indicated?

    YES—Go to step 12.

    NO—Replace the fuel gauge sending unit (see page 11-488). ■

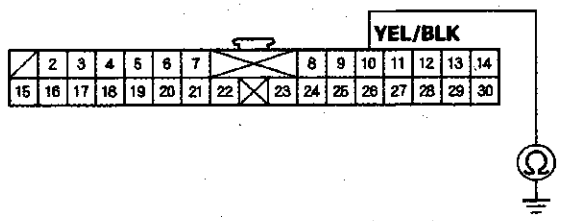
12. Turn the ignition switch OFF.
13. Disconnect gauge assembly connector B (30P).

(cont'd)

DTC Troubleshooting (cont'd)

14. Check for continuity between gauge assembly connector B (30P) No. 10 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground between the gauge assembly and the fuel gauge sending unit. ■

NO—Replace the gauge assembly (see page 22-89). ■

DTC B1177: IG1 Circuit Low Voltage

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch OFF, then turn it ON (II).
4. Check for DTCs with the HDS.

   Is DTC B1177 indicated?

   YES—Go to step 9.

   NO—Go to step 5.
5. Clear the DTC with the HDS.
6. Turn the ignition switch OFF.
7. Start the engine.
8. Check for DTCs with the HDS.

   Is DTC B1177 indicated?

   YES—Go to step 9.

   NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge assembly. ■

9. Check the battery condition (see page 22-47).

   Is the battery normal?

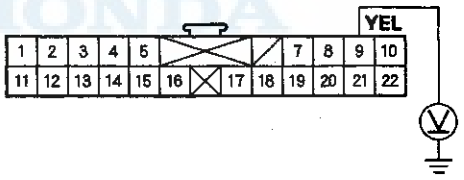
   YES—Go to step 10.

   NO—Charge the battery, or replace it.■

10. Turn the ignition switch ON (II).

11. With the connectors connected, measure the voltage between gauge assembly connector A (22P) No. 9 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

   Is there battery voltage?

   YES—Replace the gauge assembly (see page 22-89).■

   NO—Increase of circuit resistance; check the IG1 circuit between the ignition switch and the gauge assembly.■

Symptom Troubleshooting

Error is indicated on the LCD display

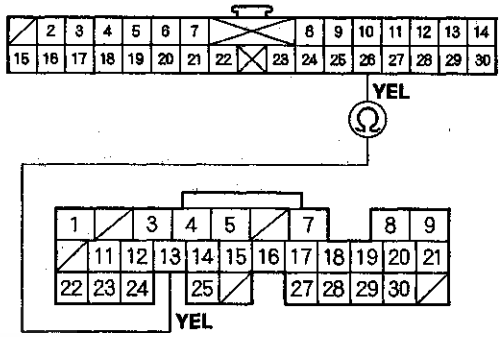
1. Turn the ignition switch ON (II).
2. Check for PGM-FI system DTCs with the HDS.

   Are there PGM-FI system DTCs?

   YES—Do the DTC troubleshooting, then do the gauge assembly self-diagnosis (see page 22-60).■

   NO—Go to step 3.
3. Turn the ignition switch OFF.
4. Disconnect gauge assembly connector B (30P).
5. Jump the SCS line with the HDS.
6. Disconnect ECM connector E (31P).
7. Check for continuity between gauge assembly connector B (30P) No. 26 terminal and ECM connector E (31P) No. 13 terminal.

GAUGE ASSEMBLY CONNECTOR B (30P)
Wire side of female terminals



ECM CONNECTOR E (31P)
Wire side of female terminals

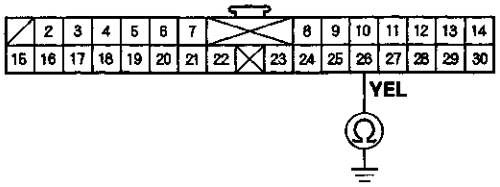
Is there continuity?

YES—Go to step 8.

NO—Repair an open in the wire between the gauge assembly and the ECM.■

8. Check for continuity between gauge assembly connector B (30P) No. 26 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

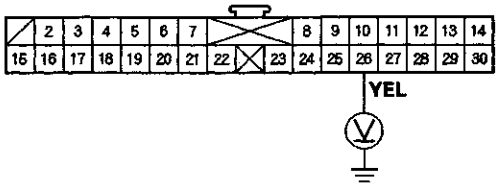
Is there continuity?

YES—Repair a short to ground in the wire between the gauge assembly and the ECM. ■

NO—Go to step 9.

9. Reconnect gauge assembly connector B (30P).
10. Turn the ignition switch ON (II).
11. Measure the voltage between gauge assembly connector B (30P) No. 26 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there battery voltage?

YES—Replace the ECM. ■

- '00-05 models (see page 11-115)
- '06-08 models (see page 11-389)

NO—Replace the gauge assembly (see page 22-89). ■

Rewriting the ODO Data and Transferring the Maintenance Minder Data to a New Gauge Assembly

NOTE:
- Obtain a new gauge assembly before starting the rewriting process.
- Rewriting is not possible on a gauge assembly that will not communicate with the HDS.
- Make sure that the HDS shows the correct VIN for the car you are working on.
- Once you have started this procedure, you must complete it before removing the HDS from the DLC.
- Connect a battery jumper box (not a battery charger) to insure that correct battery voltage will be maintained.

1. Before replacing the gauge assembly, connect the HDS.
2. Select GAUGES from the BODY ELECTRICAL system select menu with the HDS.
3. Select "Gauge Assembly Replacement (ODO Rewrite)" from the ADJUSTMENT menu, and follow the instructions on the display to retrieve the ODO value and the Maintenance Minder Information.
4. Replace the gauge assembly.
5. Follow the instructions on the display to write the new ODO value and Maintenance Minder data to the new gauge assembly. If the data transfer fails, refer to the instructions below to release the locked ODO value.

Release Locked odometer mileage to the original gauge assembly.

If after you attempt to transfer mileage, the new odometer has dashes (———), garbled, or an incorrect value displayed, do the following:

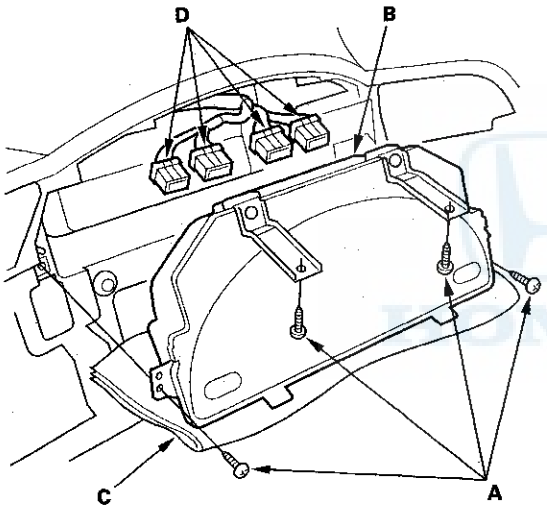
Start over. The original gauge assembly is going to be unlocked and restored to its original state.

1. Confirm that you have the latest HDS version of software.
2. Make sure that the HDS shows the correct VIN for the car you are working on.
3. With the ignition switch OFF, reconnect the original gauge assembly.
4. Completely re-boot the HDS.
5. Clear any stored DTCs.
6. Navigate to Body Electric/Gauges/Adjustment/ Instrument Panel Replacement.
7. Select "3. Releasing Locked ODO Value."
8. Follow the prompts and the Odometer mileage will be restored.
9. Start over and make sure the screen prompts are followed.

Gauge Assembly Replacement

NOTE: Before replacing the gauge assembly, do the "Rewriting the ODO Data and Transferring the Maintenance Minder Data to a New Gauge assembly" (see page 22-88).

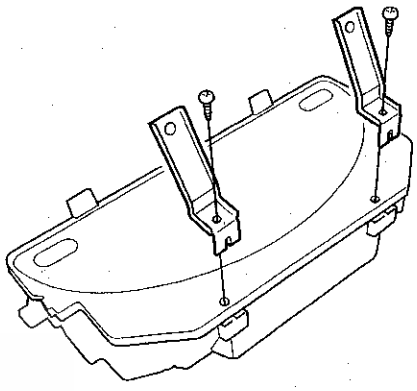
1. Lower the steering column, and remove the driver's airbag, steering wheel, steering column covers cable reel, and combination switch assembly (see page 17-9).
2. Remove the instrument panel (see page 20-84).
3. Remove the screws (A) from the gauge assembly (B), and spread a protective cloth (C) on the steering column.



4. Disconnect the connectors (D), and remove the gauge assembly.

   NOTE: '04-08 models only have two connectors.

5. Remove the screws and the gauge assembly brackets.



6. Install in the reverse order of removal.

Outside Air Temperature Indicator Calibration

Description

The outside temperature sensor is located behind the center of the front bumper. The gauge assembly uses measurements from this sensor to display the outside air temperature.
Because of the location of the sensor, it may be affected by heat, reflection from the road, engine and radiator heat or hot exhaust from surrounding traffic.
These conditions can heat soak the outside air temperature sensor and cause inaccurate readings.
Logic has been written into the gauge assembly to help prevent abnormal of fluctuating outside air temperature indicator readings.

Outside Air Temperature Indicator Logic

Initial outside air temperature indication after the ignition switch is turned ON (II).

- If the engine coolant temperature is 140 °F (60 °C) or higher when the ignition switch is turned ON (II), the outside air temperature will be indicated the last reading before the key was turned off regardless of the current temperature measured by the outside air temperature sensor.
- If the engine coolant temperature is 139 °F (59 °C) or lower when the ignition switch is turned ON (II), the current temperature measured by the outside air temperature sensor will be indicated.

Update to the outside air temperature indicator while driving

If the temperature measured by the outside air temperature sensor is greater than the temperature on the outside air temperature indicator, the outside temperature indicator will increase by 1 °F (1 °C) per 34 seconds (1 minute) after the vehicle speed is greater than 19 mph (30 km/h) for more than 30 seconds. It will continue to increase until the current outside air temperature is indicated. So, the first change to the outside air temperature indicator is 34 seconds (1 minute) after the vehicle speed is greater than 19 mph (30 km/h). If the vehicle speed drops below 19 mph (30 km/h), the indicator will not update again until the vehicle speed is increased to 19 mph (30 km/h) or more for more than 30 seconds again.

If the outside air temperature is less than 140 °F (60 °C), the temperature increases 1 °F (1 °C) every 2 seconds until the current outside air temperature.

If the outside air temperature is less than the indicated temperature, the temperature will decrease 1 °F (1 °C) every 2 seconds until the current outside air temperature is indicated regardless of vehicle speed.

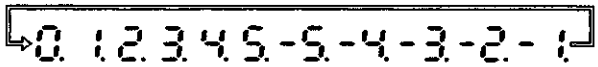
Troubleshooting

If the indicator displays "———" for more than 2 seconds after selecting the outside air temperature display mode, check the outside air temperature sensor, or gauge assembly self-diagnosis (see page 22-60).

Calibration

The outside air temperature indicator's displayed temperature can be recalibrated ±5 °F (or ±3 °C) to meet the customer's expectations.

1. Turn the ignition switch ON (II).
2. Select the outside air temperature display.
3. Press and hold the trip button for 10 seconds. While you continue to hold the button, the display will scroll through temperature settings from +5 °F to −5 °F (or +3 °C to −3 °C) as shown.



4. When the desired correction value appears on the display, release the button, and the recalibrated outside air temperature will be displayed.

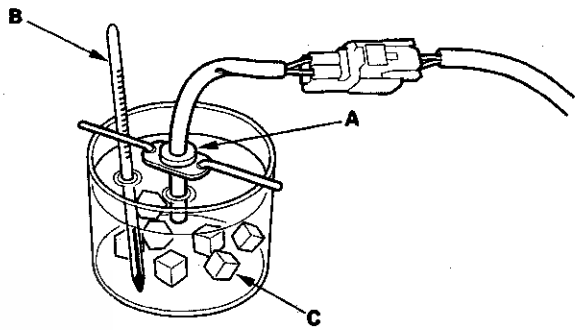
Example:
Incorrect value = 68 °F (20 °C)

Desired correction value = +2 °F (+1 °C)
Correct value = 70 °F (21 °C)

Desired correction value = −2 °F (−1 °C)
Correct value = 66 °F (19 °C)

NOTE: The recalibration temperature is not the value the sensor sees. Therefore the temperature can only be adjusted ±5 degrees from the sensor.

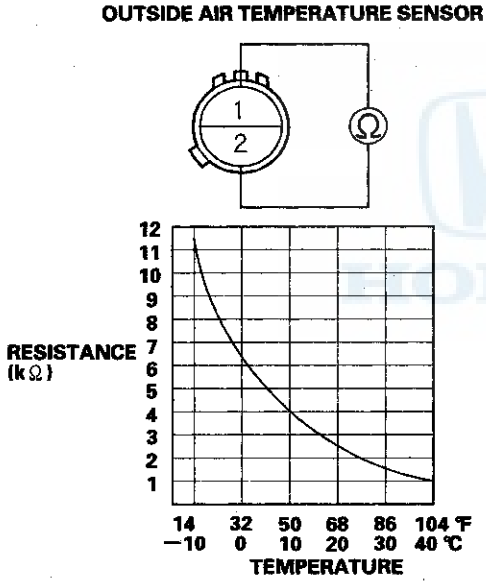
NOTE: To recalibrate the display to the true temperature, remove the outside air temperature sensor (A), but leave it connected. Submerge the sensor and a thermometer (B) in a container of ice water (C). Select the calibration mode as described above, then recalibrate the display to the true temperature.



Outside Air Temperature Sensor Test

'06-08 models

1. Remove the outside air temperature sensor (see page 22-92).
2. Dip the sensor in ice water, and measure the resistance. Then pour warm water on the sensor, and check for a change in resistance.
3. Compare the resistance reading between the No. 1 and No. 2 terminals of the outside air temperature sensor with the specifications shown in the graph; the resistance should be within the specifications.

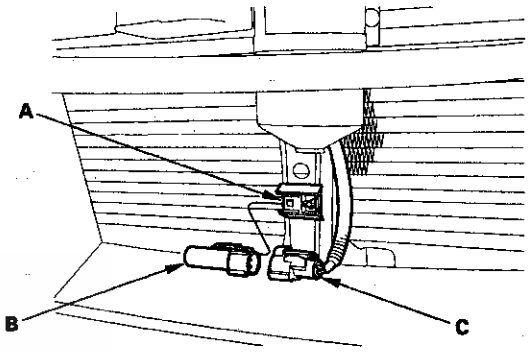


4. If the resistance is not as specified, replace the out side air temperature sensor (see page 22-92).

Outside Air Temperature Sensor Replacement

'06-08 models

1. Lift the tab (A) to release the lock, then remove the outside air temperature sensor (B) from the sensor clip. Disconnect the 2P connector (C) from the outside air temperature sensor.

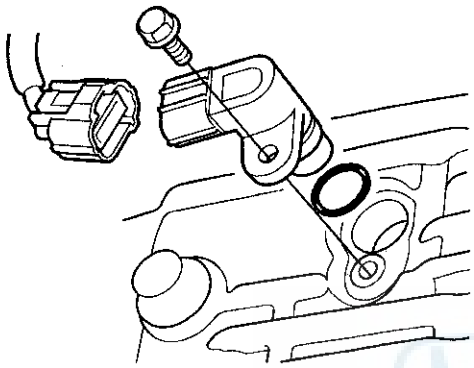


2. Install the sensor in the reverse order of removal.

VSS Replacement

'00-05 models

1. Raise the vehicle, and make sure it is securely supported.
2. Disconnect the 3P connector from the vehicle speed sensor (VSS).



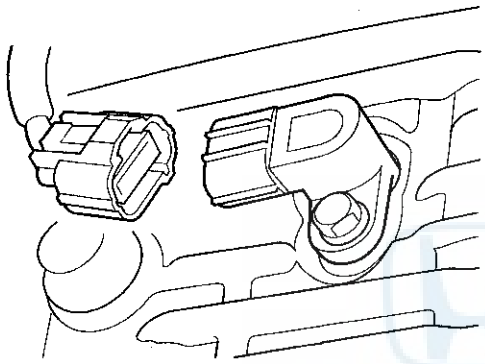
3. Remove the mounting bolt, then remove the VSS.
4. Install in the reverse order of removal.

Vehicle Speed Signal Circuit Troubleshooting

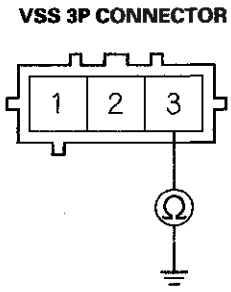
'00-05 models

NOTE: If the MIL is ON, troubleshoot the PGM-FI problem first.

1. Raise the vehicle with the transmission in neutral, and make sure it is securely supported.
2. Disconnect the VSS 3P connector.
3. Turn the ignition switch ON (II).



4. Check for continuity between the VSS 3P connector No. 3 terminal and body ground.



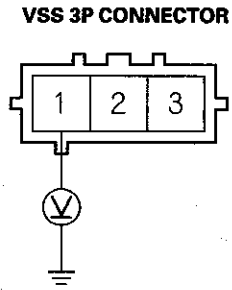
Terminal side of male terminals

Is there continuity?

YES—Go to step 5.

NO—Repair an open or high resistance in the BRN/YEL wire between the VSS and G101.■

5. Measure the voltage between the VSS 3P connector No. 1 terminal and body ground.



Terminal side of male terminals

Is there about 5 V?

YES—Go to step 6.

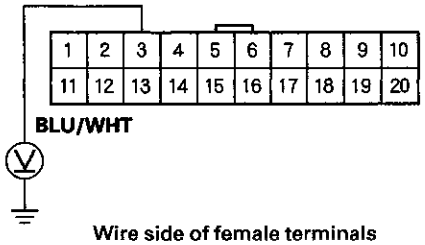
NO—Repair short or open in the YEL/BLU wire between the VSS and the ECM.■

6. Reconnect the VSS 3P connector.
7. Slowly rotate the propeller shaft.

8. Measure the voltage between gauge assembly connector C (20P) No. 3 terminal and body ground ('00-03 models) or between gauge assembly connector B (30P) No. 7 terminal and body ground ('04-05 models).

'00-03 models

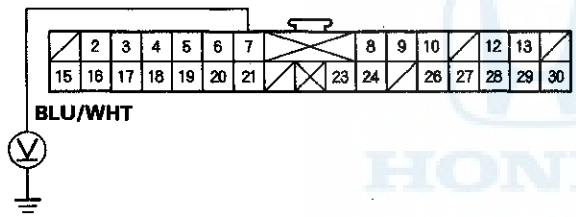
GAUGE ASSEMBLY CONNECTOR C (20P)



Wire side of female terminals

'04-05 models

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Does voltage pulse from 0 to about 5 V?

YES—Check connections, and if necessary, replace the printed circuit board.■

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Disconnect the 3P connector from the vehicle speed sensor (VSS).
11. Turn the ignition switch ON (II).
12. Measure the voltage between the VSS 3P connector No. 2 terminal and body ground.

Is there about 5 V?

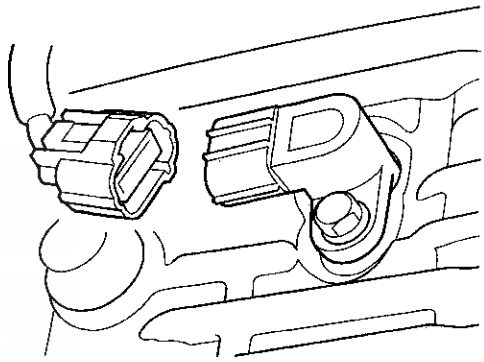
YES—Replace the VSS.■

NO—Repair a short to ground or open in the BLU/WHT wire.■

'06-08 models

NOTE: If the MIL is ON, troubleshoot the PGM-FI problem first.

1. Raise the vehicle with the transmission in neutral, and make sure it is securely supported.
2. Disconnect the output shaft (countershaft) speed sensor 3P connector.
3. Turn the ignition switch ON (II).

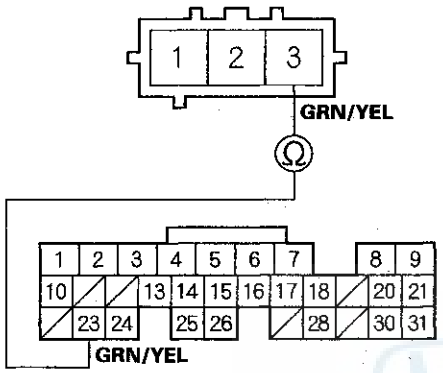


(cont'd)

Vehicle Speed Signal Circuit Troubleshooting (cont'd)

4. Check for continuity between the output shaft (countershaft) speed sensor 3P connector No. 3 terminal and ECM connector A (31P) No. 23 terminal.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONECTOR
Terminal side of male terminals



ECM CONNECTOR A (31P)
Wire side of female terminals

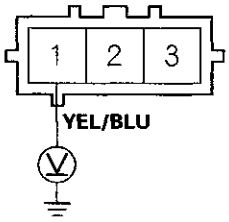
Is there continuity?

YES—Go to step 5.

NO—Repair an open or high resistance in the GRN/YEL wire between the output shaft (countershaft) speed sensor and the ECM.■

5. Measure the voltage between the output shaft (countershaft) speed sensor 3P connector No. 1 terminal and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONNECTOR



Terminal side of male terminals

Is there about 5 V?

YES—Go to step 6.

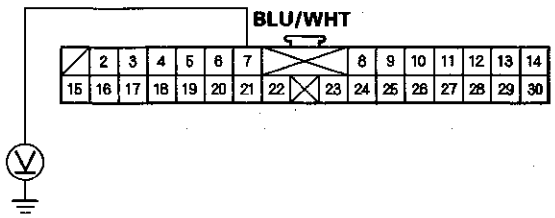
NO—Repair short or open in the YEL/BLU wire between the output shaft (countershaft) speed sensor and the ECM.■

6. Reconnect the output shaft (countershaft) speed sensor 3P connector.

7. Slowly rotate the propeller shaft.

8. Measure the voltage between gauge assembly connector B (30P) No. 7 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Does voltage pulse from 0 to about 5 V?

YES—Check connections, and if necessary, replace the printed circuit board. ■

NO—Go to step 9.

9. Turn the ignition switch OFF.
10. Disconnect the 3P connector from the output shaft (countershaft) speed sensor.
11. Turn the ignition switch ON (II).
12. Measure the voltage between the output shaft (countershaft) speed sensor 3P connector No. 2 terminal and body ground.

Is there about 5 V?

YES—Replace the output shaft (countershaft) speed sensor. ■

NO—Repair a short to ground or open in the BLU/WHT wire. ■

Resetting the Maintenance Required Indicator

How to Reset

Push and hold the trip button, turn the ignition switch ON (II), and continue holding the trip button for more than 10 seconds.

Blinking Pattern:

Miles (km)	Maintenance Reminder Light
At 5,900 (9,440) to 6,100 (9,760)	Blinks for 10 seconds when the ignition switch is turned ON (II).
At 7,400 (11,840) to 7,600 (12,160)	Comes on and stays on while the ignition switch is ON (II).

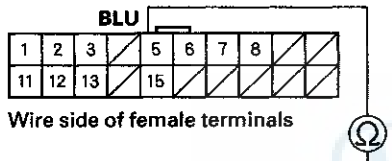
Tachometer Circuit Troubleshooting

'00-03 models

NOTE: If the MIL is on, troubleshoot the PGM-FI problem first.

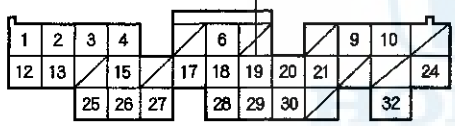
1. Remove the gauge assembly (see page 22-89).
2. Disconnect gauge assembly connector C (20P) and ECM connector A (32P).
3. Check for continuity between gauge assembly connector C (20P) No. 5 terminal and ECM connector A (32P) No. 19 terminal.

GAUGE ASSEMBLY CONNECTOR C (20P)



Wire side of female terminals

ECM CONNECTOR A (32P)



Wire side of female terminals

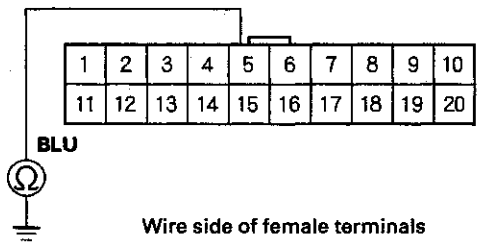
Is there continuity?

YES—Go to step 4.

NO—Repair an open in the BLU wire between the gauge assembly and the ECM.■

4. Disconnect EPS control unit connector B (14P).
5. Check for continuity between gauge assembly connector C (20P) No. 5 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR C (20P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the BLU wire between the gauge assembly , the EPS control unit and the ECM.■

NO—Go to step 6.

6. Reconnect gauge assembly connector C (20P), EPS control unit connector B (14P) and ECM connector A (32P).
7. Check the EPS system for DTC 22 or 23.

Is DTC 22 or 23 present?

YES—Go to the EPS system Troubleshooting. If OK, substitute a known-good ECM and retest the circuit. If OK, replace the ECM.■

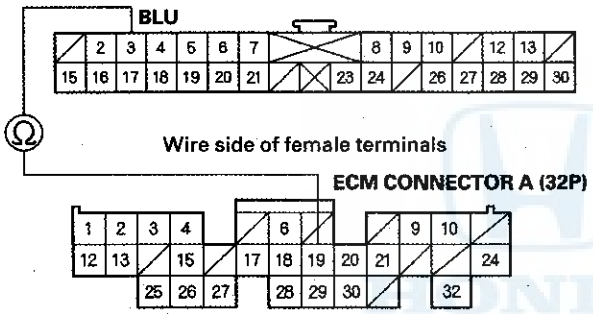
NO—Check for continuity between the gauge assembly connector A14 terminal and the EPS control unit connector B12 terminal, and the gauge assembly connector C5 terminal and the EPS control unit connector B5 terminal. If OK, replace the main printed circuit board in the gauge assembly.■

'04-05 models

NOTE: If the MIL is on, troubleshoot the PGM-FI problem first.

1. Remove the gauge assembly (see page 22-89).
2. Disconnect gauge assembly connector B (30P) and ECM connector A (32P).
3. Check for continuity between gauge assembly connector B (30P) No. 3 terminal and ECM connector A (32P) No. 19 terminal.

GAUGE ASSEMBLY CONNECTOR B (30P)



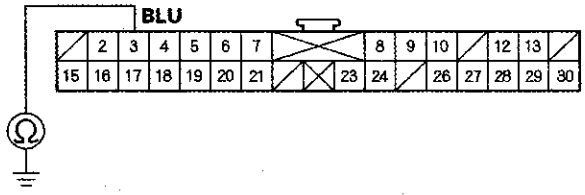
Is there continuity?

YES—Go to step 4.

NO—Repair an open in the BLU wire between the gauge assembly and the ECM. ■

4. Disconnect EPS control unit connector B (14P).
5. Check for continuity between gauge assembly connector B (30P) No. 3 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Is there continuity?

YES—Repair a short to ground in the BLU wire between the gauge assembly, the EPS control unit and the ECM. ■

NO—Go to step 6.

6. Reconnect gauge assembly connector B (30P), EPS control unit connector B (14P) and ECM connector A (32P).
7. Check the EPS system for DTC 22 or 23.

Is DTC 22 or 23 present?

YES—Go to the EPS system Troubleshooting. If OK, substitute a known-good ECM and retest the circuit. If OK, replace the ECM. ■

NO—Check for continuity between the gauge assembly connector B21 terminal and the EPS control unit connector B12 terminal, and the gauge assembly connector B3 terminal and the EPS control unit connector B5 terminal. If OK, replace the main printed circuit board in the gauge assembly. ■

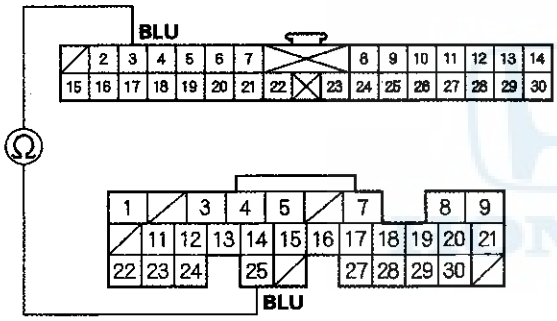
Tachometer Circuit Troubleshooting (cont'd)

'06-08 models

NOTE: If the MIL is on, troubleshoot the PGM-FI problem first.

1. Remove the gauge assembly (see page 22-89).
2. Disconnect gauge assembly connector B (30P).
3. Jump the SCS line with the HDS, then disconnect ECM connector E (31P).
4. Check for continuity between gauge assembly connector B (30P) No. 3 terminal and ECM connector E (31P) No. 25 terminal.

GAUGE ASSEMBLY CONNECTOR B (30P)
Wire side of female terminals



ECM CONNECTOR E (31P)
Wire side of female terminals

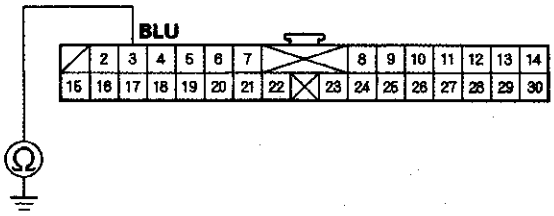
Is there continuity?

YES—Go to step 5.

NO—Repair an open in the BLU wire between the gauge assembly and the ECM.■

5. Disconnect EPS control unit connector B (14P).
6. Check for continuity between gauge assembly connector B (30P) No. 3 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the BLU wire between the gauge assembly, the EPS control unit and the ECM.■

NO—Go to step 7.

7. Reconnect gauge assembly connector B (30P), EPS control unit connector B (14P) and ECM connector A (32P).
8. Check the EPS system for DTC 22 or 23.

Is DTC 22 or 23 present?

YES—Go to the EPS system Troubleshooting. If OK, substitute a known-good ECM and retest the circuit. If OK, replace the ECM.■

NO—Check for continuity between the gauge assembly connector B21 terminal and the EPS control unit connector B12 terminal, and the gauge assembly connector B3 terminal and the EPS control unit connector B5 terminal. If OK, replace the main printed circuit board in the gauge assembly.■

Coolant Temperature Gauge Circuit Troubleshooting

'00-03 models

1. Check for DTCs with the HDS.

   Is DTC P0116, P0117, or P0118 indicated?

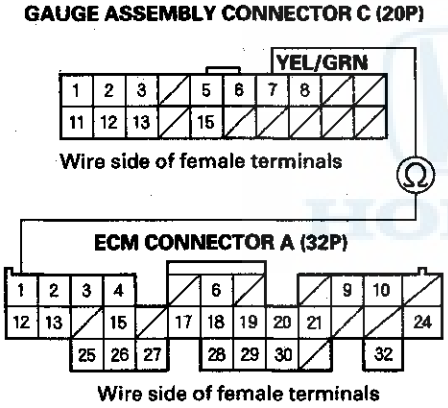
   YES—Go to the ECM DTC Troubleshooting. ■

   NO—Go to step 2.

2. Remove the gauge assembly (see page 22-89).

3. Disconnect gauge assembly connector C (20P) and ECM connector A (32P).

4. Check for continuity between gauge assembly connector C (20P) No. 7 terminal and ECM connector A (32P) No. 1 terminal.

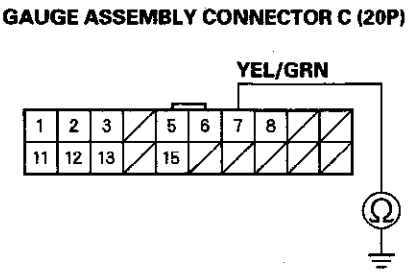


Is there continuity?

YES—Go to step 5.

NO—Repair an open in the YEL/GRN wire between the gauge assembly and the ECM. ■

5. Check for continuity between gauge assembly connector C (20P) No. 7 terminal and body ground.



Is there continuity?

YES—Check the output from the ECM first, if OK, repair a short to ground in the YEL/GRN wire between the gauge assembly and the ECM. ■

NO—Check connections, If OK, substitute a known-good gauge assembly. If the problem goes away, replace the main printed circuit board in the gauge assembly. ■

Coolant Temperature Gauge Circuit Troubleshooting (cont'd)

'04-05 models

1. Check for DTCs with the HDS.

   Is DTC P0116, P0117, or P0118 indicated?

   YES—Go to the ECM DTC Troubleshooting. ■

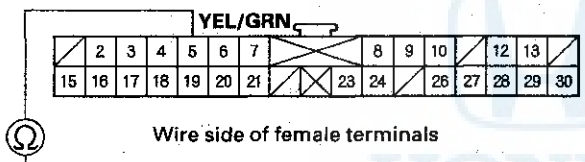
   NO—Go to step 2.

2. Remove the gauge assembly (see page 22-89).

3. Disconnect gauge assembly connector B (30P) and ECM connector A (32P).

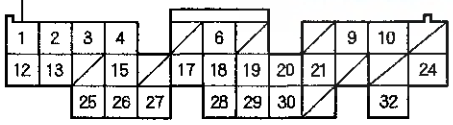
4. Check for continuity between gauge assembly connector B (30P) No. 5 terminal and ECM connector A (32P) No. 1 terminal.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

ECM CONNECTOR A (32P)



Wire side of female terminals

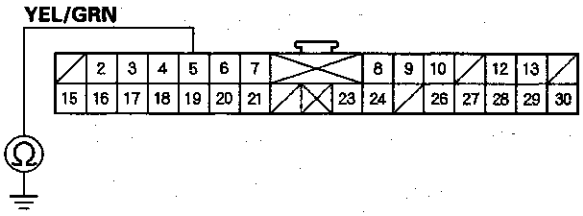
Is there continuity?

YES—Go to step 5.

NO—Repair an open in the YEL/GRN wire between the gauge assembly and the ECM. ■

5. Check for continuity between gauge assembly connector B (30P) No. 5 terminal and body ground.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

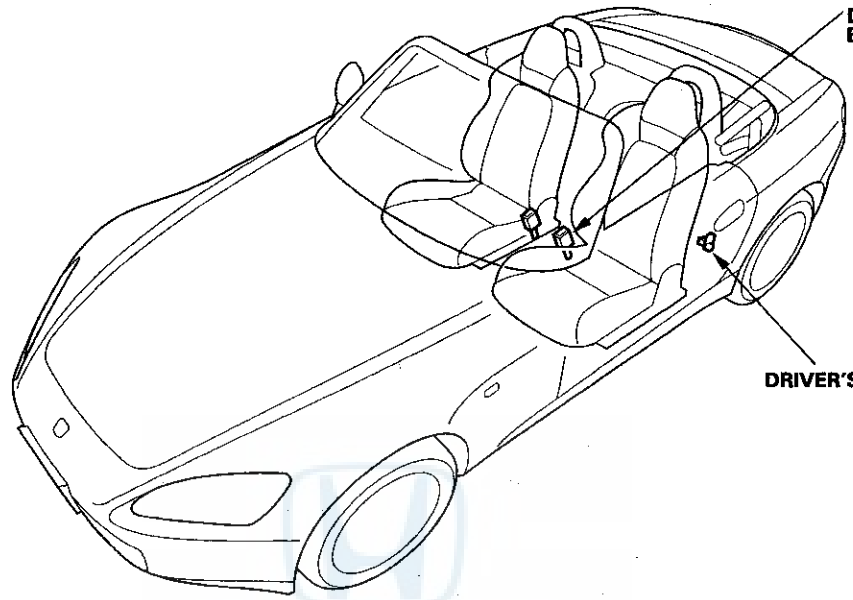
Is there continuity?

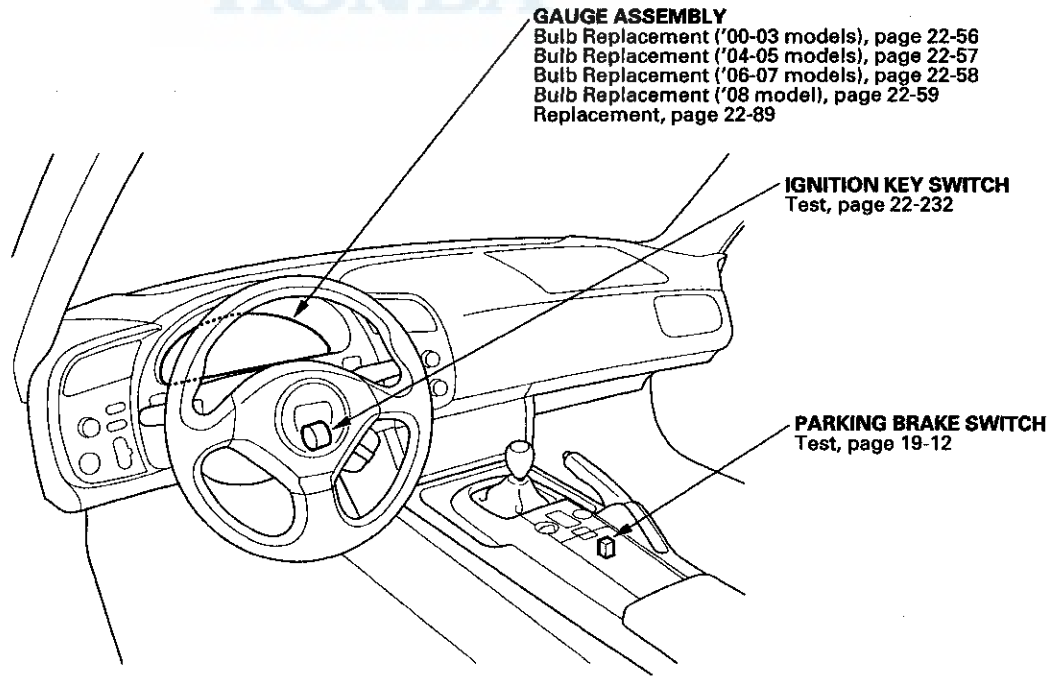
YES—Check the output from the ECM first, if OK, repair a short to ground in the YEL/GRN wire between the gauge assembly and the ECM. ■

NO—Check connections, If OK, substitute a known-good gauge assembly. If the problem goes away, replace the main printed circuit board in the gauge assembly. ■

Reminder Systems

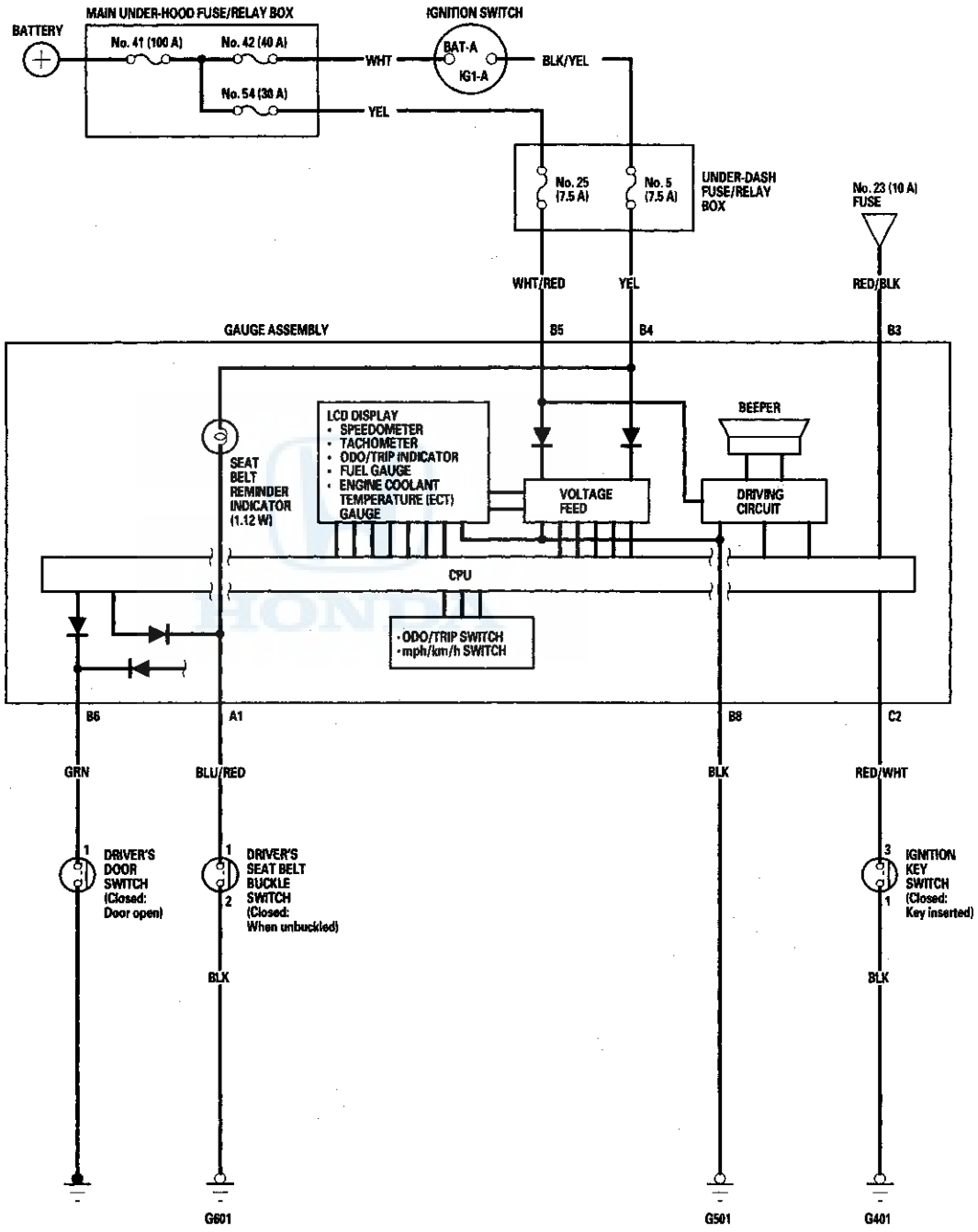
Component Location Index



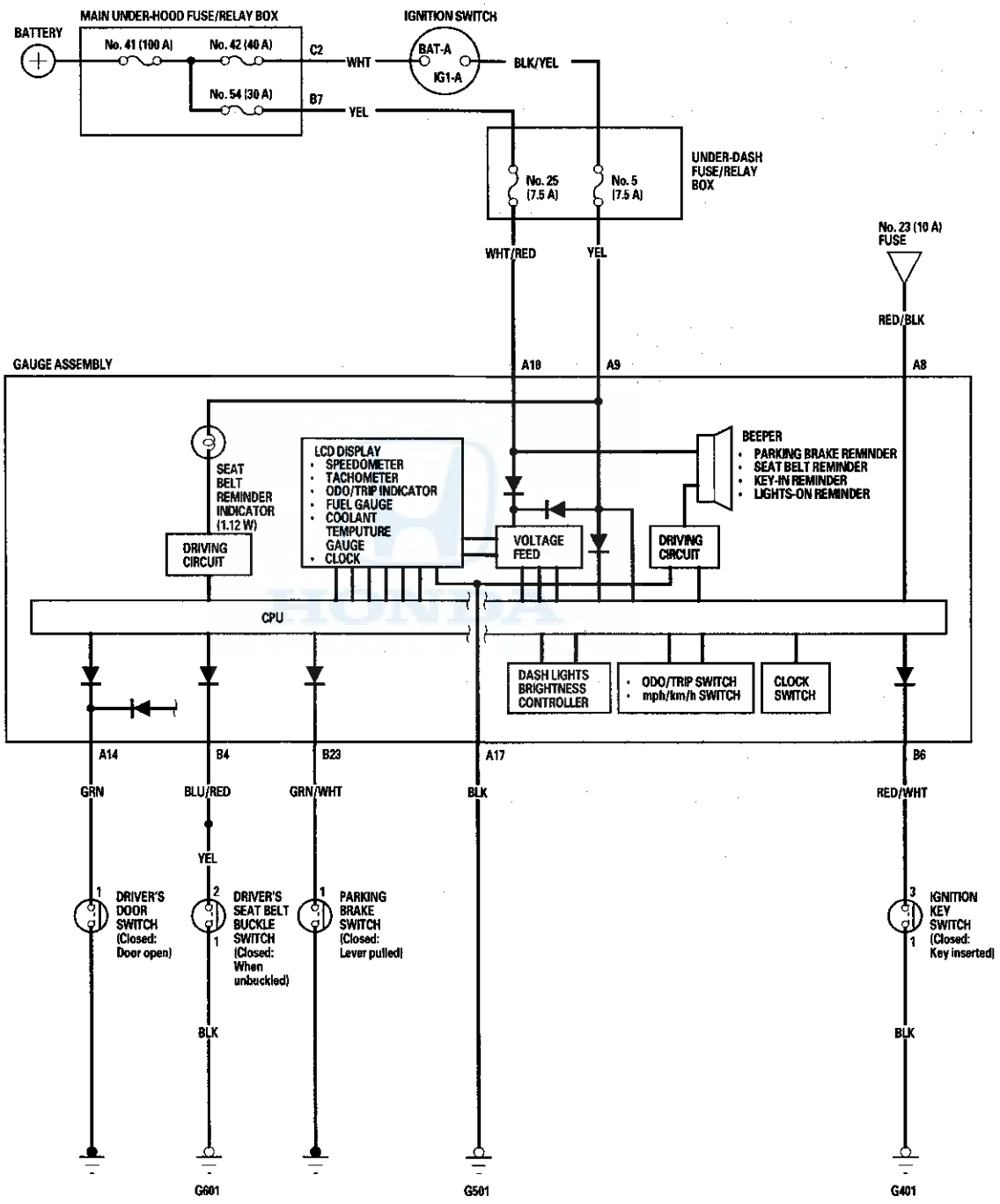


Circuit Diagram

'00-03 models



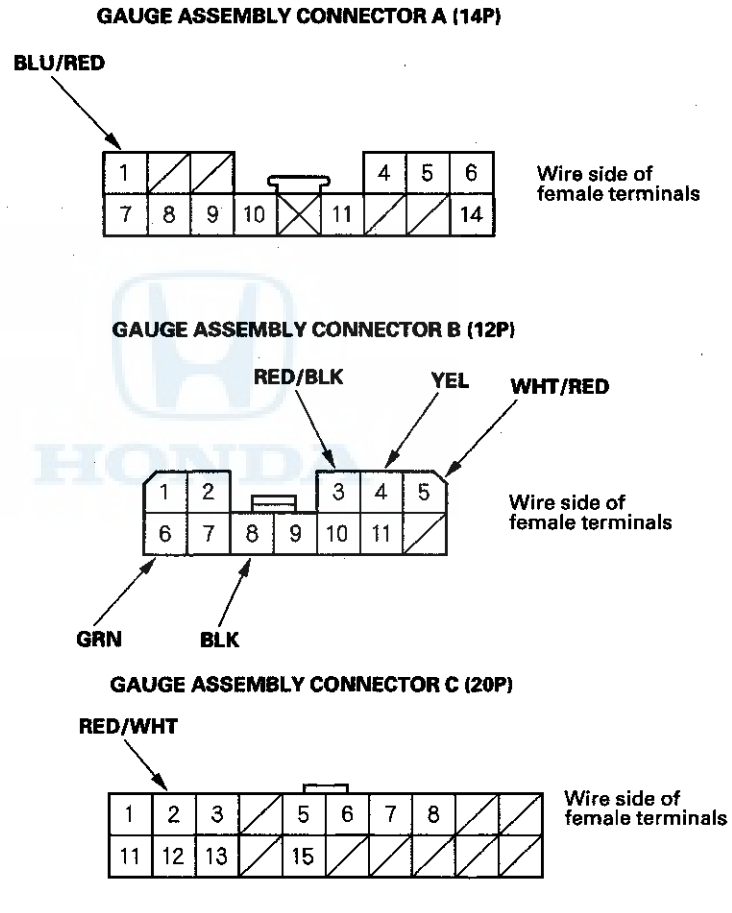
'04-08 models


MAIN UNDER-HOOD FUSE/RELAY BOX
BATTERY
No. 41 (100 A)
No. 42 (40 A)
No. 54 (30 A)
C2
WHT
B7
YEL
IGNITION SWITCH
BAT-A
IG1-A
BLK/YEL
UNDER-DASH FUSE/RELAY BOX
No. 25 (7.5 A)
No. 5 (7.5 A)
WHT/RED
YEL
No. 23 (10 A) FUSE
RED/BLK
GAUGE ASSEMBLY
A10
A9
A8
SEAT BELT REMINDER INDICATOR (1.12 W)
DRIVING CIRCUIT
LCD DISPLAY
• SPEEDOMETER
• TACHOMETER
• ODO/TRIP INDICATOR
• FUEL GAUGE
• COOLANT TEMPUTURE GAUGE
• CLOCK
VOLTAGE FEED
BEEPER
• PARKING BRAKE REMINDER
• SEAT BELT REMINDER
• KEY-IN REMINDER
• LIGHTS-ON REMINDER
DRIVING CIRCUIT
CPU
DASH LIGHTS BRIGHTNESS CONTROLLER
• ODO/TRIP SWITCH
• mph/km/h SWITCH
CLOCK SWITCH
A14
B4
B23
A17
B6
GRN
BLU/RED
GRN/WHT
BLK
RED/WHT
YEL
DRIVER'S DOOR SWITCH (Closed: Door open)
DRIVER'S SEAT BELT BUCKLE SWITCH (Closed: When unbuckled)
PARKING BRAKE SWITCH (Closed: Lever pulled)
IGNITION KEY SWITCH (Closed: Key inserted)
BLK
BLK
G601
G501
G401

System Input Test

'00-03 models

1. Remove the gauge assembly (see page 22-89).
2. Inspect all the connectors and socket terminals to be sure they are all making good contact.
   - If the terminal are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.



3. With the connectors connected, back probe the connectors and make these input tests.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the gauge assembly must be faulty; replace it.

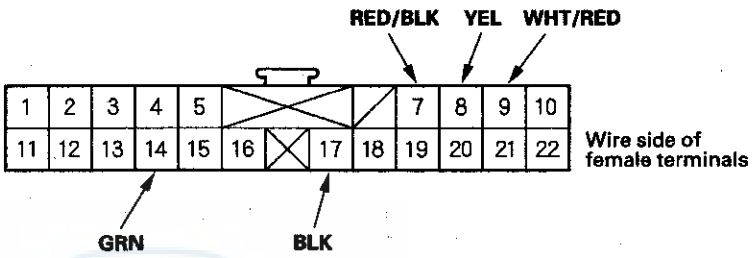
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
B4	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B5	WHT/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B3	RED/BLK	Combination light switch ON	Measure the voltage to ground: There should be battery voltage.	• Blown No. 23 (10 A) fuse in the under-dash fuse/relay box • Faulty taillight relay • Faulty combination light switch • An open in the wire
B8	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
C2	RED/WHT	Ignition key is inserted into the ignition switch	Measure the voltage to ground: There should be less than 1 V.	• Faulty ignition key switch • Poor ground (G401) • An open in the wire
		Ignition key not in ignition	Measure the voltage to ground: There should be 5 V or more.	• Faulty ignition switch • A short to ground in the wire
A1	BLU/RED	Ignition switch ON (II) and driver's seat belt unbuckled	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's seat belt buckle switch • Poor ground (G601) • An open in the wire
		Ignition switch ON (II) and driver's seat belt buckled	Measure the voltage to ground: There should be 5 V or more.	• Faulty driver's seat belt buckle switch • A short to ground in the wire
B6	GRN	Driver's door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Measure the voltage to ground: There should be 5 V or more.	• Faulty driver's door switch • A short to ground in the wire
B4 B5 B8	YEL WHT/RED BLK	Ignition switch ON (II) and trip reset button pressed	Check the beeper operation: The beeper should come on.	• Faulty beeper • Poor ground (G501) • An open in the wire • Faulty gauge assembly

System Input Test (cont'd)

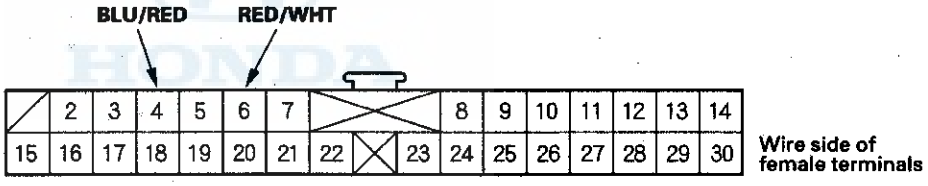
'04-08 models

1. Remove the gauge assembly (see page 22-89).
2. Inspect all the connectors and socket terminals to be sure they are all making good contact.
   - If the terminal are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

GAUGE ASSEMBLY CONNECTOR A (22P)



GAUGE ASSEMBLY CONNECTOR B (30P)



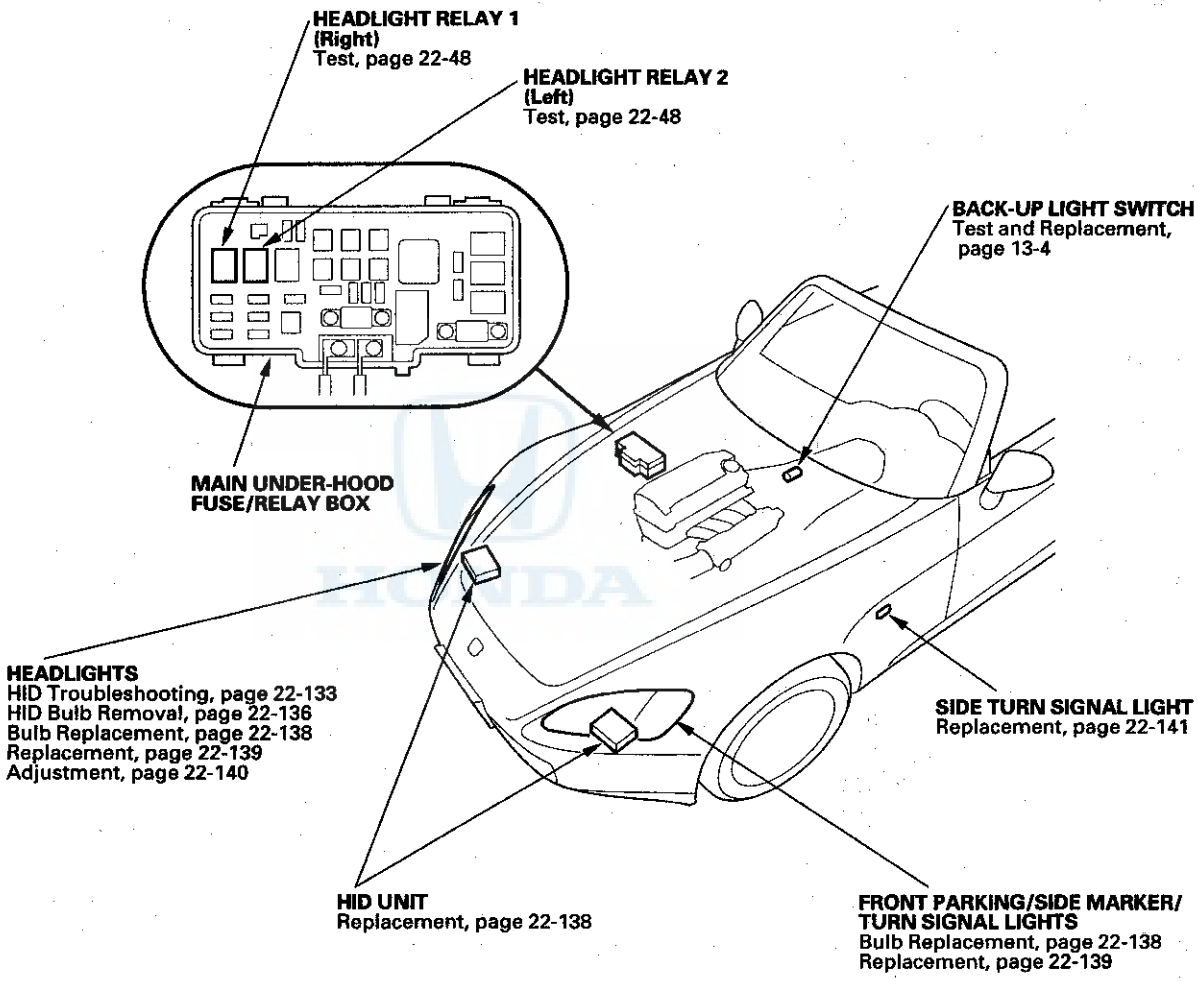
3. With the connectors connected, back probe the connectors and make these input tests.

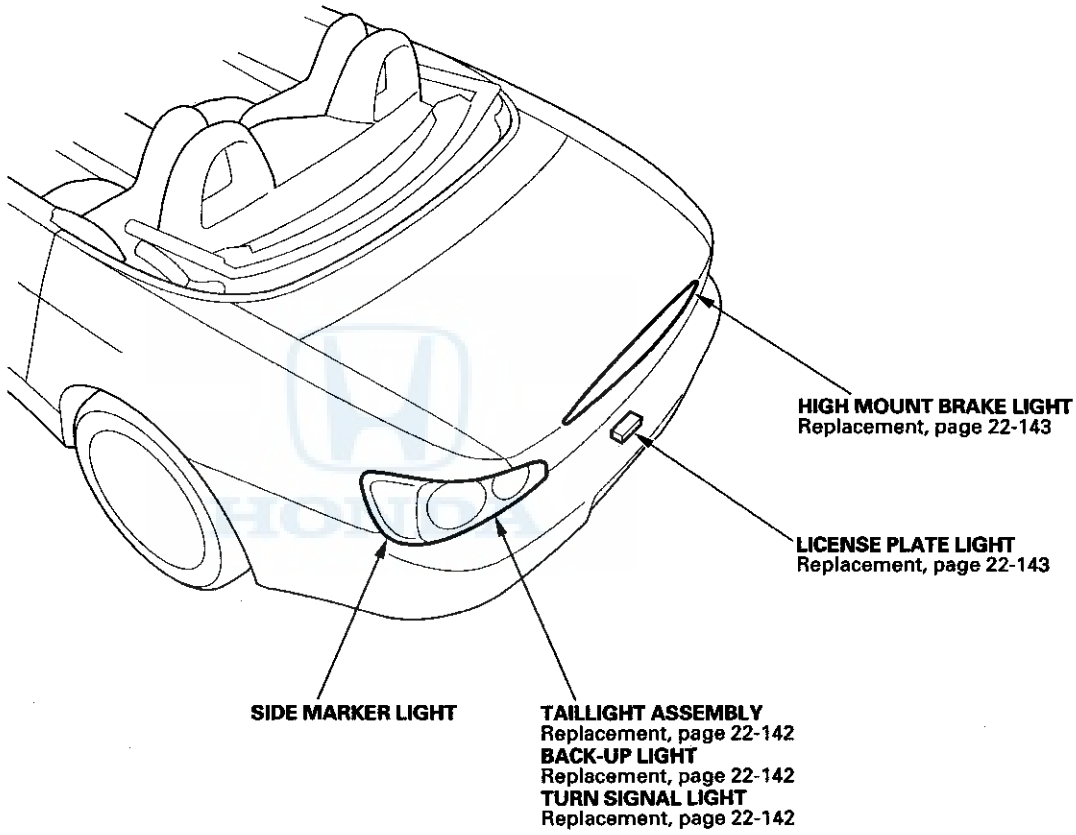
- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the gauge assembly must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A9	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A10	WHT/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A8	RED/BLK	Combination light switch ON	Measure the voltage to ground: There should be battery voltage.	• Blown No. 23 (10 A) fuse in the under-dash fuse/relay box • Faulty taillight relay • Faulty combination light switch • An open in the wire
A17	BLK	Under all conditions	Measure the voltage to ground: There should be less than 1 V.	• Poor ground (G501) • An open in the wire
B6	RED/WHT	Ignition key is inserted into the ignition switch	Measure the voltage to ground: There should be less than 1 V.	• Faulty ignition key switch • Poor ground (G401) • An open in the wire
		Ignition key not in ignition	Measure the voltage to ground: There should be 5 V or more.	• Faulty ignition switch • A short to ground in the wire
B4	BLU/RED	Ignition switch ON (II) and driver's seat belt unbuckled	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's seat belt buckle switch • Poor ground (G601) • An open in the wire
		Ignition switch ON (II) and driver's seat belt buckled	Measure the voltage to ground: There should be 5 V or more.	• Faulty driver's seat belt buckle switch • A short to ground in the wire
B23	GRN/WHT	Ignition switch ON (II) and parking brake lever pulled	Measure the voltage to ground: There should be less than 1 V.	• Poor ground • Faulty parking brake switch • An open in the wire
		Ignition switch ON (II) and parking brake lever released	Measure the voltage to ground: There should be battery voltage.	• Faulty parking brake switch • A short to ground in the wire
A14	GRN	Driver's door open	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's door switch • An open in the wire
		Driver's door closed	Measure the voltage to ground: There should be 5 V or more.	• Faulty driver's door switch • A short to ground in the wire
A9 A10 A17	YEL WHT/RED BLK	Ignition switch ON (II) and trip reset button pressed	Check the beeper operation: The beeper should come on.	• Faulty beeper • Poor ground (G501) • An open in the wire • Faulty gauge assembly

Exterior Lights

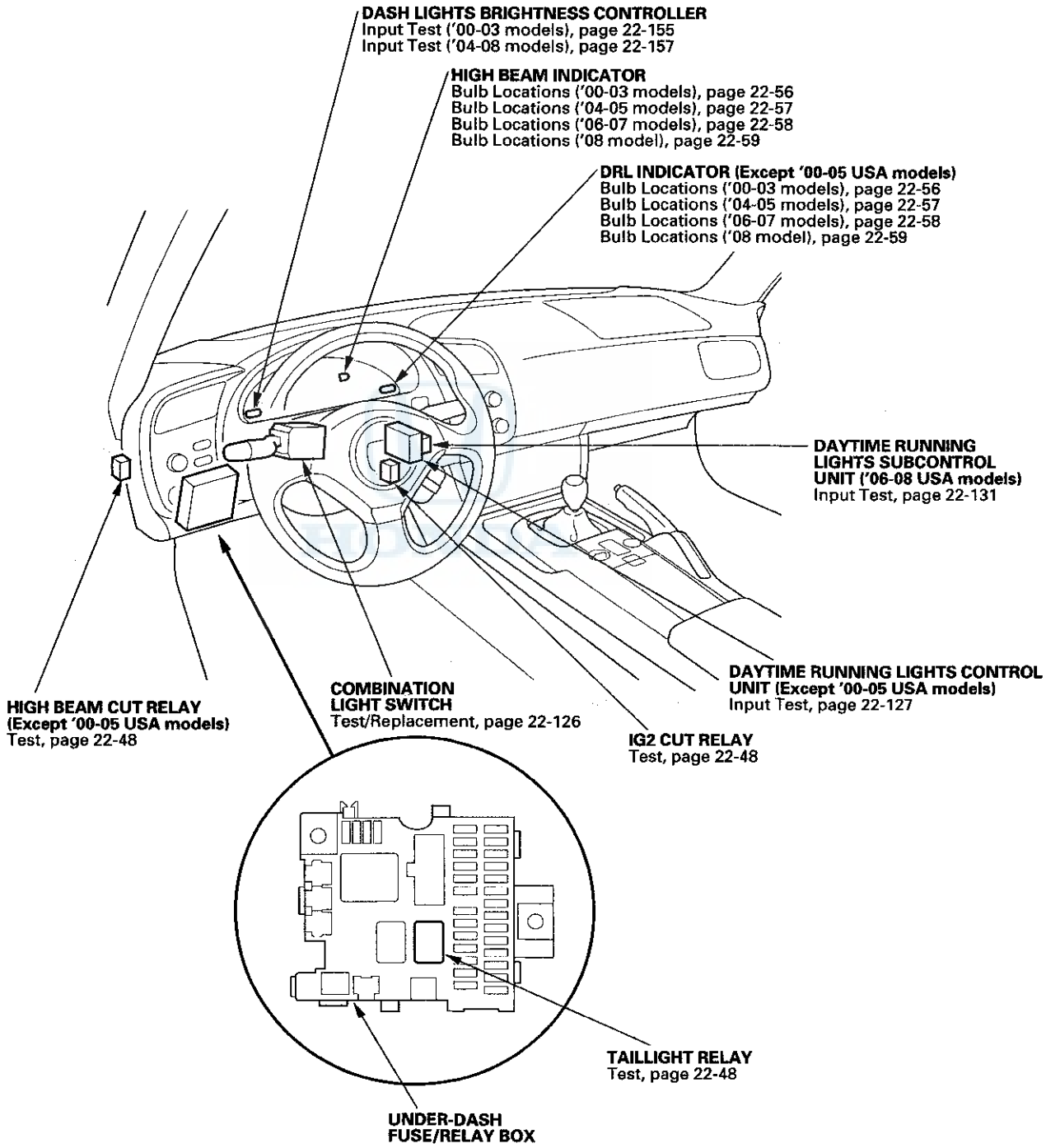
Component Location Index




HIGH MOUNT BRAKE LIGHT
Replacement, page 22-143
LICENSE PLATE LIGHT
Replacement, page 22-143
SIDE MARKER LIGHT
TAILLIGHT ASSEMBLY
Replacement, page 22-142
BACK-UP LIGHT
Replacement, page 22-142
TURN SIGNAL LIGHT
Replacement, page 22-142

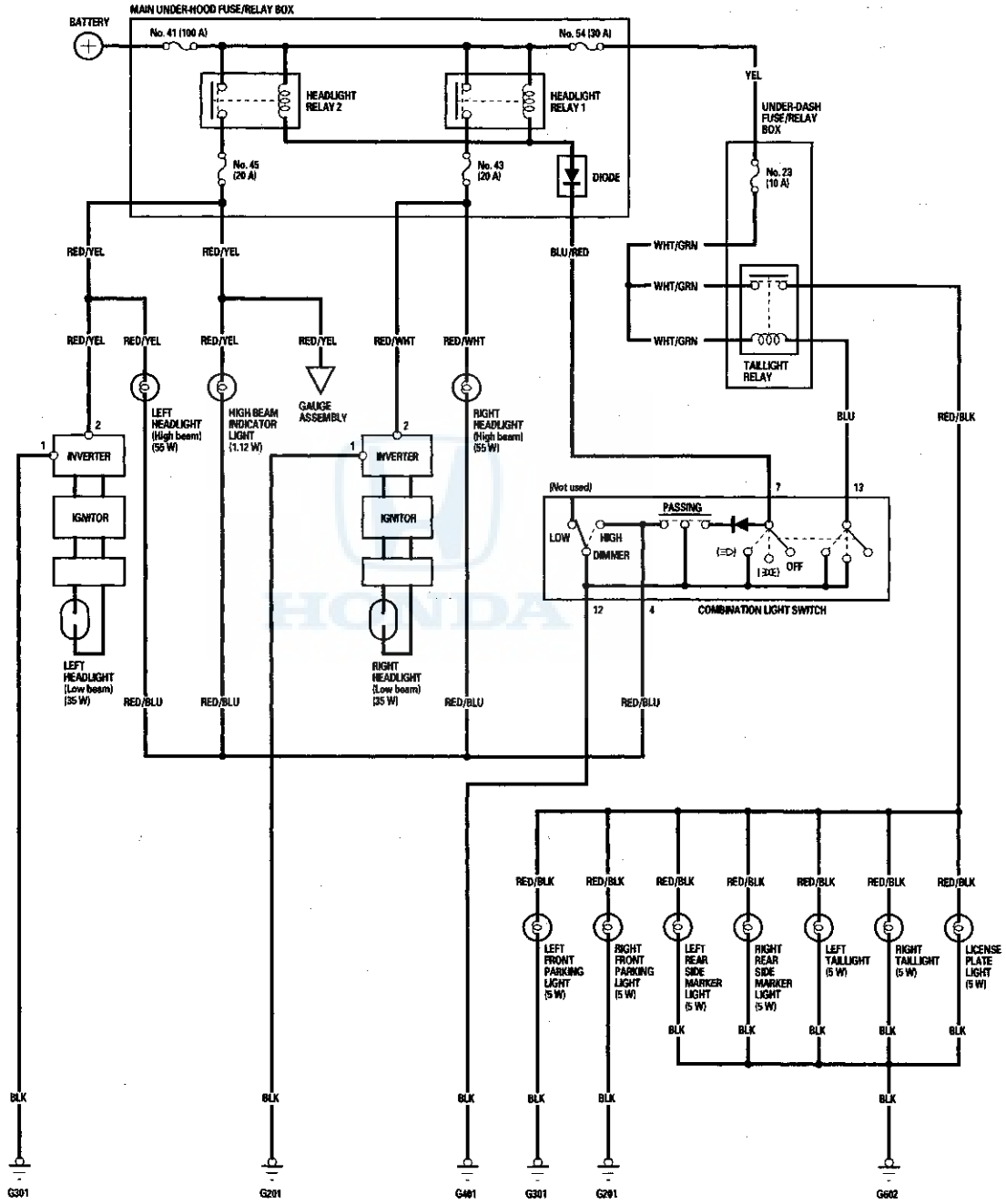
(cont'd)

Component Location Index (cont'd)



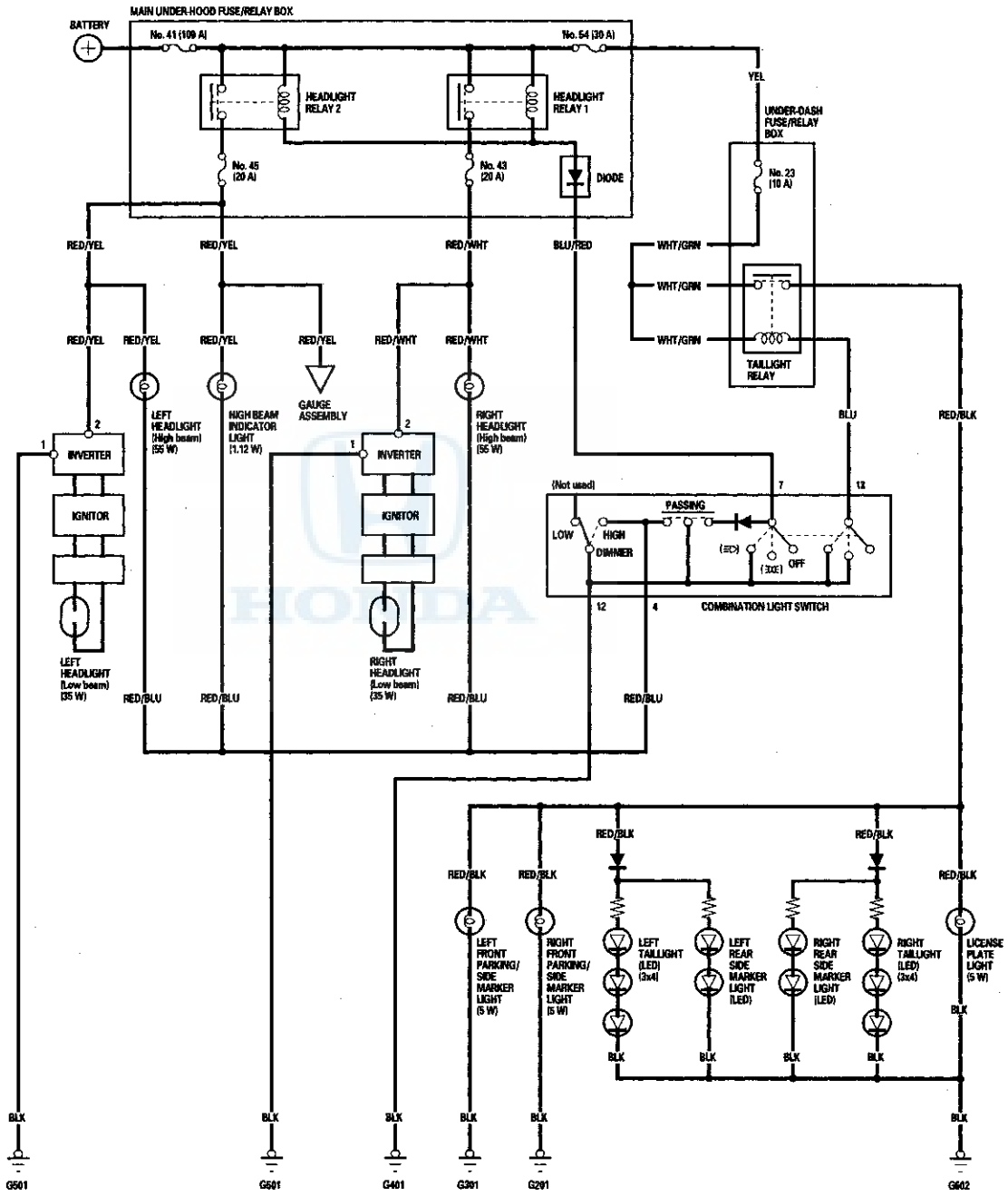
Circuit Diagram

'00-03 USA models

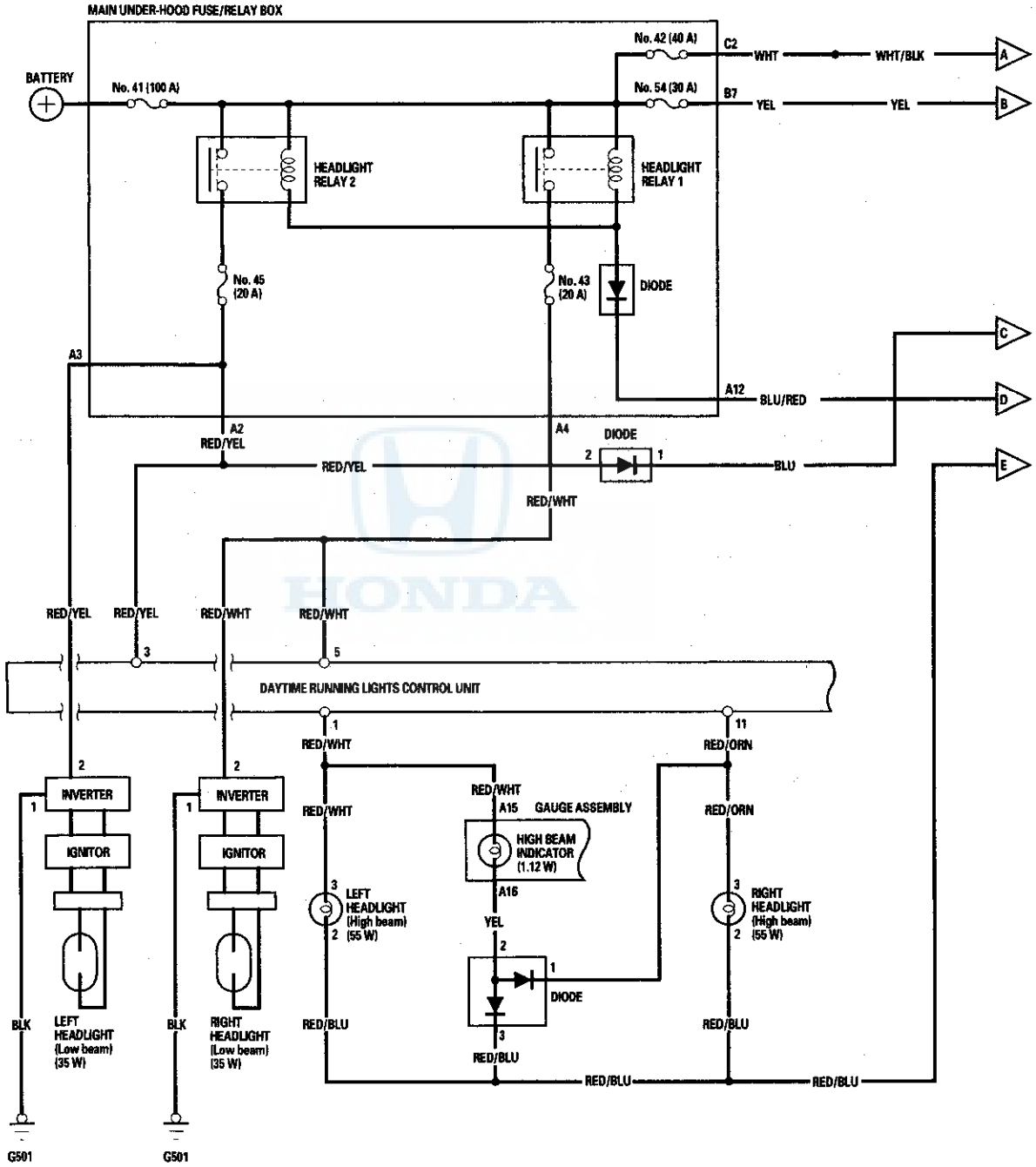


Circuit Diagram (cont'd)

'04-05 USA models

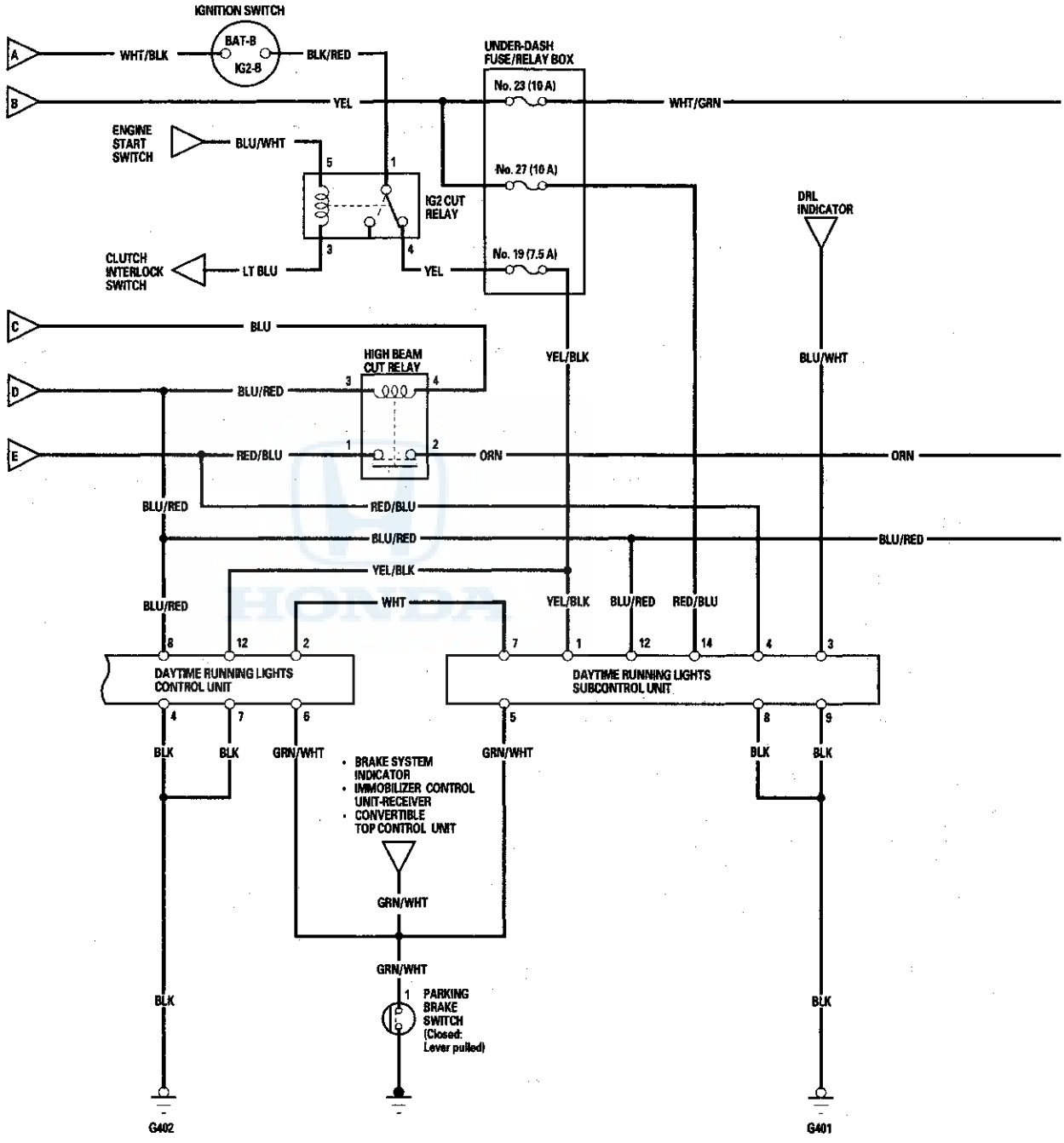


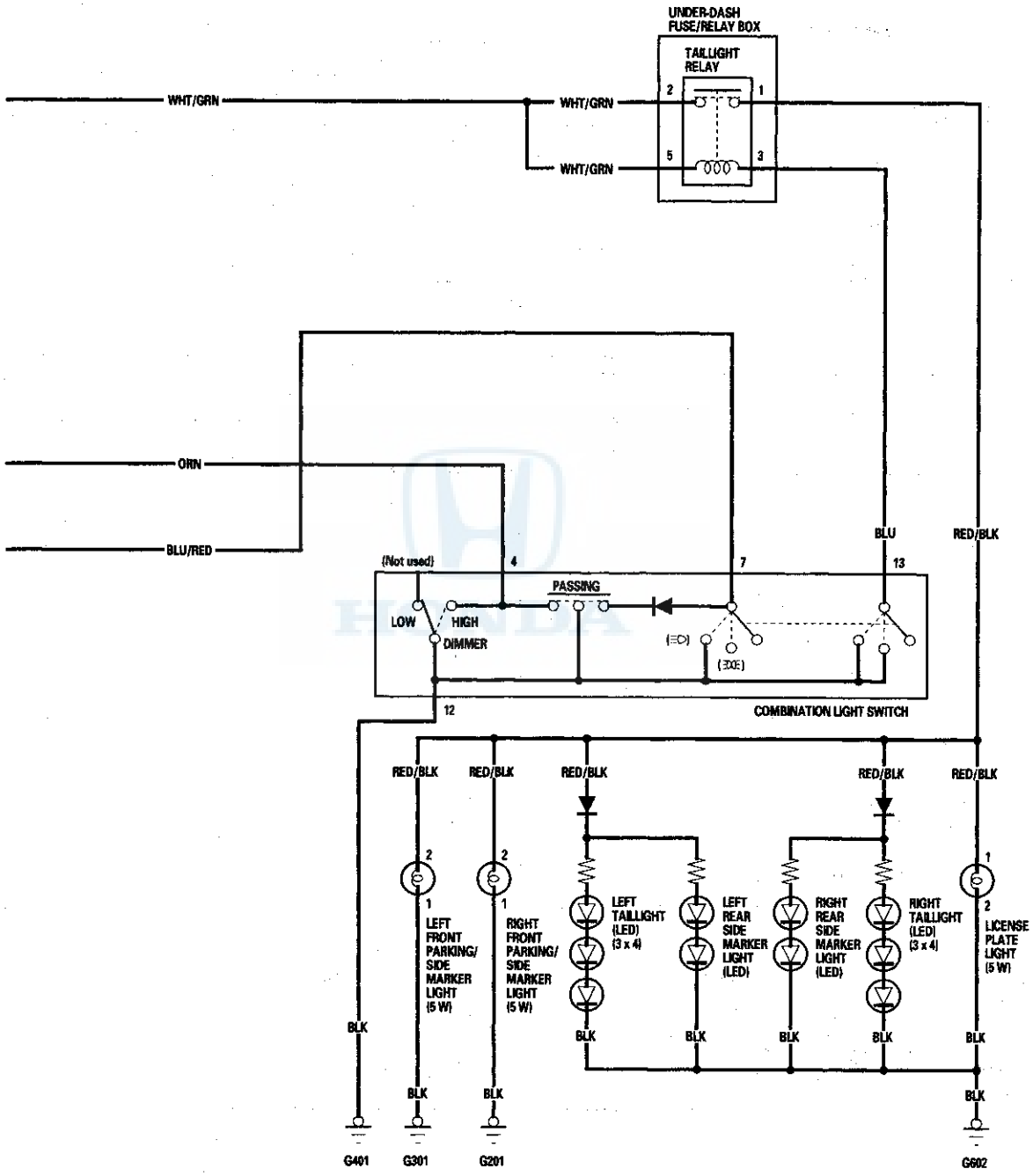
'06-08 USA models



(cont'd)

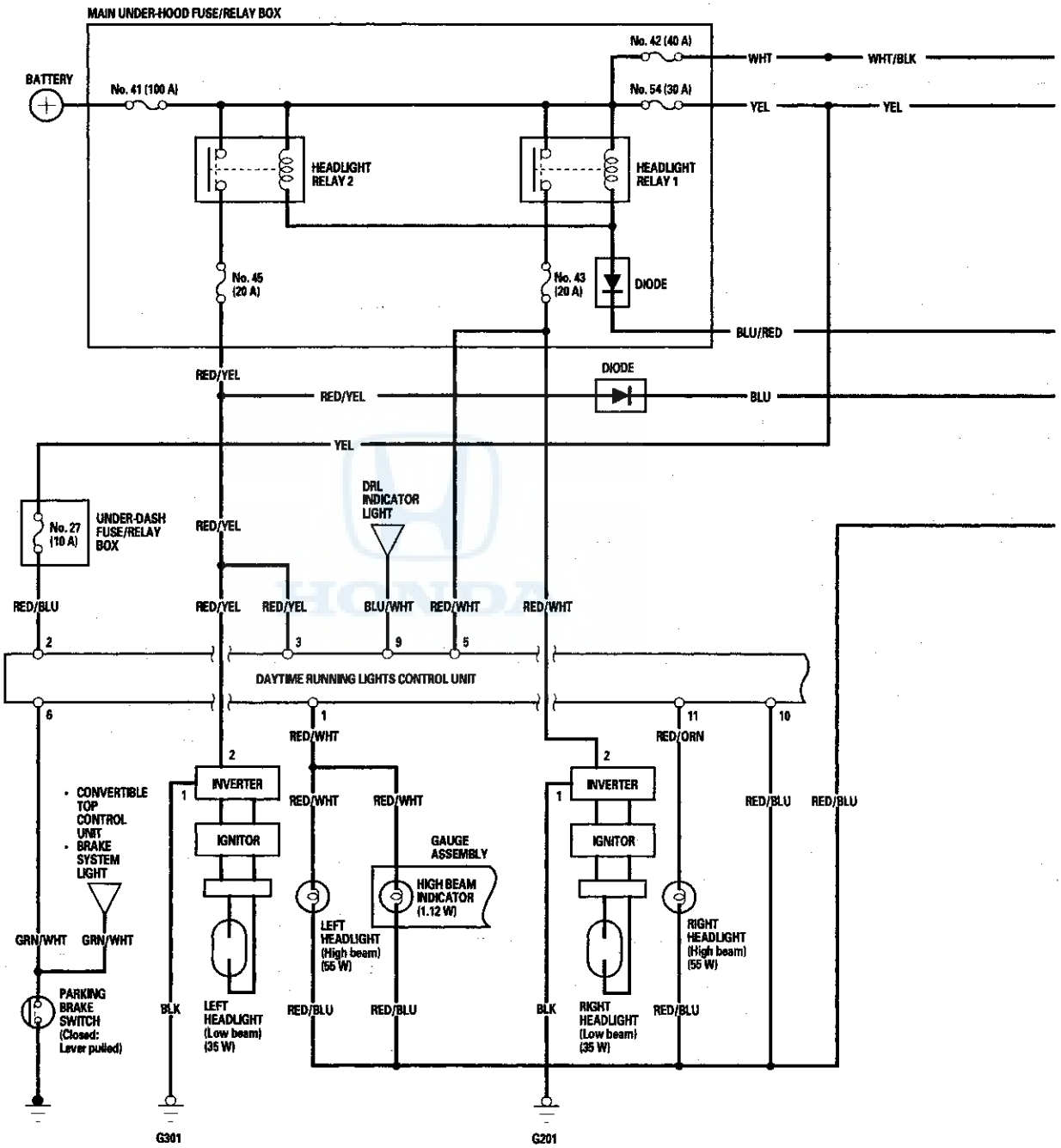
Circuit Diagram (cont'd)

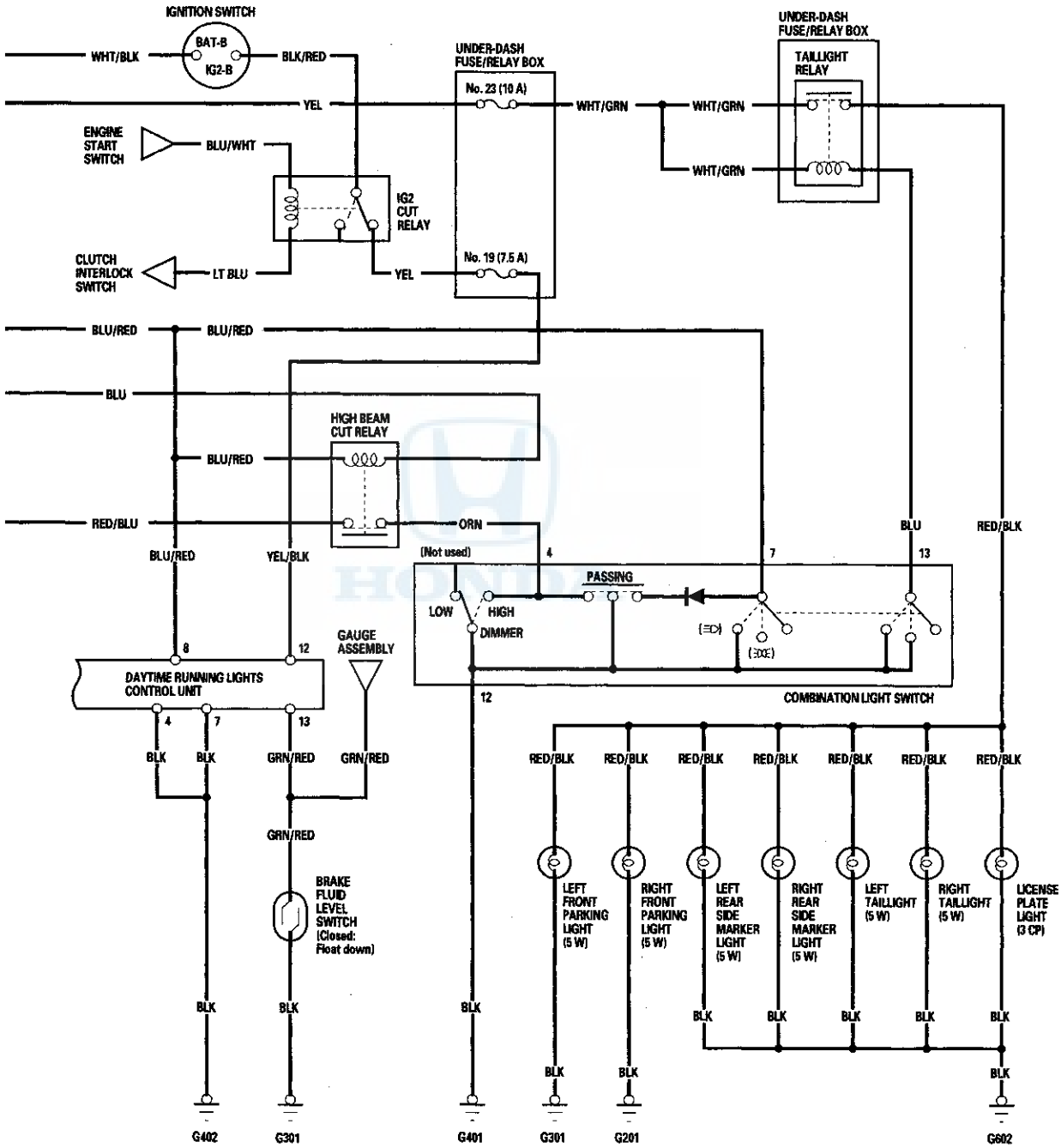



UNDER-DASH FUSE/RELAY BOX
TAILLIGHT RELAY
WHT/GRN
WHT/GRN
WHT/GRN
ORN
BLU/RED
BLU
RED/BLK
(Not used)
PASSING
LOW
HIGH
DIMMER
COMBINATION LIGHT SWITCH
RED/BLK
LEFT FRONT PARKING/ SIDE MARKER LIGHT (5 W)
RIGHT FRONT PARKING/ SIDE MARKER LIGHT (5 W)
LEFT TAILLIGHT (LED) (3 x 4)
LEFT REAR SIDE MARKER LIGHT (LED)
RIGHT REAR SIDE MARKER LIGHT (LED)
RIGHT TAILLIGHT (LED) (3 x 4)
LICENSE PLATE LIGHT (5 W)
BLK
G401
G301
G201
G602

Circuit Diagram (cont'd)

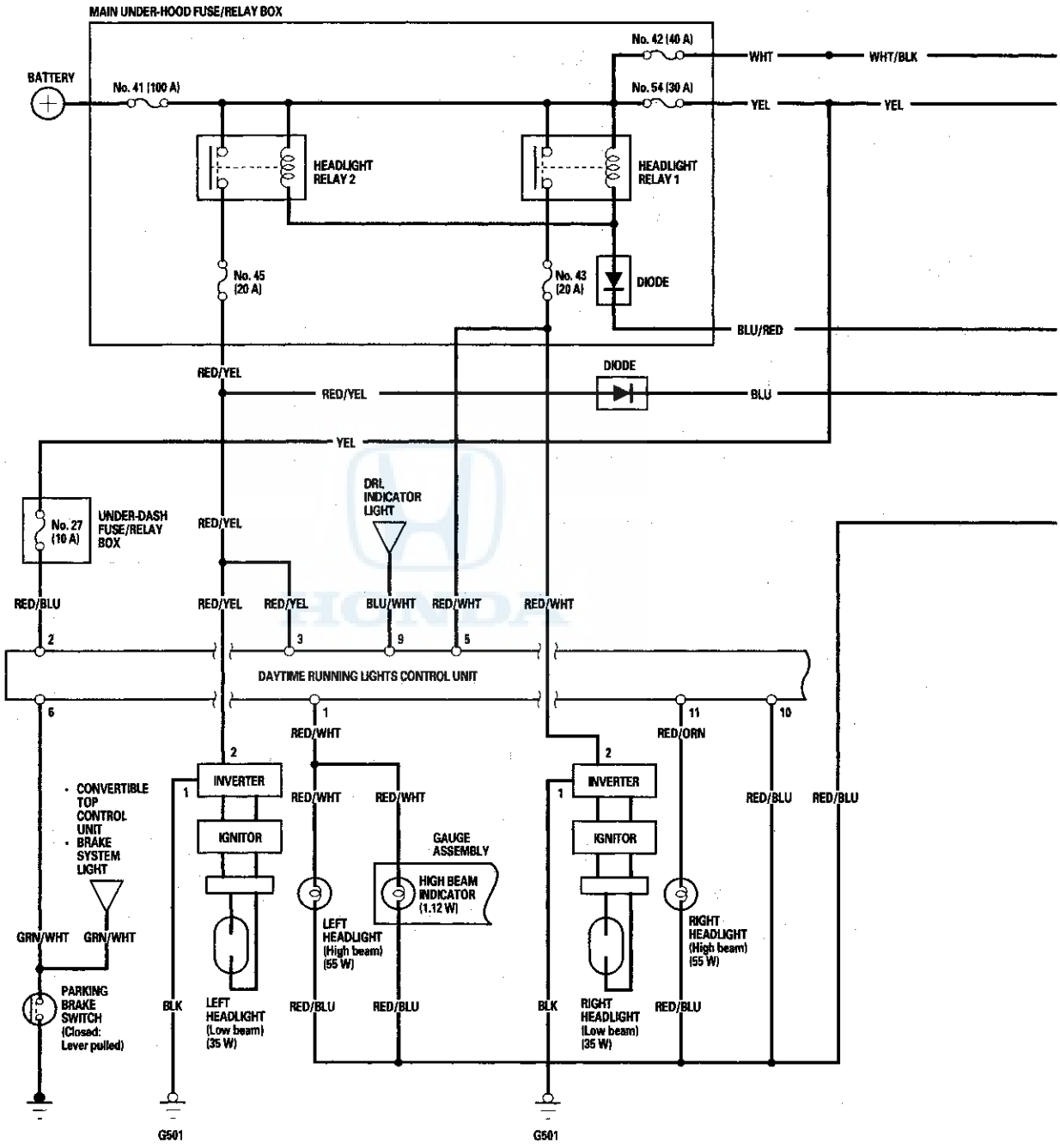
'00-03 Canada models

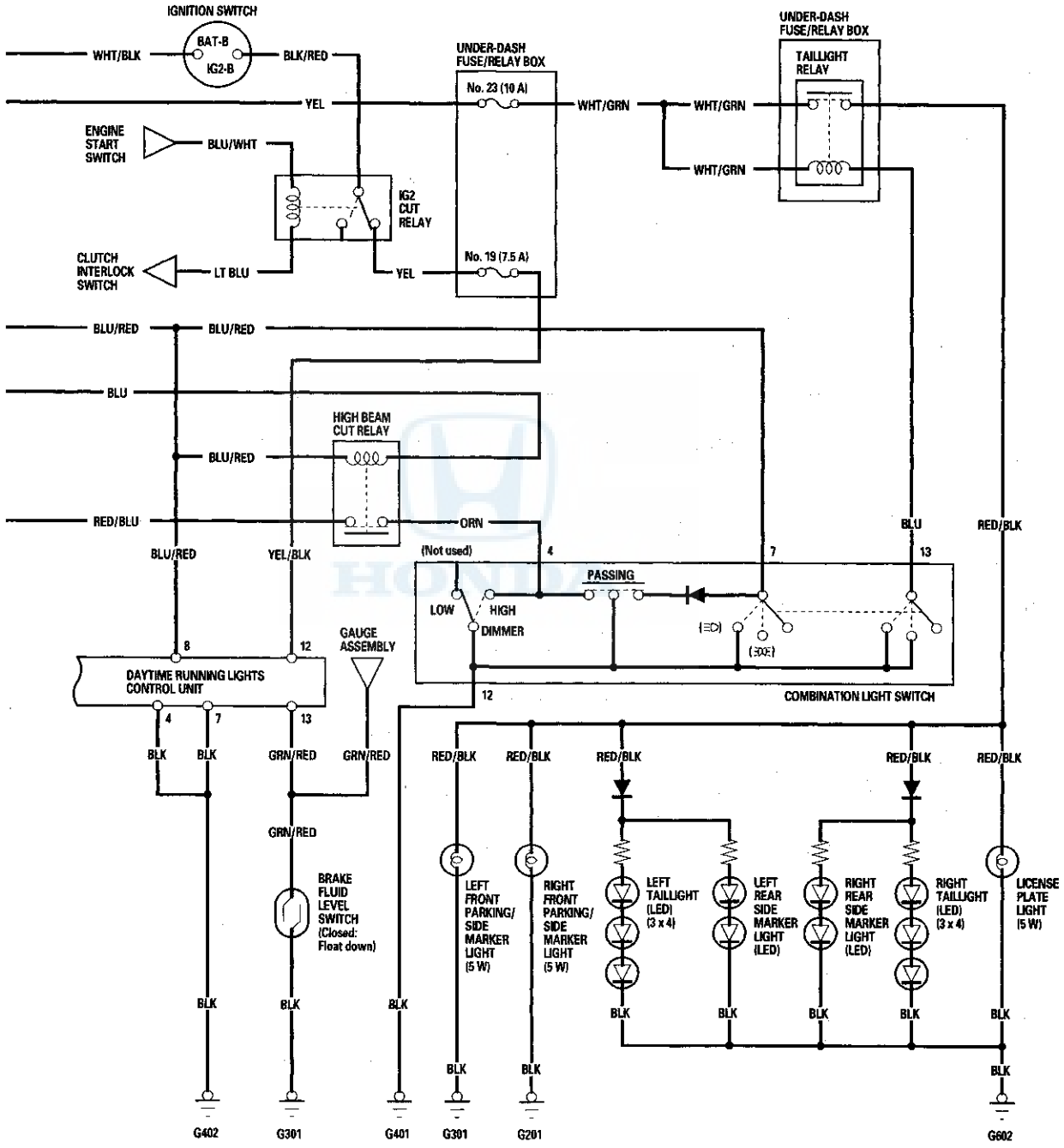



IGNITION SWITCH
BAT-B
IG2-B
WHT/BLK
BLK/RED
YEL
UNDER-DASH FUSE/RELAY BOX
No. 23 (10 A)
WHT/GRN
UNDER-DASH FUSE/RELAY BOX
TAILLIGHT RELAY
WHT/GRN
WHT/GRN
ENGINE START SWITCH
BLU/WHT
IG2 CUT RELAY
CLUTCH INTERLOCK SWITCH
LT BLU
YEL
No. 19 (7.5 A)
BLU/RED
BLU/RED
BLU
HIGH BEAM CUT RELAY
BLU/RED
RED/BLU
ORN
BLU/RED
YEL/BLK
(Not used)
4
7
13
BLU
RED/BLK
PASSING
LOW
HIGH
DIMMER
12
COMBINATION LIGHT SWITCH
8
12
GAUGE ASSEMBLY
DAYTIME RUNNING LIGHTS CONTROL UNIT
4
7
13
BLK
BLK
GRN/RED
GRN/RED
GRN/RED
BRAKE FLUID LEVEL SWITCH (Closed: Float down)
RED/BLK
RED/BLK
RED/BLK
RED/BLK
RED/BLK
RED/BLK
RED/BLK
LEFT FRONT PARKING LIGHT (5 W)
RIGHT FRONT PARKING LIGHT (5 W)
LEFT REAR SIDE MARKER LIGHT (5 W)
RIGHT REAR SIDE MARKER LIGHT (5 W)
LEFT TAILLIGHT (5 W)
RIGHT TAILLIGHT (5 W)
LICENSE PLATE LIGHT (3 CP)
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
G402
G301
G401
G301
G201
G602

Circuit Diagram (cont'd)

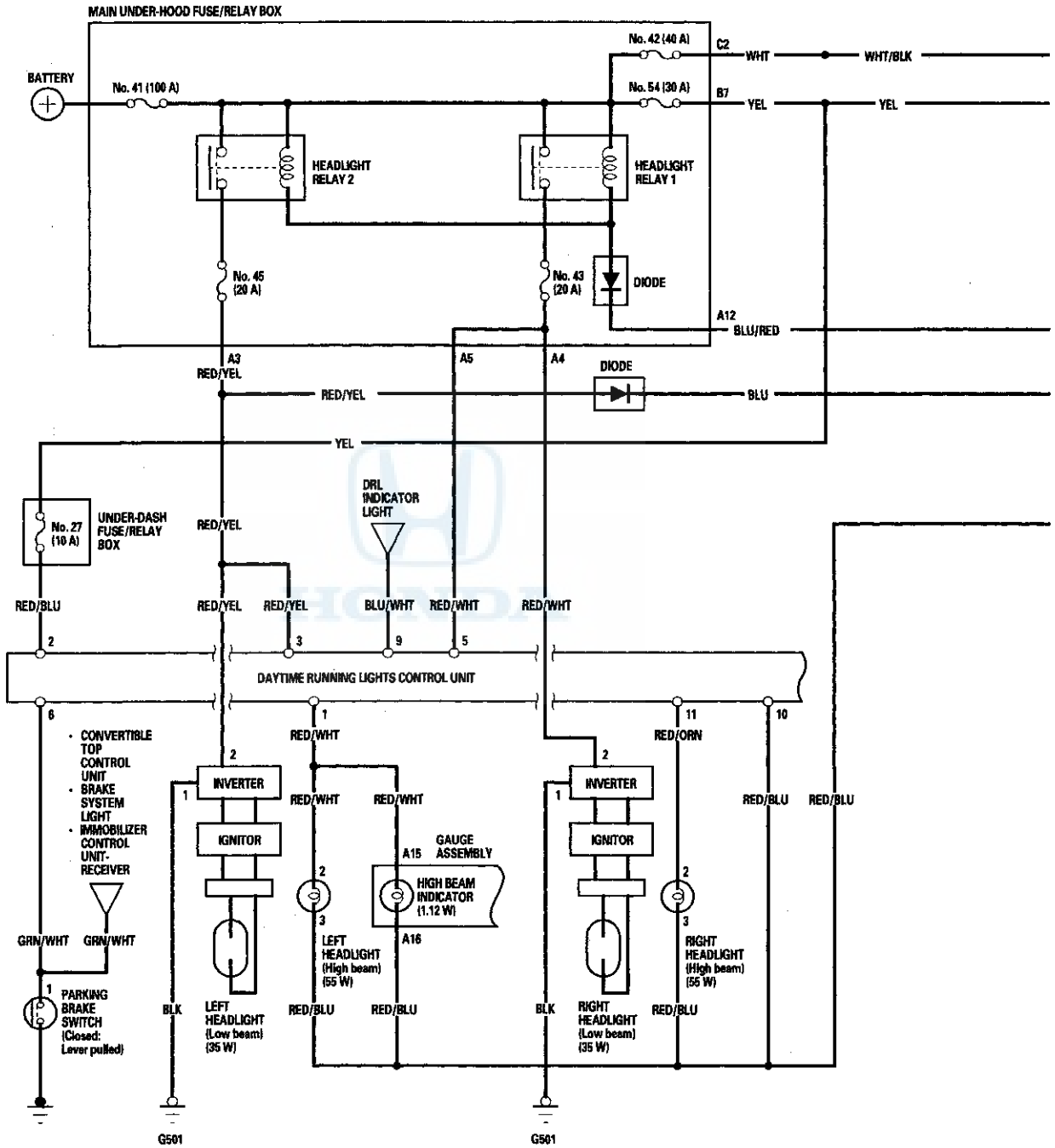
'04-05 Canada models

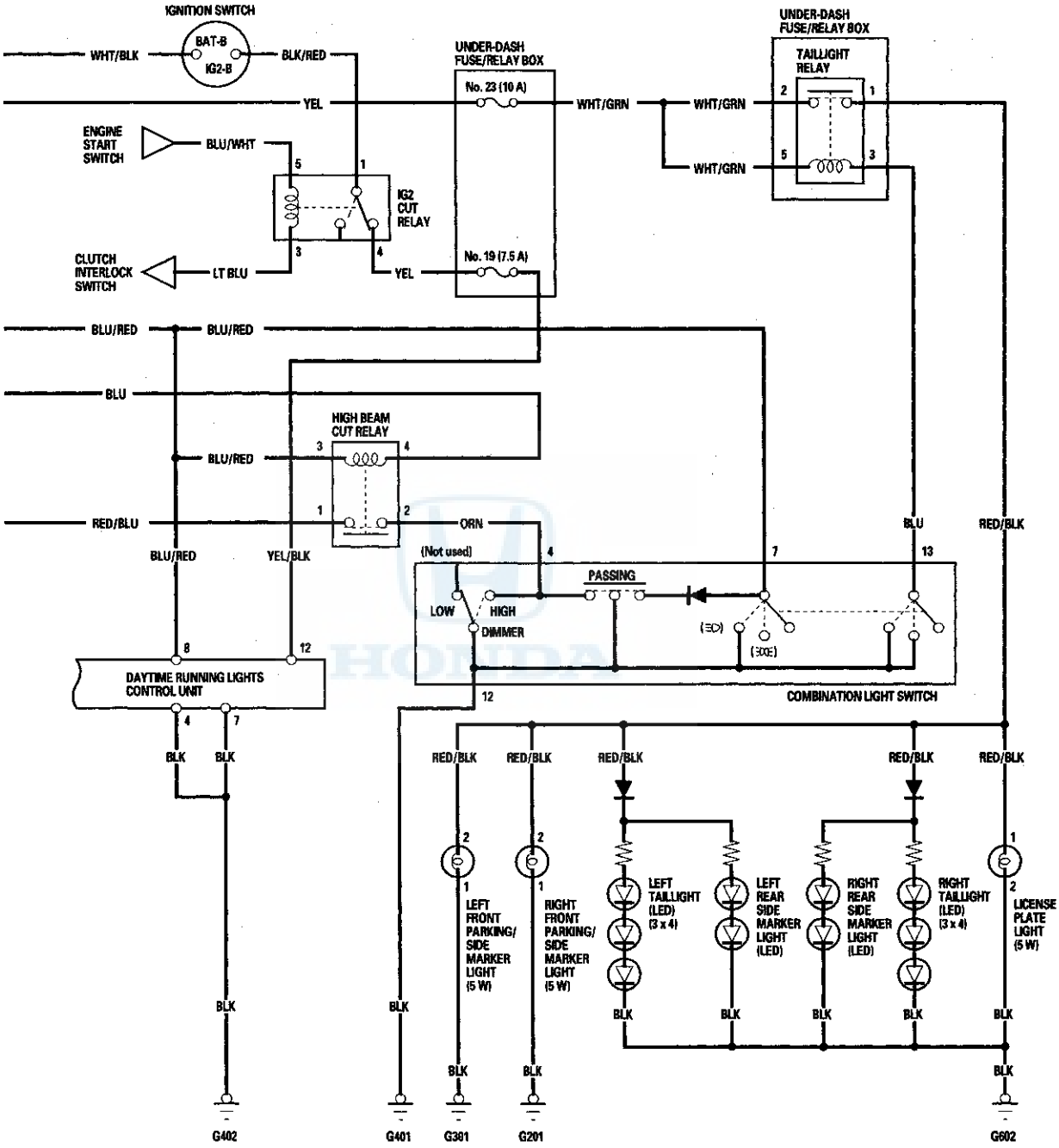



IGNITION SWITCH
BAT-B
IG2-B
WHT/BLK
BLK/RED
YEL
UNDER-DASH FUSE/RELAY BOX
No. 23 (10 A)
WHT/GRN
UNDER-DASH FUSE/RELAY BOX
TAILLIGHT RELAY
WHT/GRN
WHT/GRN
ENGINE START SWITCH
BLU/WHT
IG2 CUT RELAY
CLUTCH INTERLOCK SWITCH
LT BLU
YEL
No. 19 (7.5 A)
BLU/RED
BLU/RED
BLU
HIGH BEAM CUT RELAY
BLU/RED
RED/BLU
ORN
BLU/RED
YEL/BLK
(Not used)
4
7
13
BLU
RED/BLK
PASSING
LOW
HIGH
DIMMER
COMBINATION LIGHT SWITCH
GAUGE ASSEMBLY
8
12
DAYTIME RUNNING LIGHTS CONTROL UNIT
4
7
13
12
BLK
BLK
GRN/RED
GRN/RED
RED/BLK
RED/BLK
RED/BLK
RED/BLK
RED/BLK
GRN/RED
BRAKE FLUID LEVEL SWITCH (Closed: Float down)
LEFT FRONT PARKING/ SIDE MARKER LIGHT (5 W)
RIGHT FRONT PARKING/ SIDE MARKER LIGHT (5 W)
LEFT TAILLIGHT (LED) (3 x 4)
LEFT REAR SIDE MARKER LIGHT (LED)
RIGHT REAR SIDE MARKER LIGHT (LED)
RIGHT TAILLIGHT (LED) (3 x 4)
LICENSE PLATE LIGHT (5 W)
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
BLK
G402
G301
G401
G301
G201
G602

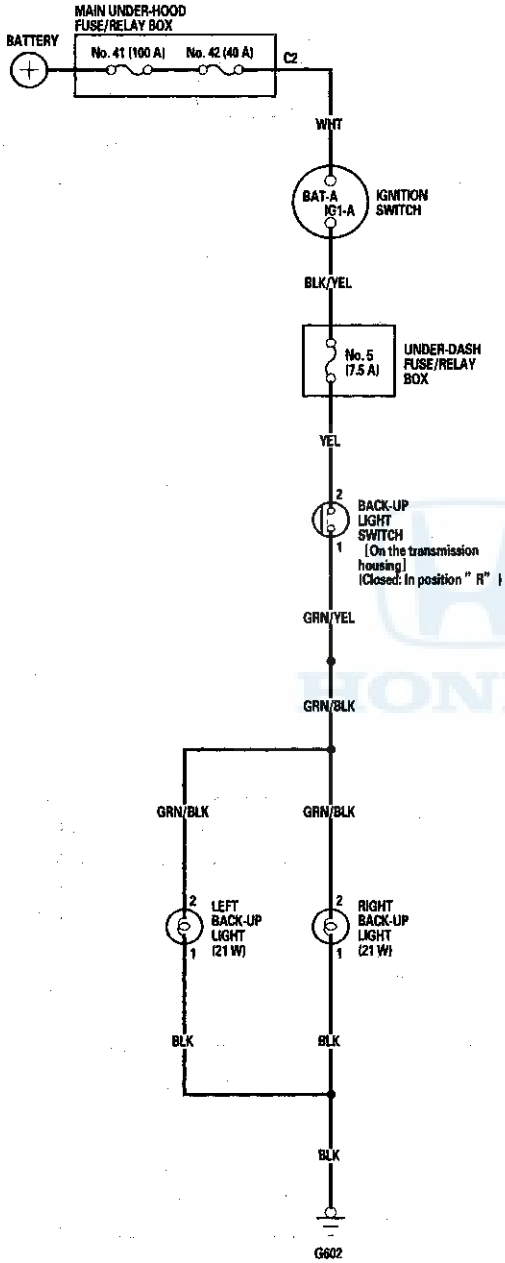
Circuit Diagram (cont'd)

'06-08 Canada models



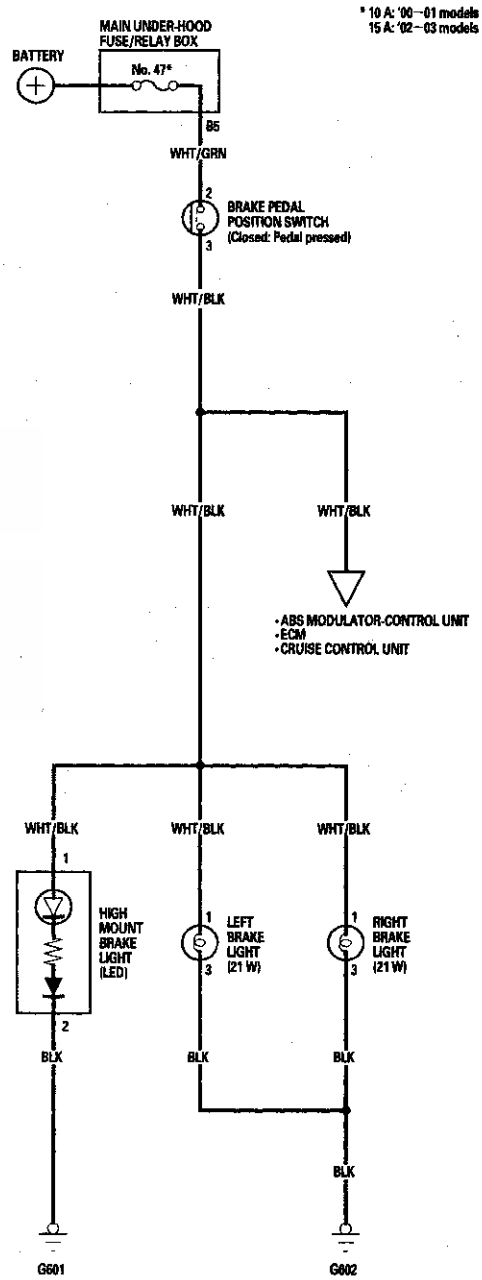

IGNITION SWITCH
BAT-B
IG2-B
WHT/BLK
BLK/RED
YEL
UNDER-DASH FUSE/RELAY BOX
No. 23 (10 A)
WHT/GRN
UNDER-DASH FUSE/RELAY BOX
TAILLIGHT RELAY
ENGINE START SWITCH
BLU/WHT
IG2 CUT RELAY
CLUTCH INTERLOCK SWITCH
LT BLU
No. 19 (7.5 A)
BLU/RED
BLU
HIGH BEAM CUT RELAY
RED/BLU
ORN
YEL/BLK
(Not used)
PASSING
LOW
HIGH
DIMMER
COMBINATION LIGHT SWITCH
DAYTIME RUNNING LIGHTS CONTROL UNIT
RED/BLK
BLK
LEFT FRONT PARKING/ SIDE MARKER LIGHT (5 W)
RIGHT FRONT PARKING/ SIDE MARKER LIGHT (5 W)
LEFT TAILLIGHT (LED) (3 x 4)
LEFT REAR SIDE MARKER LIGHT (LED)
RIGHT REAR SIDE MARKER LIGHT (LED)
RIGHT TAILLIGHT (LED) (3 x 4)
LICENSE PLATE LIGHT (5 W)
G402
G401
G301
G201
G602

Circuit Diagram - Back-up Lights

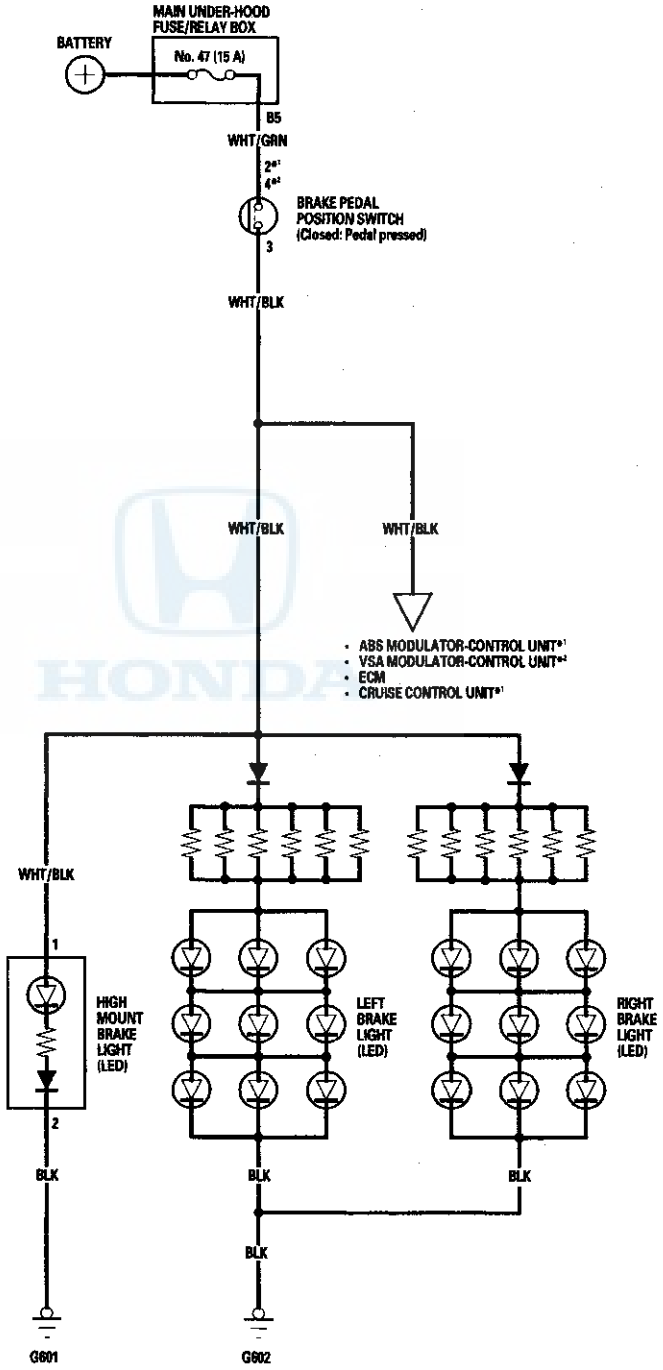


Circuit Diagram - Brake Lights

'00-03 models



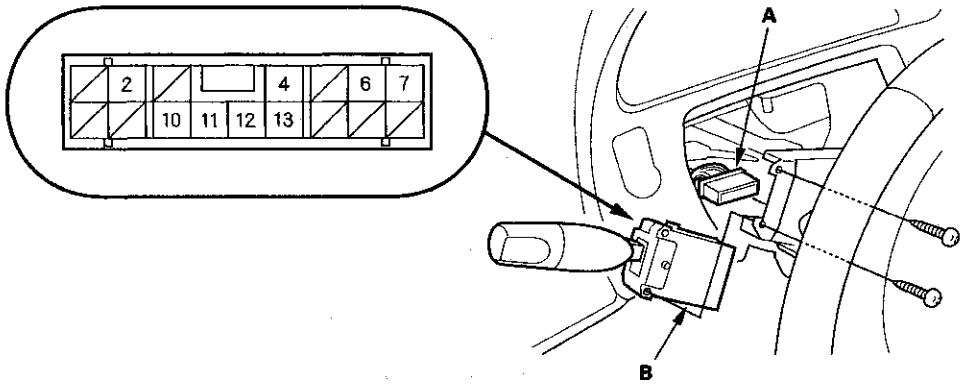
'04-08 models



*1: '04—05 models
*2: '06—08 models

Combination Light Switch Test/Replacement

1. Remove the steering column covers (see page 17-9).
2. Disconnect the 16P connector (A) from the combination light switch (B).



3. Remove the two screws, then pull out the combination light switch.
4. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, check for continuity between the terminals in each switch position according to the tables.
     – If the continuity is not as specified, replace the switch.

Light switch

Position \ Terminal			7	6	4	12	13
Headlight switch	OFF						
	≡D					○—○	
	≡D	LOW	○—○	○—○		○—○	○—○
	≡D	HIGH	○—○		○—○	○—○	○—○
Passing switch	OFF						
	ON		○—○		○—○	○—○	

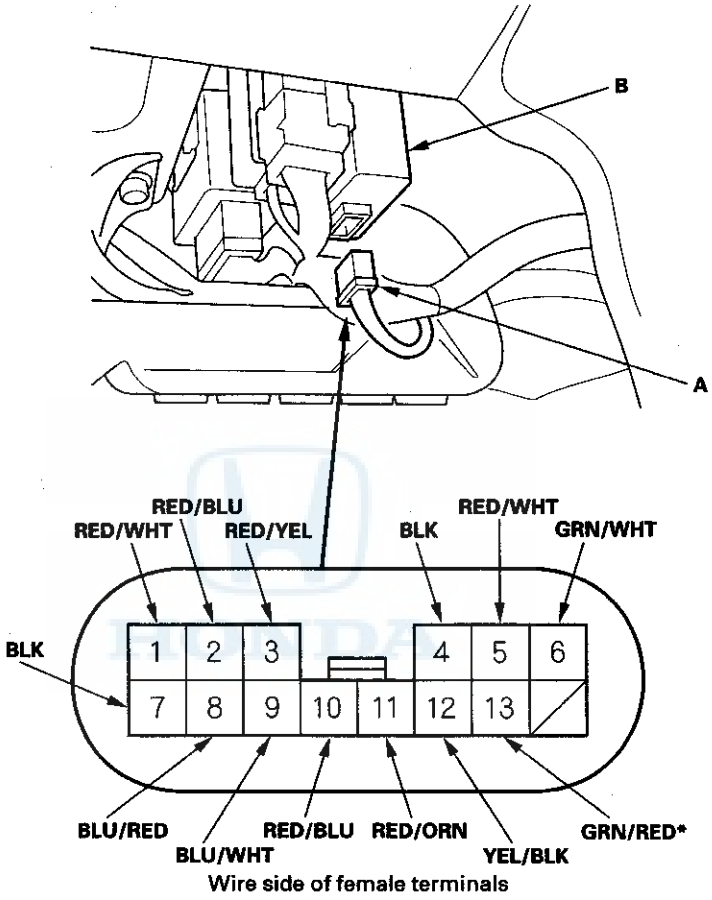
Turn signal switch

Position \ Terminal	2	11	10
LEFT	○—○		○—○
NEUTRAL			
RIGHT		○—○	○—○

Daytime Running Lights Control Unit Input Test

Canada models

1. Disconnect the 14P connector (A) from the daytime running lights control unit (B).



Wire side of female terminals

*: '00-05 models

2. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

(cont'd)

Daytime Running Lights Control Unit Input Test (cont'd)

3. Make these input tests at the connector.

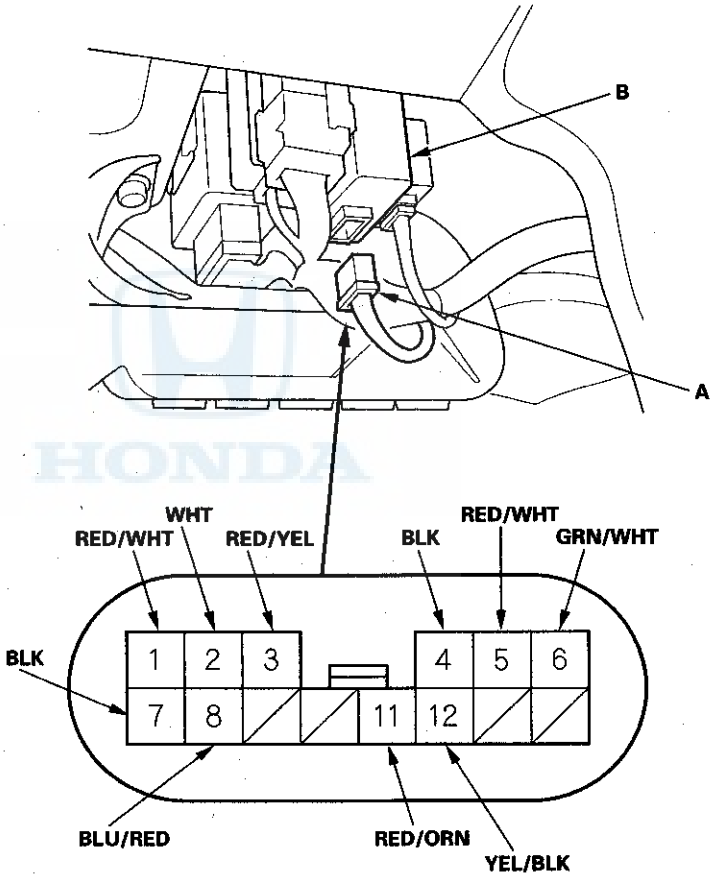
- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
2*2	RED/BLU	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 54 (30 A) fuse in the main under-hood fuse/relay box • Blown No. 27 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
12*2	YEL/BLK	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 19 (7.5 A) fuse in the under-dash fuse/relay box • Faulty IG2 cut relay • An open in the wire
4*2	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G402) • An open in the wire
7*2	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G402) • An open in the wire
3	RED/YEL	Combination light switch ON (≣D)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 45 (20 A) fuse in the main under-hood fuse/relay box • Faulty headlight relay 2 • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
5	RED/WHT	Combination light switch ON (≣D)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 43 (20 A) fuse in the main under-hood fuse/relay box • Faulty headlight relay 1 • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
1	RED/WHT	Combination light switch ON (≣D), and dimmer switch in HIGH	Connect a jumper wire between No. 3 and No. 1 terminals: Left headlight (HIGH) and high beam indicator should come on.	• Blown bulb • Faulty high beam cut relay • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
11	RED/ORN	Combination light switch ON (≣D), and dimmer switch in HIGH	Connect a jumper wire between No. 5 and No. 11 terminals: Right headlight (HIGH) should come on.	• Blown bulb • Faulty high beam cut relay • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
10	RED/BLU	Combination light switch ON (≣D), and dimmer switch in HIGH	Check for continuity to ground: There should be continuity.	• Faulty high beam cut relay • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
6	GRN/WHT	Parking brake lever pulled	Check for continuity to ground: There should be continuity.	• Faulty parking brake switch • An open in the wire
8	BLU/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Faulty headlight relays • Faulty diode • An open in the wire
9	BLU/WHT	Ignition switch ON (II)	Attach to ground: The DRL indicator should come on.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • Blown bulb • An open in the wire
13*1	GRN/RED	Ignition switch ON (II)	Attach to ground: The brake system indicator should come on.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • Blown bulb • An open in the wire

* 1: '00-05 models
* 2: Reconnect the connector

'06-08 USA models

1. Disconnect the 14P connector (A) from the daytime running lights control unit (B).



Wire side of female terminals

2. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

Daytime Running Lights Control Unit Input Test (cont'd)

3. Make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the control unit must be faulty; replace it.

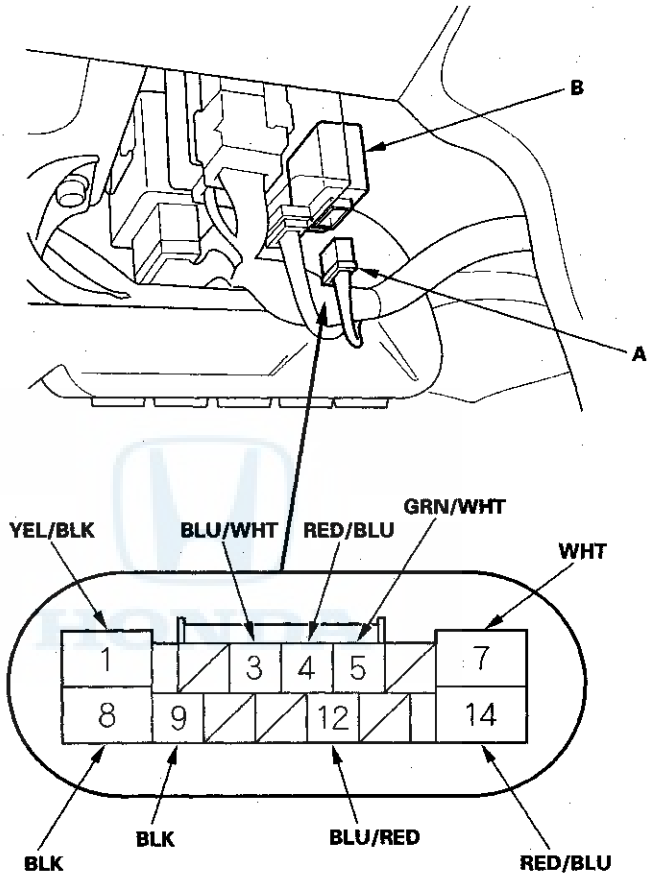
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
12*	YEL/BLK	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 19 (7.5 A) fuse in the under-dash fuse/relay box • Faulty IG2 cut relay • An open in the wire
4*	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G402) • An open in the wire
7*	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G402) • An open in the wire
3*	RED/YEL	Combination light switch ON (≡D)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 45 (20 A) fuse in the main under-hood fuse/relay box • Faulty headlight relay 2 • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
5	RED/WHT	Combination light switch ON (≡D)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 43 (20 A) fuse in the main under-hood fuse/relay box • Faulty headlight relay 1 • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
1	RED/WHT	Combination light switch ON (≡D), and dimmer switch in HIGH	Connect a jumper wire between No. 3 and No. 1 terminals: Left headlight (HIGH) and high beam indicator should come on.	• Blown bulb • Faulty high beam cut relay • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
11	RED/ORN	Combination light switch ON (≡D), and dimmer switch in HIGH	Connect a jumper wire between No. 5 and No. 11 terminals: Right headlight (HIGH) should come on.	• Blown bulb • Faulty high beam cut relay • Faulty combination light switch • Faulty diode • Poor ground (G401) • An open in the wire
2	WHT	Ignition switch ON (II), and parking brake lever released	Measure the voltage to ground: There should be about 6.5 V.	• Faulty daytime running lights subcontrol unit • An open in the wire
6	GRN/WHT	Parking brake lever pulled	Check for continuity to ground: There should be continuity.	• Faulty parking brake switch • An open in the wire
8	BLU/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Faulty headlight relays • Faulty diode • An open in the wire

*: Reconnect the connector

Daytime Running Lights Subcontrol Unit Input Test

'06-08 USA models

1. Disconnect the 14P connector (A) from the daytime running lights subcontrol unit (B).



Wire side of female terminals

2. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

(cont'd)

Daytime Running Lights Subcontrol Unit Input Test (cont'd)

3. Make these input tests at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
14*	RED/BLU	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 54 (30 A) fuse in the main under-hood fuse/relay box • Blown No. 27 (10 A) fuse in the under-dash fuse/relay box • An open in the wire
1*	YEL/BLK	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 19 (7.5 A) fuse in the under-dash fuse/relay box • Faulty IG2 cut relay • An open in the wire
8* . 9*	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G401) • An open in the wire
12	BLU/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Faulty headlight relays • Faulty diode • An open in the wire
3	BLU/WHT	Ignition switch ON (II)	Attach to ground: The DRL indicator should come on.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • Blown bulb • An open in the wire
4	RED/BLU	Combination light switch ON (≣D), and dimmer switch in HIGH	Check for continuity to ground: There should be continuity.	• Faulty high beam cut relay • Faulty combination light switch • Poor ground (G401) • An open in the wire
5	GRN/WHT	Ignition switch ON (II), and parking brake lever pulled	Measure the voltage to ground: There should be less than 1 V.	• Faulty parking brake switch • An open in the wire
		Ignition switch ON (II), and parking brake lever released	Measure the voltage to ground: There should be battery voltage.	• Blown bulb • Faulty parking brake switch • Short to ground
7*	WHT	Ignition switch ON (II), and parking brake lever released	Measure the voltage between the daytime running lights control unit No. 2 terminal and ground: There should be about 6.5 V.	• Faulty daytime running lights control unit • Short to ground

*: Reconnect the connector

HID Lamp System Troubleshooting

⚠WARNING

A transient high tension (25,000 V) occurs at the bulb sockets or the high intensity discharge (HID) lamps when the combination light switch is turned ON, it may cause serious electrical shock or electrocution if you do not observe the cautions below.

⚠CAUTION

- Never turn on the combination light switch before fitting the HID bulbs to their bulb sockets and completing the reassembly of the headlight assembly.
- Do not service the headlights assembly in wet conditions, such as rain or snow, near a sprinkler system, or when your hands are wet to prevent electrocution.
- Do not touch the surface of the HID bulbs with your bare hands and do not stain it with any oils and fats.
- Do not disassemble the inverter unit and the igniter unit.
- Do not turn on the HID bulb by using a power source other than the battery mounted on your vehicle.

Special Tools Required
HID bulb test light 07AAJ-S3MA100

1. Check the No. 45 (20 A) and No. 43 (20 A) fuses in the main under-hood fuse/relay box.

   Are the fuses OK?

   YES—Go to step 2.

   NO—Replace the fuse(s), and recheck. ■

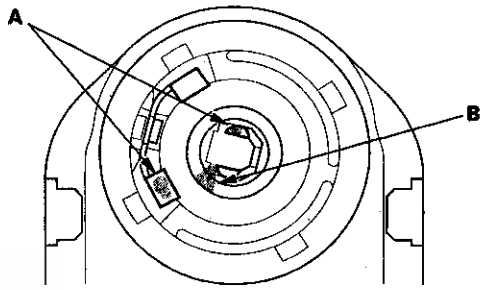
2. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

3. Turn the combination light switch OFF.

4. Disconnect the negative battery cable.

5. Remove the socket from the HID bulb (see page 22-136).

6. Check for corrosion (A) and traces of electrical arcing (B) at the socket mating part.



Is the socket corroded or burnt?

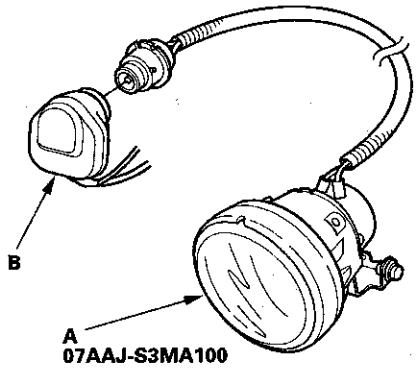
YES—Go to step 7.

NO—Replace the socket, and recheck. ■

(cont'd)

HID Lamp System Troubleshooting (cont'd)

7. Connect the HID bulb test light (A) to the socket (B).



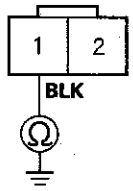
8. Reconnect the battery negative cable.
9. Turn the combination light (headlight) switch ON.

   Does the bulb in the test light come on?

   YES—Replace the original HID bulb (see page 22-136). ■

   NO—Go to step 10.
10. Turn the combination light (headlight) switch OFF.
11. Disconnect the battery negative cable.
12. Remove the HID bulb test light from the bulb socket.
13. Reconnect the battery negative cable.
14. Disconnect the HID unit 2P connector.
15. Turn the combination light (headlight) switch ON.
16. Check for continuity between the HID unit 2P connector No. 1 terminal and body ground.

HID UNIT 2P CONNECTOR



Wire side of female terminals

Is there continuity?

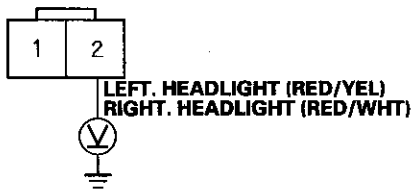
YES—Go to step 17.

NO—Repair an open in the wire between the HID unit and body ground. If the wire is OK, check for poor ground at G201 (right)/G301 (left) ('00-03 models) or G501 ('04-08 models). ■

NOTE: After the repair is complete, enter the anti-theft code for the audio system, then enter the audio presets, and set the clock.

17. Measure the voltage between the HID unit 2P connector No. 2 terminal and body ground.

HID UNIT 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

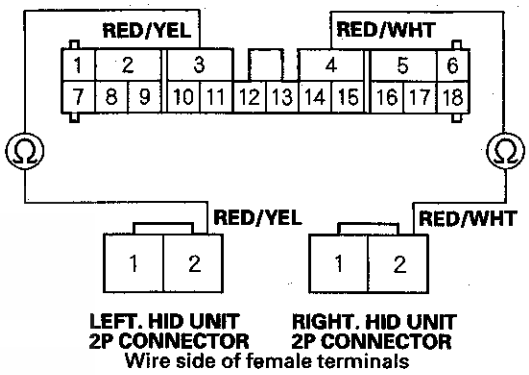
YES—Substitute a known-good HID unit, and recheck. If the symptom/indication goes away, replace the original HID unit (see page 22-138). ■

NO—Go to step 18.

18. Disconnect main under-hood fuse/relay box connector A (18P).

19. Check for continuity between main under-hood fuse/relay box connector A (18P) No. 3 (No. 4) terminals and the HID unit 2P connector No. 2 terminal.

MAIN UNDER-HOOD FUSE/RELAY BOX CONNECTOR A (18P)
Wire side of female terminals



Wire side of female terminals

Is there continuity?

YES—Replace the main under-hood fuse/relay box. (see page 22-46). ■

NO—Repair an open in the wire between the main under-hood fuse/relay box and the HID unit. ■

NOTE: After the repair is complete, enter the anti-theft code for the audio system, then enter the audio presets, and set the clock.

HID Bulb Removal

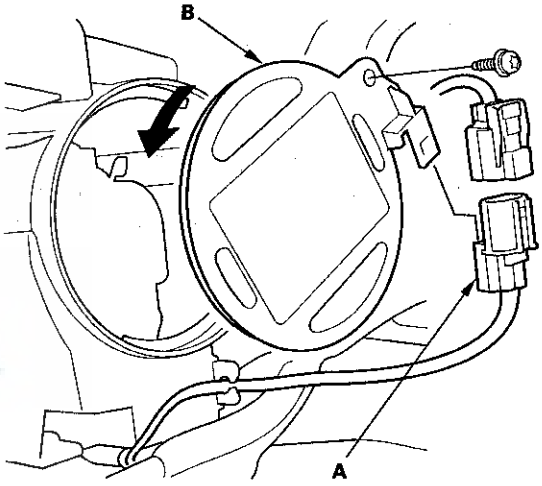
⚠WARNING

A transient high tension (25,000 V) occurs at the bulb sockets of the high intensity discharge (HID) lamps when the combination light switch is turned ON. It may cause serious electrical shock or electrocution if you do not observe the cautions below.

⚠CAUTION

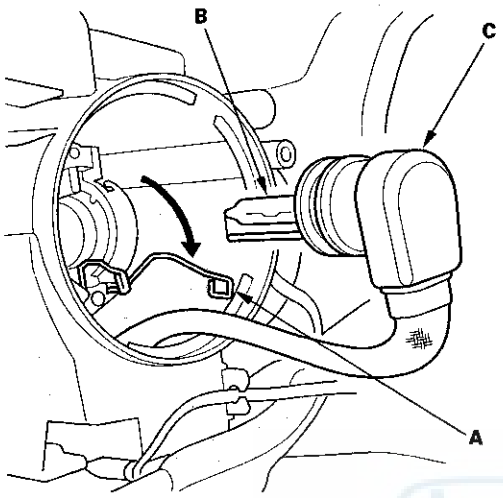
- Never turn on the combination light switch before fitting the HID bulbs to their bulb sockets and completing the reassembly of the headlight assembly.
- Do not service the headlights assembly in wet conditions, such as rain or snow, near a sprinkler system, or when your hands are wet to prevent electrocution.
- Do not touch the surface of the HID bulbs with your bare hands and do not stain it with any oils and fats.
- Do not disassemble the inverter unit and the igniter unit.
- Do not turn on the HID bulb by using a power source other than the battery mounted in your vehicle.

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Turn the ignition switch OFF.
3. Turn the combination light switch OFF.
4. Disconnect the battery negative cable.
5. Remove the front part of the inner fender as necessary (see page 20-126).
6. Disconnect 2P connector (A) from the inverter unit.

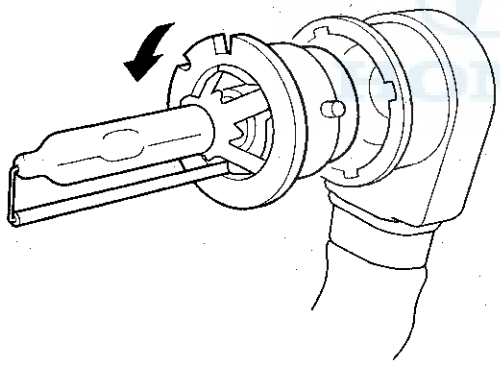


7. Remove the TORX bolt using a tamper-proof TORX T25 bit.
8. Turn the cover (B) 45° counterclockwise to remove it from the headlight assembly.

9. Pull the retaining spring (A) away from the bulb (B), then remove the socket and the bulb (C).



10. Turn the bulb 45° counterclockwise to remove it from the socket.

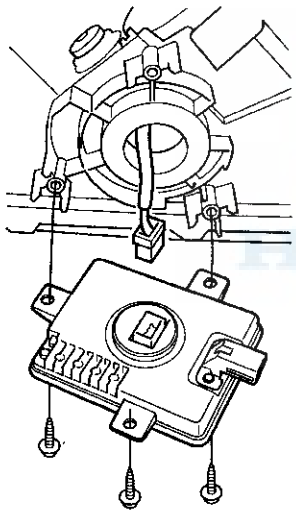


11. Install the new bulb in the reverse order of removal.

12. After reconnecting the battery, enter the anti-theft code for the audio system, then enter the audio presets, and set the clock.

HID Unit Replacement

1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Turn the ignition switch OFF.
3. Turn the combination light switch OFF.
4. Disconnect the battery negative cable, then disconnect the positive cable.
5. Remove the headlight assembly (see page 22-139).
6. Remove the socket from the HID bulb (see page 22-136).
7. Remove the three mounting screws and the HID unit.



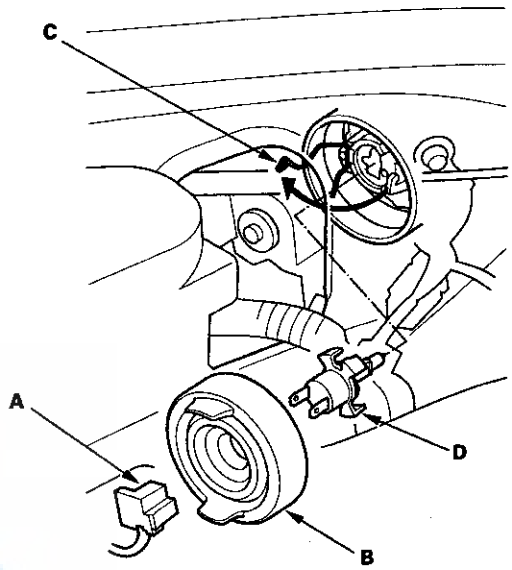
8. Install in the reverse order of removal.
9. Enter the anti-theft code for the audio system, then enter the audio presets, and set the clock.

Bulb Replacement

Headlight

1. Disconnect the 3P connector (A) from the headlight.

Headlight (high beam): 55 W

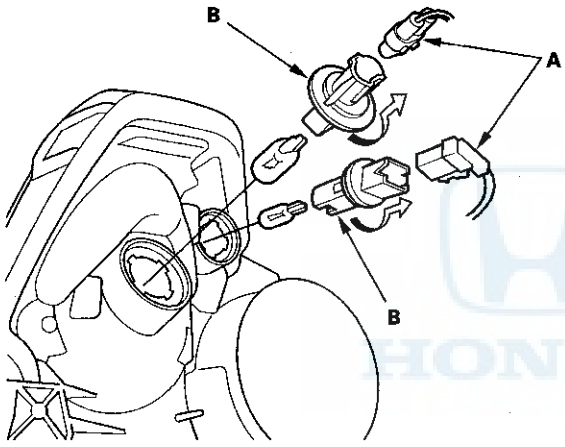


2. Remove the rubber cover (B).
3. Pull the retaining spring (C) away from the bulb (D), then remove the bulb.
4. Install a new bulb in the reverse order of removal. Make sure the tabs on the bulb align with the notches in the headlight.

Front Turn Signal Light, Front Parking Light ('00-03 models), Front Parking/Side Marker Light ('04-08 models)

1. Remove the inner fender (see page 20-126).
2. Disconnect the connectors (A) from the lights.

Front turn signal lights:	**21 W**
Front parking light ('00-03 models):	**5 W**
Front parking/Side marker light ('04-08 models):	**5 W**



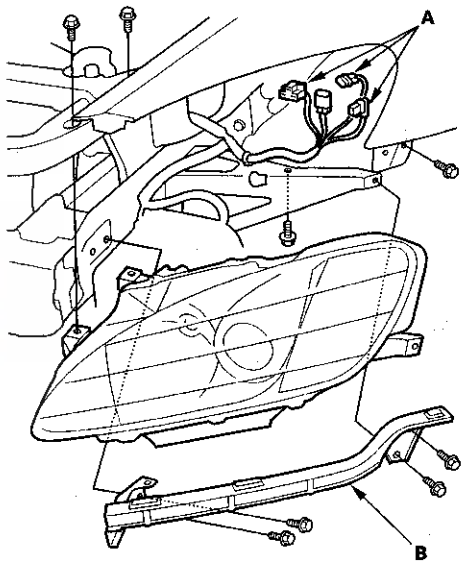
3. Turn the bulb sockets (B) 45° counterclockwise to remove them from the headlight housing.
4. Install the new bulb(s) in the reverse order of removal.

Headlight Replacement

⚠CAUTION

Headlights become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.

1. Remove the front bumper '00-03 models (see page 20-104); '04-08 models (see page 20-105); CR model (see page 20-106).
2. Remove the front part of the inner fender as necessary (see page 20-126).
3. Disconnect the connectors (A) from the headlights.



4. Remove the four bolts, then remove the corner upper beam (B).

Headlight (High):	**55 W**
Headlight (Low):	**35 W**
Front Turn Signal Light:	**21 W**
Front Parking Light ('00-03 models):	**5 W**
Front Parking/Side Marker Light ('04-08 models):	**5 W**

5. Remove the four bolts, then remove the headlight assembly.
6. Install the headlight in the reverse order of removal.
7. After replacement, adjust the headlights to local requirements (see page 22-140).

Headlight Adjustment

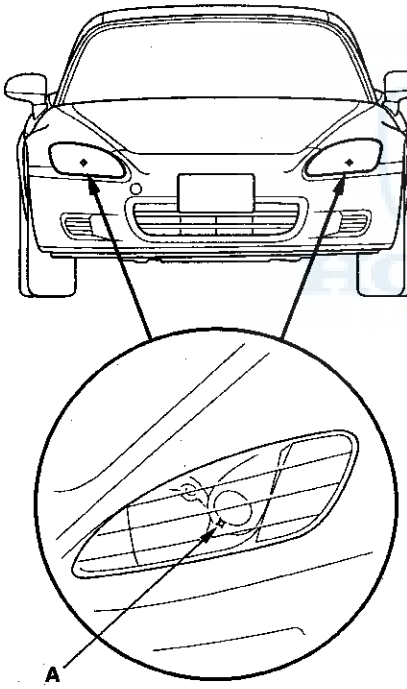
⚠CAUTION

Headlights become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.

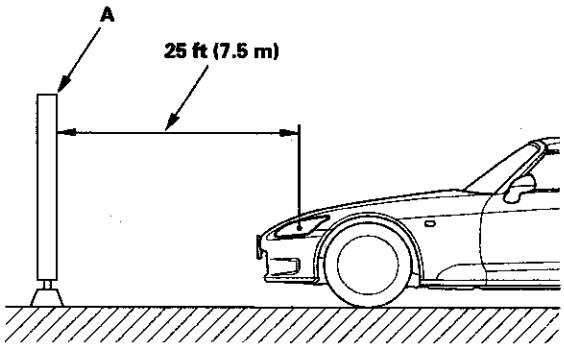
Before adjusting the headlights:

- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat.

1. Clean the outer lens so that you can see the center of the headlights (A).



2. Park the vehicle 25 ft (7.5 m) away from a wall or a screen (A).

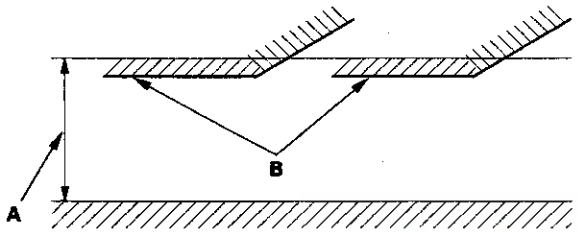


3. Open the hood.

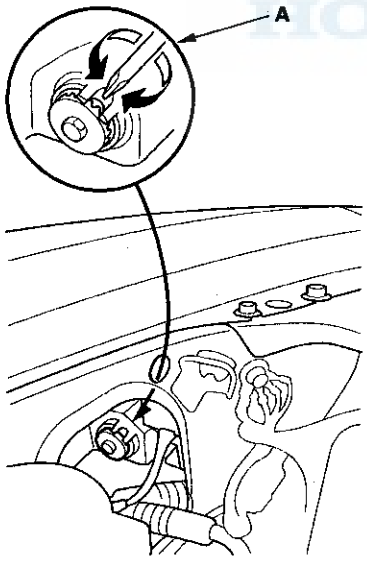
4. Turn the low beams on.

5. Determine if the headlights are aimed properly.

   Vertical adjustment:
   Measure the height of the headlights (A). The lights should reflect 52 mm (2.1 in.) below headlight height (B).



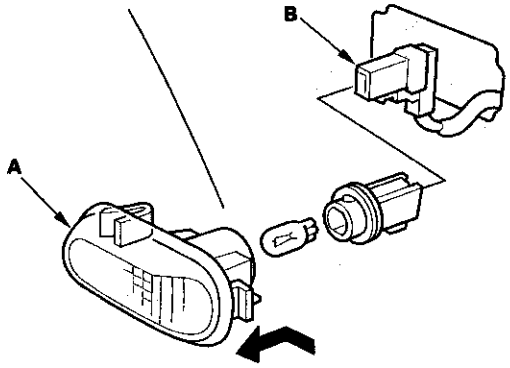
6. If necessary, adjust the headlights to local requirements by turning the vertical adjuster (A).



Side Turn Signal Light Replacement

1. Push the side turn signal light (A) forward, then remove it from the fender.

   Side Turn Signal Light Bulb: 5 W



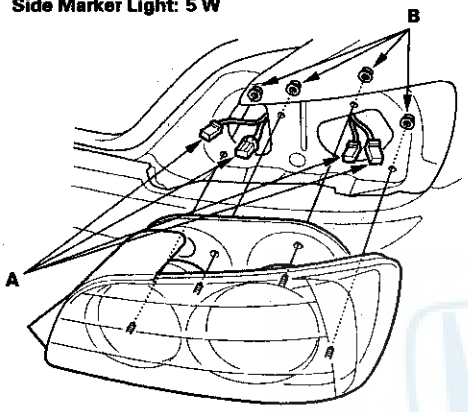
2. Disconnect the 2P connector (B) from the light.

Taillight Replacement

1. Open the trunk lid and pull back the trunk trim panel (see page 20-77).
2. Disconnect the connectors (A) from the taillight.

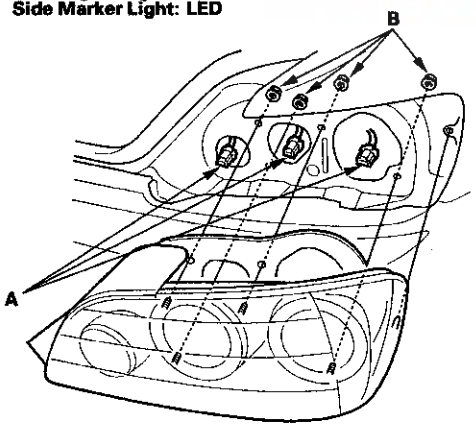
'00-03 models

Brake/Taillight: 21/5 W
Back-up Light: 21 W
Turn Signal Light: 21 W
Side Marker Light: 5 W



'04-08 models

Brake/Taillight: LED
Back-up Light: 21 W
Turn Signal Light: 21 W
Side Marker Light: LED

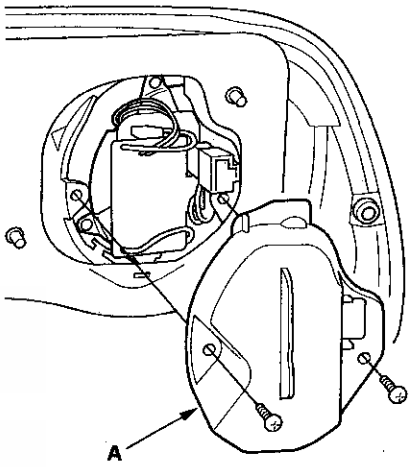


3. Remove the four mounting nuts (B), then pull out the taillight.
4. Before installing the taillight, check the gasket. If it is distorted or stays compressed, replace it.
5. Install the taillight in the reverse order of removal.
6. After installing the taillight, run water over it to make sure it does not leak.

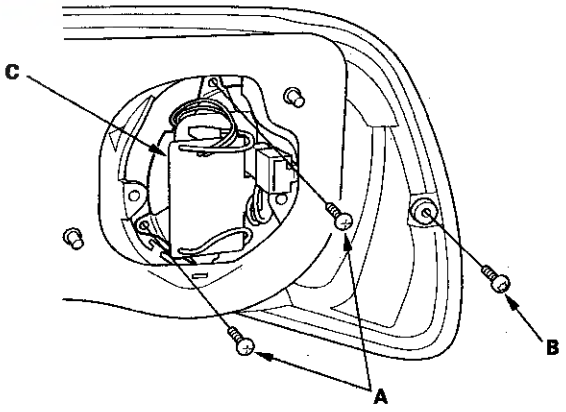
Taillight/Brake Light LED Replacement

'04-08 models

1. Remove the taillight (see page 22-142).
2. Remove the two screws and cover (A).



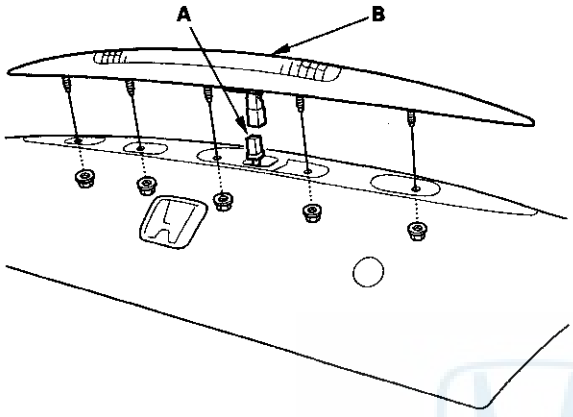
3. Remove the two screws (A) and the TORX screw (B), then pull out the LED (C).



4. Before installing the taillight, check the gasket. If it is distorted or stays compressed, replace it.
5. Install the new bulb in the reverse order of removal.

High Mount Brake Light Replacement

1. Open the trunk lid.
2. Disconnect the 2P connector (A) from the high mount brake light (B).

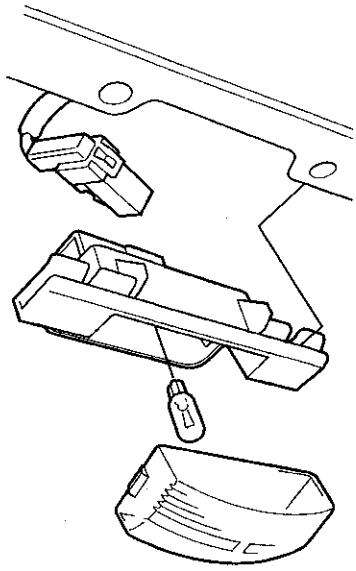


3. Remove the five mounting nuts, then pull out the high mount brake light.
4. Install the high mount brake light in the reverse order of removal.
5. After installing the high mount brake light, run water over it to make sure it does not leak.

License Plate Light Replacement

1. Remove the license plate light assembly, and disconnect the 2P connector from it.

License Plate Light Bulb: 5 W

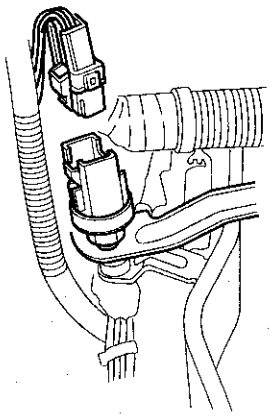


2. Take the lens off, then replace the bulb.

Brake Pedal Position Switch Test

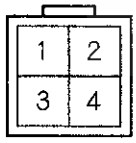
'00-05 models

1. Disconnect the brake pedal position switch connector, and remove the switch.

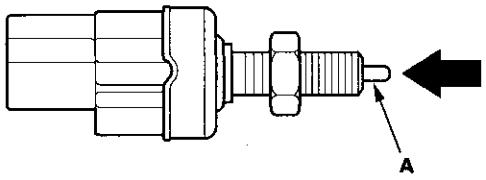


2. Check for continuity between the No. 1 and the No. 4 terminals of the brake pedal position switch connector. There should be continuity when the button (A) is pressed, and no continuity when the button is released.

BRAKE PEDAL POSITION SWITCH CONNECTOR



Terminal side of male terminals



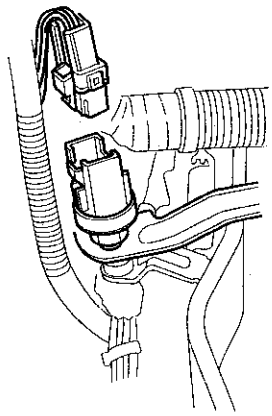
3. Check for continuity between the No. 2 and the No. 3 terminals. There should be continuity when the button is released, and no continuity when the button is pressed.

4. If the brake pedal position switch is faulty, replace it.

5. Install the brake pedal position switch, and adjust it (see page 19-6).

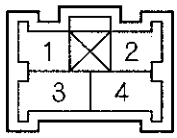
'06-08 models

1. Disconnect the brake pedal position switch connector, and remove the switch.

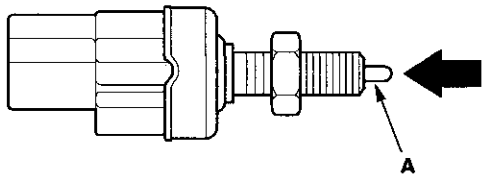


2. Check for continuity between the No. 1 and the No. 2 terminals of the brake pedal position switch connector. There should be continuity when the button (A) is pressed, and no continuity when the button is released.

BRAKE PEDAL POSITION SWITCH CONNECTOR



Terminal side of male terminals



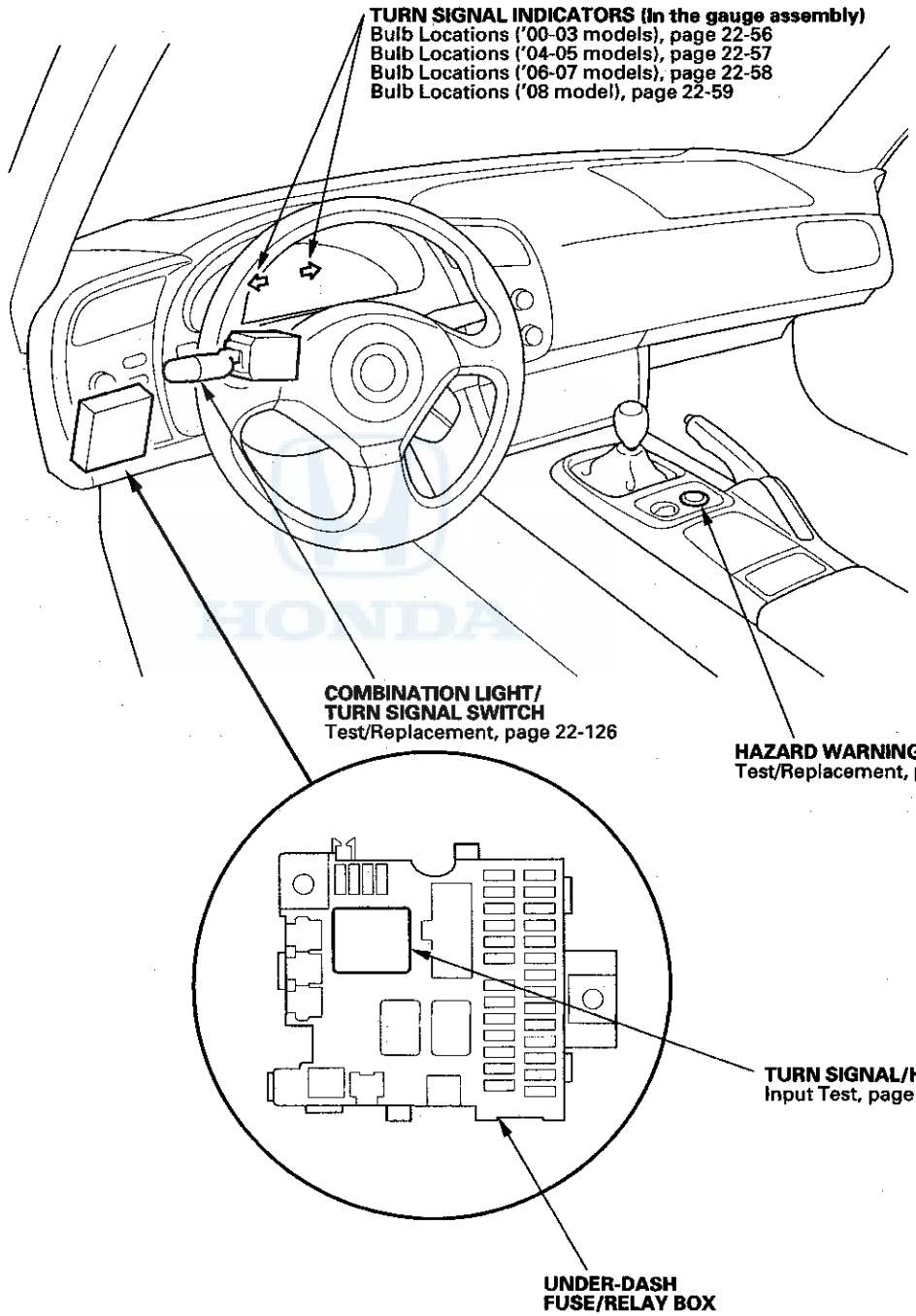
3. Check for continuity between the No. 3 and the No. 4 terminals. There should be continuity when the button is released, and no continuity when the button is pressed.

4. If the brake pedal position switch is faulty, replace it.

5. Install the brake pedal position switch, and adjust it (see page 19-6).

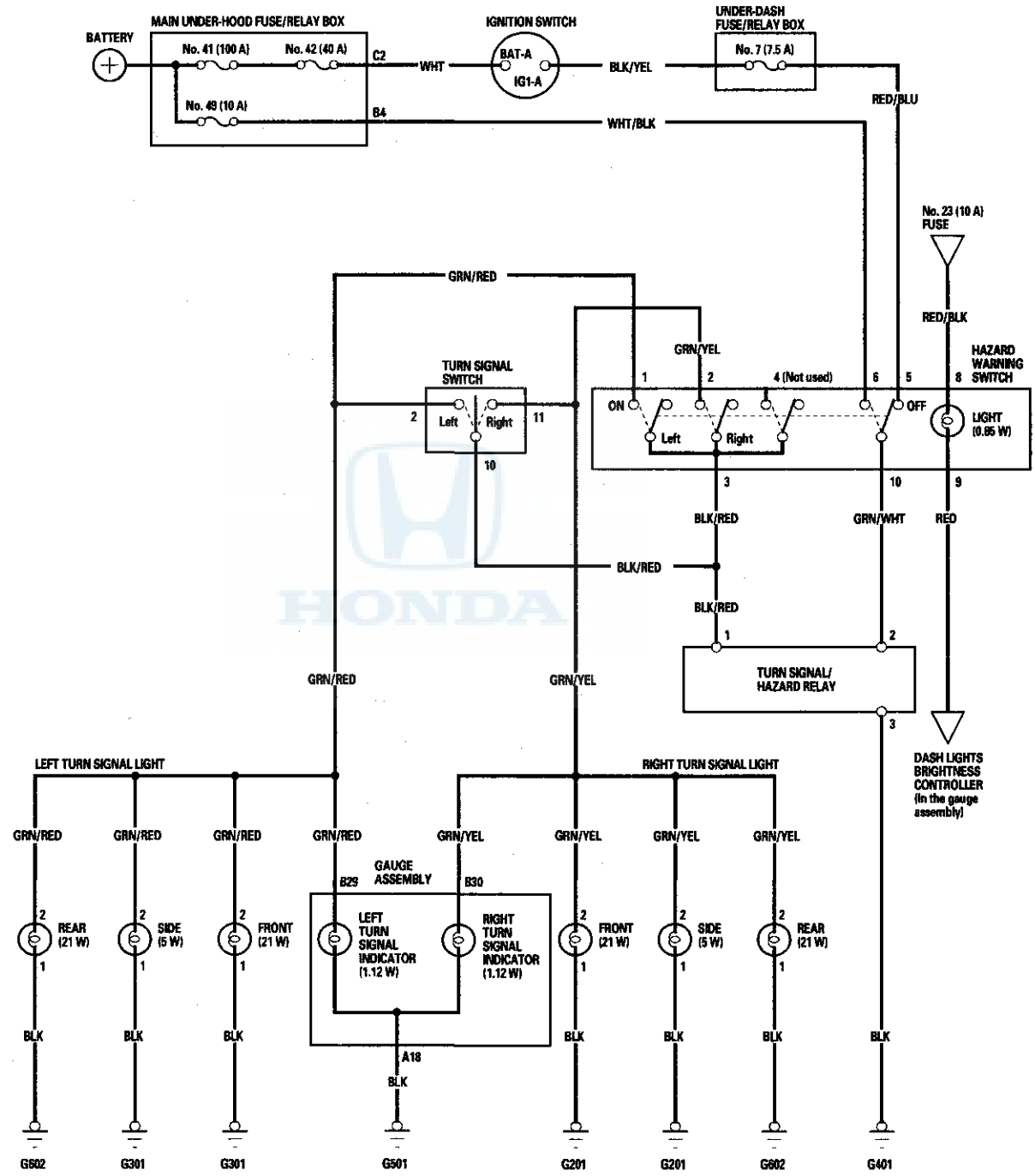
Turn Signal/Hazard Warning Lights

Component Location Index



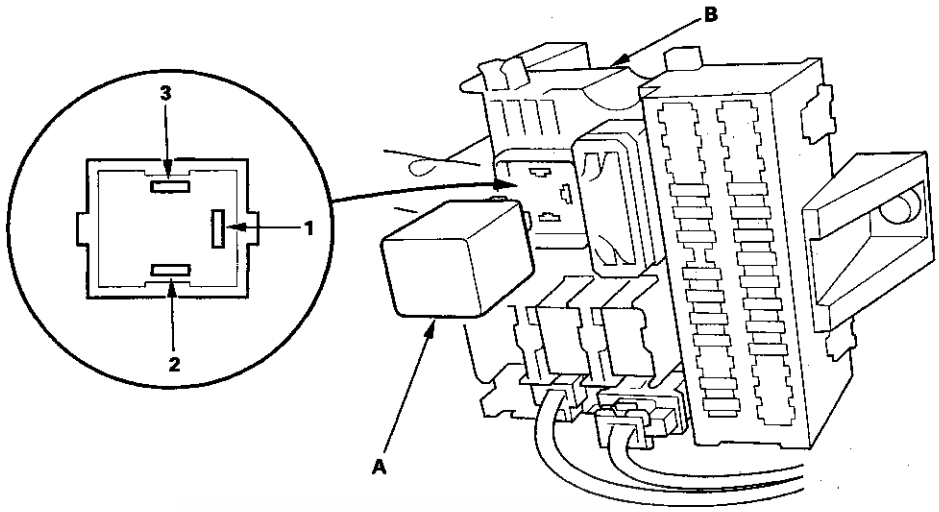
Turn Signal/Hazard Warning Lights

Circuit Diagram



Turn Signal/Hazard Relay Input Test

1. Remove the turn signal/hazard relay (A) from the under-dash fuse/relay box (B).



2. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

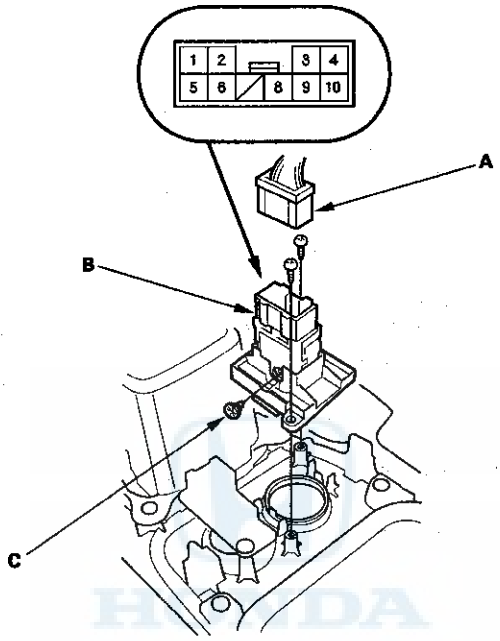
3. Make these input tests at the fuse/relay box.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the turn signal/hazard relay must be faulty; replace it.

Cavity	Test condition	Test: Desired result	Possible cause if desired result is not obtained
3	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G401) • An open in the wire
2	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 7 (7.5 A) fuse in the under-dash fuse/relay box • Faulty hazard warning switch • An open in the wire
	Hazard warning switch ON, ignition switch OFF	Measure the voltage to ground: There should be battery voltage.	• Blown No. 49 (10 A) fuse in the under-hood fuse/relay box • Faulty hazard warning switch • An open in the wire
1	Hazard warning switch ON and connect No. 1 and No. 2 terminals	Hazard lights should come on.	• Poor ground (G201, G301, G501, G602) • Faulty hazard warning switch • Faulty turn signal switch • An open in the wire
	Ignition switch ON (II) and connect No. 1 and No. 2 terminals; turn signal switch in right or left position	Right or left turn signal lights should come on.	

Hazard Warning Switch Test/Replacement

1. Remove the center console (see page 20-80).
2. Disconnect the 10P connector (A) from the hazard warning switch (B).



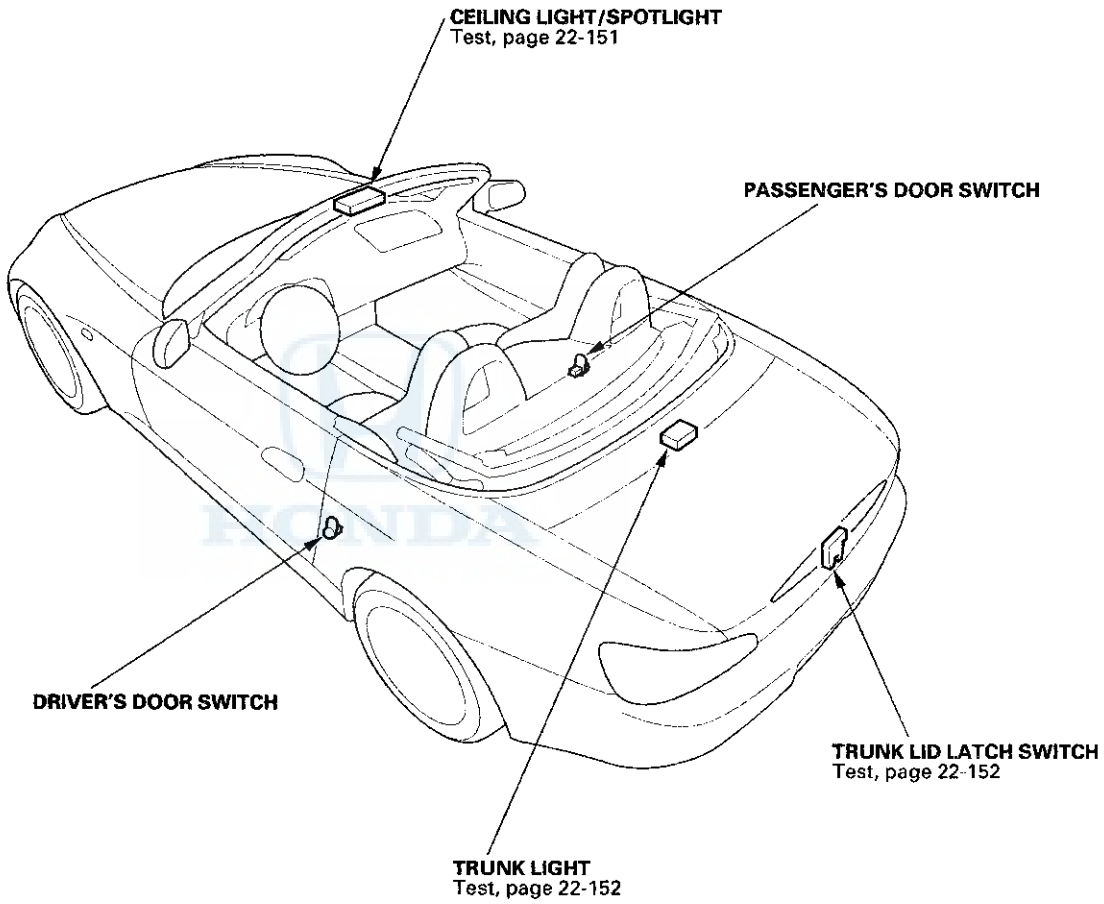
3. Remove the two screws and the hazard warning switch.
4. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	1	2	3	4	5	6	8		9	10
OFF					○		○	○	○	○
ON	○	○	○	○		○	○	○	○	○

5. If the continuity is not as specified, replace the illumination bulb (C) or the switch.

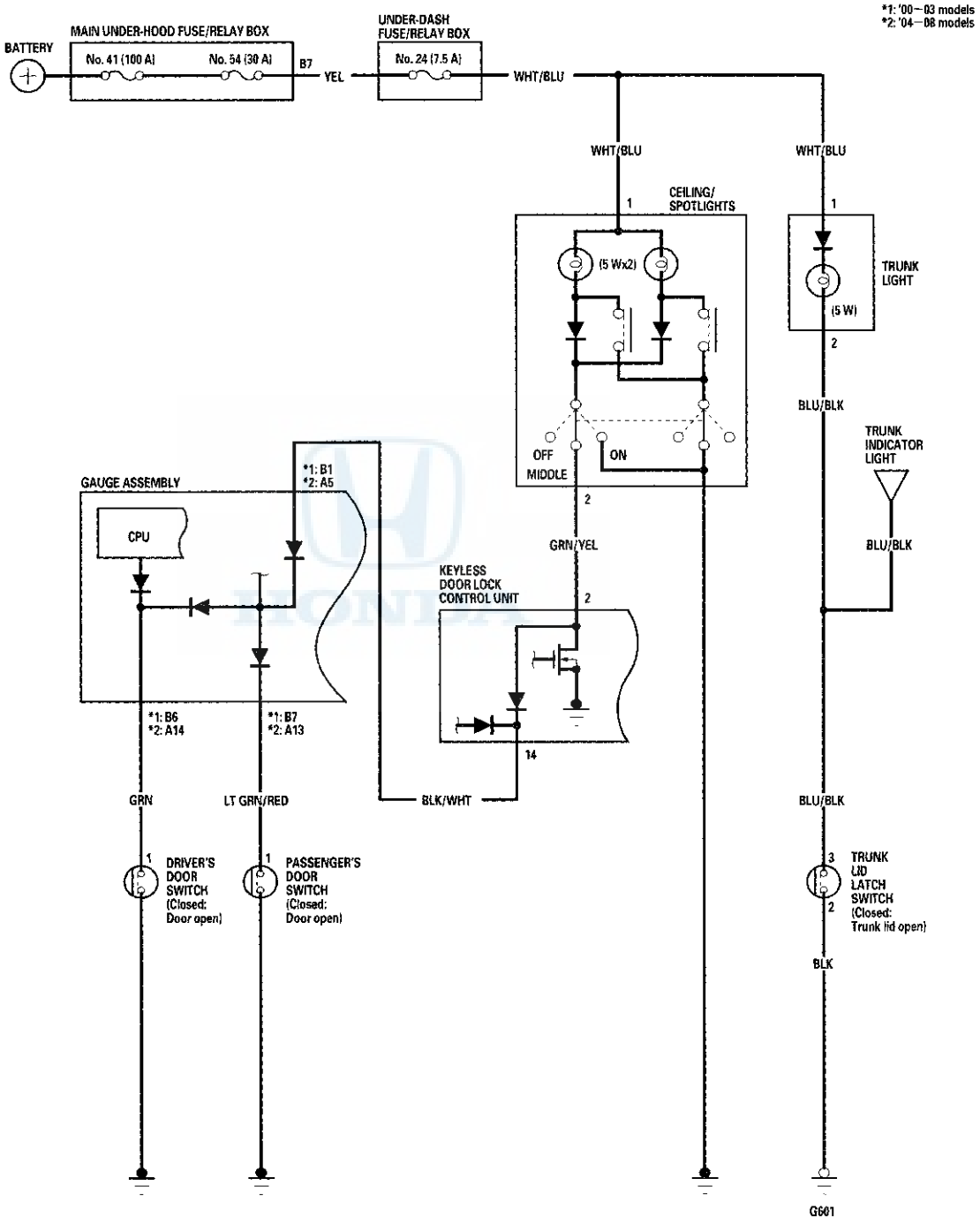
Interior Lights

Component Location Index



Interior Lights

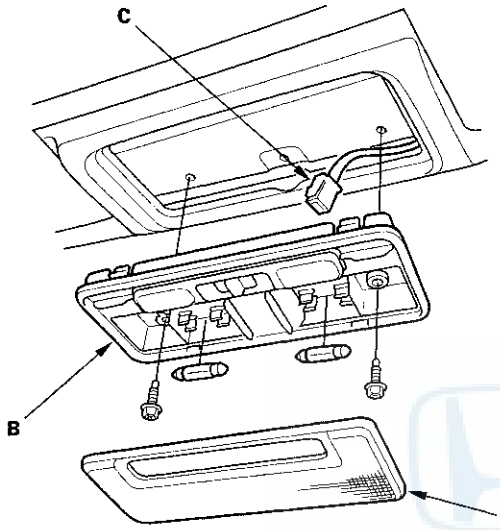
Circuit Diagram



Ceiling Light/Spotlight Test

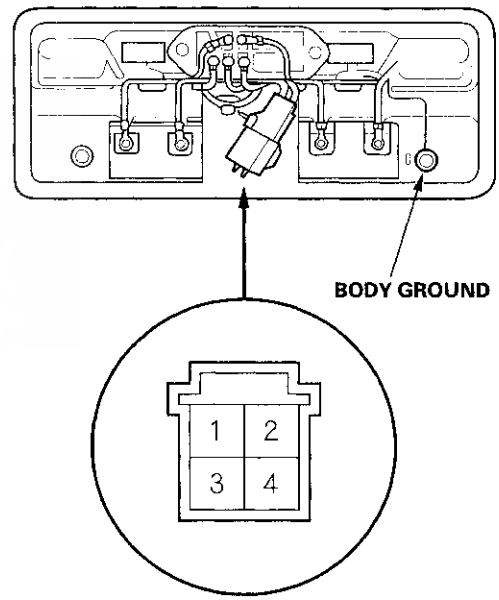
1. Turn the ceiling/spotlights switch OFF.
2. Pry off the lens (A).

Ceiling Light/Spotlight Bulb: 5 W



3. Remove the two screws and the ceiling/spotlight housing (B).
4. Disconnect the 4P connector (C) from the housing.
5. Check for continuity between the terminals in each switch position according to the table.

Position			Terminal 1		2	BODY GROUND
CEILING LIGHT	OFF					
	MIDDLE		○—⊗—○			
	ON		○—⊗—		—○	
SPOTLIGHTS	R	ON	○—⊗—		—○	
		OFF				
	L	ON	○—⊗—		—○	
		OFF				

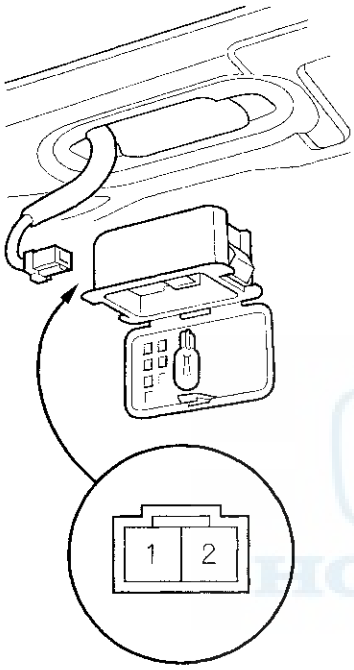


6. If the continuity is not as specified, replace the bulbs or the light.

Trunk Light Test

1. Open the trunk lid.
2. Pry out the trunk light assembly.

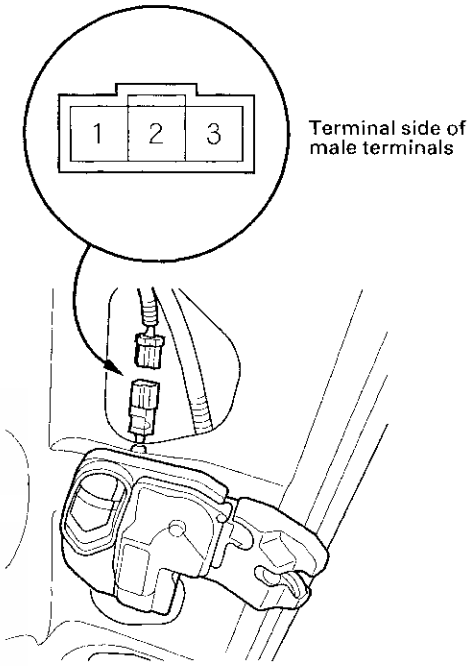
   Trunk Light Bulb: 5 W



3. Disconnect the 2P connector from the housing.
4. Open the trunk light cover.
5. Check for continuity between the No. 1 and No. 2 terminals.
6. If there is no continuity, replace the bulb or the light.

Trunk Lid Latch Switch Test

1. Open the trunk lid.
2. Disconnect the 3P connector from the trunk lid latch.



3. Check for continuity between the terminals in each trunk lid position according to the table.

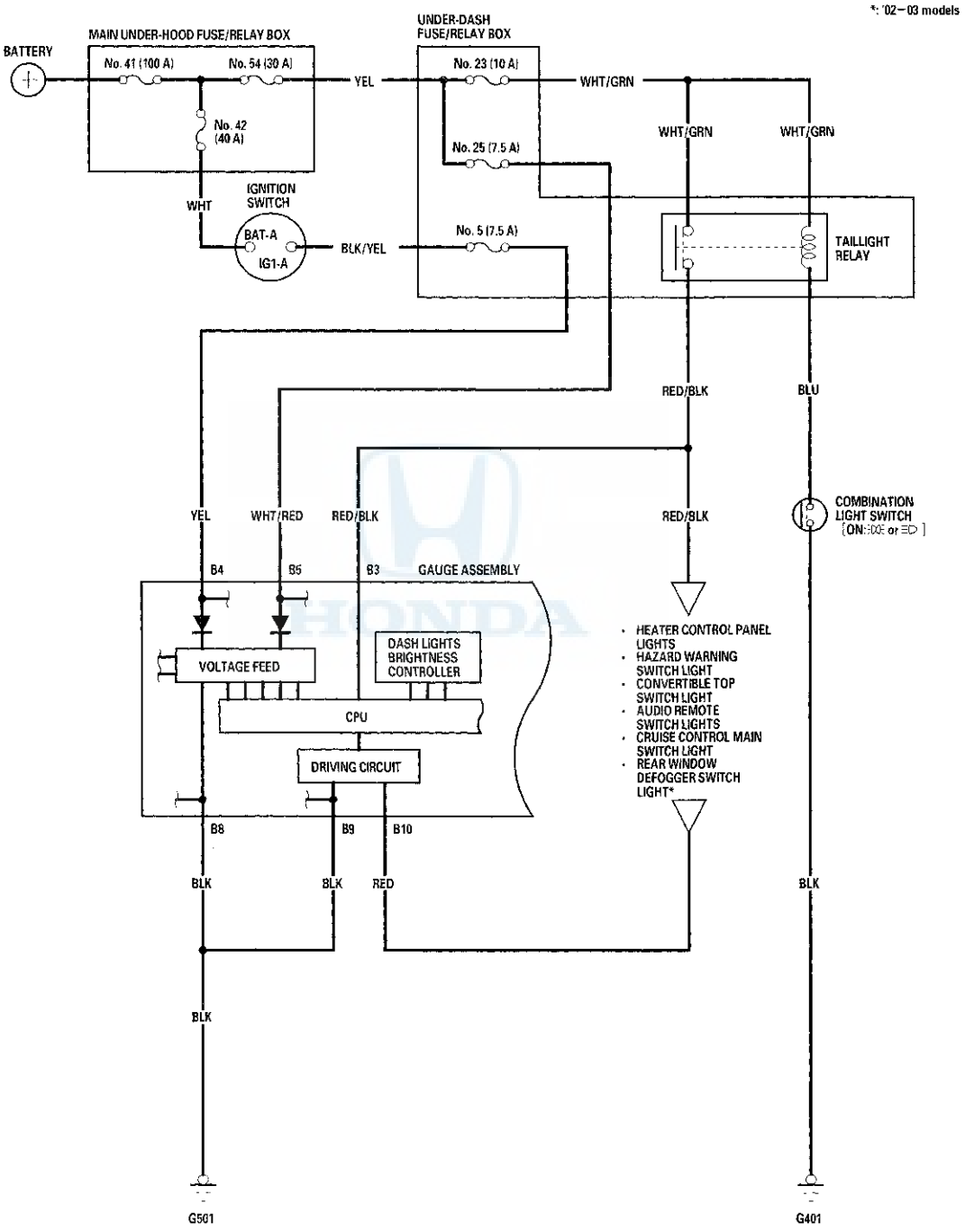
Terminal / Position	2	3
OPEN	○	○
CLOSED		

4. If the continuity is not as specified, replace the trunk lid latch.

Dash Lights Brightness Controller

Circuit Diagram

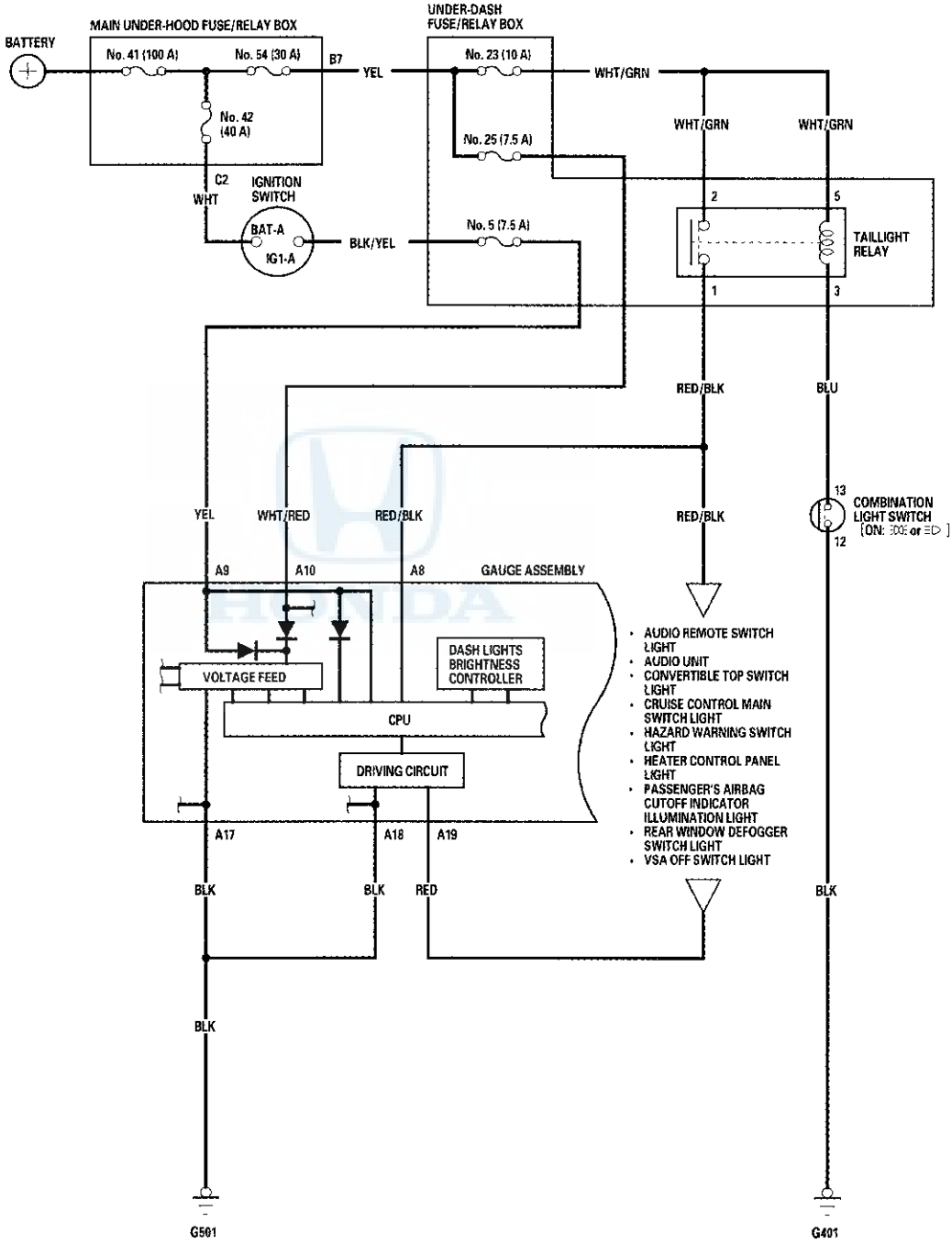
'00-03 models



Dash Lights Brightness Controller

Circuit Diagram (cont'd)

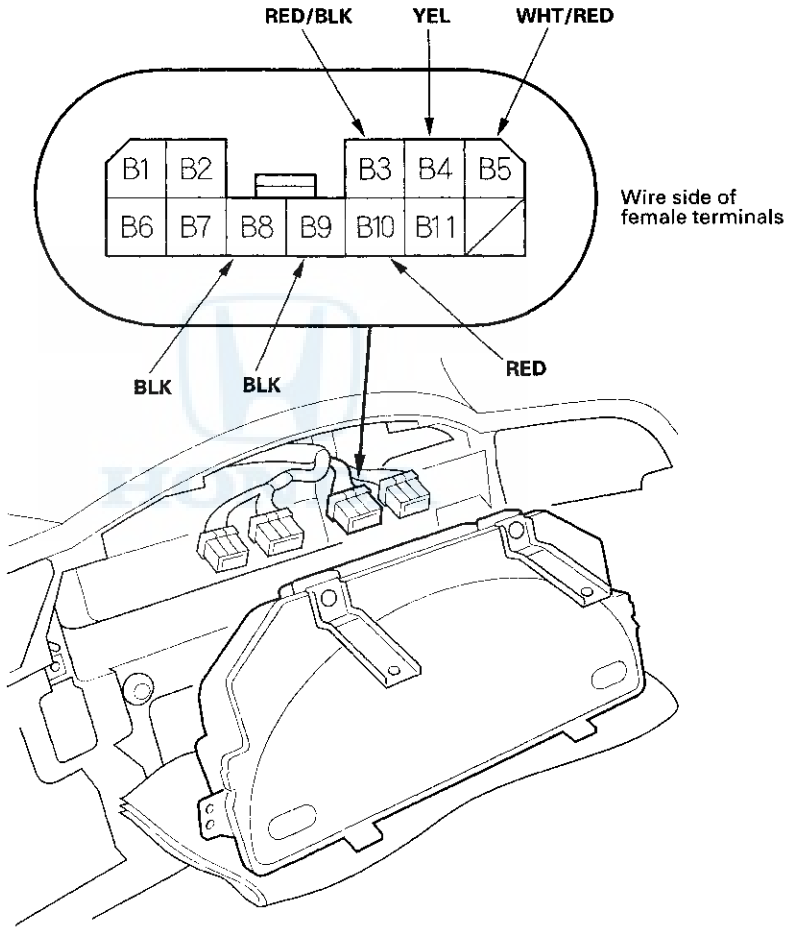
'04-08 models



Controller Input Test

'00-03 models

1. Remove the gauge assembly (see page 22-89).
2. Inspect the gauge assembly connector B (12P) terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.



(cont'd)

Dash Lights Brightness Controller

Controller Input Test (cont'd)

3. Reconnect the connectors to the gauge assembly.

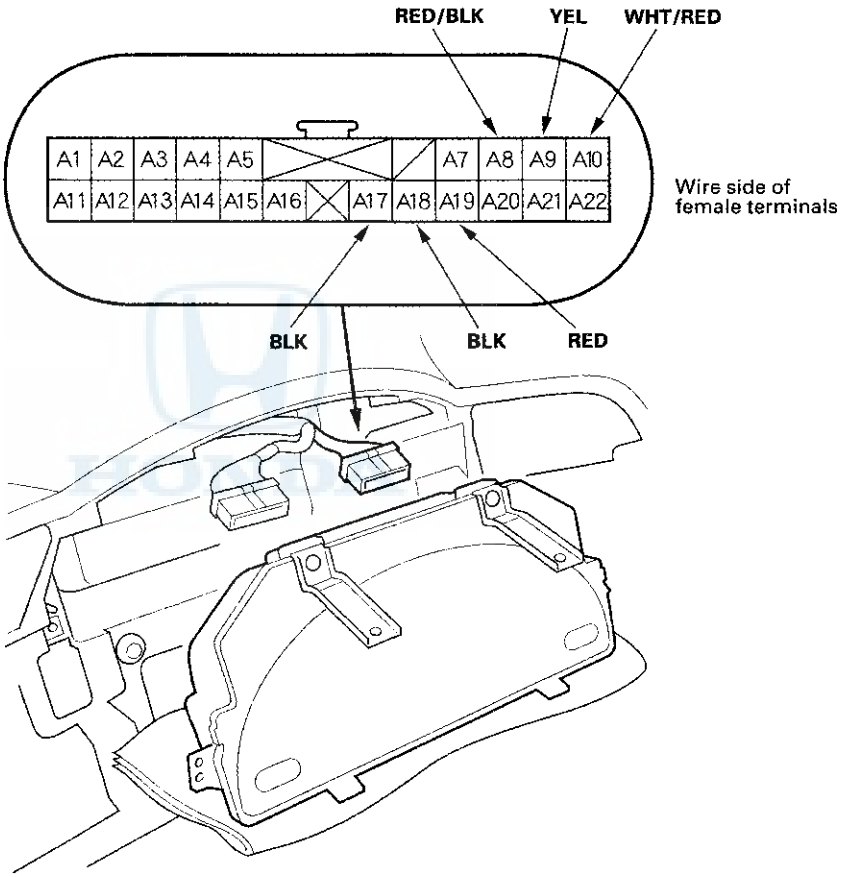
4. Back probe the connector and make these input tests.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the controller switch board or the main printed circuit board in the gauge assembly must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
B3	RED/BLK	Combination light switch ON (≣DC≣) or (≣D)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 23 (10 A) fuse in the under-dash fuse/relay box • Faulty taillight relay • Faulty combination light switch • Poor ground (G401) • An open in the wire
B4	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B5	WHT/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B8	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
B9	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
B10	RED	Combination light switch ON (≣DC≣) or (≣D)	Connect to ground: Dash lights should come on full bright.	An open in the wire

'04-08 models

1. Remove the gauge assembly (see page 22-89).
2. Inspect the gauge assembly connector A (22P) terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.



(cont'd)

Dash Lights Brightness Controller

Controller Input Test (cont'd)

3. Reconnect the connectors to the gauge assembly.

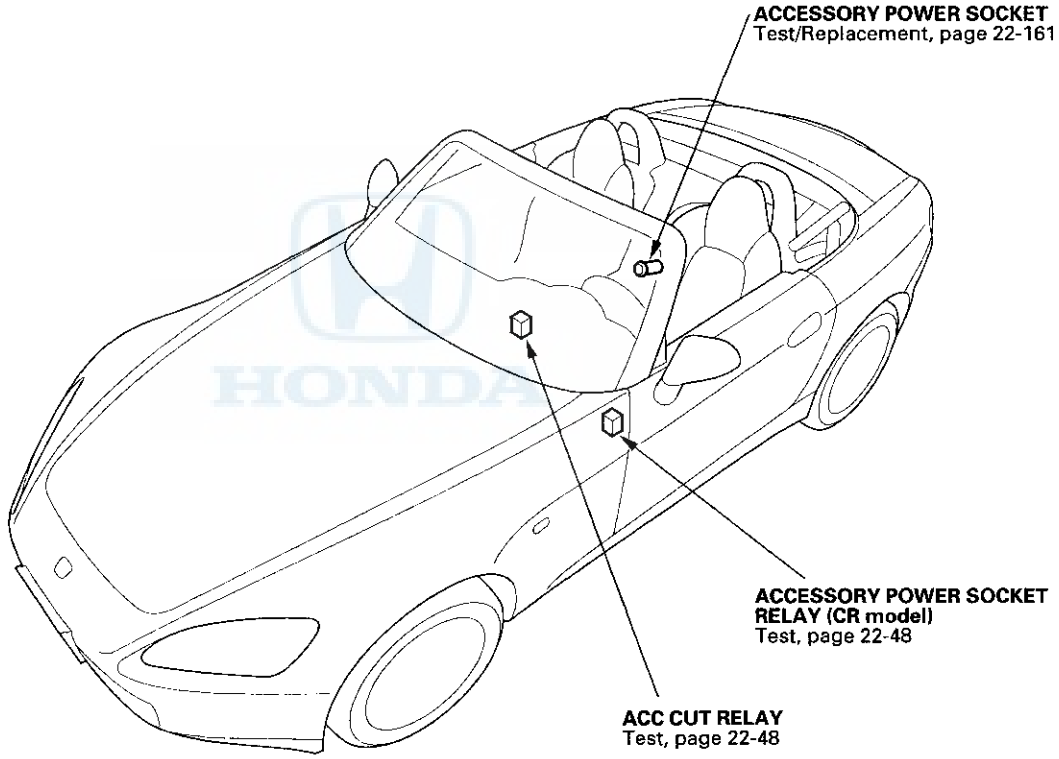
4. Back probe the connector and make these input tests.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the controller switch board or the main printed circuit board in the gauge assembly must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A8	RED/BLK	Combination light switch ON (≡DC≡) or (≡D)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 23 (10 A) fuse in the under-dash fuse/relay box • Faulty taillight relay • Faulty combination light switch • Poor ground (G401) • An open in the wire
A9	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A10	WHT/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A17	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
A18	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
A19	RED	Combination light switch ON (≡DC≡) or (≡D)	Connect to ground: Dash lights should come on full bright.	An open in the wire

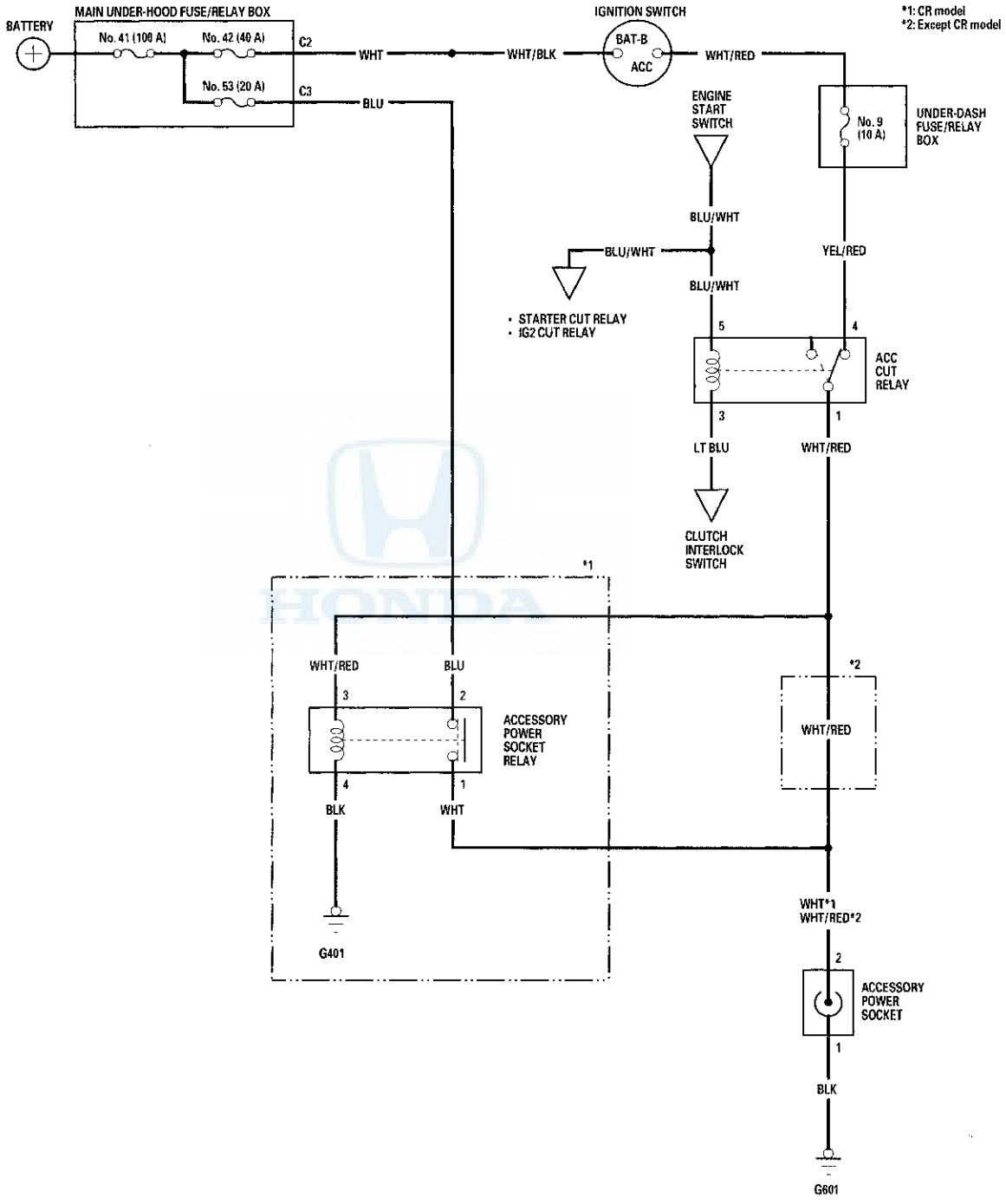
Accessory Power Sockets

Component Location Index



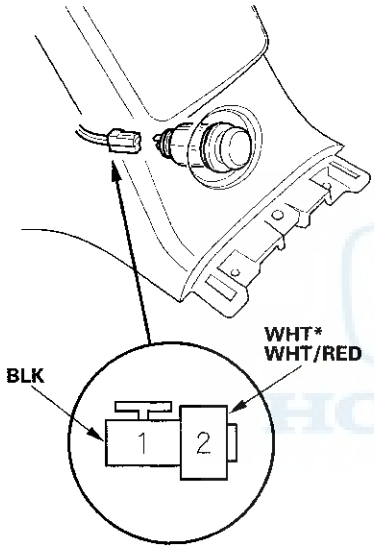
Accessory Power Sockets

Circuit Diagram



Accessory Power Socket Test/Replacement

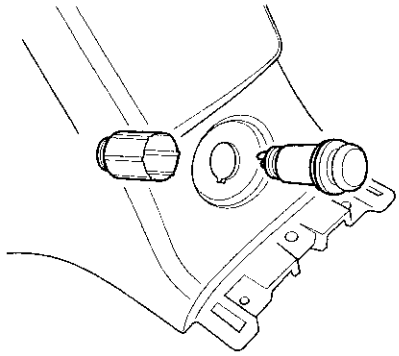
1. Remove the rear console (see page 20-82).
2. Disconnect the 2P connector.
3. Inspect the connector terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.



Wire side of female terminals

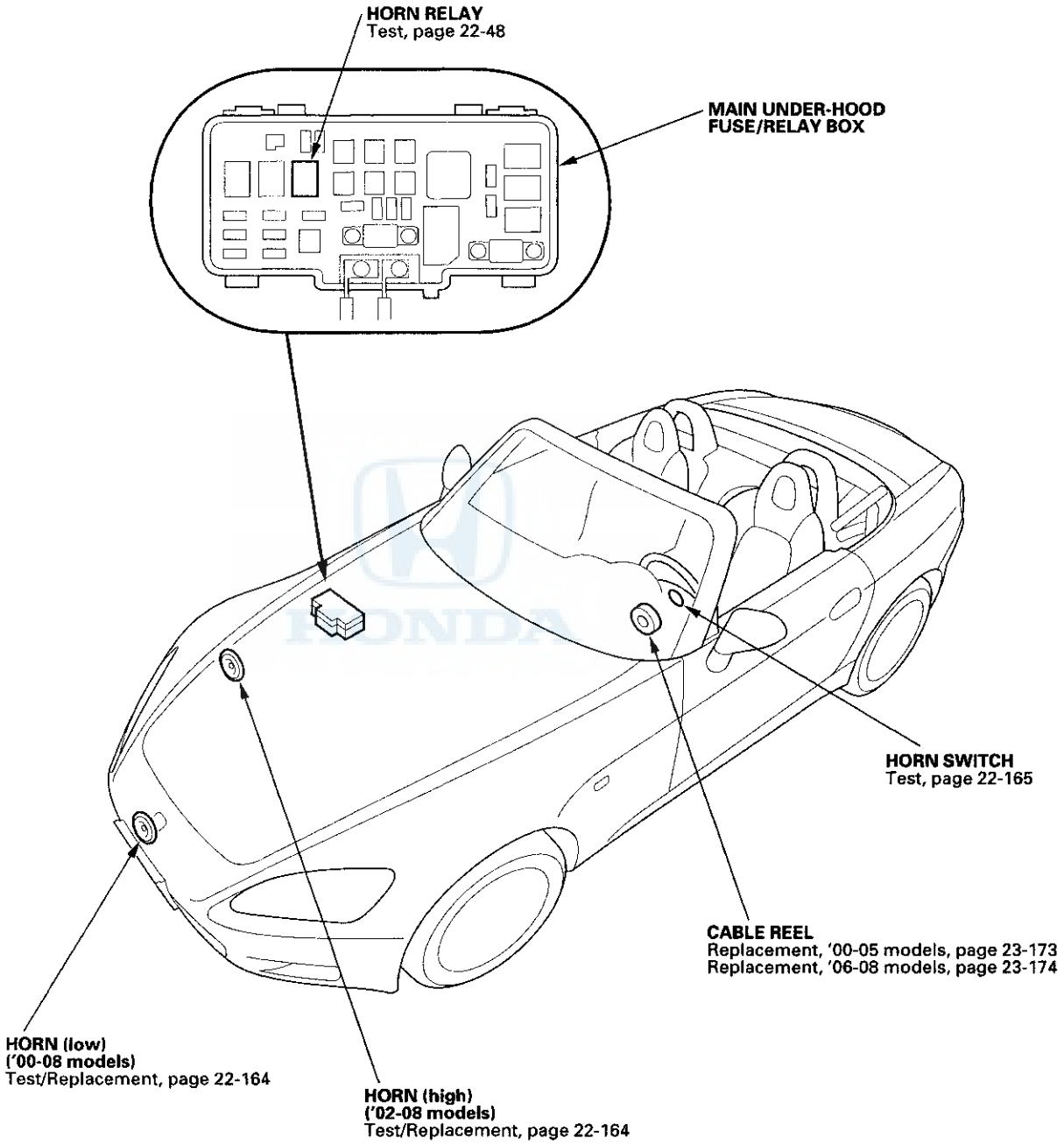
***: CR model**

4. Turn the ignition switch ACC (I), and measure the voltage between the No. 1 and No. 2 terminals.
   - There should be battery voltage.
   - If there is no voltage, check for:
     - Blown No. 9 (10 A) fuse in the under-dash fuse/relay box
     - Blown No. 53 (20 A) fuse in the main under-hood fuse/relay box (CR model)
     - Faulty ACC cut relay
     - Faulty accessory power socket relay (CR model)
     - Poor ground (G 601)
     - Poor ground (G 401) (CR model)
     - An open in the wire
5. Remove the housing and socket.



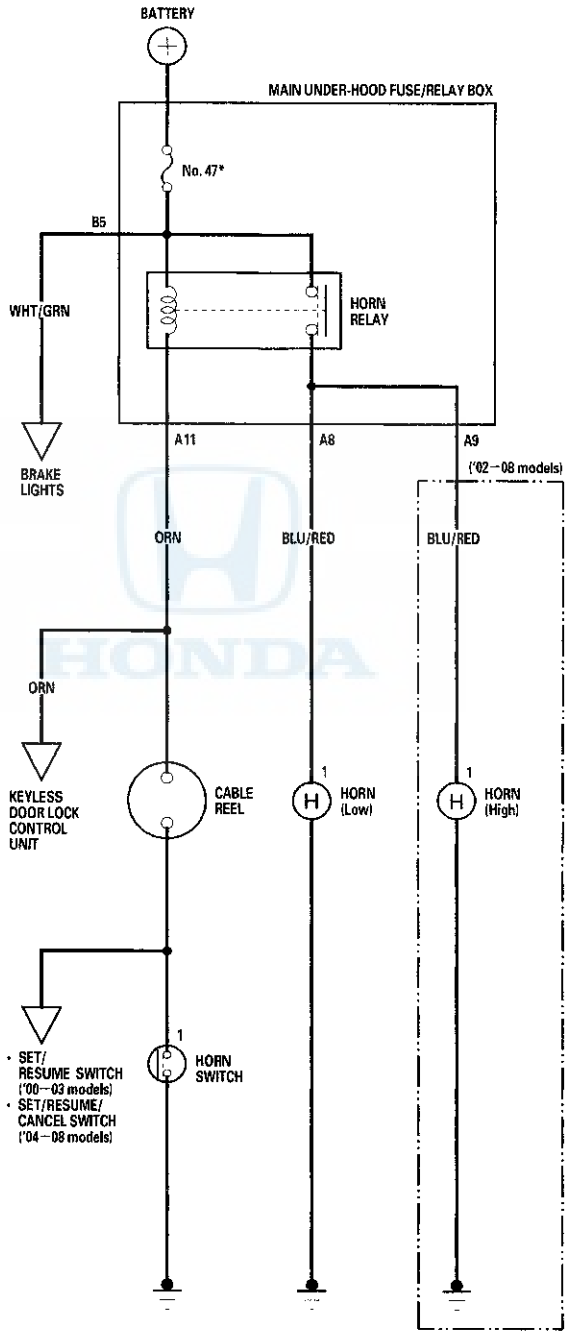
Horns

Component Location Index



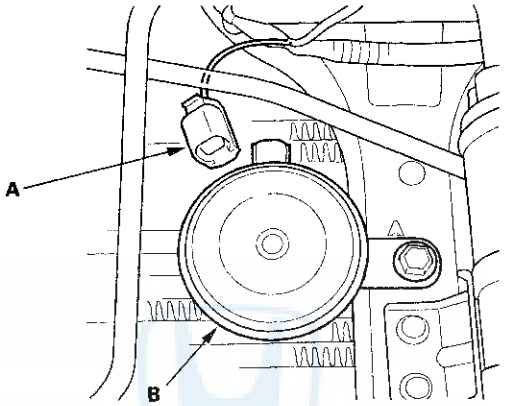
Circuit Diagram

* 10 A : '00–01 models
15 A : '02–08 models

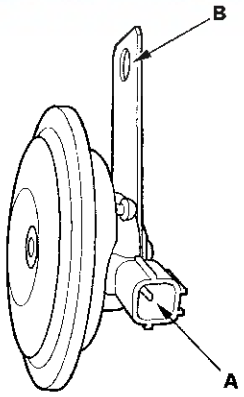


Horn Test/Replacement

1. Remove the front bumper '00-03 models (see page 20-104); '04-08 models (see page 20-105); CR model (see page 20-106).
2. Open the hood ('02-08 models).
3. Disconnect the 1P connector (A), and remove the horn (B).



4. Test the horn by connecting battery power to the terminal (A) and grounding to the bracket (B). The horn should sound.

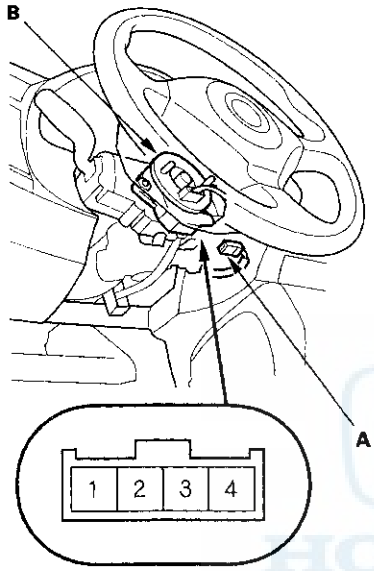


5. If it fails to sound, replace it.

Horn Switch Test

1. Remove the steering column upper and lower cover (see page 17-9).

2. Disconnect the dashboard wire harness B 4P connector (A) from the cable reel (B).



3. Check for continuity between the cable reel No. 2 terminal and body ground in each switch position according to the table.

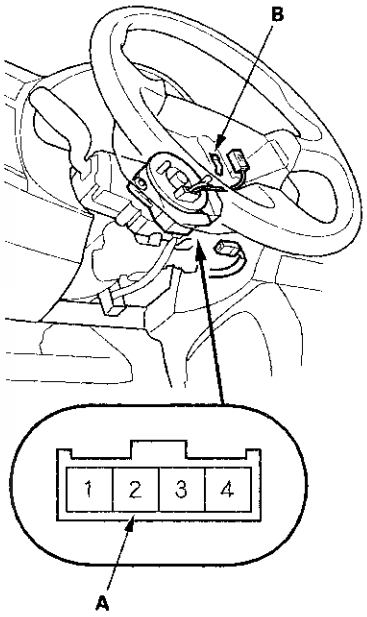
   - If there is continuity, the horn switch is OK.
   - If there is no continuity, go to step 4.

Terminal / Position	2	Body ground
Pushed	○———	———○
Released		

4. Remove the driver's airbag (see page 23-164).

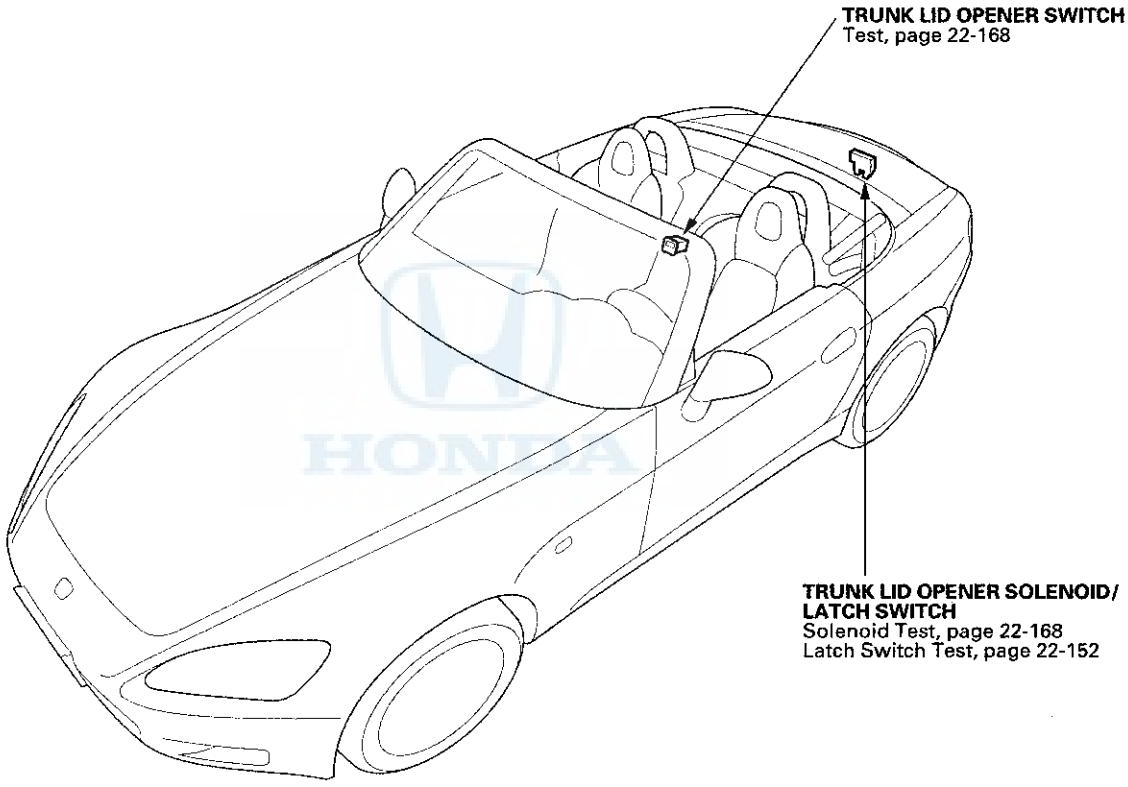
5. Check for continuity between the cable reel No. 2 terminal (A) and the horn switch positive terminal (B).

   - If there is no continuity, replace the cable reel, '00-05 models (see page 23-173); '06-08 models (see page 23-174) and check for proper operation.
   - If there is continuity, replace the horn switch.

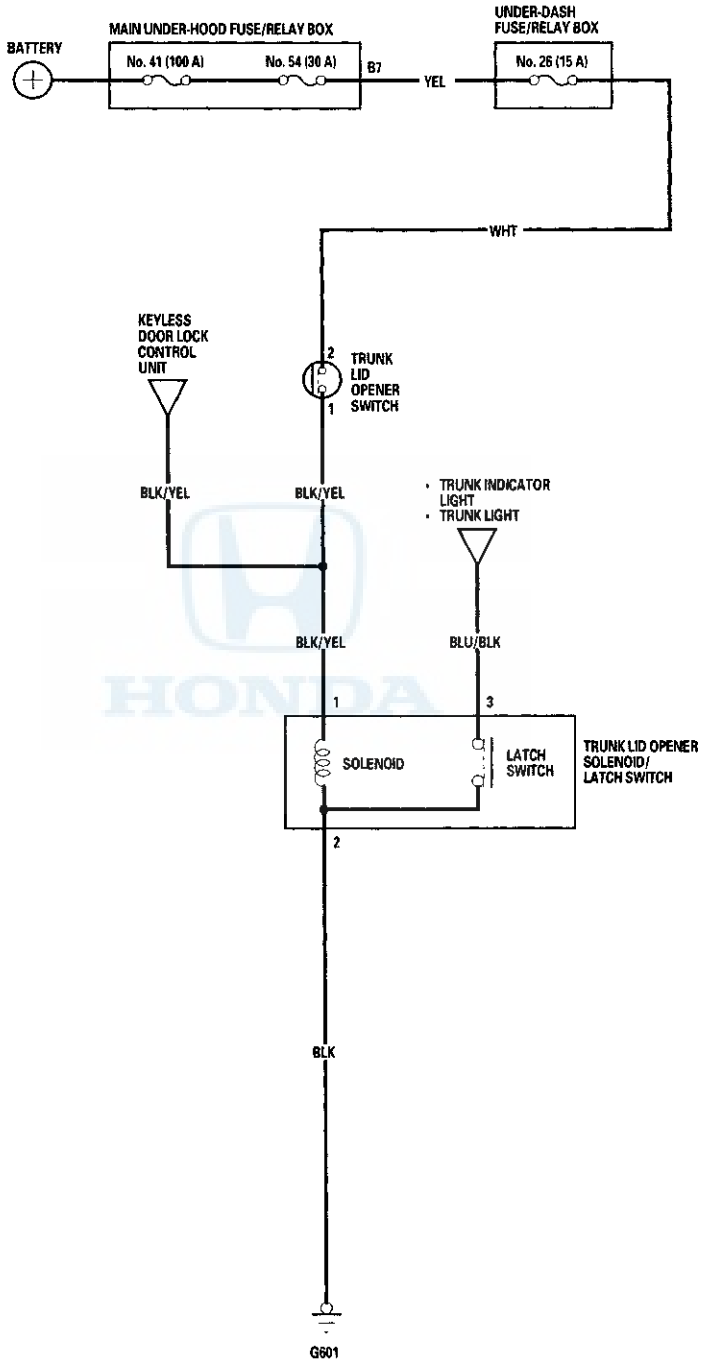


Trunk Lid Opener

Component Location Index



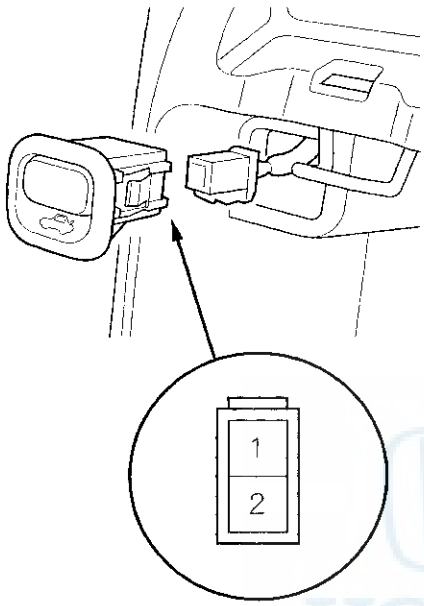
Circuit Diagram



Trunk Lid Opener

Trunk Lid Opener Switch Test

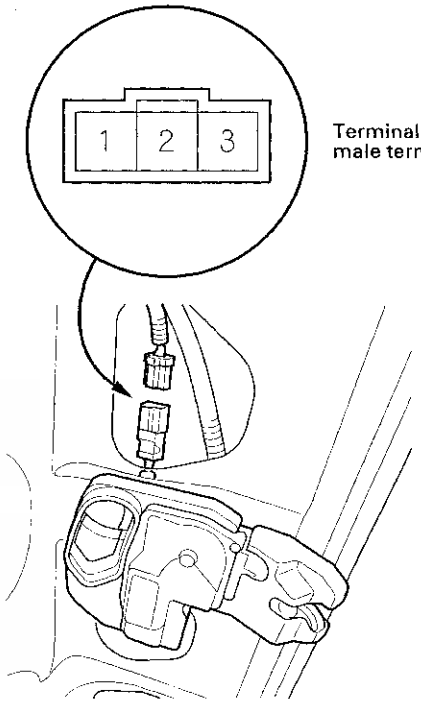
1. Remove the rear console (see page 20-82).
2. Disconnect the 2P connector from the switch.



3. Check for continuity between the No. 1 and No. 2 terminals.
   - There should be continuity when the switch is pushed.
   - There should be no continuity when the switch is released.
4. If the continuity check is not as specified, replace the switch.

Trunk Lid Opener Solenoid Test

1. Open the trunk lid.
2. Disconnect the 3P connector from the trunk lid latch.



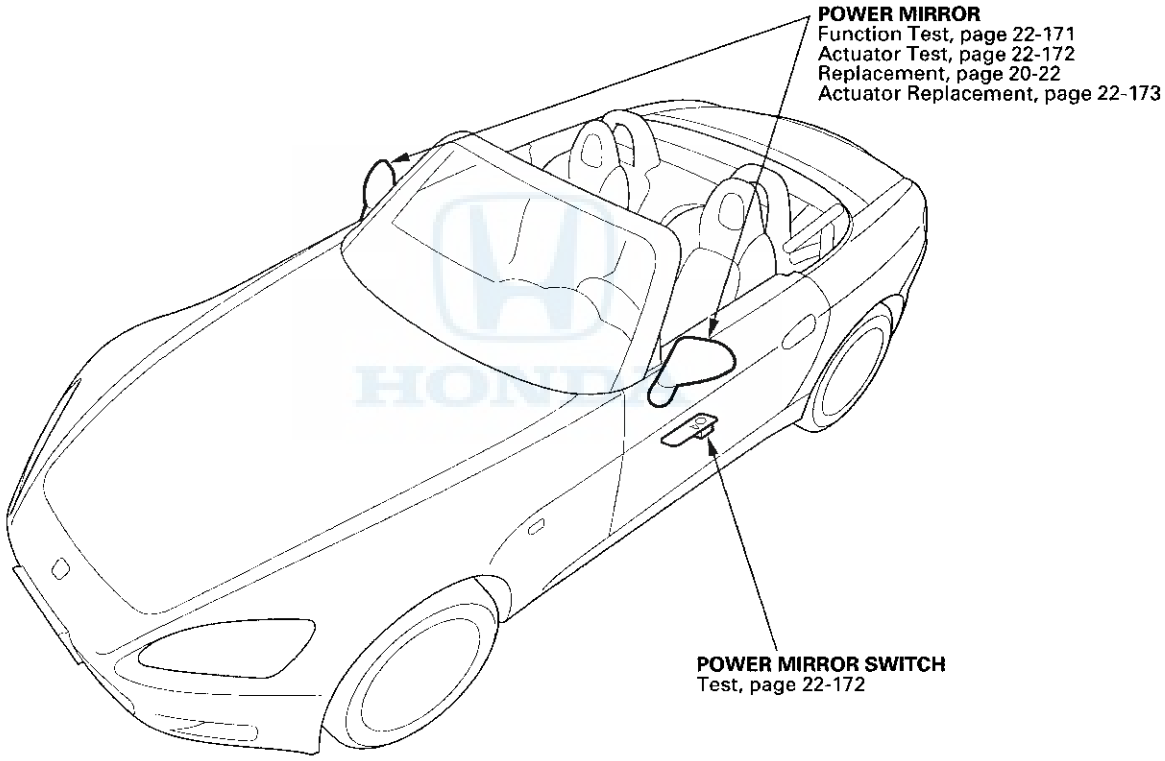
3. Check solenoid operation by connecting power and ground according to the table. To prevent damage to the solenoid, apply battery voltage only momentarily.

Terminal / Position	1	2
UNLOCK	⊕	⊖

4. If the solenoid does not operate as specified, replace it.

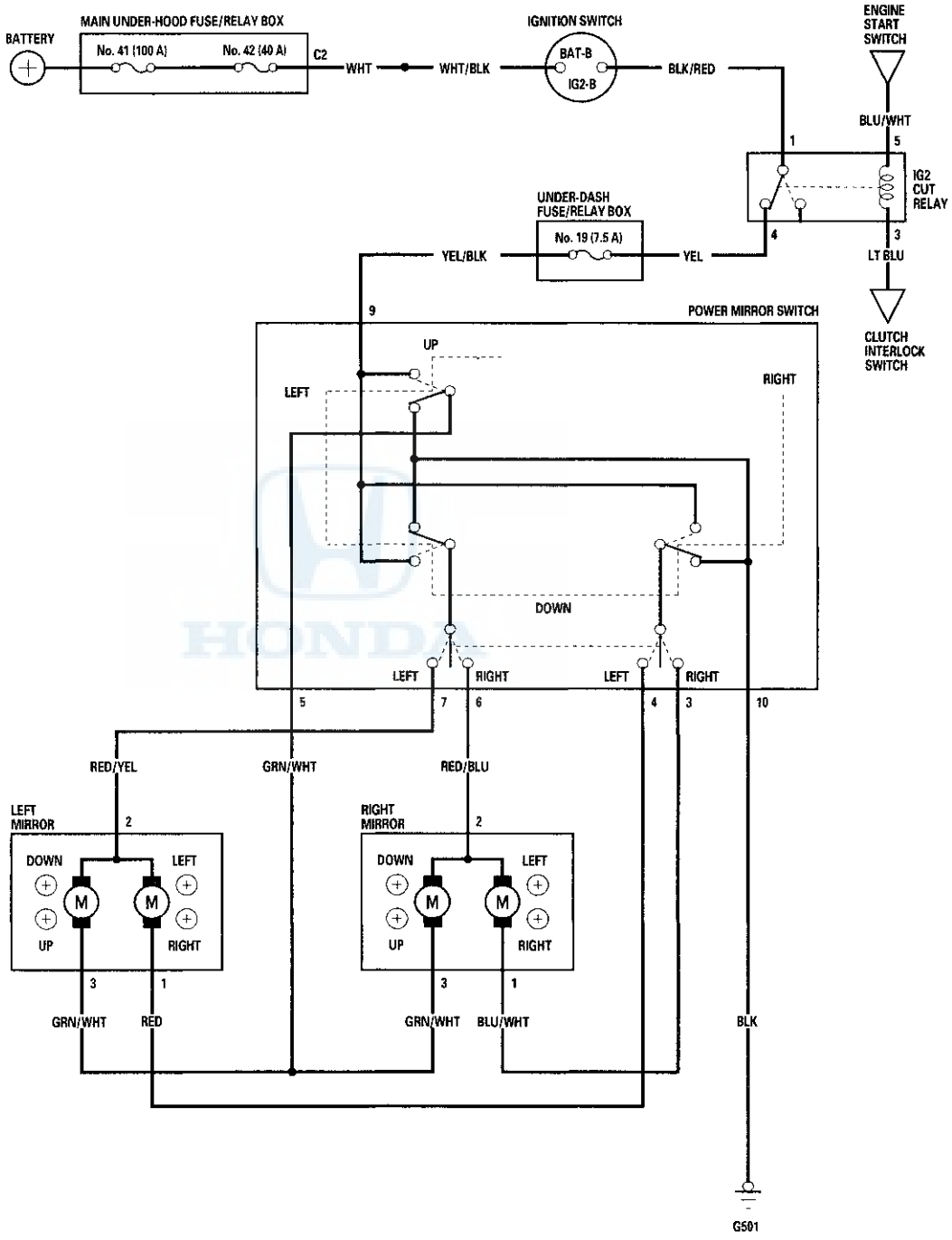
Power Mirrors

Component Location Index



Power Mirrors

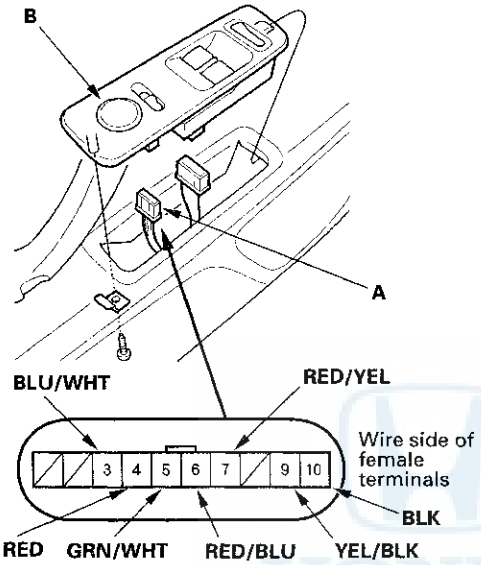
Circuit Diagram



Function Test

1. Remove the driver's door panel (see page 20-5).

2. Disconnect the 10P connector (A) from the power mirror switch (B), and inspect the terminals. If the terminals are OK, go to step 3.



3. Choose the appropriate test based on the symptom:

   - Both mirrors don't work, go to step 4.
   - Left mirror doesn't work, go to step 6.
   - Right mirror doesn't work, go to step 7.

Both mirrors

4. Reconnect the 10P connector, and measure the voltage between the No. 9 terminal and body ground with the ignition switch ON (II).
   There should be battery voltage.
   Move the mirror selector switch to the left or right and hold down the mirror switch in any direction.

   - If there is no battery voltage, check for:
     – Blown No. 19 (7.5 A) fuse in the under-dash fuse/relay box.
     – An open in the YEL/BLK wire.
   - If there is battery voltage, go to step 5.

5. Check for continuity between the No. 10 terminal and body ground.
   Move the mirror selector switch to the left or right and hold down the mirror switch in any direction.
   There should be less than 1 V.

   - If there is no more than 1 V, check for:
     – An open in the BLK wire.
     – Poor ground (G 501).
   - If there is less than 1 V, check both mirrors individually as described.

Left mirror

6. Connect the No. 9 terminal to the No. 7 terminal, and the No. 5 (or No. 4) terminal to body ground with jumper wires. The left mirror should tilt down (or swing left) with the ignition switch ON (II).

   - If the mirror does not tilt down (or does not swing left), check for an open in the GRN/WHT (or RED) wire between the left mirror and the 10P connector. If the wire is OK, check the left mirror actuator.
   - If the mirror neither tilts down nor swings left, repair the RED/YEL wire.
   - If the mirror works properly, check the mirror switch.

Right mirror

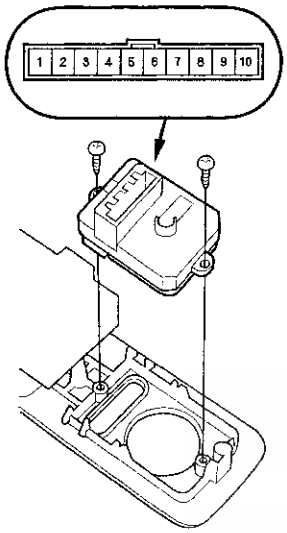
7. Connect the No. 9 terminal to the No. 6 terminal, and the No. 5 (or No. 3) terminal to body ground with jumper wires. The right mirror should tilt down (or swing left) with the ignition switch ON (II).

   - If the mirror does not tilt down (or does not swing left), check for an open in the GRN/WHT (or BLU/WHT) wire between the right mirror and the 10P connector.
     If the wire is OK, check the right mirror actuator.
   - If the mirror neither tilts down nor swings left, repair the RED/BLU wire.
   - If the mirror works properly, check the mirror switch.

Power Mirrors

Power Mirror Switch Test

1. Remove the driver's door panel (see page 20-5).
2. Disconnect the 10P connector from the power mirror switch.



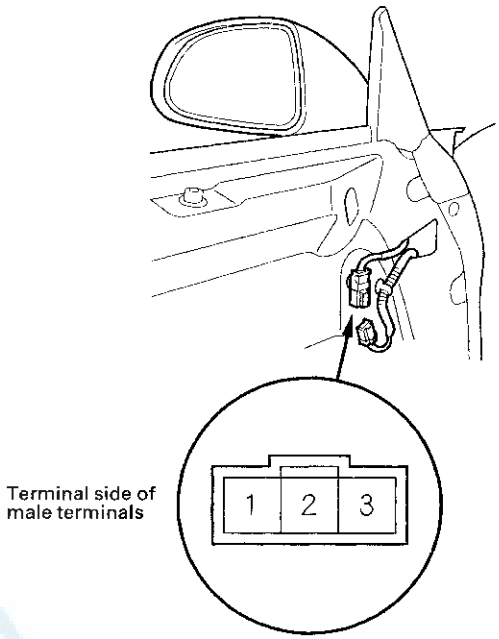
3. Check for continuity between the terminals in each switch position according to the table.

	Terminal / Position	3	4	5	6	7	9	10
L.	UP		○	○		○	○	○
	DOWN		○		○	○	○	
	LEFT			○	○	○	○	
	RIGHT		○		○		○	
	OFF		○	○	○			
R.	UP	○		○			○	○
	DOWN	○			○		○	
	LEFT	○		○	○		○	
	RIGHT	○			○		○	
	OFF	○		○	○			

4. If the continuity is not as specified, replace the switch.

Power Mirror Actuator Test

1. Remove the door panel (see page 20-5).
2. Disconnect the 3P connector from the power mirror.



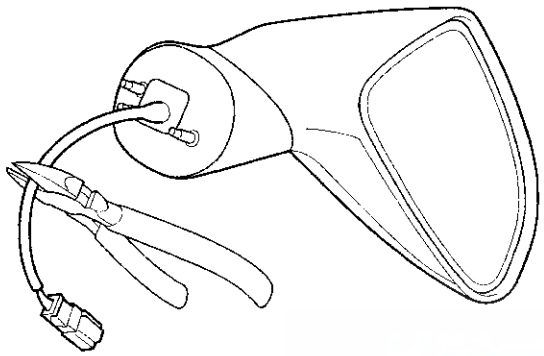
3. Check actuator operation by connecting power and ground according to the table.

Terminal / Position	1	2	3
TILT UP		⊖	⊕
TILT DOWN		⊕	⊖
SWING LEFT	⊖	⊕	
SWING RIGHT	⊕	⊖	

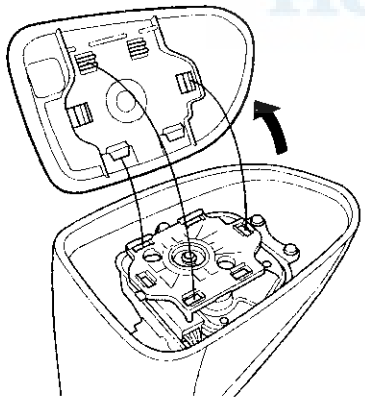
4. If the mirror fails to work properly, replace the mirror actuator.

Power Mirror Actuator Replacement

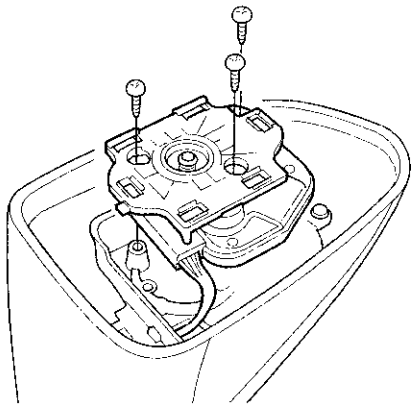
1. Remove the power mirror from the door (see page 20-22).
2. Record the terminal locations and wire colors.
3. Cut the wire harness with a wire cutter.



4. Carefully pull out the bottom edge of the mirror holder by hand.
5. Separate the mirror holder from the actuator by slowly pulling them apart.

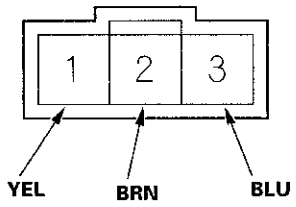


6. Remove the screws and the actuator from the housing.



7. Route the wire harness of the new actuator through the hole of the mirror housing, then install the new actuator in the reverse order of removal.
8. Insert the terminals into the connector in the original arrangement as shown.

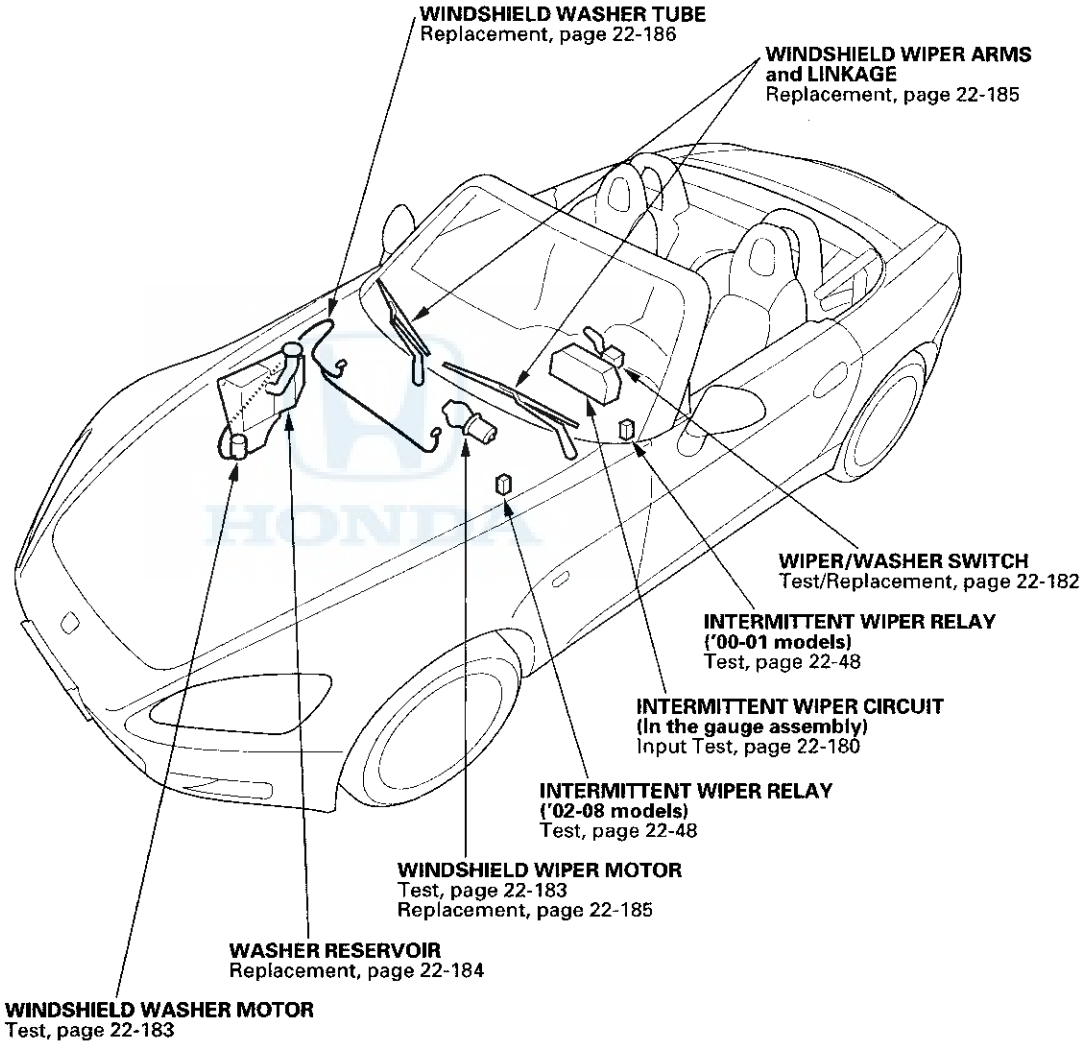
Left and right



Terminal side of male terminals

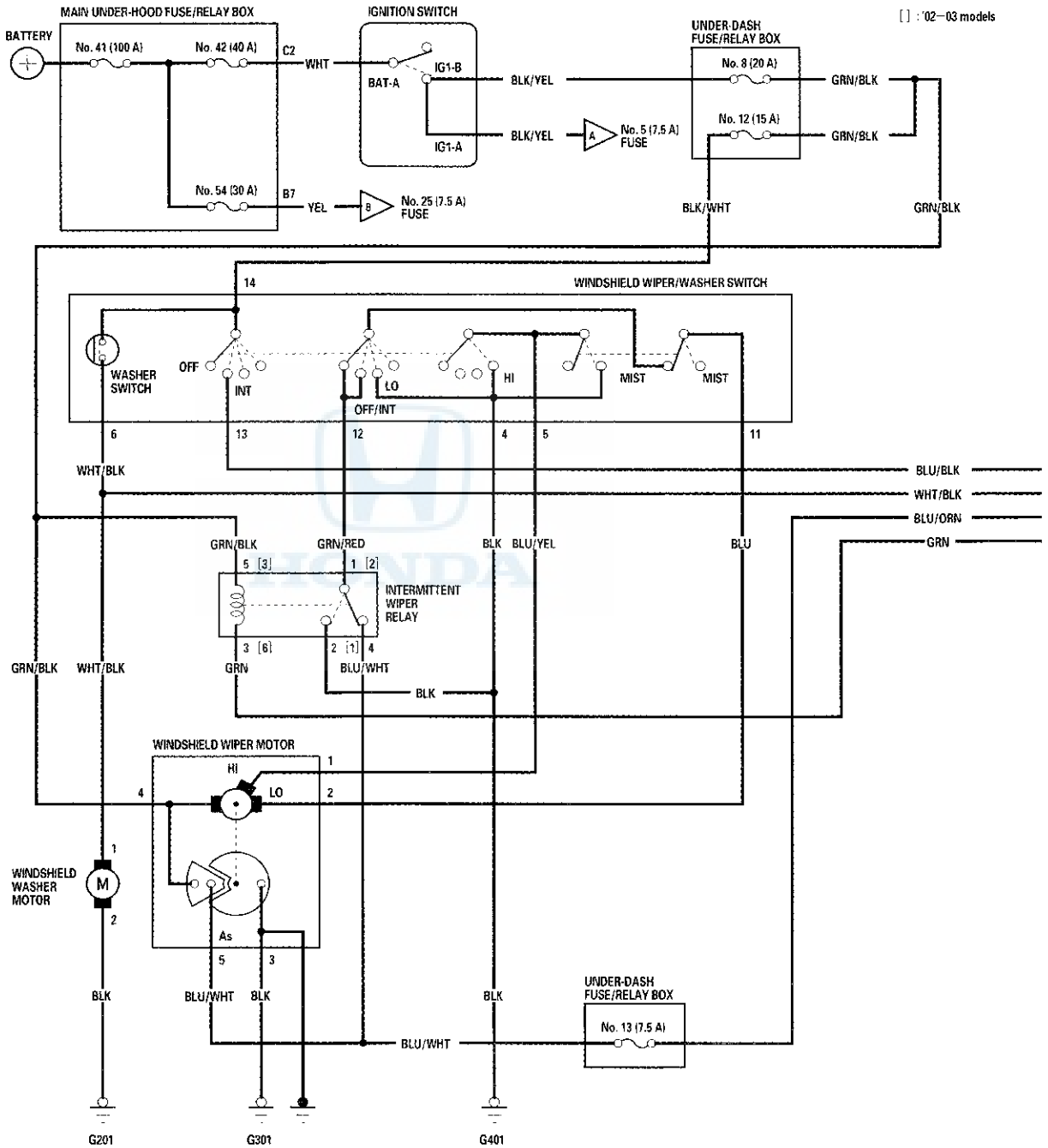
9. Reassemble the mirror in the reverse order of disassembly.
   Be careful not to break the mirror holder when reinstalling it to the actuator.
10. Operate the power mirror to check that the actuator works smoothly.

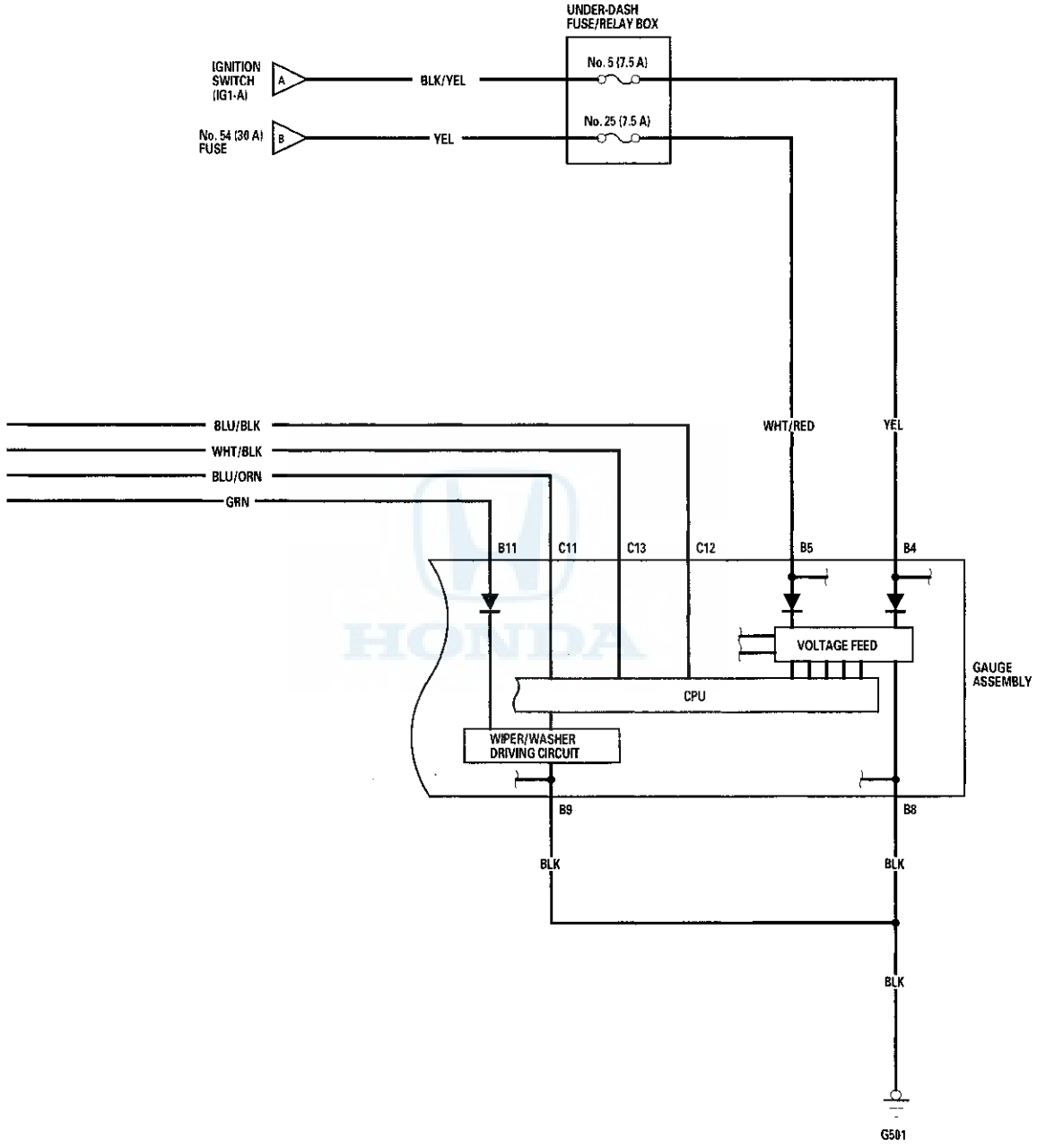
Component Location Index



Circuit Diagram

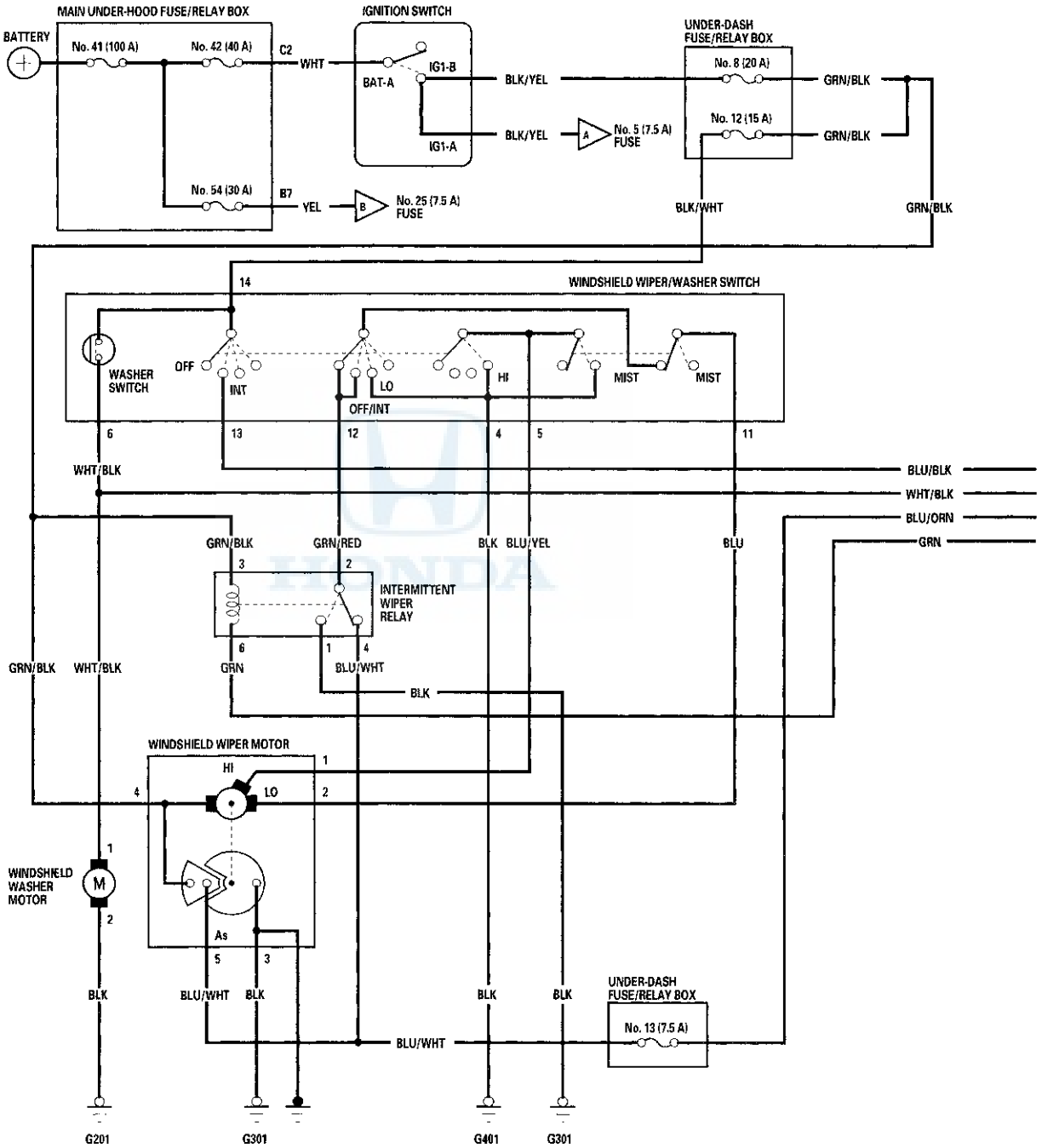
'00-03 models

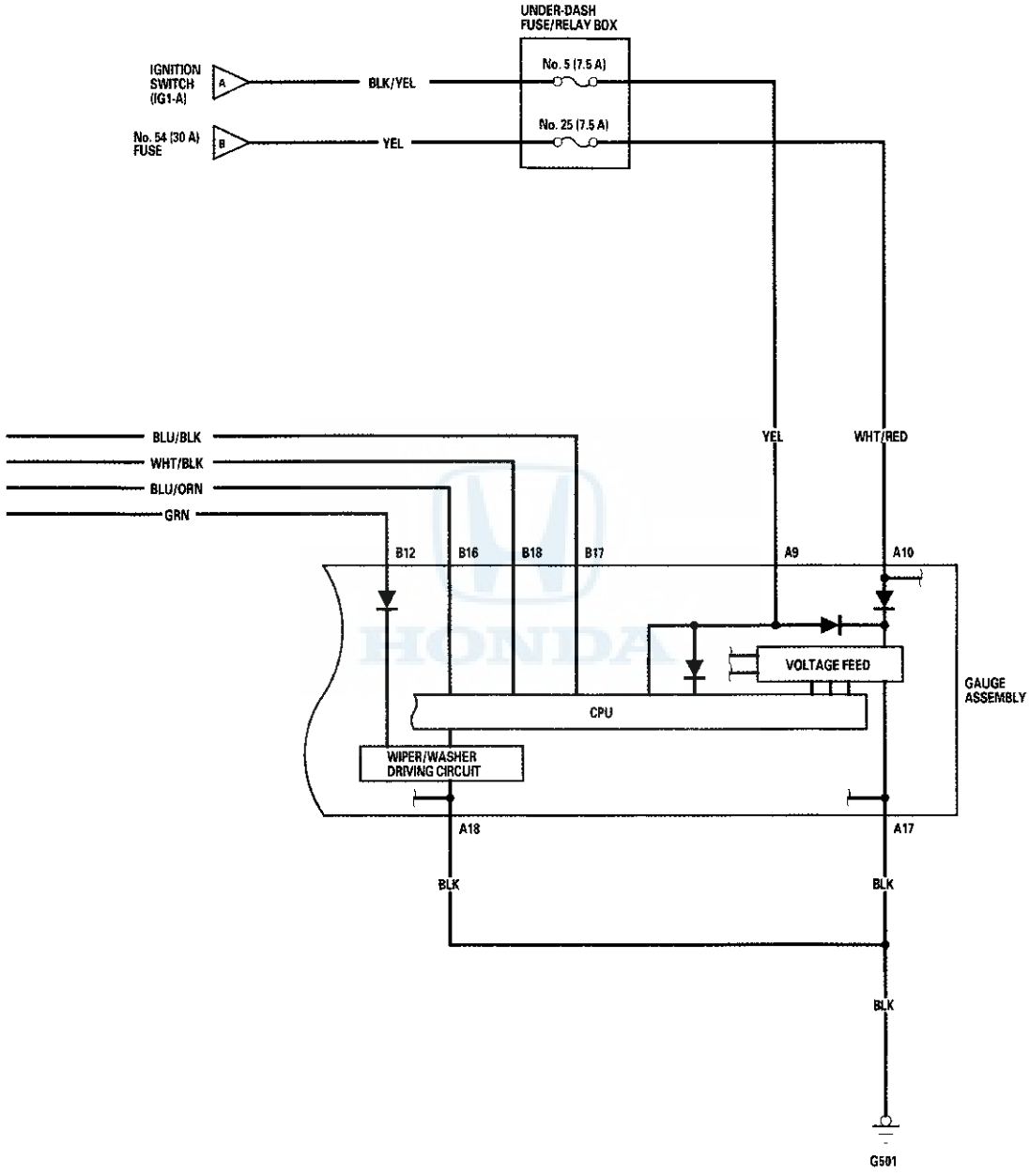



UNDER-DASH FUSE/RELAY BOX
IGNITION SWITCH (IG1-A)
A
BLK/YEL
No. 5 (7.5 A)
No. 54 (30 A) FUSE
B
YEL
No. 25 (7.5 A)
BLU/BLK
WHT/BLK
BLU/ORN
GRN
WHT/RED
YEL
B11
C11
C13
C12
B5
B4
VOLTAGE FEED
GAUGE ASSEMBLY
CPU
WIPER/WASHER DRIVING CIRCUIT
B9
B8
BLK
BLK
BLK
G501

Circuit Diagram (cont'd)

'04-08 models

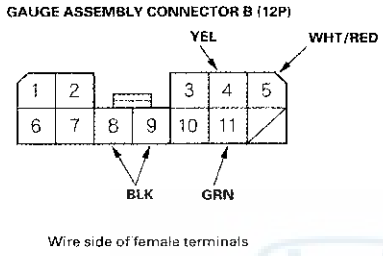


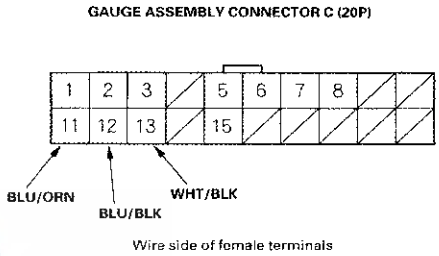

UNDER-DASH FUSE/RELAY BOX
No. 5 (7.5 A)
No. 25 (7.5 A)
IGNITION SWITCH (IG1-A)
A
BLK/YEL
No. 54 (30 A) FUSE
B
YEL
BLU/BLK
WHT/BLK
BLU/ORN
GRN
YEL
WHT/RED
B12
B16
B18
B17
A9
A10
VOLTAGE FEED
CPU
WIPER/WASHER DRIVING CIRCUIT
GAUGE ASSEMBLY
A18
A17
BLK
BLK
BLK
G501

Intermittent Wiper Circuit Input Test

'00-03 models

1. Remove the gauge assembly (see page 22-89).
2. Inspect the all connectors and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.



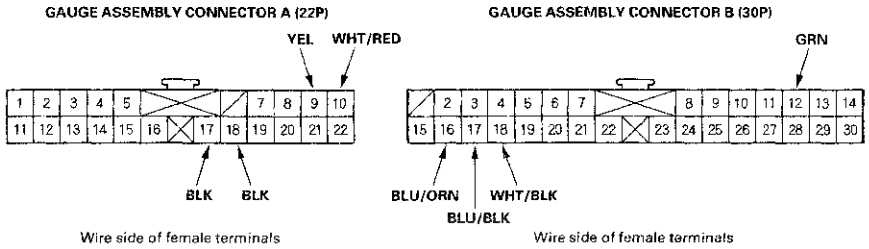


3. Reconnect the gauge assembly.
4. Make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the gauge assembly must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
B4	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B5	WHT/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 54 (30 A) fuse in the main under-hood fuse/relay box • Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
B8 B9	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
B11	GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 8 (20 A) fuse in the under-dash fuse/relay box • Faulty Intermittent wiper relay • An open in the wire
C11	BLU/ORN	Ignition switch ON (II), wiper switch OFF (PARKED)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5 A) fuse in the under-dash fuse/relay box • Faulty wiper motor • An open in the wire
C12	BLU/BLK	Ignition switch ON (II) and wiper switch at INT	Measure the voltage to ground: There should be battery voltage.	• Blown No. 12 (15 A) fuse in the under-dash fuse/relay box • Faulty wiper switch • An open in the wire
C13	WHT/BLK	Ignition switch ON (II) and washer switch ON	Measure the voltage to ground: There should be battery voltage.	• Blown No. 12 (15 A) fuse in the under-dash fuse/relay box • Faulty washer switch • An open in the wire

'04-08 models

1. Remove the gauge assembly (see page 22-89).
2. Inspect the all connectors and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

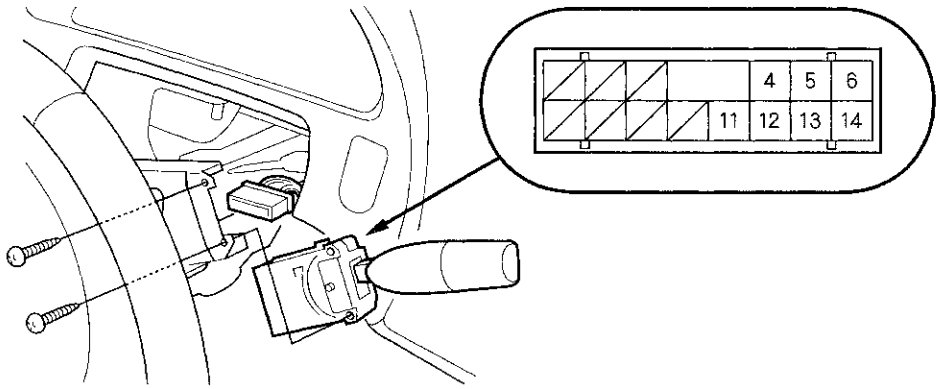


3. Reconnect the gauge assembly.
4. Make these input tests at the connector.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the gauge assembly must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A9	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A10	WHT/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 54 (30 A) fuse in the main under-hood fuse/relay box • Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A17 A18	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
B12	GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 8 (20 A) fuse in the under-dash fuse/relay box • Faulty Intermittent wiper relay • An open in the wire
B16	BLU/ORN	Ignition switch ON (II), wiper switch OFF (PARKED)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 13 (7.5 A) fuse in the under-dash fuse/relay box • Faulty wiper motor • An open in the wire
B17	BLU/BLK	Ignition switch ON (II) and wiper switch at INT	Measure the voltage to ground: There should be battery voltage.	• Blown No. 12 (15 A) fuse in the under-dash fuse/relay box • Faulty wiper switch • An open in the wire
B18	WHT/BLK	Ignition switch ON (II) and washer switch ON	Measure the voltage to ground: There should be battery voltage.	• Blown No. 12 (15 A) fuse in the under-dash fuse/relay box • Faulty washer switch • An open in the wire

Wiper/Washer Switch Test/Replacement

1. Lower the steering column, and remove the steering column covers (see page 17-9).
2. Disconnect the 14P connector from the wiper/washer switch.

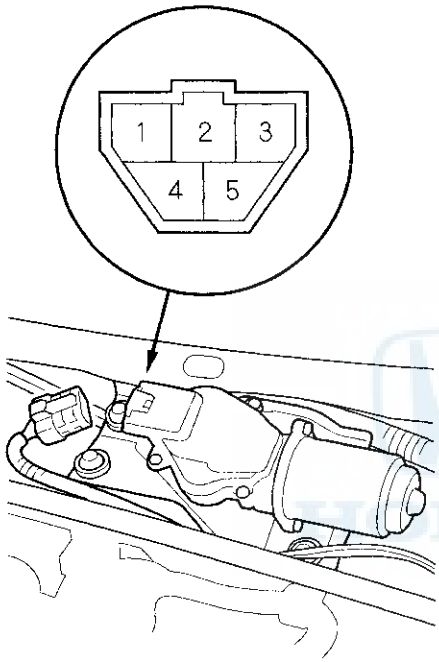


3. Remove the two screws, then pull out the wiper/washer switch.
4. Check for continuity between the terminals in each switch position according to the table. If the continuity is not as specified, replace the switch.

Terminal / Position	6	5	4	14	13	12	11
OFF						○	○
INT				○	○	○	○
LO			○	—	—	—	○
HI		○	○				
Mist switch ON		○	○				
Washer switch ON	○	—	—	○			

Wiper Motor Test

1. Open the hood and remove the cap nuts and the wiper arms (see page 22-185).
2. Remove the hood seal and cowl cover (see page 22-185).
3. Disconnect the 5P connector from the wiper motor.



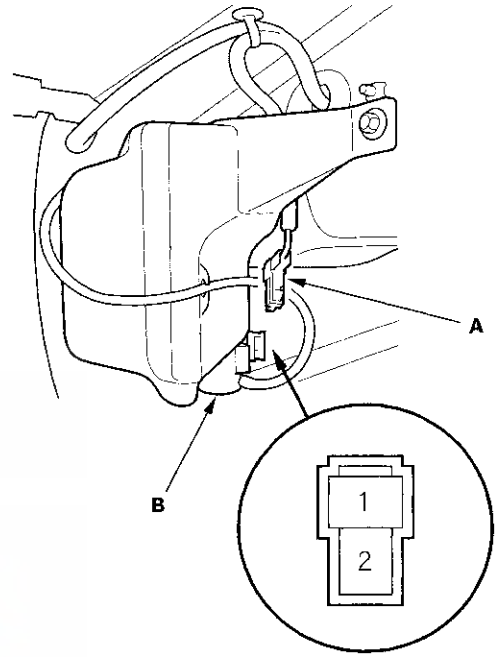
4. Test the motor by connecting battery power and ground according to the table. If the motor does not run or fails to run smoothly, replace the motor.

Terminal / Position	1	2	4
LOW SPEED		⊖	⊕
HIGH SPEED	⊖		⊕

5. Connect the battery power to the No. 4 terminal, and ground to the No. 2 and No. 3 terminals of the 5P connector. Then connect an analog voltmeter between the No. 4 (+) terminal and the No. 5 (−) terminal. When the park switch contacts, the pointer should swing. If not, replace the motor.

Washer Motor Test

1. Remove the right inner fender (see page 20-126).
2. Disconnect the 2P connector (A) from the washer motor (B).

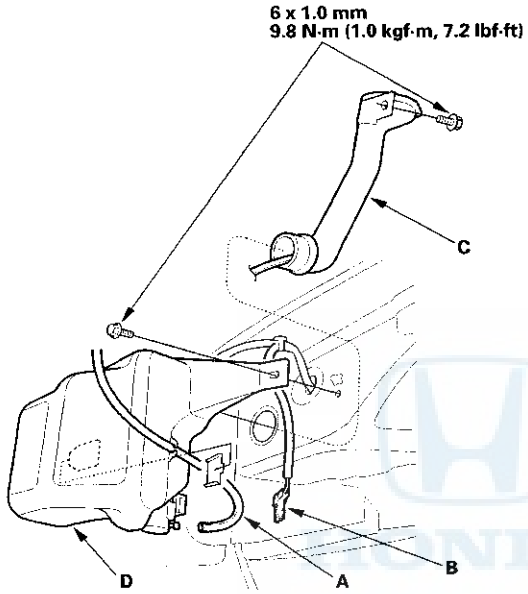


3. Test the washer motor by connecting battery power to terminal No. 1 and ground to terminal No. 2.
4. If the motor does not run or fails to run smoothly, replace the motor.

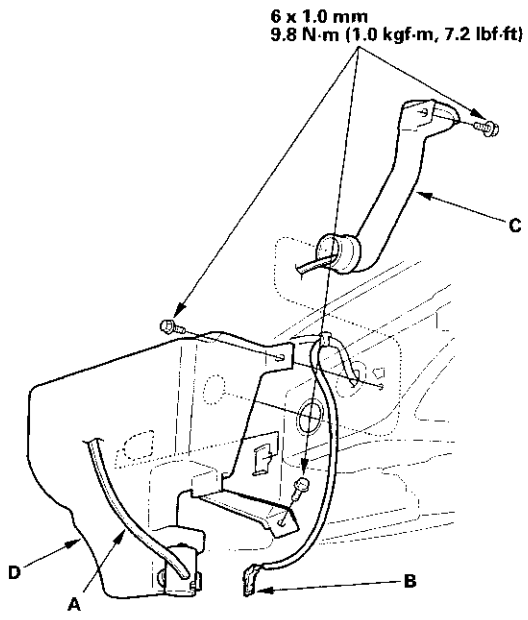
Washer Reservoir Replacement

1. Pull away the right inner fender (see page 20-126).
2. Disconnect the washer tube (A) and washer motor 2P connector (B).

USA models



Canada models



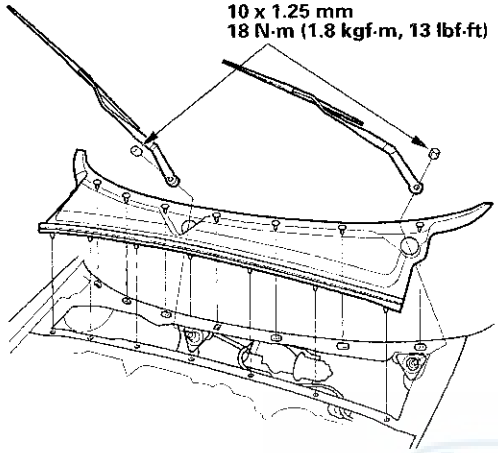
3. Remove the bolts, then separate and remove the filler neck (C) from the washer reservoir (D).

Washer reservoir capacity
USA models: 2.5 L (2.6 US qt)
Canada models: 6.0 L (6.3 US qt)

4. Remove the washer reservoir.
5. Install in the reverse order of removal. Check the washer motor operation.

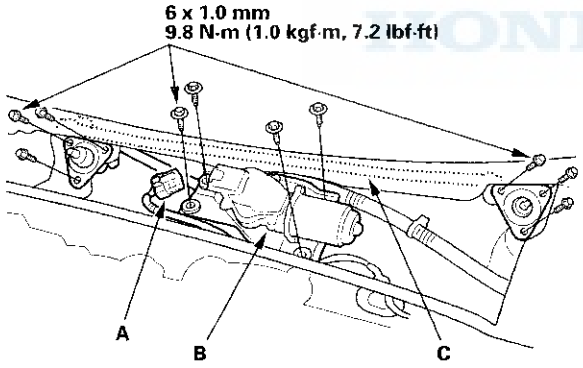
Wiper Motor Replacement

1. Open the hood, and remove the cap nuts and the wiper arms.



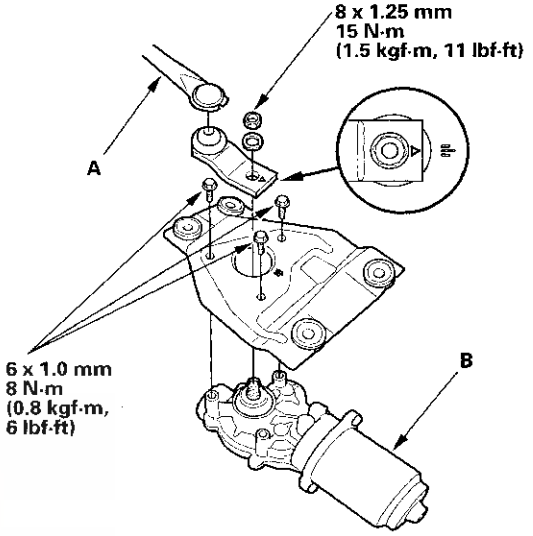
2. Remove the hood seal and cowl cover.

3. Disconnect the 5P connector (A) from the wiper motor (B).



4. Remove the bolts, then remove windshield wiper linkage assembly (C).

5. Remove the three mounting bolts and nut from the wiper linkage (A) to remove the wiper motor (B).

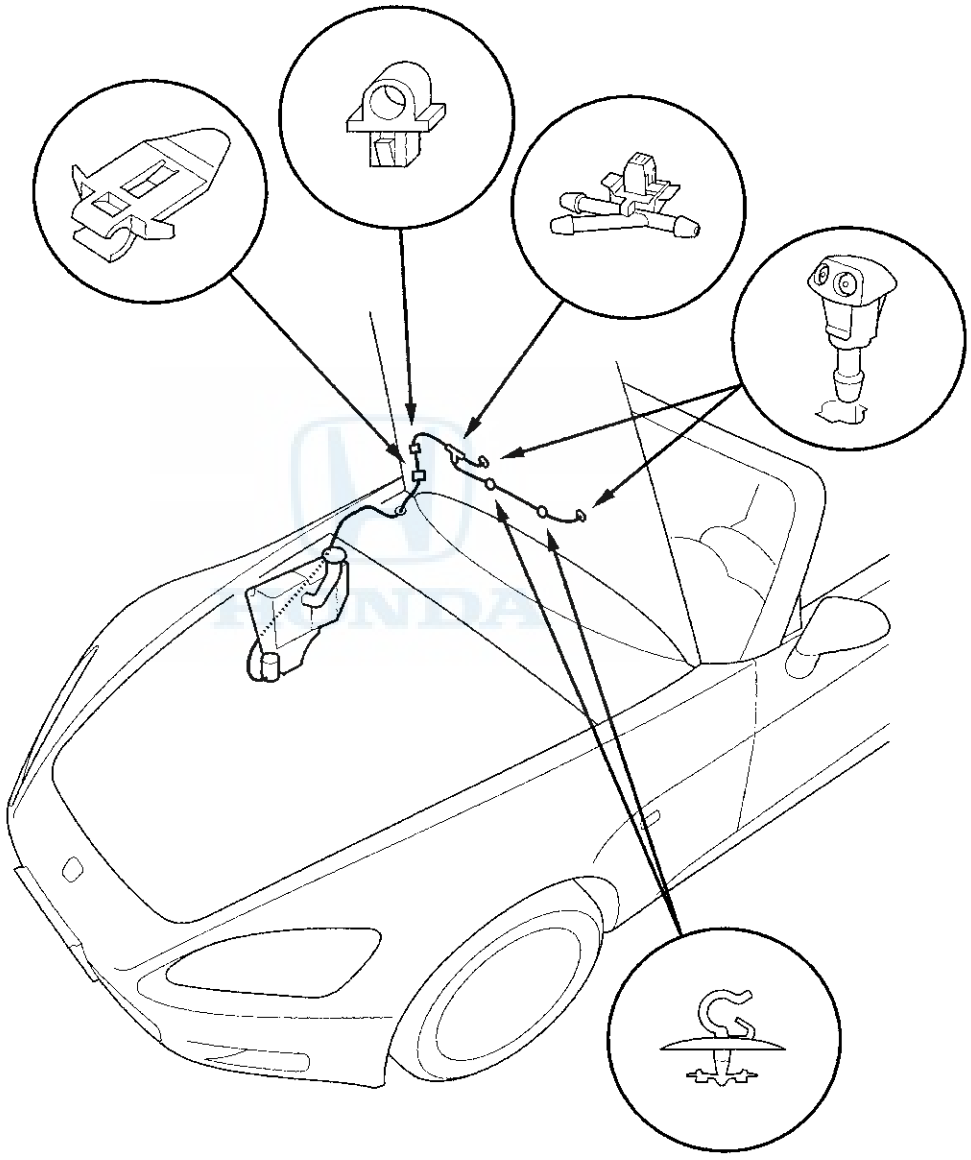


6. Install in the reverse order of removal, and note these items:

- Grease all moving parts.
- Before reinstalling the wiper arms, turn the wiper switch ON, then OFF to return the wiper shafts to the park position.
- If necessary, replace any damaged clips.
- Check the wiper motor operation.

Washer Tube Replacement

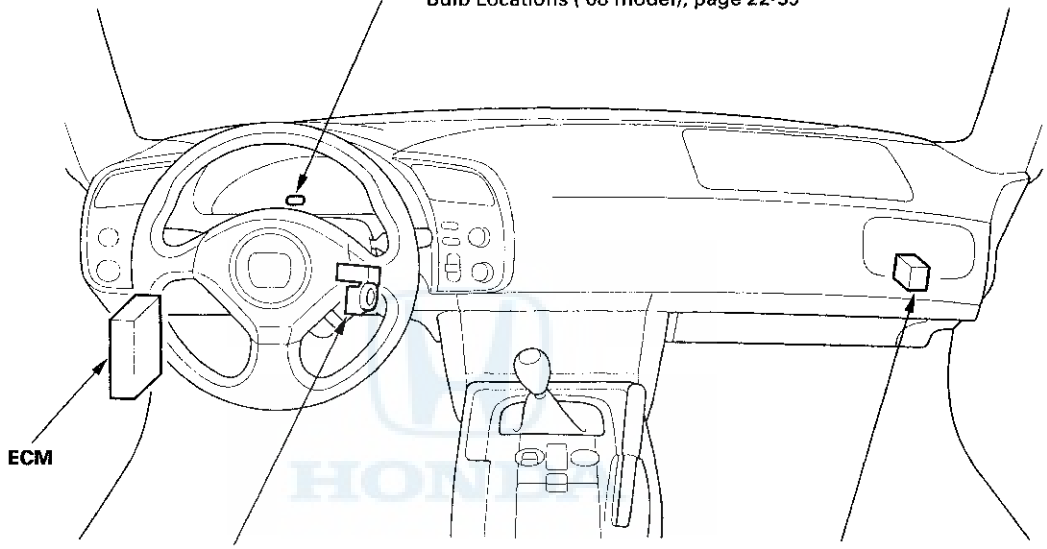
1. Remove the front bumper and the right inner fender (see page 20-126).
2. Remove the washer nozzles and clips, then remove the tube.

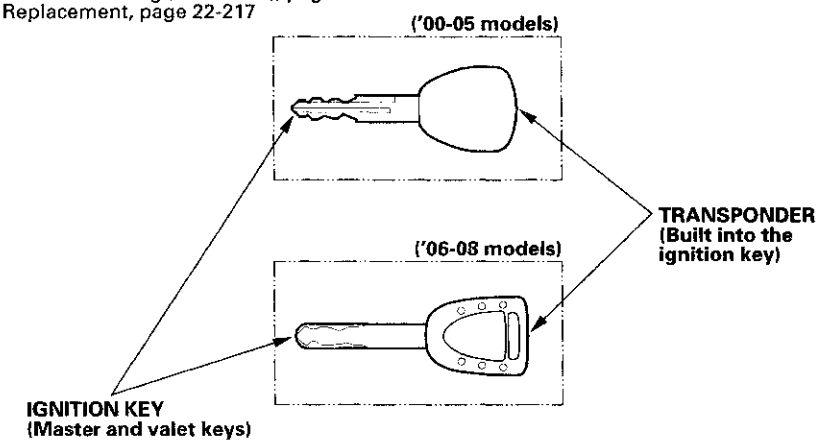


3. Install in the reverse order of removal. Take care not to pinch the washer tube. Check the windshield washer operation.

Immobilizer System

Component Location Index





Immobilizer System

System Description

'00-05 models

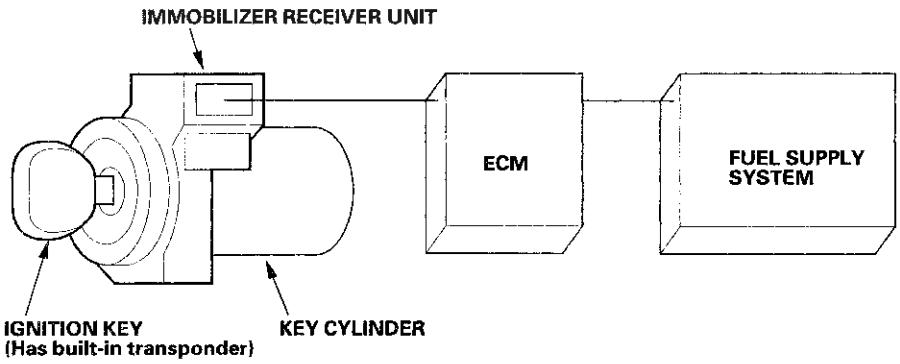
The vehicle is equipped with type II immobilizer system that will disable the vehicle unless the proper ignition key is used. This system consists of a transponder located in the ignition key, an immobilizer receiver unit, an indicator, and the ECM.

The vehicle has two kinds of keys.

- The black master key for:
  - Ignition switch.
  - Door locks.
  - Trunk lock.
  - Center console lock
- The gray valet key for:
  - Ignition switch.
  - Door locks.

When the immobilizer key is inserted into the ignition switch and turned to the ON (II) position, the immobilizer receiver unit sends power to the transponder in the ignition key. The transponder then sends a coded signal back through the immobilizer receiver unit to the ECM.

- The immobilizer system can store up to six key codes.
- If it is necessary to rewrite the ECM, the dealer needs the customer's vehicle, all its master keys and valet keys, and the HDS equipped with the latest version of HDS software. Any key that is not learned during rewriting will no longer start the engine, except T5 keys duplicated with the Ilco Code Key Duplicator.
- It is possible to add ONE new key without reprogramming all of the keys (follow the prompts in the HDS IMMOBI menu).



- If the proper key has been used, the immobilizer indicator will come on for about 2 seconds, then go off. When the ignition switch is turned OFF, the indicator will blink for about 5 seconds to signal that the immobilizer system has been set correctly, then the indicator will go off.
- If the wrong key has been used or the code was not received or recognized by the ECM, the indicator will come on for about 2 seconds, then it will blink until the ignition switch is turned OFF. For accurate immobilizer system diagnosis, get as much information from the customer as possible. A blinking indicator means the key was not recognized.

NOTE: Large metal objects, key fobs, other immobilizer keys, and other transponders can interfere with the immobilizer signal. If an intermittent problem is suspected, remove the ignition key from the key ring.

Problem	Part set	HDS required ?
① Master or valet key has been lost or additional master or valet key is required.	Blank key	YES*
② All master and valet keys have been lost.	Blank key x 2, or 3	YES
③ Immobilizer receiver unit does not work.	Immobilizer receiver unit	NO
④ ECM does not work.	ECM	YES
⑤ Ignition switch does not work.	Ignition switch Master keys, and valet key (rekey all lock cylinders to the new key).	YES
⑥ Door key cylinder is broken.	Door key cylinder (rekey the cylinder)	NO

*: Duplicate keys can be made with Ilco Code Key Duplicator

Immobilizer System

System Description (cont'd)

'06-08 models

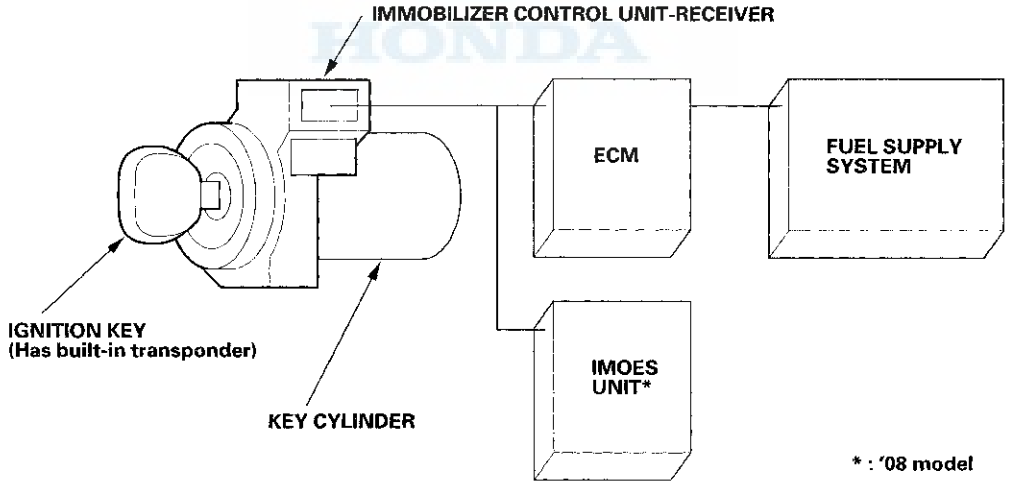
The vehicle is equipped with a type IV immobilizer system that will disable the vehicle unless a programmed ignition key is used.
This system consists of a transponder located in the ignition key, an immobilizer control unit-receiver, an indicator, the imoes unit ('08 model), and the ECM.

'06-07 models

When the immobilizer key is inserted into the ignition switch and turned to the ON (II) position, the immobilizer control unit-receiver sends power to the transponder in the ignition key. The transponder then sends a coded signal back through the immobilizer control unit-receiver to the ECM. The code is a rolling type embedded in the receiver instead of the ECM. A handshake with the HDS is required at ECM repair and replacement, and all keys are required at control unit-receiver repair and replacement.

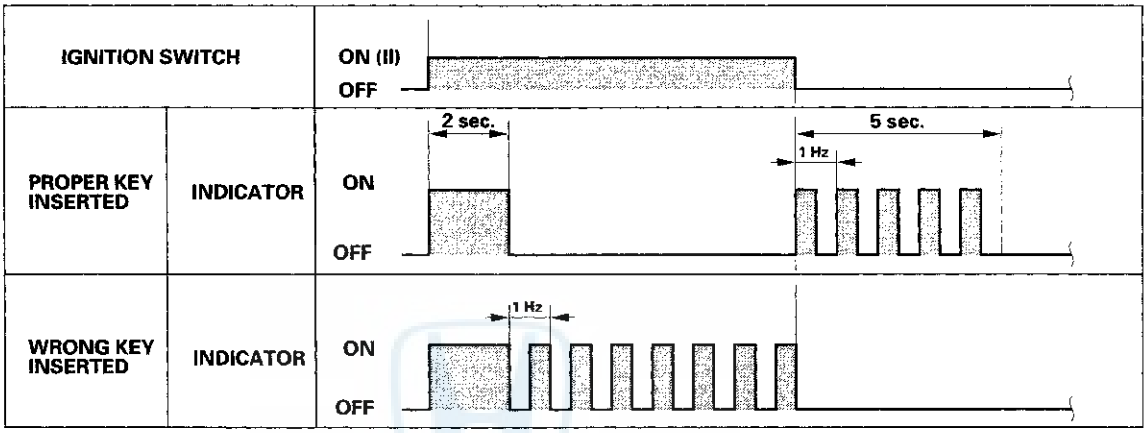
'08 model

When the immobilizer key is inserted into the ignition switch and turned to the ON (II) position, the immobilizer control unit-receiver sends power to the transponder in the ignition key. The transponder then sends a coded signal back to the immobilizer control unit-receiver which sends a coded signal to the imoes unit, which confirms the code and signals the ECM to supply power to the fuel pump circuit.
A communication agreement with the HDS is required if the ECM or the imoes unit is replaced.
When replacing the immobilizer control unit-receiver, all keys are required to be registered in to the new control unit-receiver with the HDS. Any keys that were not registered in the control unit-receiver will not start the vehicle.



- If a programmed key has been used, the immobilizer indicator will come on for about 2 seconds, then go off. When the ignition switch is turned OFF, the indicator will blink for about 5 seconds to signal that the unit has been set correctly, then the indicator will go off.
- If the wrong key has been used whose code was not received or recognized by the system, the indicator will come on for about 2 seconds, then it will blink until the ignition switch is turned OFF.

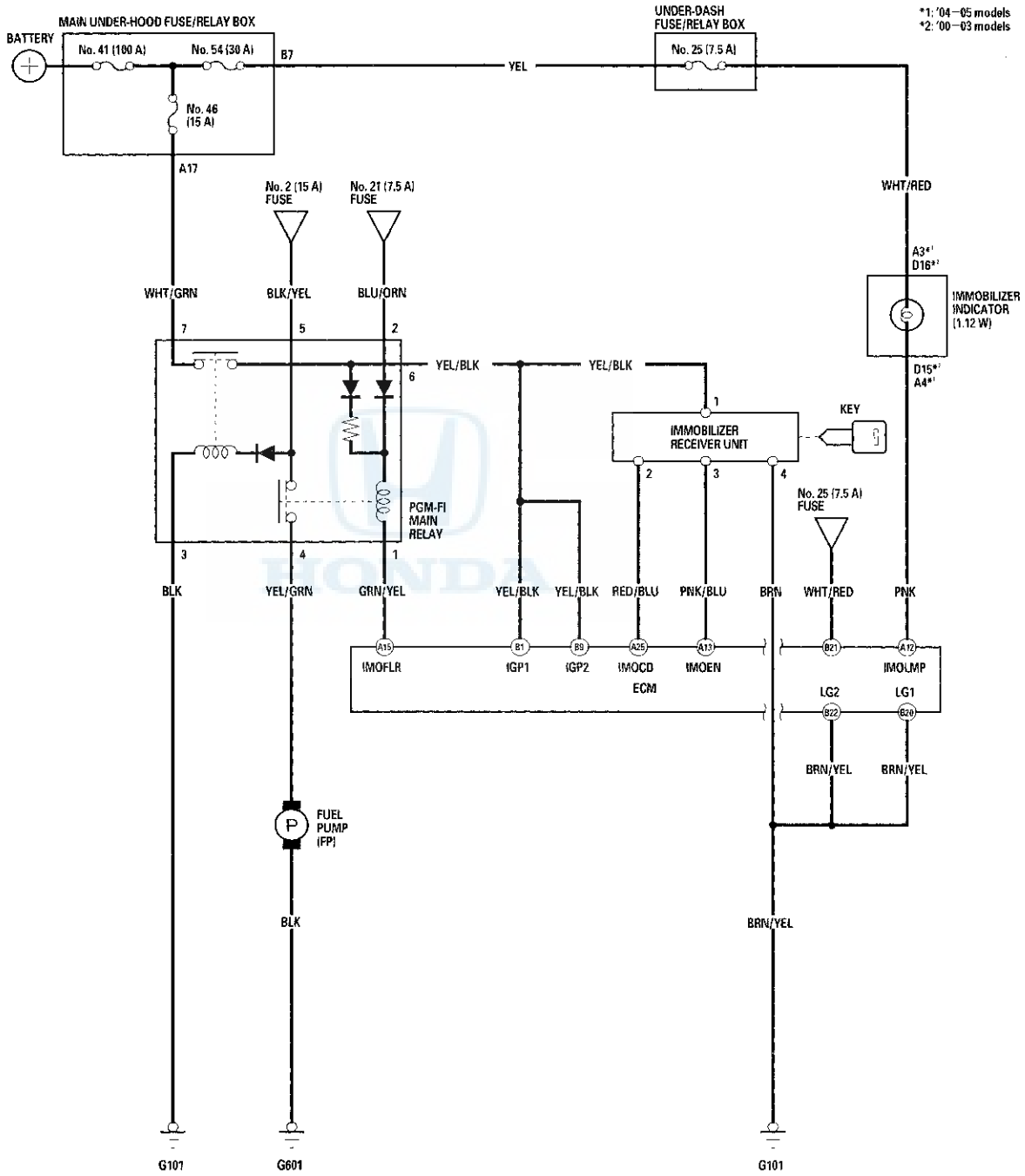
IMMOBILIZER INDICATOR BLINKING PATTERN



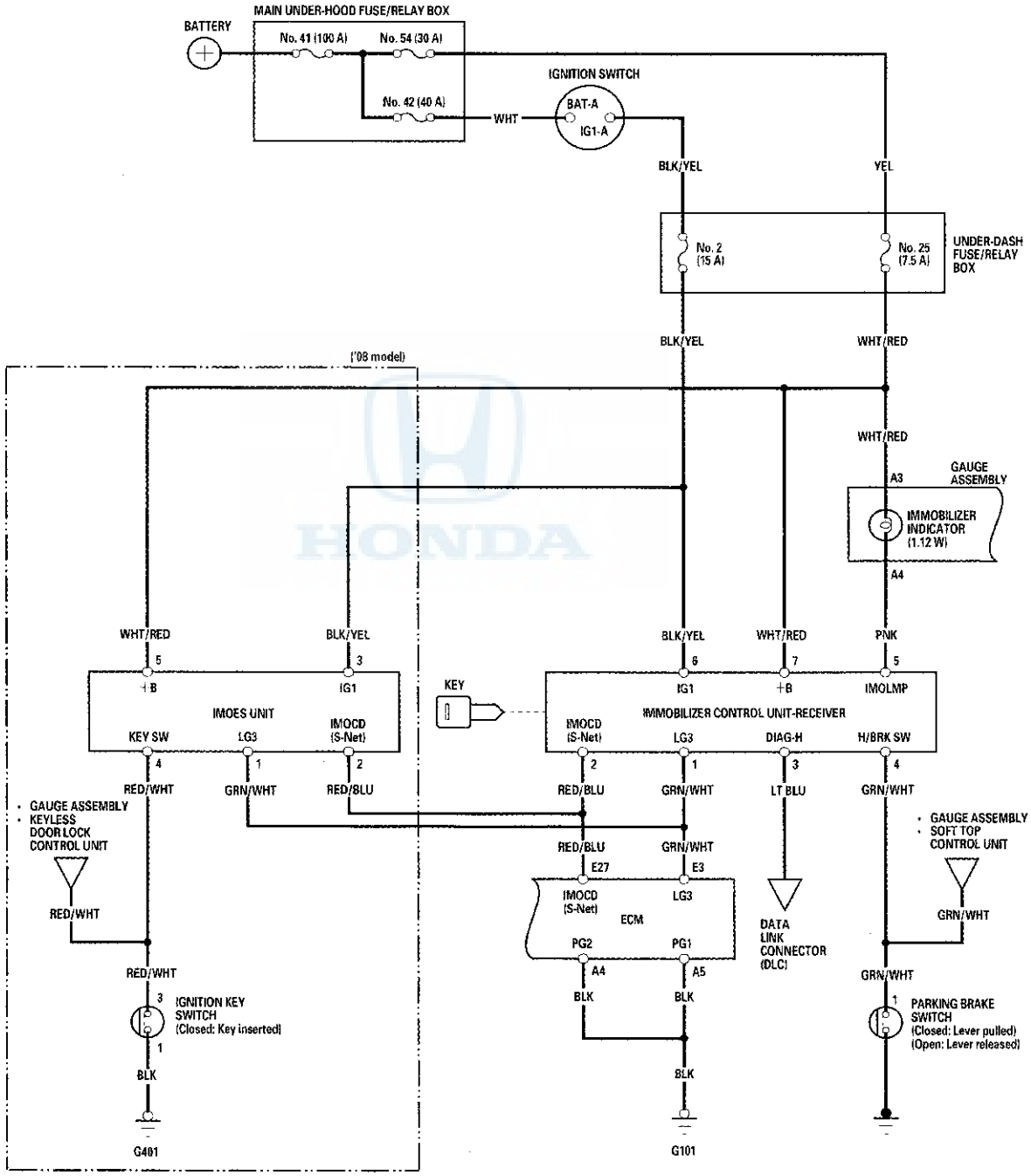
Immobilizer System

Circuit Diagram

'00-05 models



'06-08 models


MAIN UNDER-HOOD FUSE/RELAY BOX
BATTERY
No. 41 (100 A)
No. 54 (30 A)
No. 42 (40 A)
IGNITION SWITCH
BAT-A
IG1-A
WHT
BLK/YEL
YEL
No. 2 (15 A)
No. 25 (7.5 A)
UNDER-DASH FUSE/RELAY BOX
BLK/YEL
WHT/RED
('08 model)
WHT/RED
A3
GAUGE ASSEMBLY
IMMOBILIZER INDICATOR (1.12 W)
A4
WHT/RED
BLK/YEL
BLK/YEL
WHT/RED
PNK
5
3
6
7
5
+B
IG1
IG1
+B
IMOLMP
IMOES UNIT
KEY SW
LG3
IMOCD (S-Net)
KEY
IMMOBILIZER CONTROL UNIT-RECEIVER
IMOCD (S-Net)
LG3
DIAG-H
H/BRK SW
4
1
2
2
1
3
4
RED/WHT
GRN/WHT
RED/BLU
RED/BLU
GRN/WHT
LT BLU
GRN/WHT
• GAUGE ASSEMBLY
• KEYLESS DOOR LOCK CONTROL UNIT
• GAUGE ASSEMBLY
• SOFT TOP CONTROL UNIT
RED/BLU
GRN/WHT
E27
E3
IMOCD (S-Net)
LG3
ECM
PG2
PG1
A4
A5
BLK
BLK
DATA LINK CONNECTOR (DLC)
RED/WHT
GRN/WHT
GRN/WHT
RED/WHT
3
IGNITION KEY SWITCH
(Closed: Key inserted)
1
1
PARKING BRAKE SWITCH
(Closed: Lever pulled)
(Open: Lever released)
BLK
BLK
G401
G101

Troubleshooting

'00-05 models

1. Turn the ignition switch ON (II) with a programmed key.
2. Check to see if the immobilizer indicator comes on.

   Does the indicator come on?

   YES—Go to step 3.

   NO—Go to step 12.
3. Check the immobilizer indicator operation.

   Does the indicator come on for 2 seconds, then go off?

   YES—Go to step 4.

   NO—Go to step 6.
4. Try to crank the engine.

   Does the starter motor operate?

   YES—Go to step 5.

   NO—Check the starter motor. ■
5. Try to start the engine.

   Does the engine start?

   YES—The immobilizer system is OK at this time. ■

   NO—Go to step 18.
6. Check to see if the immobilizer indicator comes on and blinks.

   Does the indicator blink?

   YES—Go to step 18.

   NO—Go to step 7.
7. Disconnect ECM connector A (32P).
8. Check to see if the immobilizer indicator goes off.

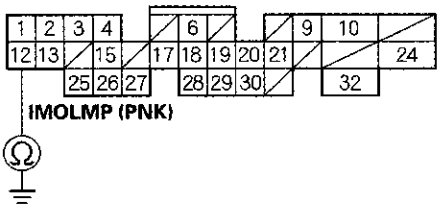
   Does the indicator go off?

   YES—Substitute a known-good ECM. ■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Remove the gauge assembly and disconnect its connectors (see page 22-89).

11. Check for continuity between ECM connector A (32P) No. 12 (IMOLMP) terminal and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Faulty immobilizer indicator, replace the immobilizer indicator bulb or gauge assembly. ■

12. Try to start the engine.

Does the engine start?

YES—Go to step 13.

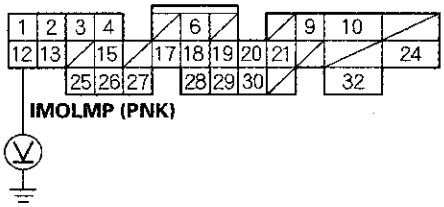
NO—Substitute a known-good ECM, and recheck. ■

13. Turn the ignition switch OFF.

14. Disconnect ECM connector A (32P).

15. Measure the voltage between ECM connector A (32P) No. 12 terminal and body ground.

ECM CONNECTOR A (32P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

NO—Faulty No. 25 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, check for an open in the wire between the ECM and under-dash fuse/relay box. ■

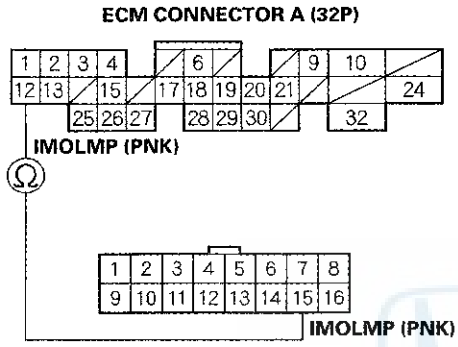
16. Remove the gauge assembly and disconnect its connectors (see page 22-89).

(cont'd)

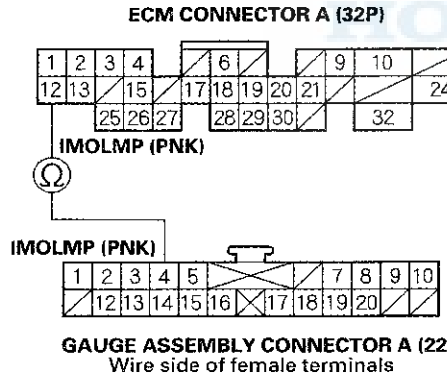
Troubleshooting (cont'd)

17. Check for continuity between ECM connector A (32P) No. 12 (IMOLMP) terminal and gauge assembly connector D (16P) No. 15 terminal ('00-03 models) or gauge assembly connector A (22P) No. 4 terminal ('04-05 models).

'00-03 models



'04-05 models



Is there continuity?

YES—Faulty immobilizer indicator, replace the immobilizer indicator bulb or gauge assembly. ■

NO—Repair an open in the wire. ■

18. Turn the ignition switch OFF.
19. Connect the HDS to the data link connector.
20. Turn the ignition switch ON (II).
21. Look at the System Check in the Immobilizer Info with the HDS.

Is the immobilizer system normal?

YES—Go to symptom troubleshooting in the fuel and emissions system. ■

NO—Go to step 22.

22. Verify the System Check display on the HDS for possible failure.

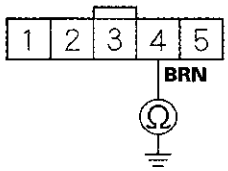
Does the HDS display IMOCD line failure?

YES—Go to step 23.

NO—Go to step 30.

23. Turn the ignition switch OFF.
24. Check for continuity between the immobilizer receiver unit 5P connector No. 4 terminal and body ground.

IMMOBILIZER RECEIVER UNIT 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire. If the wire is OK, repair G101. ■

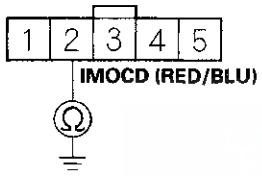
25. Turn the ignition switch OFF.

26. Disconnect the 5P connector from the immobilizer receiver unit.

27. Disconnect ECM connector A (32P).

28. Check for continuity between the immobilizer receiver unit 5P connector No. 2 (IMOCD) terminal and body ground.

IMMOBILIZER RECEIVER UNIT 5P CONNECTOR



Wire side of female terminals

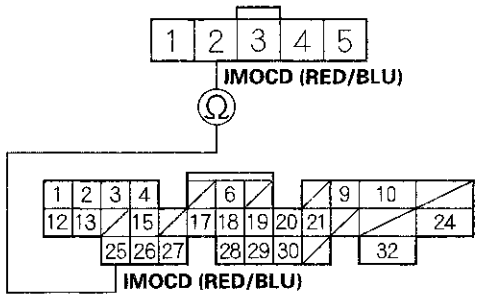
Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Go to step 29.

29. Check for continuity between the immobilizer receiver unit 5P connector No. 2 (IMOCD) terminal and ECM connector A (32P) No. 25 terminal.

IMMOBILIZER RECEIVER UNIT 5P CONNECTOR



ECM CONNECTOR A (32P)
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good immobilizer receiver unit and/or ECM. ■

NO—Repair open in the wire. ■

30. Verify the System Check display on the HDS for the following information:

- IMOEN line failure

Does the HDS display IMOEN line failure?

YES—Go to step 32.

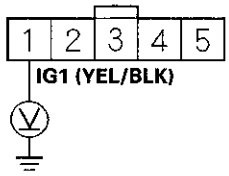
NO—Go to step 31.

(cont'd)

Troubleshooting (cont'd)

31. Measure the voltage between the immobilizer receiver unit 5P connector No. 1 (IG1) terminal and body ground.

IMMOBILIZER RECEIVER UNIT 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good immobilizer receiver unit. ■

NO—Faulty No. 46 (15 A) fuse in the main under-hood fuse/relay box. If the fuse is OK, check for an open in the wire between the immobilizer receiver unit and main under-hood fuse/relay box. ■

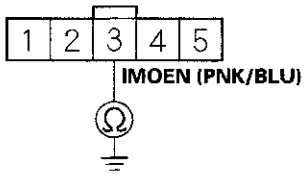
32. Turn the ignition switch OFF.

33. Disconnect the 5P connector from the immobilizer receiver unit.

34. Disconnect ECM connector A (32P).

35. Check for continuity between the immobilizer receiver unit 5P connector No. 3 (IMOEN) terminal and body ground.

IMMOBILIZER RECEIVER UNIT 5P CONNECTOR



Wire side of female terminals

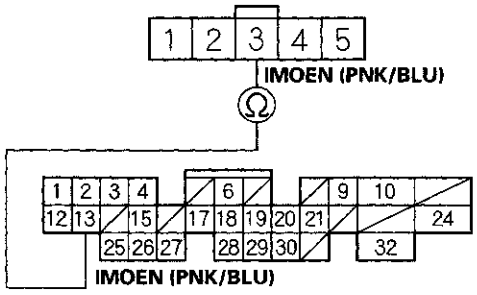
Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Go to step 36.

36. Check for continuity between the immobilizer receiver unit 5P connector No. 3 (IMOEN) terminal and ECM connector A (32P) No. 13 terminal.

IMMOBILIZER RECEIVER UNIT 5P CONNECTOR



ECM CONNECTOR A (32P)
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good immobilizer receiver unit and/or ECM. ■

NO—Repair open in the wire. ■

Troubleshooting (cont'd)

'06-07 models

1. Turn the ignition switch ON (II) with a programmed key.
2. Check to see if the immobilizer indicator comes on.

   Does the indicator come on?

   YES—Go to step 3.

   NO—Go to step 12.
3. Check the immobilizer indicator operation.

   Does the indicator come on for 2 seconds, then go off?

   YES—Go to step 4.

   NO—Go to step 6.
4. Try to crank the engine.

   Does the starter motor operate?

   YES—Go to step 5.

   NO—Check the starter motor. ■
5. Try to start the engine.

   Does the engine start?

   YES—Check the Status Log in the Immobilizer Info with the HDS (see page 22-214). ■

   NO—Go to step 28.
6. Check to see if the immobilizer indicator comes on and blinks.

   Does the indicator blink?

   YES—Go to step 28.

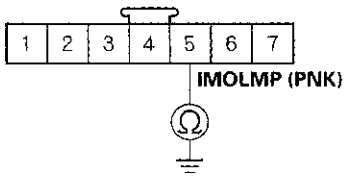
   NO—Go to step 7.
7. Disconnect the 7P connector from the immobilizer control unit-receiver.
8. Check to see if the immobilizer indicator goes off.

   Does the indicator go off?

   YES—Substitute a known-good immobilizer control unit-receiver and/or ECM. ■

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Remove the gauge assembly and disconnect its connectors (see page 22-89).
11. Check for continuity between the immobilizer control unit-receiver 7P connector No. 5 (IMOLMP) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire. ■

NO—Faulty immobilizer indicator, replace the gauge assembly. ■

12. Try to start the engine.

    Does the engine start?

    YES—Go to step 13.

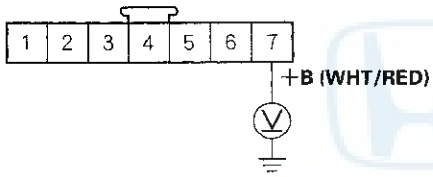
    NO—Go to step 19.

13. Turn the ignition switch OFF.

14. Disconnect the 7P connector from the immobilizer control unit-receiver.

15. Measure the voltage between the immobilizer control unit-receiver 7P connector No. 7 (+B) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

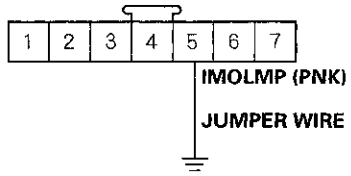
Is there battery voltage?

YES—Go to step 16.

NO—Faulty No. 25 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, check for an open in the wire between the immobilizer control unit-receiver and under-dash fuse/relay box.■

16. Using a jumper wire, connect the immobilizer control unit-receiver No. 5 (IMOLMP) terminal to ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

Does the indicator come on?

YES—Replace the immobilizer control unit-receiver.■

NO—Go to step 17.

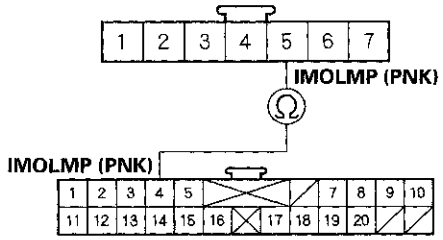
17. Remove the gauge assembly and disconnect its 22P connector (see page 22-89).

(cont'd)

Troubleshooting (cont'd)

18. Check for continuity between the immobilizer control unit-receiver 7P connector No. 5 (IMOLMP) terminal and gauge assembly connector A (22P) No. 4 terminal.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR
Wire side of female terminals



GAUGE ASSEMBLY CONNECTOR A (22P)
Wire side of female terminals

Is there continuity?

YES—Faulty immobilizer indicator, replace the immobilizer indicator bulb or gauge assembly. ■

NO—Repair an open in the wire. ■

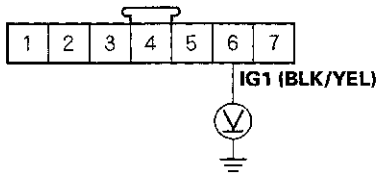
19. Turn the ignition switch OFF.

20. Disconnect the 7P connector from the immobilizer control unit-receiver.

21. Turn the ignition switch ON (II).

22. Measure the voltage between the immobilizer control unit-receiver 7P connector No. 6 (IG1) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

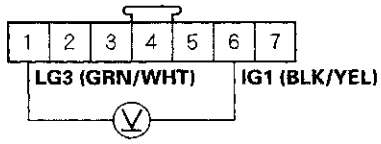
Is there battery voltage?

YES—Go to step 23.

NO—Faulty No. 2 (15 A) fuse in the under-dash fuse/relay box. If the fuse is OK, check for an open in the wire between the immobilizer control unit-receiver and under-dash fuse/relay box. ■

23. Measure the voltage between the immobilizer control unit-receiver 7P connector No. 1 (LG3) and No. 6 (IG1) terminals.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good immobilizer control unit-receiver control and recheck. ■

NO—Go to step 24.

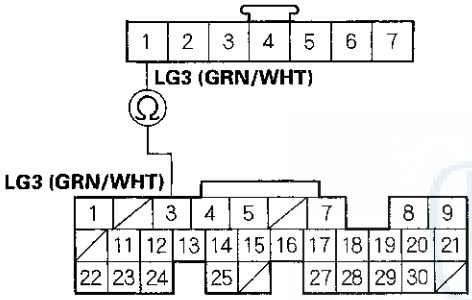
24. Turn the ignition switch OFF.

25. Jump the SCS line with the HDS.

26. Disconnect ECM connector E (31P) (see page 11-389).

27. Check for continuity between the immobilizer control unit-receiver 7P connector No. 1 (LG3) terminal and ECM connector E (31P) No. 3 (LG3) terminal.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR
Wire side of female terminals



ECM CONNECTOR E (31P)
Wire side of female terminals

Is there continuity?

YES—Check for poor connection at G101. If OK, substitute a known-good immobilizer control unit-receiver and recheck. ■

NO—Repair open in the wire. ■

28. Turn the ignition switch OFF.

29. Connect the HDS to the data link connector.

30. Turn the ignition switch ON (II).

31. Look at the System Check in the Immobilizer Info with the HDS (see page 22-213).

Is the immobilizer system normal?

YES—Go to symptom troubleshooting in the fuel and emissions system. ■

NO—Go to step 32.

32. Verify the System Check display on the HDS for the following information:

- Harness short from the ECM to the immobilizer control unit-receiver. (IMOCD (S-Net) line short)
- The communication was not good between the ECM and the immobilizer control unit-receiver by the battery voltage low.
- The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise.
- Immobilizer control unit-receiver failure
- ECM failure

Does the HDS display any of the preceding information?

YES—Go to step 33.

NO—Go to step 38.

33. Turn the ignition switch OFF.

34. Disconnect the 7P connector from the immobilizer control unit-receiver.

35. Jump the SCS line with the HDS.

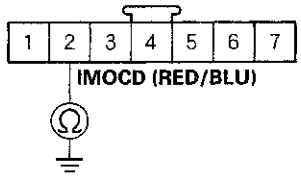
36. Disconnect ECM connector E (31P) (see page 11-389).

(cont'd)

Troubleshooting (cont'd)

37. Check for continuity between the immobilizer control unit-receiver 7P connector No. 2 IMOCD (S-Net) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire.■

NO—Substitute a known-good immobilizer control unit-receiver and/or ECM.■

38. Verify the System Check display on the HDS for the following information:

- Blown fuse
- Harness open from the ECM and the immobilizer control unit-receiver.
- The communication was not good between the ECM and the immobilizer unit by battery voltage low.
- The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise.
- Immobilizer control unit-receiver failure
- ECM failure

Does the HDS display any of the preceding information?

YES—Go to step 39.

NO—Check the Possible Failures shown on the System Check display (see page 22-213).■

39. Turn the ignition switch OFF.

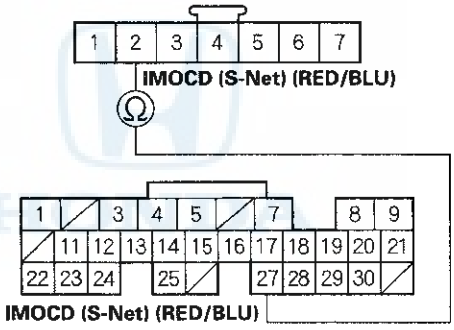
40. Disconnect the 7P connector from the immobilizer control unit-receiver.

41. Jump the SCS line with the HDS.

42. Disconnect ECM connector E (31P) (see page 11-389).

43. Check for continuity between the immobilizer control unit-receiver 7P connector No. 2 IMOCD (S-Net) terminal and ECM connector E (31P) No. 27 IMOCD (S-Net) terminal.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR
Wire side of female terminals



ECM CONNECTOR E (31P)
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good immobilizer control unit-receiver and recheck the system. If the immobilizer control unit-receiver is OK, substitute a known-good ECM and recheck.■

NO—Repair open in the wire.■

Troubleshooting (cont'd)

'08 model

1. Turn the ignition switch ON (II) with a programmed key.
2. Check to see if the immobilizer indicator comes on.

   Does the indicator come on?

   YES—Go to step 3.

   NO—Go to step 12.
3. Check the immobilizer indicator operation.

   Does the indicator come on for 2 seconds, then go off?

   YES—Go to step 4.

   NO—Go to step 6.
4. Try to crank the engine.

   Does the starter motor operate?

   YES—Go to step 5.

   NO—Check the starter motor. ■
5. Try to start the engine.

   Does the engine start?

   YES—Intermittent failure, the vehicle is OK at this time. Check the SYSTEM CHECK and STATUS LOG information (see page 22-214). ■

   NO—Go to step 28.
6. Check to see if the immobilizer indicator comes on and blinks.

   Does the indicator blink?

   YES—Go to step 28.

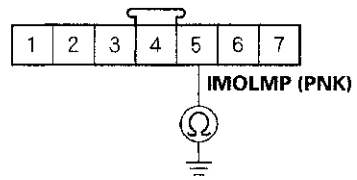
   NO—Go to step 7.
7. Disconnect the 7P connector from the immobilizer control unit-receiver.
8. Check to see if the immobilizer indicator goes off.

   Does the indicator go off?

   YES—Go to step 43.

   NO—Go to step 9.
9. Turn the ignition switch OFF.
10. Remove the gauge assembly and disconnect its connectors (see page 22-89).
11. Check for continuity between the immobilizer control unit-receiver 7P connector No. 5 (IMOLMP) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Faulty immobilizer indicator, replace the gauge assembly. ■

12. Try to start the engine.

    Does the engine start?

    YES—Go to step 13.

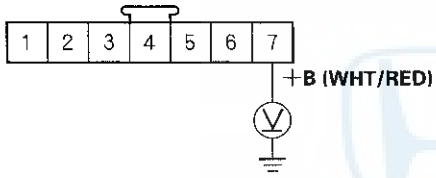
    NO—Go to step 19.

13. Turn the ignition switch OFF.

14. Disconnect the 7P connector from the immobilizer control unit-receiver.

15. Measure the voltage between the immobilizer control unit-receiver 7P connector No. 7 (+B) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

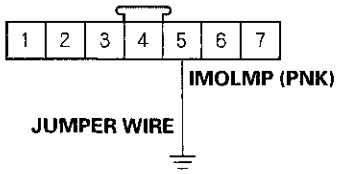
Is there battery voltage?

YES—Go to step 16.

NO—Faulty No. 25 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, check for an open in the wire between the immobilizer control unit-receiver and under-dash fuse/relay box.■

16. Using a jumper wire, connect the immobilizer control unit-receiver No. 5 (IMOLMP) terminal to ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

Does the indicator come on?

YES—Replace the immobilizer control unit-receiver.■

NO—Go to step 17.

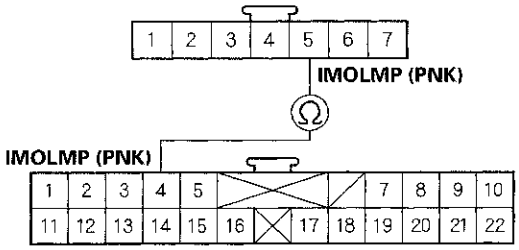
17. Remove the gauge assembly and disconnect connector A (22P) (see page 22-89).

(cont'd)

Troubleshooting (cont'd)

18. Check for continuity between the immobilizer control unit-receiver 7P connector No. 5 (IMOLMP) terminal and gauge assembly connector A (22P) No. 4 terminal.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR
Wire side of female terminals



GAUGE ASSEMBLY CONNECTOR A (22P)
Wire side of female terminals

Is there continuity?

YES—Faulty immobilizer indicator, replace the immobilizer indicator bulb or gauge assembly. ■

NO—Repair an open in the wire. ■

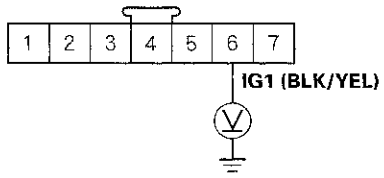
19. Turn the ignition switch OFF.

20. Disconnect the 7P connector from the immobilizer control unit-receiver.

21. Turn the ignition switch ON (II).

22. Measure the voltage between the immobilizer control unit-receiver 7P connector No. 6 (IG1) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

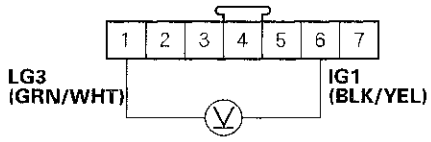
Is there battery voltage?

YES—Go to step 23.

NO—Faulty No. 2 (15 A) fuse in the under-dash fuse/relay box. If the fuse is OK, check for an open in the wire between the immobilizer control unit-receiver and under-dash fuse/relay box. ■

23. Measure the voltage between the immobilizer control unit-receiver 7P connector No. 1 (LG3) and No. 6 (IG1) terminals.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



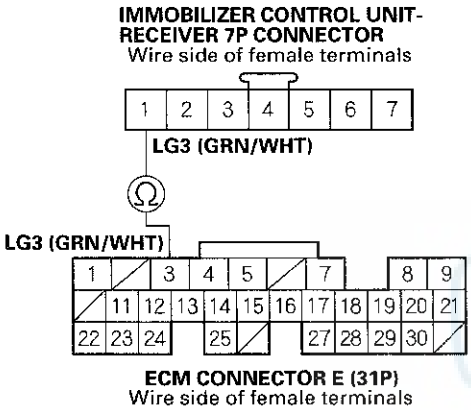
Wire side of female terminals

Is there battery voltage?

YES—Substitute a known-good immobilizer control unit-receiver control, and recheck. ■

NO—Go to step 24.

24. Turn the ignition switch OFF.
25. Jump the SCS line with the HDS.
26. Disconnect ECM connector E (31P).
27. Check for continuity between the immobilizer control unit-receiver 7P connector No. 1 (LG3) terminal and ECM connector E (31P) No. 3 (LG3) terminal.



Is there continuity?

YES—Check for a poor or loose connection at G101. If OK, substitute a known-good immobilizer control unit-receiver and recheck.■

NO—Repair an open in the wire.■

(cont'd)

Troubleshooting (cont'd)

28. Turn the ignition switch OFF.

29. Connect the HDS to the data link connector.

30. Turn the ignition switch ON (II).

31. Go to the SYSTEM CHECK in IMMOBILIZER INFO of the HDS (see page 22-213), and look for the following information on the display:

    - Harness short from the ECM to the immobilizer control unit-receiver. (IMOCD (S-Net) line short)
    - The communication was not good between the ECM and the immobilizer control unit-receiver by the battery voltage low.
    - The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise.
    - Immobilizer control unit-receiver failure
    - ECM failure
    - Imoes unit failure

    Does the HDS display any of the preceding information?

    YES—Go to step 32.

    NO—Go to step 37.

32. Turn the ignition switch OFF.

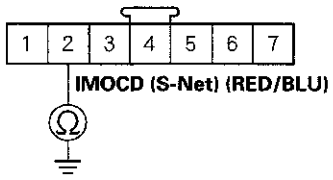
33. Disconnect the 7P connector from the immobilizer control unit-receiver.

34. Jump the SCS line with the HDS.

35. Disconnect ECM connector E (31P).

36. Check for continuity between the immobilizer control unit-receiver 7P connector No. 2 (IMOCD (S-Net)) terminal and body ground.

IMMOBILIZER CONTROL UNIT-RECEIVER 7P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Go to step 43.

37. Verify the Status Log display on the HDS.

    - Blown fuse
    - Harness open from the ECM and the immobilizer control unit-receiver.
    - The communication was not good between the ECM and the immobilizer control unit-receiver by battery voltage low.
    - The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise.
    - Immobilizer control unit-receiver failure
    - ECM failure
    - Imoes unit failure

    Does the HDS display any of the preceding information?

    YES—Check the Possible Failures shown on the Status Log display (see page 22-214). ■

    NO—Go to step 38.

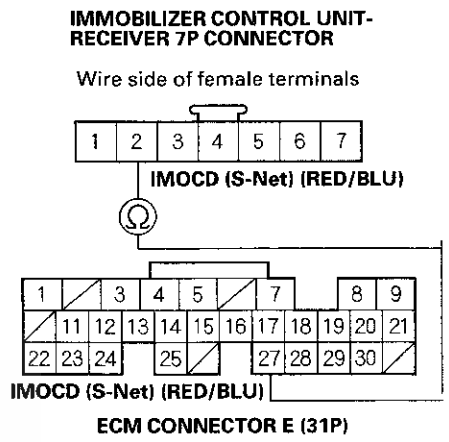
38. Turn the ignition switch OFF.

39. Disconnect the 7P connector from the immobilizer control unit-receiver.

40. Jump the SCS line with the HDS.

41. Disconnect ECM connector E (31P).

42. Check for continuity between the immobilizer control unit-receiver 7P connector No. 2 IMOCD (S-Net) terminal and ECM connector E (31P) No. 27 IMOCD (S-Net) terminal.



Is there continuity?

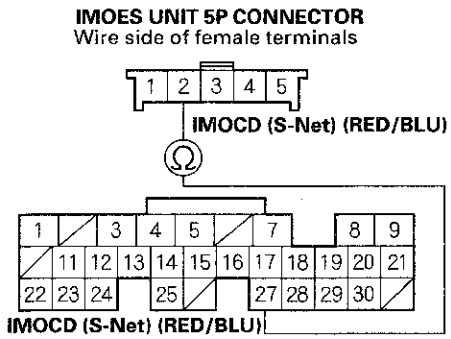
YES—Go to step 43.

NO—Repair an open in the wire. ■

(cont'd)

Troubleshooting (cont'd)

43. Check for continuity between the imoes unit 5P connector No. 2 IMOCD (S-Net) terminal and ECM connector E (31P) No. 27 IMOCD (S-Net) terminal.



Is there continuity?

YES—Substitute a known-good imoes unit and/or immobilizer control unit-receiver, and recheck the system. If the imoes unit and/or immobilizer control unit-receiver is OK, substitute a known-good ECM, and recheck. ■

NO—Repair an open in the wire. ■

System Check

'06-08 models
NOTE: The HDS can be used to check the state of the immobilizer key registration and the IMOCD (S-Net) line by doing a system check.

1. Connect the HDS to the data link connector.
2. Turn the ignition switch ON (II).
3. Monitor the System Check in the Immobilizer Info with the HDS.
4. If the HDS displays the "Immobilizer system is normal", the immobilizer system is OK. If the HDS displays any other messages, check as follows:

Status Log No.	System Check	Possible Failures
A-1	Immobilizer system is not normal	• This key is not registered in the immobilizer control unit-receiver. Try to register keys by using "KEYS". • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low.
A-2	Immobilizer system is not normal	• Intermittent interruption between transponder and immobilizer control unit-receiver. • The immobilizer key type is different. It is not for this vehicle but for another one or for other company's one. • Key failure (transponder failure) • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low.
A-3	Immobilizer system is not normal	• The ignition switch was turned on with a non-immobilizer key. • The immobilizer key type is different. It is not for this vehicle but for another one or for other company's one. • Key failure (transponder failure) • The communication was not good between the antenna and the immobilizer key by influence of metal such as key chains. • The communication was not good between the antenna and the immobilizer key by battery voltage low. • Immobilizer control unit-receiver failure
B-1	Immobilizer system is not normal	• The ECM was not registered. Try to register the ECM by using "REPLACE ECM". • The communication was not good between the ECM and the immobilizer control unit-receiver by battery voltage low. • The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise.
B-2	Immobilizer system is not normal	• The ECM was not registered. Try to register the ECM by using "REPLACE ECM". • The communication was not good between the ECM and the immobilizer control unit-receiver by battery voltage low. • The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise.
C-1*	Immobilizer system is not normal	The imoes unit was not registered. Try to register the imoes unit by using "REPLACE IMOES".
C-2*	Immobilizer system is not normal	• The imoes unit was not registered. Try to register the imoes unit by using "REPLACE IMOES". • The communication was not good between the immobilizer control unit-receiver and the imoes unit by influence of some noise.
D-1	Immobilizer system is not normal	• Harness short from the ECM to the immobilizer control unit-receiver. (IMOCD (S-Net) line short) • The communication was not good between the ECM and the immobilizer control unit-receiver by battery voltage low. • The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise. • Immobilizer control unit-receiver failure • ECM failure
D-2*	Immobilizer system is not normal	• Blown fuse • Harness open from the immobilizer control unit-receiver and the imoes unit. • The communication was not good between the immobilizer control unit-receiver and the imoes unit by influence of some noise.
D-3	Immobilizer system is not normal	• Blown fuse • Harness open from the ECM to the immobilizer control unit-receiver. • The communication was not good between the ECM and the immobilizer control unit-receiver by battery voltage low. • The communication was not good between the immobilizer control unit-receiver and the ECM by influence of some noise. • Immobilizer control unit-receiver failure • ECM failure

*: '08 model

Status Log

'06-08 models

If you suspect there is an immobilizer system problem, the HDS can be used to check the number of times the immobilizer control unit-receiver doesn't permit the engine to run by checking the status log.

NOTE: The Status Log count can be reset by disconnecting the negative battery terminal or by removing the No. 25 (7.5 A) fuse in the under-dash fuse/relay box, or by disconnecting the 7P connector from the immobilizer control unit-receiver.

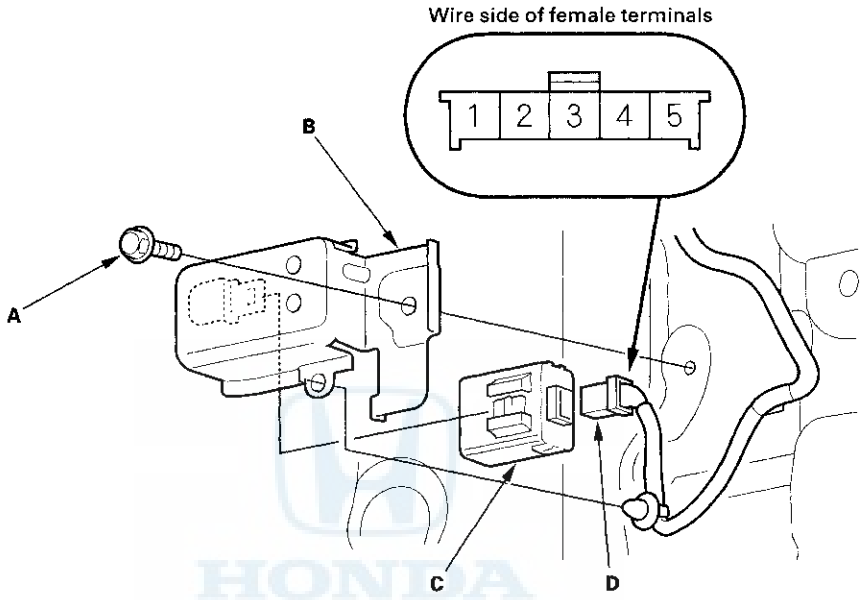
1. Connect the HDS to the data link connector.
2. Turn the ignition switch ON (II).
3. On the HDS screen, select Honda systems, select immobilizer set-up, select immobilizer information, then select status log.
4. Check the Status log count. Troubleshoot the status with the highest count first. If no counts are listed, the immobilizer system is OK. Continue with normal symptom troubleshooting.

Status Log No.	Detected Item	Probable Cause
A-1	KEY CODE MISMATCH (Code format normal, but code data is mismatch)	1. The key was not registered 2. Interference from metal such as key chains 3. Low battery voltage
A-2	KEY CODE MISMATCH (Code format failure)	1. Ignition switch was turn on with another type of immobilizer key or aftermarket key 2. Interference from metal such as key chains 3. Low battery voltage
A-3	KEY CODE MISMATCH (No key code or non-immobilizer key)	1. Ignition switch was turn on with another type of immobilizer key or aftermarket key 2. Interference from metal such as key chains 3. Low battery voltage 4. Key failure 5. Immobilizer control unit-receiver failure
B-1	ECM CODE MISMATCH (Code format normal, but code data is mismatch)	1. ECM was not registered correctly 2. Low battery voltage 3. Poor or loose terminal connections at the immobilizer control unit-receiver 4. Communication line electrical noise
B-2	ECM MISMATCH (Code format failure)	1. ECM was not registered correctly 2. Low battery voltage 3. Poor or loose terminal connections at the immobilizer control unit-receiver 4. Communication line electrical noise
D-1	IMOCD (S-Net) terminal PROBLEM (Short to ground)	1. Low battery voltage 2. Poor or loose terminal connections at the immobilizer control unit-receiver and the ECM 3. Communication line electrical noise 4. Short in the harness from the ECM to the immobilizer control unit-receiver (IMOCD (S-Net) line short)
D-3	IMOCD (S-Net) terminal PROBLEM (Open line or ECM failure)	1. Open in the harness from the ECM to the immobilizer control unit-receiver 2. Low battery voltage 3. Poor or loose terminal connections at the immobilizer control unit-receiver and the ECM 4. Communication line electrical noise

Imoes Unit Input Test/Replacement

'08 model

1. Remove the blower motor (see page 21-62).
2. Remove the bolt (A) from the imoes unit bracket (B).



3. Remove the imoes unit (C) from the imoes unit bracket.
4. Disconnect the 5P connector (D) from the imoes unit.
5. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
   - If the terminals look OK, go to step 3.

(cont'd)

Imoes Unit Input Test/Replacement (cont'd)

6. With the connectors still disconnected, make these input tests at the connector.

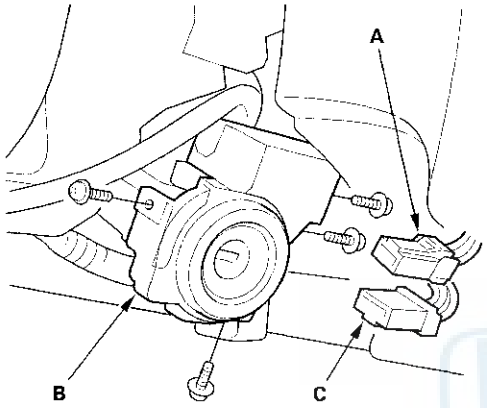
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, replace the imoes unit, then do the imoes unit registration with the HDS, and make sure the immobilizer indicator blinks correctly.

Cavity	Wire (Signal)	Test condition	Test: Desired result	Possible cause if result is not obtained
5	WHT/RED (+B)	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 54 (30 A) fuse in the main under- hood fuse/ relay box • Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
3	BLK/YEL (IG 1)	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 2 (15 A) fuse in the under-dash fuse/relay box • An open in the wire
1	GRN/WHT (LG 3)	Jump the SCS line with the HDS. Disconnect ECM connector E (31P).	Check for continuity between the No. 1 terminal and ECM connector E (31P) No. 3 terminal: There should be continuity.	An open in the wire
4	RED/WHT (KEY SW)	Ignition key is in the ignition switch	Measure the voltage to ground: There should be less than 1 V.	• Faulty ignition key switch • An open in the wire • Poor ground (G401)
		Ignition key is removed from the ignition switch	Measure the voltage to ground: There should be battery voltage.	• Faulty ignition key switch • A short to ground in the wire
2	RED/BLU (IMOCD (S—Net))	Jump the SCS line with the HDS. Disconnect ECM connector E (31P), and immobilizer control unit-receiver 7P connector.	Check for continuity between the No. 2 terminal and ECM connector E (31P) No. 27 terminal: There should be continuity, and immobilizer control unit-receiver No. 2 terminal:	An open in the wire
			Check for continuity between the No. 2 terminal and body ground: There should be no continuity.	A short to ground in the wire

Immobilizer Receiver Unit Replacement

'00-05 models

1. Remove the steering column covers (see page 17-9).
2. Disconnect the 5P connector (A) from the immobilizer receiver unit (B).



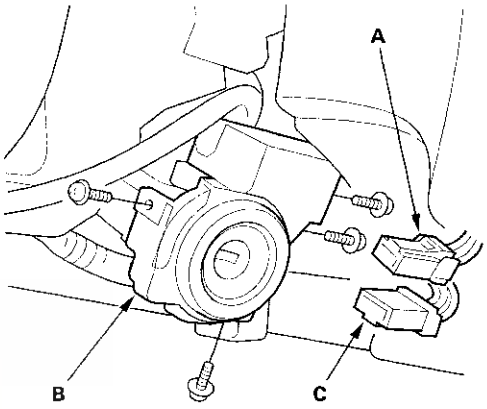
3. Disconnect the 7P connector (C) from the ignition key switch.
4. Remove the four screws, and remove the immobilizer receiver unit from the ignition key cylinder.
5. Install in the reverse order of removal.
6. After replacement, make sure the immobilizer indicator blinks correctly.

   NOTE: The ECM does not need to be reprogrammed if only the receiver has been replaced.

Immobilizer Control Unit-Receiver Replacement

'06-08 models

1. Remove the steering column covers (see page 17-9).
2. Disconnect the 7P connector (A) from the immobilizer control unit-receiver (B).



3. Disconnect the 7P connector (C) from the ignition key switch.
4. Remove the four screws, and remove the immobilizer control unit-receiver from the ignition key cylinder.
5. Install in the reverse order of removal.
6. Register the immobilizer control unit-receiver with the HDS.

   NOTE: The ECM code and all of the customer's keys are required.

7. After replacement, make sure the immobilizer indicator blinks correctly.

Immobilizer Key Registration

'08 model

NOTE:
- The HDS is required for registration of the immobilizer keys.
- Check for aftermarket electrical equipment that can cause problems with transponder operation.
- The immobilizer control unit-receiver can store up to six immobilizer Keys.

Add one new key

1. Have a registered key, a new immobilizer key that has been cut to fit the ignition switch, and the first password from the iN system.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch ON (II).
4. Select "IMMOBILIZER" from the "SYSTEM SELECT" menu.
5. Select "Add and Delete Keys", then "Add 1 key".
6. Do the registration according to the instructions on the HDS screen.
7. Check if the engine can be started by the newly registered key.
8. Check the keyless remote operation to make sure that it functions properly.

Delete or add multiple Keys

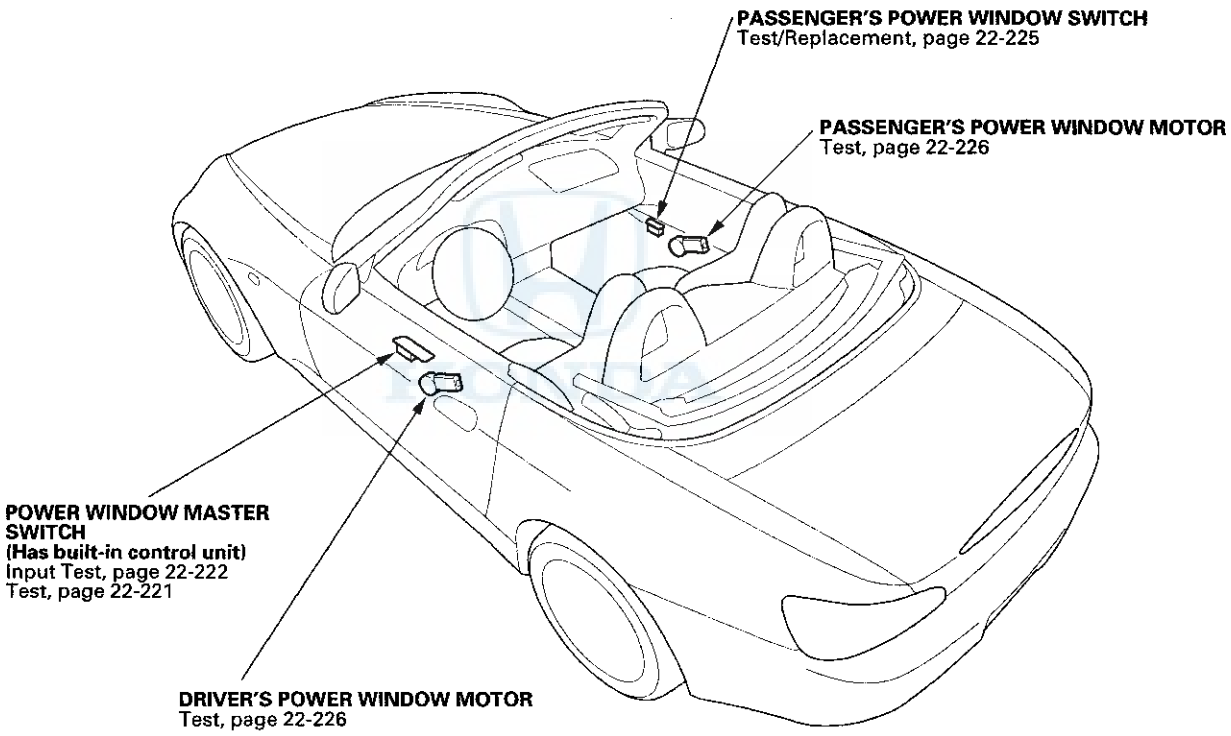
NOTE: If any of the registered keys were lost, do the following procedure to delete the lost registered key.

1. Have all registered keys, all new keys, and the first password from the iN system.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch ON (II).
4. Select "IMMOBILIZER" from the "SYSTEM SELECT" menu.
5. Select "Add and Delete Keys", or "Delete or Add Multiple Keys".
6. Do the registration according to the instruction of the HDS screen.
7. Check if the engine can be started by all the registered keys.
8. Check the keyless remote operation to make sure that it functions properly.

All keys are lost

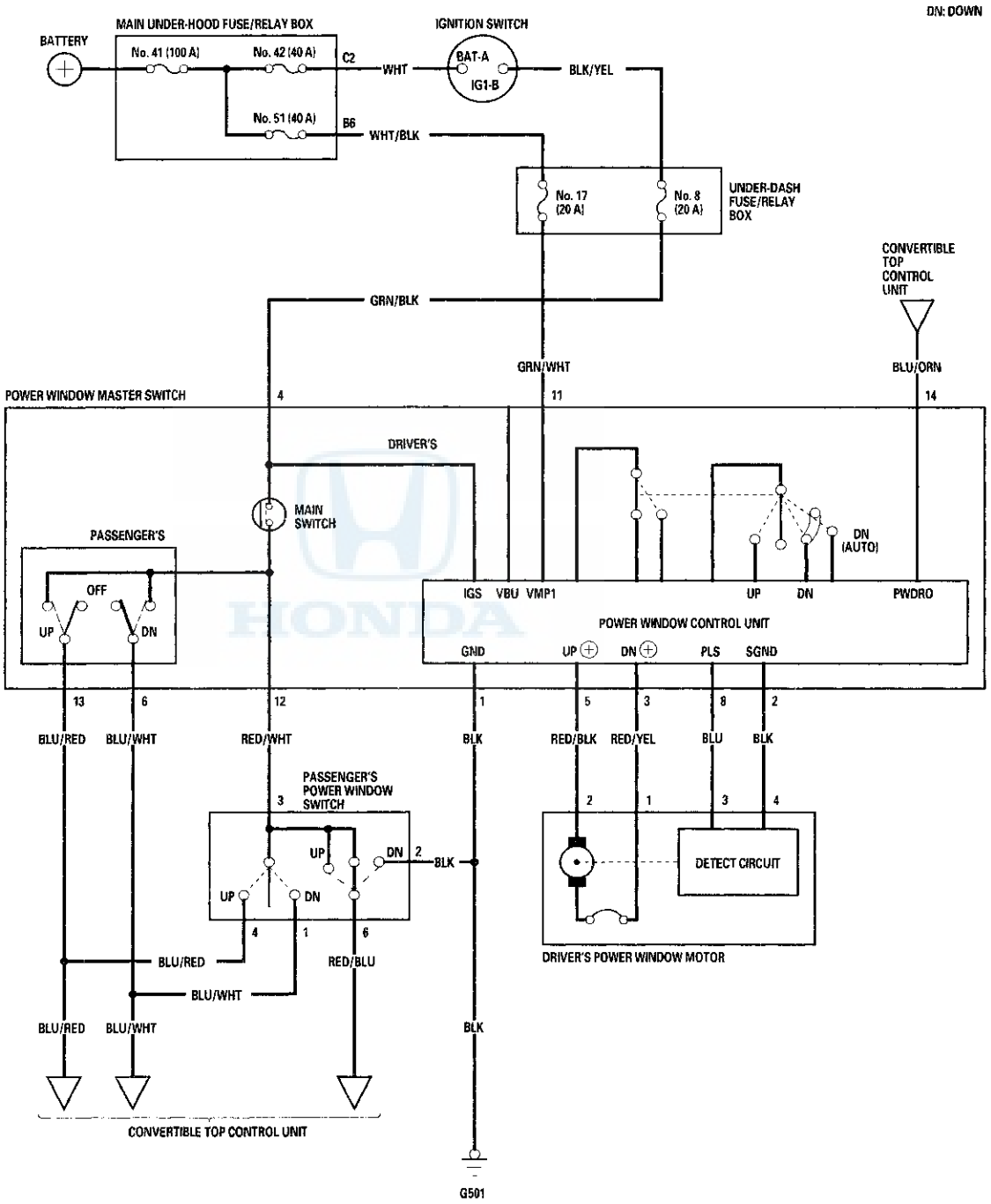
1. Prepare all new keys and have the immobilizer ECM code from the iN system.
2. Connect the HDS to the data link connector.
3. Turn the ignition switch ON (II).
4. Select "IMMOBILIZER" from the "SYSTEM SELECT" menu.
5. Select "Add and Delete Keys", then "ALL KEYS LOST".
6. Do the registration according to the instruction of the HDS screen.
7. Check if the engine can be started by all the registered keys.
8. Check the keyless remote operation to make sure that it functions properly.

Component Location Index



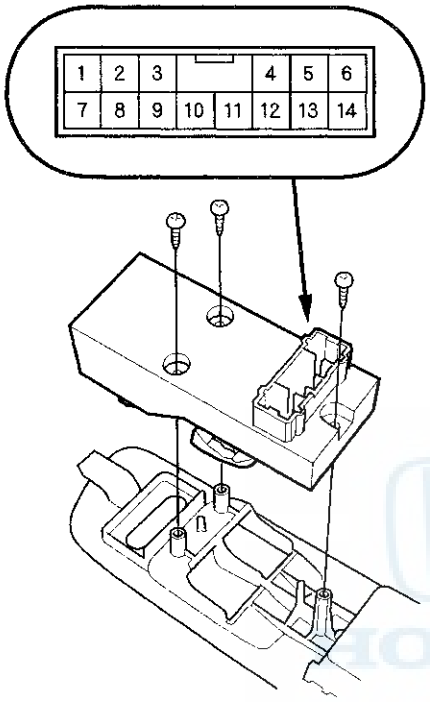
Power Windows

Circuit Diagram



Master Switch Test

1. Remove the driver's door panel (see page 20-5).
2. Disconnect the 14P connector from the power window master switch.



3. Check for continuity between the terminals in each switch position according to the table.

Driver's Switch

NOTE: The driver's switch is combined with the control unit so you cannot isolate the switch to test it. Instead, run the master switch input test procedures (see step 6 on page 22-224).

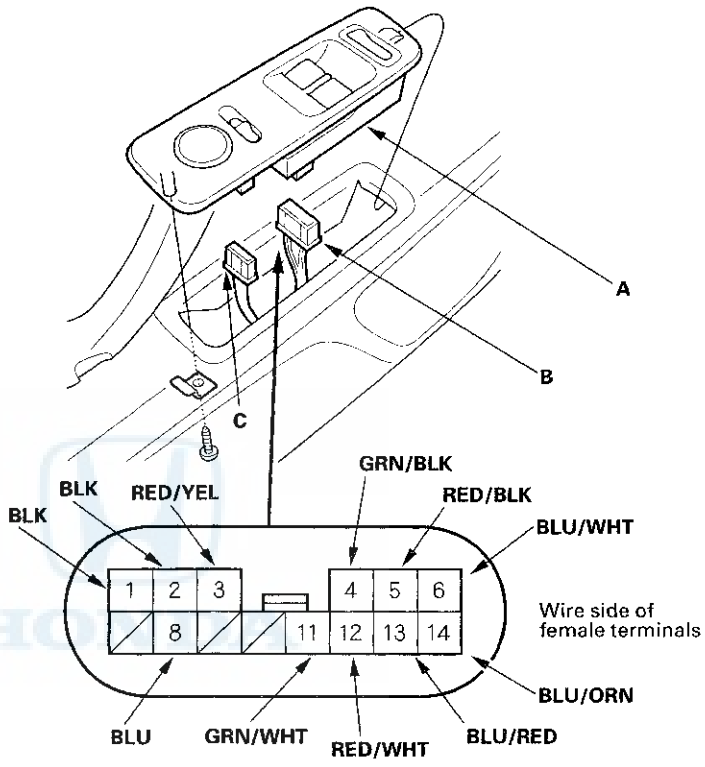
Passenger's Switch

Position	Terminal / Main Switch	13	4	6	12
OFF	ON		○		○
	OFF				
PASSENGER'S SWITCH UP	ON	○	○		○
	OFF	○			○
PASSENGER'S SWITCH DOWN	ON		○	○	○
	OFF			○	○

4. If the continuity is not as specified, replace the switch.

Power Window Master Switch Input Test

1. Remove the door panel (see page 20-5).
2. Remove the power window master switch (A) from the door panel.



3. Disconnect the 14P connector (B) and the 10P connector (C) from the power window master switch.
4. Inspect the connectors and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 5.

5. Reconnect the power window master switch, and perform the following input tests at the 14P connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
4	GRN/BLK	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 8 (20 A) fuse in the under-dash fuse/relay box • An open in the wire
1	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
11	GRN/WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 17 (20 A) fuse in the under-dash fuse/relay box • An open in the wire
8	BLU	While operating the driver's window switch	Measure the voltage between the No. 8 and No. 2 terminals: There should be 0—5 V or more repeatedly.	• Faulty driver's power window motor • Faulty power window master switch • An open in the wire
2	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Faulty power window master switch • An open in the wire
14	BLU/ORN	Ignition switch ON (II), and convertible top switch ON. Parking brake lever UP	Measure the voltage between the No. 14 and No. 1 terminals: There should be 0—8 V or more repeatedly.	• Faulty convertible top control unit • Faulty power window master switch • An open in the wire

(cont'd)

Power Window Master Switch Input Test (cont'd)

6. Disconnect the 14P connector and the 10P connector from the power window master switch, make these input tests at the 14P connector.

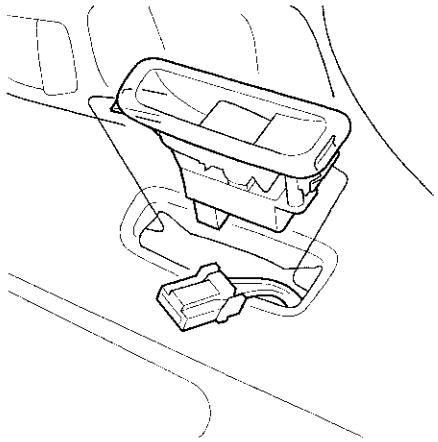
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, go to step 7.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
13	BLU/RED	Connect the No. 4 terminal to the No. 13 terminal and connect the No. 4 terminal to the No. 12 terminal, then turn the ignition switch ON (II)	Check for passenger's power window motor: It should run (the window moves up).	• Blown No. 8 (20 A) and No. 18 (20 A) fuses in the under-dash fuse/relay box • Faulty passenger's power window motor • Faulty passenger's power window switch • Faulty convertible top control unit • Poor ground (G501) • An open in the wire
12	RED/WHT	Connect the No. 4 terminal to the No. 12 terminal, and turn the ignition switch ON (II), and turn the passenger's power window switch to up position		
6	BLU/WHT	Connect the No. 4 terminal to the No. 6 terminal	Check for passenger's power window motor: It should run (the window moves down).	
5	RED/BLK	Connect the No. 5 (2) terminal to the No. 11 terminal and connect the No. 3 terminal to the No. 1 terminal	Check for driver's power window motor: It should run (the window moves up).	• Blown No. 17 (20 A) fuse in the under-dash fuse/relay box • Faulty driver's power window master switch • Faulty driver's power window motor • An open in the wire • Poor ground (G501)
3	RED/YEL	Connect the No. 3 terminal to the No. 11 terminal and connect the No. 5 terminal to the No. 1 terminal	Check for driver's power window motor: It should run (the window moves down).	

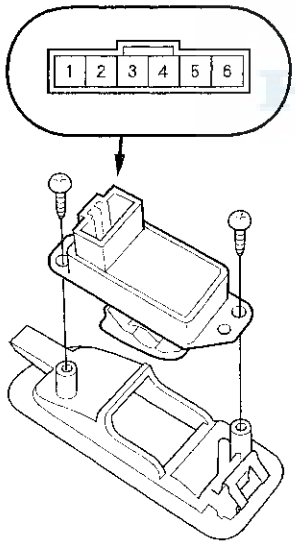
7. If all the input tests prove OK, the power window master switch must be faulty; replace it.

Passenger's Power Window Switch Test/Replacement

1. Remove the passenger's power window switch and switch panel from the door panel.



2. Disconnect the 6P connector from the switch.
3. Remove the two mounting screws from the switch panel.



4. Check for continuity between the terminals in each switch position according to the table.

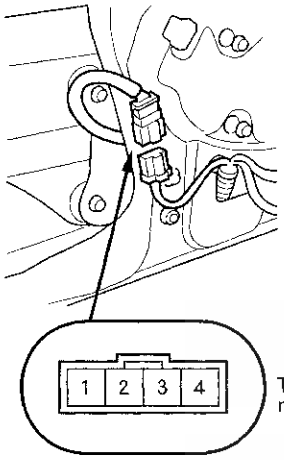
Terminal / Position	1	2	3	4	6
UP			○	○	○
OFF			○		○
DOWN	○		○		
		○			○

5. If the continuity is not as specified, replace the switch.

Driver's Power Window Motor Test

Motor Test

1. Remove the driver's door panel (see page 20-5).
2. Disconnect the 4P connector from the driver's power window motor.



3. Test the motor in each direction by connecting battery power and ground according to the table. When the motor stops running, disconnect one lead immediately.

Terminal / Direction	1	2
UP	⊖	⊕
DOWN	⊕	⊖

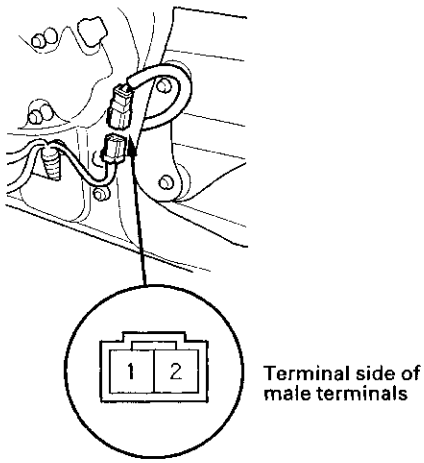
4. If the motor does not run or fails to run smoothly, replace it.

Detect Circuit Test

5. Connect the test leads of an analog ohmmeter to the No. 3 and No. 4 terminals.
6. Run the motor by connecting power and ground to the No. 1 and No. 2 terminals. The ohmmeter needle should move back and forth alternately. If it does not, replace the motor.

Passenger's Power Window Motor Test

1. Remove the passenger's door panel (see page 20-5).
2. Disconnect the 2P connector from the passenger's power window motor.



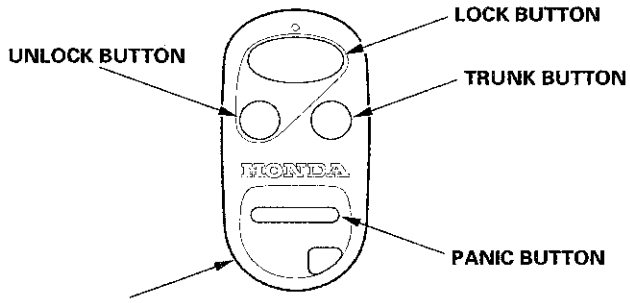
3. Check window motor operation by connecting power and ground according to the table. When the motor stops running, disconnect one lead immediately.

Terminal / Direction	1	2
UP	⊕	⊖
DOWN	⊖	⊕

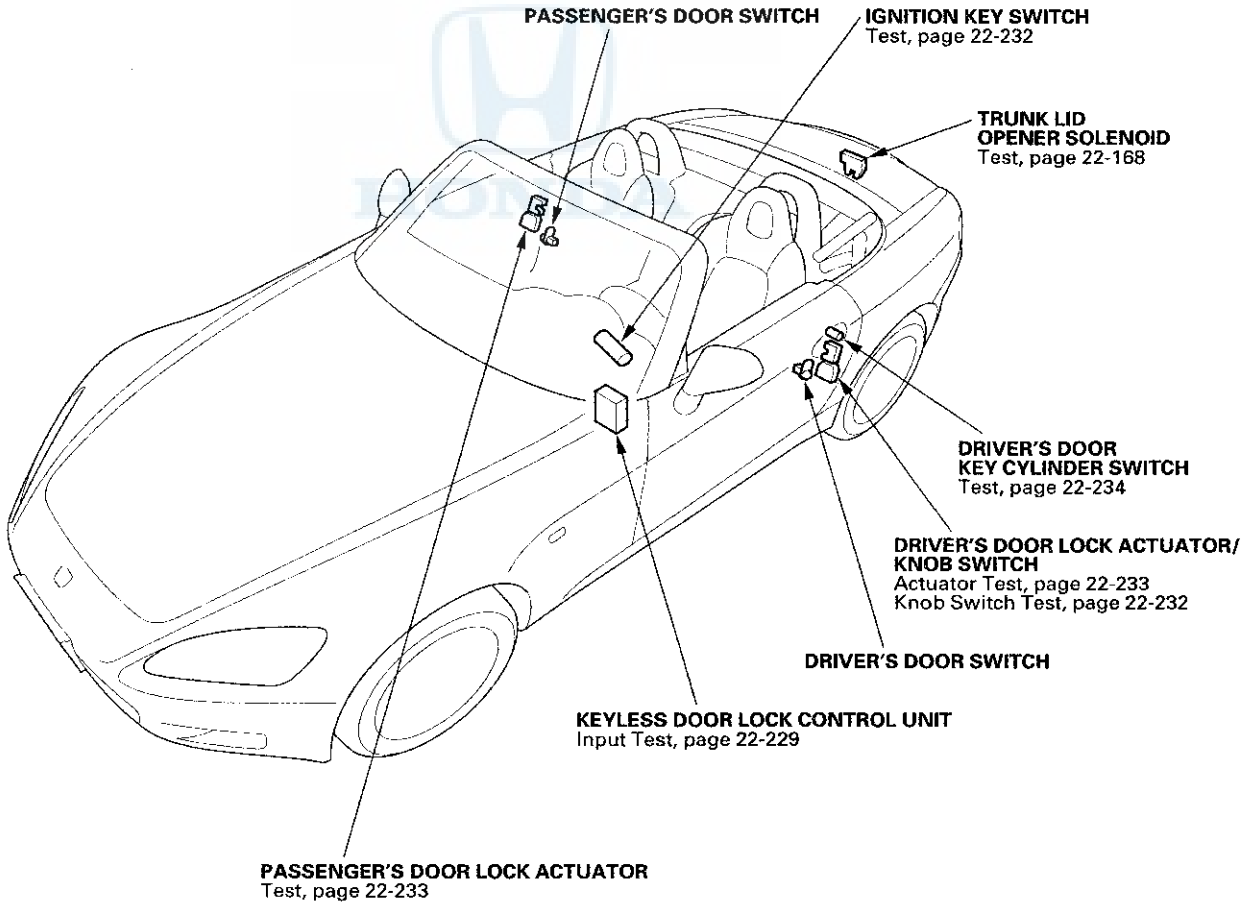
4. If the motor does not run or fails to run smoothly, replace it.

Keyless/Power Door Lock System

Component Location Index

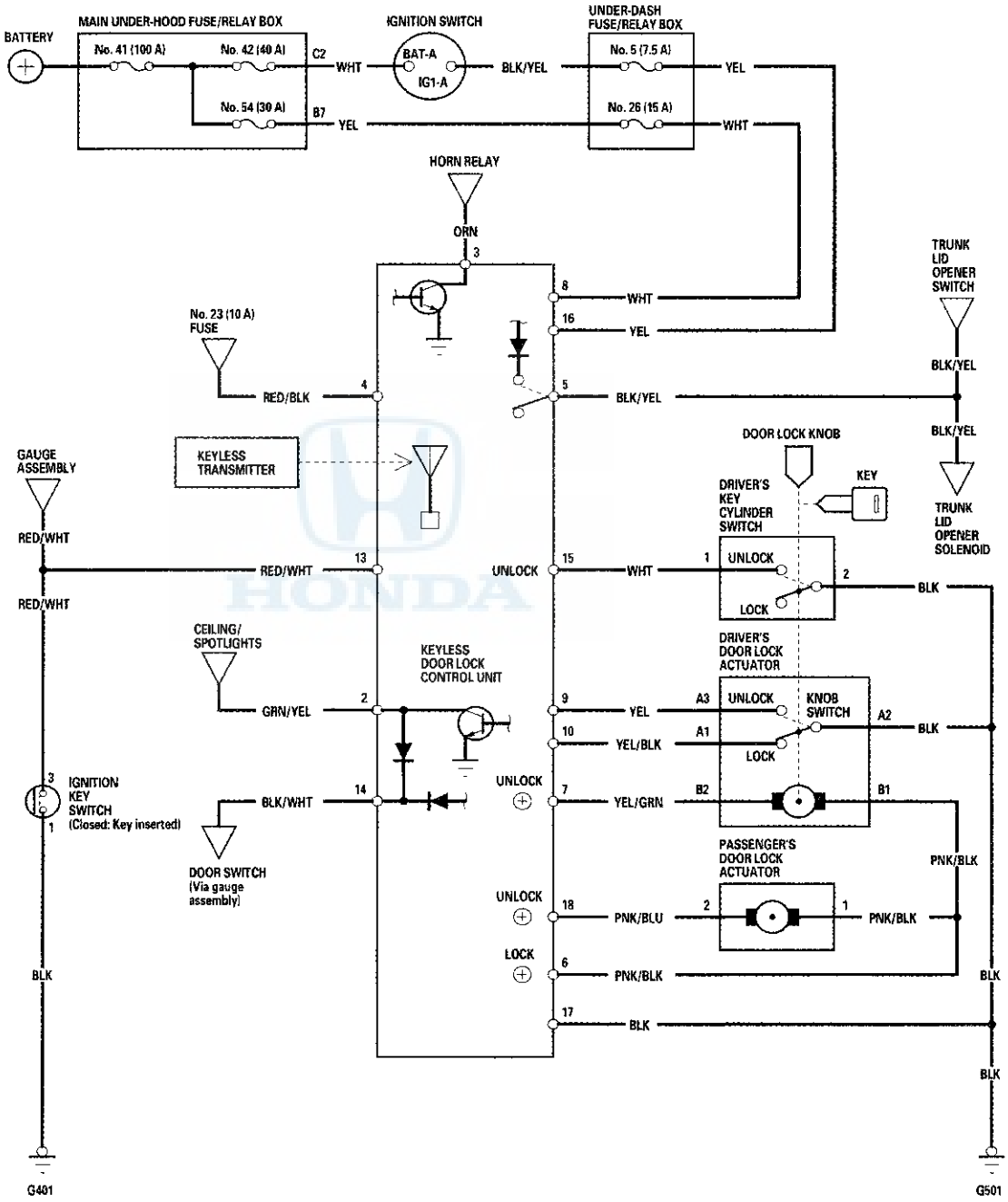


TRANSMITTER
Test, page 22-234
Programming/Deleting, page 22-235



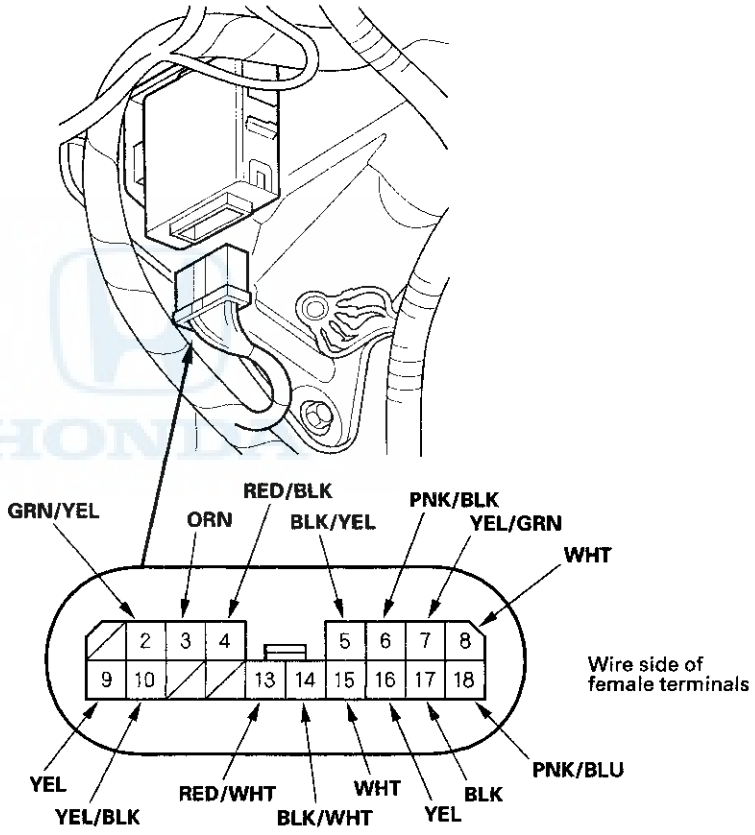
Keyless/Power Door Lock System

Circuit Diagram



Keyless Door Lock Control Unit Input Test

1. Disconnect the 18P connector from the keyless door lock control unit.



2. Inspect the connector and socket terminals to be sure they are all making good contact.

   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 3.

Keyless Door Lock Control Unit Input Test (cont'd)

3. Reconnect the connector to the control unit, and perform the following input tests at the keyless door lock control unit connector.

   - If any test indicates a problem, find and correct the cause then recheck the system.
   - If all the input tests prove OK, go to step 4.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
17	BLK	Under all conditions	Check for continuity to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
5	BLK/YEL	Under all conditions	Measure the voltage to ground: There should be less than 1 V.	• Faulty trunk lid opener solenoid • Poor ground (G601) • An open in the wire
8	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 26 (15 A) fuse in the under-dash fuse/relay box • An open in the wire
16	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
4	RED/BLK	Lighting switch ON	Measure the voltage to ground: There should be battery voltage.	• Blown No. 23 (10 A) fuse in the under-dash fuse/relay box • Faulty taillight relay • An open in the wire
3	ORN	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 47 (10 A)*1 or (15 A)*2 fuse in the main under-hood fuse/relay box • Faulty horn relay • An open in the wire
14	BLK/WHT	Driver's or passenger's door opened	Measure the voltage to ground: There should be 1 V or less.	• Faulty door switch • Faulty gauge assembly • An open in the wire
2	GRN/YEL	All doors closed and ceiling/spotlight switch position "MIDDLE"	Measure the voltage to ground: There should be battery voltage.	• Blown No. 24 (7.5 A) fuse in the under-dash fuse/relay box • Blown ceiling/spotlights bulb • An open in the wire
10	YEL/BLK	Driver's door lock knob in LOCK	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's door lock actuator • Faulty gauge assembly • Poor ground (G501) • An open in the wire
9	YEL	Driver's door lock knob in UNLOCK		
13	RED/WHT	Ignition key is in the ignition switch	Measure the voltage to ground: There should be less than 1 V.	• Faulty gauge assembly • Faulty ignition key switch • Poor ground (G401) • An open in the wire • A short to ground in the wire
		Ignition key removed from the ignition switch	Measure the voltage to ground: There should be 5 V or more.	
15	WHT	Driver's key cylinder switch position "UNLOCK"	Measure the voltage to ground: There should be less than 1 V.	• Faulty driver's key cylinder switch • Poor ground (G501) • An open in the wire • A short to ground in the wire
		Driver's key cylinder switch position "LOCK" or Neutral	Measure the voltage to ground: There should be 5 V or more.	

* 1: '00-01 models
* 2: '02-08 models

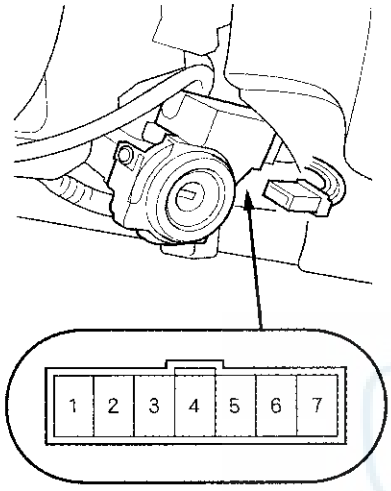
4. Disconnect the 18P connector from the control unit, then make these input tests at the connector.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the control unit must be faulty; replace it.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
7	YEL/GRN	Connect the No. 7 terminal to the No. 8 terminal, and the No. 6 terminal to the No. 17 terminal momentarily	Check the door lock operation: The driver's door should unlock.	• Faulty door lock actuator • Blown No. 26 (15 A) fuse in the under-dash fuse/relay box • Poor ground (G501) • An open in the wire
18	PNK/BLU	Connect the No. 18 terminal to the No. 8 terminal, and the No. 6 terminal to the No. 17 terminal momentarily	Check the door lock operation: The passenger's door should unlock.	
6	PNK/BLK	Connect the No. 6 terminal to the No. 8 terminal, and the No. 7 and No. 18 terminals to the No. 17 terminal momentarily	Check the door lock operation: Both doors should lock.	

Ignition Key Switch Test

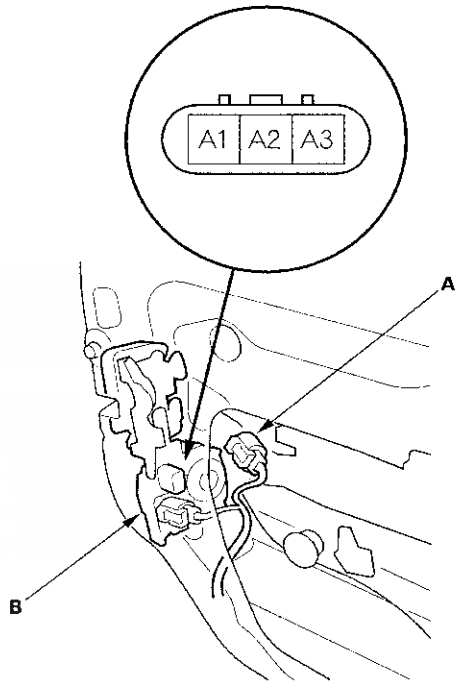
1. Remove the steering column upper and lower covers (see page 17-9).
2. Disconnect the 7P connector.



3. Check for continuity between the No. 1 and No. 3 terminals.
   - There should be continuity with the key in the ignition switch.
   - There should be no continuity with the key removed from the ignition switch.
4. If the continuity is not as specified, replace the ignition key switch.

Driver's Door Lock Knob Switch Test

1. Remove the driver's door panel (see page 20-5).
2. Disconnect the 3P connector (A) from the driver's door lock actuator (B).



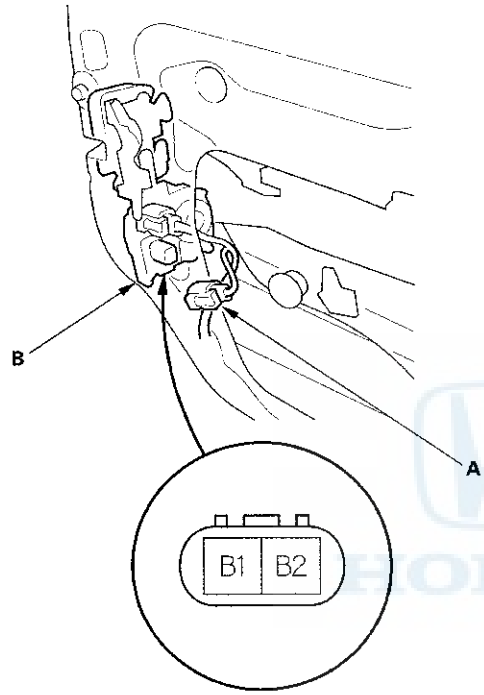
3. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	A1	A2	A3
LOCK	○——	——○	
UNLOCK		○——	——○

4. If the continuity is not as specified, replace the door lock actuator assembly.

Driver's Door Lock Actuator Test

1. Remove the driver's door panel (see page 20-5).
2. Disconnect the 2P connector (A) from the driver's door lock actuator (B).



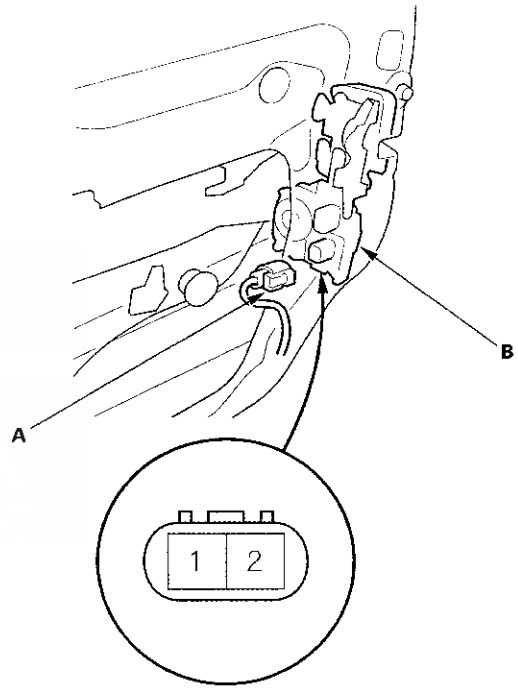
3. Check the actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal / Position	B1	B2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, replace the door lock actuator assembly.

Passenger's Door Lock Actuator Test

1. Remove the passenger's door panel (see page 20-5).
2. Disconnect the 2P connector (A) from the passenger's door lock actuator (B).



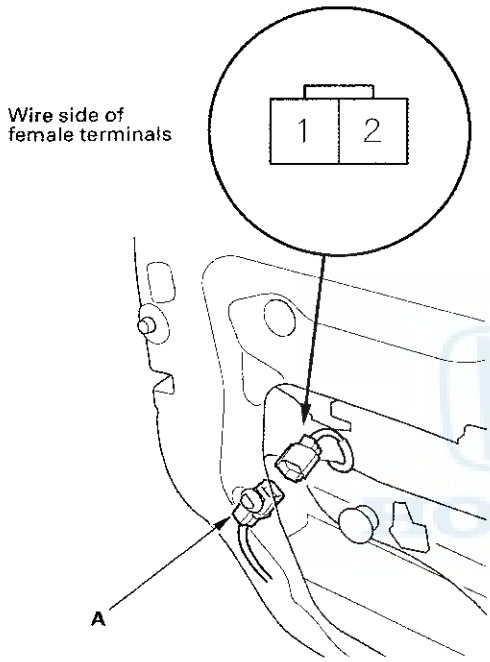
3. Check the actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal / Position	1	2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, replace the door lock actuator assembly.

Driver's Door Key Cylinder Switch Test

1. Remove the door panel (see page 20-5).
2. Disconnect the 2P connector (A) from the key cylinder switch.



3. Check for continuity between the terminals in each switch position according to the table.

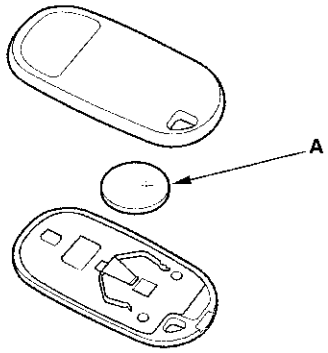
Terminal / Position	1	2
OFF		
UNLOCK	○	○

4. If the continuity is not as specified, replace the switch.

Transmitter Test

NOTE:
- If the doors unlock or lock with the transmitter, but the LED on the transmitter does not come on, the LED is faulty; replace the transmitter.
- If any door is open, you cannot lock the door with the transmitter.
- If you unlocked the doors with the transmitter, but do not open any of the doors within 30 seconds, the doors relock automatically.
- The doors do not lock or unlock with the transmitter if the ignition key is inserted in the ignition switch.

1. Press the lock or unlock button five or six times to reset the transmitter.
   - If the locks work, the transmitter is OK. ■
   - If the locks don't work, go to step 2.
2. Open the transmitter and check for water damage.
   - If you find any water damage, replace the transmitter. ■
   - If there is no water damage, go to step 3.
3. Replace the transmitter battery (A) with a new one, and try to lock and unlock the doors with the transmitter by pressing the lock or unlock button five or six times.
   - If the doors lock and unlock, the transmitter is OK. ■
   - If the doors don't lock and unlock, go to step 4.



4. Reprogram the transmitter, then try to lock and unlock the doors.
   - If the doors lock and unlock, the transmitter is OK. ■
   - If the doors don't lock and unlock, replace the transmitter. ■

Keyless Transmitter Programming/Deleting - Manual Method

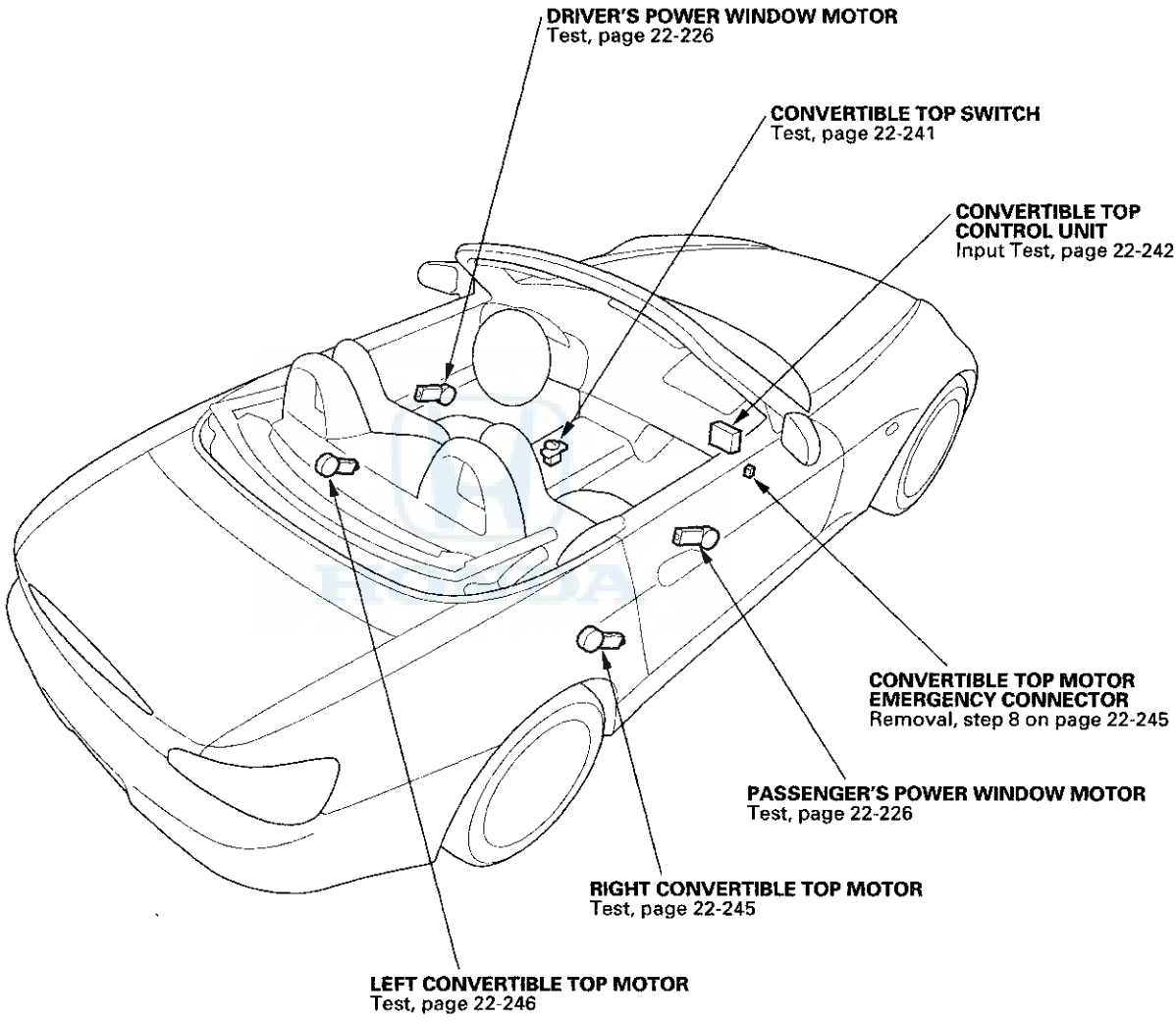
Storing transmitter codes: The codes of up to three transmitters can be programmed into the keyless receiver unit memory. (If a fourth code is stored, the code which was input first will be erased.)

NOTE: It is important to maintain the time limits between the steps. Make sure the doors, the hood and the trunk are closed.

1. Turn the ignition switch ON (II).
2. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the receiver unit behind the driver's side dash.
3. Within 1 to 4 sec., turn the ignition switch OFF.
4. Within 1 to 4 sec., turn the ignition switch ON (II).
5. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the receiver unit behind the driver's side dash.
6. Within 1 to 4 sec., turn the ignition switch OFF.
7. Within 4 sec., turn the ignition switch ON (II).
8. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the receiver unit behind the driver's side dash.
9. Within 1 to 4 sec., turn the ignition switch OFF.
10. Within 4 sec., turn the ignition switch ON (II).
11. Within 1 to 4 sec., push the transmitter lock or unlock button with the transmitter aimed at the receiver unit behind the driver's side dash.
12. Confirm you can hear the sound of the door lock actuators. Within 1 to 4 sec., push the transmitter lock or unlock button again. The keyless receiver unit is now in the program mode. You must push the transmitter lock or unlock button of the first transmitter again to program that remote.
13. Within 10 sec., aim the transmitters (up to two additional ones) whose codes you want to store at the receiver unit, and press the transmitter lock or unlock buttons.
    Confirm that you can hear the sound of the door lock actuators after each transmitter code is stored.
14. Turn the ignition switch OFF, and pull out the key.
15. Confirm proper operation of the transmitters with the new code(s).

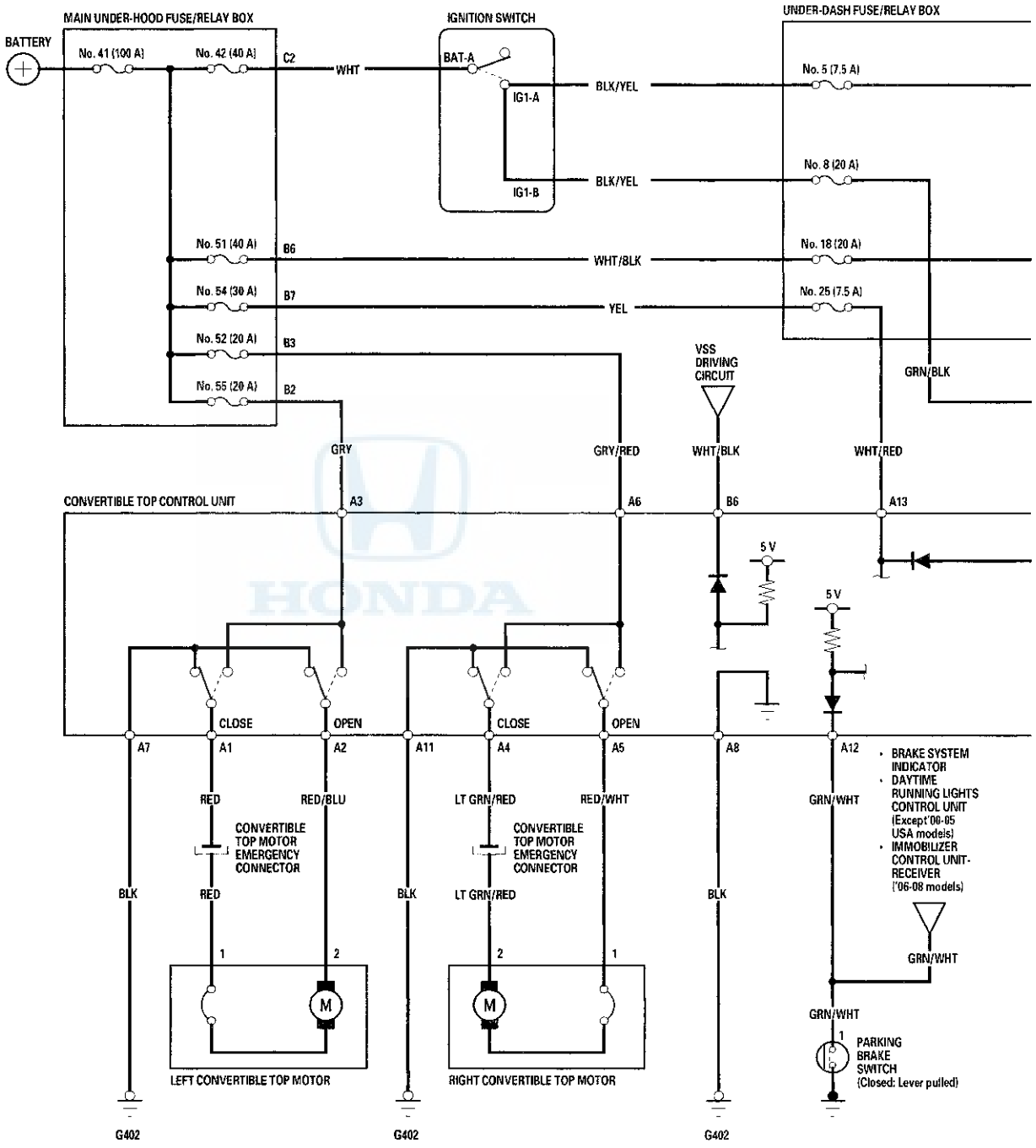
Convertible Top

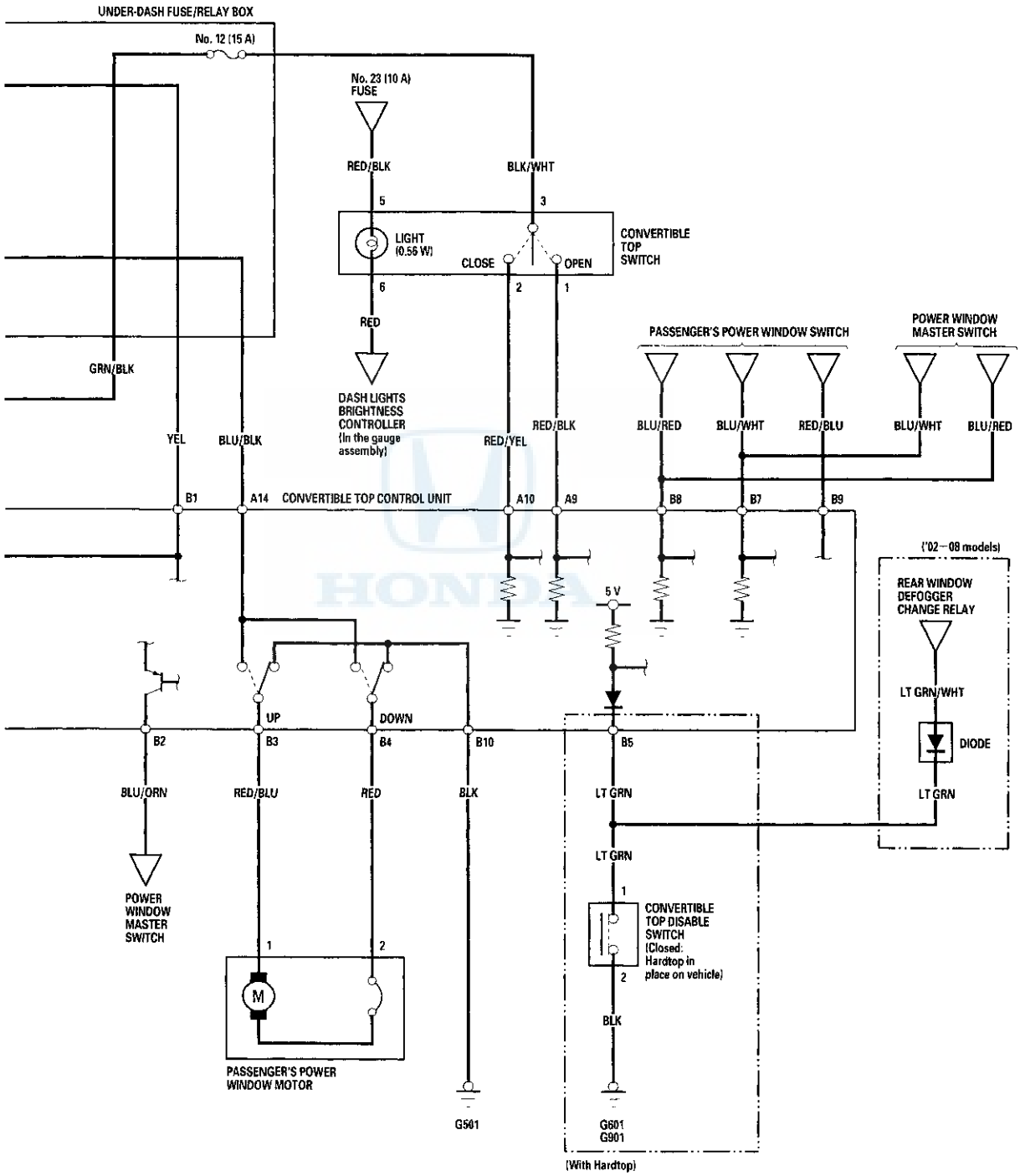
Component Location Index



Convertible Top

Circuit Diagram




UNDER-DASH FUSE/RELAY BOX
No. 12 (15 A)
No. 23 (10 A) FUSE
RED/BLK
BLK/WHT
5
3
LIGHT (0.56 W)
CLOSE
OPEN
CONVERTIBLE TOP SWITCH
6
2
1
RED
DASH LIGHTS BRIGHTNESS CONTROLLER (In the gauge assembly)
GRN/BLK
YEL
BLU/BLK
RED/YEL
RED/BLK
PASSENGER'S POWER WINDOW SWITCH
POWER WINDOW MASTER SWITCH
BLU/RED
BLU/WHT
RED/BLU
BLU/WHT
BLU/RED
B1
A14
CONVERTIBLE TOP CONTROL UNIT
A10
A9
B8
B7
B9
('02–'08 models)
REAR WINDOW DEFOGGER CHANGE RELAY
5 V
LT GRN/WHT
DIODE
LT GRN
UP
DOWN
B2
B3
B4
B10
B5
BLU/ORN
RED/BLU
RED
BLK
LT GRN
LT GRN
1
CONVERTIBLE TOP DISABLE SWITCH (Closed: Hardtop in place on vehicle)
2
BLK
POWER WINDOW MASTER SWITCH
1
2
M
PASSENGER'S POWER WINDOW MOTOR
G501
G601
G901
(With Hardtop)

Convertible Top

System Description

The convertible top can automatically be opened and closed by operating the convertible top switch.
The convertible top system consists of the convertible top switch, control unit and the motors located on the convertible top assembly. The top switch outputs open and close signals to the control unit. The control unit opens the driver's and the passenger's power windows then about 0.5 second after the windows start to open, the control unit operates the top motors to open or close the top.

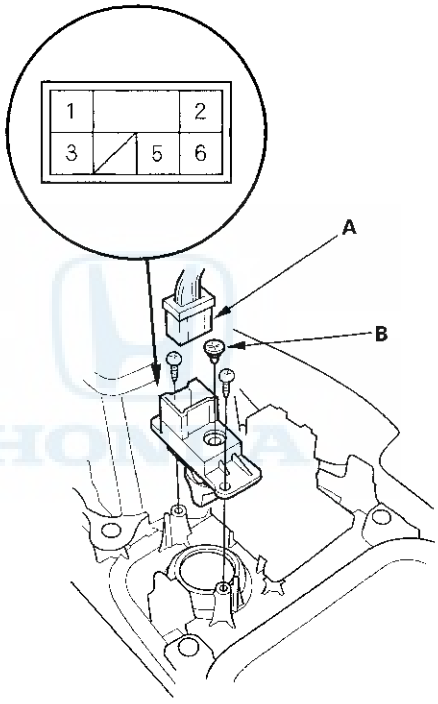
Basic Operation

Lowering and Raising the Convertible Top

1. Turn the ignition switch to ON (II).
2. At the latch on each side, push in the tab, and pull the locking lever down.
3. Push the top forward while you release the latches from the windshield header (striker) by pushing the locking levers forward.
4. With the latches released, pull back on the locking levers and push them up until they latch.
5. Pull back and hold the ROOF switch. The windows lower and the roof folds back. Release the ROOF switch when the roof is retracted completely into the rear shelf.
6. Push the ROOF switch forward and hold it.
7. The windows, if raised, lower automatically, then the convertible top goes up. Release the ROOF switch when the top reaches the windshield header.
8. Push in the tab on each locking lever, and pull the locking lever down.
9. Push the locking lever forward, and set the latch into the windshield header (striker) while pushing the convertible top forward.
10. Pull back on the locking lever, and push it up until it latches. Make sure both levers are securely latched.

Convertible Top Switch Test

1. Remove the center console (see page 20-80).
2. Disconnect the 6P connector (A) from the switch.



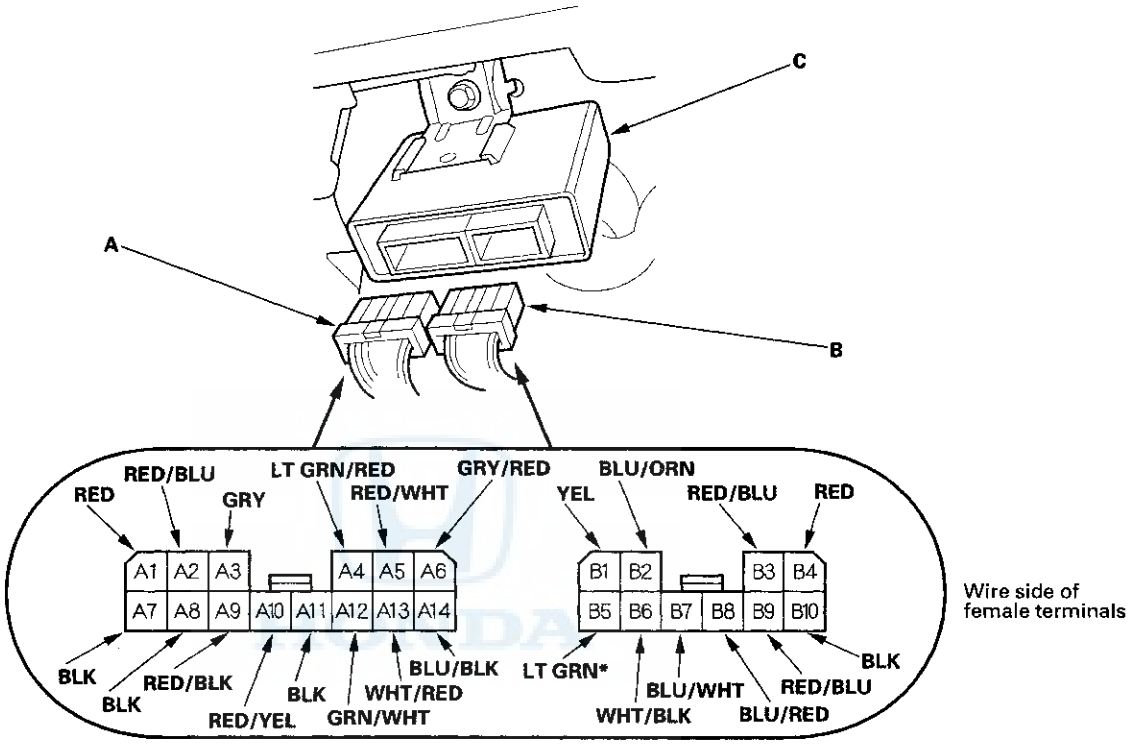
3. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	1	2	3	5		6
OPEN	○		○	○	○	○
CLOSE		○	○			

4. If the continuity is not as specified, replace the illumination bulb (B) or the switch.

Convertible Top Control Unit Input Test

1. Remove the passenger's dashboard lower cover (see page 20-86).
2. Disconnect the 14P connector (A) and 10P connector (B) from the convertible top control unit (C).



*: With Hardtop

3. Inspect the connector and socket terminals to be sure they are all making good contact.
   - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
   - If the terminals look OK, go to step 4.

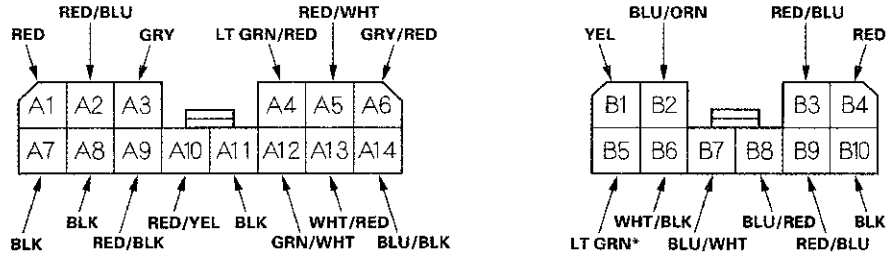
4. Reconnect the connectors to the control unit, and make the input tests at the connectors.

   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the control unit must be faulty; go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
B1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	• Blown No. 5 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A14	BLU/BLK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 18 (20 A) fuse in the under-dash fuse/relay box • An open in the wire
A13	WHT/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 25 (7.5 A) fuse in the under-dash fuse/relay box • An open in the wire
A7 · A8 · A11	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G402) • An open in the wire
B10	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.5 V.	• Poor ground (G501) • An open in the wire
A6	GRY/RED	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 52 (20 A) fuse in the main under-hood fuse/relay box • An open in the wire
A3	GRY	Under all conditions	Measure the voltage to ground: There should be battery voltage.	• Blown No. 55 (20 A) fuse in the main under-hood fuse/relay box • An open in the wire
A12	GRN/WHT	Parking brake lever pulled	Measure the voltage to ground: There should be less than 1 V.	• Faulty parking brake switch • An open in the wire
B2	BLU/ORN	Ignition switch ON (II), parking brake lever pulled, operate the convertible top switch	Measure the voltage between the B2 terminal and body ground: There should be 0—8 V or more repeatedly.	• Faulty power window master switch • An open in the wire
B6	WHT/BLK	Ignition switch ON (II), raise the rear of the vehicle, and rotate one wheel slowly	Measure the voltage on the B6 and A8 terminals: There should be 0—5 V or more repeatedly.	• Faulty gauge assembly • Faulty VSS • Faulty VSS driving circuit • An open in the wire

(cont'd)

Convertible Top Control Unit Input Test (cont'd)



Wire side of female terminals

*: With Hardtop

5. Disconnect the connectors and make these input tests at the connectors.
   - If any test indicates a problem, find and correct the cause, then recheck the system.
   - If all the input tests prove OK, the control unit must be faulty; replace it.

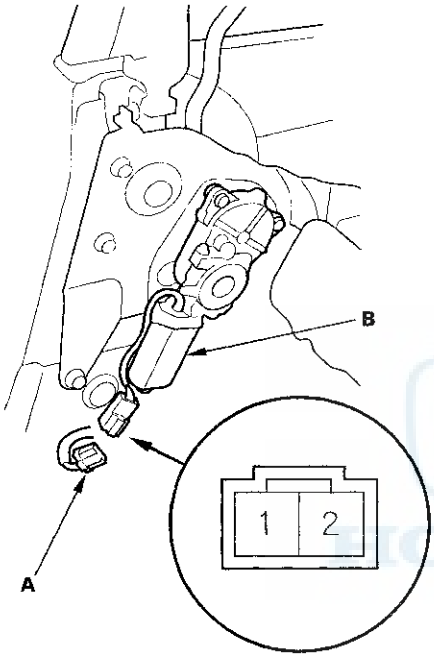
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
A5	RED/ WHT	Disconnect the left convertible top motor 2P connector. Connect the A5 terminal to the A6 terminal (power) and A4 terminal to the A11 terminal (ground). Assist the left side of the top with your hands.	Check the right convertible top motor operation: It should run (the top moves opens).	• Faulty right convertible top motor • An open in the wire
A4	LT GRN/ RED	Disconnect the left convertible top motor 2P connector. Connect the A4 terminal to the A6 terminal (power) and A5 terminal to the A11 terminal (ground). Assist the left side of the top with your hands.	Check the right convertible top motor operation: It should run (the top moves closes).	• Faulty right convertible top motor • An open in the wire
A2	RED/ BLU	Disconnect the right convertible top motor 2P connector. Connect the A2 terminal to the A3 terminal (power) and A1 terminal to the A7 terminal (ground). Assist the right side of the top with your hands.	Check the left convertible top motor operation: It should run (the top moves opens).	• Faulty left convertible top motor • An open in the wire
A1	RED	Disconnect the right convertible top motor 2P connector. Connect the A1 terminal to the A3 terminal (power) and A2 terminal to the A7 terminal (ground). Assist the right side of the top with your hands.	Check the left convertible top motor operation: It should run (the top moves closes).	• Faulty left convertible top motor • An open in the wire
B5*	LT GRN	Convertible top disable switch closed	Check for continuity to ground: There should be continuity.	• Faulty convertible top disable switch • Poor ground (G601, G901) • An open in the wire
B3	RED/ BLU	Connect the B3 terminal to the A14 terminal and B4 terminal to the B10 terminal	Check the passenger's power window motor operation: It should run (the window moves up).	• Faulty passenger's power window motor • An open in the wire
B4	RED	Connect the B4 terminal to the A14 terminal and B3 terminal to the B10 terminal	Check the passenger's power window motor operation: It should run (the window moves down).	• Faulty passenger's power window motor • An open in the wire
A9	RED/ BLK	Ignition switch ON (II), convertible top switch OPEN	Measure the voltage to ground: There should be battery voltage.	• Blown No. 12 (15 A) fuse in the under-dash fuse/relay box • Faulty convertible top switch • An open in the wire
A10	RED/ YEL	Ignition switch ON (II), convertible top switch CLOSE	Measure the voltage to ground: There should be battery voltage.	
B7	BLU/ WHT	Ignition switch ON (II), power window master switch main switch ON, and passenger's windows switch DOWN	Measure the voltage to ground: There should be battery voltage.	• Blown No. 8 (20 A) fuse in the under-dash fuse/relay box • Faulty power window master switch • Faulty passenger's power window switch • An open in the wire
B8	BLU/ RED	Ignition switch ON (II), power window master switch main switch ON, and passenger's window switch UP	Measure the voltage to ground: There should be battery voltage.	
B9	RED/ BLU	Ignition switch ON (II), power window master switch main switch ON	Measure the voltage to ground: There should be battery voltage.	

*: With Hardtop

Convertible Top Motor Test

Right Convertible Top Motor

1. Remove the right corner gusset (see page 20-39).
2. Disconnect the 2P connector (A) from the right convertible top motor (B).

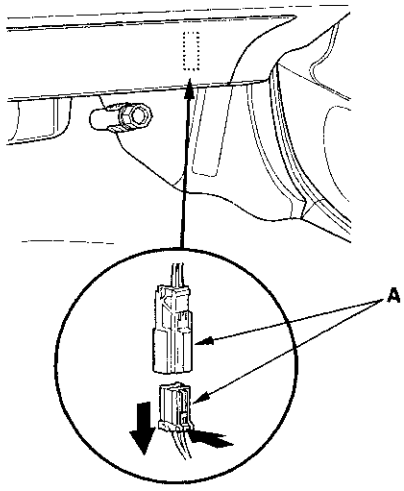


Terminal side of male terminals

3. Assist the left side of the top with your hands.
4. Test the motor in each direction by connecting battery power and ground according to the table.

Terminal / Direction	1	2
OPEN	⊕	⊖
CLOSE	⊖	⊕

5. If the motor does not operate as specified, replace the motor.
6. If the top does not work because of the motor failure, go to step 7 to close the top manually.
7. Remove the passenger's dashboard lower cover (see page 20-86).
8. Disconnect the convertible top motor emergency 2P connector (A).



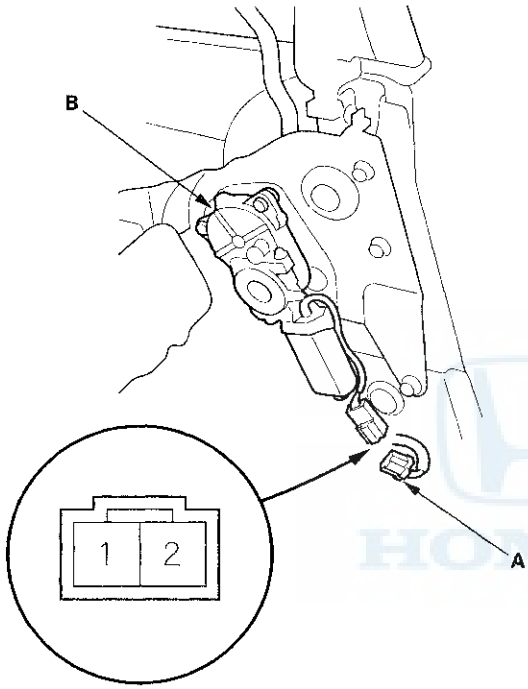
9. Close the top manually.

(cont'd)

Convertible Top Motor Test (cont'd)

Left Convertible Top Motor

1. Remove the left corner gusset (see page 20-39).
2. Disconnect the 2P connector (A) from the left convertible top motor (B).

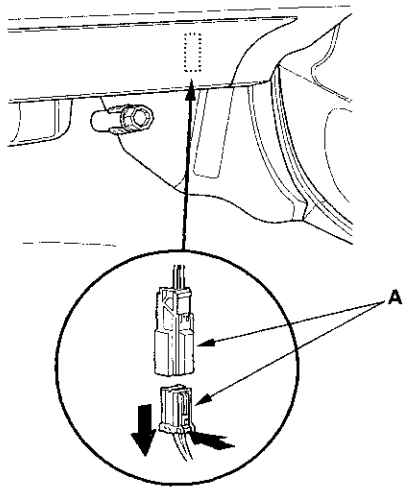


Terminal side of male terminals

3. Assist the right side of the top with your hands.
4. Test the motor in each direction by connecting battery power and ground according to the table.

Terminal / Position	1	2
OPEN	⊖	⊕
CLOSE	⊕	⊖

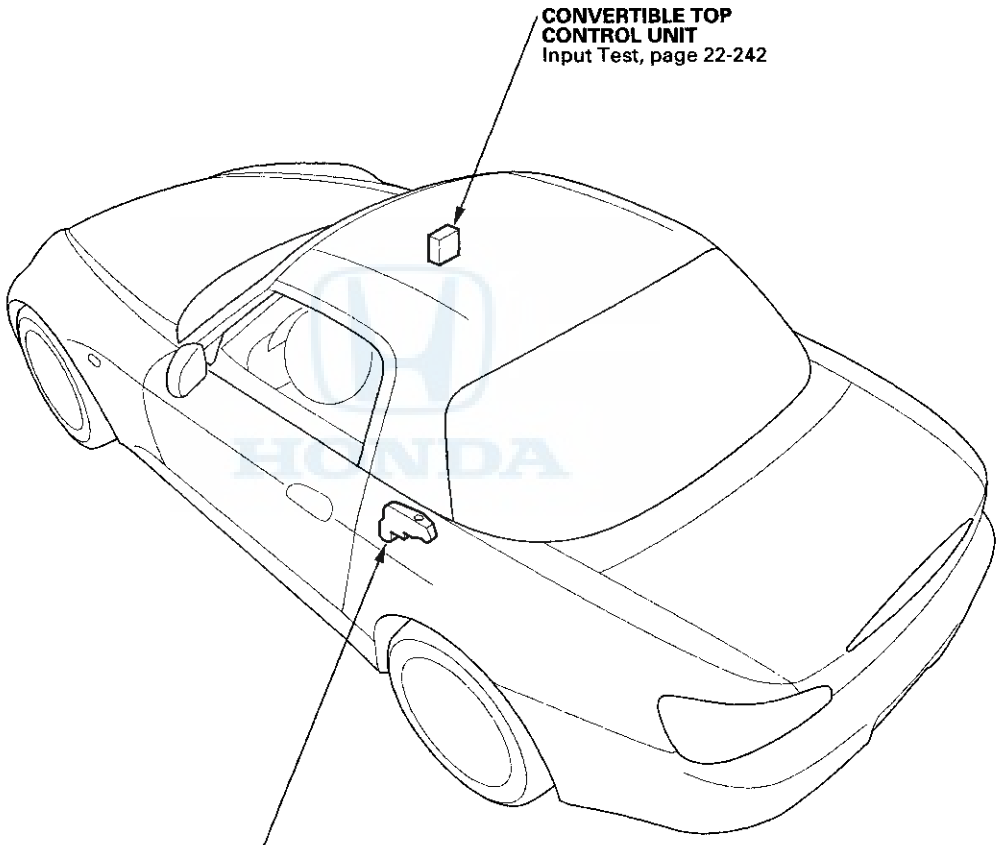
5. If the motor does not operate as specified, replace the motor.
6. If the top does not work because of the motor failure, go to step 7 to close the top manually.
7. Remove the passenger's dashboard lower cover (see page 20-86).
8. Disconnect the convertible top motor emergency 2P connector (A).



9. Close the top manually.

Removable Hardtop

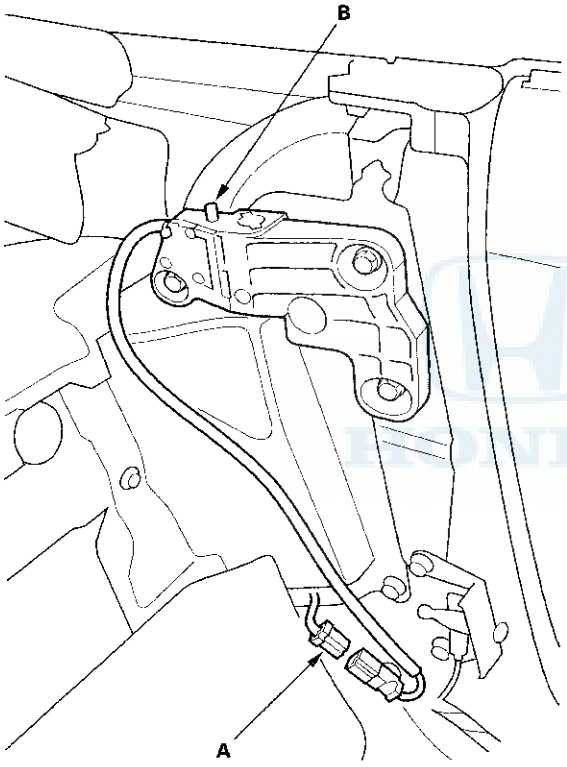
Component Location Index



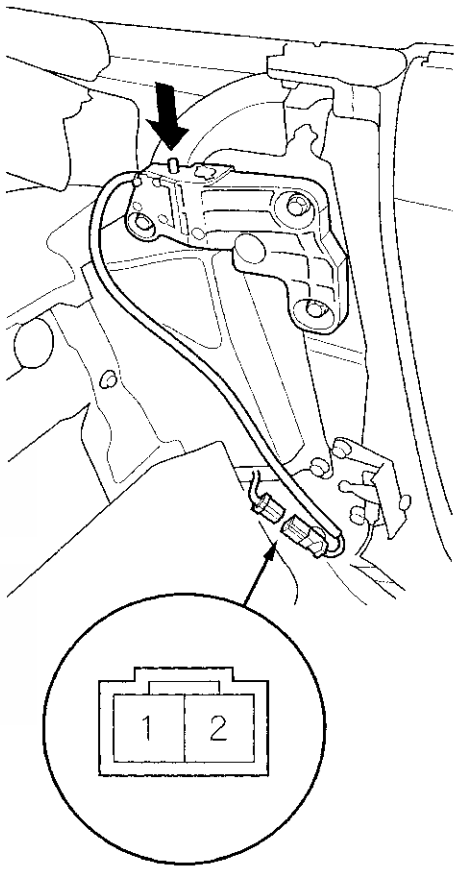
Convertible Top Disable Switch Test

NOTE: For the convertible top disable switch circuit diagram, refer to the Convertible Top Circuit Diagram (see page 22-238) and the Rear Window Defogger Circuit Diagram (see page 22-251).

1. Remove the left rear side trim (see page 20-72).
2. Disconnect the 2P connector (A) from the convertible top disable switch (B).



3. Push the convertible top disable switch.



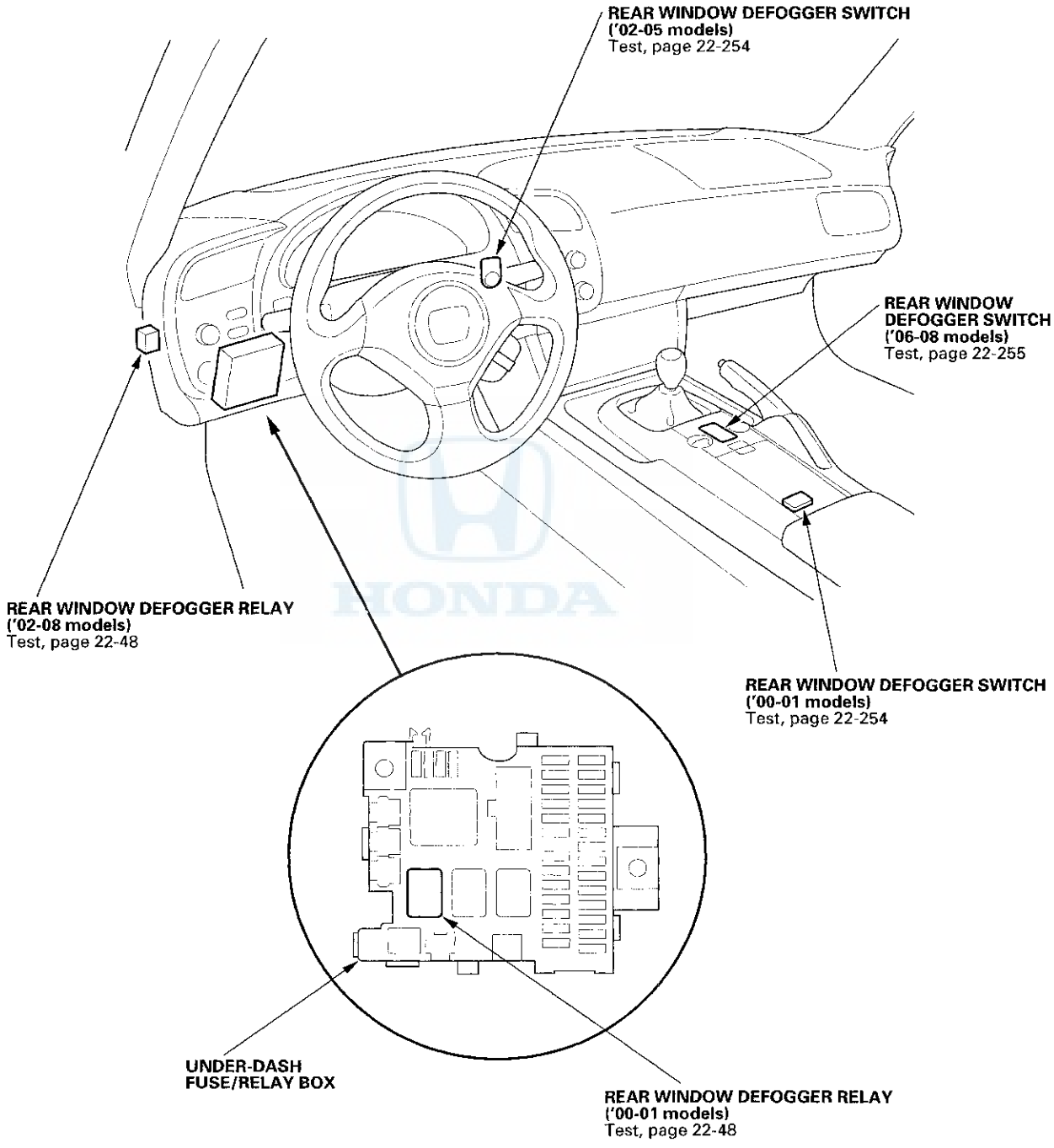
Terminal side of male terminals

4. Check for continuity between the No. 1 and No. 2 terminals.
   There should be continuity.
5. If the continuity is not as specified, replace the switch.

Rear Window Defogger

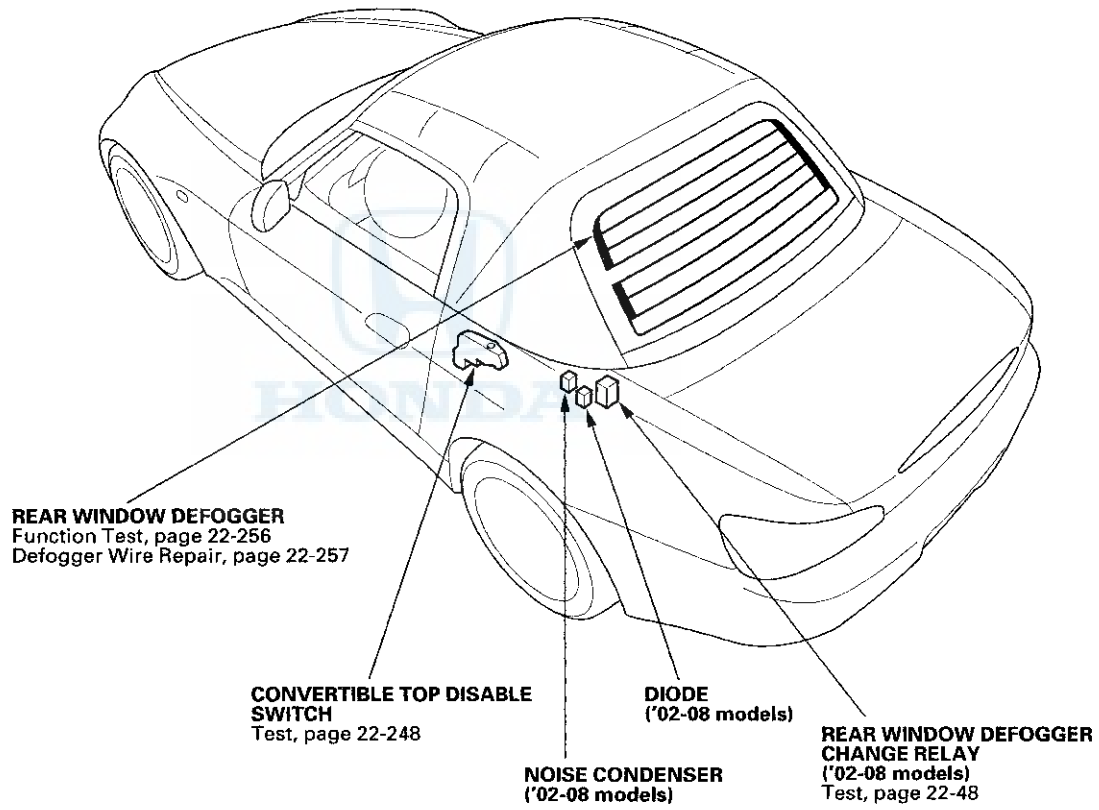
BODY

Component Location Index



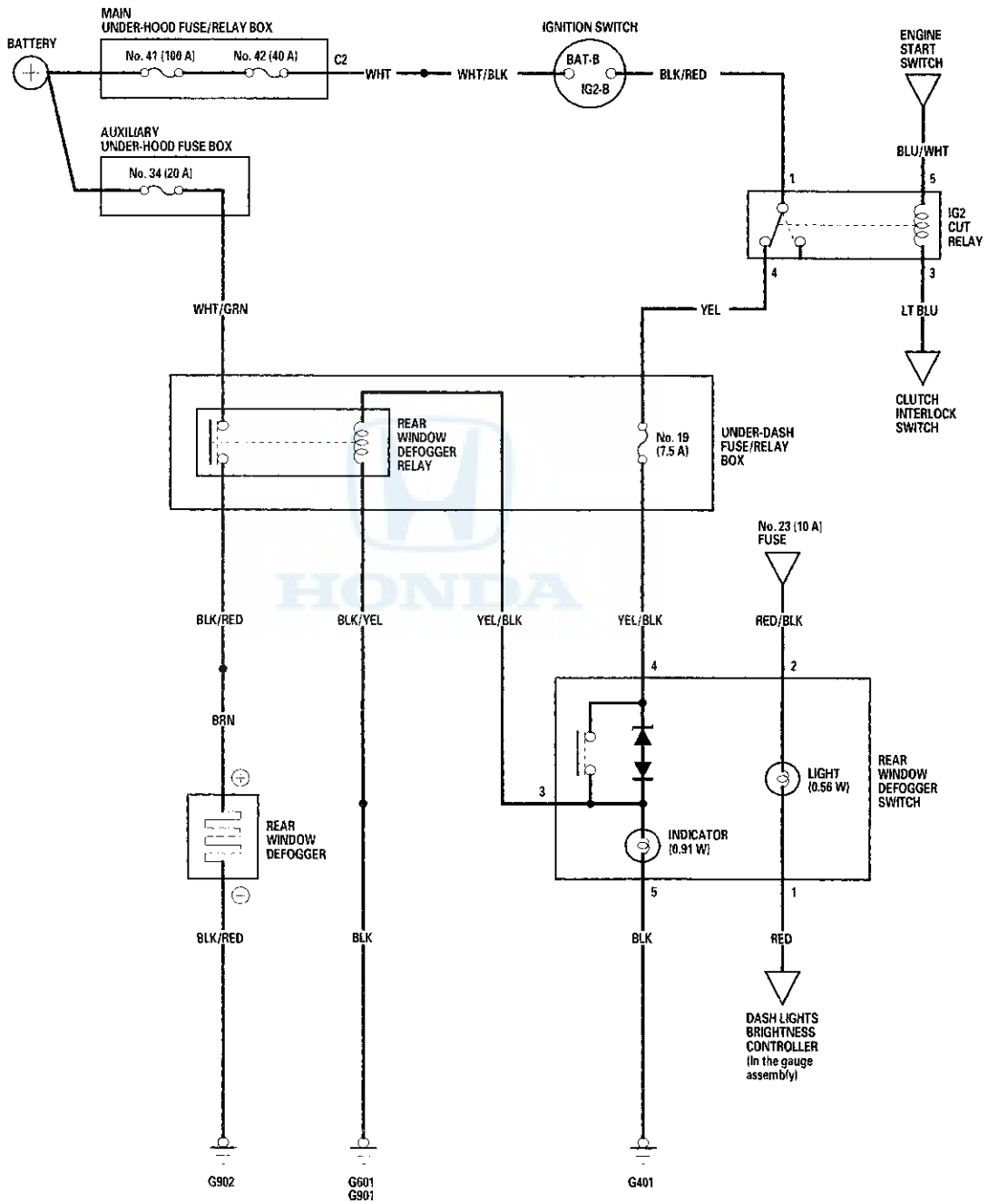
(cont'd)

Component Location Index (cont'd)



Circuit Diagram

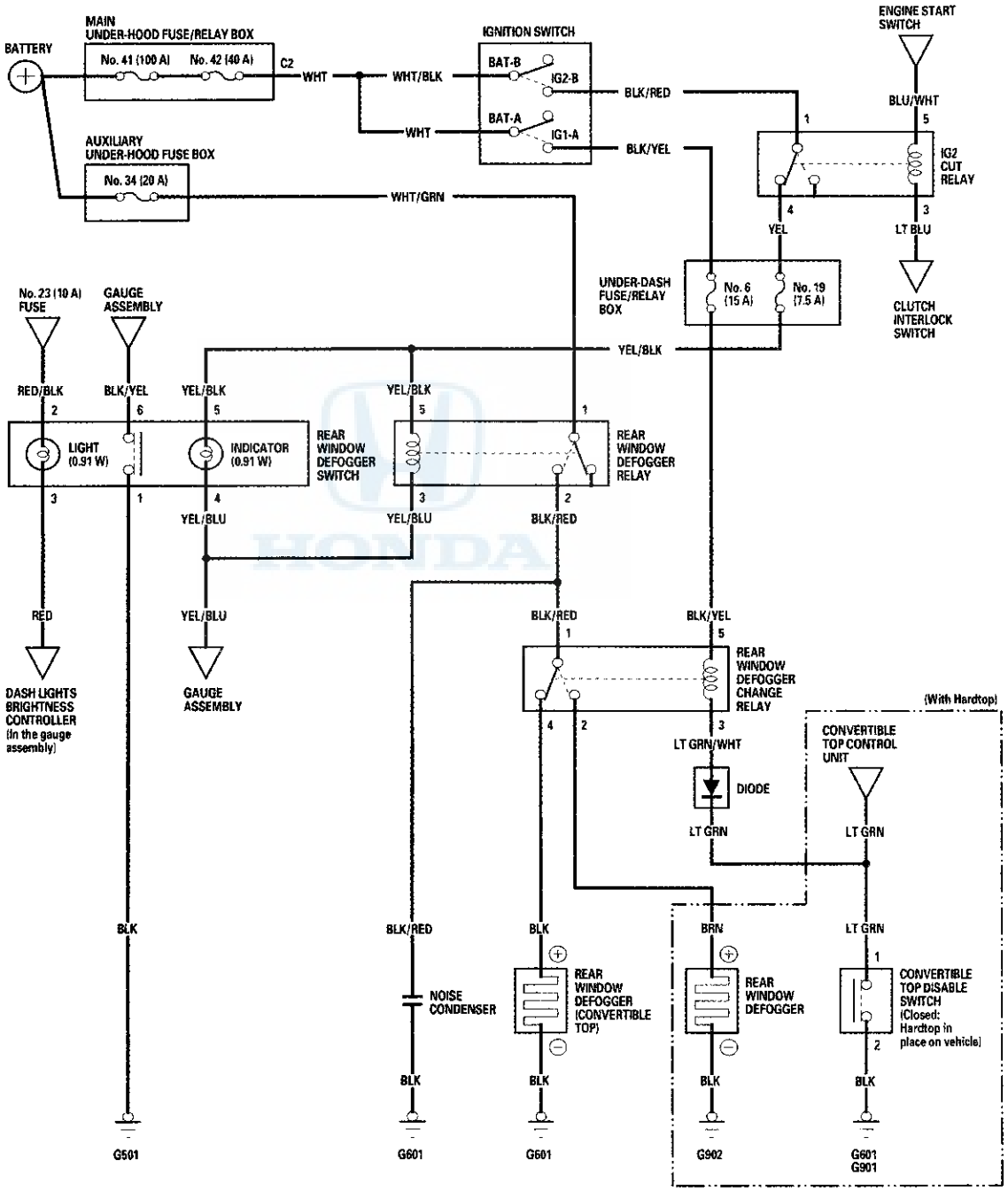
'00-01 models



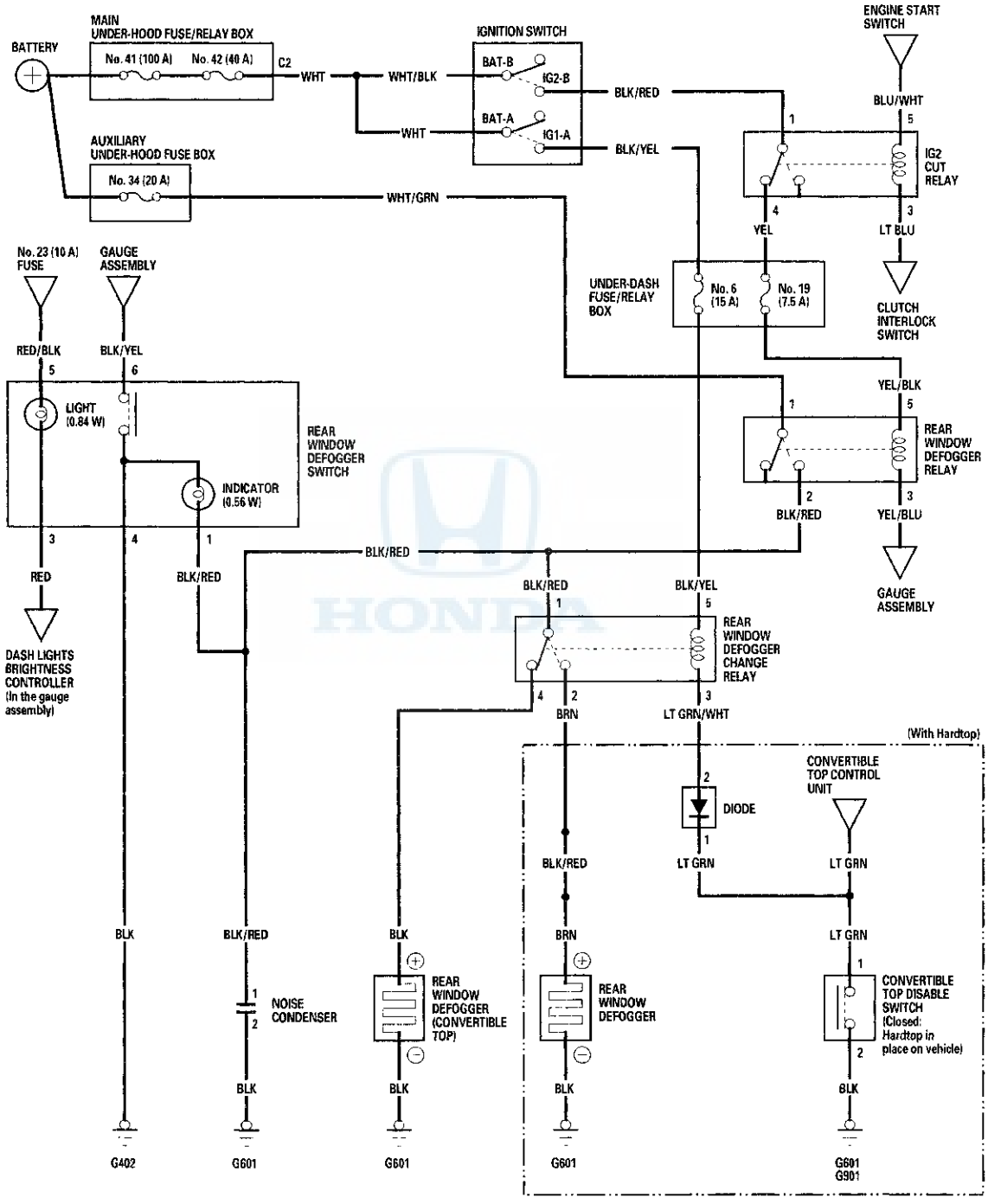
Rear Window Defogger

Circuit Diagram (cont'd)

'02-05 models



'06-08 models

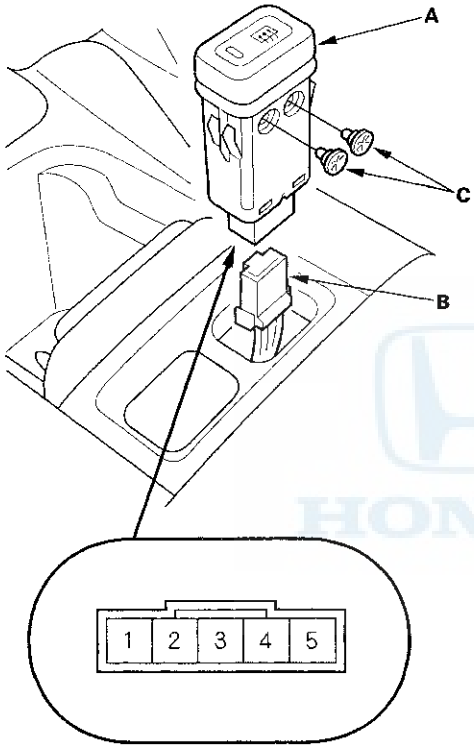

MAIN UNDER-HOOD FUSE/RELAY BOX
BATTERY
No. 41 (100 A)
No. 42 (40 A)
C2
WHT
WHT/BLK
IGNITION SWITCH
BAT-B
IG2-B
BLK/RED
BAT-A
IG1-A
WHT
BLK/YEL
ENGINE START SWITCH
BLU/WHT
AUXILIARY UNDER-HOOD FUSE BOX
No. 34 (20 A)
WHT/GRN
IG2 CUT RELAY
YEL
LT BLU
CLUTCH INTERLOCK SWITCH
No. 23 (10 A) FUSE
GAUGE ASSEMBLY
UNDER-DASH FUSE/RELAY BOX
No. 6 (15 A)
No. 19 (7.5 A)
RED/BLK
BLK/YEL
YEL/BLK
LIGHT (0.84 W)
INDICATOR (0.56 W)
REAR WINDOW DEFOGGER SWITCH
REAR WINDOW DEFOGGER RELAY
BLK/RED
YEL/BLU
GAUGE ASSEMBLY
RED
BLK/RED
BLK/RED
BLK/YEL
REAR WINDOW DEFOGGER CHANGE RELAY
BRN
LT GRN/WHT
DASH LIGHTS BRIGHTNESS CONTROLLER (In the gauge assembly)
(With Hardtop)
CONVERTIBLE TOP CONTROL UNIT
DIODE
BLK/RED
LT GRN
LT GRN
BLK
BLK/RED
BLK
BRN
LT GRN
NOISE CONDENSER
REAR WINDOW DEFOGGER (CONVERTIBLE TOP)
REAR WINDOW DEFOGGER
CONVERTIBLE TOP DISABLE SWITCH (Closed: Hardtop in place on vehicle)
BLK
BLK
BLK
BLK
G402
G601
G601
G601
G601
G901

Rear Window Defogger

Switch Test

'00-01 models

1. Remove the center console (see page 20-80).
2. Remove the rear window defogger switch (A) from the center console, then disconnect the 5P connector (B).



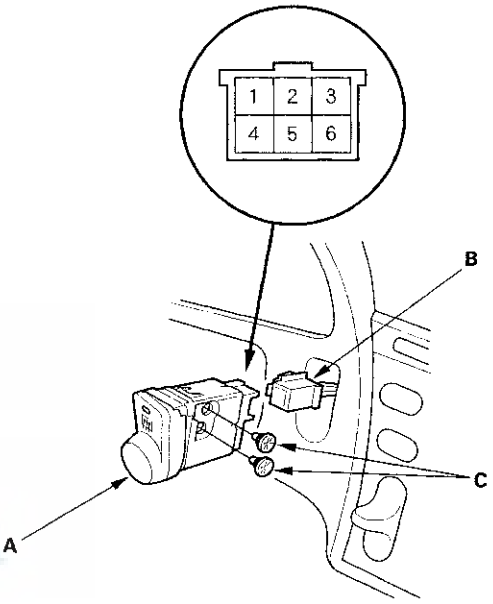
3. Check for continuity between the terminals in each switch position according to the table.

Position \ Terminal	1		2	3	4		5
OFF	○	⊙	○	○		⊙	○
ON	○	⊙	○	○	○	⊙	○

4. If the continuity is not as specified, replace the bulbs (C) or the switch.

'02-05 models

1. Remove the instrument panel (see page 20-84).
2. Remove the rear window defogger switch (A), then disconnect the 6P connector (B).



3. Check for continuity between the terminals in each switch position according to the table.

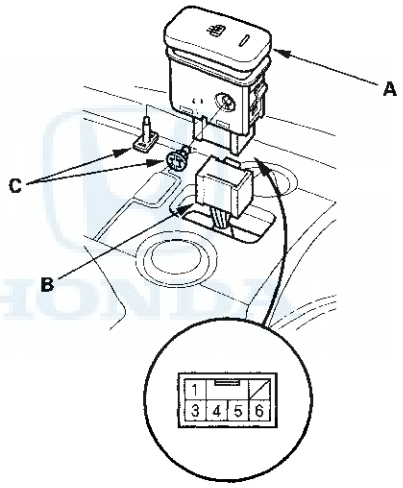
Position \ Terminal	2		3	1	6	4		5
OFF	○	⊙	○			○	⊙	○
ON	○	⊙	○	○	○	○	⊙	○

4. If the continuity is not as specified, replace the bulbs (C) or the switch.

'06-08 models

1. Remove the center console (see page 20-80).

2. Remove the rear window defogger switch (A) from the center console, then disconnect the 6P connector (B).



3. Check for continuity between the terminals in each switch position according to the table.

Terminal / Position	1		4	6	3		5
OFF	○	⊗	○		○	⊗	○
ON	○	⊗	○	○	○	⊗	○

4. If the continuity is not as specified, replace the bulbs (C) or the switch.

Rear Window Defogger

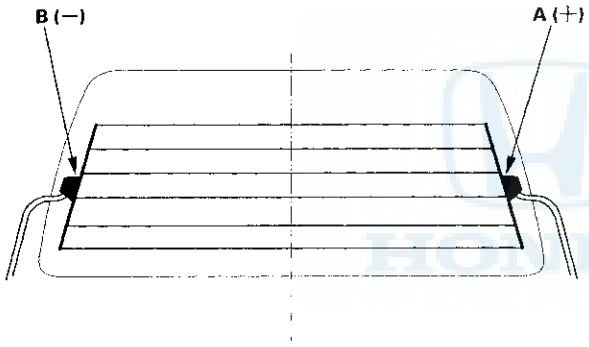
Function Test

NOTE: Be careful not to scratch or damage the defogger wires with the tester probe.

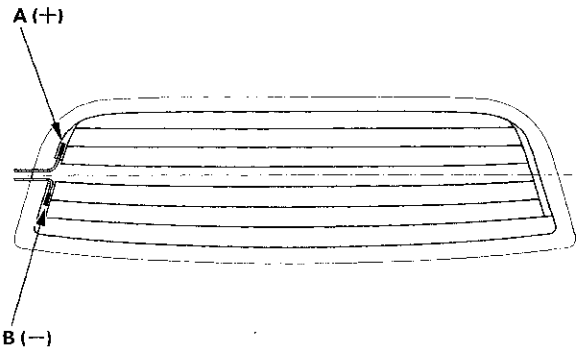
1. Measure the voltage between the positive terminal (A) and body ground with the ignition switch and defogger switch ON.
   There should be battery voltage.

   - If there is no voltage, check for:
     – Faulty defogger relay.
     – Faulty defogger change relay ('02-08 models).
     – Faulty diode ('02-08 models).
     – An open in the wire.
   - If there is battery voltage, go to step 2.

Hardtop



Convertible Top ('02-08 models)



2. Check for continuity between the negative terminal (B) and body ground.
   If there is no continuity, check for an open in the defogger ground wire.

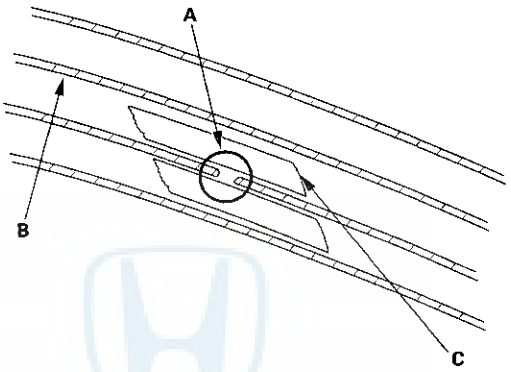
3. Touch the voltmeter positive probe to the halfway point of each defogger wire, and the negative probe to the negative terminal.
   There should be approximately 6 V with the ignition switch and the defogger switch ON.

   - If the voltage is as specified, the defogger wire is OK.
   - If the voltage is not as specified, repair the defogger wire.
     – If it is more than 6 V, there is a break in the negative half of the wire.
     – If it is less than 6 V, there is a break in the positive half of the wire.

Defogger Wire Repair

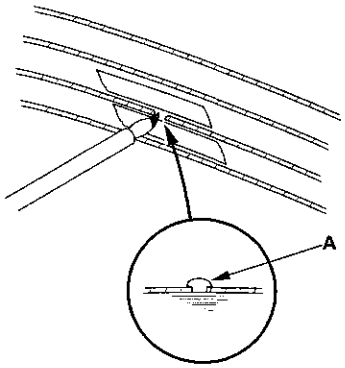
NOTE: To make an effective repair, the broken section must be no longer than 1 inch (25 mm).

1. Lightly rub the area around the broken section (A) with fine steel wool, then clean it with isopropyl alcohol.



2. Carefully mask above and below the broken portion of the defogger wire (B) with cellophane tape (C).

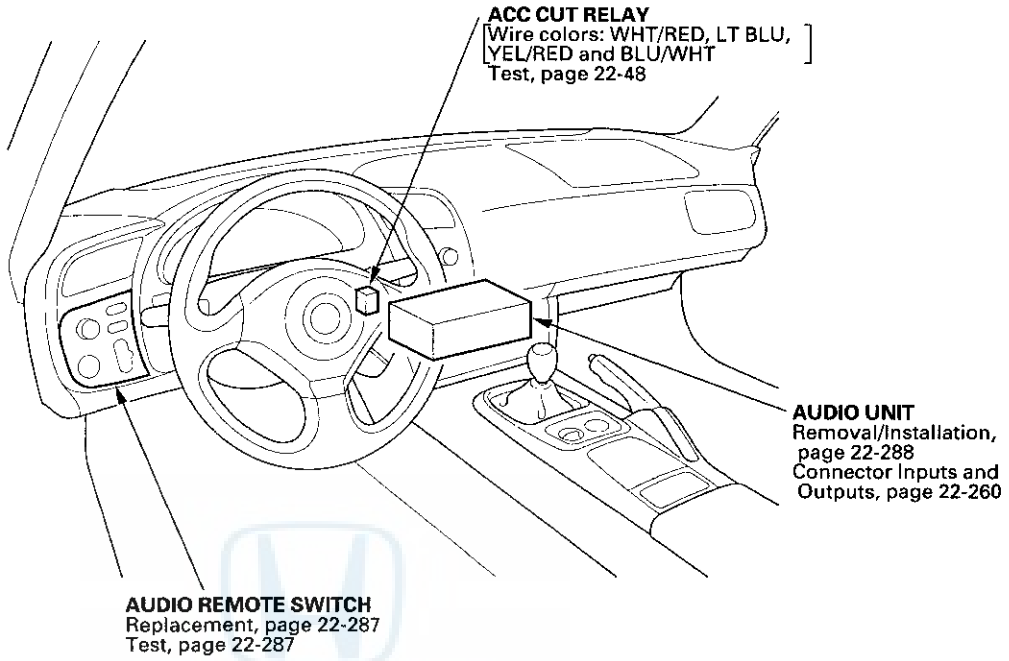
3. Thoroughly mix the silver conductive paint using a small brush, apply a heavy coat of the paint extending about 1/8" on both sides of the break. Allow 25 minutes to dry.

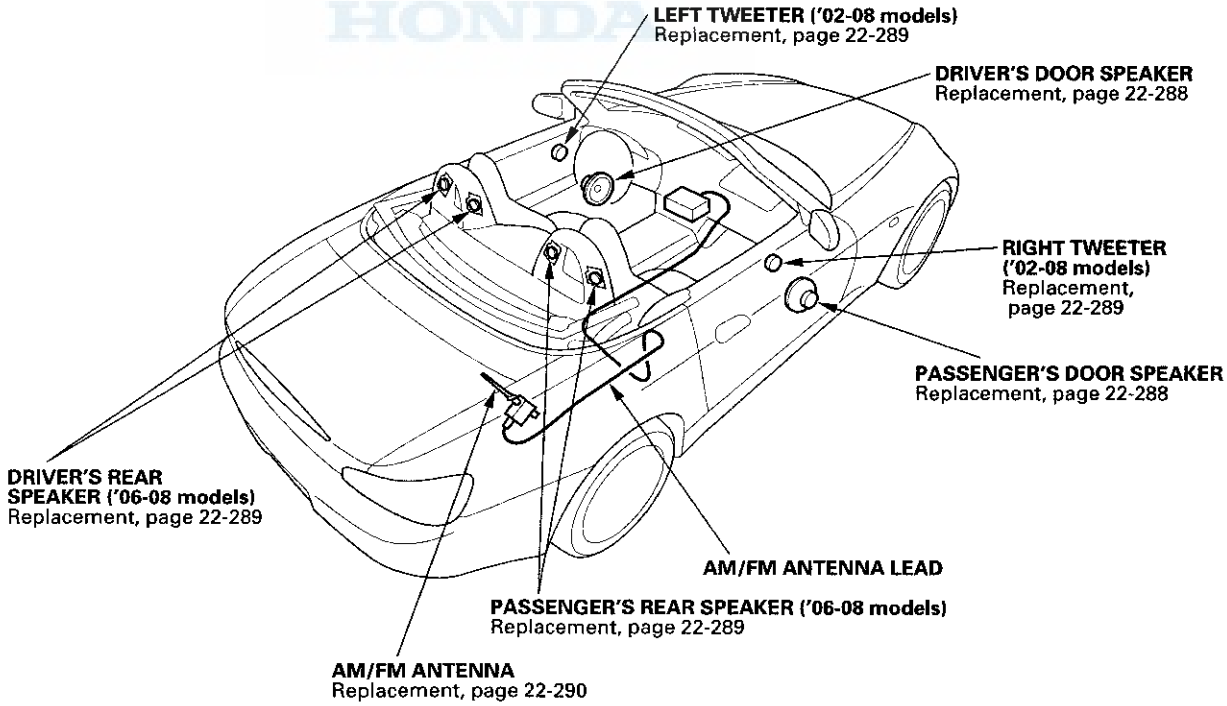


4. Check for continuity in the repaired wire.

5. Apply a second coat of paint in the same way. Let it dry 3 hours before removing the tape.

Component Location Index





Symptom Troubleshooting Index

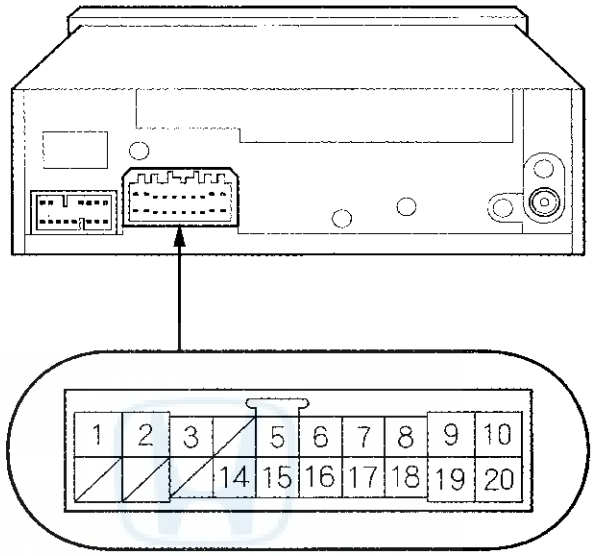
Symptom	Diagnostic procedure	Also check for
Poor AM or FM radio reception or interference	Symptom Troubleshooting (see page 22-267)	Antenna lead short or open in the wire
Power switch will not turn ON (No information display and no sound)	Symptom Troubleshooting (see page 22-270)	
Power will not turn OFF	Symptom Troubleshooting (see page 22-271)	
No sound is heard from speaker(s) (display is normal)	Symptom Troubleshooting (see page 22-271)	
Audio system sound is weak or distorted (display is normal)	Symptom Troubleshooting (see page 22-273)	
Audio unit button illumination does not work	Symptom Troubleshooting (see page 22-274)	
Radio preset memory is lost	Symptom Troubleshooting (see page 22-275)	• Battery condition • Battery cable condition
Audio disc does not eject	Symptom Troubleshooting (see page 22-276)	
Volume does not change	Symptom Troubleshooting (see page 22-276)	
Radio tuner does not change stations	Symptom Troubleshooting (see page 22-277)	
Audio disc does not load	Symptom Troubleshooting (see page 22-277)	
Audio disc does not play	Symptom Troubleshooting (see page 22-278)	
Audio disc skips	Symptom Troubleshooting (see page 22-278)	Tire pressure (over-inflated), disc smudged, dirty, or scratched
Audio remote switch does not work properly	Symptom Troubleshooting (see page 22-279)	

Audio System

System Description

Audio Unit Connector Inputs and Outputs

When replacing an audio unit connector, match the wires to the cavities listed in the following table.



Audio unit 20P connector

Cavity	Wire	Connects to
1	YEL/GRN	AM/FM antenna amplifier
2	WHT/RED	ACC (Main stereo power supply)
3	GRN/RED	Audio remote switch
5*2	RED/YEL	Driver's rear right speaker (+), Passenger's rear right speaker (+)
6*2	BLU/YEL	Driver's rear left speaker (+), Passenger's rear left speaker (+)
7	GRN/BLK	Passenger's door speaker (+), Right tweeter (+)*1
8	GRN/YEL	Driver's door speaker (+), Left tweeter (+)*1
9	RED/BLK	Lights-on signal
10	WHT/BLU	Constant power
14	YEL/BLU	Audio remote switch (MUTE)
15*2	BRN/WHT	Driver's rear right speaker (−), Passenger's rear right speaker (−)
16*2	GRY/RED	Driver's rear left speaker (−), Passenger's rear left speaker (−)
17	LT GRN	Passenger's door speaker (−), Right tweeter (−)*1
18	GRY/RED	Driver's door speaker (−), Left tweeter (−)*1
19*1	RED	Dash lights brightness controller
20	BLK	Ground (G502)

* 1: '02-08 models
* 2: '06-08 models

NOTE: All items may not apply to this vehicle. See the Owner's manual for more information.

Audio Glossary

Item	Definition
AM (Amplitude Modulation)	The type of transmission used in the standard radio broadcast band from 530 to 1705 kHz.
Amplifier	A device that increases the level of a signal by increasing the current or voltage.
Antenna	A device used to send or receive electromagnetic waves through the air.
ATA (PC Card)	A type of card that has been tested for use in playing WMA, and MP3 music files in the PC card slot. Sizes of up to 1 GB have been tested.
Audio Remote switch	The switches on the steering wheel that control the audio system.
Auxiliary jack	Allows the customer to use a portable audio device to input music recordings.
Balance	A control that changes the relative volume of the left and right channels.
Band	A range of frequencies between two definite limits. Bands are assigned by the Federal Communications Commission for specific uses.
Bass	An adjustment for the low frequency sounds of around 160 Hz and below.
Byte	A unit of storage for computer files and memory. A CD holds approximately 700 million bytes.
Cassette	Audio or video magnetic tape container having two reels. Customers can insert it for recording or play back.
Compact Flash	A standard for small-size (3 x 4 cm) , memory cards used in mobile computers, PDAs, digital cameras. Compact flash memory cards are available in size of 32 MB up to 4 GB or more and can be played in the audio PC slot. Sizes above 1 GB has not been tested.
CD (Compact Disc)	A 4.5-inch plastic disc containing digital audio recording that is played optically on a laser equipped player. Never use discs with a paper label. In a hot car, labels can curl up and jam the unit.
CD Changer	CD player that can store and play more than one CD. Two types are available. Some units accept CDs fed into the changer one at a time, and others accept a magazine (with CD's stacked in a container).
CD player	A component designed to play compact disc CD recording using a laser optical pickup. The signal from a CD player usually requires amplification, which case the Auxiliary jacks can be used.
Distortion	Inexact reproduction of an audio signal caused by playing music at levels the audio system cannot handle.
Dolby (noise reduction)	A processing system developed by Dolby Laboratories that reduces the background noise on recording media. The result is clearer playback from the audio system.
DVD (Digital Versatile Disc)	A 4.5-inch CD-like format used for storing movies with digital audio and video features. The DVD-A format is a DVD format designed for DVD audio systems. Some vehicles can play DVD or DVD-A formats.
Equalizer	A device that changes the relative volume of individual frequency bands to suit personal tastes of the listener.
Fader	The control that adjusts the relative volume levels of front and rear speakers in a four-speaker system.
Format	To prepare a PC card to receive files, this function is performed on a PC. Always choose either FAT or FAT32 as the NTFS format is not accepted by the system. Pick the default sectors for the format method selected.
FM (Frequency Modulation)	The modulation used for radio and television sound transmission in most of the world. Less prone to interference than AM. The FM broad cast band covers roughly 87 to 108 MHz.
GB (Gigabyte)	A unit of memory or disk storage equal to billion bytes (1000 million bytes).

(cont'd)

System Description (cont'd)

Audio Glossary

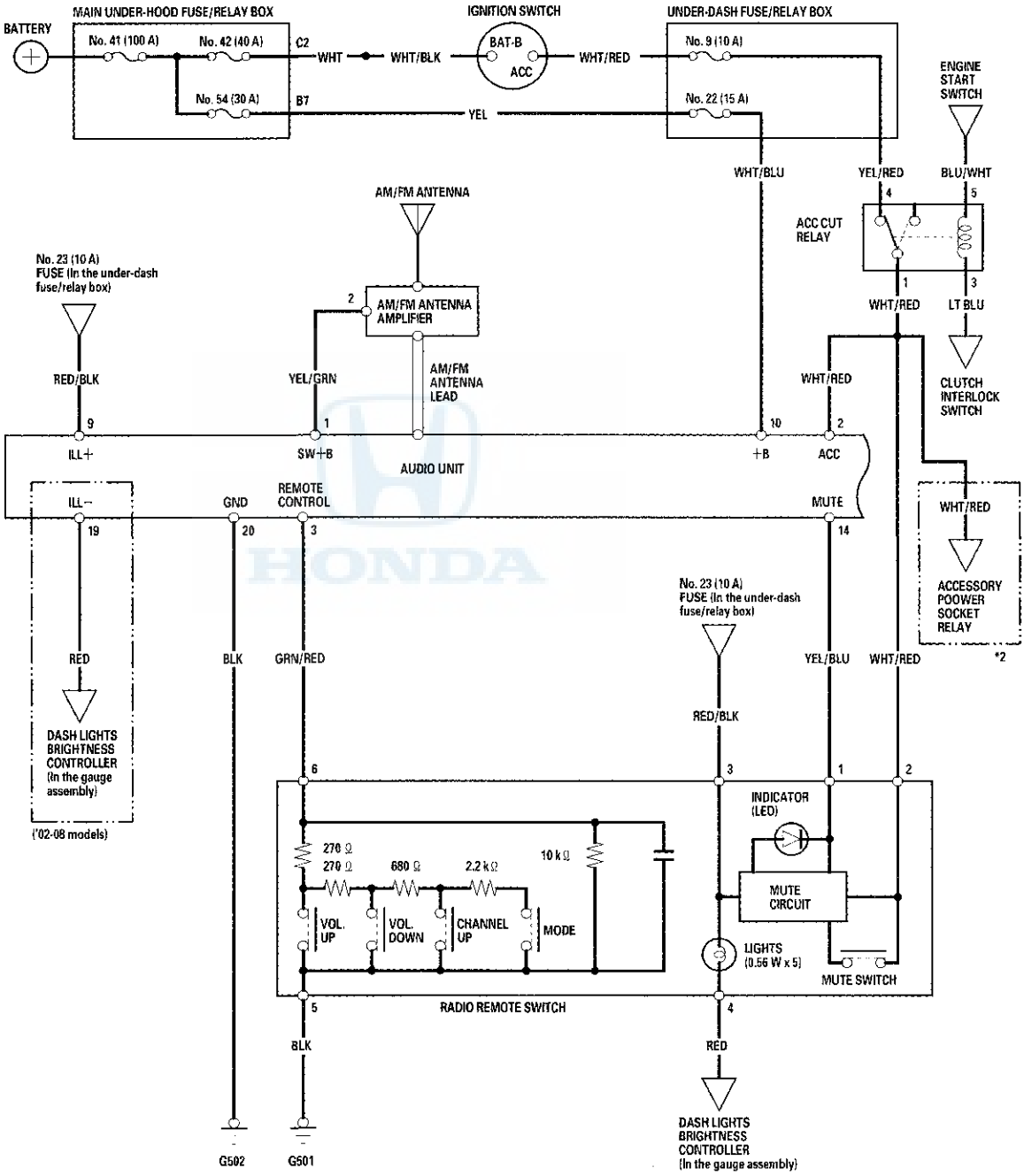
Item	Definition
HDD	Abbreviation for hard disc drive. They are sensitive to heat and it is not recommended that they be used in the PC card slot for playing audio files.
Hertz (HZ)	The unit of frequency equal to one cycle per second (cps). One kilohertz (kHz) equals 1,000 cps; one megahertz (MHz) equals 1 million cps.
Integrated Amplifier	A component that combines a pre amp and a power amp into a single unit. A receiver combines an integrated amp and a tuner into a single unit.
Jewel Case	The hard plastic case that contains a compact disc or DVD. Always use a jewel case to prevent scratches on the underside of a CD or DVD.
LCD (Liquid Crystal Display)	A type of digital display that changes reflectance or transmittance when an electrical field is applied to it.
Memory	Circuitry or devices that hold information in electrical or magnetic form, such as the AM/FM radio presets.
MB (Megabyte)	One million bytes. Written as 1 MB. Megabytes are used s a measure of digital storage space. For example, a CD can hold 650 MB.
Mic	An abbreviation for microphone. For vehicles with navigation, the microphone accepts navigation voice commands to control audio and navigation functions.
MP3 music files	MP3 is an audio coding format. MP3 is poplar audio compression format on the Internet and computers. CDs, and PC card with these files can be played on some vehicle's audio system.
Mute	When the navigation gives guidance, the front speakers are muted (no music). When you use the voice control system, all of the speakers are muted.
Noise	Unwanted random sounds like buzzing, hiss, pops, static, whine, etc.
PC Card	The slot used for playing MP3 and WMA music files. The PC card is usually a combination of a small flash card in a PCMCIA adaptor that slides into the slot. The ATA, SD, and compact flash types of cards have been tested up to 1 GB.
PCMCIA	A computer standard for the slot that the PC card slides into. Another term for the PC card slot.
Processor	The part of an audio device that performs task/calculations. In the audio unit, the processor handles muting to allow the navi to speak voice commands, and the decoding/playback of the sound files etc.
Radio	A head unit that combines a tuner, a preamplifier, and often a power-amplifier.
SCF (Cold Start Fix) screens	These screens are displayed if the system requires a GPS initialization. The vehicle should be moved outside into an open area away from buildings/power lines.
Stereo	A recording of at least two channels where you can hear sound or music from the left or right side.
SD (Secure Digital) card	This compact type of memory card allows for fast data transfer and has built-in security functions. SD cards have a small write-protection switch on the side.
Shield	A metallic foil or braided wire layer surrounding conductors which are designed to prevent electrostatic or electromagnetic interference (noise) from external sources such as buzzing, or popping sounds heard on the speakers.
Speaker (Loudspeaker)	A device that converts electrical energy into acoustical energy (sound).
Subwoofer	A loudspeaker made to reproduce the lowest audio frequencies, approx 25 Hz to 125 Hz.

Audio Glossary

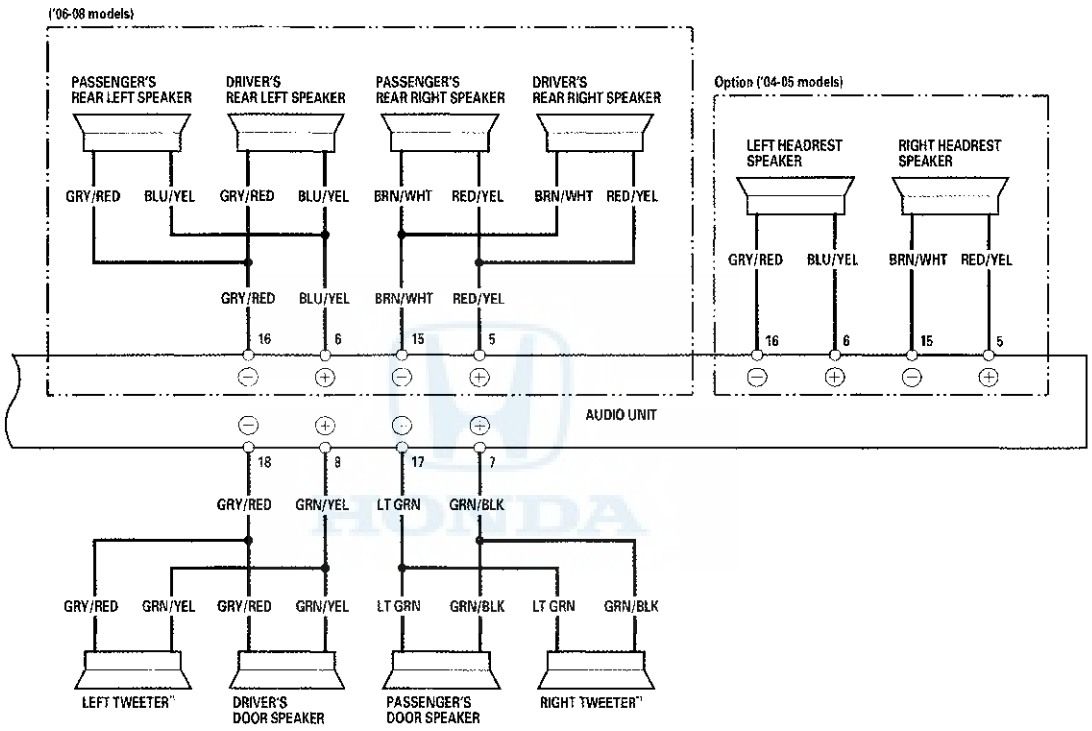
Item	Definition
Track	A sound recording on a CD, tape, or PC card.
Treble	An adjustment to control the volume of the high frequency sounds.
Tuner	A component (or part of a component) that receives radio signals and selects one broadcast from many.
Tweeter	A speaker designed to reproduce the higher frequencies (treble) only.
Voice Coil	A coil of wire wrapped around a tube and attached to the speaker cone or diaphragm. When an audio signal is applied, the coil becomes an electromagnet and interacts with the permanent magnet causing the cone or diaphragm to vibrate. We interpret this vibration as sound.
Volume Control	Allows you to control the loudness of the music.
WMA music file	Windows Media Audio File. This is an accepted format for music files to be played on either a CD or a PC card.
Woofer	A speaker that is designed to reproduce bass frequencies only.
XM Radio	Satellite based radio transmission, which also uses a ground based repeater network to ensure seamless reception. The channels originate from XM's broadcast center, in Washington, DC, and uplink to two satellites. These satellites transmit the signal across the entire continental United States.
XM Receiver	The external component that receives and processes the XM signals from the XM satellites, and terrestrial (land) stations. The audio unit communicates to the XM receiver over the GA-Net bus.

Audio System

Circuit Diagram



*1: '02-08 models
*2: 'CR model
VOL. : Volume



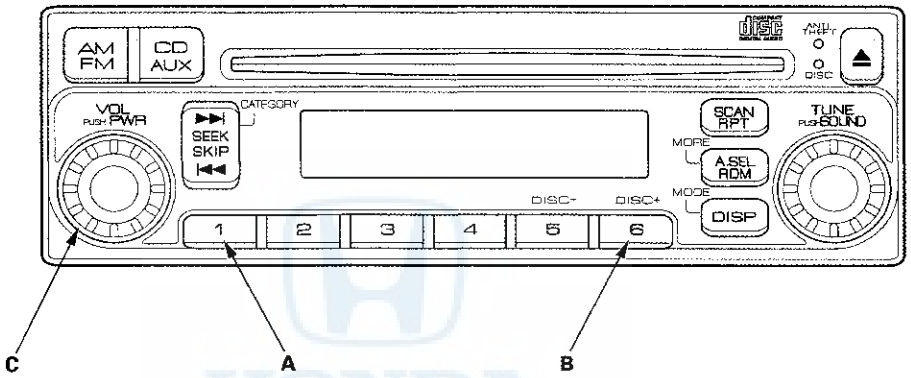
Self-diagnostic Function

Serial Number Display Mode

To obtain the audio unit serial number on a vehicle, do the following:

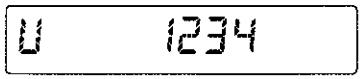
NOTE: You can only do this procedure when the battery power has been disconnected from the audio unit and the audio unit displays CODE.

1. Turn the ignition switch to ON (II).
2. With the audio unit turned off, push and hold the No. 1 (A) and No. 6 (B) buttons. While holding the buttons, push the VOL PUSH PWR knob (C) to ON.

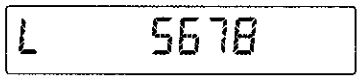


3. The audio unit displays a U and a 4 digit number (A) (example U1234). These are the first 4 digits of the serial number. The display then changes to a L and a 4 digit number (B) (example L5678). These are the last 4 digits of the serial number.

A (First 4 digits of the serial number)



B (Last 4 digits of the serial number)



4. Use all 8 numbers as the serial number when using the Interactive Network (*i*N) to retrieve the 5 digit anti-theft code.
5. The serial number output mode ends when you turn the audio unit off, or turn the ignition switch to LOCK (0).

Symptom Troubleshooting

Poor AM or FM radio reception or interference

NOTE:
- Check the vehicle battery condition first.
- Check for aftermarket accessories.
- Check the connectors for poor connections or loose terminals.
- Check the radio reception in an open area. Poor reception/interference can be caused by the following:
  - The radio station is far away.
  - Atmospheric conditions are unfavorable.
  - Tall buildings, mountains, or high-voltage power lines are nearby.

1. Turn the ignition switch to ON (II).
2. Do the seek stop test (see page 22-285).

   Is the number of stations the same or within 10 % of the known-good vehicle?

   YES—Multipath interference or weak station. Operation is normal. ■

   NO—Go to step 3.
3. Check if the radio reception/interference is the same in several locations.

   Is the reception/interference the same?

   YES—Go to step 4.

   NO—Multipath interference or weak station. Operation is normal. ■
4. Start the engine.
5. Check the reception/interference while the engine is running.

   Is there noise (static or whine) only with the engine running?

   YES—Check all of the AM/FM antenna connections and the AM/FM antenna and radio grounds. If OK, check the charging system and the ignition system. ■

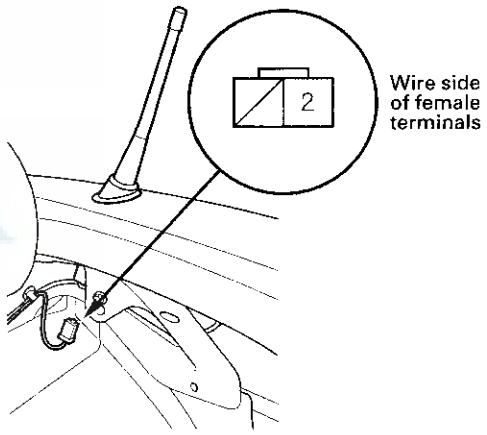
   NO—Go to step 6.
6. Turn the ignition switch to LOCK (0).
7. Check the antenna mast for cracks, or other damage. Make sure that the AM/FM antenna mast isn't loose.

   NOTE: Do not use any tools to tighten the antenna mast.

   Is there any damage?

   YES—Replace the AM/FM antenna mast (see page 22-290). ■

   NO—Go to step 8.
8. Turn the ignition switch to ON (II).
9. Turn on the audio unit.
10. Measure the voltage between AM/FM antenna 2P connector terminal No. 2 and body ground.



   Is there battery voltage?

   YES—Go to step 11.

   NO—Go to step 18.
11. Turn the ignition switch to LOCK (0).

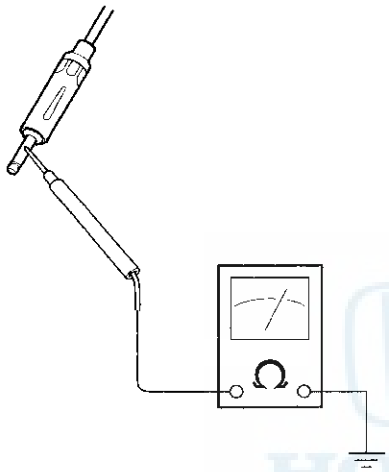
(cont'd)

Symptom Troubleshooting (cont'd)

12. Remove the audio unit, and disconnect the AM/FM antenna lead (see page 22-290).

13. Disconnect the AM/FM antenna lead from the AM/FM antenna.

14. Check for continuity between the AM/FM antenna lead center pin at the audio unit side and body ground.

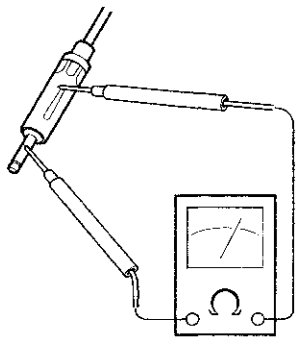


Is there continuity?

YES—Replace the AM/FM antenna lead. ■

NO—Go to step 15.

15. Check for continuity between the AM/FM antenna lead center pin and the surface of the AM/FM antenna lead.

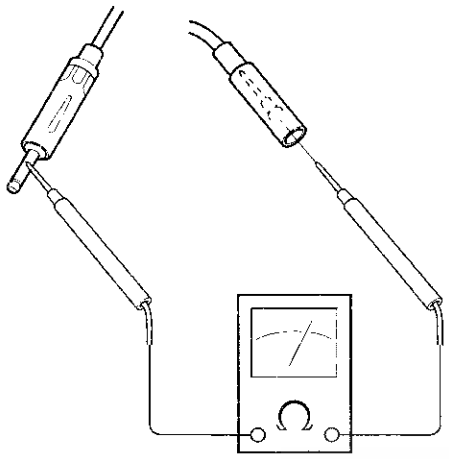


Is there continuity?

YES—Replace the AM/FM antenna lead. ■

NO—Go to step 16.

16. Check for continuity between the AM/FM antenna lead center pin at the audio unit side and the AM/FM antenna lead center pin at the AM/FM antenna side.



Is there continuity?

YES—Go to step 17.

NO—Replace the AM/FM antenna lead. ■

17. Substitute a known-good AM/FM antenna lead, and check the radio reception.

Is the reception normal?

YES—Replace the AM/FM antenna lead. ■

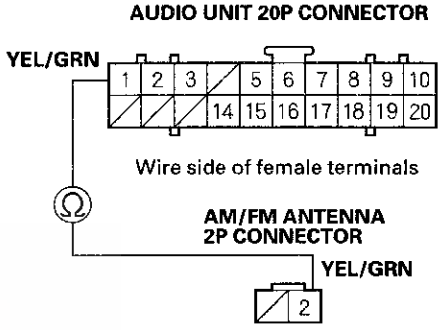
NO—Substitute a known-good audio unit and recheck. If the reception is still poor, replace the AM/FM antenna. ■

18. Turn the ignition switch to LOCK (0).

19. Remove the audio unit and disconnect the audio unit 20P connector.

NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.

20. Check for continuity between audio unit 20P connector terminal No. 1 and AM/FM antenna 2P connector terminal No. 2.



Is there continuity?

YES—Substitute a known-good audio unit and retest. ■

NO—Repair open in the wire between the audio unit and the AM/FM antenna. ■

Symptom Troubleshooting (cont'd)

Power switch will not turn ON (No information display and no sound)

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Push the power switch ON to see if audio unit turns ON.

   Does the power turn ON?

   YES—Operation is normal. If the display turns ON, but no sound is heard or if the display does not turn ON, but the sound is OK. Go to audio system sound is weak or distorted (see page 22-273), or no sound is heard from speakers (see page 22-271).■

   NO—Go to step 3.
3. Turn the ignition switch to LOCK (0).
4. Check the No. 22 (15 A) fuse and No. 9 (10 A) fuse in the under-dash fuse/relay box.

   Are the fuses OK?

   YES—Go to step 5.

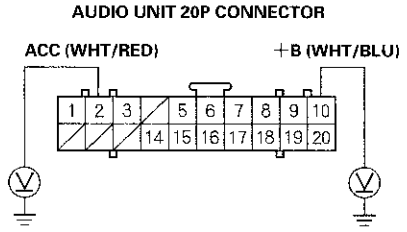
   NO—Replace the fuse, and recheck.■
5. Remove the audio unit (see page 22-288). Check that the audio unit connector is properly connected.

   Is it connected properly?

   YES—Go to step 6.

   NO—Reconnect the connector, and recheck the function.■
6. Disconnect the audio unit 20P connector.

   NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between the No. 2 and No. 10 terminals of the audio unit 20P connector and body ground.

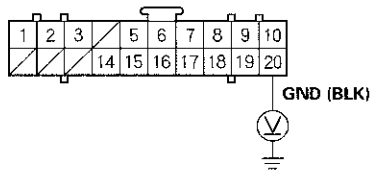


Wire side of female terminals

   Is there battery voltage?

   YES—Go to step 9.

   NO—Repair open in the wire(s) between the No. 22 (15 A) fuse and No. 9 (10 A) in the under-dash fuse/relay box and the audio unit.■
9. Turn the ignition switch to LOCK (0).
10. Reconnect the audio unit 20P connector.
11. Turn the ignition switch to ON (II).
12. Measure the voltage between audio unit 20P connector No. 20 terminal and body ground while pressing and releasing the audio unit power switch several times.



Wire side of female terminals

   Is there less than 0.1 V?

   YES—Replace the audio unit (see page 22-288).■

   NO—Repair open in the wire between the audio unit connector A (20P) No. 20 terminal and body ground (G502).■

Power will not turn OFF

NOTE: Check for aftermarket accessories plugged into the vehicle accessory power sockets.

1. Turn the ignition switch to ON (II).
2. Push the power switch OFF or turn the ignition switch to LOCK (0) to see if the audio unit turns OFF.

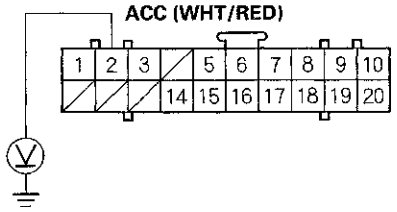
   Is the audio unit OFF?

   YES—Operation is normal. ■

   NO—Go to step 3.
3. Turn the ignition switch to LOCK (0).
4. Remove the audio unit (see page 22-288). Disconnect the audio unit 20P connector.

   NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.
5. Measure the voltage between the No. 2 terminal of the audio unit 20P connector and body ground.

AUDIO UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Check for short to power on WHT/RED wire. ■

NO—Replace the audio unit (see page 22-288). ■

No sound is heard from speaker(s) (display is normal)

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.
- Before doing symptom troubleshooting, check for power switch will not turn ON troubleshooting (see page 22-270).

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit and check that the volume button is not set to the MIN level.

   Is it at the MIN level?

   YES—Raise the volume level, and recheck the function. ■

   NO—Go to step 3.
3. Check the MUTE mode.

   Is the MUTE mode set?

   YES—Cancel the MUTE mode by depressing the mute button, and recheck the function. ■

   NO—Go to step 4.
4. Check to see if there is a specific speaker that has no sound.

   Is there a specific speaker?

   YES—Go to step 7.

   NO—Go to step 5.
5. Turn the ignition switch to LOCK (0).

(cont'd)

Symptom Troubleshooting (cont'd)

6. Remove the audio unit (see page 22-288). Check that the audio unit connector is properly connected.

   NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.

   Is it connected properly?

   YES—Go to step 11.

   NO—Reconnect the connector, and recheck the function. ■

7. Turn the ignition switch to LOCK (0).

8. Check the speaker with no sound for any damage.

   Is there any damage?

   YES—Substitute the speaker and recheck. ■

   NO—Go to step 9.

9. Remove the speaker(s) with no sound, Door speaker (see page 22-288), Rear speaker (see page 22-289), Tweeter (see page 22-289), and disconnect its connector.

10. Check the speaker connector for a loose or poor connection.

    Reconnect the speaker connector and recheck the symptom; does it still fail?

    YES—Go to step 11.

    NO—Operation is normal. ■

11. Disconnect the speaker connector.

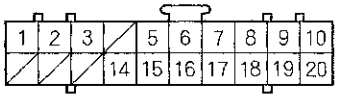
12. Remove the audio unit (see page 22-288), and disconnect the audio unit 20P connector.

    NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.

13. Check for continuity between both pairs of speaker wires (+) and (−) at audio unit 20P connector.

Speaker	Terminal	Wire color
Driver's door speaker, Left tweeter	A8 (+)	GRN/YEL
	A18 (−)	GRN/RED
Front passenger's door speaker, Right tweeter	A7 (+)	GRN/BLK
	A17 (−)	LT GRN
Left rear speaker	A6 (+)	BLU/YEL
	A16 (−)	GRY/RED
Right rear speaker	A5 (+)	YEL
	A15 (−)	BRN/WHT

AUDIO UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire(s) between the audio unit and speaker(s). ■

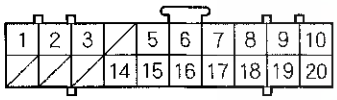
NO—Go to step 14.

14. Connect the speaker connector terminal (+) and (−) with a jumper wire.

15. Check for continuity between both pairs of speaker wires (+) and (−) at the audio unit 20P connector according to the table.

Speaker	Terminal	Wire color
Driver's door speaker, Left tweeter	A8 (+)	GRN/YEL
	A18 (−)	GRN/RED
Front passenger's door speaker, Right tweeter	A7 (+)	GRN/BLK
	A17 (−)	LT GRN
Left rear speaker	A6 (+)	BLU/YEL
	A16 (−)	GRY/RED
Right rear speaker	A5 (+)	YEL
	A15 (−)	BRN/WHT

AUDIO UNIT 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 16.

NO—Repair open in the wire(s) between the audio unit and speaker(s). ■

16. Substitute a known-good speaker(s) and recheck the symptom.

Does the symptom goes away?

YES—Replace the faulty speaker(s). ■

NO—Substitute a known-good audio unit and recheck. If the symptom/indication goes away, replace the original audio unit (see page 22-288). ■

Audio system sound is weak or distorted (display is normal)

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn on the audio unit and check for sound in each mode (AM, FM, and CD).

Is there sound from the speakers, and is the sound quality normal in each mode?

YES—Intermittent failure. The system is OK at this time. Check for loose connections at the audio unit, and each speaker. ■

NO—Speakers all work, sound quality is poor. ■

- If the sound is poor only with AM or FM, go to poor AM or FM radio reception or interference (see page 22-267).
- If sound is poor in all modes, go to sound quality diagnosis (see page 22-281).

Symptom Troubleshooting (cont'd)

Audio unit button illumination does not work

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn the headlight switch to the parking light position.
3. Check the illumination of the audio unit buttons.

   Are the buttons illuminated?

   YES—Intermittent problem: the audio unit is OK at this time. Check for loose or poor connections at audio unit 20P connector. ■

   NO—Go to step 4.
4. Check the illumination of several other buttons not related to the audio system.

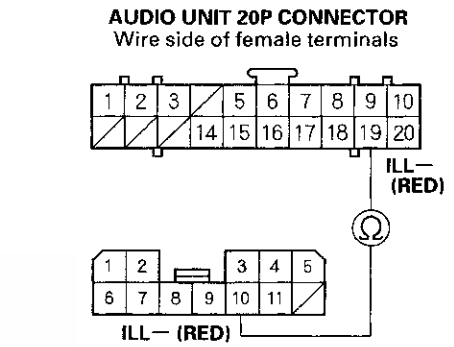
   Are the buttons illuminated?

   YES—Go to step 5.

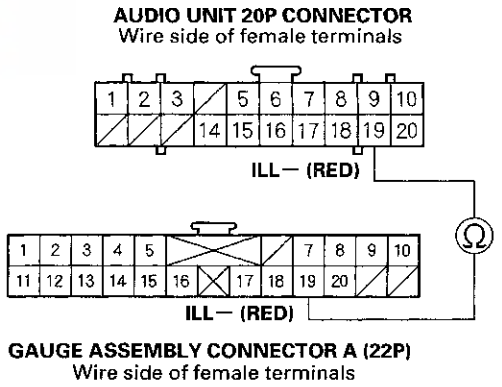
   NO—Troubleshoot the interior lights. ■
5. Turn the ignition switch to LOCK (0).
6. Disconnect audio unit 20P connector.

   NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.
7. '00-03 models: Disconnect gauge assembly connector B (12P).
   '04-08 models: Disconnect gauge assembly connector A (22P).
8. '00-03 models: Check for continuity between audio unit 20P connector No. 19 terminal and gauge assembly connector B (12P) No. 10 terminal.
   '04-08 models: Check for continuity between audio unit connector A (20P) No. 19 terminal and gauge assembly connector A (22P) No. 19 terminal.

'00-03 models



'04-08 models



Is there continuity?

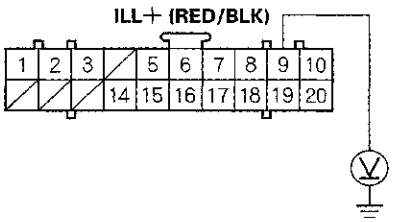
YES—Go to step 9.

NO—Repair open in the wire between the gauge assembly and the audio unit. ■

9. Turn the ignition switch to ON (II).

10. With the headlight switch still on, measure the voltage between audio unit 20P connector No. 9 terminal and body ground.

AUDIO UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Check the connections at the audio unit 20P connector. If all connections are OK, replace the audio unit (see page 22-288). ■

NO—Repair open in the wire between the under-dash fuse/relay box and the audio unit. ■

Radio preset memory is lost

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn on the audio unit and set each of the radio station preset buttons.

   Does each button set properly?

   YES—Go to step 5.

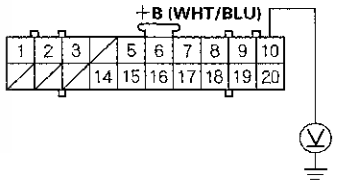
   NO—Go to step 2.

2. Make sure the ignition switch is in LOCK (0).

3. Remove the audio unit (see page 22-288).

4. Measure the voltage between audio unit 20P connector terminal No. 10 and body ground.

AUDIO UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 5.

YES—Repair open in the wire between the No. 22 (15 A) fuse and under-dash fuse/relay box and audio unit 20P connector terminal No. 10. ■

5. Turn the ignition switch to LOCK (0) for 1 minute, then turn it back to ON (II).

6. Test the preset buttons for proper recall operation.

   Do the preset buttons recall the set radio stations?

   YES—System is normal at this time. Check connections at the audio unit. ■

   NO—Replace the audio unit (see page 22-288). ■

Symptom Troubleshooting (cont'd)

Audio disc does not eject

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- Disc labels should not be used in the audio unit. They may damage the player mechanism.

1. Turn on the audio unit.

   Does the system turn on?

   YES—Go to step 2.

   NO—Go to power switch will not turn ON (see page 22-270).■

2. Check to see if the disc ejects correctly with no binding by pushing the EJECT button.

   Is it normal?

   YES—Operation is normal.■

   NO—Replace the audio unit (see page 22-288).■

Volume does not change

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.

1. Turn on the audio unit and listen to sound from the speakers.

   Is the sound normal?

   YES—Go to step 2.

   NO—Go to audio system sound is weak or distorted (see page 22-273), or no sound is heard from speakers (see page 22-271).■

2. Operate the volume knob to see if the volume changes.

   Does the volume change?

   YES—Operation is normal.■

   NO—Replace the audio unit (see page 22-288).■

Radio tuner does not change stations

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn on the audio unit and check the audio information on the display panel.

   Does the audio information display properly?

   YES—Go to step 2.

   NO—Go to power switch will not turn ON (see page 22-270). ■

2. Operate the tuning knob to see if the radio station changes.

   Does the radio station change?

   YES—Intermittent failure: the tuning knob is OK at this time. Check for loose or poor connections. ■

   NO—Replace the audio unit (see page 22-288). ■

Audio disc does not load

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.
- Disc labels should not be used in the audio unit. They may damage the player mechanism.
- Make sure the disc is compatible with the system (see the owner's manual for more information).

1. Insert a known-good disc to see if the symptom can be duplicated.

   Does the disc load?

   YES—Operation is normal. If the disc loads normally, but will not play, go to audio disc does not play (see page 22-278). ■

   NO—Go to step 2.

2. Insert another disc.

   Does the disc load?

   YES—The original disc is faulty. ■

   NO—Replace the audio unit (see page 22-288). ■

Symptom Troubleshooting (cont'd)

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Audio disc does not play

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Try loading a disc.

   Does the disc load?

   YES—Go to step 3.

   NO—Go to audio disc does not load (see page 22-277). ■
3. Insert another disc to see if the symptom can be duplicated.

   Does the disc play?

   YES—Operation is normal. ■

   NO—Go to step 4.
4. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) in the audio unit.

   Does the disc play?

   YES—The original disc is faulty or has an unreadable format. ■

   NO—Replace the audio unit (see page 22-288). ■

Special Tools Required
- Diagnostics CD 07AAZ-SDBA100
- Skip test CD 07AAZ-SDBA200 or 07AAZ-SDBA300

Audio disc skips

1. Confirm the vehicles tires are properly inflated.
2. Check the customers CD for scratches, fingerprints, and marks.

   NOTE: The following test should be performed with audio unit bass and treble set to customers listening performance. When comparing to known-good vehicles, comparison should be performed on same model and trim level.
3. Test drive the vehicle to identify when customers CD skips. The audio diagnostic CD (T/N: 07AAZ-SDBA100) can be used if customers CD is not available. Use tracks 10 to 12.

   Does the disc skip?

   YES—Go to step 4.

   NO—Operation is normal. ■
4. Compare the customers CD that is skipping to a known-good vehicle under the same conditions.

   Does the CD skip in the known-good vehicle under the same conditions?

   YES—Operation is normal. ■

   NO—Go to step 5.

   NOTE: The following test should be performed with vehicle parked and engine running.

5. Insert the diagnostic skip test CD (07AAZ-SDBA300). Play tracks 2 to 11 and note the track number(s) the CD starts skipping. Do the same test on a known-good vehicle.

   Does the CD skip on same track number(s) as known-good vehicle?

   YES—Operation is normal. ■

   NO—Go to step 6.

6. Insert the diagnostic skip test CD (07AAZ-SDBA200). Play tracks 7 to 11 and tracks 13 to 15 and note the track number(s) the CD starts skipping. Do the same test on a known-good vehicle.

   Does the CD skip on same track number(s) as known-good vehicle?

   YES—Operation is normal. ■

   NO—Replace the audio unit (see page 22-288). ■

Audio remote switch does not work properly

NOTE:
- Check the vehicle battery condition first.
- Check the connectors for poor connections or loose terminals.

1. Test the audio remote switch (see page 22-287).

   Is the audio remote switch OK?

   YES—Go to step 2.

   NO—Replace the remote switch. ■

2. Check the audio unit operation (volume, channel, and mode).

   Is the audio unit operation OK?

   YES—Go to step 3.

   NO—Substitute a known-good audio unit and recheck. If the problem goes away, replace the audio unit (see page 22-288). ■

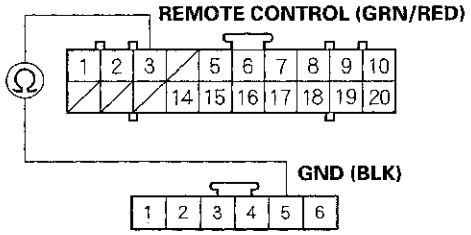
3. Remove the audio unit (see page 22-288).

(cont'd)

Symptom Troubleshooting (cont'd)

4. Measure the resistance between the audio unit 20P connector No. 3 and audio remote switch 6P connector No. 5 terminals as specified in the table.

AUDIO UNIT 20P CONNECTOR



AUDIO REMOTE SWITCH 6P CONNECTOR
Wire side of female terminals

AUDIO REMOTE SWITCH TABLE

Button held down	VOL DOWN	VOL UP	CHANNEL UP	MODE	(No button pressed)
Resistance	about 263 Ω	about 512 Ω	about 1.1 KΩ	about 2.5 KΩ	about 10 KΩ

Is the resistance OK?

YES—Go to step 5.

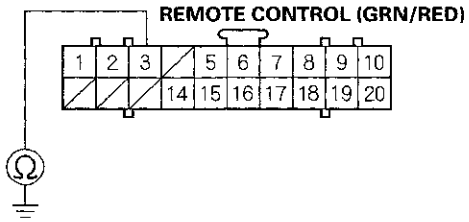
NO—Repair open or high resistance in the circuit between the audio unit and the audio remote switch. If the wires are OK, check audio remote switch ground (G501). ■

5. Disconnect the audio unit 20P connector and audio remote switch 6P connector.

NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.

6. Check for continuity between the No. 3 terminal of the audio unit 20P connector and body ground.

AUDIO UNIT 20P COMMECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wire between the audio unit and the audio remote switch. ■

NO—Replace the audio unit (see page 22-288). ■

Sound Quality Diagnosis

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Use the following tests to check sound quality.

NOTE: Before beginning the following tests, write down the customer's bass, treble, fader and balance settings, then set them to their center positions for the testing.

Left/Right Channel ID

Do this test to confirm proper channel routing.

1. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player.
2. Play track No. 1 (left, both, right channel ID) at a normal, or slightly higher than normal, volume level.
3. The voice should be audible only from the channel or channels when indicated.
   - If the channel ID is correct for each side, go to phase test.
   - If the channel ID is not correct, check for
     – Shorted speaker wire
     – Faulty audio unit

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Phase Test

Do this test to confirm proper speaker phasing.

1. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player.
2. Play track No. 2 (phase) at a normal, or slightly higher than normal, volume level.
3. The voice should sound centered and focused when it is in-phase.
4. The voice should sound diffused, and have less bass when it is out of phase.
   - If the voice changes from in-phase to out of phase as indicated by the prompt, the phasing is correct. Go to electrical noise test (see page 22-282).
   - If the voice always sounds out of phase, phasing is not correct. Check for
     – Crossed speaker wires
     – Faulty audio unit

Sound Quality Diagnosis (cont'd)

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Electrical Noise Test

Do this test to check for electrical noise being induced into the audio system.

NOTE: Electrical noise may be caused by outside sources that cannot be handled by the audio system. Make sure you remove any cell phones and/or turn off any aftermarket device before beginning this test.

1. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player.
2. Play track No. 4 (digital zero) at a normal, or slightly higher than normal, volume level.
3. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
4. Play track No. 5 (near digital zero) at a normal, or slightly higher than normal, volume level.
5. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
6. Play track No. 6 (SNR) at a normal, or slightly higher than normal, volume level.
7. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.

   - If no abnormal noise is heard, go to individual speaker test.
   - If the noise is present only during the SNR track, replace the audio unit.
   - If the noise is heard during the digital zero or near digital zero track, check for:
     - Poor ground for the audio unit, engine or battery cable
     - Pinched or shorted speaker or amplifier wire
     - Faulty audio unit
     - Other faulty components causing excessive electrical noise (ignition coils, alternator, door lock actuators, etc.). Disconnect any suspect components, and then replay the tracks that were originally noisy. If the noise is gone, check the component's circuit and the component.

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Individual Speaker Test

Do this test to identify a faulty speaker.

1. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player.
2. Play track No. 30 (steady 300 Hz tone) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound compared to the other speakers. Use the audio unit's fader and balance settings to help isolate the channel with the problem.
   - If the sound quality produced by a specific speaker is poor, substitute it with a known-good speaker. If the poor sound quality continues, go to the sound balance test (see page 22-283).
   - If the sound quality is OK, go to the sound balance test (see page 22-283).

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Sound Balance Test

Perform this test to identify a faulty channel or speaker.

1. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player.
2. Confirm the bass and treble are set to the center positions.
3. Play track No. 3 (pink noise) at a normal, or slightly higher then normal, volume level.
4. A static type sound should be heard through all speakers.
5. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player of a known-good vehicle.
6. Set the bass and treble to the center position.
7. Play track No. 3 (pink noise) all the same level as was played in step 3.
8. Compare the sounds made by the two vehicles.
   - If the sounds made by the two vehicles are very similar, go to the Frequency Sweep Test (see page 22-284).
   - If the sound does not have as much bass, check the speaker circuit.
   - If the sound does not have enough hiss, check the tweeters and their circuits.

Sound Quality Diagnosis (cont'd)

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Frequency sweep

Do this test to find rattles or reverberation that may cause a perception of poor sound quality.

1. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player.
2. Play track No. 13 (sweep from 500 Hz to 35 Hz) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound quality or reverberations caused by specific frequencies. Use the voice-over to estimate the frequency that causes the vibration. Use the audio unit's fader and balance settings to help isolate the channel with the problem.
   - If vibrations or poor sound quality is heard, go to step 4.
   - If no vibrations or poor sound quality is heard, go to sound judging (see page 22-284).
4. Choose the appropriate track from No. 14 to 25 (small range frequency sweep) or 26 to 53 (single frequencies) to recreate the frequency that caused the poor sound quality or vibration located in step 3: this aids in diagnosis of the cause.

   NOTE: When you get to the track that recreates the problem, select the repeat function on the audio unit, this will help you isolate the cause.
5. Replace or insulate the source of the vibration or, if the speaker is the source of the poor sound quality, replace it.

Special Tools Required
Diagnostics CD 07AAZ-SDBA100

Sound judging

Do this test to compare overall sound quality, imaging, and dynamics between the customer's vehicle and a known-good vehicle. Only use a vehicle of the same model and trim level for this test.

1. In the customer's vehicle, set the bass, treble, fader, and balance settings to the customer's normal settings that were written down before beginning testing.
2. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player.
3. Play tracks No. 7 to 12 (sound quality, midland, dynamics, and imaging demonstration tracks) at a normal, or slightly higher than normal, volume level. Write down the volume setting being used.
4. Listen to areas of the track that stand out as being either very clear or poorer than other areas of the track.
5. Insert audio diagnostic CD (T/N 07AAZ-SDBA100) into the CD player of a known-good vehicle.
6. Play the tracks at the same volume level and the same bass, treble, balance, and fader settings as used in step 3 in the customer's vehicle.
7. Listen to the same area of the track that stood out as being either very clear or poorer than other areas of the track.

8. Compare the customer's vehicle's sound quality results the known-good vehicle's results.

   - If the sound quality in the customer's vehicle is comparable to the sound quality in the known-good vehicle, then the customer's vehicle is operating as designed.
   - If the sound quality is not comparable, check these items in order.
     - Loose or improperly installed speakers or other hardware that may become excited by the vibrations generated by the speakers
     - Poor power or ground to the audio unit
     - Damaged speaker(s)
     - Faulty audio unit

Seek Stop Test

Do this test to check the performance of the audio unit's AM and FM reception. Refer to symptom troubleshooting: audio sound weak or distorted, or no sound is heard from speakers (display is normal) (see page 22-271) before continuing with this test.

NOTE:
- Window tint, aftermarket theft-recovery devices and other aftermarket accessories may reduce radio reception.
- Changes in cloud cover and other atmosphere conditions will affect the ability of the audio unit to receive radio signals.

1. Park the customer's vehicle in an open area away from buildings or other obstructions.
2. Park a known-good vehicle (same year, model, and trim level) next to the customer's vehicle, facing the same direction.
3. Start the engine in the customer's vehicle, and turn on the radio.
4. Set the FM receiver to 87.7 MHz.
5. Press the Seek + button and record the first station that the audio unit locks onto.
6. Press the Seek + button repeatedly, and write down each station that the audio unit locks onto until the station recorded in step 5 is reached again.
7. Set the AM receiver to 530 kHz.
8. Press the Seek + button, and record the first station that the audio unit locks onto.
9. Press the Seek + button repeatedly, and write down each station that the audio unit locks onto until the station recorded in step 8 is reached again.

(cont'd)

Sound Quality Diagnosis (cont'd)

10. Turn the ignition switch to LOCK (0).

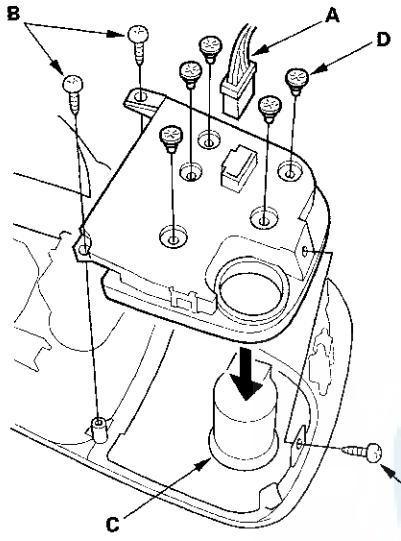
11. Start the engine in the known-good vehicle, and then perform steps 4 thru 10 on the known-good vehicle.

12. Compare the number of stations received in steps 6 and 9 in the customer's vehicle with the number of stations received in the known-good vehicle.

    - If the number of stations received is the same, or within 10 %, the audio unit's tuner performance is OK. The problem may be atmospheric conditions, multi path interference, or other obstructions to the radio signal.
    - If the customer's vehicle receives fewer stations by at least 10 %, go to step 2 of poor AM or FM radio reception or interference (see page 22-267).

Audio Remote Switch Replacement

1. Remove the instrument panel (see page 20-84).
2. Disconnect the 6P connector (A) from the audio remote switch.



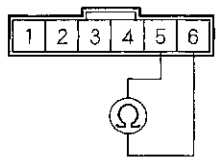
3. Remove the three mounting screws (B) and pull out the engine start switch (C).
4. If necessary, replace the bulb(s) (D).
5. Install the audio remote switch in the reverse order of removal.

Audio Remote Switch Test

1. Remove the instrument panel (see page 20-84).
2. Disconnect the 6P connector from the audio remote switch (see page 22-287).
3. Measure resistance between the No. 5 and No. 6 terminals in each switch position according to the table.
   If the resistance is not as specified, replace the audio remote switch.

Position	Resistance
(No button pressed)	About 10 kΩ
VOL. UP (+)	About 263 Ω
VOL. DOWN (−)	About 512 Ω
CH	About 1.1 kΩ
MODE	About 2.5 kΩ

AUDIO REMOTE SWITCH 6P CONNECTOR



Terminal side of male terminals

4. Check for continuity between the terminals in each switch position according to the table.
   If the continuity is not as specified, replace the illumination bulb(s) or the audio remote switch.

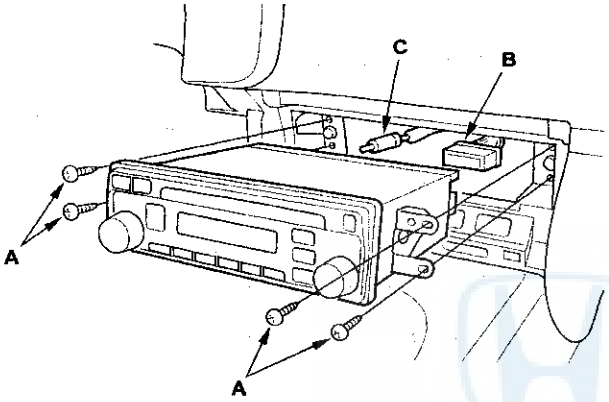
Position \ Terminal	3		4
COMBINATION LIGHT SWITCH ON	○	⊖	○
COMBINATION LIGHT SWITCH OFF			

5. With the MUTE switch ON, check for continuity between the No. 2 (+) and No. 1 (−) terminals. There should be continuity. If there is no continuity, replace the audio remote switch.

Audio Unit Removal/Installation

NOTE: Eject the disc before removing the audio unit to prevent damaging the CD player's load mechanism.

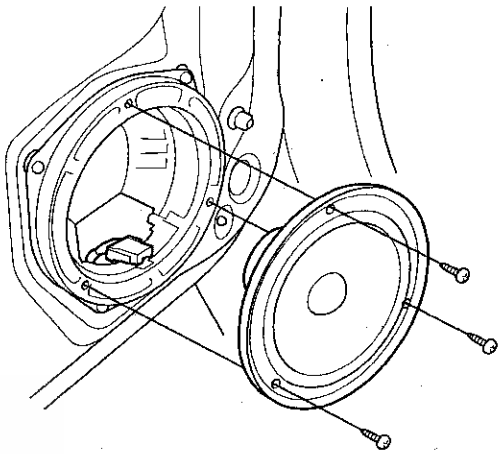
1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.
2. Remove the radio panel (see page 20-84).
3. Remove the four mounting screws (A).



4. Disconnect the 20P connector (B) and AM/FM antenna lead (C) from the audio unit.
5. Install the audio unit in the reverse order of removal.
6. Enter the anti-theft code for the audio system, then enter the audio presets. Set the clock.

Door Speaker Replacement

1. Remove the door panel (see page 20-5).
2. Remove the three mounting screws.

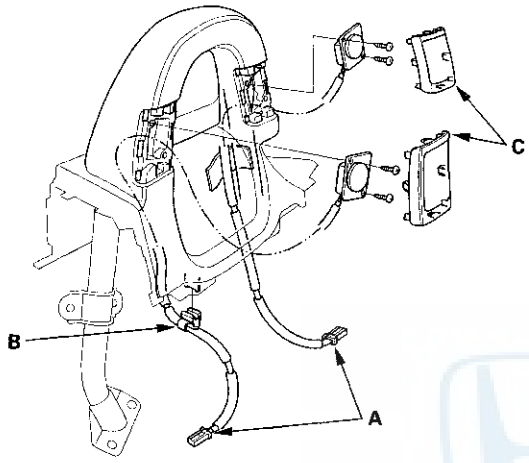


3. Disconnect the 2P connector from the speaker.
4. Install the speaker in the reverse order of removal.

Rear Speaker Replacement

'06-08 models

1. Remove the roll bar and upper trim assembly (see page 20-73).
2. Disconnect the 2P or 3P connector (A). When disconnecting the 2P connector, remove the harness clip (B).

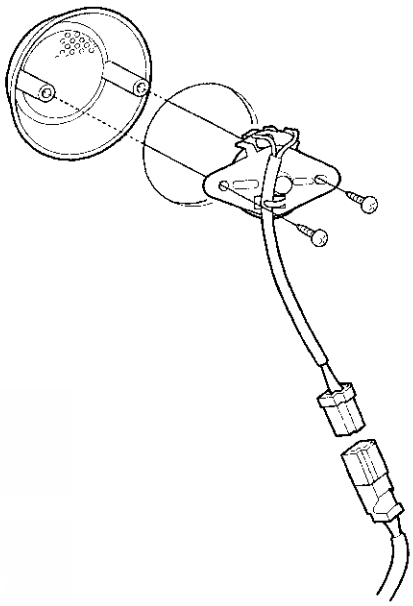


3. Remove the rear speaker grille (C) and the mounting screws.
4. Carefully pull the rear speaker harness out from the roll bar and upper trim assembly, and remove the rear speaker. Be careful not break the rear speaker harness.
5. Install the rear speaker in the reverse order of removal.

Tweeter Replacement

'02-08 models

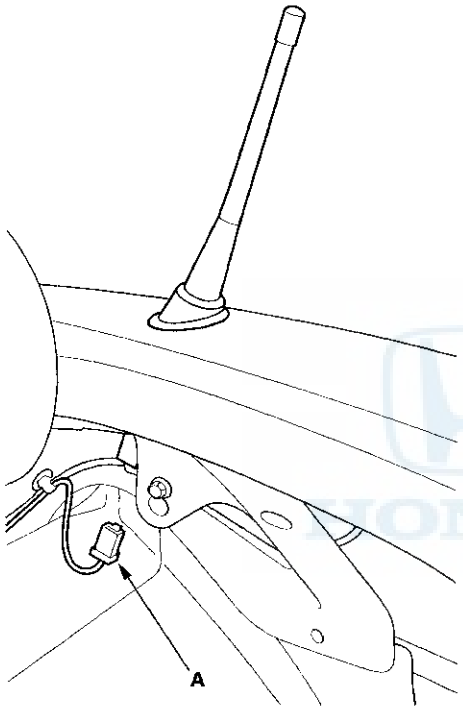
1. Remove the door panel (see page 20-5).
2. Remove the two screws.



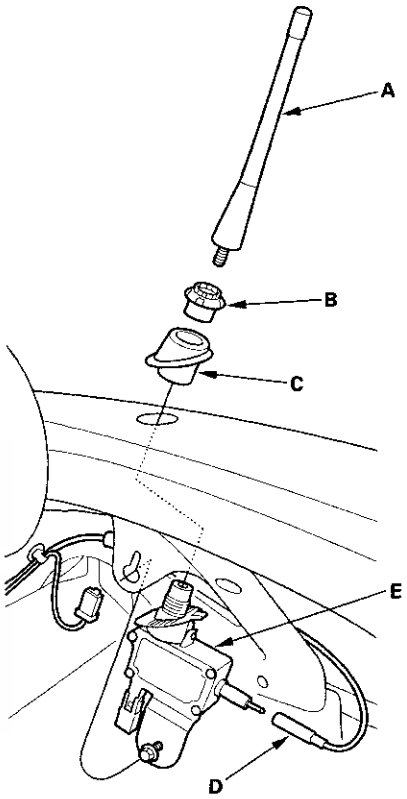
3. Disconnect the 2P connector from the tweeter.
4. Install the tweeter in the reverse order of removal.

AM/FM Antenna Replacement

1. Open the trunk lid.
2. Remove the right side trunk trim panel (see page 20-77).
3. Disconnect the 2P connector (A) from the AM/FM antenna amplifier.



4. Remove the AM/FM antenna mast (A).



5. Remove the antenna nut (B) and spacer (C).
6. Disconnect the AM/FM antenna lead (D) from the AM/FM antenna amplifier (E).
7. Loosen the mounting bolt from the AM/FM antenna amplifier.
8. Remove the AM/FM antenna amplifier.
9. Install the AM/FM antenna in the reverse order of removal.

Navigation Tools: Click on the “Table of Contents” below, or use the Bookmarks to the left.

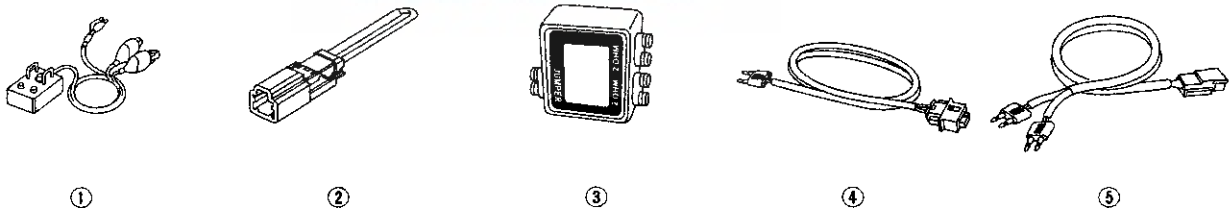
Restraints

Restraints

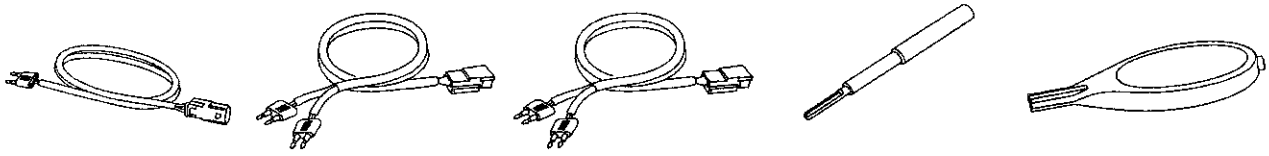
Special Tools

Ref. No.	Tool Number	Description	Qty
①	07HAZ-SG00500	Deployment Tool	1
②	07PAZ-001010A	SCS Service Connector	1
③	07SAZ-TB4011A	SRS Inflator Simulator	1
④	07TAZ-SZ5011A	SRS Simulator Lead C	1
⑤	07XAZ-SZ30100	SRS Simulator Lead F	1
⑥	07YAZ-S3AA100	SRS Simulator Lead H	1
⑦	070AZ-SNAA100	SRS Simulator Lead J	1
⑧	070AZ-SNAA300	SRS Simulator Lead L	1
⑨*	07TAZ-001020A	Backprobe Adapter, 17 mm	2
⑩	070AZ-SAA0100	SRS Short Canceller	2

* : Use with the stacking patch cords from T/N 07SAZ-001000A, Backprobe Set.



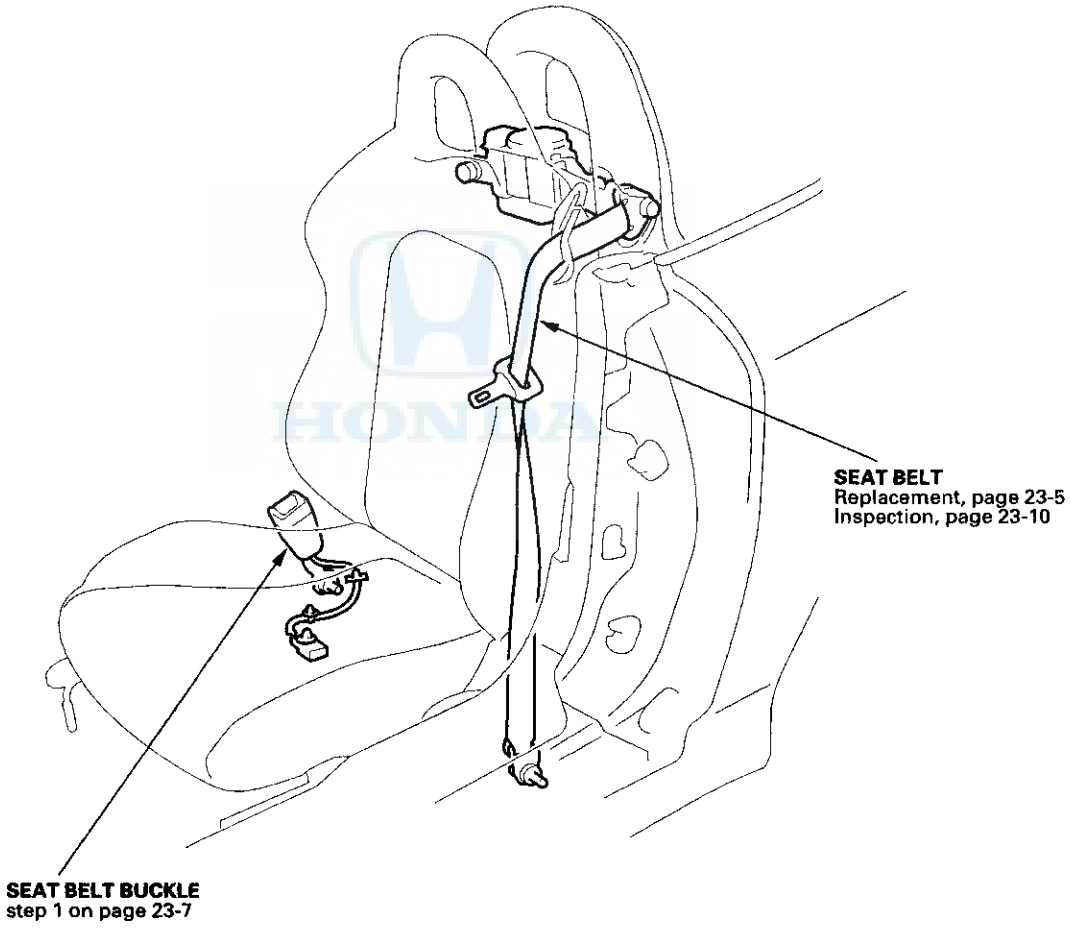
① ② ③ ④ ⑤



⑥ ⑦ ⑧ ⑨ ⑩

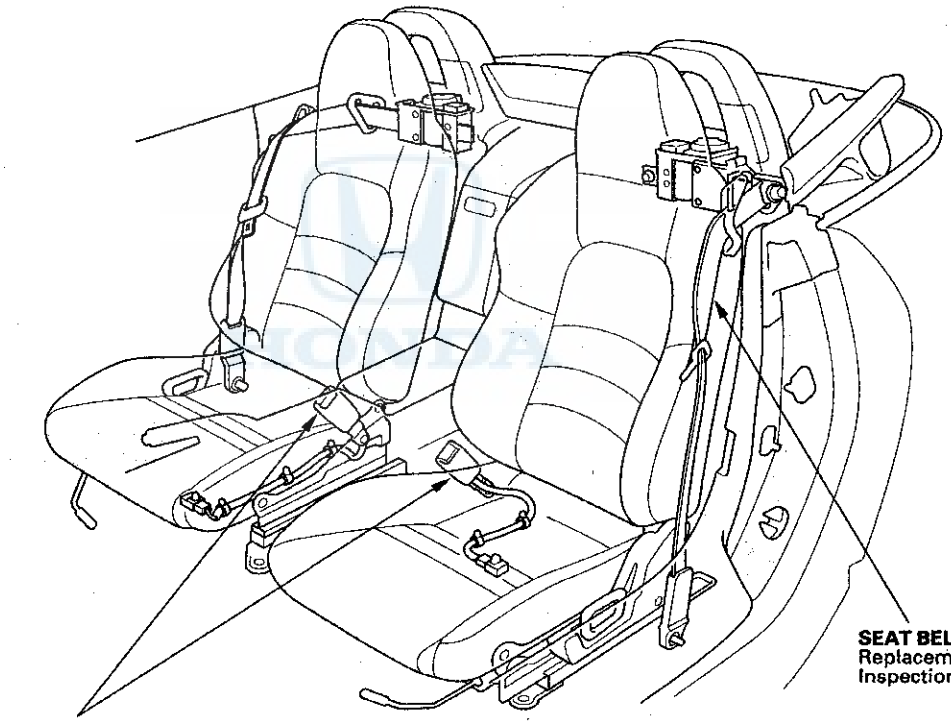
Component Location Index

'00-05 Models



Component Location Index (cont'd)

'06-08 Models



SEAT BELT BUCKLE
step 1 on page 23-7

SEAT BELT
Replacement, page 23-5
Inspection, page 23-10

Seat Belt Replacement

SRS components are located in this area. Review the SRS component locations, '00-05 models (see page 23-11), '06-08 models (see page 23-12) and the precautions and procedures (see page 23-13) before doing repairs or service.

NOTE: Check the seat belts for damage, and replace them if necessary.

Seat Belt

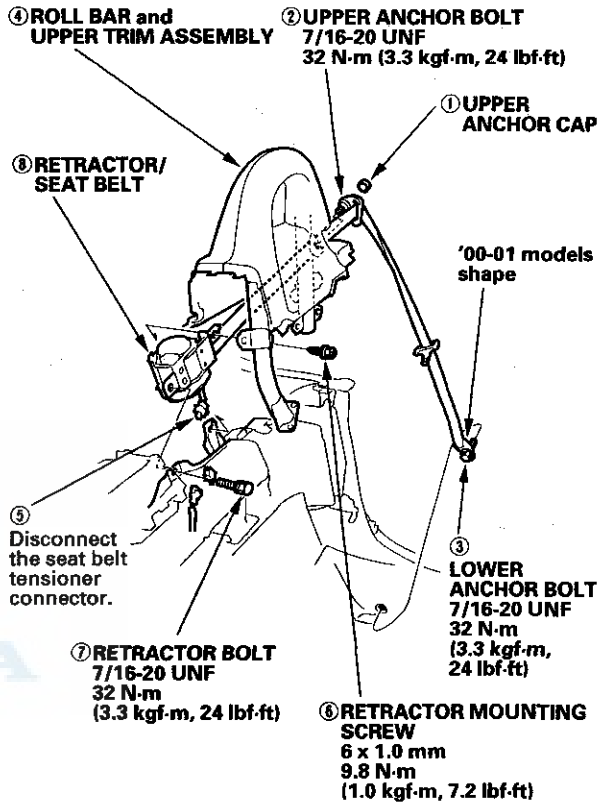
1. Make sure you have the anti-theft code for the audio system, then write down the audio presets.

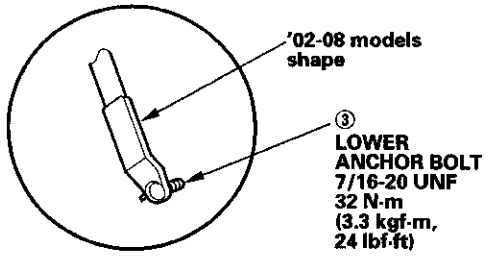
2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.

3. Remove these items:

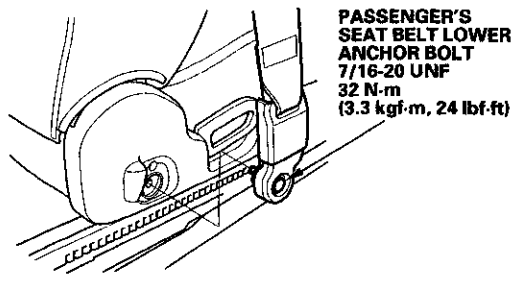
   - Seat, '00-05 models (see page 20-92), '06-08 models (see page 20-93)
   - Rear side trim (see page 20-72)
   - Spare tire cover (see page 20-77) and spare tire (except CR model)
   - Rear tray/roll bar and upper trim assembly (except CR model) (see page 20-73)
   - Rear cover/roll bar and upper trim assembly (CR model) (see page 20-75)

4. Remove the seat belt and retractor in numbered sequence.





'06-08 models



(cont'd)

Seat Belt Replacement (cont'd)

5. Install the belt in the reverse order of removal, and note these items:

   - Check that the retractor locking mechanism functions (see page 23-10).
   - Follow the Anchor Bolt Installation diagrams carefully when assembling the washers, collars, and bushings of the upper and lower anchor bolts.
   - Apply medium strength type liquid thread lock to the anchor bolts before reinstallation.
   - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
   - Make sure the seat belt tensioner connector is plugged in properly.
   - Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.
   - Reconnect the negative cable to the battery.
   - Enter the anti-theft code for the audio system, then enter the audio presets.
   - Set the clock.
   - '00-05 models: Do the ECM idle learn procedure (see page 11-140).

Seat Belt Buckle

1. Remove the seat, '00-05 models (see page 20-92), '06-08 models (see page 20-93).

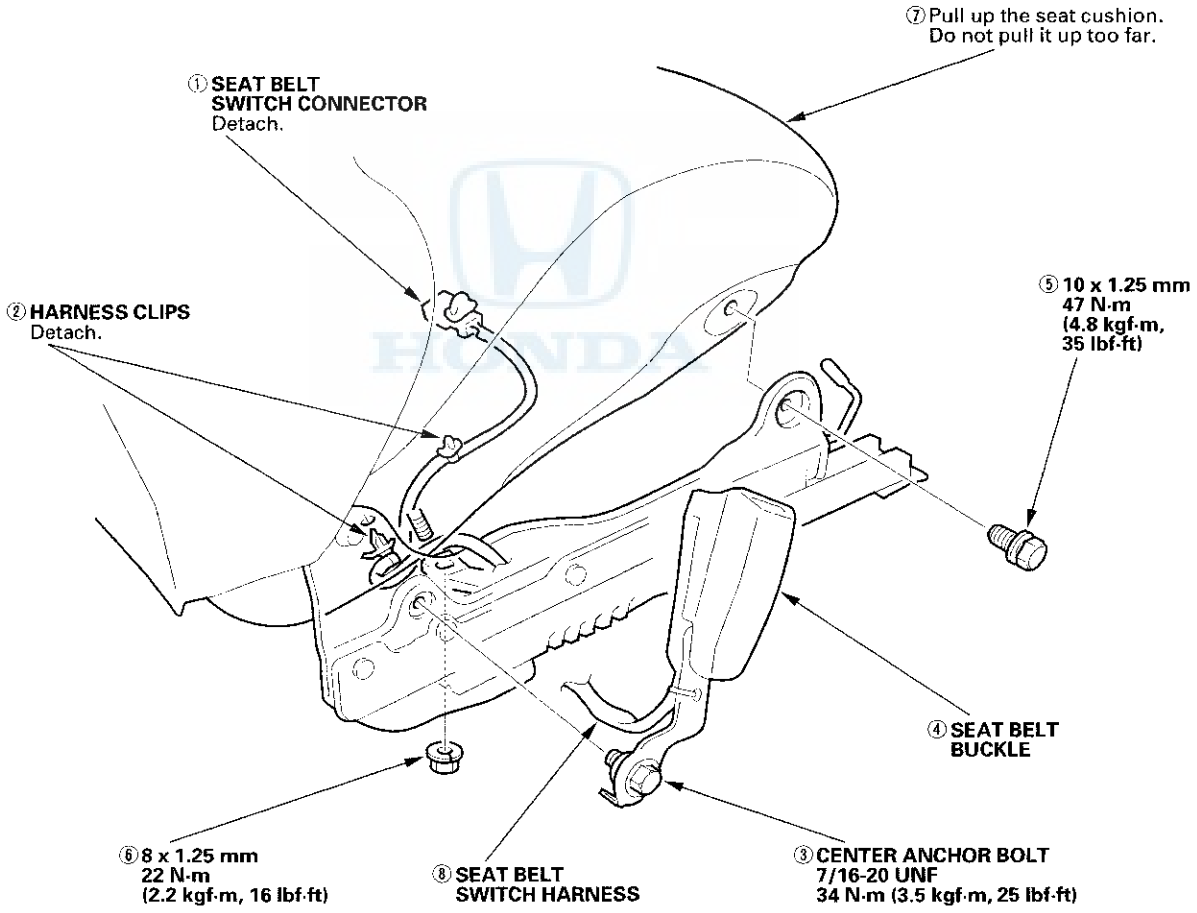
   NOTE: To get to the seat belt switch connector, lift the seat cushion away from the inner seat track.

2. Remove the seat belt buckle in the numbered sequence.

3. Install the buckle in the reverse order of removal, and note these items:

   - Follow the Center Anchor Bolt Installation diagram carefully when assembling the washers and collar on the center anchor bolt.
   - Apply medium strength type liquid thread lock to the center anchor bolt before reinstallation.
   - Apply medium strength type liquid thread lock to the seat mounting bolts before reinstallation.

'00-05 models

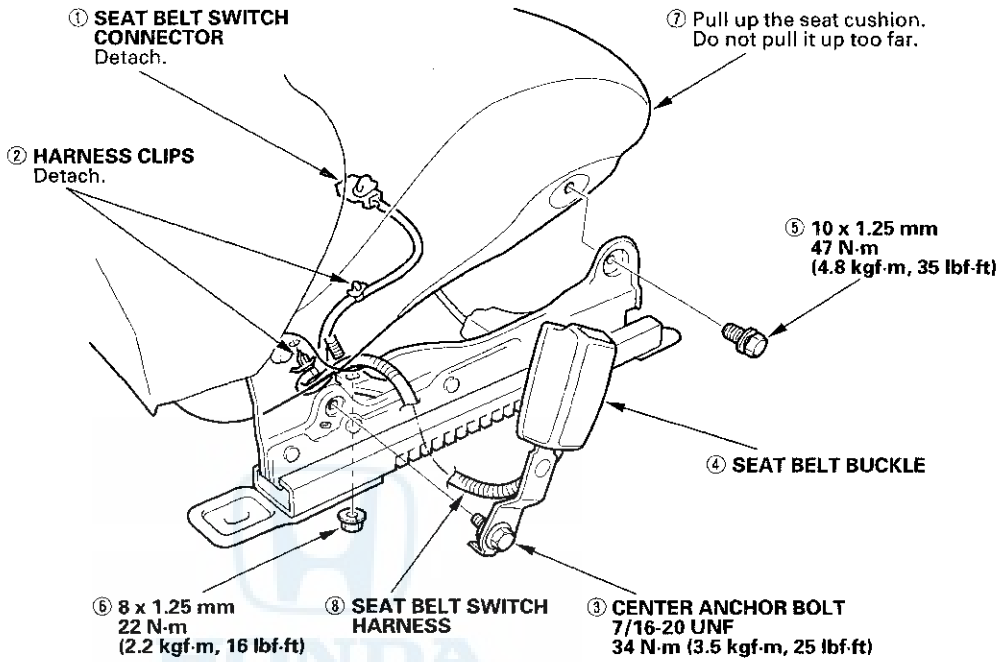


(cont'd)

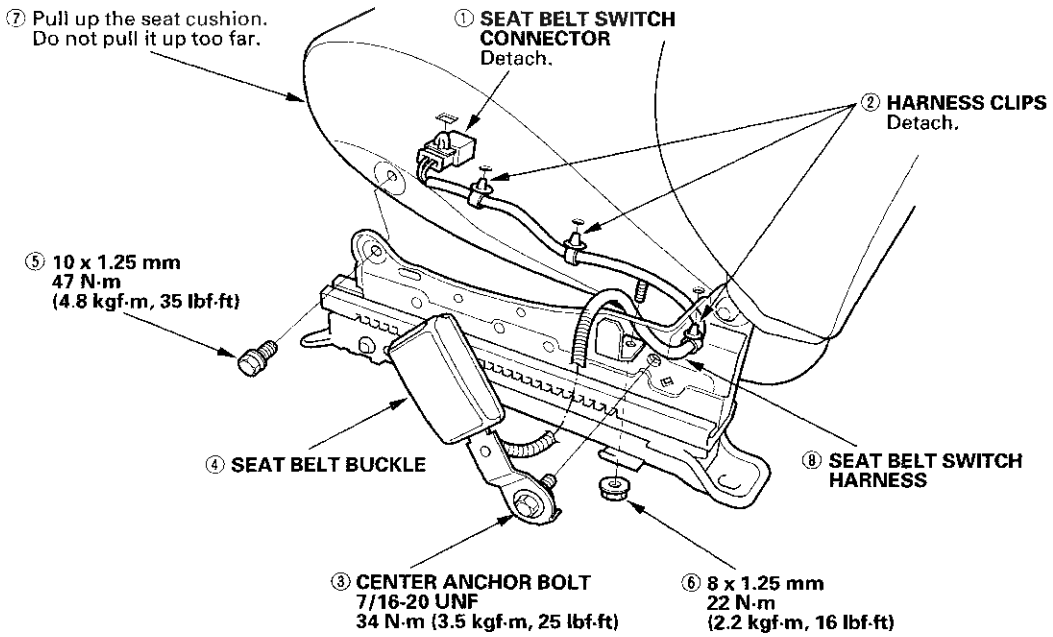
Seat Belt Replacement (cont'd)

'06-08 models

Driver's

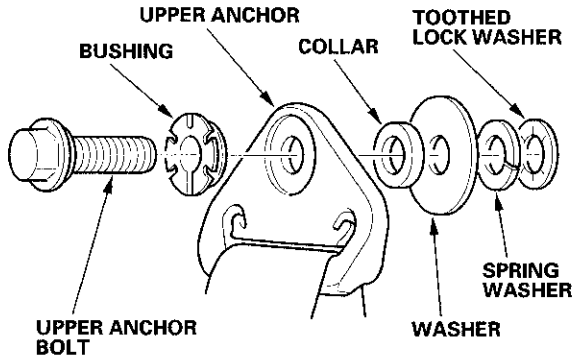


Passenger's



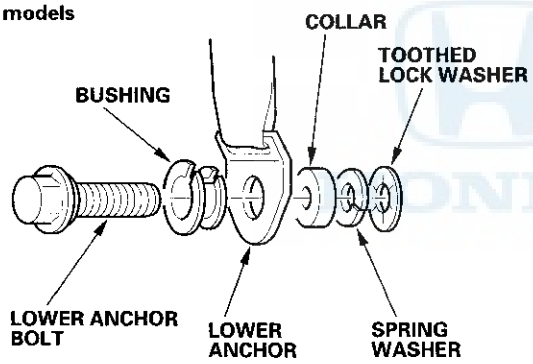
Anchor Bolt Installation

Upper anchor bolt installation

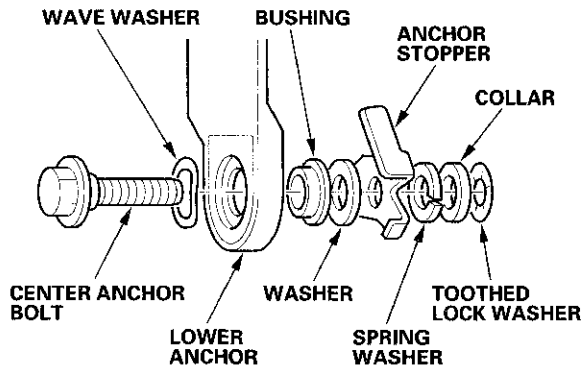


Lower anchor bolt installation

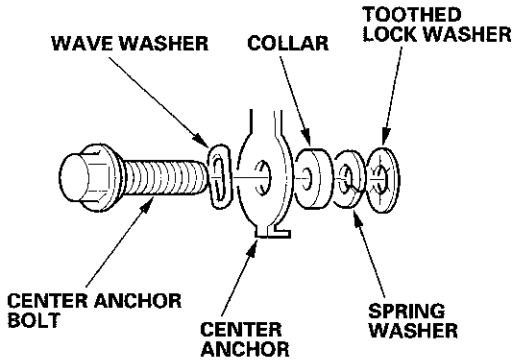
'00-01 models



'02-08 models



Center anchor bolt installation

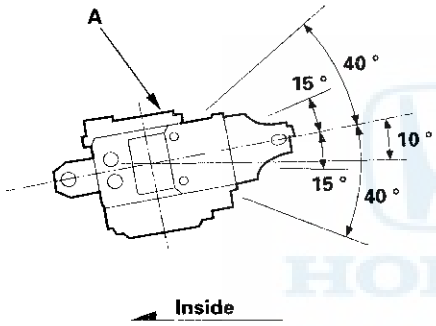


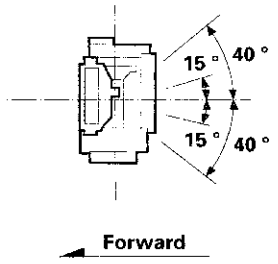
Inspection

SRS components are located in this area. Review the SRS component locations, '00-05 models (see page 23-11), '06-08 models (see page 23-12) and the precautions and procedures (see page 23-13) before doing repairs or service.

Retractor

1. Before installing the retractor, check that the seat belt can be pulled out freely.
2. Make sure that the seat belt does not lock when the retractor (A) is leaned slowly up to 15 ° from the mounted position. The seat belt should lock when the retractor is leaned over 40 °. Do not attempt to disassemble the retractor.





3. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

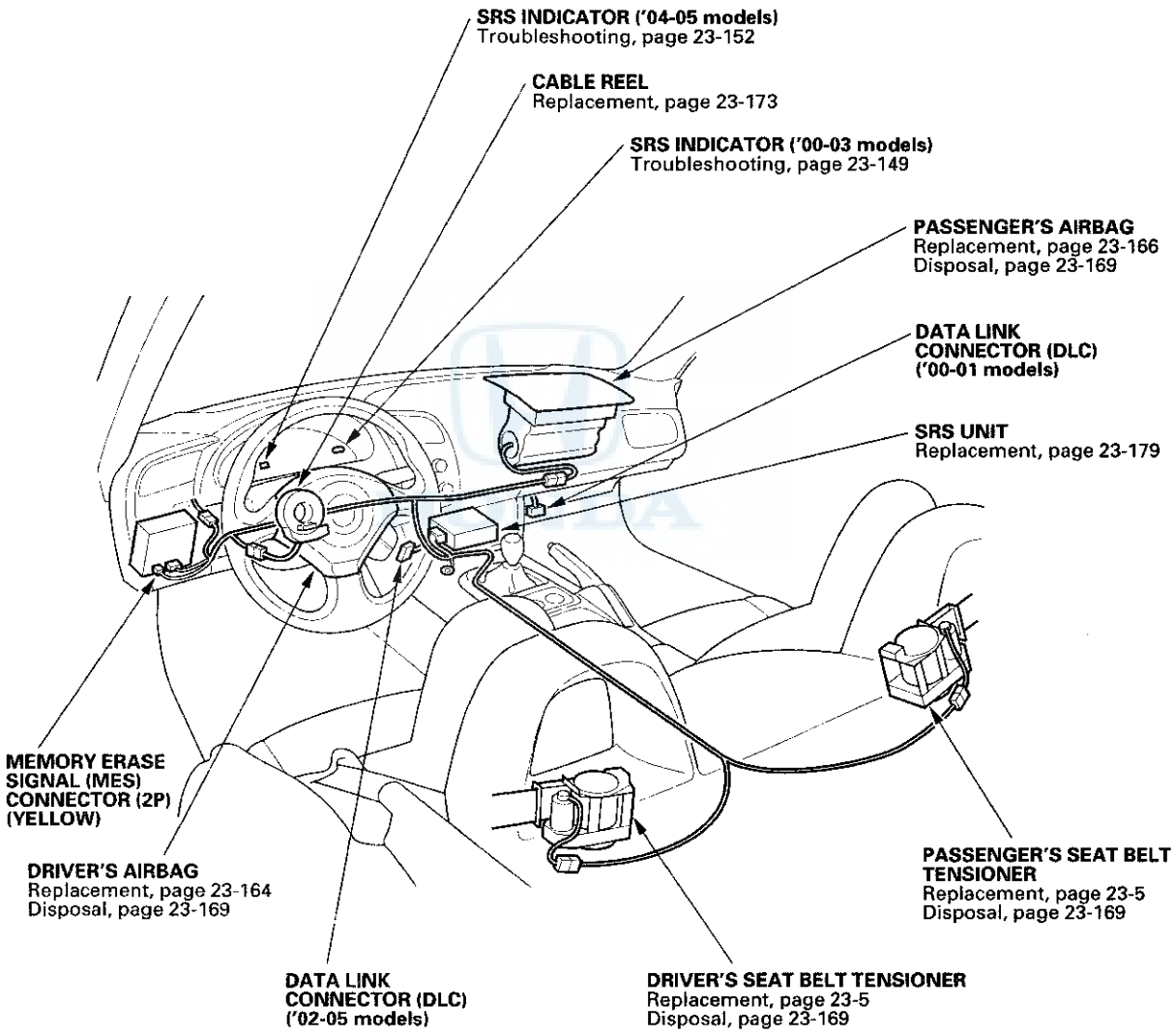
In-vehicle

1. Check that the seat belt is not twisted or caught on anything.
2. After installing the anchors, check for free movement on the anchor bolts. If necessary, remove the anchor bolts and check that the washers and other parts are not damaged or improperly installed.
3. Check the seat belts for damage or discoloration. Clean with a shop towel if necessary. Use only soap and water to clean.

   NOTE: Dirt buildup in the loops of the upper anchors can cause the seat belts to retract slowly. Wipe the inside of the loops with a clean cloth dampened in isopropyl alcohol.
4. Check that the seat belt does not lock when pulled out slowly. The seat belt is designed to lock only during a sudden stop or impact.
5. Make sure that the seat belt will retract automatically when released.
6. On the passenger's seat belt, check the seat belt retractor locking mechanism ALR (automatic locking retractor). This function is for securing child seats.
   1. Pull the seat belt all the way out to engage the ALR. The seat belt should retract with a soft, ratcheting sound, but not extend. This is normal.
   2. To disengage the ALR, release the seat belt and allow it to fully retract with a soft, ratcheting sound, then pull the seat belt out part-way. The seat belt should retract and extend normally.
7. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

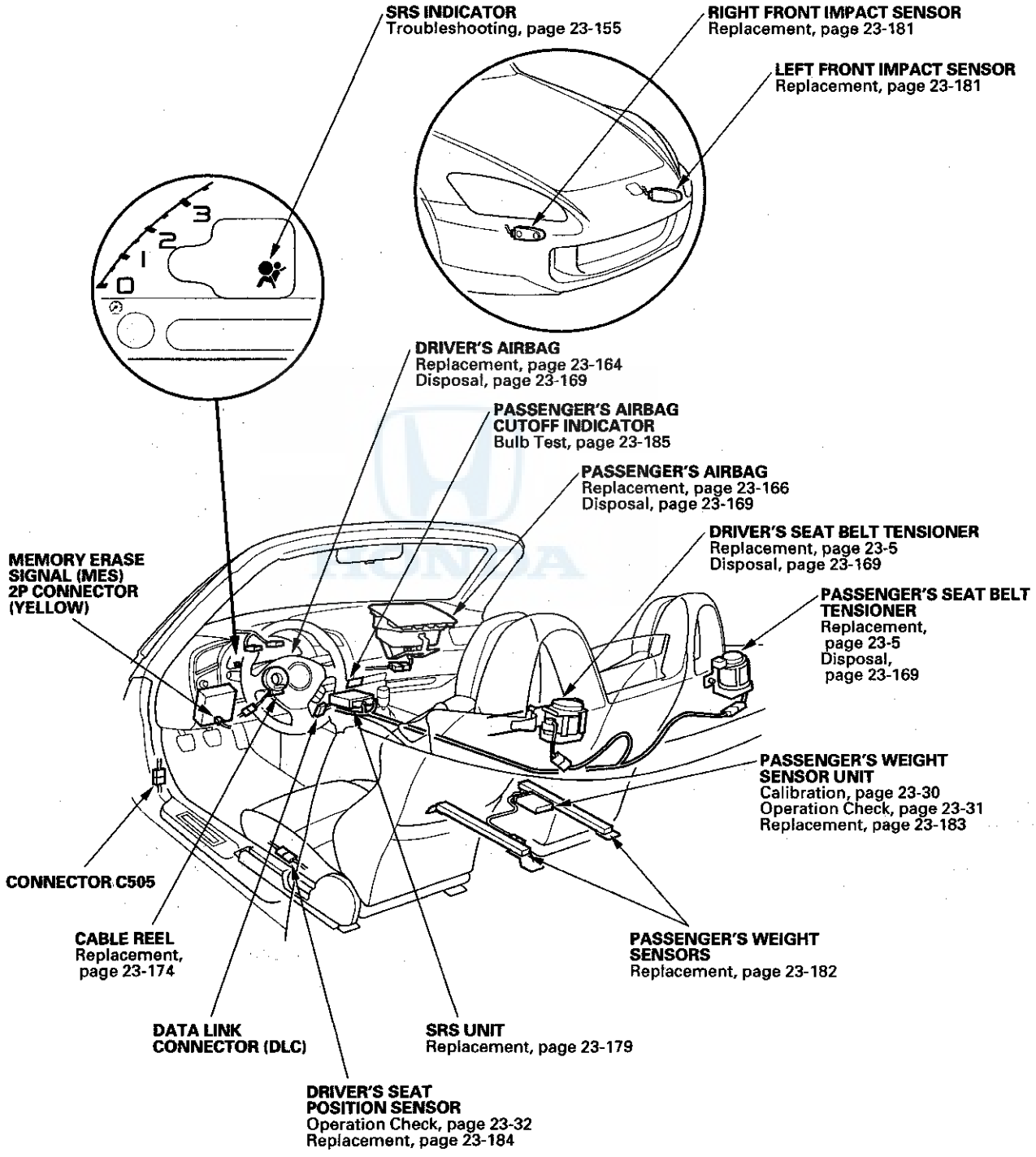
Component Location Index

'00-05 models



Component Location Index (cont'd)

'06-08 models



Precautions and Procedures

General Precautions

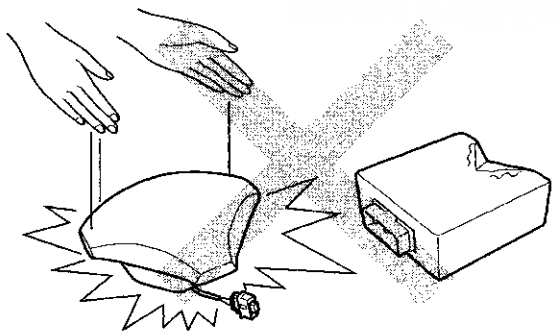
Read the following precautions carefully before performing airbag system service. If the instructions described in this manual are not properly followed, the airbags could accidentally deploy and cause damage or injuries.

- Except when performing electrical inspections, always turn the ignition switch OFF, disconnect the negative cable from the battery, then wait for 3 minutes before starting work.

  NOTE: The SRS memory is not cleared even if the ignition switch is turned OFF or the battery cables are disconnected from the battery.

- Use replacement parts which are manufactured to the same standards and quality as the original parts. Do not install used SRS parts from another vehicle. Use only new parts when making SRS repairs.

- Carefully inspect any SRS part before you install it. Do not install any part that shows signs of being dropped or improperly handled, such as dents, cracks, or deformation.



- Before disconnecting the SRS unit connectors, always disconnect the appropriate SRS parts connectors.

- Use only a digital multimeter to check the system. If it is not a Honda multimeter, make sure its output is 10 mA (0.01 A) or less when switched to the lowest value in the ohmmeter range. A tester with a higher output could cause accidental deployment and possible injury.

- Do not put objects on the passenger's airbag.

- The original audio system has a coded theft protection circuit. Make sure you have the anti-theft codes for the audio system (if equipped), then write down the audio presets before disconnecting the negative cable from the battery.

- Before returning the vehicle to the customer, enter the anti-theft codes for the audio system (if equipped), then enter the audio presets; set the clock.

Steering-related Precautions

Cable Reel Alignment

- Misalignment of the cable reel could cause an open in the wiring, making the SRS system and the horn inoperative. Center the cable reel whenever you do the following, for '00-05 models (see step 6 on page 23-175) or for '06-08 models (see step 6 on page 23-177).
  - Installation of the steering wheel
  - Installation of the cable reel
  - Installation of the steering column
  - Other steering-related adjustment or installation

- Do not disassemble the cable reel.

- Do not apply grease to the cable reel.

- If the cable reel shows any signs of damage or contamination, replace it with a new one. For example, if it does not rotate smoothly, replace the cable reel.

(cont'd)

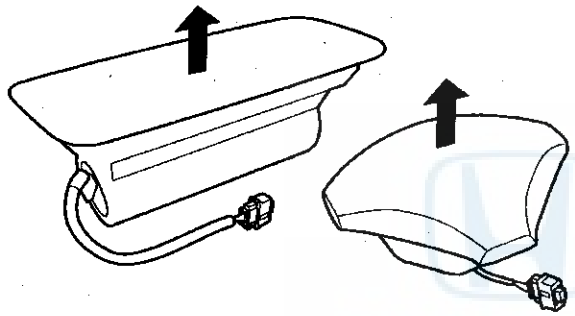
Precautions and Procedures (cont'd)

Airbag Handling and Storage

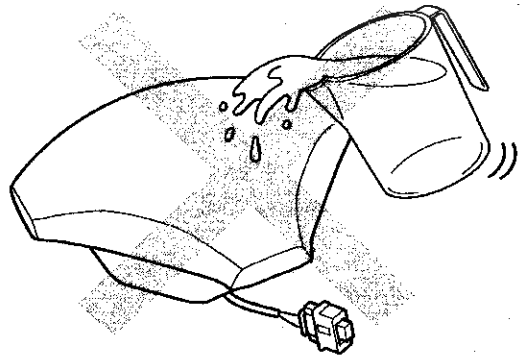
Do not disassemble an airbag. It has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.

For temporary storage of an airbag during service, observe the following precautions.

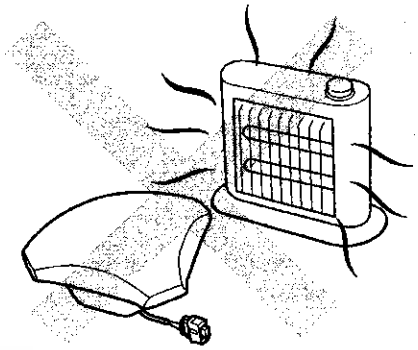
- Store the removed airbag with the pad surface up. Never put anything on the removed airbag.



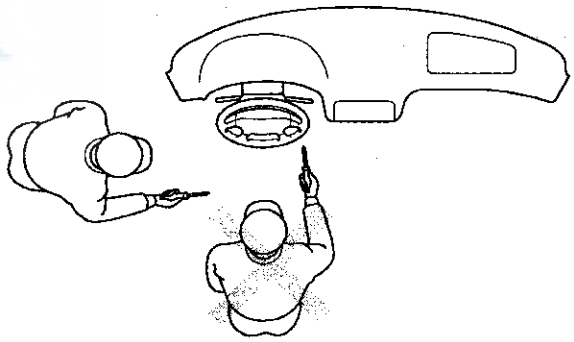
- To prevent damage to the airbag, keep it away from any oil, grease, detergent, or water .



- Store the removed airbag on a secure, flat surface away from any high heat source (exceeding 200 °F/ 93 °C).



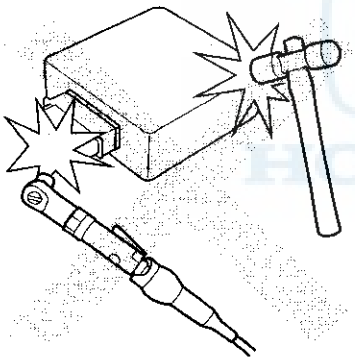
- Never perform electrical inspections to the airbags, such as measuring resistance.
- Do not position yourself in front of the airbag during removal, inspection, or replacement.



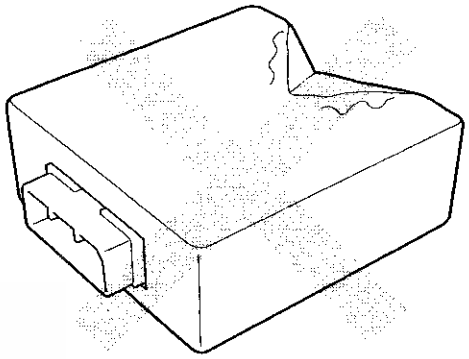
- For proper disposal of a damaged airbag, refer to airbag disposal (see page 23-169).

SRS Unit, Front Impact Sensors ('06-08 models), Driver's Seat Position Sensor ('06-08 models), and Passenger's Weight Sensors ('06-08 models).

- Turn the ignition switch OFF, disconnect the negative cable from the battery, then wait for 3 minutes before starting installation or replacement of the SRS unit, or disconnecting the connectors from the SRS unit.
- Be careful not to bump or impact the SRS unit whenever the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF.
- During installation or replacement, be careful not to bump (by impact wrench, hammer, etc.) the area around the SRS unit, and front impact sensors ('06-08 models). The airbags could accidentally deploy and cause damage or injury.



- After a collision where a front airbag or a seat belt tensioner deployed, go to component Replacement/ Inspection after Deployment (see page 23-163). After a collision where the airbags did not deploy, inspect for any damage or any deformation on the SRS unit, and the front impact sensors. If there is any damage, replace the SRS unit and/or the sensors.



- Do not disassemble the SRS unit, front impact sensors ('06-08 models), driver's seat position sensor ('06-08 models), and passenger's weight sensors ('06-08 models).
- Be sure the SRS unit and front impact sensors ('06-08 models) are installed securely with the mounting bolts torqued to 9.8 N·m (1.0 kgf·m, 7.2 lbf·ft). Whenever you remove or replace the SRS unit or all impact sensors, always install the components with new bolts.
- Do not spill water or oil on the SRS unit, and keep it away from dust.

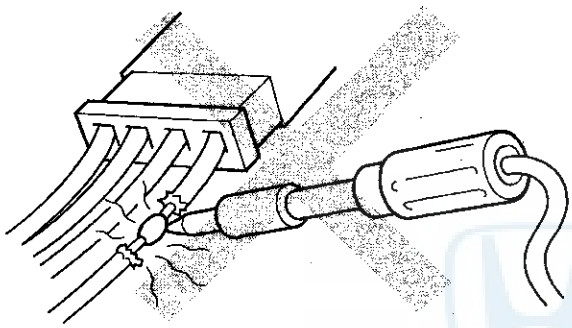
(cont'd)

Precautions and Procedures (cont'd)

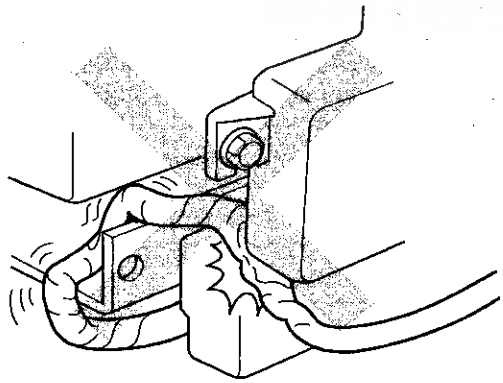
Wiring Precautions

Some of the SRS wiring can be identified by a special yellow outer covering, and the SRS connectors can be identified by their yellow color. Observe the instructions described in this section.

- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage in SRS wiring, replace the harness.



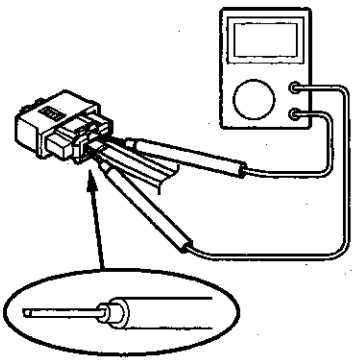
- Be sure to install the harness wires so they do not get pinched, or interfere with other parts.



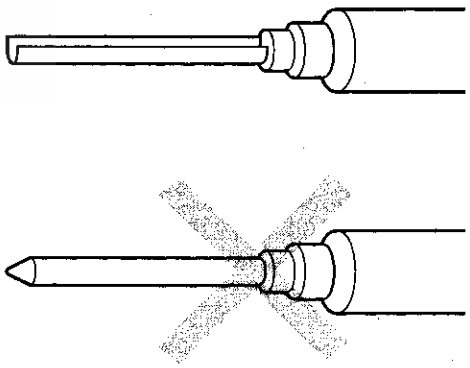
- Make sure all SRS ground locations are clean, and grounds are securely fastened for optimum metal-to-metal contact. Poor grounds can cause intermittent problems that are difficult to diagnose.

Precautions for Electrical Inspections

- When using electrical test equipment, insert the probe of the tester into the wire side of the connector. Do not insert the probe of the tester into the terminal side of the connector, and do not tamper with the connector.



- Use a U-shaped probe. Do not insert the probe forcibly.



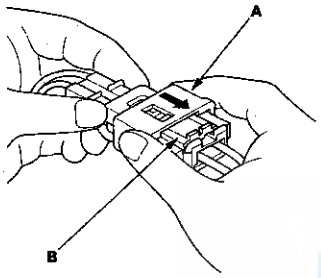
- Use specified service connectors in troubleshooting. Using improper tools could cause an error in inspection due to poor metal-to-metal contact.

Spring-loaded Lock Connector ('00-05 Models)

Some SRS system connectors have a spring-loaded lock.

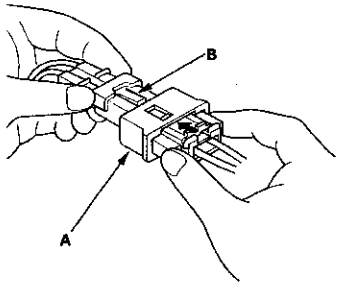
Disconnecting

To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector.

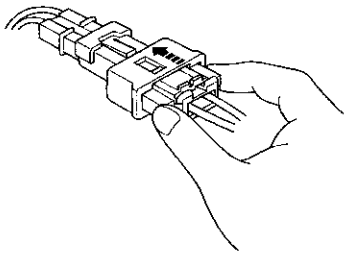


Connecting

1. To reconnect, hold the pawl-side connector, and press on the back of the sleeve-side connector in the direction shown. As the two connector halves are pressed together, the sleeve (A) is pushed back by the pawl (B). Do not touch the sleeve.



2. When the connector halves are completely connected, the pawl is released, and the spring-loaded sleeve locks the connector.

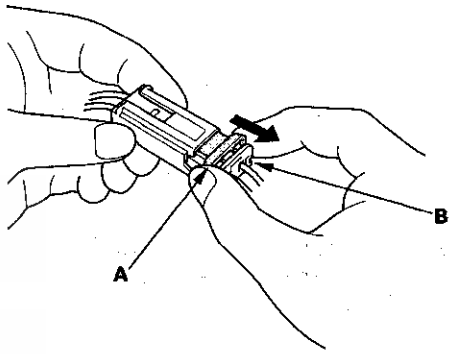


Spring-loaded Lock Connector ('06-08 Models)

Some SRS system connectors have a spring-loaded lock.

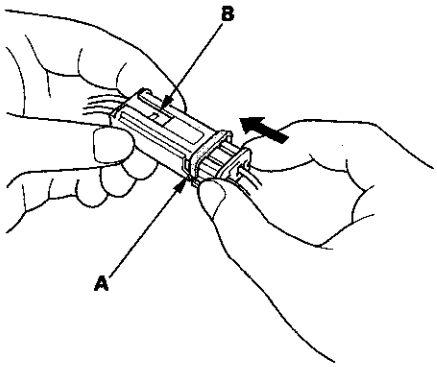
Disconnecting

To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector.



Connecting

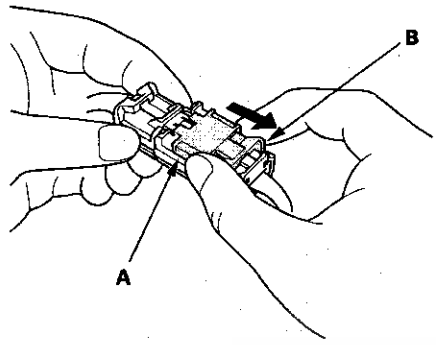
To reconnect, hold the pawl-side connector, and press on the back of the sleeve-side connector in the direction shown. As the two connector halves are pressed together, the sleeve (A) is pushed back by the pawl (B). Do not touch the sleeve.



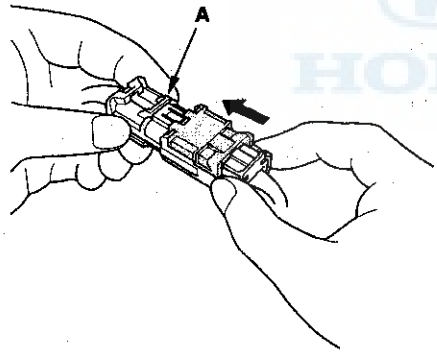
(cont'd)

Precautions and Procedures (cont'd)

Disconnecting
To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector. Then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector half.



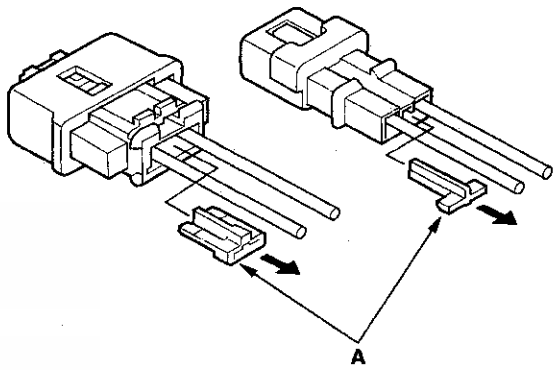
Connecting
Hold both connector halves, and press them firmly together until the projection (A) of the sleeve-side connector clicks.



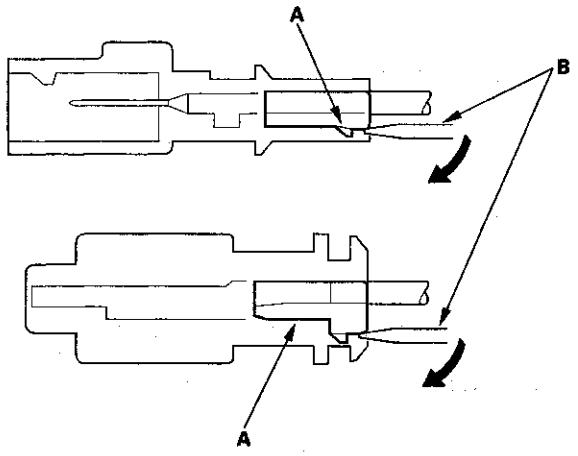
Backprobing Spring-loaded Lock Connectors ('00-05 Models)

When checking voltage or resistance on this type of connector the first time, you must remove the retainer (A) to insert the tester probe from the wire side.

NOTE: It is not necessary to reinstall the removed retainer; the terminals will stay locked in the connector housing.



To remove the retainer (A), insert a flat-tip screwdriver (B) between the connector body and the retainer, then carefully pry out the retainer. Take care not to break the connector.

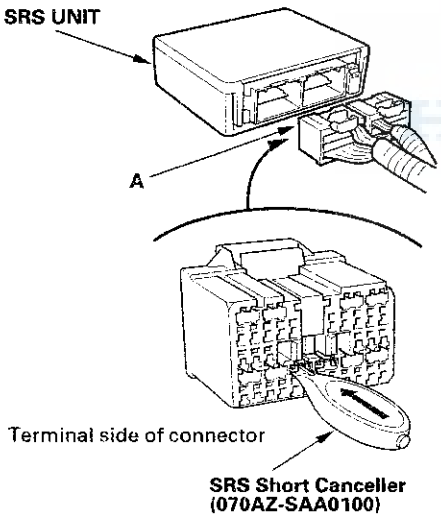


Opening the SRS Unit Shorting Connectors for Diagnosis ('06-08 Models)

Special Tools Required
SRS short canceller 070AZ-SAA0100

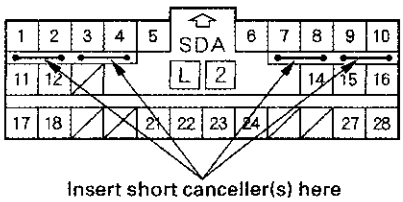
NOTE:
- To prevent damaging the connector cavity, insert the short canceller straight into the cavity from the terminal side.
- Before installing the short canceller, wash it with erectrical contact cleaner, then dry it with compressed air.
- Do not use the short canceller if it is damaged.
- Make sure to remove the short canceller before reconnection.

When the SRS unit connector (28P) A is disconnected, a short circuit is created in the connector by its own function to prevent an airbag deployment. The circuit may need to be open sometimes when diagnosis is performed on the system. Insert the short canceller (070AZ-SAA0100) in the specified cavities when it is necessary to keep the circuit open for diagnosis.



Terminal numbers are shown from the wire side of the female terminals. Insert the short canceller(s) into the cavities on the terminal side of the connector.

SRS UNIT CONNECTOR A (28P)



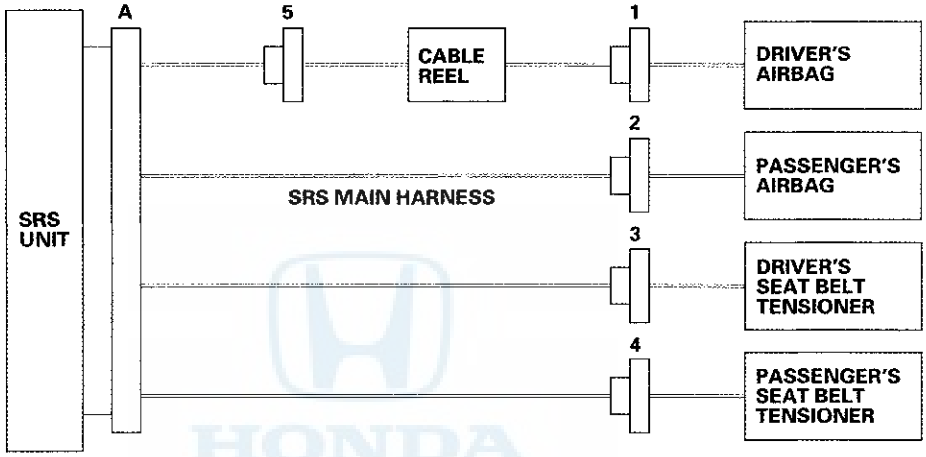
(cont'd)

Precautions and Procedures (cont'd)

Disconnecting System Connectors ('00-05 Models)

Turn the ignition switch OFF, disconnect the negative cable from the battery, then wait for 3 minutes before starting the following procedures.

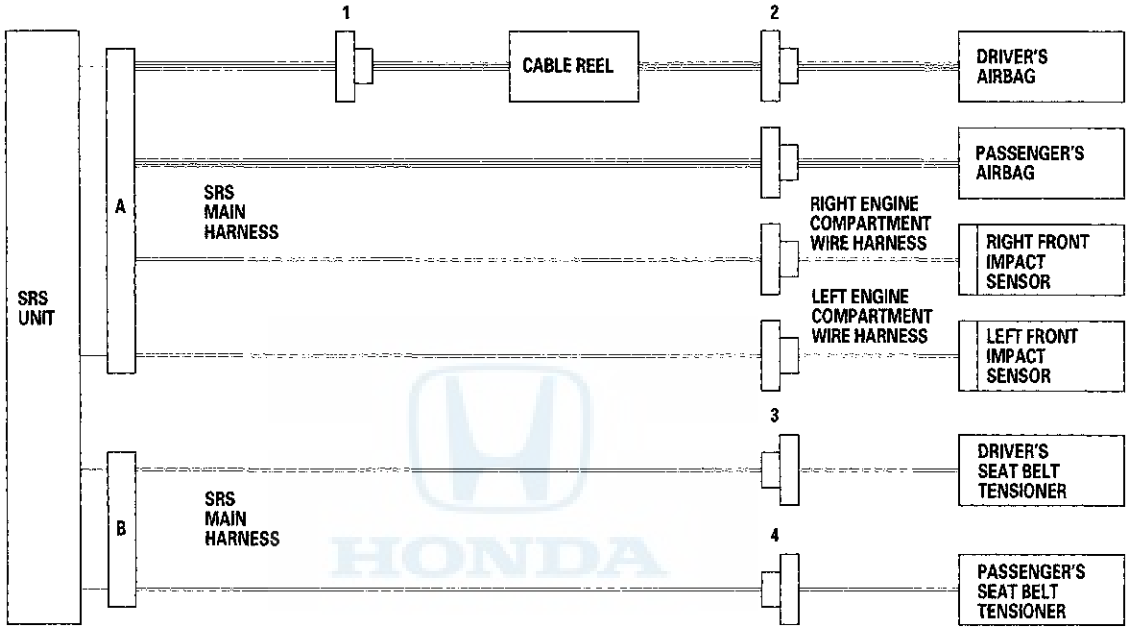
- Before disconnecting the SRS unit connector (18P) from the SRS unit, disconnect both airbag 2P connectors (1, 2) and both seat belt tensioner 2P connectors (3, 4).
- Before disconnecting the cable reel 2P connector (5), disconnect the driver's airbag 2P connector (1).



Disconnecting System Connectors ('06-08 Models)

Turn the ignition switch OFF, disconnect the negative cable from the battery, then wait for 3 minutes before starting the following procedures.

- Before disconnecting the cable reel 4P connector (1), disconnect the driver's airbag 4P connector (2).
- Before disconnecting SRS unit connector B (28P) from the SRS unit, disconnect both seat belt tensioner 2P connectors (3, 4).



(cont'd)

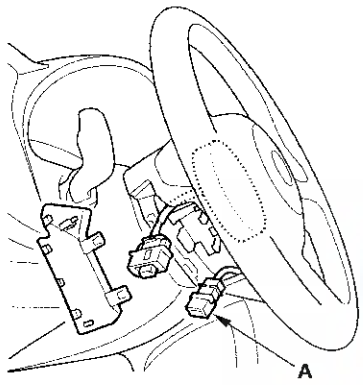
Precautions and Procedures (cont'd)

('00-05 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes.

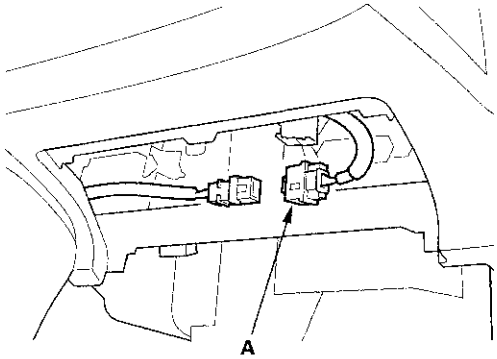
Driver's Airbag

2. Remove the access panel from the steering wheel, then disconnect the driver's airbag 2P connector (A) from the cable reel.



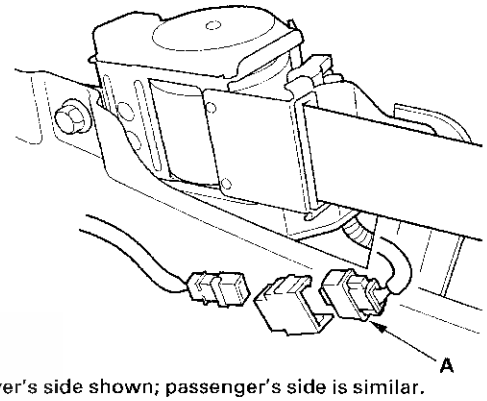
Passenger's Airbag

3. Remove the passenger's dashboard lower cover (see page 20-86), then disconnect the passenger's airbag 2P connector (A) from the SRS main harness.



Seat Belt Tensioner

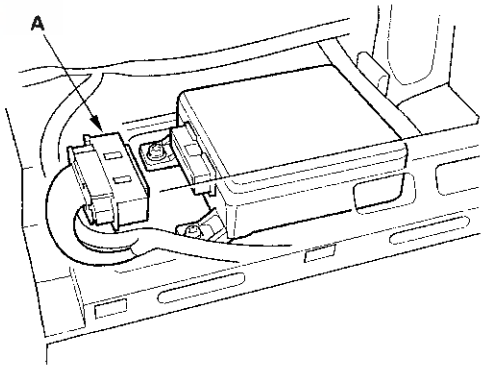
4. Remove the roll bar upper trim (see page 20-72), then disconnect the seat belt tensioner 2P connector (A) from the SRS main harness.



Driver's side shown; passenger's side is similar.

SRS Unit

5. Remove the center console (see page 20-80) and audio unit (see page 22-288). Disconnect SRS unit connector (18P) (A) from the SRS unit.

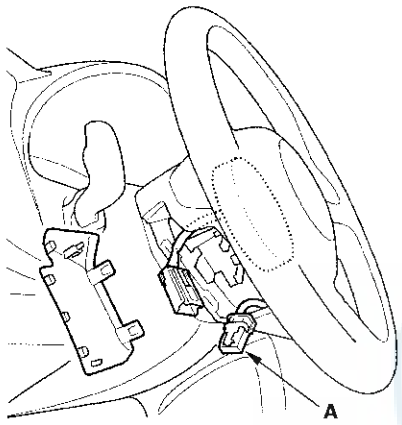


('06-08 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes.

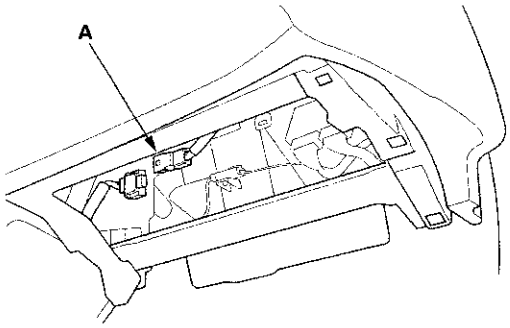
Driver's Airbag

2. Remove the access panel from the steering wheel, then disconnect the driver's airbag 4P connector (A) from the cable reel.



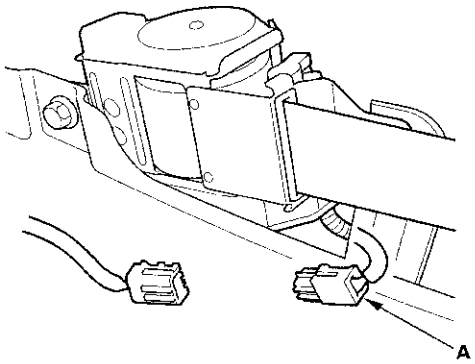
Passenger's Airbag

3. Remove the passenger's dashboard lower cover (see page 20-86), then disconnect the passenger's airbag 4P connector (A) from the SRS main harness.



Seat Belt Tensioner

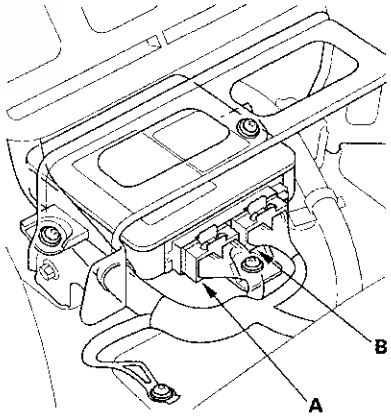
4. Remove the roll bar upper trim (see page 20-72), then disconnect the seat belt tensioner 2P connector (A) from the SRS main harness.



Driver's side shown; passenger's side is similar.

SRS Unit

5. Remove the center console (see page 20-80) and audio unit (see page 22-288). Disconnect SRS unit connector A (28P) or SRS unit connector B (28P) from the SRS unit.



General Troubleshooting Information

DTC (Diagnostic Trouble Codes)

The self-diagnostic function of the SRS allows it to locate the causes of system problems and then store this information in memory. For easier troubleshooting, this data can be retrieved via a data link circuit.

- When you turn the ignition switch ON (II), the SRS indicator comes on. If it goes off after 6 seconds, the system is normal.
- If there is an abnormality, the system locates and defines the problem, stores this information in memory, and turns the SRS indicator on. The data will remain in the memory even when the ignition switch is turned off or if the battery is disconnected.
- When you connect the HDS to the data link connector (DLC) to short the SCS terminal, and turn the ignition switch ON (II), the SRS indicator will indicate the diagnostic trouble code (DTC) by the number of blinks.
- The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that is display on the HDS.
- When you connect the HDS to the data link connector (DLC), you can retrieve the DTC in the Honda Systems "SRS" menu.
- After reading and recording the DTC, proceed with the troubleshooting procedure for that code.

Precautions

- Use only a digital multimeter to check the system. If it is not a Honda multimeter, make sure its output is 10 mA (0.01 A) or less when switched to the smallest value in the ohmmeter range. A tester with a higher output could damage the airbag circuit or cause accidental airbag deployment and possible injury.
- Whenever the ignition switch is ON (II), or has been turned OFF for less than 3 minutes, be careful not to bump the SRS unit; the airbags could accidentally deploy and cause damage or injuries.
- Before you remove the SRS main harness, disconnect the driver's airbag connector, the passenger's airbag connector, and both seat belt tensioner connectors.
- Make sure the battery is sufficiently fully charged. If the battery is dead or low, the measured values will not be correct.
- Do not touch a tester probe to the terminals in the SRS unit or harness connectors, and do not connect the SRS unit terminals or the sensor terminals with a jumper wire. Use only the backprobe set and HDS. Backprobe spring-loaded lock type connectors correctly.

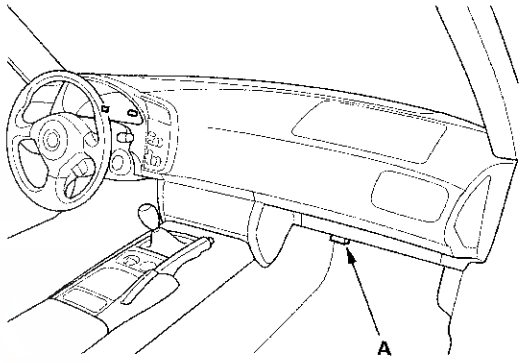
Reading the DTC ('00-05 Models)

When the SRS indicator is on, read the DTC using either of the following methods:

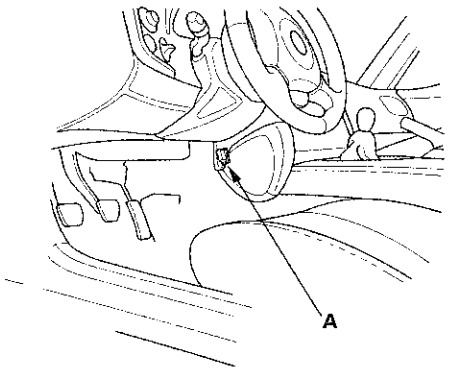
HDS "SRS" Menu Method

Connect the HDS to the data link connector (DLC) (A), and follow the HDS prompts in the "SRS" menu. If the HDS indicates no DTC, DTC 9-1, or DTC 9-2, double-check by using the "SCS" menu method.

'00-01 models



'02-05 models

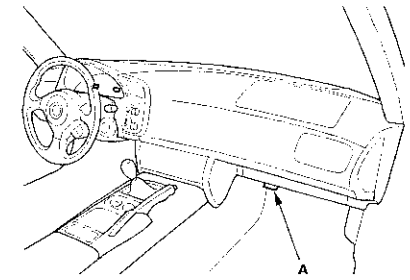


HDS "SCS" Menu Method (Retrieving the flash codes)
The SRS indicator indicates the DTCs by the number of blinks when the HDS is connected to the DLC.

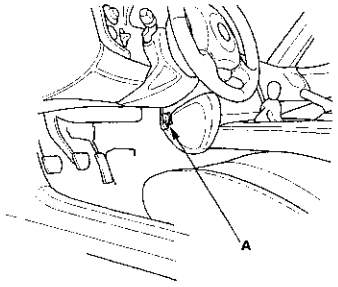
1. Make sure the ignition switch is OFF.

2. Connect the HDS to the data link connector (DLC) (A), and follow the HDS prompts in the "SCS" menu to ground the SCS line.

'00-01 models



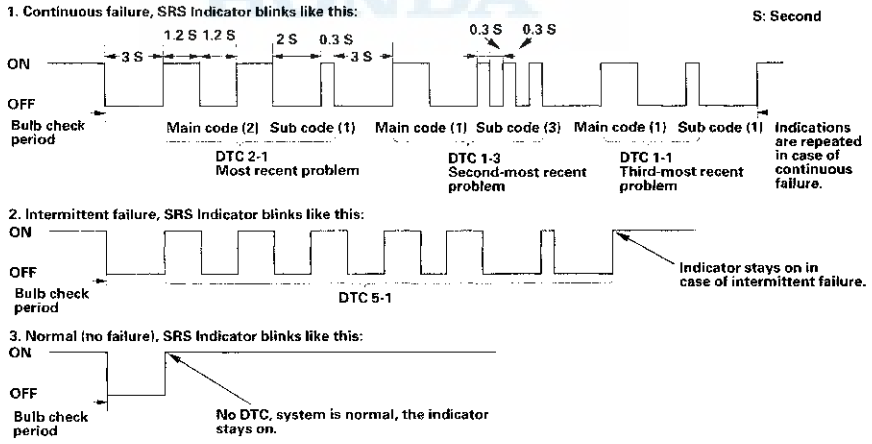
'02-05 models



3. Make sure the SCS line is grounded, then turn the ignition switch ON (II). The SRS indicator should come on for about 6 seconds, and then go off. Then it will blink to indicate the DTC.

   - Including the most recent problem, up to three different DTCs can be displayed.
   - In case of a continuous failure, the DTC will be indicated repeatedly.
   - In case of an intermittent failure, the SRS indicator will indicate the DTC one time, then it will stay on.
   - If a continuous and an intermittent failure occur, both DTCs will be indicated as continuous failures.
   - In case the system is normal (no DTCs), the SRS indicator will stay on.

   Examples of DTC indications:



4. Read the DTC.

5. Turn the ignition switch OFF, and wait for 10 seconds.

6. Disconnect the HDS from the DLC.

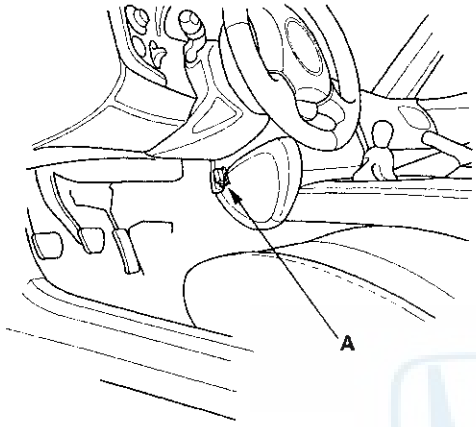
7. Do the troubleshooting procedure for the DTC.

(cont'd)

General Troubleshooting Information (cont'd)

Reading the DTC ('06-08 Models)

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC) (A).



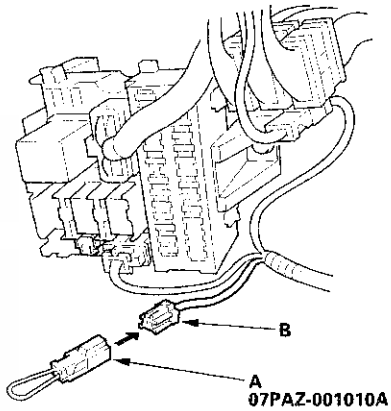
3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-367).
5. Use the HDS to check for DTCs.
6. Read and record the DTC.
7. Turn the ignition switch OFF.
8. Disconnect the HDS from the DLC.
9. Do the troubleshooting procedure for the DTC.

Clear the DTC Memory ('00-05 Models)

Special Tools Required
SCS Service Connector 07PAZ-001010A

To erase the DTC(s) from the SRS unit, use the HDS or follow this procedure.

1. Make sure the ignition switch is OFF.
2. Connect the SCS service connector (A) to the yellow MES 2P connector (B). Do not use a jumper wire.

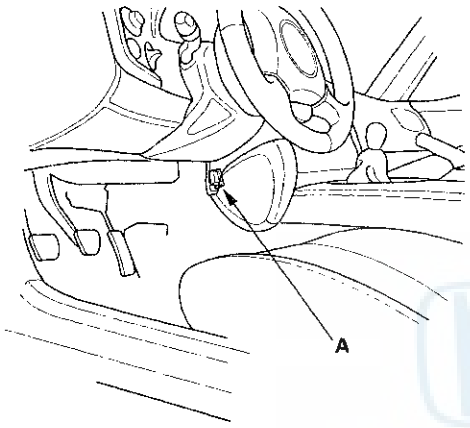


3. Turn the ignition switch ON (II).
4. The SRS indicator will come on for about 6 seconds, and then go off. Remove the SCS service connector from the MES 2P connector within 4 seconds after the indicator goes off.
5. The SRS indicator will come on again. Reconnect the SCS service connector to the MES 2P connector within 4 seconds after the indicator comes on.
6. When the SRS indicator goes off, remove the SCS service connector from the MES 2P connector within 4 seconds.
7. The SRS indicator will blink two times indicating that the memory has been cleared.
8. Turn the ignition switch OFF.
9. Turn the ignition switch ON (II) again. If the SRS indicator comes on for 6 seconds and then goes off, the SRS is OK.

Clear the DTC Memory With the HDS ('06-08 Models)

NOTE: Make sure the battery is fully charged before you begin.

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC) (A).



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-367).
5. In the SRS MENU of the HDS, select SRS, then DTC to clear the DTC(s).
6. Turn the ignition switch OFF.
7. Disconnect the HDS from the DLC.

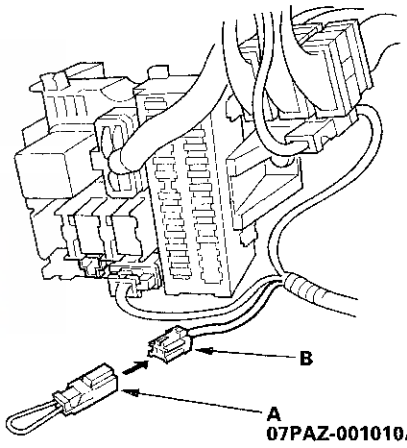
Clear the DTC Memory Using MES Connector Without the HDS ('06-08 Models)

Special Tools Required
SCS Service Connector 07PAZ-001010A

NOTE: Make sure the battery is fully charged before you begin.

To clear the DTC(s) from the SRS unit, use the HDS or the following procedure.

1. Make sure the ignition switch is OFF.
2. Connect the SCS service connector (A) to the yellow MES 2P connector (B). Do not use a jumper wire.



(cont'd)

General Troubleshooting Information (cont'd)

3. Turn the ignition switch ON (II).
4. The SRS indicator will come on for about 6 seconds, and then go off. Remove the SCS service connector from the MES 2P connector within 4 seconds after the indicator goes off.
5. The SRS indicator will come on again. Reconnect the SCS service connector to the MES 2P connector within 4 seconds after the indicator comes on.
6. When the SRS indicator goes off, remove the SCS service connector from the MES 2P connector within 4 seconds.
7. The SRS indicator blinks two times, indicating that the memory has been cleared.
8. Turn the ignition switch OFF, then wait for 10 seconds.
9. Turn the ignition switch ON (II) again. If the SRS indicator comes on for 6 seconds, and then goes off, the system is OK.

Troubleshooting Intermittent Failures

If there was a malfunction, but it does not recur, it will be stored in the memory as an intermittent failure, and the SRS indicator may come on depending on this malfunction detected.

NOTE: Check the condition of the battery (see page 22-47) and the charging system (see page 23-30). Low battery voltage may cause some intermittent failures.

After checking the DTC, troubleshoot as follows:

1. Read the DTC (see "Reading the DTC").
2. Clear the DTC memory (see "Clear the DTC").
3. With the shift lever in neutral and the parking brake set, start the engine, and let it idle.
4. The SRS indicator will come on for about 6 seconds and then go off.
5. Shake the related wire harnesses and connectors, and look for loose connections, pin fits, and poor grounds.
6. Take a test-drive (quick acceleration, quick braking, and cornering), turn the steering wheel fully left and right, and hold it there for 5 to 10 seconds. If the problem recurs, the SRS indicator will come on.

   NOTE: A faulty cable reel can cause intermittent connections related to the driver's airbag inflator DTCs.
7. If you cannot duplicate the concern, ask the customer about the conditions when it occurred, or ask the customer to demonstrate the concern.
8. If you cannot duplicate the intermittent failure, the system is OK at this time.

Passenger's Weight Sensor Unit Calibration

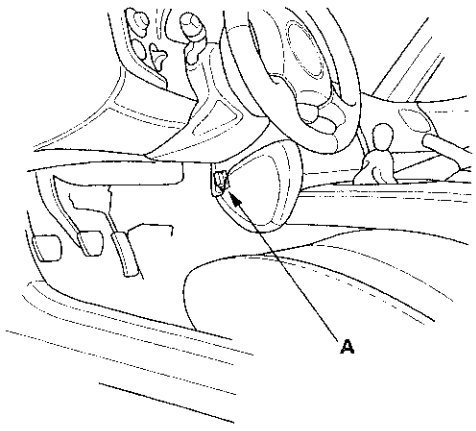
('06-08 Models)

When you replace the passenger's weight sensors or passenger's weight sensor unit, calibrate the passenger's weight sensor unit.

While calibrating the passenger's weight sensor unit, observe these precautions:

- Make sure all components of the passenger's seat are correctly installed.
- Make sure nothing is on or under the passenger's seat.
- Make sure there is nothing in the passenger's seat-back pocket.
- Keep the windows closed.
- Do all calibration procedures except test-driving, in the service bay.
- Make sure the vehicle is on level ground.
- Keep the A/C and the heater off.
- Do not touch the passenger's seat until you are prompted to or when you have completed the calibration.
- Do not expose the passenger's seat to sudden temperature changes.

1. Position the passenger's seat to the rearmost position and adjust the recliner to the forwardmost position. Do not move the seat from this position.
2. Turn the ignition switch OFF.
3. Connect the HDS to the data link connector (DLC) (A).



4. Turn the ignition switch OFF.
5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not, troubleshooting the DLC circuit (see page 11-367).
6. Drive the vehicle, and accelerate to 20 mph (36 km/h), then stop on level ground.
7. From the Main Menu, select SRS, then Calibration, then Misc Test, then select "SWS INIT," and follow the prompts until the calibration has been completed.

Passenger's Weight Sensor Unit Operation Check

('06-08 Models)

Check the seat weight sensor unit operation after any or these actions.

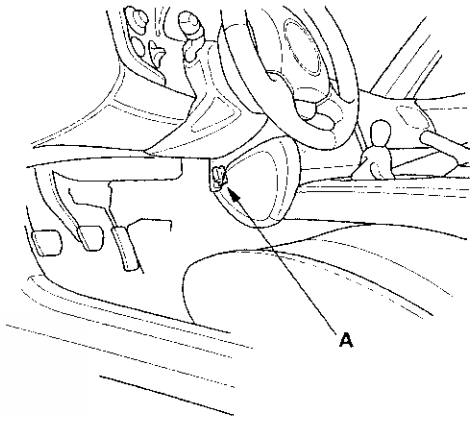
- Replacement of passenger's seat component(s) (except passenger's weight sensor unit and/or passenger's weight sensors)
- After a vehicle collision

Pre-operation Check Set-up

- Make sure all the components of the passenger's seat are correctly installed.
- Position the passenger's seat to the rearmost position.
- Adjust the seat recline to the forwardmost position.
- Do not move the seat from this position.
- Make sure nothing is on or under the passenger's seat.
- Make sure there is nothing in the passenger's seat-back pocket.
- Keep the windows closed.
- Do all calibration procedures, except test-driving, in the service bay.
- Make sure the vehicle is on level ground.
- Keep the A/C and heater off.
- Do not touch the passenger's seat during the operation check.
- Do not expose the passenger's seat to sudden temperature changes.
- Make sure all aftermarket devices such as amplifiers, fluorescent lights, air purifiers, CB or HAM radios, etc. are turned off.

After Replacing Passenger's Seat Component(s)

1. Turn the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC) (A).



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshooting the DLC circuit (see page 11-367).
5. Drive the vehicle, accelerate to 20 mph (36 km/h), then stop on level ground.
6. From the HDS Main Menu, select SRS, then Inspection. In the HDS Inspection Menu, select "SEAT OUTPUT CHK." and follow the prompts until the passenger's weight sensor unit operation check has been completed.

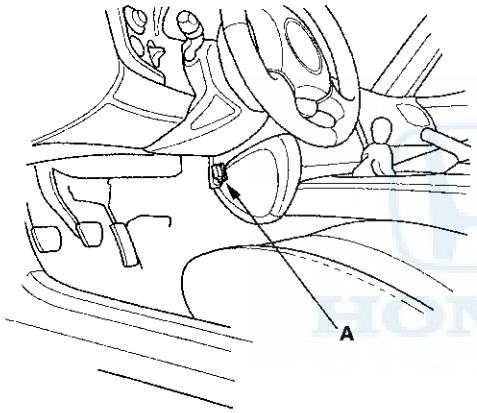
Driver's Seat Position Sensor Operation Check

('06-08 Models)

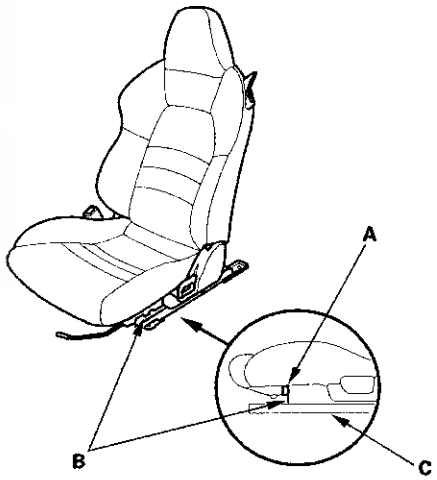
Check the driver's seat position after any of these actions.

- Driver's seat position sensor replacement
- Cover plate (front side of driver's seat slide rail) replacement

1. Make sure the ignition switch is OFF.
2. Connect the HDS to the data link connector (DLC) (A).



3. Turn the ignition switch ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it dose not, troubleshooting the DLC circuit (see page 11-367).
5. From the HDS Main Menu, select SRS, then SRS then Parameter Information, then Buckle Switch, Seat Position Sensor.
6. Move the driver's seat all the way forward.
7. Using a piece of tape (A), mark a line on the seat's outer cover (B), where the front riser cover meets the seat riser (C). The driver's seat position sensor should read "NEAR."



8. Move the seat back in small increments (about 0.2 in., 5 mm) until the driver's seat position sensor reads "NOT NEAR." The seat should be about 1 in. (25 mm) from the front.

   NOTE: It takes a few seconds for the HDS to display changes, so wait about 5 seconds between each move.

   If the driver's seat position sensor does not work as described, check the driver's seat position sensor or the cover plate for damage, and replace parts as needed.

9. Turn the ignition switch OFF, and disconnect the HDS from the DLC.

DTC Troubleshooting Index

'00-05 Models

DTC	Detection Item	Notes
1-1	Open in driver's airbag inflator	(see page 23-48)
1-2	Increased resistance in driver's airbag inflator	(see page 23-48)
1-3	Short to another wire or decreased resistance in driver's airbag inflator	(see page 23-50)
1-4	Short to power in driver's airbag inflator	(see page 23-52)
1-5	Short to ground in driver's airbag inflator	(see page 23-54)
2-1	Open in passenger's airbag inflator	(see page 23-56)
2-2	Increased resistance in passenger's airbag inflator	(see page 23-56)
2-3	Short to another wire or decreased resistance in passenger's airbag inflator	(see page 23-57)
2-4	Short to power in passenger's airbag inflator	(see page 23-59)
2-5	Short to ground in passenger's airbag inflator	(see page 23-60)
3-1	Open in driver's seat belt tensioner	(see page 23-62)
3-2	Increased resistance in driver's seat belt tensioner	(see page 23-62)
3-3	Short to another wire or decreased resistance in driver's seat belt tensioner	(see page 23-64)
3-4	Short to power in driver's seat belt tensioner	(see page 23-66)
3-5	Short to ground in driver's seat belt tensioner	(see page 23-68)
4-1	Open in passenger's seat belt tensioner	(see page 23-70)
4-2	Increased resistance in passenger's seat belt tensioner	(see page 23-70)
4-3	Short to another wire or decreased resistance in passenger's seat belt tensioner	(see page 23-72)
4-4	Short to power in passenger's seat belt tensioner	(see page 23-74)
4-5	Short to ground in passenger's seat belt tensioner	(see page 23-76)
5-1	Internal failure of the SRS unit NOTE: Before troubleshooting DTCs 5-1 through 8-6, check battery/system voltage. If voltage is low, repair the charging system before troubleshooting the SRS.	(see page 23-78)
5-2		
5-3		
5-4		
6-1		
6-2		
6-3		
6-4		
7-1		
7-2		
7-3		
8-1		
8-2		
8-3		
8-4		
8-6		
9-1	Internal failure of the SRS unit. If intermittent, it could mean internal failure of the unit or a faulty indicator circuit. Refer to Troubleshooting Intermittent Failures (see page 23-29). NOTE: Before troubleshooting DTC 9-1, check battery/system voltage. If the voltage is low, repair the charging system before troubleshooting the SRS.	(see page 23-79)
9-2	Faulty Power Supply (VB line). If intermittent, it could mean internal failure of the power supply (VB line). Refer to Troubleshooting Intermittent Failures (see page 23-29). NOTE: Before troubleshooting DTC 9-2, check battery/system voltage. If the voltage is low, repair the charging system before troubleshooting the SRS.	(see page 23-81)
10-1	Airbags and/or seat belt tensioner deployed.	(see page 23-78)

DTC Troubleshooting Index (cont'd)

'06-08 Models

DTC	Latch*1	Reset*2	Detection Item	Notes
11-1x		○	Open in driver's airbag first inflator	(see page 23-83)
11-2x			Increased resistance in driver's airbag first inflator	
11-3x			Short to another wire or decreased resistance in driver's airbag first inflator	(see page 23-85)
11-4x			Open in driver's airbag second inflator	(see page 23-83)
11-5x			Increased resistance in driver's airbag second inflator	
11-6x			Short to another wire or decreased resistance in driver's airbag second inflator	(see page 23-85)
11-8x	○		Short to power in driver's airbag first inflator	(see page 23-87)
11-9x			Short to ground in driver's airbag first inflator	(see page 23-90)
11-Ax			Short to power in driver's airbag second inflator	(see page 23-87)
11-Bx			Short to ground in driver's airbag second inflator	(see page 23-90)
12-1x		○	Open in passenger's airbag first inflator	(see page 23-92)
12-2x			Increased resistance in passenger's airbag first inflator	
12-3x			Short to another wire or decreased resistance in passenger's airbag first inflator	(see page 23-94)
12-4x			Open in passenger's airbag second inflator	(see page 23-92)
12-5x			Increased resistance in passenger's airbag second inflator	
12-6x			Short to another wire or decreased resistance in passenger's airbag second inflator	(see page 23-94)
12-8x	○		Short to power in passenger's airbag first inflator	(see page 23-96)
12-9x			Short to ground in passenger's airbag first inflator	(see page 23-98)
12-Ax			Short to power in passenger's airbag second inflator	(see page 23-96)
12-Bx			Short to ground in passenger's airbag second inflator	(see page 23-98)
21-1x		○	Open in driver's seat belt tensioner	(see page 23-100)
21-2x			Increased resistance in driver's seat belt tensioner	
21-3x			Short to another wire or decreased resistance in driver's seat belt tensioner	(see page 23-102)
21-8x	○		Short to power in driver's seat belt tensioner	(see page 23-103)
21-9x			Short to ground in driver's seat belt tensioner	(see page 23-104)
22-1x		○	Open in passenger's seat belt tensioner	(see page 23-106)
22-2x			Increased resistance in passenger's seat belt tensioner	
22-3x			Short to another wire or decreased resistance in passenger's seat belt tensioner	(see page 23-107)
22-8x	○		Short to power in passenger's seat belt tensioner	(see page 23-108)
22-9x			Short to ground in passenger's seat belt tensioner	(see page 23-110)
41-1x		○	No signal from the left front impact sensor	(see page 23-111)
41-2x			Internal failure of the left front impact sensor	(see page 23-117)
41-7x			Short to ground or short to power in left front impact sensor	(see page 23-111)
41-Ax	○		Internal failure of the left front impact sensor	(see page 23-117)
42-1x		○	No signal from the right front impact sensor	(see page 23-114)
42-2x			Internal failure of the right front impact sensor	(see page 23-117)
42-3x	○			

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you will see on the HDS display. The character is unrelated to your troubleshooting; it designates the SRS unit manufacturer and other details used for product analysis.

* 1: The SRS indicator turns on and stays on whenever the ignition switch is in the ON (II) position, or until the DTC is cleared.

* 2: The SRS indicator turns on when the DTC is set. The SRS indicator will not turn on after the ignition switch is cycled from ON (II) to OFF (0) (if the circuit returns to normal), but the DTC is stored in the SRS unit.

DTC	Latch *1	Reset *2	Detection Item	Notes
51-1x		○	Internal failure of the SRS unit	(see page 23-118)
51-2x				
51-3x				
51-5x				
51-7x				
51-8x	○			
52-xx				
53-xx		○		
54-xx				
61-1x			Open in driver's seat belt buckle switch	(see page 23-119)
61-2x			Short in driver's seat belt buckle switch	(see page 23-122)
62-1x			Open in passenger's seat belt buckle switch	(see page 23-125)
62-2x			Short in passenger's seat belt buckle switch	(see page 23-128)
71-1x			Open in driver's seat position sensor	(see page 23-131)
71-2x			Short in driver's seat position sensor	(see page 23-132)
81-4x			Internal failure of the passenger's weight sensor unit	(see page 23-137)
81-61			No signal from the passenger's weight sensor unit	(see page 23-134)
81-62			Response data error from the passenger's weight sensor unit	
81-63			Internal failure of the passenger's weight sensor unit	(see page 23-137)
81-64				
81-71			Passenger's weight sensor unit does not calibrate	(see page 23-139)
81-78				
81-79			Passenger's weight sensor initial check failure	(see page 23-138)
82-1x			No signal from the inner side passenger's weight sensor	(see page 23-140)
83-2x			No signal from the outer side passenger's weight sensor	
91-1x			Short to ground in the SRS indicator circuit	(see page 23-141)
91-3x				
92-1x			Open in passenger's airbag cutoff indicator	(see page 23-143)
92-2x			Open or short to ground in the passenger's airbag cutoff indicator	(see page 23-145)
A1-1x			Faulty power supply (VA line)	(see page 23-146)
A2-1x			Faulty power supply (VB line)	(see page 23-147)
Ex-xx			Control operation recorded	(see page 23-118)
Fx-xx			Airbag and/or tensioners deployment recorded	

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you will see on the HDS display. The character is unrelated to your troubleshooting; it designates the SRS unit manufacturer and other details used for product analysis.

* 1: The SRS indicator turns on and stays on whenever the ignition switch is in the ON (II) position, or until the code is cleared.

* 2: The SRS indicator turns on when the DTC is set. The SRS indicator will not turn on after the ignition switch is cycled from ON (II) to OFF (0) (if the circuit returns to normal), but the DTC is stored in the SRS unit.

Symptom Troubleshooting Index

'00-03 Models

Symptom	Diagnostic procedure	Also check for
SRS indicator does not come on	Symptom Troubleshooting (see step 1 on page 23-149)	
SRS indicator stays on, but no DTCs are stored	Symptom Troubleshooting (see step 1 on page 23-158)	Inability to retrieve DTCs with the HDS. Retrieve the flash codes using the SCS menu method (see page 23-25).

'04-05 Models

Symptom	Diagnostic procedure	Also check for
SRS indicator does not come on	Symptom Troubleshooting (see step 1 on page 23-152)	
SRS indicator stays on, but no DTCs are stored	Symptom Troubleshooting (see step 1 on page 23-159)	Inability to retrieve DTCs with the HDS. Retrieve the flash codes using the SCS menu method (see page 23-25).

'06-08 Models

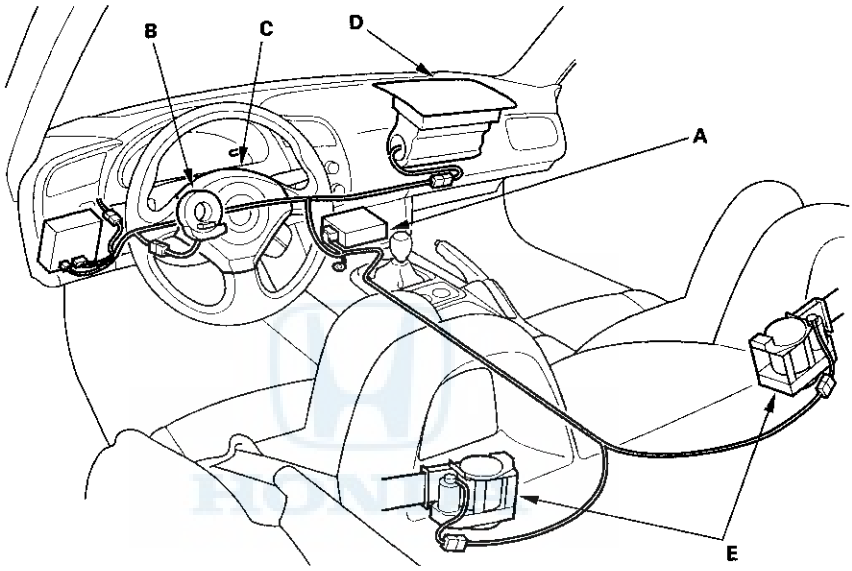
Symptom	Diagnostic procedure	Also check for
SRS indicator does not come on	Symptom Troubleshooting (see step 1 on page 23-155)	
SRS indicator stays on, but no DTCs are stored	Symptom Troubleshooting (see page 23-166)	
HDS does not communicate with the SRS unit or the vehicle	Troubleshoot the DLC circuit (see page 11-367)	Communication with HDS

System Description

SRS Components ('00-05 Models)

Airbags
The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit, including a safing sensor and an impact sensor (A), the cable reel (B), the driver's airbag (C) and the passenger's airbag (D).

Seat Belt Tensioners
The seat belt tensioners (E) is linked with the SRS airbags to further increase the effectiveness of the seat belt. In a front-end collision, the tensioner instantly retracts the belt firmly to secure the occupants in their seats.



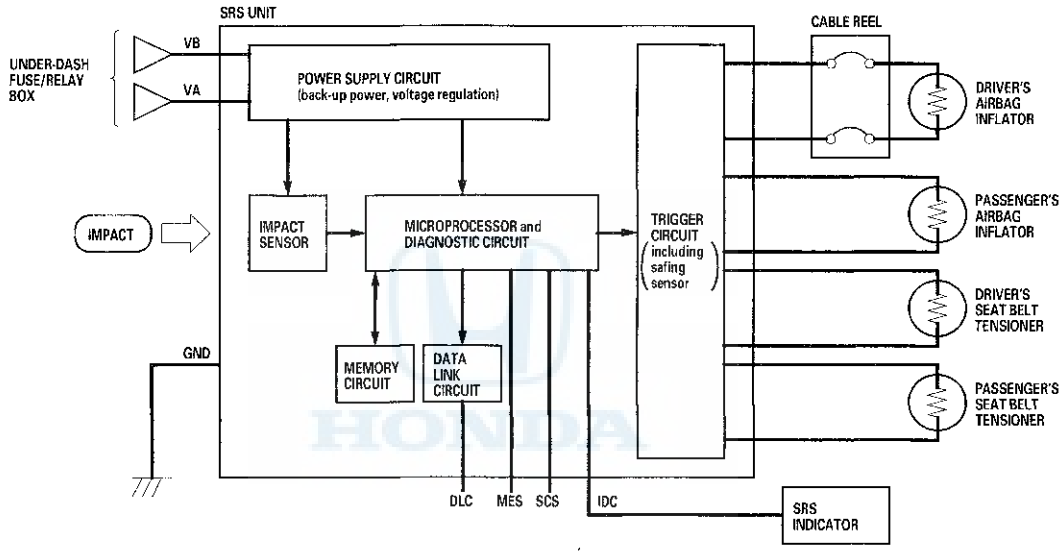
(cont'd)

System Description (cont'd)

SRS Operation ('00-05 Models)

The main circuit in the SRS unit senses and judges the force of impact and, if necessary, ignites the inflator charges. If the battery voltage is too low or power is disconnected due to impact, the voltage regulator and the back-up power circuit respectively will keep voltage at a constant level.

For the SRS to operate:
(1) The impact sensor must activate and send electronic signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the airbag inflators (and seat belt tensioners).
(3) The inflators must ignite and deploy the airbags (and activate the tensioners).



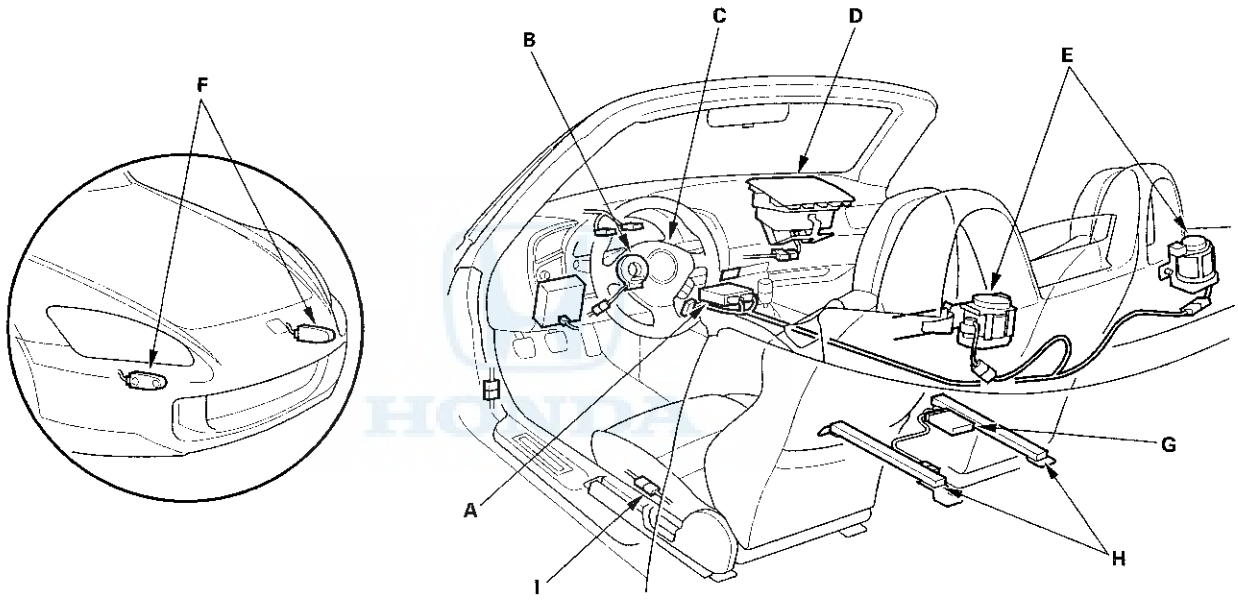
Self-diagnostic System
A self-diagnostic circuit is built into the SRS unit; when the ignition switch is turned ON (II), the SRS indicator comes on and goes off after about 6 seconds if the SRS is operating normally.
If the indicator does not come on, or does not go off after 6 seconds, or if it comes on while driving, it indicates an abnormality in the SRS. The SRS must be inspected and repaired as soon as possible.
For better serviceability, the SRS unit memory stores a DTC that relates to the cause of the malfunction, and the unit is connected to the data link connector (DLC). This information can be read with the HDS when it is connected to the DLC (see page 23-24).

SRS Components ('06-08 Models)

Airbags

The SRS is a safety device which, when used with the seat belt, is designed to help protect the driver and passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit, including safing sensor and impact sensor (A), the cable reel (B), the driver's airbag (C), the passenger's airbag (D), seat belt tensioners (E), front impact sensors (F).

Since the driver's and passenger's airbags use the same sensors, both normally inflate at the same time. However, it is possible for only one airbag to inflate. This can occur when the severity of a collision is at the margin, or threshold, that the SRS unit determines whether or not the airbags will deploy. In such cases, the seat belt will provide sufficient protection, and the supplemental protection offered by the airbag would be minimal.



Passenger's Weight Sensors

The passenger's weight sensor unit (G) is under the passenger's seat along with the passenger's weight sensors (H). The passenger's weight sensors detect the weight on the seat, and send the information to the passenger's weight sensor unit. If the total weight is about 65 lbs (30 kg) or less, the passenger's weight sensor unit sends a signal to the SRS unit to prevent the passenger's airbag from deploying. When the passenger's airbag is disabled, the passenger airbag cutoff indicator on the center panel comes on to alert the driver that the passenger's airbag will not deploy in a front-end collision.

Driver's Seat Position Sensor

The driver's seat position sensor (I) is under the driver's seat on the left side. When the driver's seat is moved to its full forward position, the deployment of the driver's airbag is moderated to decrease its force of impact during a front-end collision.

(cont'd)

System Description (cont'd)

Passenger Airbag Cutoff Indicator ('06-08 Models)

The indicator comes on if the weight of the passenger is about 65 lbs (30 kg) or less. This indicates the passenger's front airbag is off and will not deploy. The front airbag is shut off to reduce the chance of airbag-caused injuries.

SRS Operation ('06-08 Models)

The main circuit in the SRS unit senses and judges the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to the impact, the voltage regulator and the back-up power circuit will keep voltage at a constant level.

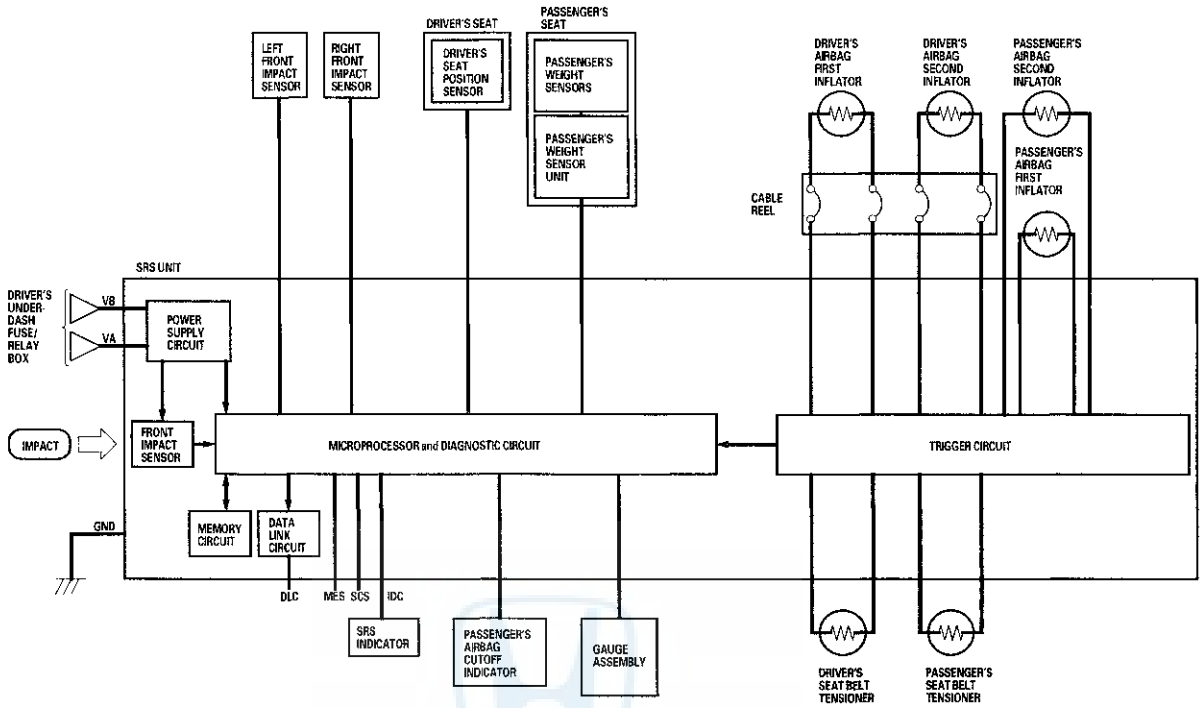
For the SRS to operate:

Seat Belt Tensioners

(1) A front impact sensor must activate and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals and send them to the tensioners.
(3) The charges must ignite and deploy the tensioners.

Driver's and Passenger's Airbag(s)

(1) A front impact sensor must activate and send electric signals to the microprocessor.
(2) The microprocessor must compute the signals, and send them to the airbag inflator(s).
(3) The inflators that receives signals must ignite and deploy the airbags.



Self-diagnostic System

A self-diagnostic circuit is built into the SRS unit; when the ignition switch is turned ON (II), the SRS indicator comes on and goes off after about 6 seconds if the system is operating normally.

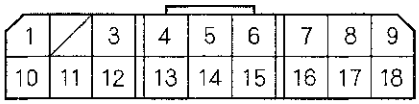
If the indicator does not come on, or does not go off after 6 seconds, or if it comes on while driving, it indicates an abnormality in the system. The system must be inspected and repaired as soon as possible.

For better serviceability, the SRS unit memory stores a DTC that relates to the cause of the malfunction, and the unit is connected to the data link connector (DLC). This information can be read with the HDS when it is connected to the DLC (see page 23-26).

(cont'd)

System Description (cont'd)

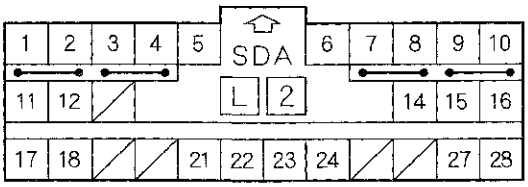
SRS Unit Inputs and Outputs at Connector (18P) ('00-05 Models)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
1	BRN	SADH+	Power source for driver's airbag inflator
3	PNK	VB	SRS dedicated power
4	BRN	SPDC−	Ground for driver's seat belt tensioner
5	BLU/PNK	SPPC−	Ground for passenger's seat belt tensioner
6	PNK	IDC	SRS warning indicator output line
7	BLK/YEL	VA	SRS system sub power (common with ODS)
8	LT GRN/ BLK	MES	Memory clear signal input
9	BRN	SCS	Service check signal input
10	YEL	SAPH+	Power source for passenger's airbag inflator
11	BLU/BLK	SPDH+	Power source for driver's seat belt tensioner
12	GRN/BLU	SPPH+	Power source for passenger's seat belt tensioner
13	GRN	SADC−	Ground for driver's airbag inflator
14	BLU/YEL	SAPC−	Ground for passenger's airbag inflator
15	LT BLU	DIAG-H	Sends and receives scan tool signal
16	BLK	SRS GND (1)	Ground circuit for the SRS
17	BLK	SRS GND (2)	Ground circuit for the SRS
18	BLK	SRS GND (3)	Ground circuit for the SRS

SRS Unit Inputs and Outputs at Connector A (28P) ('06-08 Models)



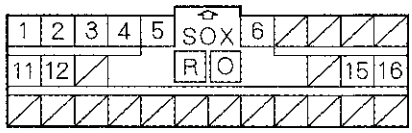
Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
1	GRN	LA2+	Power source for driver's airbag second inflator
2	PUR	LA2−	Ground for driver's airbag second inflator
3	LT GRN	RA2+	Power source for front passenger's airbag second inflator
4	LT BLU	RA2−	Ground for front passenger's airbag second inflator
5	LT GRN/ BLK	MES	Memory erase signal input
6	BRN	SCS	Service check signal input
7	LT BLU	LA1+	Power source for driver's airbag first inflator
8	BRN	LA1−	Ground for driver's airbag first inflator
9	YEL	RA1+	Power source for front passenger's airbag first inflator
10	BLU	RA1−	Ground for front passenger's airbag first inflator
11	PNK	IDC	SRS indicator output line
12	BLU	PTT	Passeger's airbag cutoff indicator output line
14	GRN	ODS	Sends and receives communication signal
15	BRN	LFS−	Ground for left front impact sensor
16	LT BLU	RFS−	Ground for right front impact sensor
17	BLK/YEL	VA	SRS system sub power (common with passenger's cutoff indicator)
18	PNK	VB	SRS dedicated power (dedicated booster circuit)
21	BLK/YEL	CDS	Front passenger's occupant detection signal output line
22	BLK	SRS GND (1)	Ground circuit for the SRS unit
23	BLK	SRS GND (2)	Ground circuit for the SRS unit
24	GRY	K-LINE	Sends and receives scan tool signal
27	RED	LFS+	Power source for left front impact sensor
28	GRN	RFS+	Power source for right front impact sensor

(cont'd)

System Description (cont'd)

SRS Unit Inputs and Outputs at Connector B (28P) ('06-08 Models)

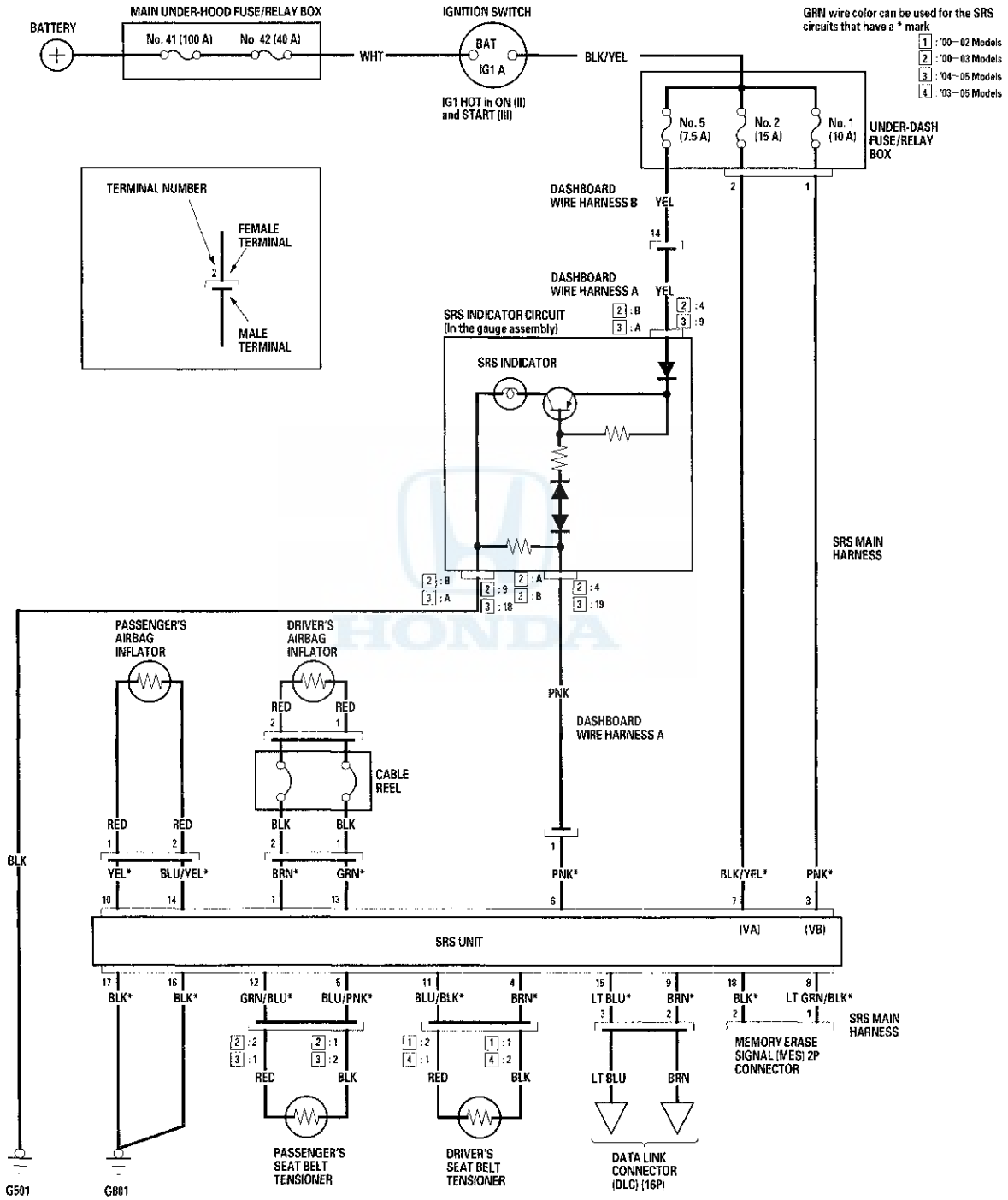


Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
1	RED	LRP+	Power source for driver's seat belt tensioner
2	BRN	LRP−	Ground for driver's seat belt tensioner
3	GRN	RRP+	Power source for passenger's seat belt tensioner
4	LT BLU	RRP−	Ground for passenger's seat belt tensioner
5	GRY	SS−	Ground for driver's seat position sensor
6	LT GRN	SS+	Power source for driver's seat position sensor
11	YEL	LBSC	Driver's seat belt buckle switch un-buckled signal
12	LT GRN	LBSO	Driver's seat belt buckle switch buckled signal
15	BLU	RBSC	Passenger's seat belt buckle switch un-buckled signal
16	ORN	RBSO	Passenger's seat belt buckle switch buckled signal

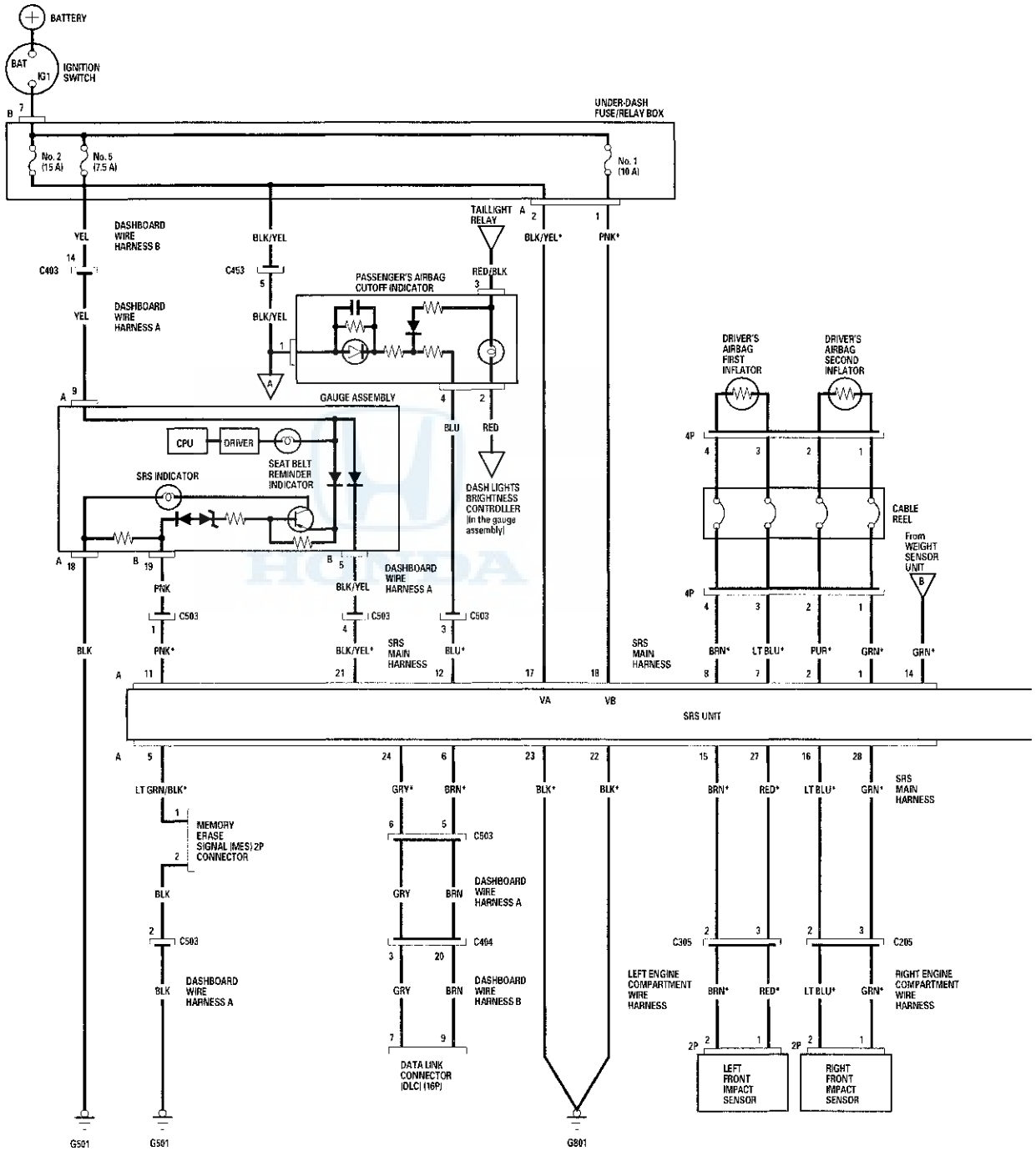
Circuit Diagram

'00-05 models

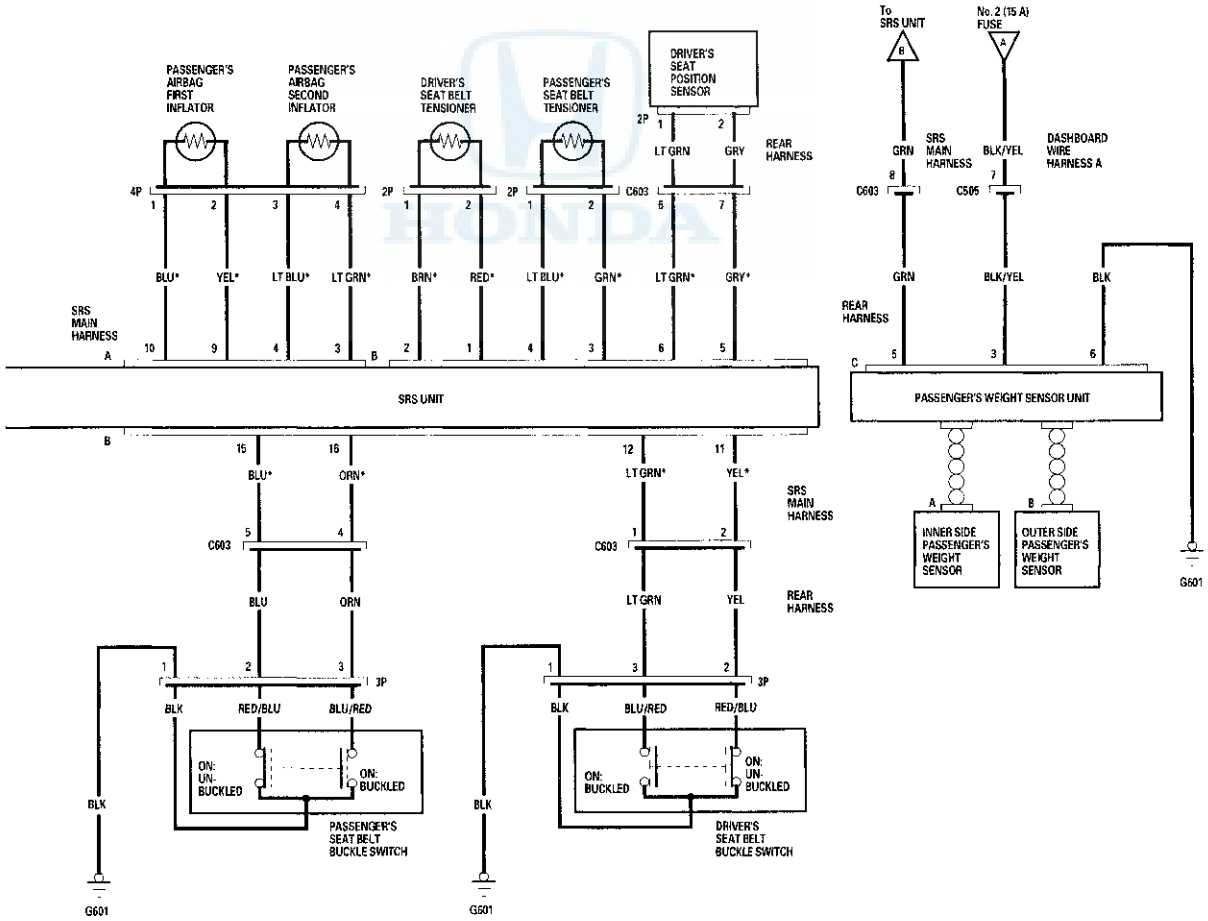


Circuit Diagram (cont'd)

'06-08 models



BLU, GRN, GRY, ORN, or BRN wire color can be used for the SRS circuits that have a * mark



DTC Troubleshooting

DTC 1-1: Open in Driver's Airbag Inflator

DTC 1-2: Increased Resistance in Driver's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

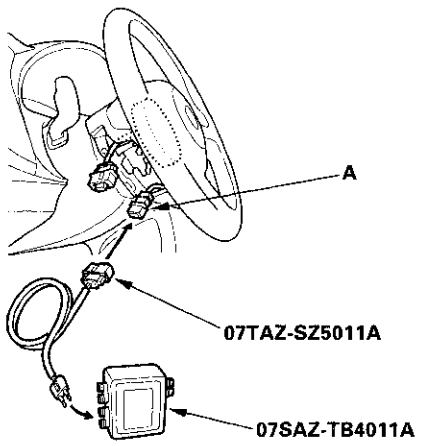
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector (A) from the cable reel.

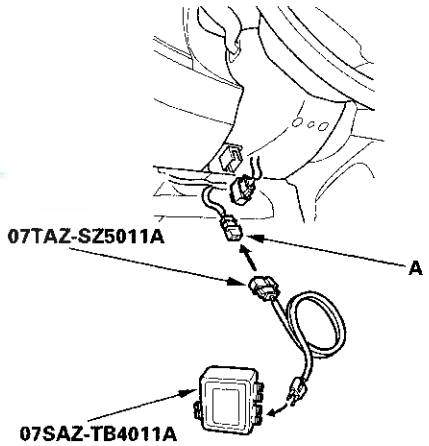


5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the cable reel.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 1-1 or DTC 1-2 indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's airbag; replace the driver's airbag (see page 23-164). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the cable reel 2P connector from the SRS main harness (A).



11. Connect the SRS inflator simulator (2 Ω connector) and the simulator lead to the SRS main harness.
12. Reconnect the negative cable to the battery.
13. Clear the DTC memory.

14. Read the DTC.

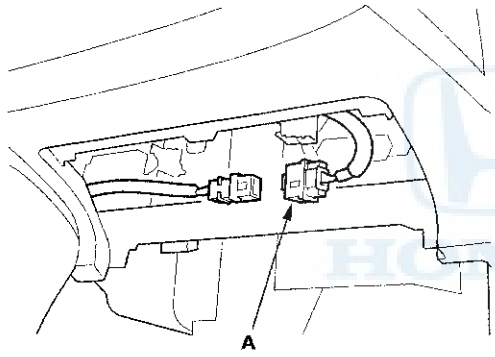
Is DTC 1-1 or DTC 1-2 indicated?

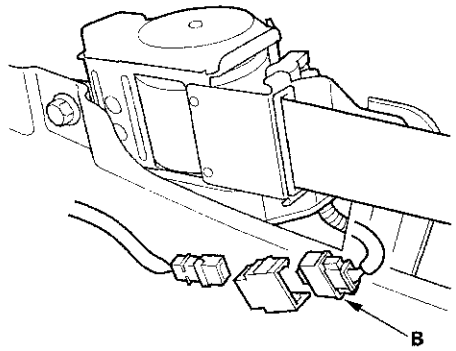
YES—Go to step 15.

NO—Open or increased resistance in the cable reel; replace the cable reel (see page 23-173).■

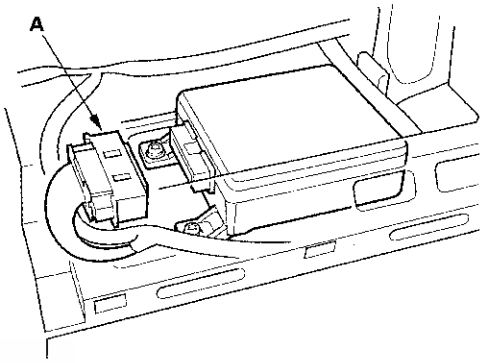
15. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

16. Disconnect the passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



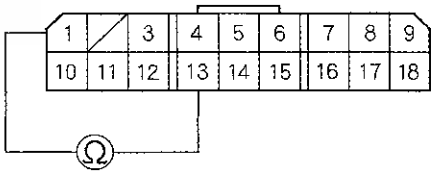


17. Disconnect the SRS unit connector (18P) (A) from the SRS unit. Do not disconnect the simulator lead from the SRS main harness.



18. Measure the resistance between the No. 1 and No. 13 terminals of the SRS unit connector (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit 18P connector and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 1-3: Short to Another Wire or Decreased Resistance in Driver's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

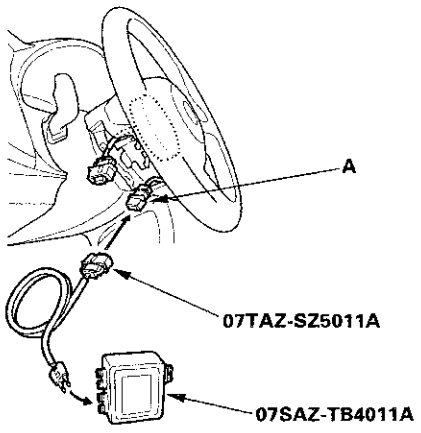
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector (A) from the cable reel.

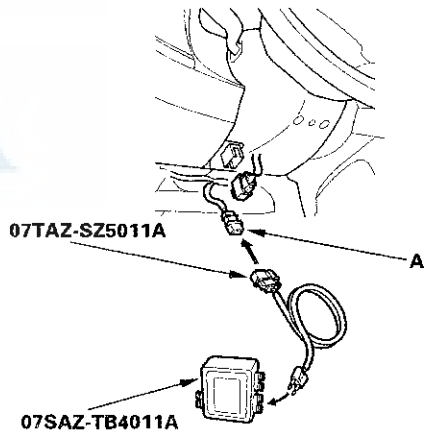


5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the cable reel.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 1-3 indicated?

   YES—Go to step 9.

   NO—Short in the driver's airbag; replace the driver's airbag (see page 23-164).■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the cable reel 2P connector from the SRS main harness (A).



11. Connect the SRS inflator simulator (2 Ω connector) and the simulator lead to the SRS main harness.
12. Reconnect the negative cable to the battery.
13. Clear the DTC memory.
14. Read the DTC.

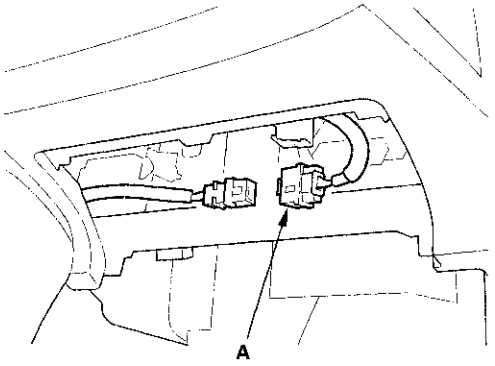
    Is DTC 1-3 indicated?

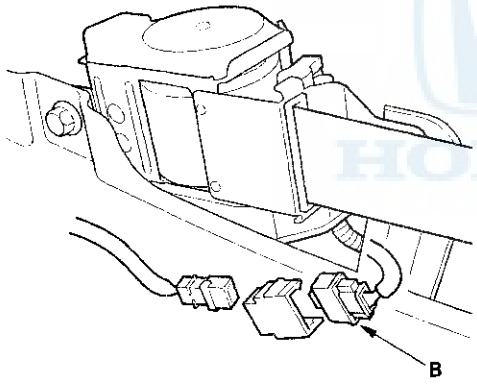
    YES—Go to step 15.

    NO—Short in the cable reel; replace the cable reel (see page 23-173).■

15. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

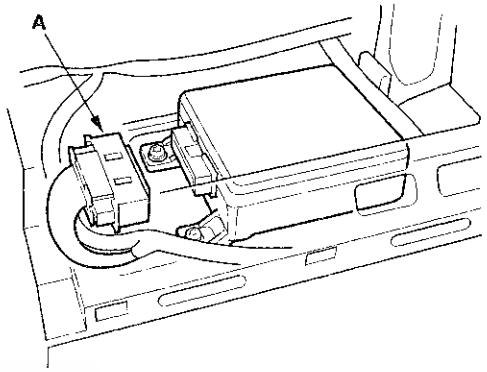
16. Disconnect the passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).





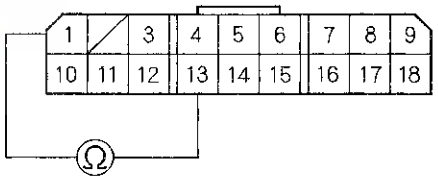
17. Disconnect the simulator lead from the SRS main harness.

18. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



19. Measure the resistance between the No. 1 and No. 13 terminals of the SRS unit connector (18P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179).■

NO—Short in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 1-4: Short to Power in Driver's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

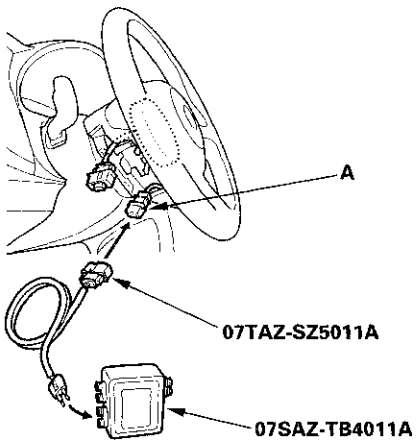
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector (A) from the cable reel.

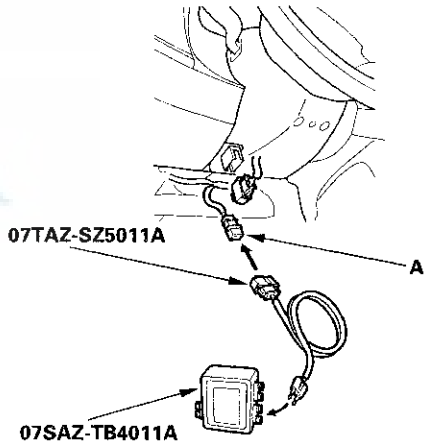


5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the cable reel.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 1-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's airbag; replace the driver's airbag (see page 23-164).■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the cable reel 2P connector from the SRS main harness (A).



11. Connect the SRS inflator simulator (2 Ω connector) and the simulator lead to the SRS main harness.
12. Reconnect the negative cable to the battery.
13. Clear the DTC memory.
14. Read the DTC.

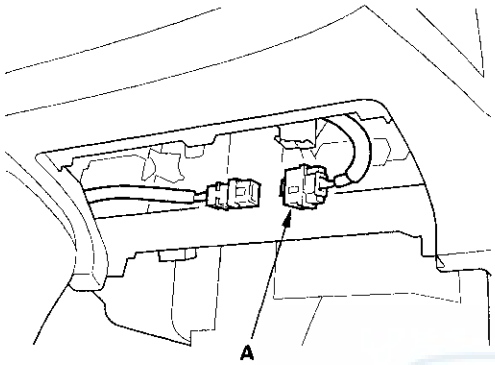
    Is DTC 1-4 indicated?

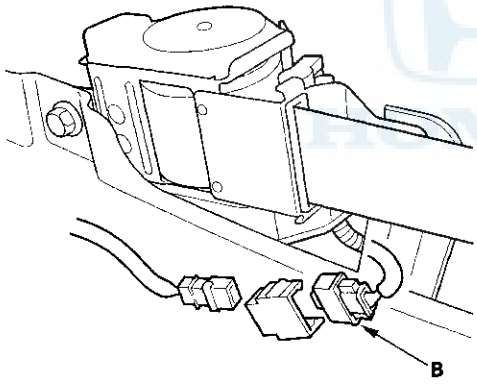
    YES—Go to step 15.

    NO—Short to power in the cable reel; replace the cable reel (see page 23-173).■

15. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

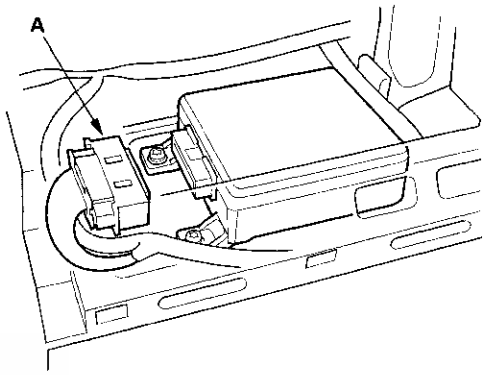
16. Disconnect the passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).





17. Disconnect the simulator lead from the SRS main harness.

18. Disconnect the SRS unit connector (18P) (A) from the SRS unit.

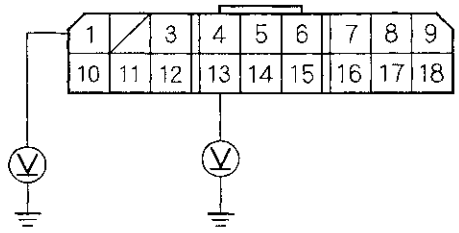


19. Reconnect the negative cable to the battery.

20. Turn the ignition switch ON (II).

21. Measure the voltage between the No. 1 terminal of the SRS unit connector (18P) and body ground, and between the No. 13 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179).■

NO—Short to power in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 1-5: Short to Ground in Driver's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

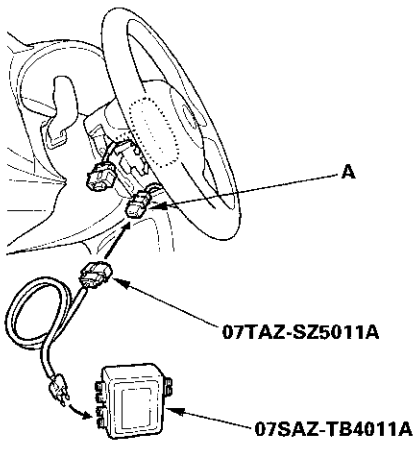
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 2P connector (A) from the cable reel.

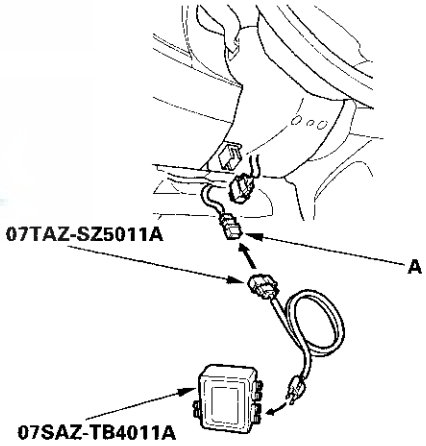


5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the cable reel.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 1-5 indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's airbag; replace the driver's airbag (see page 23-164). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the cable reel 2P connector from the SRS main harness (A).



11. Connect the SRS inflator simulator (2 Ω connector) and the simulator lead to the SRS main harness.
12. Reconnect the negative cable to the battery.
13. Clear the DTC memory.

14. Read the DTC.

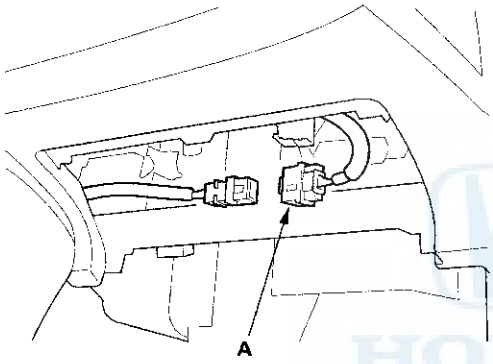
    Is DTC 1-5 indicated?

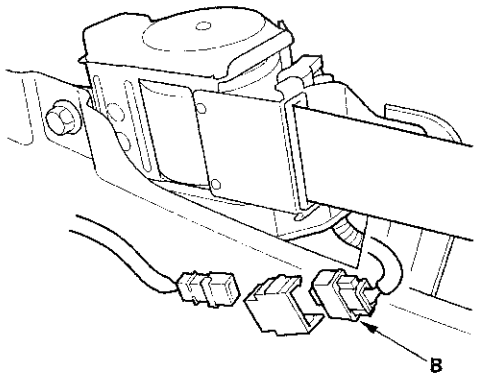
    YES—Go to step 15.

    NO—Short to ground in the cable reel; replace the cable reel (see page 23-173).■

15. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

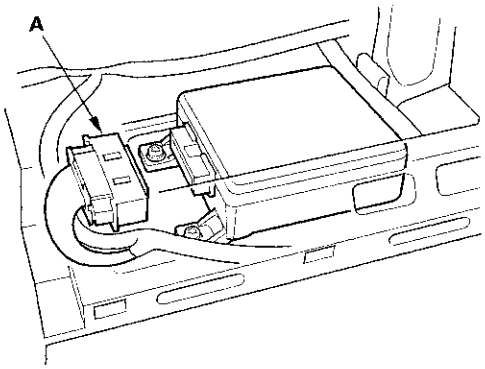
16. Disconnect the passenger's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).





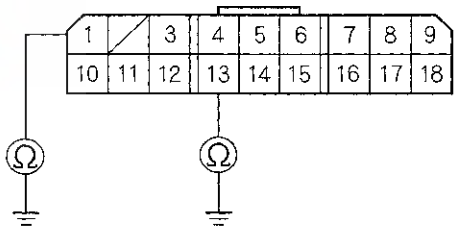
17. Disconnect the simulator lead from the SRS main harness.

18. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



19. Measure the resistance between the No. 1 terminal of the SRS unit connector (18P) and body ground, and between the No. 13 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179).■

NO—Short to ground in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 2-1: Open in Passenger's Airbag Inflator

DTC 2-2: Increased Resistance in Passenger's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

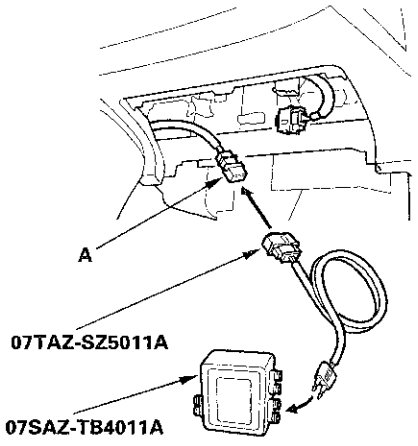
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator light comes on for about 6 seconds and then goes off.

   Does the SRS indicator light stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's airbag 2P connector from the SRS main harness (A).

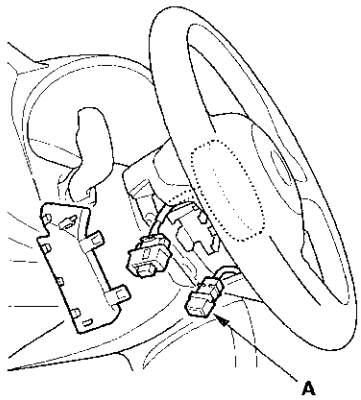


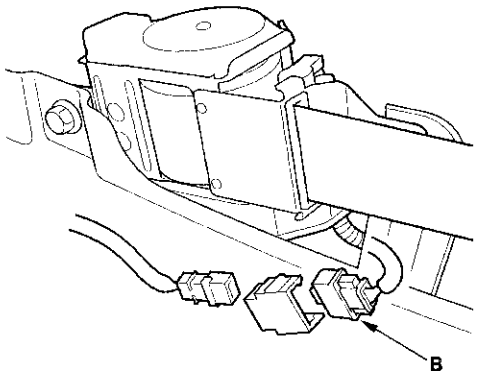
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 2-1 or 2-2 indicated?

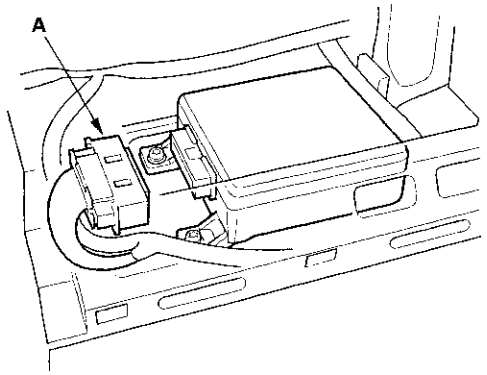
   YES—Go to step 9.

   NO—Open or increased resistance in the passenger's airbag; replace the passenger's airbag (see page 23-166). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



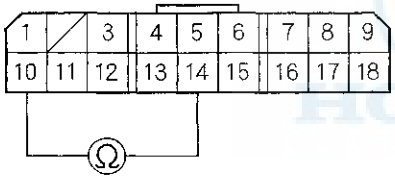


11. Disconnect the SRS unit connector (18P) (A) from the SRS unit. Do not disconnect the simulator lead from the SRS main harness.



12. Measure the resistance between the No. 10 and No. 14 terminals of the SRS unit connector (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at the SRS unit 18P connector and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness.■

DTC 2-3: Short to Another Wire or Decreased Resistance in Passenger's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

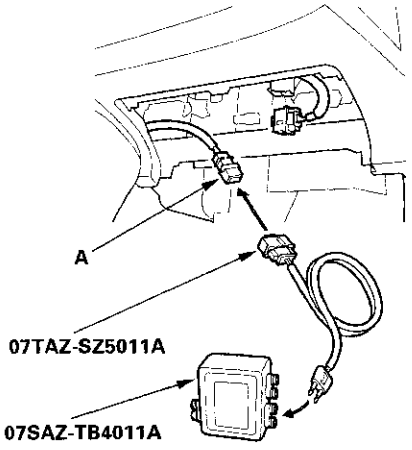
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

4. Disconnect the passenger's airbag 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.

(cont'd)

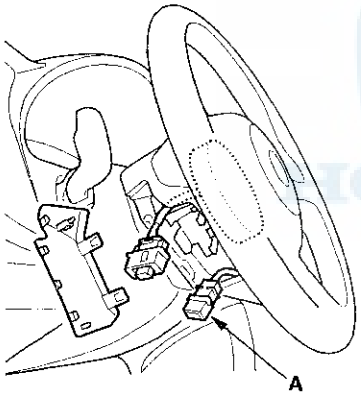
DTC Troubleshooting (cont'd)

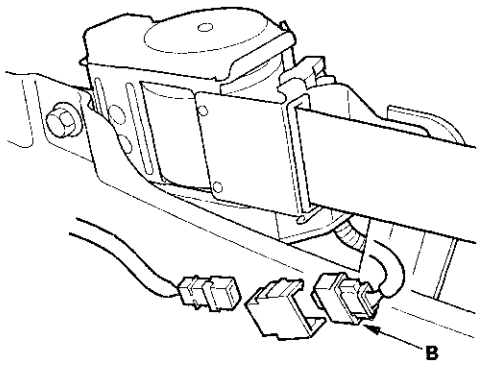
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 2-3 indicated?

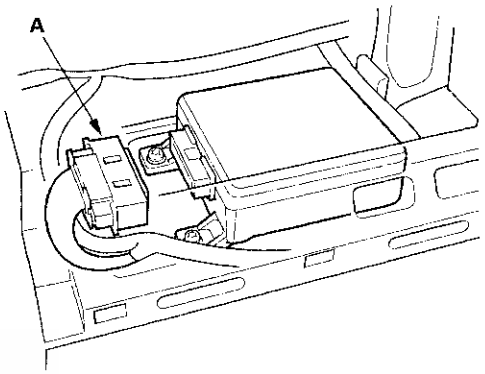
   YES—Go to step 9.

   NO—Short in the passenger's airbag; replace the passenger's airbag (see page 23-166). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



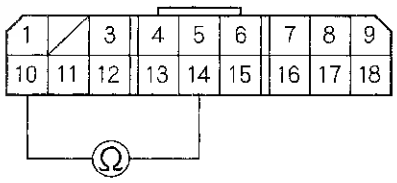


11. Disconnect the simulator lead from the SRS main harness.
12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



13. Measure the resistance between the No. 10 and No. 14 terminals of the SRS unit connector (18P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

DTC 2-4: Short to Power in Passenger's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

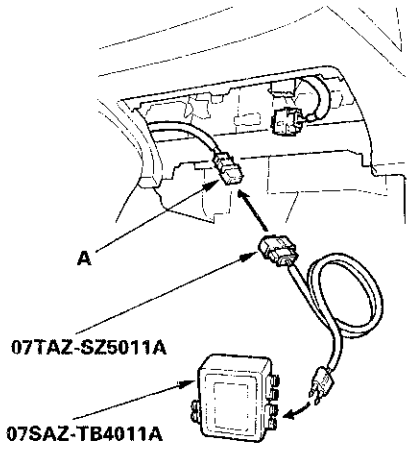
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's airbag 2P connector from the SRS main harness (A).

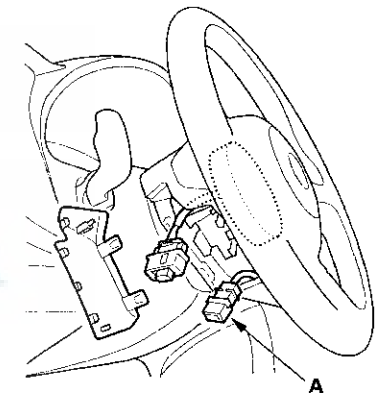


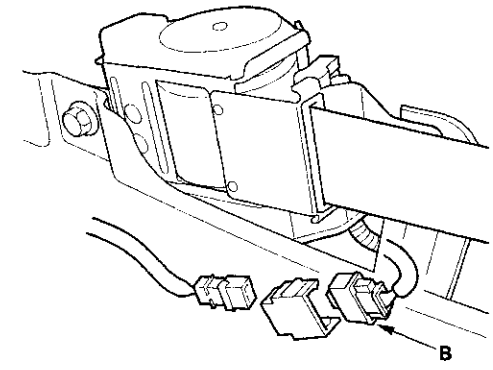
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 2-4 indicated?

   YES—Go to step 9.

   NO—Short to power in the passenger's airbag; replace the passenger's airbag (see page 23-166).■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner connectors (B).



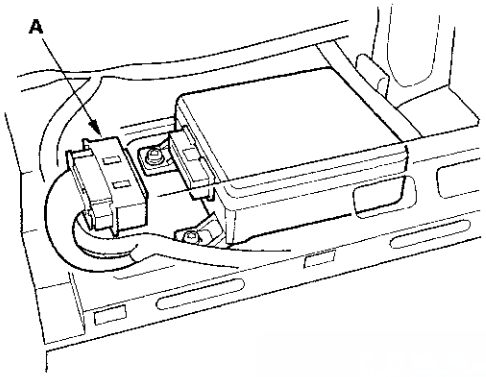


(cont'd)

DTC Troubleshooting (cont'd)

11. Disconnect the simulator lead from the SRS main harness.

12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.

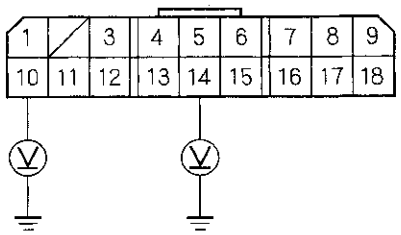


13. Reconnect the negative cable to the battery.

14. Turn the ignition switch ON (II).

15. Measure the voltage between the No. 10 terminal of the SRS unit connector (18P) and body ground, and between the No. 14 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC 2-5: Short to Ground in Passenger's Airbag Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

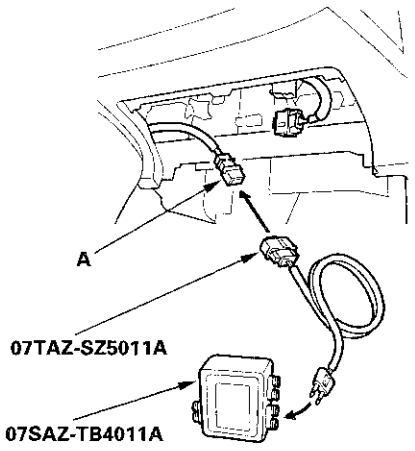
   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

4. Disconnect the passenger's airbag 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.

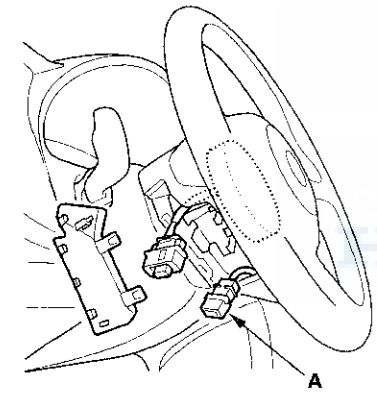
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

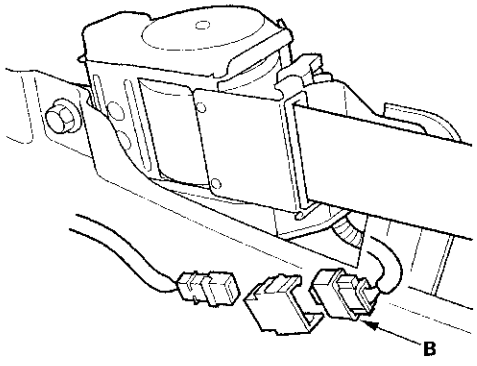
   Is DTC 2-5 indicated?

   YES—Go to step 9.

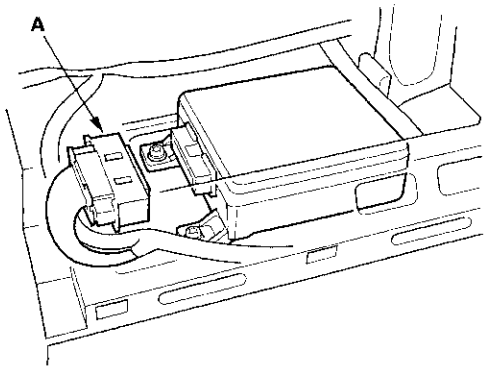
   NO—Short to ground in the passenger's airbag; replace the passenger's airbag (see page 23-166). ■

9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the driver's airbag 2P connector (A) and both seat belt tensioner 2P connectors (B).



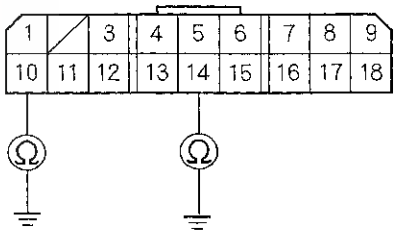


11. Disconnect the simulator lead from the SRS main harness.
12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



13. Measure the resistance between the No. 10 terminal of the SRS unit connector (18P) and body ground, and the No. 14 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 3-1: Open in Driver's Seat Belt Tensioner

DTC 3-2: Increased Resistance in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

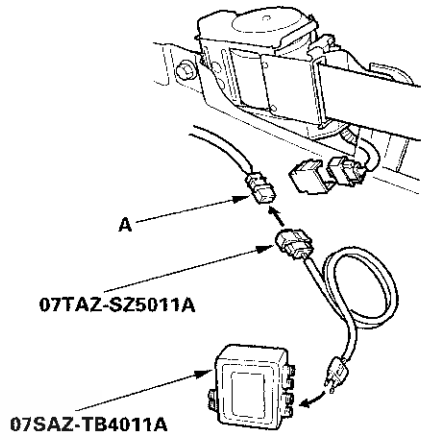
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



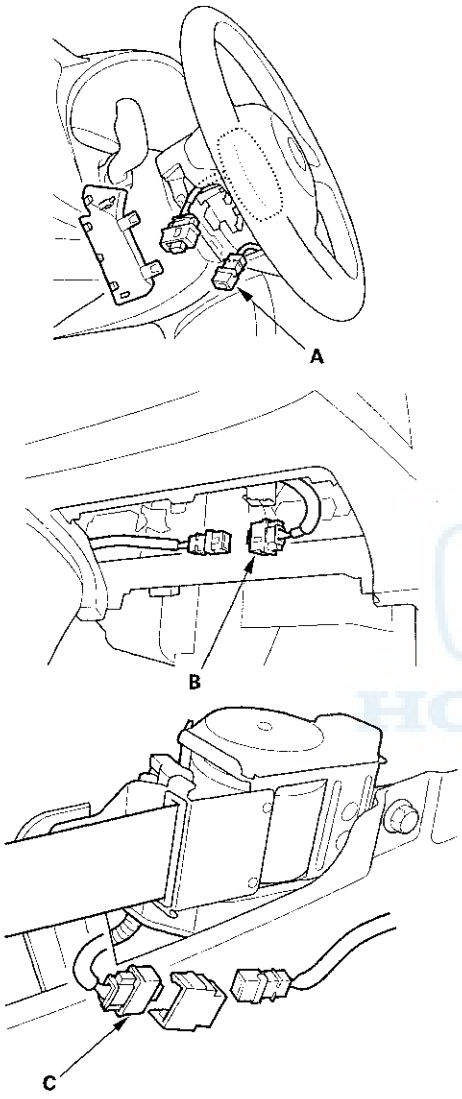
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 3-1 or DTC 3-2 indicated?

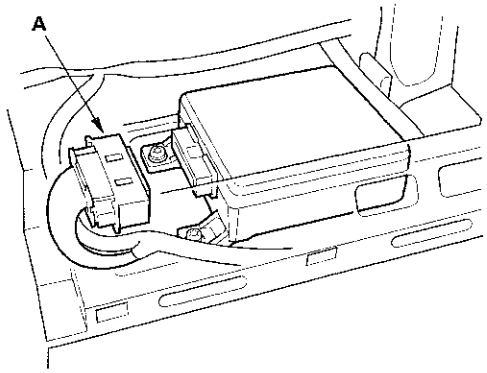
   YES—Go to step 9.

   NO—Open or increased resistance in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-5). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and passenger's seat belt tensioner connector (C).

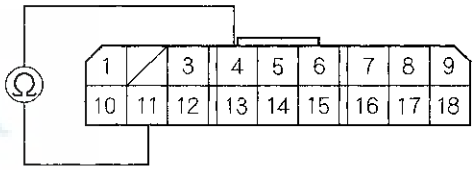


11. Disconnect the SRS unit connector (18P) (A) from the SRS unit. Do not disconnect the simulator lead from the SRS main harness.



12. Measure the resistance between the No. 4 terminal and the No. 11 terminal of the SRS unit connector (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit 18P connector and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 3-3: Short to Another Wire or Decreased Resistance in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

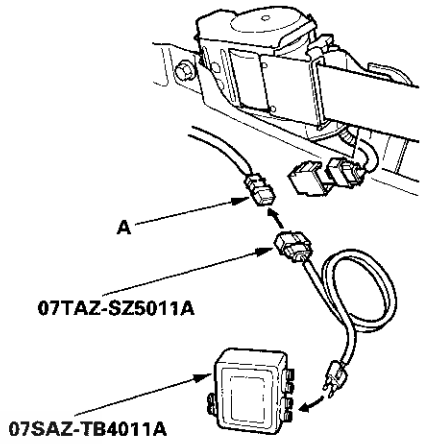
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



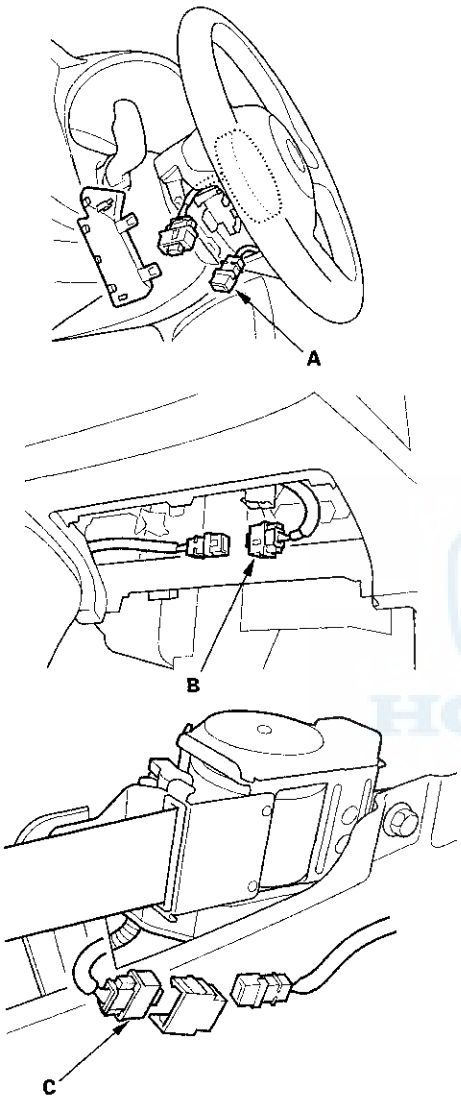
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 3-3 indicated?

   YES—Go to step 9.

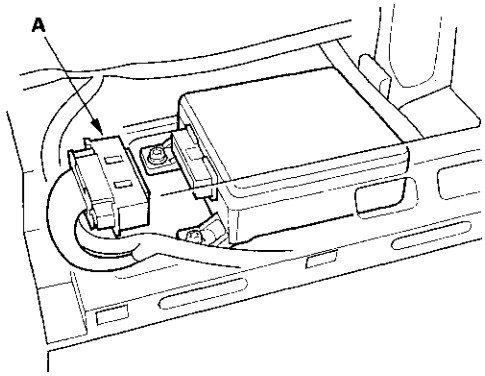
   NO—Short in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-5).■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and passenger's seat belt tensioner connector (C).



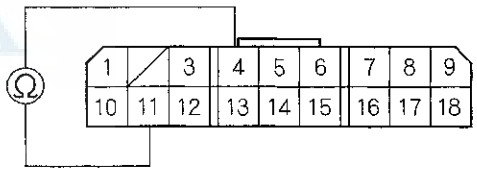
11. Disconnect the simulator lead from the SRS main harness.

12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



13. Measure the resistance between the No. 4 terminal and the No. 11 terminal of the SRS unit connector (18P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 3-4: Short to Power in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

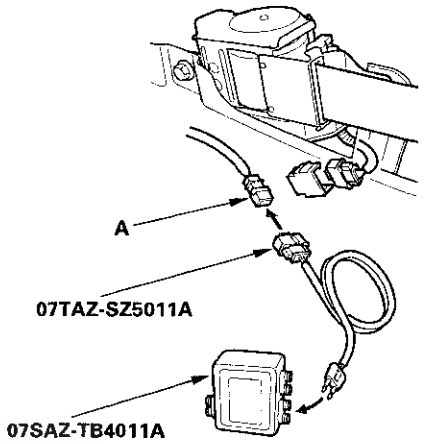
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



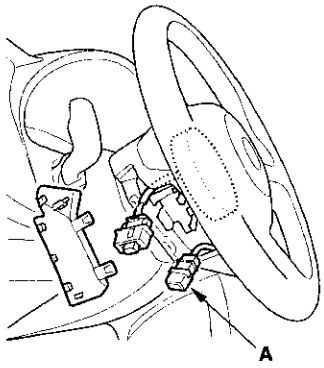
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

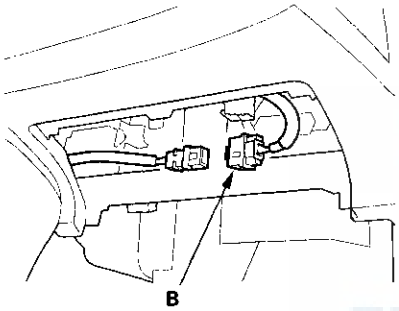
   Is DTC 3-4 indicated?

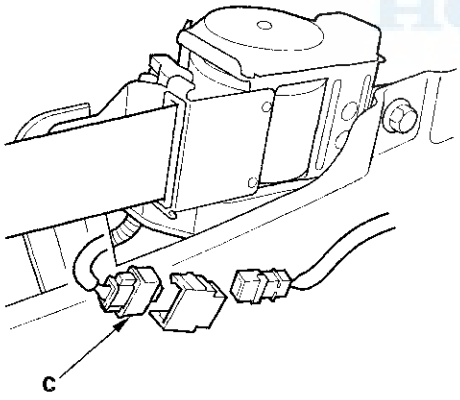
   YES—Go to step 9.

   NO—Short to power in driver's seat belt tensioner; replace the driver's seat belt (see page 23-5). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and passenger's seat belt tensioner connector (C).

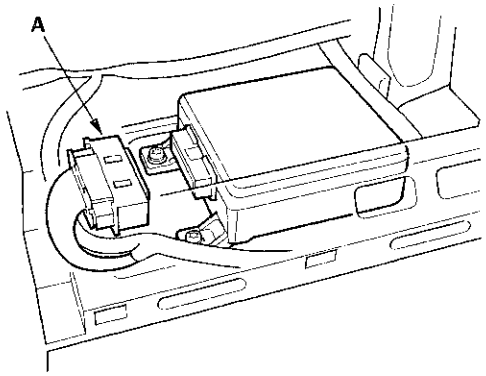






11. Disconnect the simulator lead from the SRS main harness.

12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.

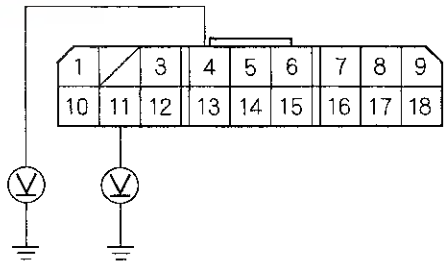


13. Reconnect the negative cable to the battery.

14. Turn the ignition switch ON (II).

15. Measure the voltage between the No. 4 terminal of the SRS unit connector (18P) and body ground, and the No. 11 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 3-5: Short to Ground in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

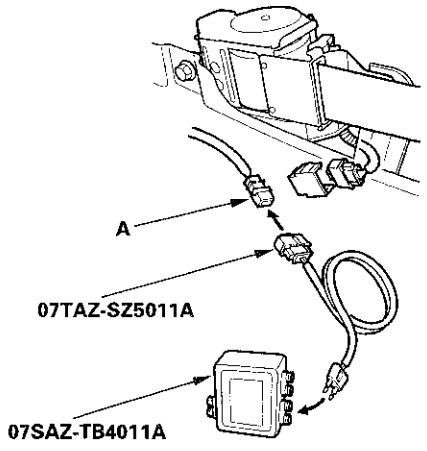
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



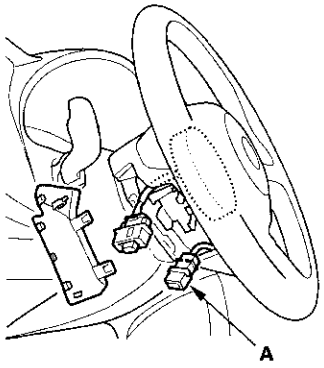
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

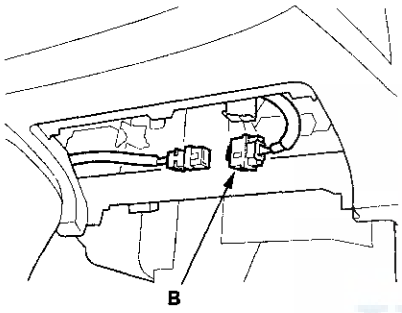
   Is DTC 3-5 indicated?

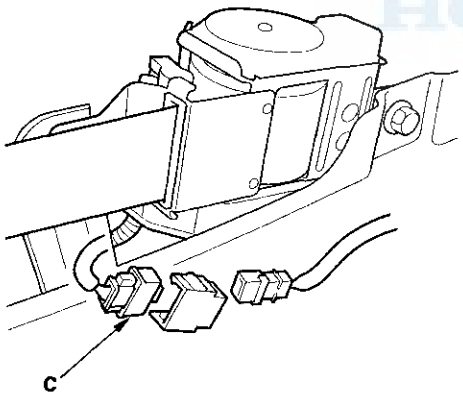
   YES—Go to step 9.

   NO—Short to ground in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-5). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and passenger's seat belt tensioner connector (C).

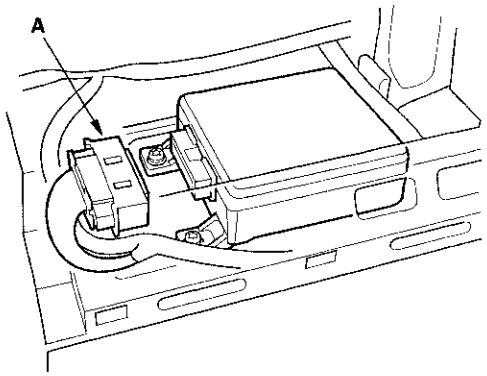






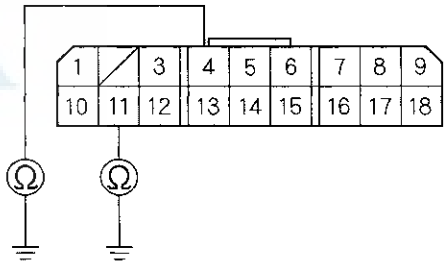
11. Disconnect the simulator lead from the SRS main harness.

12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



13. Measure the resistance between the No. 4 terminal of the SRS unit connector (18P) and body ground, and the No. 11 terminal and body ground. There should be an open circuit or at least 1 M Ω.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 4-1: Open in Passenger's Seat Belt Tensioner

DTC 4-2: Increased Resistance in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

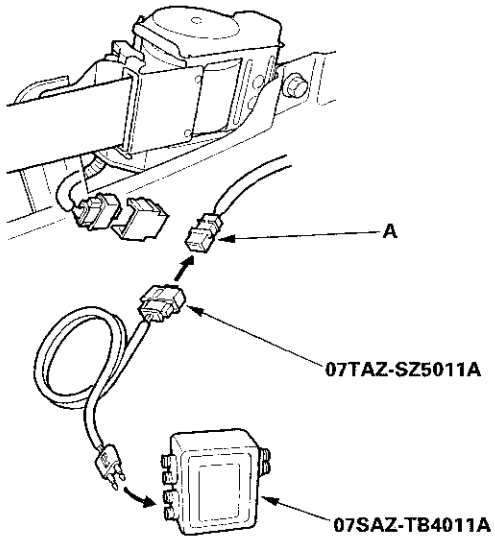
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



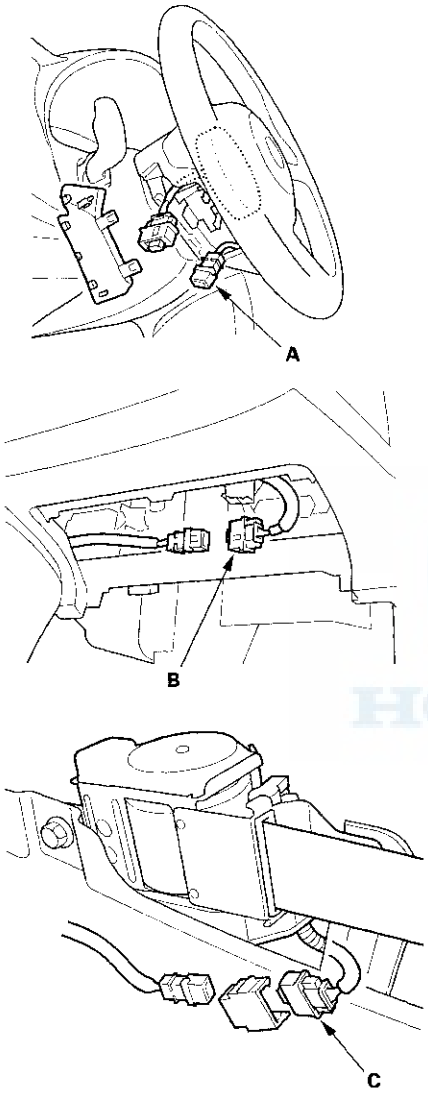
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 4-1 or DTC 4-2 indicated?

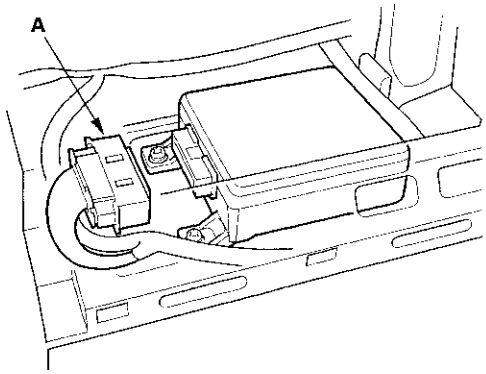
   YES—Go to step 9.

   NO—Open or increased resistance in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5).■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and driver's seat belt tensioner connector (C).

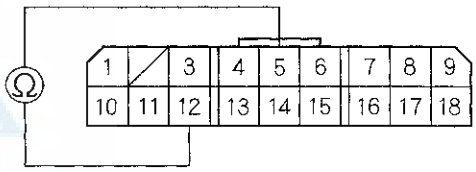


11. Disconnect the SRS unit connector (18P) (A) from the SRS unit. Do not disconnect the simulator lead from the SRS main harness.



12. Measure the resistance between the No. 5 terminal and the No. 12 terminal of the SRS unit connector (18P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at the SRS unit 18P connector and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 4-3: Short to Another Wire or Decreased Resistance in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

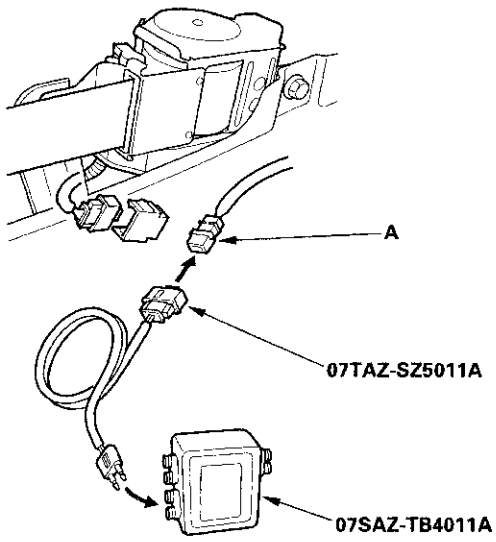
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



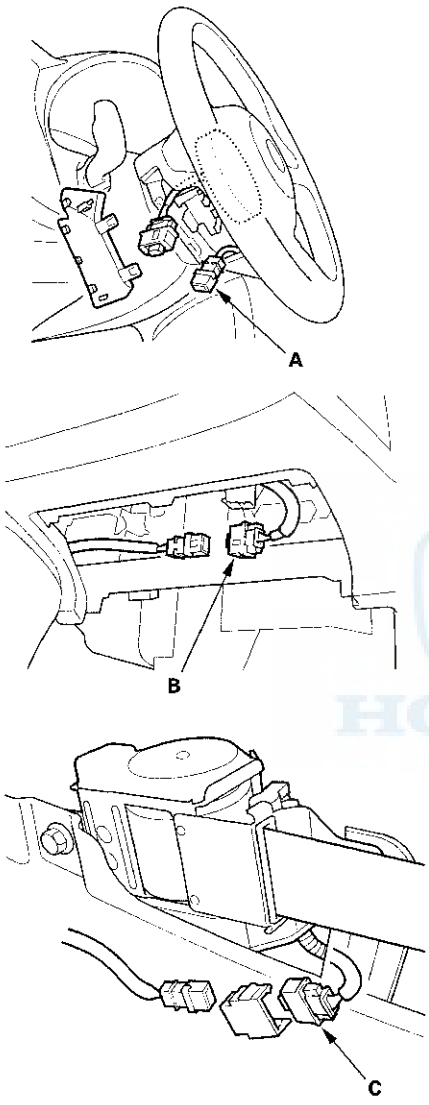
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 4-3 indicated?

   YES—Go to step 9.

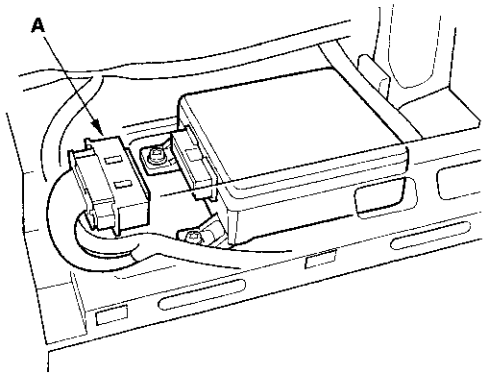
   NO—Short in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5). ■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and driver's seat belt tensioner connector (C).



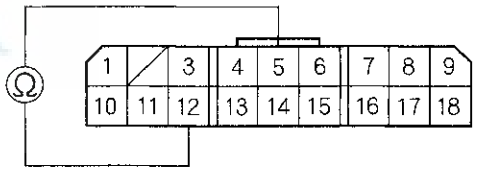
11. Disconnect the simulator lead from the SRS main harness.

12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



13. Measure the resistance between the No. 5 terminal and the No. 12 terminal of the SRS unit connector (18P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179).■

NO—Short in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 4-4: Short to Power in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

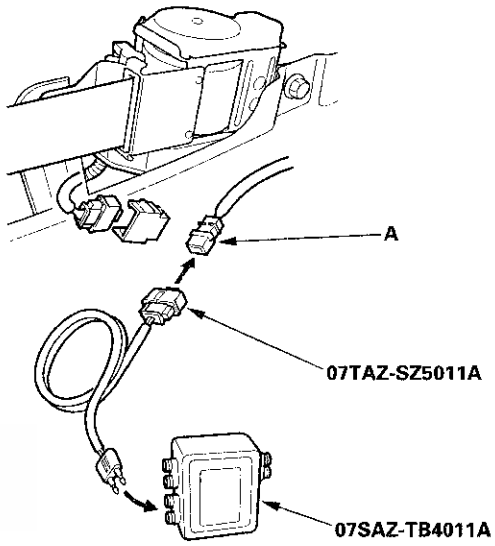
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



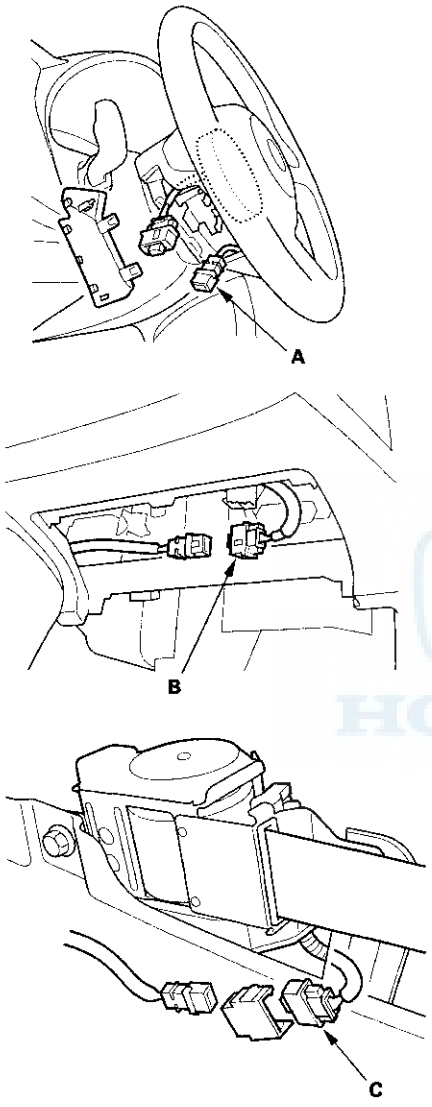
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 4-4 indicated?

   YES—Go to step 9.

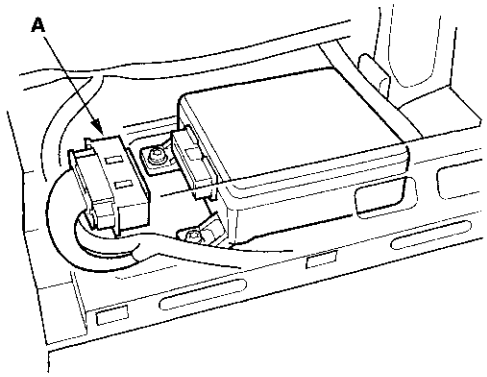
   NO—Short to power in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5).■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and driver's seat belt tensioner connector (C).



11. Disconnect the simulator lead from the SRS main harness.

12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.

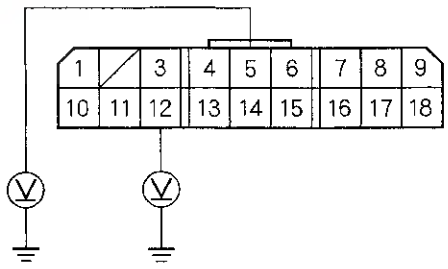


13. Reconnect the negative cable to the battery.

14. Turn the ignition switch ON (II).

15. Measure the voltage between the No. 5 terminal of the SRS unit connector (18P) and body ground, and the No. 12 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to power in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 4-5: Short to Ground in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead C 07TAZ-SZ5011A

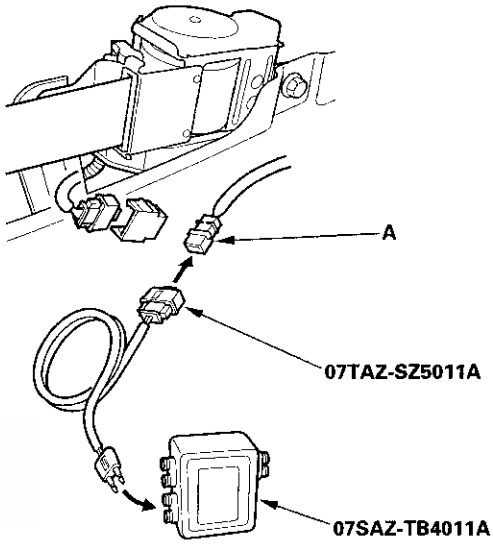
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



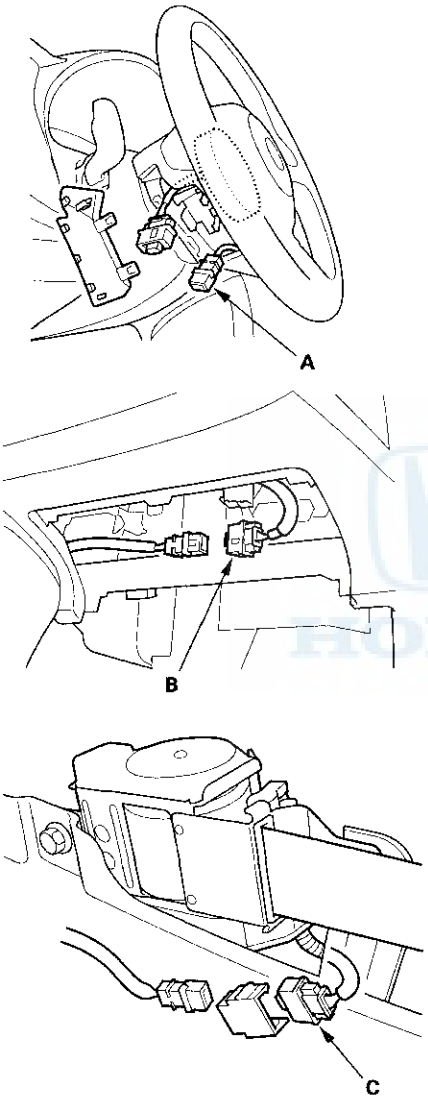
5. Connect the SRS inflator simulator (2 Ω connector) and simulator lead C to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-24).

   Is DTC 4-5 indicated?

   YES—Go to step 9.

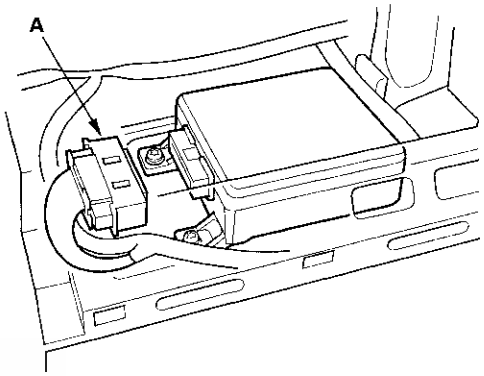
   NO—Short to ground in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5).■
9. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's airbag connector (A), passenger's airbag connector (B), and driver's seat belt tensioner connector (C).



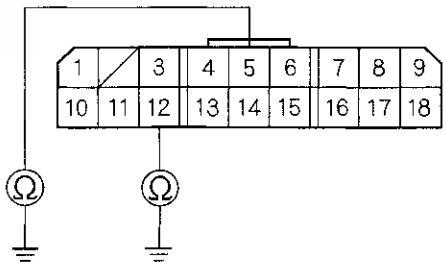
11. Disconnect the simulator lead from the SRS main harness.

12. Disconnect the SRS unit connector (18P) (A) from the SRS unit.



13. Measure the resistance between the No. 5 terminal of the SRS unit connector (18P) and body ground, and the No. 12 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 5-1, 5-2, 5-3, 5-4, 6-1, 6-2, 6-3, 6-4, 7-1, 7-2, 7-3, 8-1, 8-2, 8-3, 8-4, 8-6: Internal Failure of the SRS Unit

NOTE:
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).
- Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead. A dead battery may trigger one of the these DTCs.

1. Clear the DTC memory (see page 23-26).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on?

   YES—Replace the SRS unit (see page 23-179). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

DTC 10-1: Airbags and/or Seat Belt Tensioners Deployed

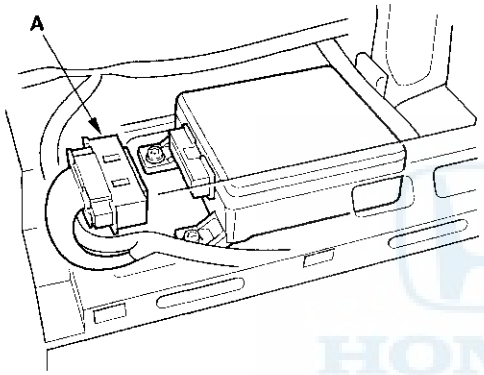
The SRS unit must be replaced after any airbags and/or tensioners have deployed (see page 23-169).

DTC 9-1: Internal Failure of the SRS Unit

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

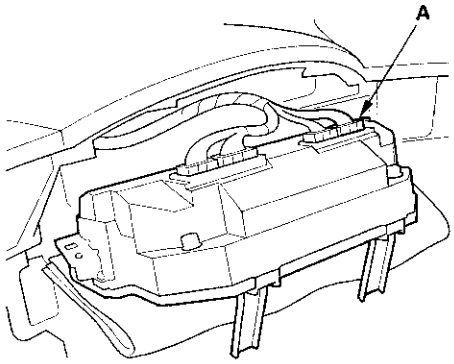
1. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

2. Disconnect SRS unit connector (18P) (A) from the SRS unit.

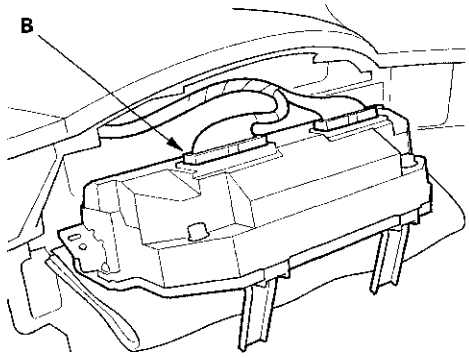


3. Remove the gauge assembly (see page 22-89). Disconnect gauge assembly connector A or B from the gauge assembly.

'00-03 models

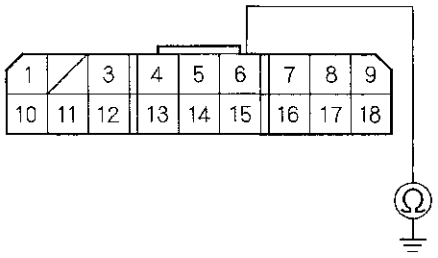


'04-05 models



4. Measure the resistance between the No. 6 terminal of SRS unit connector (18P) and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 5.

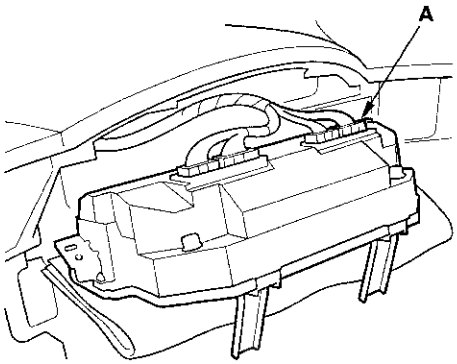
NO—Short to ground in dashboard wire harness A or SRS main harness. Replace the faulty harness. ■

(cont'd)

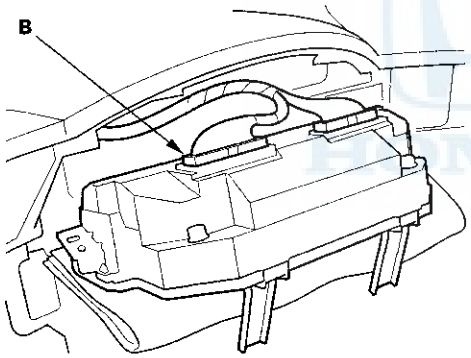
DTC Troubleshooting (cont'd)

5. Reconnect the gauge assembly connector A or B to the gauge assembly.

'00-03 models

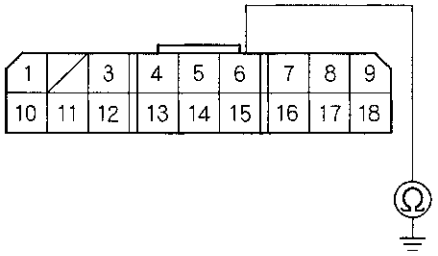


'04-05 models



6. Measure the resistance between the No. 6 terminal of SRS unit connector (18P) and body ground. There should be 500 Ω or more.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly (see page 22-89). ■

DTC 9-2: Faulty Power Supply (VB line)

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Check the No. 1 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 5.

   NO—Go to step 2.

2. Replace the No. 1 (10 A) fuse.

3. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.

4. Check the No.1 (10 A) fuse.

   Is the fuse OK?

   YES—The system is OK at this time.■

   NO—Short in the under-dash fuse/relay box No. 1 (10 A) fuse circuit.■

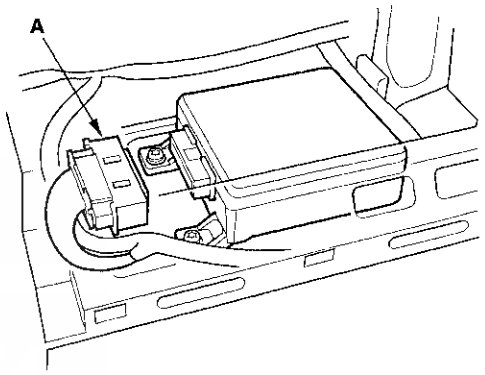
5. Disconnect the negative cable from the battery, then wait for 3 minutes.

6. Disconnect the driver's airbag 2P connector (see page 23-22).

7. Disconnect the front passenger's airbag 2P connector (see page 23-22).

8. Disconnect both seat belt tensioner 2P connectors (see page 23-22).

9. Disconnect SRS unit connector (18P) (A) from the SRS unit.



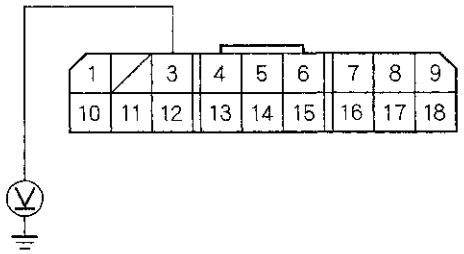
10. Reconnect the negative cable to the battery.

(cont'd)

DTC Troubleshooting (cont'd)

11. Connect a voltmeter between the No. 3 terminal of SRS unit connector (18P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

SRS UNIT CONNECTOR (18P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS unit or poor connection at SRS unit 18P connector and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Go to step 12.

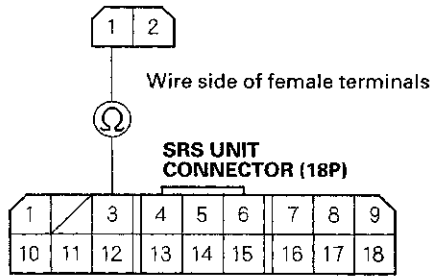
12. Turn the ignition switch OFF.

13. Disconnect the negative cable from the battery, then wait for 3 minutes.

14. Disconnect SRS main harness connector A (2P) from the under-dash fuse/relay box (see page 22-39).

15. Measure the resistance between the No. 3 terminal of SRS unit connector (18P) and the No. 1 terminal of SRS main harness connector A (2P). There should be 0—1.0 Ω.

SRS MAIN HARNESS CONNECTOR A (2P)



Wire side of female terminals

Is the resistance as specified?

YES—Open in the under-dash fuse/relay box or poor connection at the SRS main harness connector A (2P); check the connection. If the connection is OK, replace the under-dash fuse/relay box.■

NO—Open in SRS main harness; replace SRS main harness.■

DTC 11-1x ("x" can be 0 thru 9 or A thru F):
Open in Driver's Airbag First Inflator

DTC 11-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in Driver's Airbag First Inflator

DTC 11-4x ("x" can be 0 thru 9 or A thru F):
Open in Driver's Airbag Second Inflator

DTC 11-5x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in Driver's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

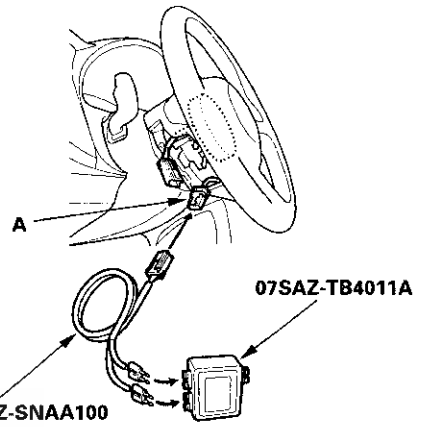
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 11-1x, 11-2x, 11-4x, or 11-5x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector (A) from the cable reel.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead J to the cable reel.

(cont'd)

DTC Troubleshooting (cont'd)

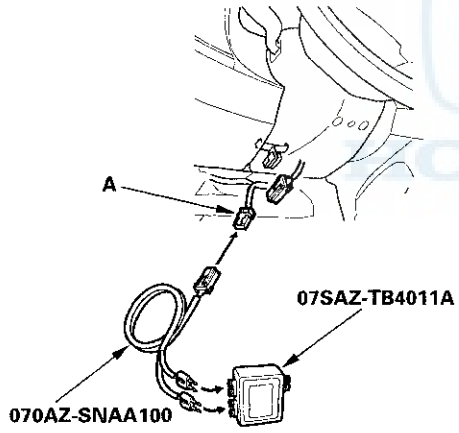
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

   Is DTC 11-1x, 11-2x, 11-4x, or 11-5x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-164).■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the SRS main harness 4P connector (A) from the cable reel.



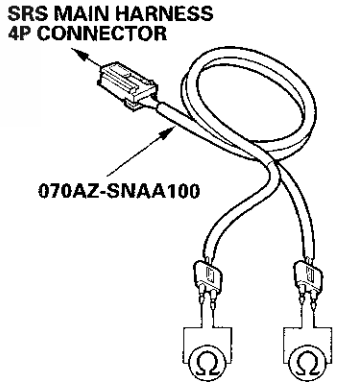
11. Connect the SRS inflator simulator (2 Ω connectors) and the SRS simulator lead to the SRS main harness.
12. Reconnect the negative cable to the battery.
13. Clear the DTC memory.
14. Read the DTC.

    Is DTC 11-1x, 11-2x, 11-4x, or 11-5x indicated?

    YES—Go to step 15.

    NO—Open or increased resistance in the cable reel; replace the cable reel (see page 23-174).■

15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).
17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.
18. Measure the resistance between the terminals of the SRS simulator leads. There should be 1 Ω or less.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness.■

DTC 11-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Driver's Airbag First Inflator

DTC 11-6x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Driver's Airbag First Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100
- SRS short canceller 070AZ-SAA0100

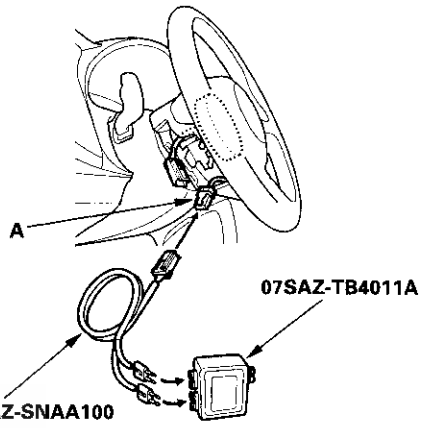
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 11-3x or 11-6x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector (A) from the cable reel.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead J to the cable reel.

(cont'd)

DTC Troubleshooting (cont'd)

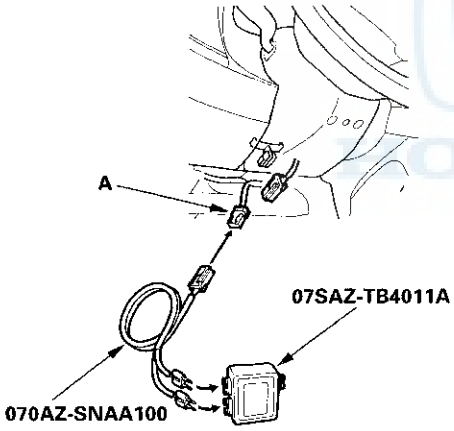
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

   Is DTC 11-3x or 11-6x indicated?

   YES—Go to step 9.

   NO—Short in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-164).■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the SRS main harness 4P connector (A) from the cable reel.



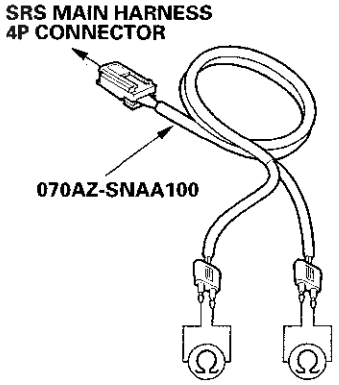
11. Connect the SRS inflator simulator (2 Ω connectors) and the SRS simulator lead to the SRS main harness.
12. Reconnect the negative cable to the battery.
13. Clear the DTC memory.
14. Read the DTC.

    Is DTC 11-3x or 11-6x indicated?

    YES—Go to step 15.

    NO—Short in the cable reel; replace the cable reel (see page 23-174).■

15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).
17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.
18. Connect SRS short cancellers (070AZ-SAA0100) to No. 7 and No. 8 terminals or No. 1 and No. 2 terminals of the SRS unit connector A (28P) (see page 23-19).
19. Measure the resistance between the terminals of the SRS simulator leads. There should be an open circuit or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Short in the SRS main harness; replace the SRS main harness.■

DTC 11-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Driver's Airbag First Inflator

DTC 11-Ax ("x" can be 0 thru 9 or A thru F): Short to Power in Driver's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

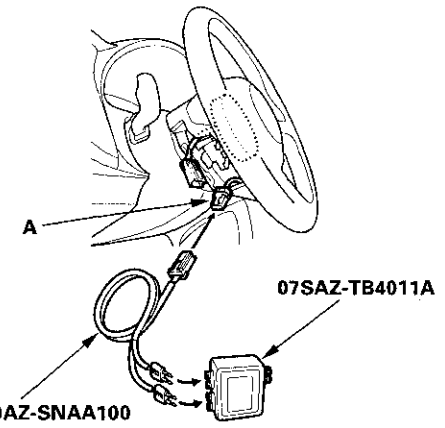
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 11-8x or 11-Ax indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector (A) from the cable reel.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead J to the cable reel.
6. Reconnect the negative cable to the battery.

(cont'd)

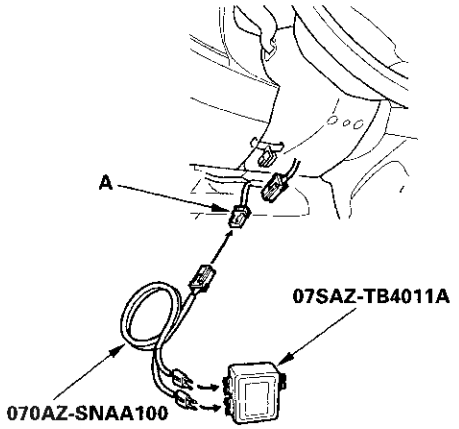
DTC Troubleshooting (cont'd)

7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

   Is DTC 11-8x or 11-Ax indicated?

   YES—Go to step 9.

   NO—Short to power in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-164).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the SRS main harness 4P connector (A) from the cable reel.



11. Connect the SRS inflator simulator (2 Ω connectors) and the SRS simulator lead to the SRS main harness.
12. Reconnect the negative cable to the battery.
13. Clear the DTC memory.

14. Read the DTC.

    Is DTC 11-8x or 11-Ax indicated?

    YES—Go to step 15.

    NO—Short to power in the cable reel; replace the cable reel (see page 23-174).■

15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

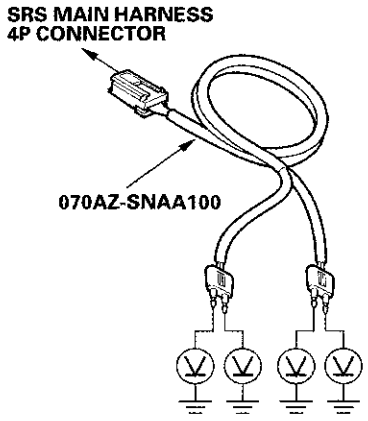
16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.

18. Reconnect the negative cable to the battery.

19. Turn the ignition switch ON (II).

20. Measure the voltage between each terminal of the SRS simulator leads and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Short to power in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 11-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Driver's Airbag First Inflator

DTC 11-Bx ("x" can be 0 thru 9 or A thru F): Short to Ground in Driver's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead J 070AZ-SNAA100

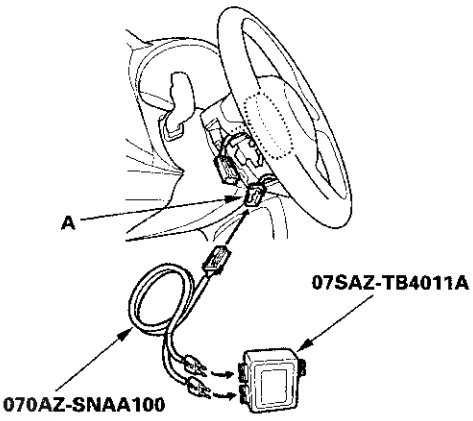
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 11-9x or 11-Bx indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's airbag 4P connector (A) from the cable reel.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead J to the cable reel.
6. Reconnect the negative cable to the battery.

7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

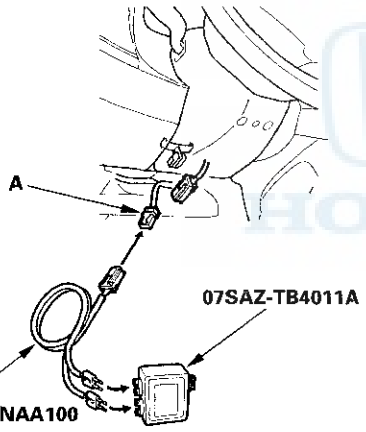
   Is DTC 11-9x or 11-Bx indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's airbag first or second inflator; replace the driver's airbag (see page 23-164). ■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the SRS main harness 4P connector (A) from the cable reel.



11. Connect the SRS inflator simulator (2 Ω connectors) and the SRS simulator lead to the SRS main harness.

12. Reconnect the negative cable to the battery.

13. Clear the DTC memory.

14. Read the DTC.

    Is DTC 11-9x or 11-Bx indicated?

    YES—Go to step 15.

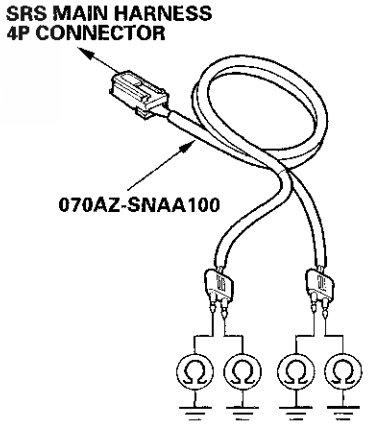
    NO—Short to ground in the cable reel; replace the cable reel (see page 23-174). ■

15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

16. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

17. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.

18. Measure the resistance between each terminal of the SRS simulator leads and body ground. There should be an open circuit or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 12-1x ("x" can be 0 thru 9 or A thru F):
Open in Passenger's Airbag First Inflator

DTC 12-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in Passenger's Airbag First Inflator

DTC 12-4x ("x" can be 0 thru 9 or A thru F):
Open in Passenger's Airbag Second Inflator

DTC 12-5x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

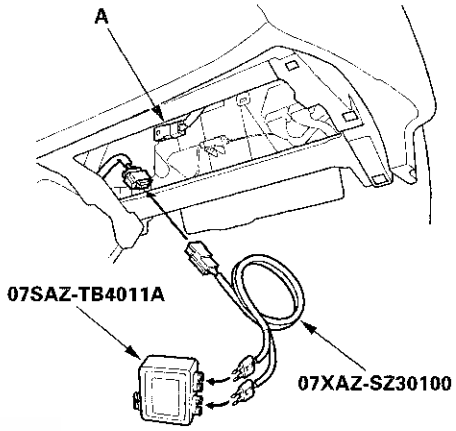
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-1x, 12-2x, 12-4x, or 12-5x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's airbag 4P connector (A) from the SRS main harness.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead F to the SRS main harness.

6. Reconnect the negative cable to the battery.

7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

   Is DTC 12-1x, 12-2x, 12-4x, or 12-5x indicated?

   YES—Go to step 9.

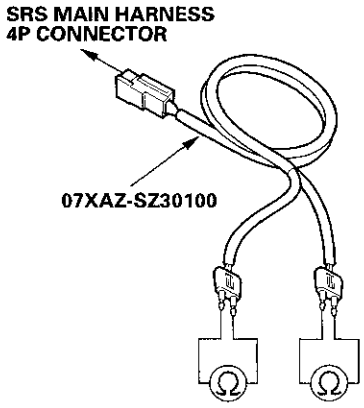
   NO—Open or increased resistance in the passenger's airbag first or second inflator; replace the passenger's airbag (see page 23-166).■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.

12. Measure the resistance between the terminals of both SRS simulator leads. There should be 1 Ω or less.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 12-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Passenger's Airbag First Inflator

DTC 12-6x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decrased Resistance in Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100
- SRS short canceller 070AZ-SAA0100

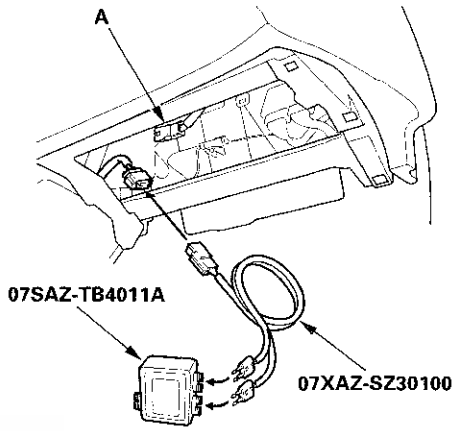
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-3x or 12-6x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's airbag 4P connector (A) from the SRS main harness.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead F to the SRS main harness.
6. Reconnect the negative cable to the battery.

7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

   Is DTC 12-3x or 12-6x indicated?

   YES—Go to step 9.

   NO—Short in the passenger's airbag first or second inflator; replace the passenger's airbag (see page 23-166).■

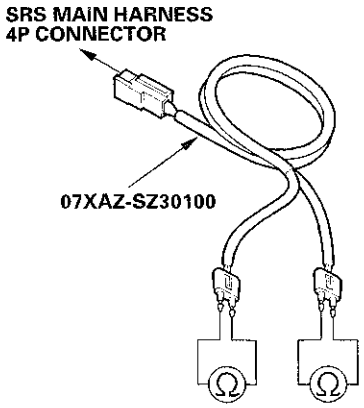
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.

12. Connect SRS short cancellers (070AZ-SAA0100) to No. 9 and No. 10 terminals or the No. 3 and No. 4 terminals of the SRS unit connector A (28P) (see page 23-19).

13. Measure the resistance between the terminals of both SRS simulator leads. There should be an open circuit or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Short in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 12-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Passenger's Airbag First Inflator

DTC 12-Ax ("x" can be 0 thru 9 or A thru F): Short to Power in Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

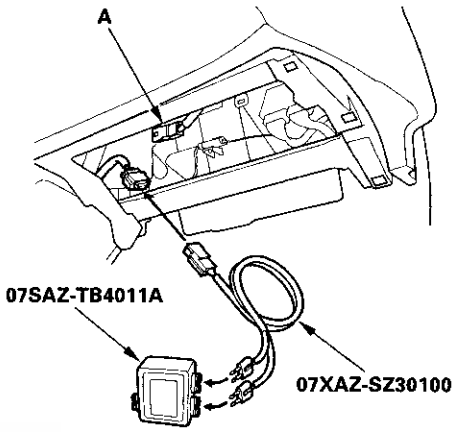
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-8x or 12-Ax indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's airbag 4P connector (A) from the SRS main harness.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead F to the SRS main harness.
6. Reconnect the negative cable to the battery.

7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

   Is DTC 12-8x or 12-Ax indicated?

   YES—Go to step 9.

   NO—Short to power in the passenger's airbag first or second inflator; replace the passenger's airbag (see page 23-166).■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

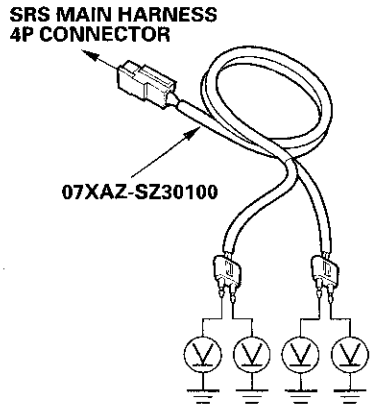
10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.

12. Reconnect the negative cable to the battery.

13. Turn the ignition switch ON (II).

14. Measure the voltage between each terminal of the SRS simulator leads and body ground. There should be 0.5 V or less.



Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Short to power in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 12-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Passenger's Airbag First Inflator

DTC 12-Bx ("x" can be 0 thru 9 or A thru F): Short to Ground in Passenger's Airbag Second Inflator

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead F 07XAZ-SZ30100

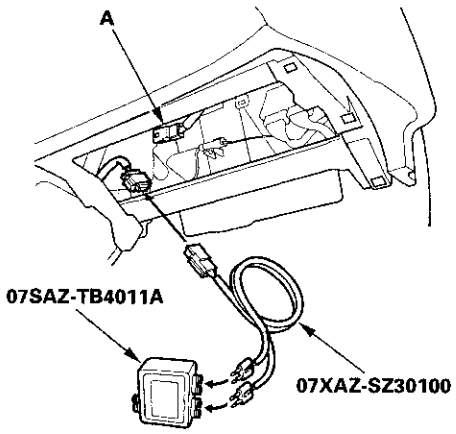
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 12-9x or 12-Bx indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's airbag 4P connector (A) from the SRS main harness.



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead F to the SRS main harness.
6. Reconnect the negative cable to the battery.

7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

   Is DTC 12-9x or 12-Bx indicated?

   YES—Go to step 9.

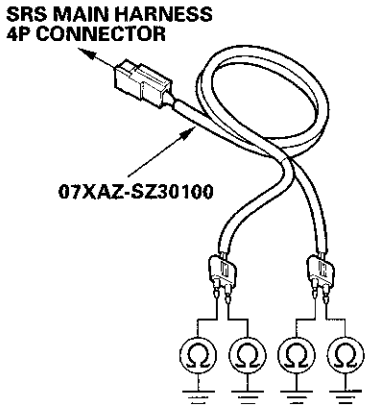
   NO—Short to ground in the passenger's airbag first or second inflator; replace the passenger's airbag (see page 23-166). ■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

11. Disconnect the SRS inflator simulator from the SRS simulator lead. Do not disconnect the simulator lead from the SRS main harness 4P connector.

12. Measure the resistance between each terminal of the SRS simulator leads and body ground. There should be an open circuit or at least 1 MΩ.



Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC Troubleshooting (cont'd)

DTC 21-1x ("x" can be 0 thru 9 or A thru F):
Open in Driver's Seat Belt Tensioner

DTC 21-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

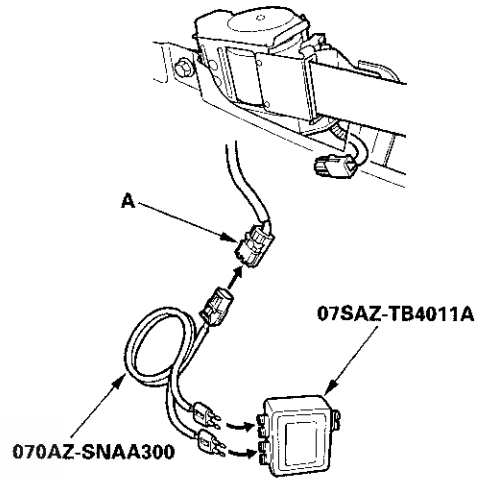
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-1x or 21-2x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.

6. Reconnect the negative cable to the battery.

7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

   Is DTC 21-1x or 21-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-5).■

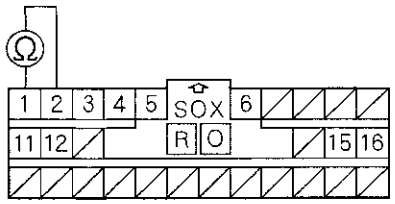
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the passenger's seat belt tensioner connector (see step 4 on page 23-23).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

12. Measure the resistance between the No. 1 and the No. 2 terminals of SRS unit connector B (28P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 21-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

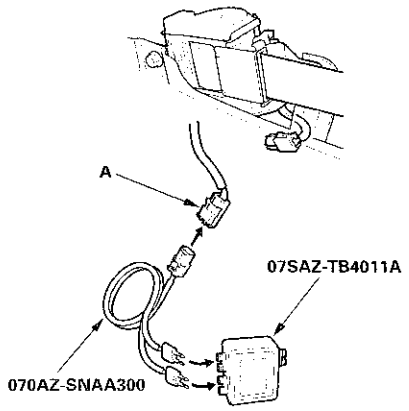
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-3x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



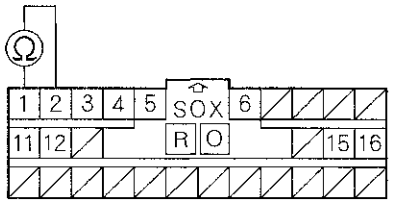
5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

   Is DTC 21-3x indicated?

   YES—Go to step 9.

   NO—Short in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-5). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the passenger's seat belt tensioner connector (see step 4 on page 23-23).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).
12. Disconnect the SRS simulator lead from the SRS main harness.
13. Measure the resistance between the No. 1 and the No. 2 terminals of SRS unit connector B (28P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

DTC 21-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

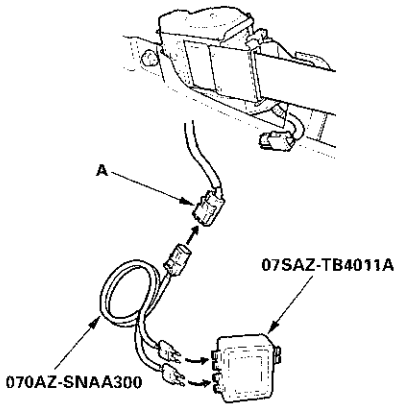
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-8x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

   Is DTC 21-8x indicated?

   YES—Go to step 9.

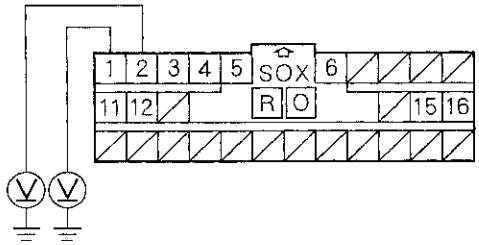
   NO—Short to power in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-5).■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the passenger's seat belt tensioner connector (see step 4 on page 23-23).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).
12. Disconnect the SRS simulator lead from the SRS main harness.
13. Reconnect the negative cable to the battery.
14. Turn the ignition switch ON (II).

(cont'd)

DTC Troubleshooting (cont'd)

15. Measure the voltage between the No. 1 terminal of SRS unit connector B (28P) and body ground, and between the No. 2 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Short to power in the SRS main harness; replace the SRS main harness.■

DTC 21-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Driver's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

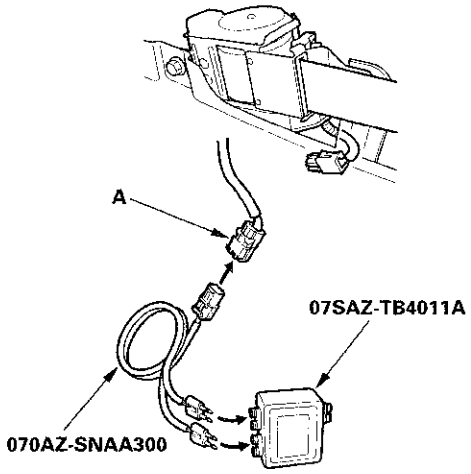
1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 21-9x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

4. Disconnect the driver's seat belt tensioner 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

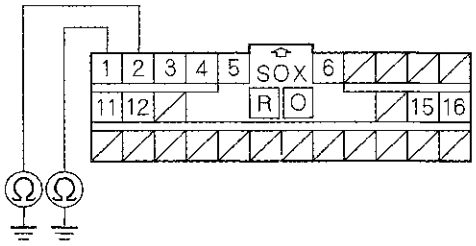
   Is DTC 21-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the driver's seat belt tensioner; replace the driver's seat belt (see page 23-5).■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the passenger's seat belt tensioner connector (see step 4 on page 23-23).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).
12. Disconnect the SRS simulator lead from the SRS main harness.
13. Measure the resistance between the No. 1 terminals of SRS unit connector B (28P) and body ground, and between the No. 2 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Short to ground in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 22-1x ("x" can be 0 thru 9 or A thru F):
Open in Passenger's Seat Belt Tensioner

DTC 22-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

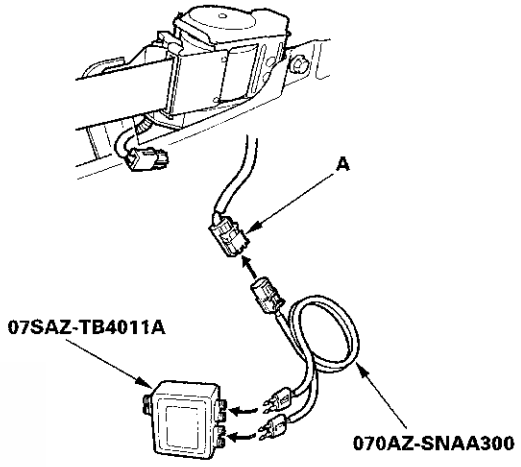
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-1x or 22-2x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

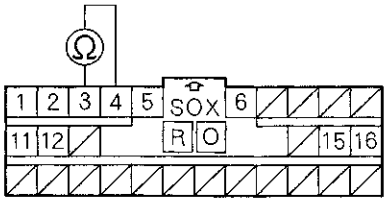
   Is DTC 22-1x or 22-2x indicated?

   YES—Go to step 9.

   NO—Open or increased resistance in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the driver's seat belt tensioner connector (see step 4 on page 23-23).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

12. Measure the resistance between the No. 3 and the No. 4 terminal of SRS unit connector B (28P). There should be 2.0—3.0 Ω.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Open or increased resistance in the SRS main harness; replace the SRS main harness.■

DTC 22-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

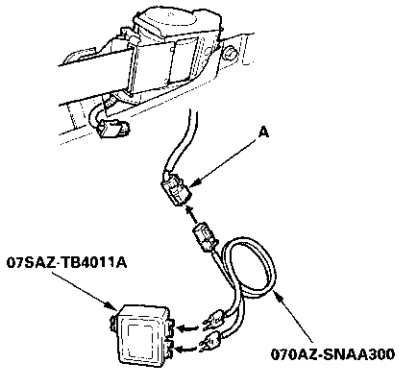
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-3x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.

(cont'd)

DTC Troubleshooting (cont'd)

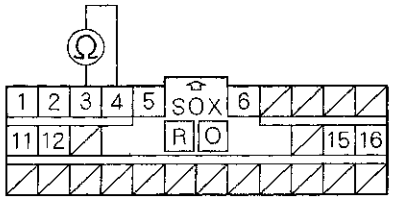
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.
8. Read the DTC (see page 23-26).

   Is DTC 22-3x indicated?

   YES—Go to step 9.

   NO—Short in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5). ■
9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
10. Disconnect the driver's seat belt tensioner connector (see step 4 on page 23-23).
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).
12. Disconnect the SRS simulator lead from the SRS main harness.
13. Measure the resistance between the No. 3 and the No. 4 terminals of SRS unit connector B (28P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Short in the SRS main harness; replace the SRS main harness. ■

DTC 22-8x ("x" can be 0 thru 9 or A thru F): Short to Power in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

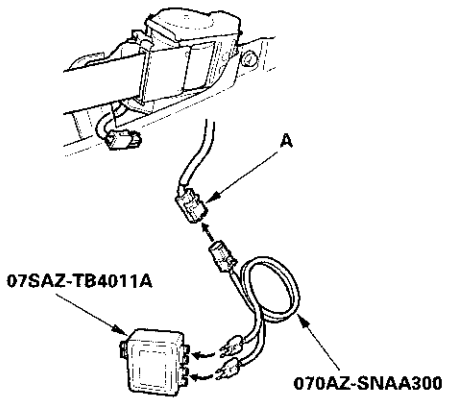
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-8x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.

6. Reconnect the negative cable to the battery.

7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

   Is DTC 22-8x indicated?

   YES—Go to step 9.

   NO—Short to power in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5).■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect the driver's seat belt tensioner connector (see step 4 on page 23-23).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

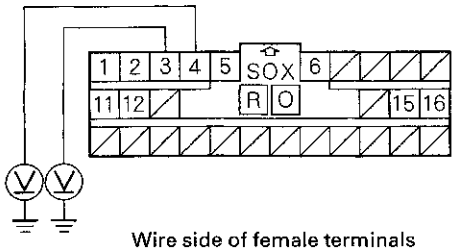
12. Disconnect the SRS simulator lead from the SRS main harness.

13. Reconnect the negative cable to the battery.

14. Turn the ignition switch ON (II).

15. Measure the voltage between the No. 3 terminal of SRS unit connector B (28P) and body ground, and between the No. 4 terminal and body ground. There should be 0.5 V or less.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Short to power in the SRS main harness; replace the SRS main harness.■

DTC Troubleshooting (cont'd)

DTC 22-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in Passenger's Seat Belt Tensioner

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead L 070AZ-SNAA300

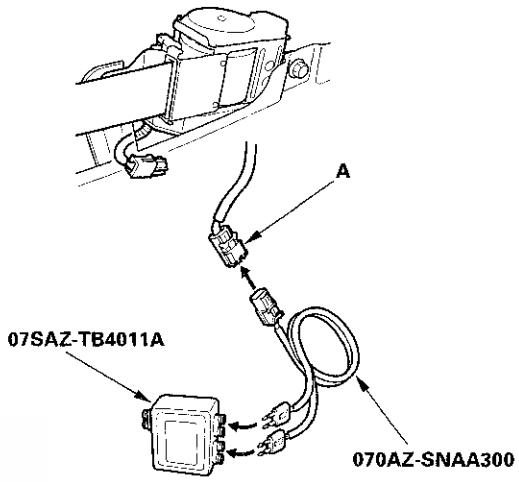
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 22-9x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect the passenger's seat belt tensioner 2P connector from the SRS main harness (A).



5. Connect the SRS inflator simulator (2 Ω connectors) and SRS simulator lead L to the SRS main harness.
6. Reconnect the negative cable to the battery.
7. Clear the DTC memory.

8. Read the DTC (see page 23-26).

   Is DTC 22-9x indicated?

   YES—Go to step 9.

   NO—Short to ground in the passenger's seat belt tensioner; replace the passenger's seat belt (see page 23-5). ■

9. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

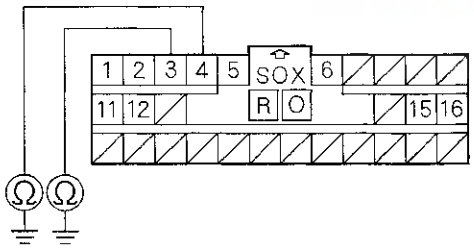
10. Disconnect the driver's seat belt tensioner connector (see step 4 on page 23-23).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

12. Disconnect the SRS simulator lead from the SRS main harness.

13. Measure the resistance between the No. 3 terminal of SRS unit connector B (28P) and body ground, and between the No. 4 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness; replace the SRS main harness. ■

DTC 41-1x ("x" can be 0 thru 9 or A thru F): No Signal from the Left Front Impact Sensor

DTC 41-7x ("x" can be 0 thru 9 or A thru F): Short to Ground or Short to Power in Left Front Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 41-1x, or 41-7x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

3. Turn the ignition switch OFF. Check the connections between SRS unit connector A (28P) and the SRS unit, between the left engine compartment wire harness 2P connector and the left front impact sensor (see page 23-181), and at connector C305 (see page 22-33).

   Are the connections OK?

   YES—Go to step 4.

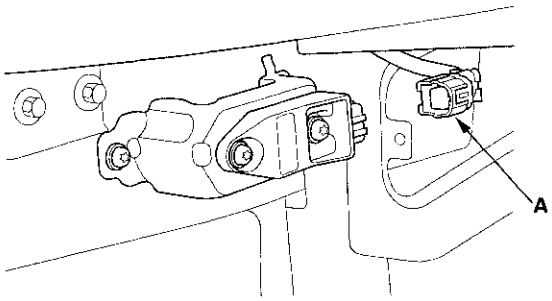
   NO—Repair the poor connections and retest. If DTC 41-1x or 41-7x is still present, go to step 4.

4. Disconnect the negative cable from the battery, then wait for 3 minutes.

(cont'd)

DTC Troubleshooting (cont'd)

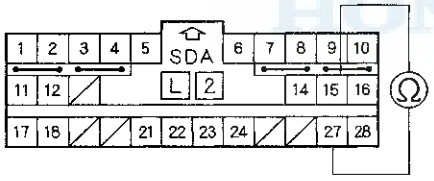
5. Disconnect the left engine compartment wire harness 2P connector (A) from the left front impact sensor.



6. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

7. Measure the resistance between the No. 15 and No. 27 terminals of SRS unit connector A (28P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

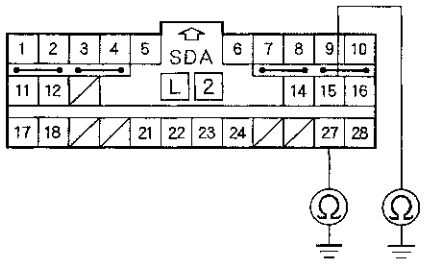
Is the resistance as specified?

YES—Go to step 8.

NO—Short in the left engine compartment wire harness or SRS main harness; replace the faulty harness. ■

8. Measure the resistance between the No. 15 terminal of SRS unit connector A (28P) and body ground, and between the No. 27 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 9.

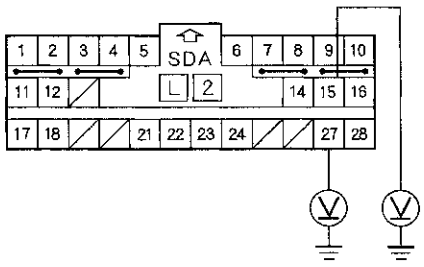
NO—Short to ground in the left engine compartment wire harness or SRS main harness; replace the faulty harness. ■

9. Reconnect the negative cable to the battery.

10. Turn the ignition switch ON (II).

11. Measure the voltage between the No. 15 terminal of SRS unit connector A (28P) and body ground, and between the No. 27 terminal and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

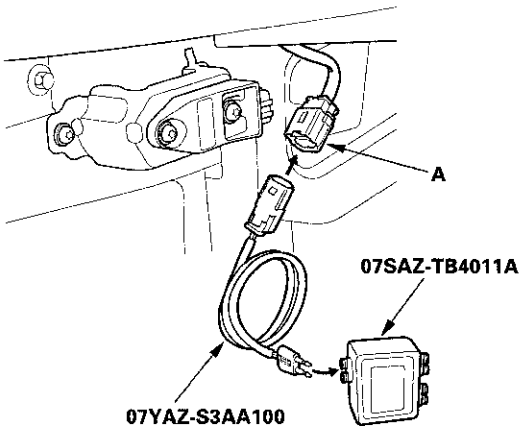
Is the voltage as specified?

YES—Go to step 12.

NO—Short to power in the left engine compartment wire harness or the SRS main harness; replace the faulty harness. ■

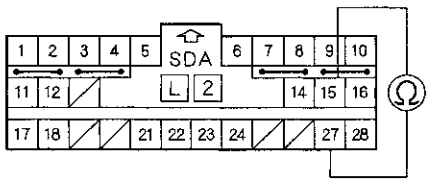
12. Turn the ignition switch OFF.

13. Connect the SRS inflator simulator (jumper connector) and SRS simulator lead H to the left engine compartment wire harness 2P connector (A).



14. Measure the resistance between the No. 15 and No. 27 terminals of SRS unit connector A (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty left front impact sensor or SRS unit; replace the left front impact sensor (see page 23-181). If the problem is still present, replace the SRS unit (see page 23-179). ■

NO—Poor connection at C305, faulty left engine compartment wire harness, or faulty SRS main harness. Inspect C305 (see page 22-33). If it is OK, replace the faulty harness. ■

DTC Troubleshooting (cont'd)

DTC 42-1x ("x" can be 0 thru 9 or A thru F): No Signal from the Right Front Impact Sensor

Special Tools Required
- SRS inflator simulator 07SAZ-TB4011A
- SRS simulator lead H 07YAZ-S3AA100

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 42-1x indicated?

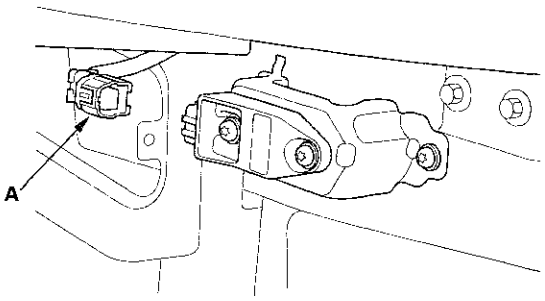
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Check the connections between SRS unit connector A (28P) and the SRS unit, between the right engine compartment wire harness 2P connector and the right front impact sensor (see page 23-181), and at connector C305 (see page 22-33).

   Are the connections OK?

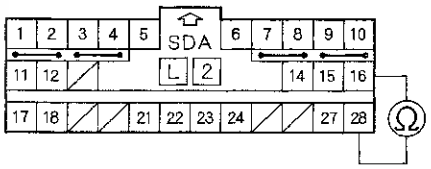
   YES—Go to step 4.

   NO—Repair the poor connections and retest. If DTC 42-1x is still present, go to step 4.
4. Disconnect the negative cable from the battery, then wait for 3 minutes.
5. Disconnect the right engine compartment wire harness 2P connector (A) from the right front impact sensor.



6. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).
7. Measure the resistance between the No. 16 and No. 28 terminals of SRS unit connector A (28P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

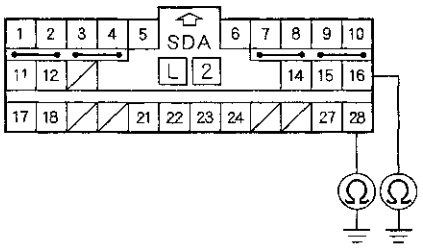
Is the resistance as specified?

YES—Go to step 8.

NO—Short in the right engine compartment wire harness or SRS main harness; replace the faulty harness. ■

8. Measure the resistance between the No. 16 terminal of SRS unit connector A (28P) and body ground, and between the No. 28 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

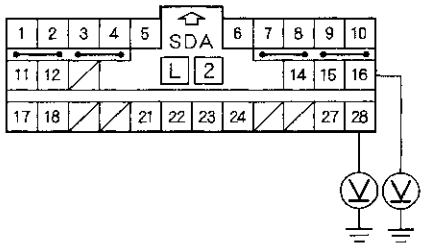
Is the resistance as specified?

YES—Go to step 9.

NO—Short to ground in the right engine compartment wire harness or SRS main harness; replace the faulty harness. ■

9. Reconnect the negative cable to the battery.
10. Turn the ignition switch ON (II).
11. Measure the voltage between the No. 16 terminal of SRS unit connector A (28P) and body ground, and between the No. 28 terminal and body ground. There should be 1 V or less.

SRS UNIT CONNECTOR A (28P)



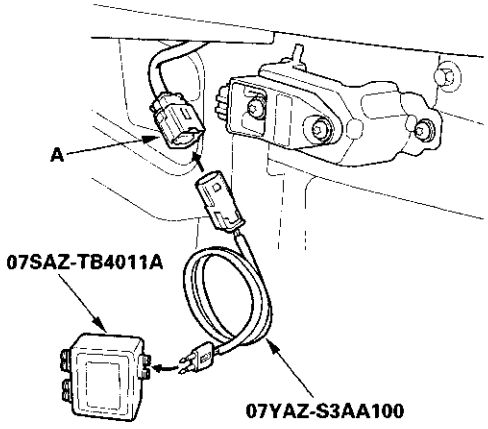
Wire side of female terminals

Is the voltage as specified?

YES—Go to step 12.

NO—Short to power in the right engine compartment wire harness or SRS main harness; replace the faulty harness. ■

12. Turn the ignition switch OFF.
13. Connect the SRS inflator simulator (jumper connector) and SRS simulator lead H to the right engine compartment wire harness 2P connector (A).

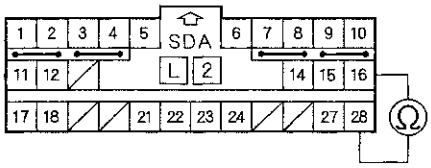


(cont'd)

DTC Troubleshooting (cont'd)

14. Measure the resistance between the No. 16 and No. 28 terminals of SRS unit connector A (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty right front impact sensor or SRS unit; replace the right front impact sensor (see page 23-181). If the problem is still present, replace the SRS unit (see page 23-179).■

NO—Poor connection at C205, faulty right engine compartment wire harness, or faulty SRS main harness. Inspect C205 (see page 22-33). If it is OK, replace the faulty harness. ■

DTC 41-2x, 41-Ax ("x" can be 0 thru 9 or A thru F): Internal Failure of the Left Front Impact Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 41-2x or 41-Ax indicated?

   YES—Replace the left front impact sensor (see page 23-181). If the DTC returns, replace the SRS unit (see page 23-179). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

DTC 42-2x, 42-Ax ("x" can be 0 thru 9 or A thru F): Internal Failure of the Right Front Impact Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 42-2x or 42-Ax indicated?

   YES—Replace the right front impact sensor (see page 23-181). If the DTC returns, replace the SRS unit (see page 23-179). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

DTC Troubleshooting (cont'd)

DTC 51-1x, 51-2x, 51-3x, 51-5x, 51-7x, 51-8x, 52-xx, 53-xx, 54-xx ("x" can be 0 thru 9 or A thru F): Internal Failure of the SRS Unit

NOTE:
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).
- Before troubleshooting any of these DTCs, check the battery/system voltage. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead or if the engine was started and run with the battery in a low state of charge A dead battery may trigger one of these DTCs.

1. Clear the DTC memory (see page 23-27).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 51-1x, 51-2x, 51-3x, 51-5x, 51-7x, 51-8x, 52-xx, 53-xx, or 54-xx indicated?

   YES—Replace the SRS unit (see page 23-179).■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

DTC Ex-xx ("x" can be 0 thru 9 or A thru F): Control Operation Recorded

DTC Fx-xx ("x" can be 0 thru 9 or A thru F): Airbags and/or Tensioners Deployment Recorded

NOTE:
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).
- DTC E2-11: Passenger's airbag does not deploy by passenger's weight sensor operation
- DTC F1-11: Driver's airbag and/or driver's seat belt tensioner and seat belt buckle tensioner deployed
- DTC F2-11: Passenger's airbag and/or passenger's seat belt tensioner deployed

The SRS unit must be replaced after any airbags and/or tensioners have deployed (see page 23-163).■

NOTE: DTC E2-11 is set if the system triggered airbag deployment but the passenger's airbag was prevented from deploying because of the weight sensor. Replace the front impact sensors (see page 23-181).

DTC 61-1x ("x" can be 0 thru 9 or A thru F): Open in Driver's Seat Belt Buckle Switch

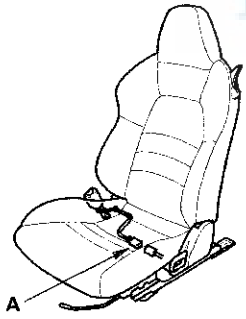
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 23-26).

   Is DTC 61-1x indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch OFF.
5. Disconnect the rear harness 3P connector from the driver's seat belt buckle switch 3P connector (A).

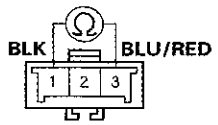


6. Buckle the driver's seat belt.

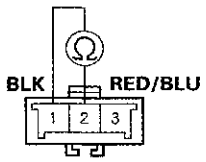
   Measure the resistance between the No. 1 and No. 3 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Are the resistances as specified?

YES—Go to step 7.

NO—Replace the driver's seat belt buckle assembly (see page 23-7), then clear the DTC. ■

(cont'd)

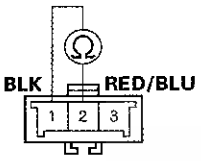
DTC Troubleshooting (cont'd)

7. Unbuckle the driver's seat belt.

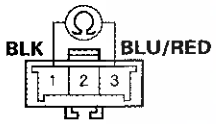
   Measure the resistance between the No. 1 and No. 2 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

   DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

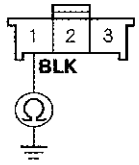
Are the resistances as specified?

YES—Go to step 8.

NO—Replace the driver's seat belt buckle assembly (see page 23-7), then clear the DTC.■

8. Measure the resistance between the No. 1 terminal of the driver's seat wire harness 3P connector and body ground. There should be 0—1 Ω.

   REAR HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 9.

NO—Open in the driver's seat wire harness or floor wire harness, or poor ground connection at G601 (see page 22-30). If G601 is OK, replace the faulty harness.■

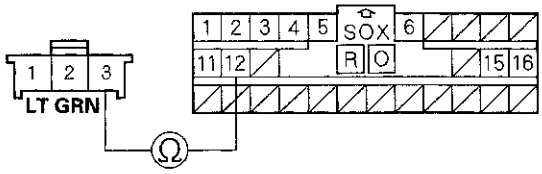
9. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the SRS main harness (see step 4 on page 23-23).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

12. Measure the resistance between the No. 12 terminal of SRS unit connector B (28P) and the No. 3 terminal of the rear harness 3P connector. There should be 0—1 Ω.

REAR HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR B (28P)**



Wire side of female terminals

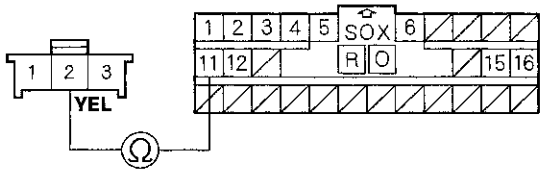
Is the resistance as specified?

YES—Go to step 13.

NO—Open in the rear harness or SRS main harness; replace the faulty harness.■

13. Measure the resistance between the No. 11 terminal of SRS unit connector B (28P) and the No. 2 terminal of the rear harness 3P connector. There should be 0—1 Ω.

REAR HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR B (28P)**



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179).■

NO—Open in the rear harness or SRS main harness; replace the faulty harness.■

DTC Troubleshooting (cont'd)

DTC 61-2x ("x" can be 0 thru 9 or A thru F): Short in Driver's Seat Belt Buckle Switch

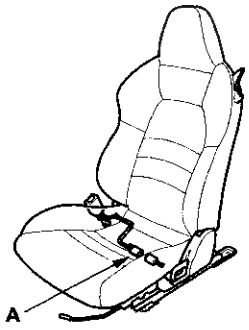
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), then buckle and unbuckle the driver's seat belt several times.
3. Read the DTC (see page 23-26).

   Is DTC 61-2x indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch OFF.
5. Disconnect the rear harness 3P connector from the driver's seat belt buckle switch 3P connector (A).

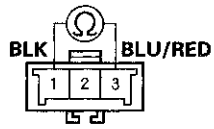


6. Buckle the driver's seat belt.

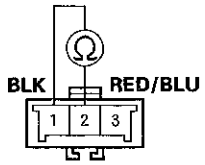
   Measure the resistance between the No. 1 and No. 3 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Are the resistances as specified?

YES—Go to step 7.

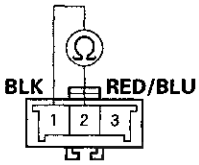
NO—Replace the driver's seat belt buckle assembly (see page 23-7), then clear the DTC. ■

7. Unbuckle the driver's seat belt.

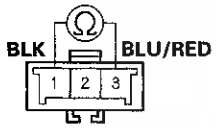
   Measure the resistance between the No. 1 and No. 2 terminals of the driver's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

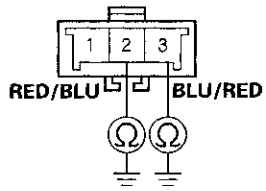
Are the resistances as specified?

YES—Go to step 8.

NO—Replace the driver's seat belt buckle assembly (see page 23-7), then clear the DTC. ■

8. Measure the resistance between the No. 2 terminal of the driver's seat belt buckle switch 3P connector and body ground, and between the No. 3 terminal and body ground. There should be an open circuit or at least 1 MΩ.

DRIVER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 9.

NO—Replace the driver's seat belt buckle assembly (see page 23-7). ■

9. Disconnect the negative cable from the battery.

10. Disconnect both seat belt tensioner 2P connectors from the SRS main harness (see step 4 on page 23-23).

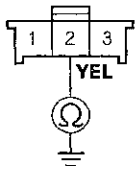
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

(cont'd)

DTC Troubleshooting (cont'd)

12. Measure the resistance between the No. 2 terminal of the rear harness 3P connector and body ground. There should be an open circuit or at least 1 MΩ.

REAR HARNESS 3P CONNECTOR



Wire side of female terminals

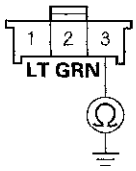
Is the resistance as specified?

YES—Go to step 13.

NO—Short to ground in the rear harness or SRS main harness; replace the faulty harness. ■

13. Measure the resistance between the No. 3 terminal of the rear harness 3P connector and body ground. There should be an open circuit or at least 1 MΩ.

REAR HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Replace the SRS unit (see page 23-179). ■

NO—Short to ground in the rear harness or SRS main harness; replace the faulty harness. ■

DTC 62-1x ("x" can be 0 thru 9 or A thru F): Open in Passenger's Seat Belt Buckle Switch

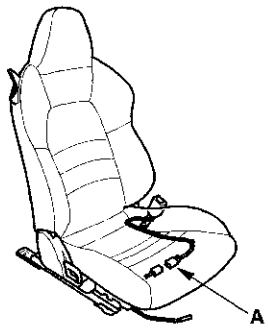
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), then buckle and unbuckle the passenger's seat belt several times.
3. Read the DTC (see page 23-26).

   Is DTC 62-1x indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch OFF.
5. Disconnect the rear harness 3P connector from the passenger's seat belt buckle switch 3P connector (A).

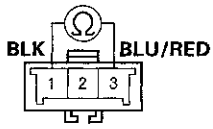


6. Buckle the passenger's seat belt.

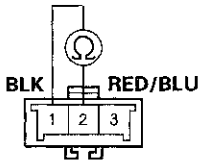
   Measure the resistance between the No. 1 and No. 3 terminals of the passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Are the resistances as specified?

YES—Go to step 7.

NO—Replace the passenger's seat belt buckle assembly (see page 23-7), then clear the DTC. ■

(cont'd)

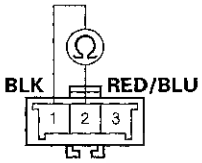
DTC Troubleshooting (cont'd)

7. Unbuckle the passenger's seat belt.

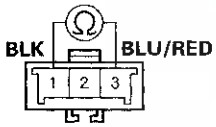
   Measure the resistance between the No. 1 and No. 2 terminals of the passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

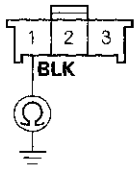
Are the resistances as specified?

YES—Go to step 8.

NO—Replace the passenger's seat belt buckle assembly (see page 23-7), then clear the DTC. ■

8. Measure the resistance between the No. 1 terminal of the passenger's seat wire harness 3P connector and body ground. There should be 0—1 Ω.

REAR HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 9.

NO—Open in the rear harness or SRS main, or poor ground connection at G601 (see page 22-30). If G601 is OK, replace the faulty harness. ■

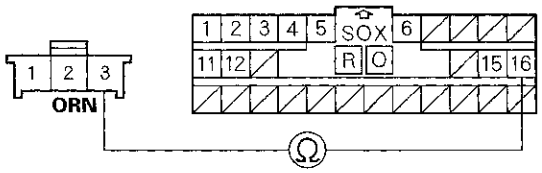
9. Disconnect the negative cable from the battery, and wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the SRS main harness (see step 4 on page 23-23).

11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

12. Measure the resistance between the No. 16 terminal of SRS unit connector B (28P) and the No. 3 terminal of the rear harness 3P connector. There should be 0—1 Ω.

REAR HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR B (28P)**



Wire side of female terminals

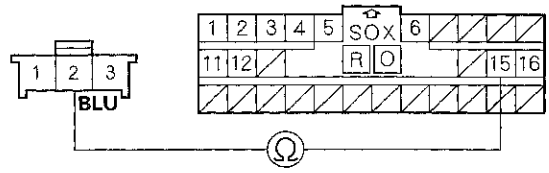
Is the resistance as specified?

YES—Go to step 13.

NO—Open in the rear harness or SRS main harness; replace the faulty harness. ■

13. Measure the resistance between the No. 15 terminal of SRS unit connector B (28P) and the No. 2 terminal of the rear harness 3P connector. There should be 0—1 Ω.

REAR HARNESS 3P CONNECTOR **SRS UNIT CONNECTOR B (28P)**



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Open in the rear harness or SRS main harness; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

DTC 62-2x ("x" can be 0 thru 9 or A thru F): Short in Passenger's Seat Belt Buckle Switch

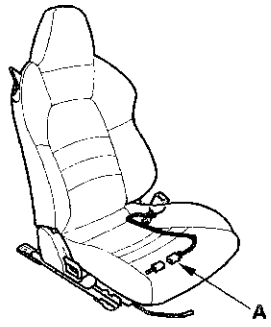
NOTE:
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).
- If DTC 61-2x is also set, troubleshoot and repair DTC 61-2x before proceeding.

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), then buckle and unbuckle the front passenger's seat belt several times.
3. Read the DTC (see page 23-26).

   Is DTC 62-2x indicated?

   YES—Go to step 4.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
4. Turn the ignition switch OFF.
5. Disconnect the rear harness 3P connector from the passenger's seat belt buckle switch 3P connector (A).

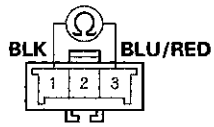


6. Buckle the passenger's seat belt.

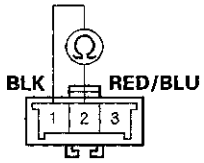
   Measure the resistance between the No. 1 and No. 3 terminals of the passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 2 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

Are the resistances as specified?

YES—Go to step 7.

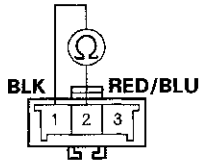
NO—Replace the passenger's seat belt buckle assembly (see page 23-7), then clear the DTC. ■

7. Unbuckle the passenger's seat belt.

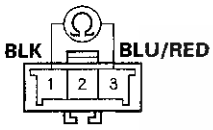
   Measure the resistance between the No. 1 and No. 2 terminals of the passenger's seat belt buckle switch 3P connector. There should be 0—1 Ω.

   Measure the resistance between the No. 1 and No. 3 terminals of the same connector. There should be an open circuit or at least 1 MΩ.

PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals



Terminal side of male terminals

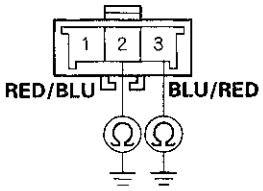
Are the resistances as specified?

YES—Go to step 8.

NO—Replace the passenger's seat belt buckle assembly (see page 23-7), then clear the DTC. ■

8. Measure the resistance between the No. 2 terminal of the passenger's seat belt buckle switch 3P connector and body ground, and between the No. 3 terminal and body ground. There should be an open circuit or at least 1 MΩ.

PASSENGER'S SEAT BELT BUCKLE SWITCH 3P CONNECTOR



Terminal side of male terminals

Is the resistance as specified?

YES—Go to step 9.

NO—Replace the passenger's seat belt buckle assembly (see page 23-7). ■

9. Disconnect the negative cable from the battery, then wait for 3 minutes.

10. Disconnect both seat belt tensioner 2P connectors from the SRS main harness (see step 4 on page 23-23).

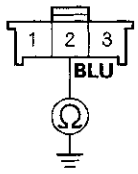
11. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

(cont'd)

DTC Troubleshooting (cont'd)

12. Measure the resistance between the No. 2 terminal of the rear harness 3P connector and body ground. There should be an open circuit or at least 1 MΩ.

REAR HARNESS 3P CONNECTOR



Wire side of female terminals

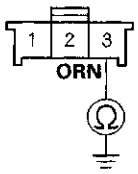
Is the resistance as specified?

YES—Go to step 13.

NO—Short to ground in the rear harness or SRS main harness; replace the faulty harness. ■

13. Measure the resistance between the No. 3 terminal of the rear harness 3P connector and body ground. There should be an open circuit or at least 1 MΩ.

REAR HARNESS 3P CONNECTOR



Wire side of female terminals

Is the resistance as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to ground in the rear harness or SRS main harness; replace the faulty harness. ■

DTC 71-1x ("x" can be 0 thru 9 or A thru F): Open in Driver's Seat Position Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 71-1x indicated?

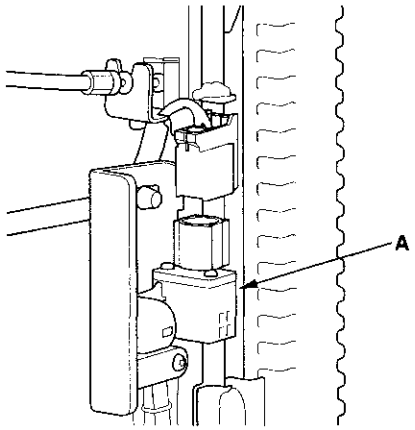
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Check the connection between the rear harness 2P connector and the driver's seat position sensor.
4. Clear the DTC memory.
5. Read the DTC (see page 23-26).

   Is DTC 71-1x indicated?

   YES—Go to step 6.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
6. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
7. Disconnect the rear harness 2P connector from the driver's seat position sensor (A).



8. Connect the No. 1 and No. 2 terminals of the rear harness 2P connector with a jumper wire.
9. Disconnect both seat belt tensioner 2P connectors (see step 4 on page 23-23).

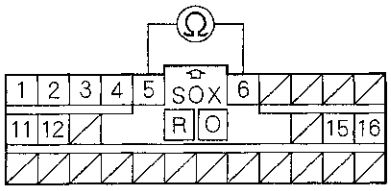
(cont'd)

DTC Troubleshooting (cont'd)

10. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).

11. Measure the resistance between the No. 5 and No. 6 terminals of SRS unit connector B (28P). There should be 0—1.0 Ω.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty driver's seat position sensor or SRS unit; replace the driver's seat position sensor (see page 23-184). If the problem is still present, replace the SRS unit (see page 23-179).■

NO—Open in the SRS main harness or rear harness; replace the faulty harness.■

DTC 71-2x ("x" can be 0 thru 9 or A thru F): Short in Driver's Seat Position Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).

2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

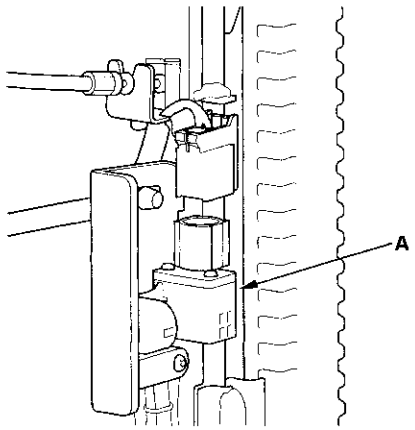
   Does the SRS indicator stay on, and is DTC 71-2x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

4. Disconnect the rear harness 2P connector from the driver's seat position sensor (A).



5. Reconnect the negative cable to the battery.
6. Clear the DTC memory.
7. Read the DTC (see page 23-26).

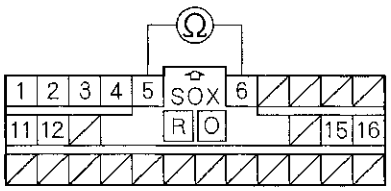
   Is DTC 71-2x indicated?

   YES—Go to step 8.

   NO—Faulty driver's seat position sensor; replace the driver's seat position sensor (see page 23-184). ■

8. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
9. Disconnect both seat belt tensioner 2P connectors (see step 4 on page 23-23).
10. Disconnect SRS unit connector B (28P) from the SRS unit (see step 5 on page 23-23).
11. Measure the resistance between the No. 5 and No. 6 terminals of SRS unit connector B (28P). There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

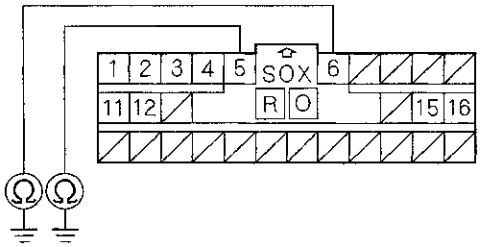
Is the resistance as specified?

YES—Go to step 12.

NO—Short in the SRS main harness or rear harness; replace the faulty harness. ■

12. Measure the resistance between the No. 5 terminal of SRS unit connector B (28P) and body ground, and between the No. 6 terminal and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR B (28P)



Wire side of female terminals

Is the resistance as specified?

YES—Faulty driver's seat position sensor or SRS unit; replace the driver's seat position sensor (see page 23-184). If the problem is still present, replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness or rear harness; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

DTC 81-61: No Signal from the Passenger's Weight Sensor Unit

DTC 81-62: Response Data Error from the Passenger's Weight Sensor Unit

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Read the DTC (see page 23-26).

   Is DTC 81-61 or 81-62 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Check the connection between the rear harness 6P connector and the rear passenger's weight sensor unit.

   Is the connection OK?

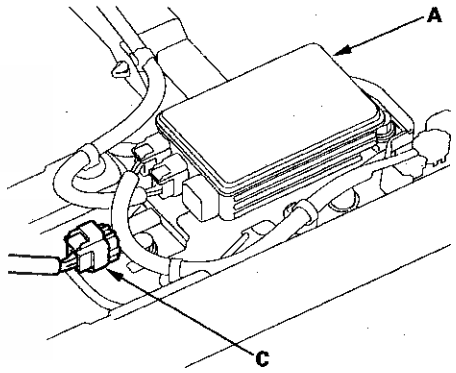
   YES—Go to step 4.

   NO—Repair the poor connection and retest. If DTC 81-61 or 81-62 or still present, go to step 6.
4. Turn the ignition switch OFF.
5. Check the No. 2 (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 6.

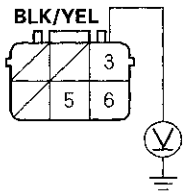
   NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 2 (15 A) fuse circuit (dashboard wire harness A or rear harness).■
6. Disconnect the passenger's weight sensor unit 6P connector C from the passenger's weight sensor unit (A).



7. Turn the ignition switch ON (II).

8. Measure the voltage between the No. 3 terminal of the passenger's weight sensor unit 6P connector C and body ground. There should be battery voltage.

PASSENGER'S WEIGHT SENSOR UNIT 6P CONNECTOR C



Wire side of female terminals

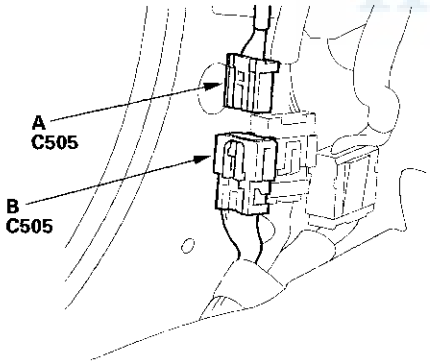
Is there battery voltage?

YES—Go to step 13.

NO—Go to step 9.

9. Turn the ignition switch OFF.

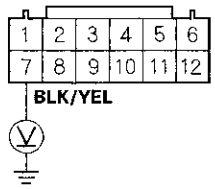
10. Disconnect dashboard wire harness A 12P connector (C505) (A) from the rear harness 12P connector (C505) (B).



11. Turn the ignition switch ON (II).

12. Measure the voltage between the No. 7 terminal of dashboard wire harness A 12P connector and body ground. There should be battery voltage.

DASHBOARD WIRE HARNESS A 12P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

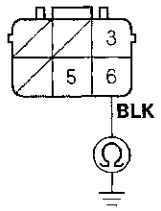
YES—Open in the rear harness; replace the rear harness.■

NO—Open in the dashboard wire harness A or dashboard wire harness B; replace the faulty harness.■

13. Turn the ignition switch OFF.

14. Measure the resistance between the No. 6 terminal of the passenger's weight sensor unit 6P connector C and body ground. There should be 0—1.0 Ω.

PASSENGER'S WEIGHT SENSOR UNIT 6P CONNECTOR C



Wire side of female terminals

Is the resistance as specified?

YES—Go to step 15.

NO—Open in the BLK wire of the rear harness; check for poor ground connection at G601 (see page 22-30). If the connection is OK, replace the rear harness.■

(cont'd)

DTC Troubleshooting (cont'd)

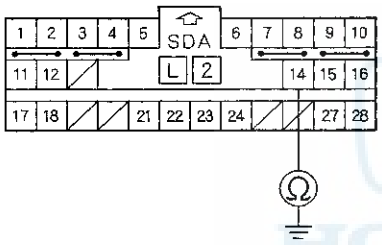
15. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.

16. Disconnect both seat belt tensioner 2P connectors (see step 4 on page 23-23).

17. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

18. Measure the resistance between the No. 14 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

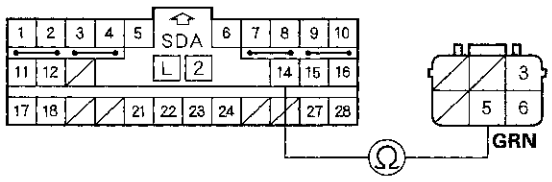
Is the resistance as specified?

YES—Go to step 19.

NO—Short to ground in the SRS main harness or rear harness; replace the faulty harness.■

19. Measure the resistance between the No. 14 terminal of SRS unit connector A (28P) and the No. 5 terminal of the passenger's weight sensor unit 6P connector C. There should be 0—1.0 Ω.

SRS UNIT CONNECTOR A (28P) **PASSENGER'S WEIGHT SENSOR UNIT 6P CONNECTOR C**



Wire side of female terminals

Is the resistance as specified?

YES—Faulty passenger's weight sensor unit or SRS unit; replace the passenger's weight sensor unit (see page 23-183). If the problem is still present, replace the SRS unit (see page 23-179).■

NO—Open in the SRS main harness or rear harness; replace the faulty harness.■

DTC 81-4x ("x" can be 0 thru 9 or A thru F): Internal Failure of the Passenger's Weight Sensor Unit

DTC 81-63, 81-64: Internal Failure of the Passenger's Weight Sensor Unit Inconsistent

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 81-4x, 81-63, or 81-64 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Calibrate the passenger's weight sensor unit (see page 23-30).
4. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK at this time. ■

   NO—Go to step 5.
5. Replace the passenger's weight sensor unit (see page 23-183).
6. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK. ■

   NO—Replace the SRS unit (see page 23-179). ■

DTC Troubleshooting (cont'd)

DTC 81-71, 81-78: Passenger's Weight Sensor Unit Does Not Calibrate

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 81-71 or 81-78 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Calibrate the passenger's weight sensor unit (see page 23-30).
4. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK at this time. ■

   NO—Go to step 5.
5. Replace the passenger's weight sensor unit (see page 23-183).
6. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK. ■

   NO—Replace the SRS unit (see page 23-179). ■

DTC 81-79: Passenger's Weight Sensors Initial Check Failure

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 81-79 indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF.
4. Make sure nothing is on the passenger's seat.
5. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator go off?

   YES—The system is OK. ■

   NO—Remove the passenger's seat assembly (see page 20-93) and passenger's weight sensors (see page 23-182), then reinstall them. Calibrate the passenger's weight sensor unit (see page 23-30). Retry the troubleshooting. ■

DTC Troubleshooting (cont'd)

DTC 82-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Inner Side Passenger's Weight Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 82-1x indicated?

   YES—Faulty passenger's weight sensor; replace the inner side passenger's weight sensor (see page 23-182). If the DTC is still present, replace the passenger's weight sensor unit (see page 23-183). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

DTC 83-2x ("x" can be 0 thru 9 or A thru F): No Signal From the Outer Side Passenger's Weight Sensor

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 83-2x indicated?

   YES—Faulty passenger's weight sensor; replace the inner side passenger's weight sensor (see page 23-182). If the DTC is still present, replace the passenger's weight sensor unit (see page 23-183). ■

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.

DTC 91-1x, 91-3x ("x" can be 0 thru 9 or A thru F): Short to Ground in the SRS Indicator Circuit

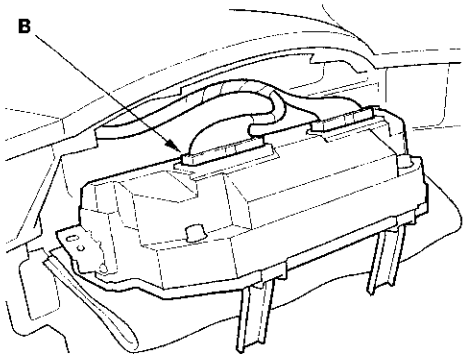
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 91-1x or 91-3x indicated?

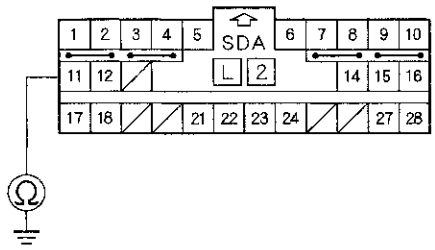
   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
4. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).
5. Remove the gauge assembly (see page 22-89). Disconnect the gauge assembly connector B (22P) from the gauge assembly.



6. Measure the resistance between the No. 11 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit or at least 1 MΩ.

SRS UNIT CONNECTOR A (28P)



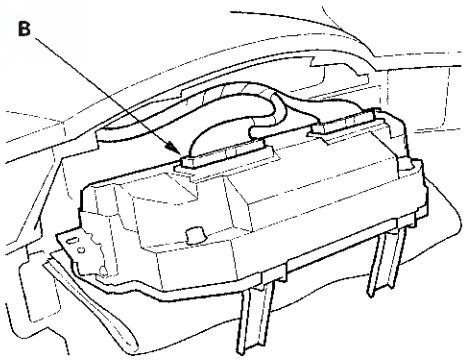
Wire side of female terminals

Is the resistance as specified?

YES—Go to step 7.

NO—Short to ground in the SRS main harness or dashboard wire harness A; replace the faulty harness. ■

7. Reconnect the gauge assembly connector B (22P).



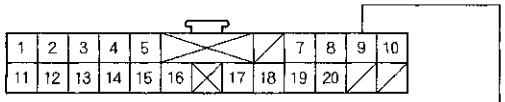
(cont'd)

DTC Troubleshooting (cont'd)

8. Turn the ignition switch ON (II).

9. Install a jumper wire between the No. 9 terminal of the gauge assembly connector A (22P) and the No. 19 terminal of the gauge assembly connector B (30P). The SRS indicator should go off.

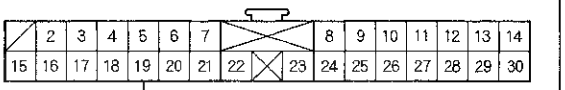
GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

JUMPER WIRE

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Does the SRS indicator go off?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS indicator circuit of the gauge assembly; replace the gauge assembly (see page 22-89). ■

DTC 92-1x ("x" can be 0 thru 9 or A thru F): Open in Passenger's Airbag Cutoff Indicator

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and DTC 92-1x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Check the connection between the passenger's airbag cutoff indicator 4P connector and the passenger's airbag cutoff indicator (see page 23-185).
4. Clear the DTC memory.
5. Read the DTC (see page 23-26).

   Is DTC 92-1x indicated?

   YES—Go to step 6.

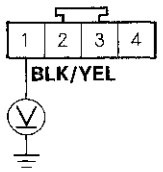
   NO—Repair the poor connections and retest. If DTC 92-1x is still present, go to step 6.
6. Check the No. 2 (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 7.

   NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 2 (15 A) fuse circuit (dashboard wire harness A, dashboard wire harness B and rear harness). ■
7. Turn the ignition switch OFF. Disconnect the passenger's airbag cutoff indicator 4P connector (see page 23-185).
8. Turn the ignition switch ON (II).
9. Measure the voltage between the No. 1 terminal of the passenger's airbag cutoff indicator 4P connector and body ground. There should be battery voltage.

   PASSENGER'S AIRBAG CUTOFF INDICATOR 4P CONNECTOR

   Wire side of female terminals

   Is there battery voltage?

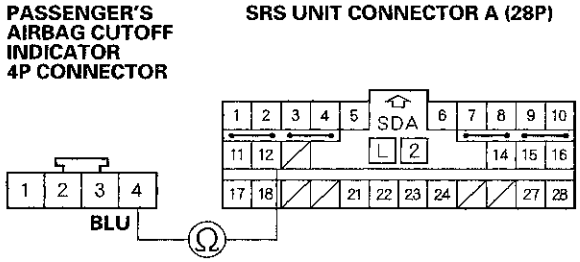
   YES—Go to step 10.

   NO—Open in dashboard wire harness A or dashboard wire harness B; replace the faulty harness. ■
10. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
11. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

(cont'd)

DTC Troubleshooting (cont'd)

12. Measure the resistance between the No. 4 terminal of the passenger's airbag cutoff indicator 4P connector and the No. 12 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.



Wire side of female terminals

Is the resistance as specified?

YES—Check for a faulty SRS unit or passenger's airbag cutoff indicator; replace the passenger's airbag cutoff indicator. If the problem is still present, replace the SRS unit (see page 23-179). ■

NO—Open in the SRS main harness or dashboard wire harness A; replace the faulty harness. ■

DTC 92-2x ("x" can be 0 thru 9 or A thru F): Open or Short to Ground in the Passenger's Airbag Cutoff Indicator

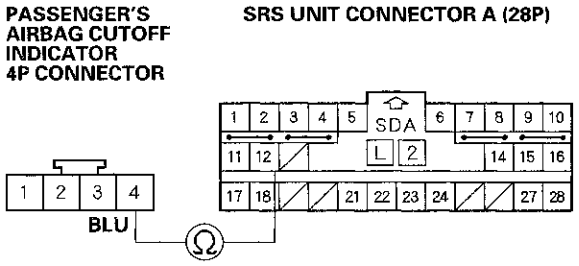
NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Clear the DTC memory (see page 23-27).
2. Turn the ignition switch ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

   Does the SRS indicator stay on, and is DTC 92-2x indicated?

   YES—Go to step 3.

   NO—Intermittent failure, system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 23-29). If another DTC is indicated, troubleshoot the DTC.
3. Disconnect the passenger's airbag cutoff indicator 4P connector (see page 23-185).
4. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
5. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).
6. Measure the resistance between the No. 4 terminal of the passenger's airbag cutoff indicator 4P connector and the No. 12 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.



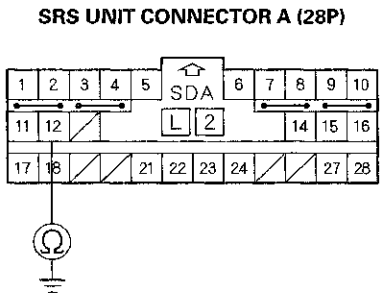
Wire side of female terminals

Is the resistance as specified?

YES—Go to step 7.

NO—Open in the SRS main harness or dashboard wire harness A; replace the faulty harness. ■

7. Measure the resistance between the No. 12 terminal of SRS unit connector A (28P) and body ground. There should be an open circuit, or at least 1 MΩ.



Wire side of female terminals

Is the resistance as specified?

YES—Check for a faulty SRS unit or passenger's airbag cutoff indicator; replace the passenger's airbag cutoff indicator. If the problem is still present, replace the SRS unit (see page 23-179). ■

NO—Short to ground in the SRS main harness or dashboard wire harness A; replace the faulty harness. ■

DTC Troubleshooting (cont'd)

DTC A1-1x ("x" can be 0 thru 9 or A thru F): Faulty Power Supply (VA Line)

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Check the No. 2 (15 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 2.

   NO—Replace the fuse, then turn the ignition switch ON (II). If the fuse blows again, check for a short in the No. 2 (15 A) fuse circuit (SRS main harness). ■

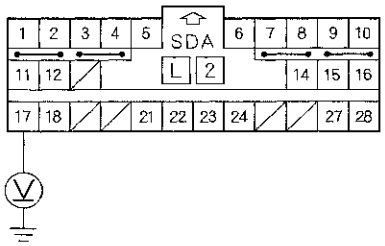
2. Disconnect the negative cable from the battery, then wait for 3 minutes.

3. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

4. Reconnect the negative cable to the battery.

5. Connect a voltmeter between the No. 17 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage when the ignition is on.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

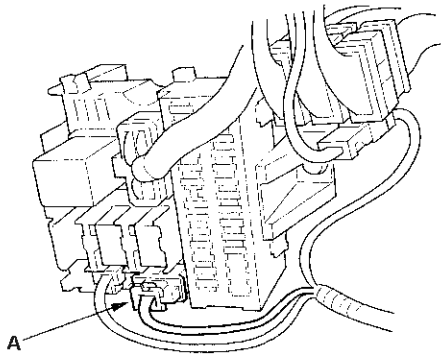
Is there battery voltage?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Go to step 6.

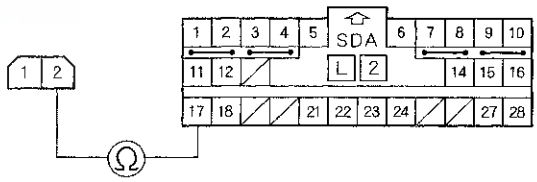
6. Turn the ignition switch OFF.

7. Disconnect under-dash fuse/relay box connector A (2P).



8. Measure the resistance between the No. 2 terminal of under-dash fuse/relay box connector A (2P) and the No. 17 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.

UNDER-DASH FUSE/RELAY BOX CONNECTOR A (2P) **SRS UNIT CONNECTOR A (28P)**



Wire side of female terminals

Is the resistance as specified?

YES—Open in the under-dash fuse/relay box or poor connection between connector A (2P) and the under-dash fuse/relay box; check the connection. If the connection is OK, replace the under-dash fuse/relay box. ■

NO—Open in the SRS main harness; replace the SRS main harness. ■

DTC A2-1x ("x" can be 0 thru 9 or A thru F): Faulty Power Supply (VB Line)

NOTE: Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 23-13) and General Troubleshooting Information (see page 23-24).

1. Check the No. 1 (10 A) fuse in the under-dash fuse/relay box.

   Is the fuse OK?

   YES—Go to step 11.

   NO—Go to step 2.

2. Replace the No. 1 (10 A) fuse.
3. Turn the ignition switch ON (II) and wait for 30 seconds. Then turn the ignition switch OFF.
4. Check the No. 1 (10 A) fuse.

   Is the fuse OK?

   YES—The system is OK at this time.■

   NO—Go to step 5.

5. Replace the No. 1 (10 A) fuse.
6. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
7. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).
8. Reconnect the negative cable to the battery.
9. Turn the ignition switch ON (II), and wait for 30 seconds. Then turn the ignition switch OFF.
10. Check the No. 1 (10 A) fuse.

    Is the fuse OK?

    YES—Short to ground in the SRS unit; replace the SRS unit (see page 23-179).■

    NO—Short to ground in the SRS main harness or in the under-dash fuse/relay box No. 1 (10 A) fuse circuit; replace the SRS main harness. If the problem is still there, replace the under-dash fuse/relay box.■

11. Turn the ignition switch OFF. Disconnect the negative cable from the battery, then wait for 3 minutes.
12. Disconnect SRS unit connector A (28P) from the SRS unit (see step 5 on page 23-23).

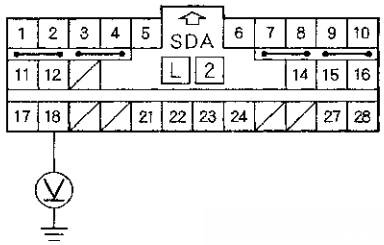
(cont'd)

DTC Troubleshooting (cont'd)

13. Reconnect the negative cable to the battery.

14. Connect a voltmeter between the No. 18 terminal of SRS unit connector A (28P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage when the ignition on.

SRS UNIT CONNECTOR A (28P)



Wire side of female terminals

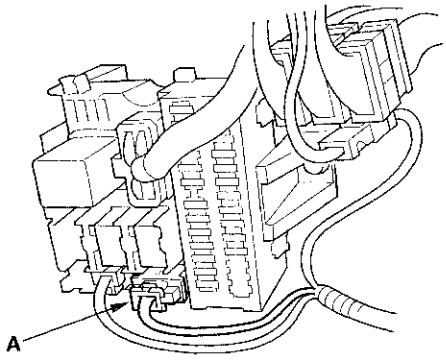
Is there battery voltage?

YES—Faulty SRS unit or poor connection at SRS unit connector A (28P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Go to step 15.

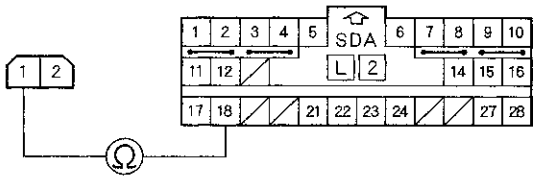
15. Turn the ignition switch OFF.

16. Disconnect under-dash fuse/relay box connector A (2P).



17. Measure the resistance between the No. 1 terminal of the under-dash fuse/relay box connector A (2P) and the No. 18 terminal of SRS unit connector A (28P). There should be 0—1.0 Ω.

UNDER-DASH FUSE/RELAY BOX CONNECTOR A (2P) **SRS UNIT CONNECTOR A (28P)**



Wire side of female terminals

Is the resistance as specified?

YES—Open in the under-dash fuse/relay box or poor connection between connector A (2P) and the under-dash fuse/relay box; check the connection. If the connection is OK, replace the under-dash fuse/relay box.■

NO—Open in the SRS main harness; replace the SRS main harness.■

Symptom Troubleshooting

SRS indicator does not come on ('00-03 Models)

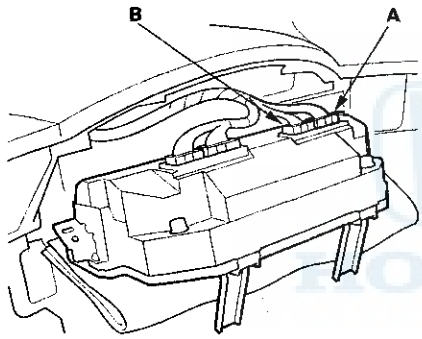
1. Turn the ignition switch ON (II), and see if the other indicators come on (brake system, etc.).

   Do the other indicators come on?

   YES—Go to step 2.

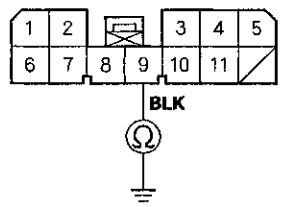
   NO—Go to step 11.

2. Turn the ignition switch OFF, then remove the gauge assembly (see page 22-89). Disconnect gauge assembly connector A and B from the gauge assembly.



3. Measure the resistance between the No. 9 terminal of gauge assembly connector B (12P) and body ground. There should be 0—1.0 Ω.

GAUGE ASSEMBLY CONNECTOR B (12P)



Wire side of female terminals

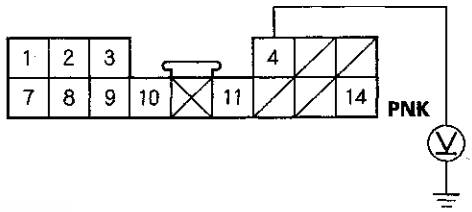
Is the resistance as specified?

YES—Go to step 4.

NO—Open in the BLK wire of dashboard wire harness A or faulty body ground terminal (G501) (see page 22-26). If the body ground terminal is OK, replace dashboard wire harness A.■

4. Reconnect gauge assembly connector A and B to the gauge assembly. Measure the voltage between the No. 4 terminal of gauge assembly connector A (14P) and body ground within the first 6 seconds after turning the ignition switch ON (II). There should be 8.5 V or less.

GAUGE ASSEMBLY CONNECTOR A (14P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly.■

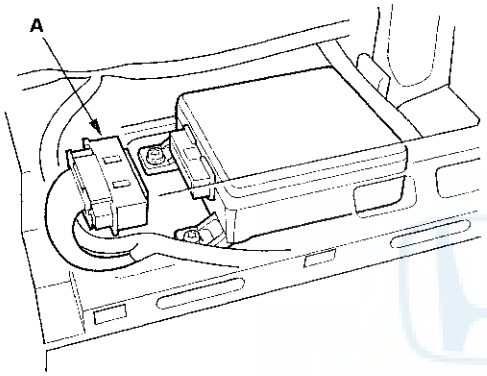
NO—Go to step 5.

5. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes. Disconnect gauge assembly connector A from the gauge assembly.

(cont'd)

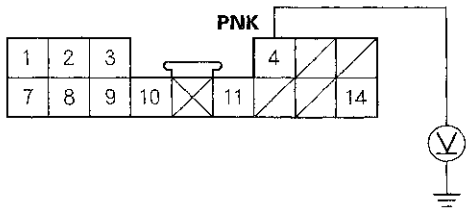
Symptom Troubleshooting (cont'd)

6. Disconnect the driver's airbag connector (see page 23-22).
7. Disconnect the passenger's airbag connector (see page 23-22).
8. Disconnect the both seat belt tensioner connector (see page 23-22).
9. Disconnect SRS unit connector (18P) (A) from the SRS unit



10. Reconnect the negative cable to the battery. Connect a voltmeter between the No. 4 terminal of gauge assembly connector A (14P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be 0.5 V or less.

GAUGE ASSEMBLY CONNECTOR A (14P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to power in the PNK wire of dashboard wire harness A or in the SRS main harness; replace the faulty harness. ■

11. Turn the ignition switch OFF. Check the No. 5 (7.5 A) fuse in the under-dash fuse/relay box.

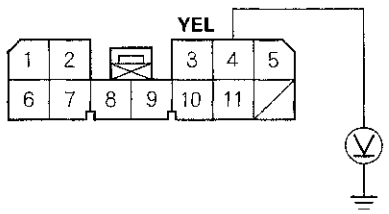
Is the fuse blown?

YES—Go to step 13.

NO—Go to step 12.

12. Connect a voltmeter between the No. 4 terminal of gauge assembly connector B (12P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR B (12P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS indicator circuit in the gauge assembly or poor connection at gauge assembly connector B (12P) and the gauge assembly; if the connection is OK, replace the gauge assembly. ■

NO—Open in the under-dash fuse/relay box No. 5 (7.5 A) fuse circuit, or open in the YEL wire of dashboard wire harness A. If the under-dash fuse/relay box is OK, replace the faulty harness. ■

13. Replace the No. 5 (7.5 A) fuse, then check to see if the indicators comes on.

Do the indicators come on?

YES—The system is OK at this time. ■

NO—Repair short to ground in the under-dash fuse/relay box No. 5 (7.5 A) fuse circuit. ■

Symptom Troubleshooting (cont'd)

SRS indicator does not come on ('04-05 Models)

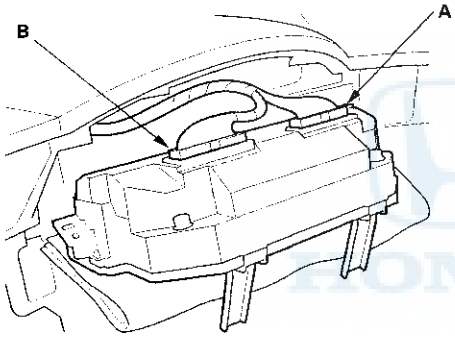
1. Turn the ignition switch ON (II), and see if the other indicators come on (brake system, etc.).

   Do the other indicators come on?

   YES—Go to step 2.

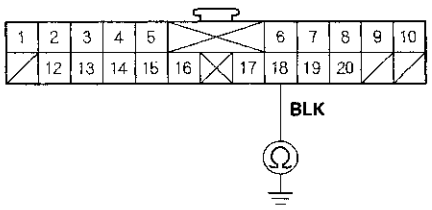
   NO—Go to step 11.

2. Turn the ignition switch OFF, then remove the gauge assembly (see page 22-89). Disconnect gauge assembly connector A and B from the gauge assembly.



3. Measure the resistance between the No. 18 terminal of gauge assembly connector A (22P) and body ground. There should be 0—1.0 Ω.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

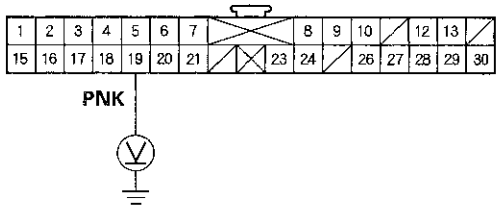
Is the resistance as specified?

YES—Go to step 4.

NO—Open in the BLK wire of dashboard wire harness A or faulty body ground terminal (G501) (see page 22-26). If the body ground terminal is OK, replace dashboard wire harness A. ■

4. Reconnect gauge assembly connector A and B to the gauge assembly. Measure the voltage between the No. 19 terminal of gauge assembly connector B (30P) and body ground within the first 6 seconds after turning the ignition switch ON (II). There should be 8.5 V or less.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly. ■

NO—Go to step 5.

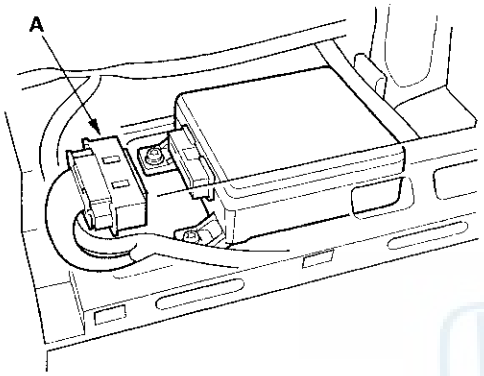
5. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes. Disconnect gauge assembly connector B from the gauge assembly.

6. Disconnect the driver's airbag connector (see page 23-22).

7. Disconnect the passenger's airbag connector (see page 23-22).

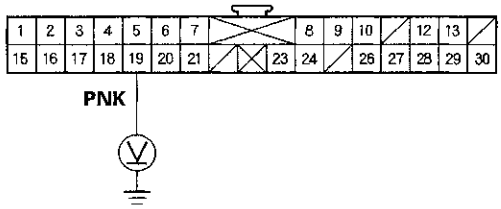
8. Disconnect the both seat belt tensioner connector (see page 23-22).

9. Disconnect SRS unit connector (18P) (A) from the SRS unit.



10. Reconnect the negative cable to the battery. Connect a voltmeter between the No. 19 terminal of gauge assembly connector B (30P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be 0.5 V or less.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to power in the PNK wire of dashboard wire harness A or in the SRS main harness; replace the faulty harness. ■

11. Turn the ignition switch OFF. Check the No. 5 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Go to step 13.

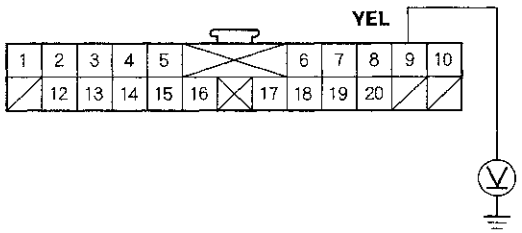
NO—Go to step 12.

(cont'd)

Symptom Troubleshooting (cont'd)

12. Connect a voltmeter between the No. 9 terminal of gauge assembly connector A (22P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS indicator circuit in the gauge assembly or poor connection at gauge assembly connector A (22P) and the gauge assembly; if the connection is OK, replace the gauge assembly. ■

NO—Open in the under-dash fuse/relay box No. 5 (7.5 A) fuse circuit, or open in the YEL wire of dashboard wire harness. If the under-dash fuse/relay box is OK, replace the faulty harness. ■

13. Replace the No. 5 (7.5 A) fuse, then check to see if the indicators comes on.

Do the indicators come on?

YES—The system is OK at this time. ■

NO—Repair short to ground in the under-dash fuse/relay box No. 5 (7.5 A) fuse circuit. ■

SRS indicator does not come on ('06-08 Models)

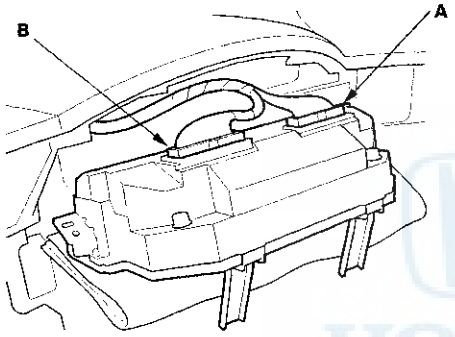
1. Turn the ignition switch ON (II), and see if the other indicators come on (brake system, etc.).

   Do the other indicators come on?

   YES—Go to step 2.

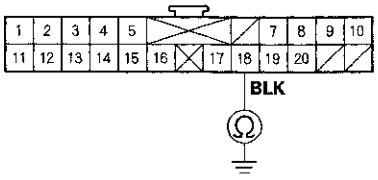
   NO—Go to step 8.

2. Turn the ignition switch OFF, then remove the gauge assembly (see page 22-89). Disconnect gauge assembly connector A and B from the gauge assembly.



3. Measure the resistance between the No. 18 terminal of gauge assembly connector A (22P) and body ground. There should be 0—1.0 Ω.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

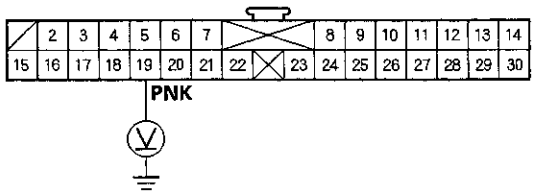
Is the resistance as specified?

YES—Go to step 4.

NO—Open in the BLK wire of dashboard wire harness A or faulty body ground terminal (G501) (see page 22-26). If the body ground terminal is OK, replace dashboard wire harness A. ■

4. Reconnect gauge assembly connector A and B to the gauge assembly. Measure the voltage between the No. 19 terminal of gauge assembly connector B (30P) and body ground within the first 6 seconds after turning the ignition switch ON (II). There should be 11 V or less.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS indicator circuit in the gauge assembly; replace the gauge assembly. ■

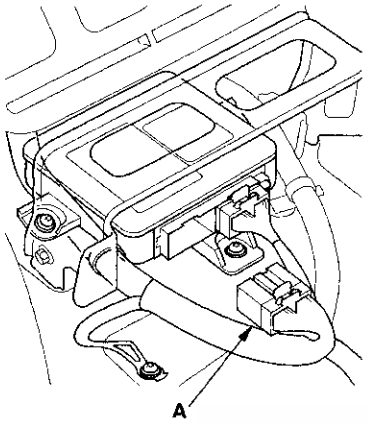
NO—Go to step 5.

5. Turn the ignition switch OFF, then disconnect the negative cable from the battery, then wait for 3 minutes. Disconnect gauge assembly connector B (30P) from the gauge assembly.

(cont'd)

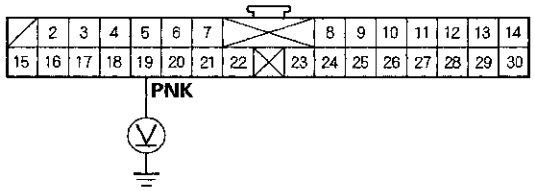
Symptom Troubleshooting (cont'd)

6. Disconnect SRS unit connector A (28P) from the SRS unit.



7. Reconnect the negative cable to the battery. Connect a voltmeter between the No. 19 terminal of gauge assembly connector B (30P) and body ground. Turn the ignition switch ON (II), and measure voltage. There should be 0.5 V or less.

GAUGE ASSEMBLY CONNECTOR B (30P)



Wire side of female terminals

Is the voltage as specified?

YES—Faulty SRS unit; replace the SRS unit (see page 23-179). ■

NO—Short to power in dashboard wire harness A or in the SRS main harness; replace the faulty harness. ■

8. Turn the ignition switch OFF. Check the No. 5 (7.5 A) fuse in the under-dash fuse/relay box.

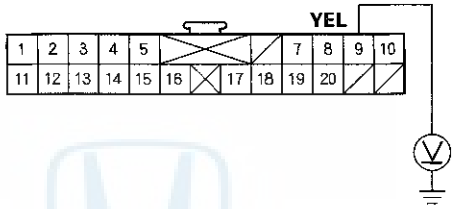
Is the fuse blown?

YES—Go to step 10.

NO—Go to step 9.

9. Connect a voltmeter between the No. 9 terminal of gauge assembly connector A (22P) and body ground. Turn the ignition switch ON (II), and measure the voltage. There should be battery voltage.

GAUGE ASSEMBLY CONNECTOR A (22P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS indicator circuit in the gauge assembly or poor connection at gauge assembly connector A (22P) and the gauge assembly; if the connection is OK, replace the gauge assembly. ■

NO—Open in the under-dash fuse/relay box No. 5 (7.5 A) fuse circuit, or open in the YEL wire of dashboard wire harness A or dashboard wire harness B. If the under-dash fuse/relay box is OK, replace the faulty harness. ■

10. Replace the No. 5 (7.5 A) fuse, then check to see if the indicators comes on.

Do the indicators come on?

YES—The system is OK at this time. ■

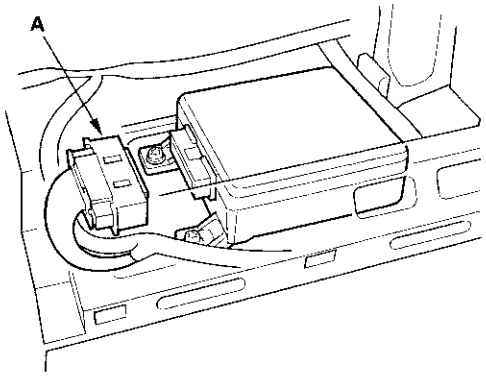
NO—Repair short to ground in the under-dash fuse/relay box No. 5 (7.5 A) fuse circuit. ■

Symptom Troubleshooting (cont'd)

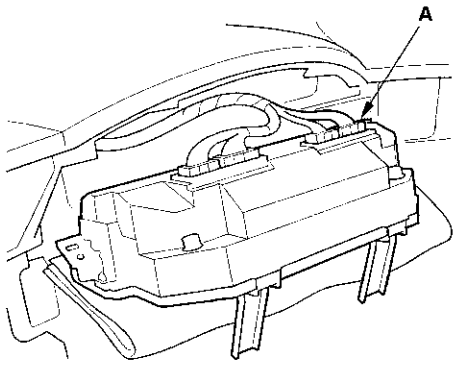
SRS indicator stays on, but no DTCs are stored ('00-03 Models)

NOTE:
- If you cannot retrieve DTCs with the HDS using the SRS menu method, retrieve flash codes with the HDS in SCS mode.
- A new SRS unit must sense the entire system is OK before completing its initial self-test. The most common cause of an incomplete self-test is the failure to replace all deployed parts after a collision, in particular seat belt tensioners (see page 23-163).
- A battery/system voltage above 15.2 V can cause the SRS indicator to come on without storing any DTCs.

1. Disconnect the negative cable from the battery, then wait for 3 minutes.
2. Disconnect the driver's airbag connector (see page 23-22).
3. Disconnect the passenger's airbag connector (see page 23-22).
4. Disconnect the both seat belt tensioner connector (see page 23-22).
5. Disconnect SRS unit connector (18P) (A) from the SRS unit.

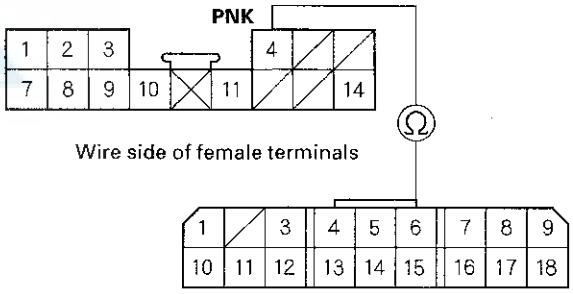


6. Remove the gauge assembly (see page 22-89). Disconnect gauge assembly connector A (14P) from the gauge assembly.



7. Measure the resistance between the No. 4 terminal of gauge assembly connector A (14P) and the No. 6 terminal of SRS unit 18P connector. There should be 1 Ω or less.

GAUGE ASSEMBLY CONNECTOR A (14P)



SRS UNIT 18P CONNECTOR
Wire side of female terminals

Is the resistance as specified?

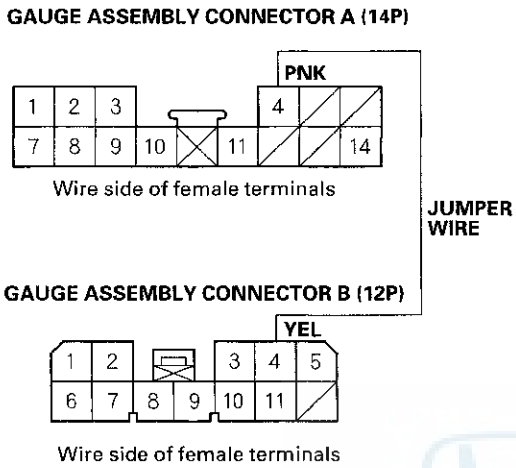
YES—Go to step 8.

NO—Open in the dashboard wire harness A or SRS main harness; replace the faulty harness. ■

8. Reconnect the negative cable to the battery.
9. Reconnect gauge assembly connector A (14P) to the gauge assembly.

10. Turn the ignition switch ON (II).

11. Install a jumper wire between the No. 4 terminal of gauge assembly connector A (14P) and the No. 4 terminal of gauge assembly connector B (12P). The SRS indicator should go off.



Does the SRS indicator go off?

YES—Faulty SRS unit or poor connection at SRS unit 18P connector and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 23-179).■

NO—Faulty SRS indicator circuit in the gauge assembly or poor connection at gauge assembly connector A or B; check the connection. If the connection is OK, replace the gauge assembly.■

SRS indicator stays on, but no DTCs are stored ('04-05 Models)

NOTE:
- If you cannot retrieve DTCs with the HDS using the SRS menu method, retrieve flash codes with the HDS in SCS mode.
- A new SRS unit must sense the entire system is OK before completing its initial self-test. The most common cause of an incomplete self-test is the failure to replace all deployed parts after a collision, in particular seat belt tensioners (see page 23-163).
- A battery/system voltage above 15.2 V can cause the SRS indicator to come on without storing any DTCs.

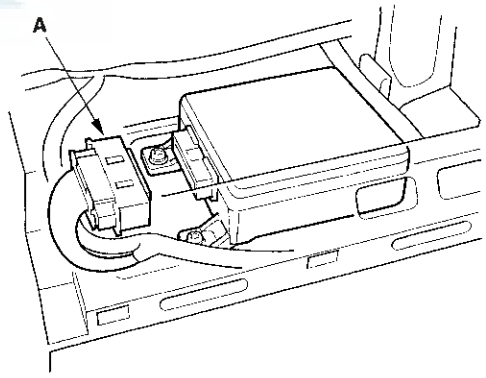
1. Disconnect the negative cable from the battery, then wait for 3 minutes.

2. Disconnect the driver's airbag connector (see page 23-22).

3. Disconnect the passenger's airbag connector (see page 23-22).

4. Disconnect the both seat belt tensioner connector (see page 23-22).

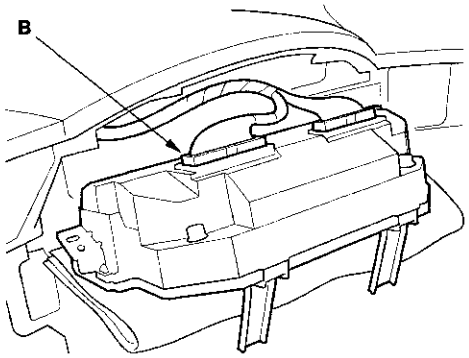
5. Disconnect SRS unit connector (18P) (A) from the SRS unit.



(cont'd)

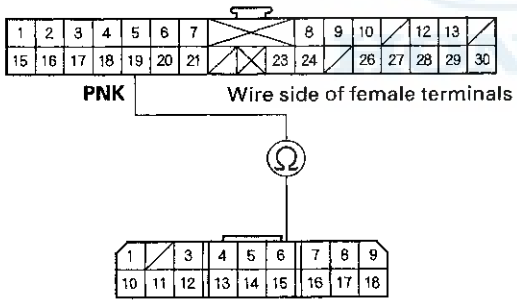
Symptom Troubleshooting (cont'd)

6. Remove the gauge assembly (see page 22-89). Disconnect gauge assembly connector B (30P) from the gauge assembly.



7. Measure the resistance between the No. 19 terminal of gauge assembly connector B (30P) and the No. 6 terminal of SRS unit 18P connector. There should be 1 Ω or less.

GAUGE ASSEMBLY CONNECTOR B (30P)



SRS UNIT 18P CONNECTOR

Wire side of female terminals

Is the resistance as specified?

YES—Go to step 8.

NO—Open in dashboard wire harness A or SRS main harness; replace the faulty harness.■

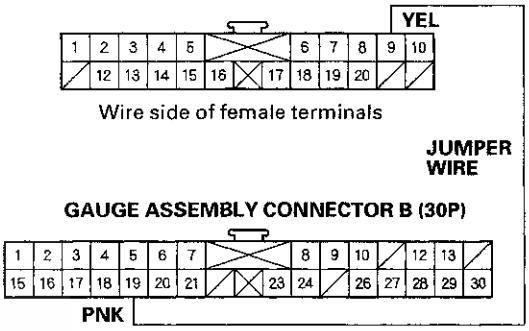
8. Reconnect the negative cable to the battery.

9. Reconnect gauge assembly connector B (30P) to the gauge assembly.

10. Turn the ignition switch ON (II).

11. Install a jumper wire between the No. 9 terminal of the gauge assembly connector A (22P) and the No. 19 terminal of the gauge assembly connector B (30P). The SRS indicator should go off.

GAUGE ASSEMBLY CONNECTOR A (22P)



Does the SRS indicator go off?

YES—Faulty SRS unit or poor connection at SRS unit 18P connector and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 23-179).■

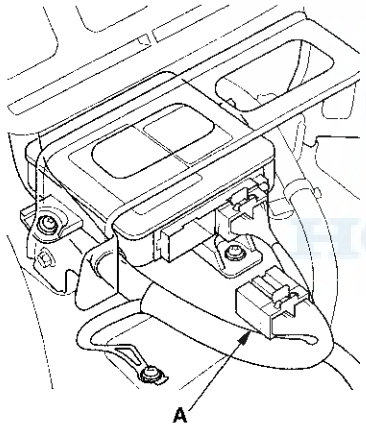
NO—Faulty SRS indicator circuit in the gauge assembly or poor connection at gauge assembly connector A or B; check the connection. If the connection is OK, replace the gauge assembly.■

SRS indicator stays on, but no DTCs are stored ('06-08 Models)

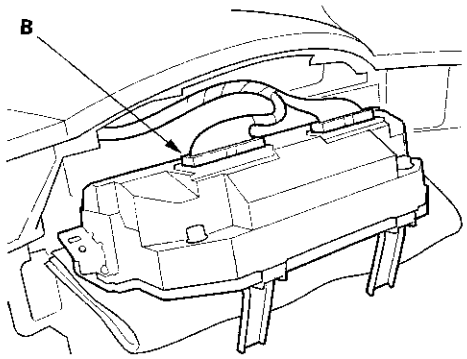
NOTE:
- If you cannot retrieve DTCs with the HDS using the SRS menu method, retrieve flash codes with the HDS in SCS mode.
- A new SRS unit must sense the entire system is OK before completing its initial self-test. The most common cause of an incomplete self-test is the failure to replace all deployed parts after a collision, in particular seat belt tensioners.
- A battery/system voltage above 15.2 V can cause the SRS indicator to come on without storing any DTCs.

1. Disconnect the negative cable from the battery, then wait for 3 minutes.

2. Disconnect SRS unit connector A (28P) from the SRS unit.

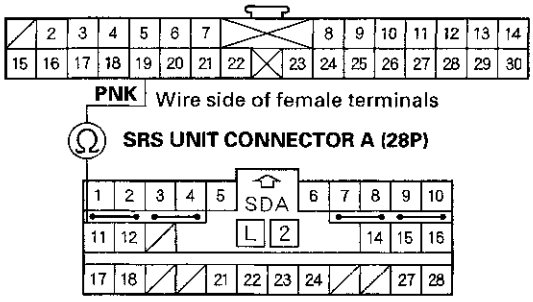


3. Remove the gauge assembly (see page 22-89). Disconnect gauge assembly connector B (30P) from the gauge assembly.



4. Measure the resistance between the No. 19 terminal of gauge assembly connector B (30P) and the No. 11 terminal of SRS unit connector A (28P). There should be 1 Ω or less.

GAUGE ASSEMBLY CONNECTOR B (30P)



Is the resistance as specified?

YES—Go to step 5.

NO—Open in dashboard wire harness A or SRS main harness; replace the faulty harness. ■

5. Reconnect the negative cable to the battery.

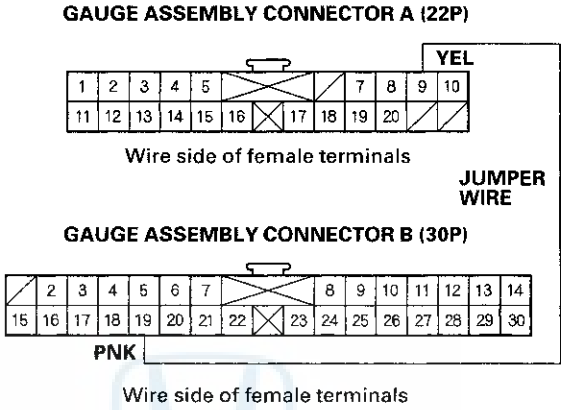
6. Reconnect gauge assembly connector B (30P) to the gauge assembly.

(cont'd)

Symptom Troubleshooting (cont'd)

7. Turn the ignition switch ON (II).

8. Install a jumper wire between the No. 9 terminal of the gauge assembly connector A (22P) and the No. 19 terminal of the gauge assembly connector B (30P). The SRS indicator should go off.



Does the SRS indicator go off?

YES—Faulty SRS unit or poor connection at SRS unit 28P connector and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 23-179). ■

NO—Faulty SRS indicator circuit in the gauge assembly or poor connection at gauge assembly connector A or B; check the connection. If the connection is OK, replace the gauge assembly. ■

Component Replacement/Inspection After Deployment

NOTE: Before doing any SRS repairs, use the HDS SRS menu method to check for DTCs; refer to the DTC Troubleshooting Index for the less obvious deployed parts (seat belt tensioners, etc.)

('00-05 Models)

After a collision where the airbag(s) deployed, replace these items:
- SRS unit
- Deployed airbag(s)
- Seat belt tensioners

During the repair process, inspect these areas:
- Inspect all the SRS wire harnesses. Replace, do not repair, any damaged harnesses.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

After the vehicle is completely repaired, turn the ignition switch ON (II). If the SRS indicator comes on for about 6 seconds and then goes off, the SRS is OK. If the indicator does not function properly, use the HDS SRS Menu Method to read the DTC(s). If this does not retrieve any codes, use the HDS SCS menu method (see page 23-25). If you still cannot retrieve a code, go to SRS Symptom Troubleshooting (see page 23-149).

NOTE: Before doing any SRS repairs, use the HDS SRS menu method to check for DTCs; refer to the DTC Troubleshooting Index for the less obvious deployed parts (seat belt tensioners, etc.)

('06-08 Models)

After a collision where the airbag(s) deployed, replace these items:
- SRS unit
- Deployed airbag(s)
- Seat belt tensioners
- Front impact sensors

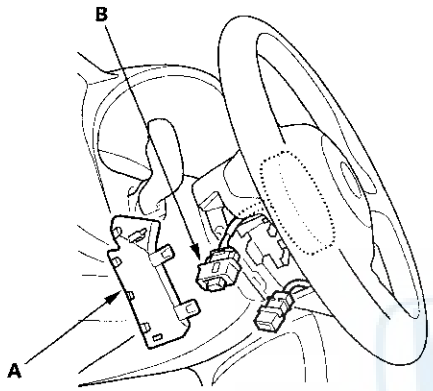
During the repair process, inspect these areas:
- Inspect all the SRS wire harnesses. Replace, do not repair, any damaged harnesses.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

After the vehicle is completely repaired, turn the ignition switch ON (II). If the SRS indicator comes on for about 6 seconds and then goes off, the SRS is OK. If the indicator does not function properly, use the HDS SRS Menu Method to read the DTC(s). If this does not retrieve any codes, use the HDS (see page 23-26). If you still cannot retrieve a code, go to SRS Symptom Troubleshooting (see page 23-155).

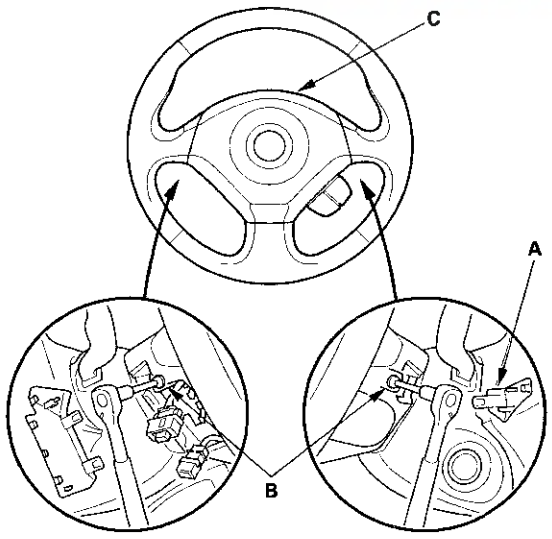
Driver's Airbag Replacement

Removal ('00-05 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag 2P connector (B) from the cable reel.



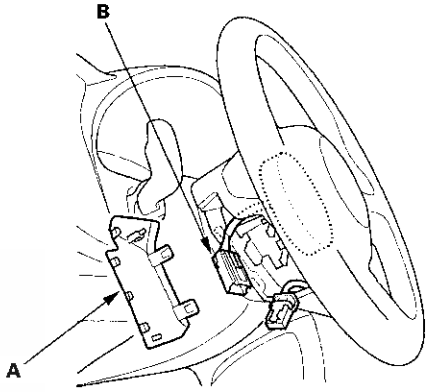
3. Remove the cover (A) from the steering wheel, remove the two TORX bolts (B) using a TORX T30 bit, then remove the driver's airbag (C).



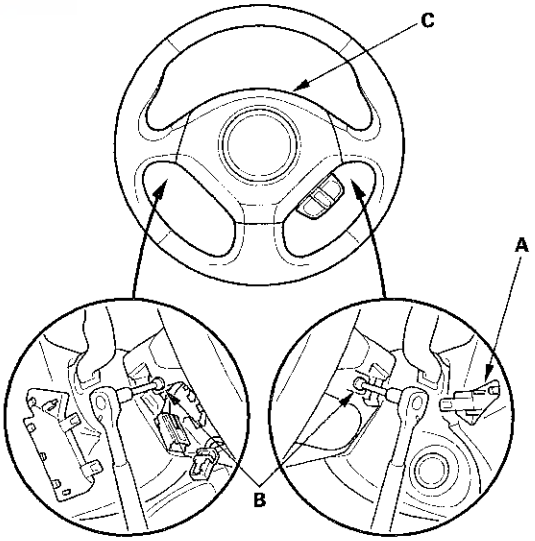
4. Disconnect the horn connector from the steering wheel.

Removal ('06-08 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag 4P connector (B) from the cable reel.



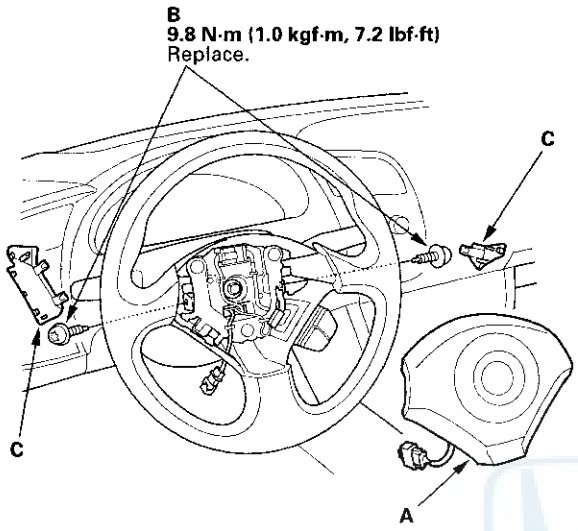
3. Remove the cover (A) from the steering wheel, remove the two TORX bolts (B) using a TORX T30 bit, then remove the driver's airbag (C).



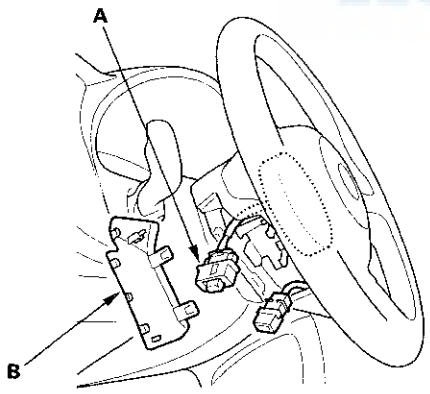
4. Disconnect the horn connector from the steering wheel.

Installation ('00-05 Models)

1. Place the driver's airbag (A) in the steering wheel, and secure it with new TORX bolts (B). Install the covers (C).



2. Connect the driver's airbag 2P connector (A) to the cable reel, then install the access panel (B) on the steering wheel.



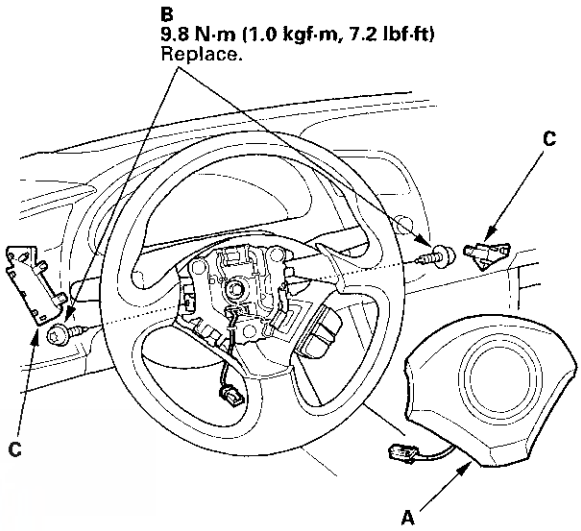
3. Reconnect the negative cable to the battery.

4. After installing the airbag, confirm proper system operation:

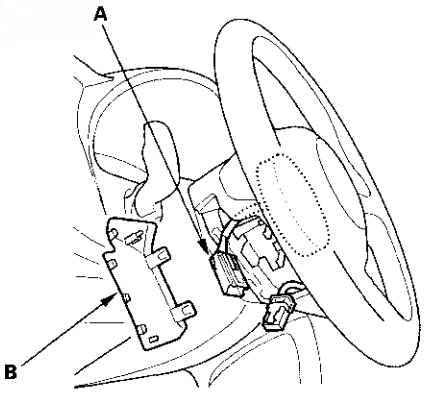
   - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
   - Make sure the horn works.

Installation ('06-08 Models)

1. Place the driver's airbag (A) in the steering wheel, and secure it with new TORX bolts (B). Install the covers (C).



2. Connect the driver's airbag 4P connector (A) to the cable reel, then install the access panel (B) on the steering wheel.



3. Reconnect the negative cable to the battery.

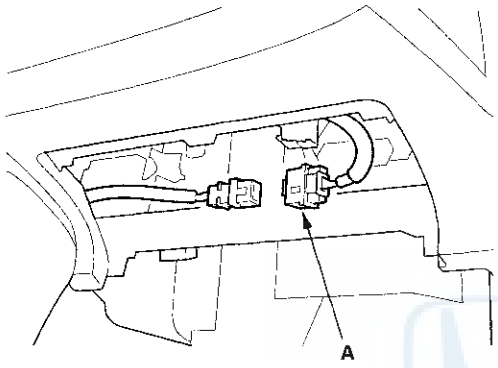
4. After installing the airbag, confirm proper system operation:

   - Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
   - Make sure the horn works.

Passenger's Airbag Replacement

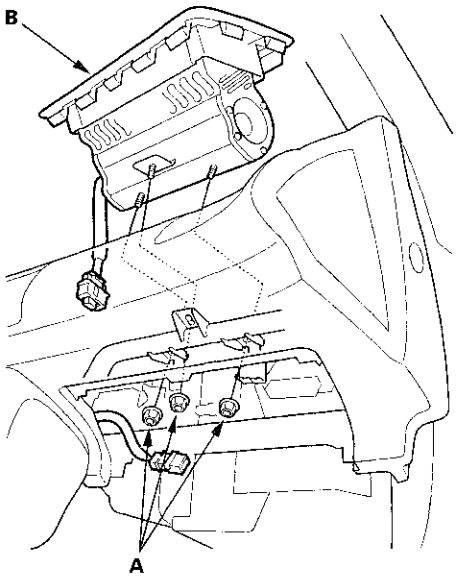
Removal ('00-05 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Remove the passenger's dashboard lower cover (see page 20-86), then disconnect the passenger's airbag 2P connector (A) from the SRS main harness.



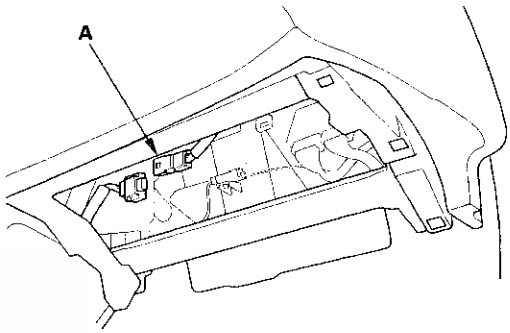
3. Remove the three mounting nuts (A) from the bracket. Cover the passenger's lid and dashboard with a cloth, and pry carefully with a screwdriver to lift the passenger's airbag assembly (B) out of the dashboard.

   NOTE: The passenger's lid has pawls on its side that attach it to the dashboard.



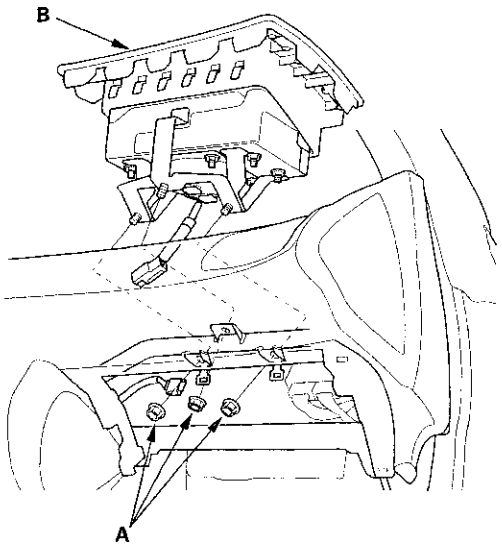
Removal ('06-08 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Remove the passenger's dashboard lower cover (see page 20-86), then disconnect the passenger's airbag 4P connector (A) from the SRS main harness.



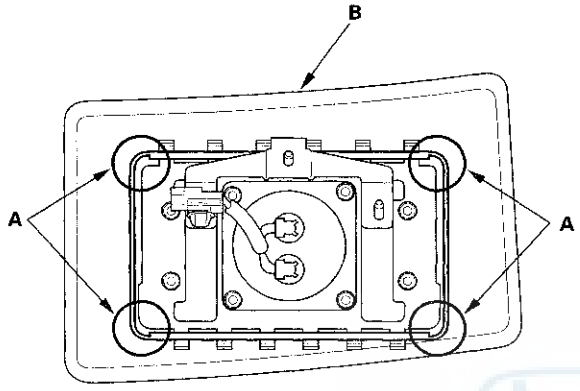
3. Remove the three mounting nuts (A) from the bracket. Cover the passenger's lid and dashboard with a cloth, and pry carefully with a screwdriver to lift the passenger's airbag assembly (B) out of the dashboard. If you are replacing the passenger's lid, go to step 4. If deployed passenger's airbag, replace a new airbag and a new lid as a set.

   NOTE: The passenger's lid has pawls on its side that attach it to the dashboard.



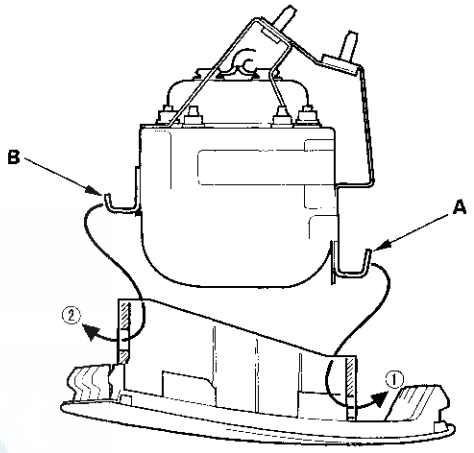
4. Cut the four parts (A) of the passenger's lid (B) as shown, and remove the passenger's airbag.

   NOTE:
   - Always replace the passenger's lid whenever you remove the passenger's airbag from the lid.
   - Replace the passenger's airbag if the airbag mounting hooks or its housing is damage.



5. Insert the hooks (A) of the passenger's airbag housing into the new passenger's lid, then insert the other hooks (B) into the lid.

   NOTE:
   - Make sure there are no objects between the airbag and the passenger's lid.
   - Make sure the airbag is fully seated, and make sure the passenger's lid is not deformed or damaged after the airbag is in place.
   - Do not use tools when detaching the passenger's airbag in order to protect it.

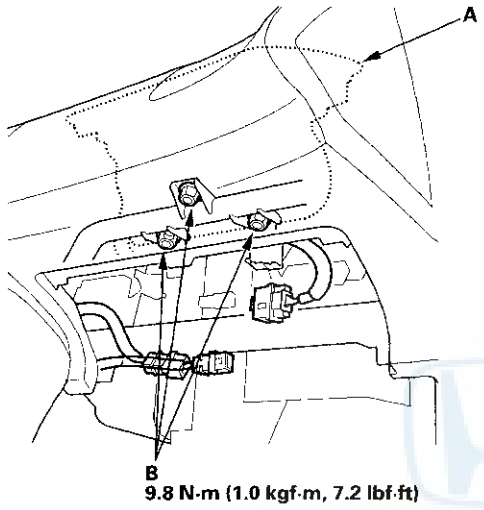


(cont'd)

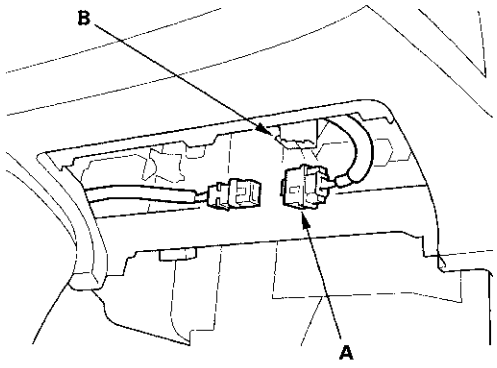
Passenger's Airbag Replacement (cont'd)

Installation ('00-05 Models)

1. Place the passenger's airbag assembly (A) into the dashboard. Tighten the passenger's airbag mounting nuts (B).



2. Connect the passenger's airbag 2P connector (A) to the SRS main harness.
   Attach the passenger's airbag connector to the connector holder (B), then reinstall the passenger's dashboard lower cover (see page 20-86).

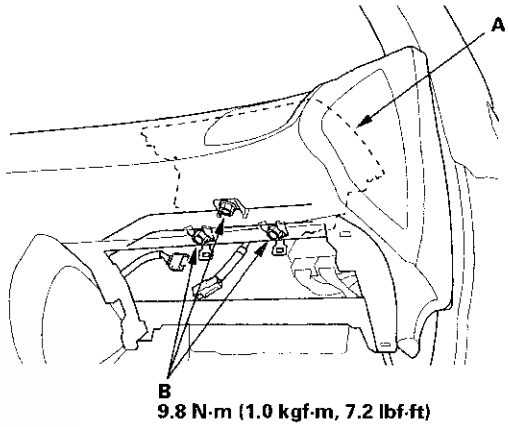


3. Reconnect the negative cable to the battery.

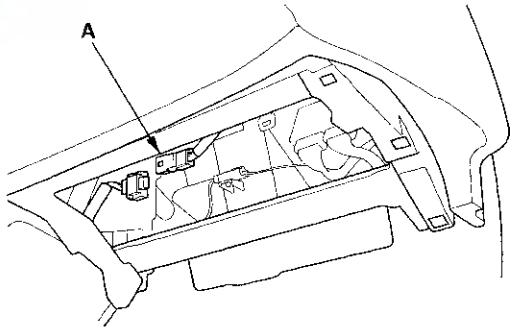
4. After installing the airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Installation ('06-08 Models)

1. Place the passenger's airbag assembly (A) into the dashboard. Tighten the passenger's airbag mounting nuts (B).



2. Connect the passenger's airbag 4P connector (A) to the SRS main harness.
   Then reinstall the passenger's dashboard lower cover (see page 20-86).



3. Reconnect the negative cable to the battery.

4. After installing the airbag, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Airbag and Tensioner Disposal

Special Tools Required
Deployment Tool 07HAZ-SG00500

Before scrapping any airbags (including those in a whole vehicle to be scrapped), the airbags must be deployed. If the vehicle is still within the warranty period, the Honda District Parts and Service Manager must give approval and/or special instructions before deploying the airbags (and seat belt tensioners). Only after the airbags (and seat belt tensioners) have been deployed (as the result of vehicle collision, for example), can they be scrapped. If the airbags (and seat belt tensioners) appear intact (not deployed), treat them with extreme caution. Follow this procedure.

Deploying Airbags In the Vehicle

If an SRS equipped vehicle is to be entirely scrapped, its airbags (and seat belt tensioners) should be deployed while still in the vehicle. The airbags (and seat belt tensioners) should not be considered as salvageable parts and should never be installed in another vehicle.

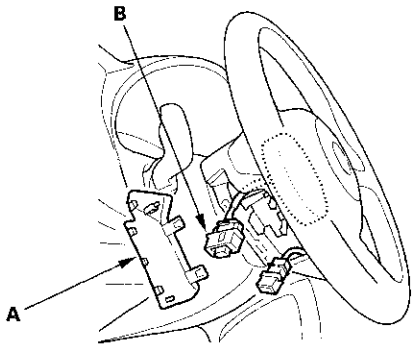
1. Turn the ignition switch OFF, disconnect the negative cable from the battery, then wait for 3 minutes before starting work.

2. Confirm that each airbag and each seat belt tensioner is securely mounted.

3. Confirm that the deployment tool is functioning properly by following the check procedure on the tool label.

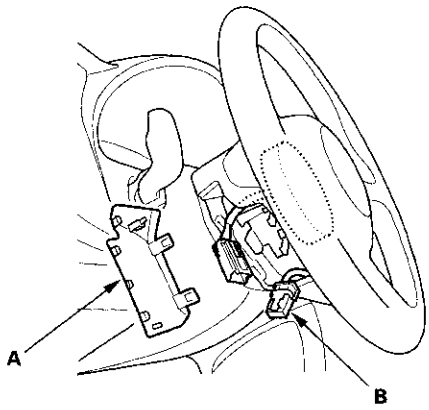
Driver's Airbag
('00-05 Models)

4. Remove the access panel (A), then disconnect the driver's airbag 2P connector (B) from the cable reel.



('06-08 Models)

5. Remove the access panel (A), then disconnect the driver's airbag 4P connector (B) from the cable reel.

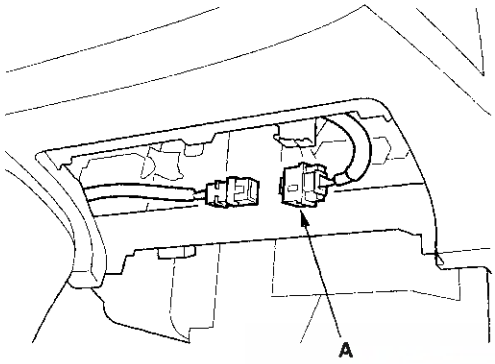


(cont'd)

Airbag and Tensioner Disposal (cont'd)

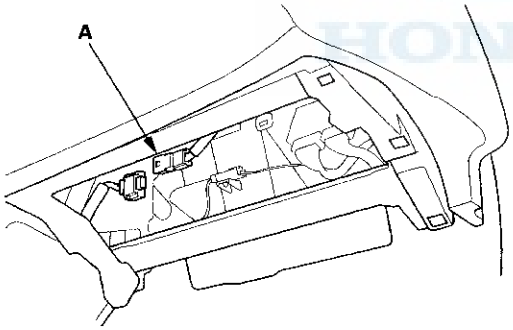
Passenger's Airbag
('00-05 Models)

6. Remove the passenger's dashboard lower cover, then disconnect the passenger's airbag 2P connector (A) from the SRS main harness.



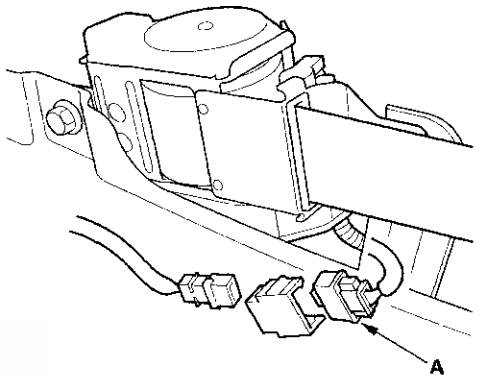
('06-08 Models)

7. Remove the passenger's dashboard lower cover, then disconnect the passenger's airbag 4P connector (A) from the SRS main harness.



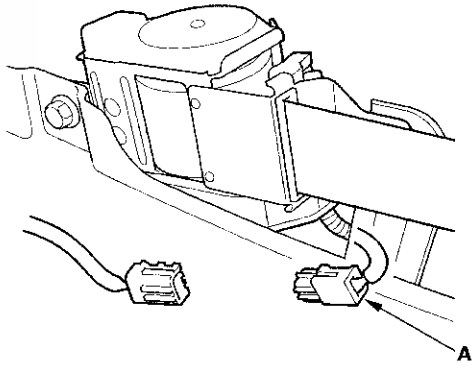
Seat Belt Tensioner
('00-05 Models)

8. Remove the seat belt tensioner (see page 23-5), then disconnect the seat belt tensioner 2P connector (A) from the SRS main harness.

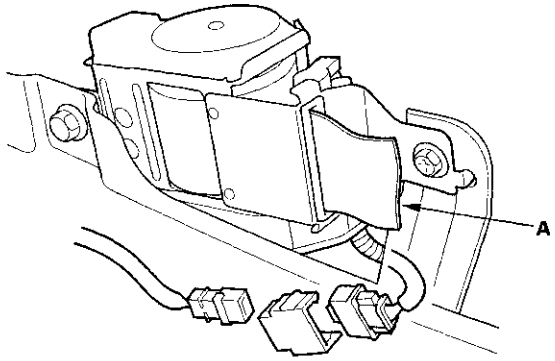


('06-08 Models)

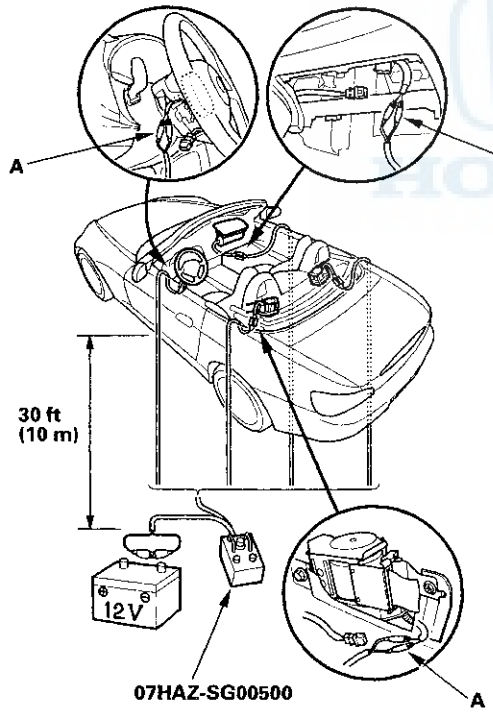
9. Remove the seat belt tensioner (see page 23-5), then disconnect the seat belt tensioner 2P connector (A) from the SRS main harness.



10. Pull the seat belt (A) out all the way and cut it.



11. Cut off the airbag or seat belt tensioner connector, strip the ends of the airbag wires and seat belt tensioner wires (A), and connect the deployment tool alligator clips (A) to the airbags and seat belt tensioners. Place the deployment tool at least 30 feet (10 meters) away from the vehicle.



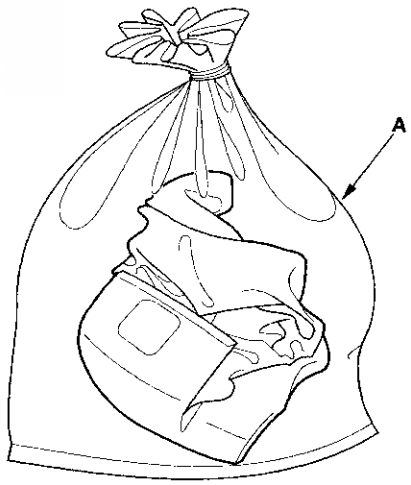
12. Connect a 12 volt battery to the tool.

    - If the green light on the tool comes on, the igniter circuit is defective and cannot deploy the components. Go to Disposal of Damaged Components.
    - If the red light on the tool comes on, the component is ready to be deployed.

13. Push the tool's deployment switch. The airbags and tensioners should deploy (deployment is both highly audible and visible: a loud noise and rapid inflation of the bag, followed by slow deflation).

    - If the airbags deploy and the green light on the tool comes on, continue with this procedure.
    - If a component does not deploy, and the green light comes ON, its igniter is defective. Go to Disposal of Damaged Components.
    - During deployment, the airbags can become hot enough to burn you. Wait 30 minutes after deployment before touching the airbags.

14. Dispose of the complete airbag. No part of it can be reused. Place it in a sturdy plastic bag (A) and seal it securely. Dispose of the deployed airbag according to your local regulations.

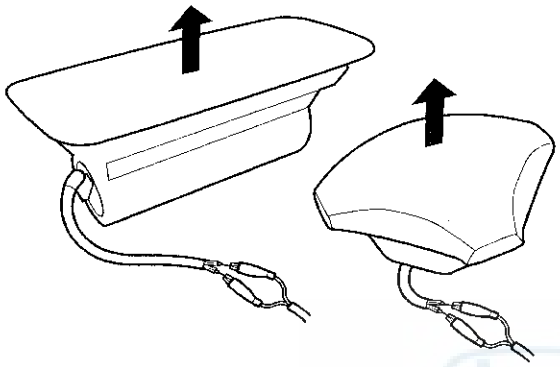


(cont'd)

Airbag and Tensioner Disposal (cont'd)

Deploying Components Out of the Vehicle

If an intact airbag or seat belt tensioner has been removed from a scrapped vehicle, or has been found defective or damaged during transit, storage, or service, it should be deployed as follows:



1. Confirm that the deployment tool is functioning properly by following the check procedure on this page or on the tool label.
2. Position the airbag face up, outdoors, on flat ground, at least 30 feet (10 meters) from any obstacles or people.
3. Follow steps 8 through 13 of the in-vehicle deployment procedure.

   NOTE: '06-08 models; the driver's and passenger's airbags have dual inflators. Twist each pair of unlike colored wires together, and clip an alligator clip to each pair.

Disposal of Damaged Components

1. If installed in the vehicle, follow the removal procedure for the driver's airbag (see page 23-164), passenger's airbag (see page 23-166), and seat belt tensioner (see page 23-5).
2. In all cases, make a short circuit by cutting, stripping, and twisting together the two airbag inflator wires and seat belt tensioner wires.
3. Package the airbag or seat belt tensioner in the same packaging that the new replacement part came in.
4. Mark the outside of the box "DAMAGED AIRBAG NOT DEPLOYED" or "DAMAGED SEAT BELT TENSIONER NOT DEPLOYED" so it does not get confused with your parts stock.
5. Contact your Honda District Parts and Service Manager for how and where to return it for disposal.

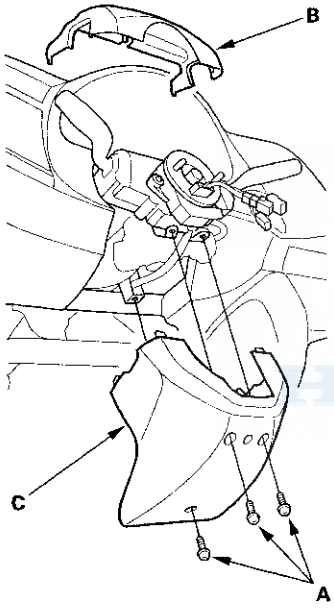
Deployment Tool Check

1. Connect the yellow clips to both switch protector handles on the tool; connect the tool to a battery.
2. Push the operation switch: green means the tool is OK; red means the tool is faulty.
3. Disconnect the battery and the yellow clips.

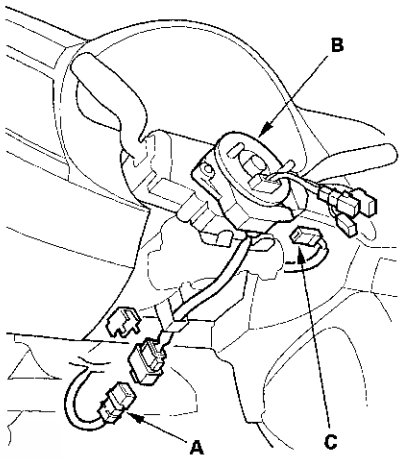
Cable Reel Replacement

Removal ('00-05 Models)

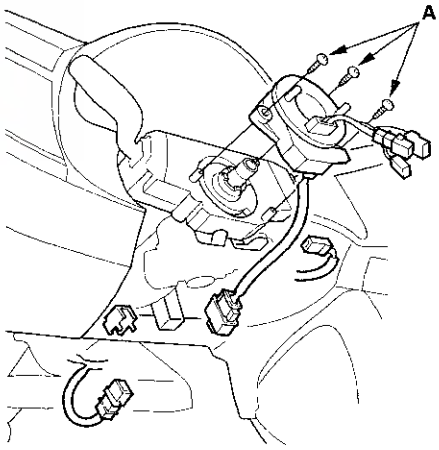
1. Make sure the front wheels are aligned straight ahead.
2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
3. Remove the driver's airbag (see page 23-164).
4. Remove the steering wheel (see page 17-6).
5. Remove the column cover screws (A), then remove the column covers (B, C).



6. Disconnect the SRS main harness 2P connector (A) from the cable reel (B), then disconnect the dashboard wire harness 4P connector (C) from the cable reel.



7. Remove the screws (A) from the cable reel, then remove the cable reel from the column.

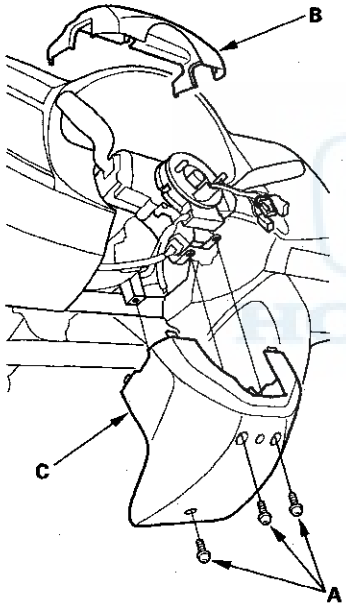


(cont'd)

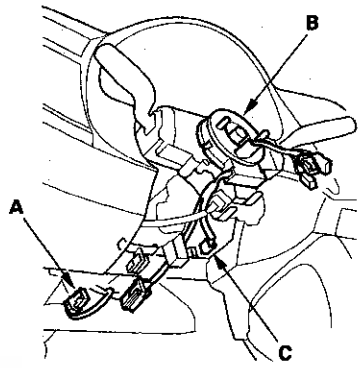
Cable Reel Replacement (cont'd)

Removal ('06-08 Models)

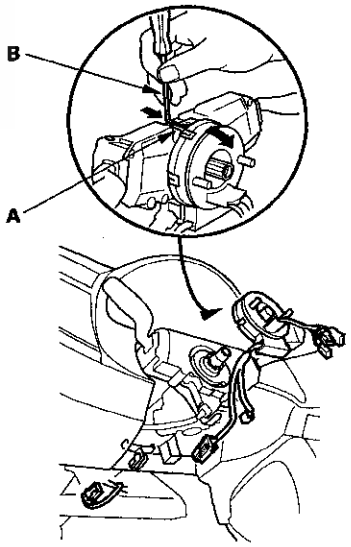
1. Make sure the front wheels are aligned straight ahead.
2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
3. Remove the driver's airbag (see page 23-164).
4. Remove the steering wheel (see page 17-6).
5. Remove the column cover screws (A), then remove the column covers (B, C).



6. Disconnect the SRS main harness 4P connector (A) from the cable reel (B), then disconnect the dashboard wire harness 3P connector (C) from the cable reel.

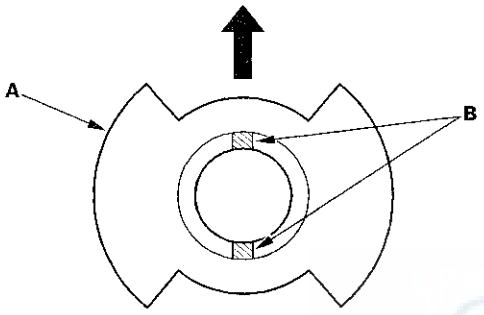


7. Release the lock tab (A) under the cable reel connector with a 90 ° hook shaped tool (B). Slide the tool below the cable reel connector just above the lock tab.

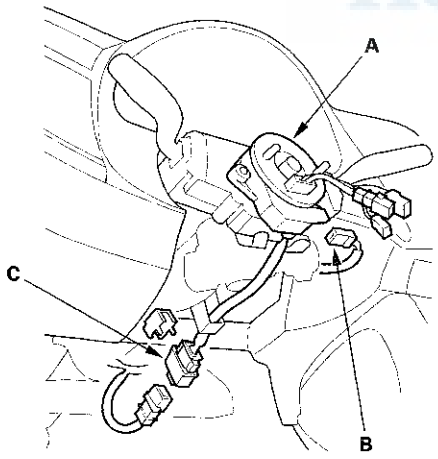


Installation ('00-05 Models)

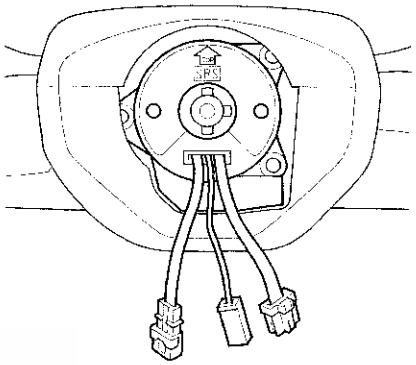
1. Before installing the steering wheel, the front wheels should be aligned straight ahead.
2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
3. Set the turn signal canceling sleeve (A) so that the projections (B) are aligned vertically.



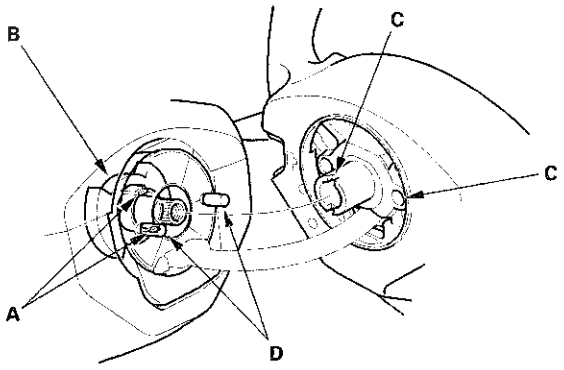
4. Carefully install the cable reel (A) on the steering column shaft. Then connect the 4P connector (B) to the cable reel, and connect the 2P connector (C) to the SRS main harness.



5. Install the steering column covers.
6. If necessary, center the cable reel. (New replacement cable reels come centered.) Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise (about 2 1/2 turns) until the arrow mark on the cable reel label points straight up.



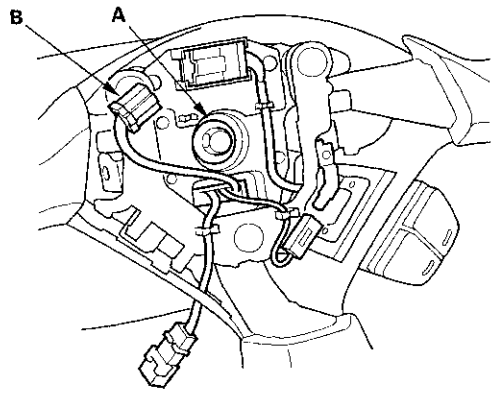
7. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



(cont'd)

Cable Reel Replacement (cont'd)

8. Install the steering wheel bolt (A), and tighten it to 39 N·m (4.0 kgf·m, 29 lbf·ft).

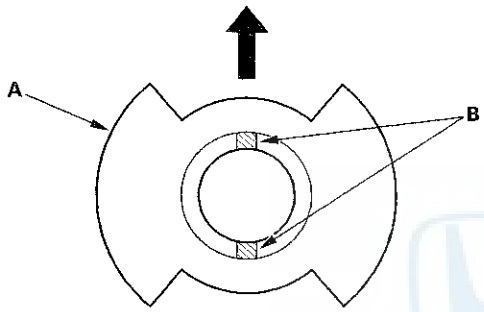


9. Connect the cruise control switch connector (B).
10. Install the driver's airbag (see page 23-165).
11. Reconnect the negative cable to the battery.
12. After installing the cable reel, confirm proper system operation:

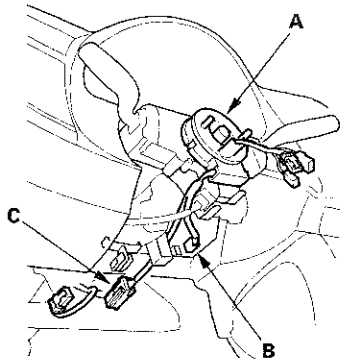
- Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
- After the SRS indicator has turned off, turn the steering wheel fully left and right to confirm the SRS indicator does not come on.
- Make sure the horn works.
- Make sure there are no DTCs.

Installation ('06-08 Models)

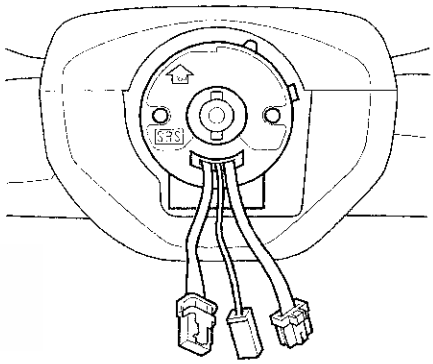
1. Before installing the steering wheel, the front wheels should be aligned straight ahead.
2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
3. Set the turn signal canceling sleeve (A) so that the projections (B) are aligned vertically.



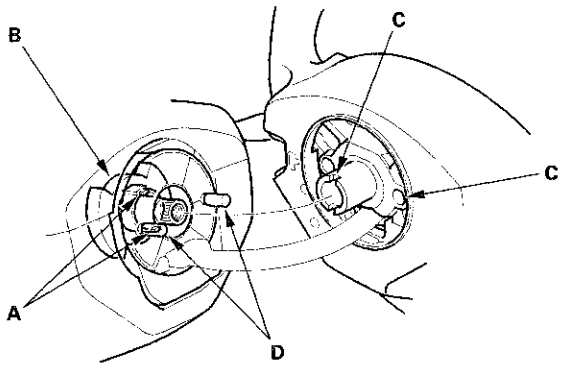
4. Carefully install the cable reel (A) on the steering column shaft. Then connect the 3P connector (B) to the cable reel, and connect the 4P connector (C) to the SRS main harness.



5. Install the steering column covers.
6. If necessary, center the cable reel. (New replacement cable reels come centered.) Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise (about 2 1/2 turns) until the arrow mark on the cable reel label points straight up.



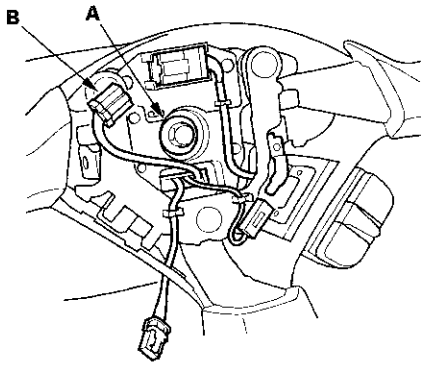
7. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



(cont'd)

Cable Reel Replacement (cont'd)

8. Install the steering wheel bolt (A), and tighten it to 39 N·m (4.0 kgf·m, 29 lbf·ft).



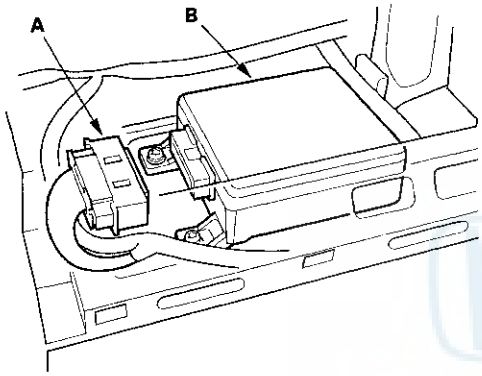
9. Connect the cruise control switch connector (B).
10. Install the driver's airbag (see page 23-165).
11. Reconnect the negative cable to the battery.
12. After installing the cable reel, confirm proper system operation:

- Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.
- After the SRS indicator has turned off, turn the steering wheel fully left and right to confirm the SRS indicator does not come on.
- Make sure the horn works.
- Make sure the cruise control works.
- Make sure there are no DTCs.

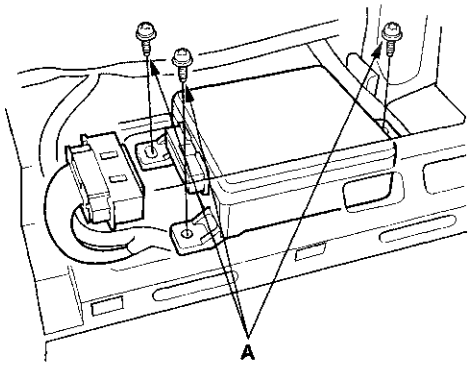
SRS Unit Replacement

Removal ('00-05 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Disconnect the airbag connectors and seat belt tensioner connectors (see page 23-23).
3. Remove the center console (see page 20-80) and audio unit (see page 22-288).
4. Disconnect the SRS unit connector (18P) (A) from the SRS unit (B).



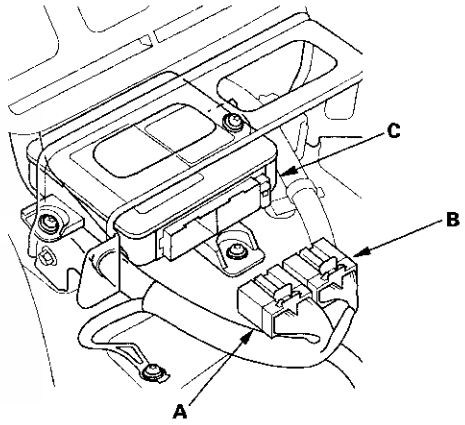
5. Remove the three TORX bolts (A) from the SRS unit, then pull out the SRS unit from the bracket.



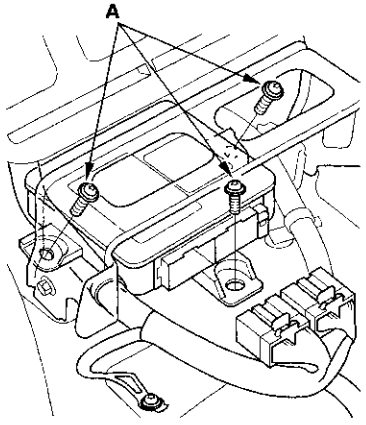
Removal ('06-08 Models)

NOTE: If you are disconnecting SRS unit connector.

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Disconnect both seat belt tensioner connectors (see page 23-23).
3. Remove the center console (see page 20-80) and audio unit (see page 22-288).
4. Disconnect the SRS unit connect A (28P) and B (28P) from the SRS unit (C).



5. Remove the three TORX bolts (A) from the SRS unit, then pull out the SRS unit from the bracket.



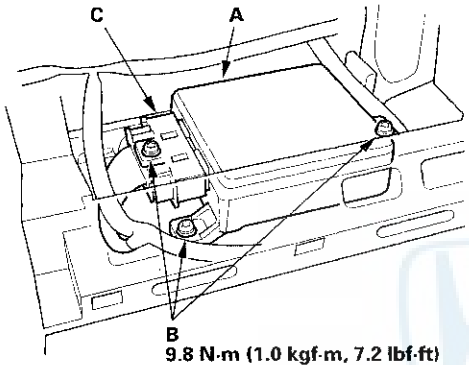
(cont'd)

SRS Unit Replacement (cont'd)

Installation ('00-05 Models)

1. Install the SRS unit (A) with new TORX bolts (B), then connect the SRS unit connector (18P) (C) to the SRS unit; push it into position until it clicks.

   NOTE: When tightening the TORX bolts to the specified torque after replacement, be careful to turn them in so that their heads rest squarely on the brackets.



9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
Replace.

2. Reinstall the center console (see page 20-80) and audio unit (see page 22-288).

3. Reconnect the airbag connectors and seat belt tensioner connectors (see page 23-23).

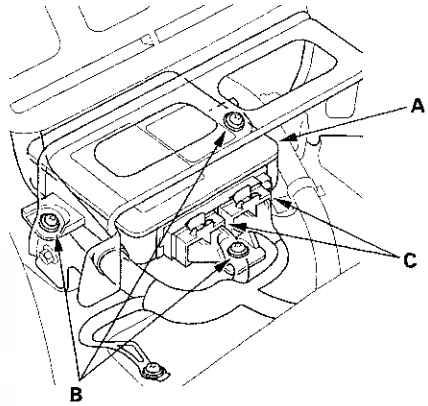
4. Reconnect the negative cable to the battery.

5. After installing the SRS unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Installation ('06-08 Models)

1. Install the SRS unit (A) with new TORX bolts (B), then connect the connectors (C) to the SRS unit; push them into position until they clicks.

   NOTE: Be sure the SRS unit is setting squarely against its bracket before torquing the TORX bolts.



9.8 N·m (1.0 kgf·m, 7.2 lbf·ft)
Replace.

2. Reinstall the center console (see page 20-80) and audio unit (see page 22-288).

3. Reconnect both seat belt tensioner connectors (see page 23-23).

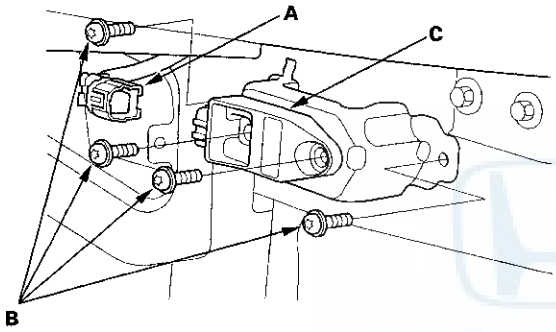
4. Reconnect the negative cable to the battery.

5. After installing the SRS unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Front Impact Sensor Replacement

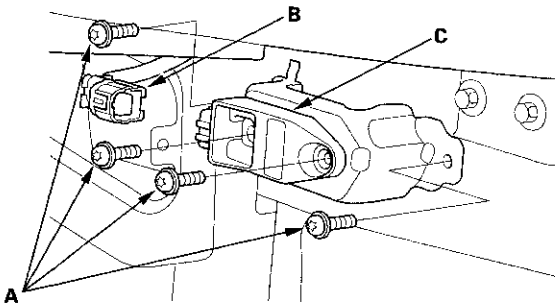
Removal ('06-08 Models)

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Disconnect the driver's airbag 4P connector, the passenger's airbag 4P connector, and both seat belt tensioner 2P connectors (see page 23-23).
3. Remove the front bumper (see page 20-105).
4. Disconnect the engine compartment wire harness 2P connector (A), and using a TORX T30 bit, remove the TORX bolts (B), then remove the front impact sensor (C).



Installation

1. Install the front impact sensor with new TORX bolts (A), then connect the engine compartment wire harness 2P connector (B) to the front impact sensor (C).



9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)
Replace.

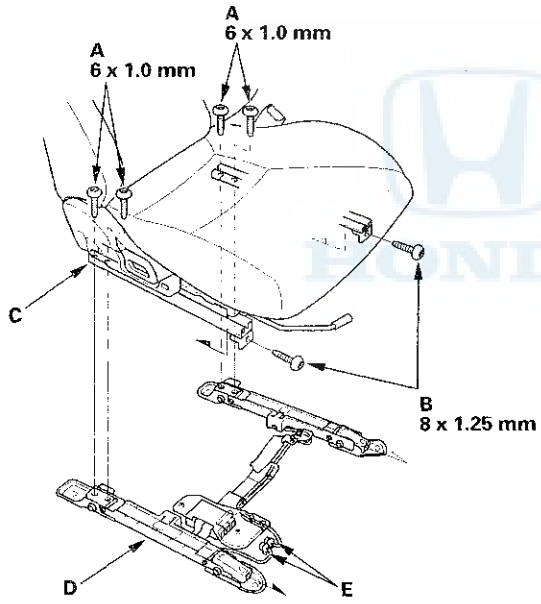
2. Reconnect the driver's airbag 4P connector, the passenger's airbag 4P connector, and both seat belt tensioner 2P connectors (see page 23-23).
3. Reconnect the negative cable to the battery.
4. Install all removed parts.
5. After installing the front impact sensor, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Passenger's Weight Sensor Replacement

Removal ('06-08 Models)

NOTE: Removal of the passenger's weight sensors must be performed according to the precautions/ procedures described at the beginning of SRS section (see page 23-13).

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Remove the passenger's seat assembly (see page 20-93).
3. Remove the 6 mm TORX bolts (A) and 8 mm TORX bolts (B) attaching the seat track (C) to the passenger's weight sensors (D).

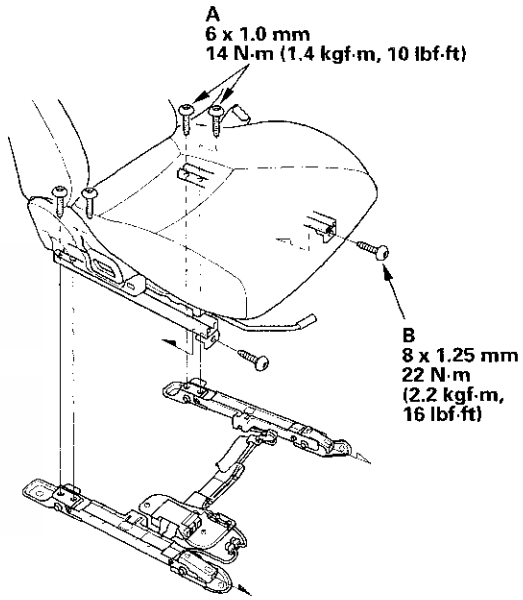


4. Disconnect the sensors connectors (E) from the passenger's weight sensor unit, then remove the passenger's weight sensors.

Installation

NOTE: Be sure to install the harness wires so they are not pinched or interfering with other parts.

1. Install the new passenger's weight sensors with 6 mm TORX bolts (A) and 8 mm TORX bolts (B) under the seat track.



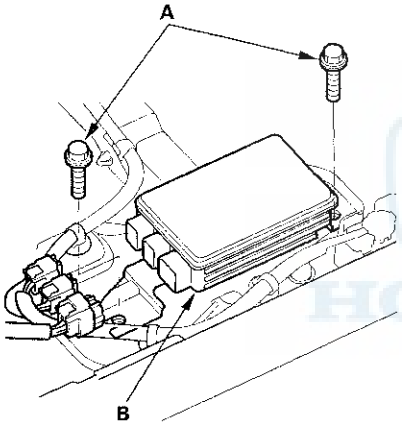
2. Reinstall the passenger's seat (see page 20-93).
3. Reconnect the negative cable to the battery.
4. Calibrate the passenger's weight sensor unit (see page 23-30).
5. After installing the passenger's weight sensors, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come for about 6 seconds and then go off.

Passenger's Weight Sensor Unit Replacement

Removal ('06-08 Models)

NOTE: Review the seat replacement procedure in the body section (see page 20-93) before performing repair or service.

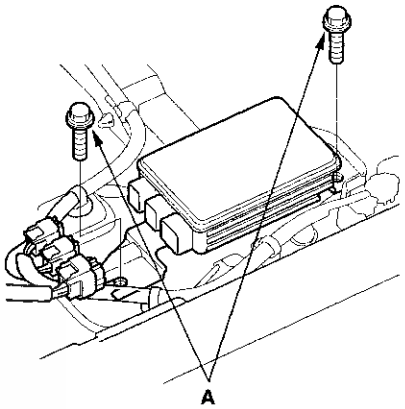
1. Slide the seat all the way to the rear.
2. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
3. Disconnect the passenger's airbag 4P connector (see step 2 on page 23-23).
4. Disconnect the connectors. Remove the mounting bolts (A) and the passenger's weight sensor unit (B) from the seat riser.



Installation

NOTE: Be sure to install the harness wires so they are not pinched or interfering with other parts.

1. Place the passenger's weight sensor unit on the seat riser. Tighten the two mounting bolts (A) and connect the connectors.



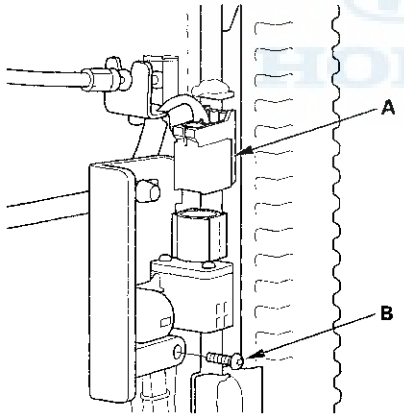
2. Reconnect the passenger's airbag 4P connector (see page 23-23).
3. Reconnect the negative cable to the battery.
4. Calibrate the passenger's weight sensor unit (see page 23-30).
5. After installing the passenger's weight sensor unit, confirm proper system operation: Turn the ignition switch ON (II); the SRS indicator should come on for about 6 seconds and then go off.

Driver's Seat Position Sensor Replacement

Removal ('06-08 Models)

NOTE:
- Removal of the driver's seat position sensor must be performed according to the precautions/procedures described at the beginning of this section (see page 23-13).
- Do not turn the ignition switch ON (II), and do not connect the battery cable while removing the driver's seat position sensor.

1. Disconnect the negative cable from the battery, then wait for 3 minutes before starting work.
2. Disconnect the driver's airbag 4P connector (see step 2 on page 23-23).
3. Remove the driver's seat assembly (see page 20-93).
4. Disconnect the rear harness 2P connector (A) from the driver's seat position sensor.

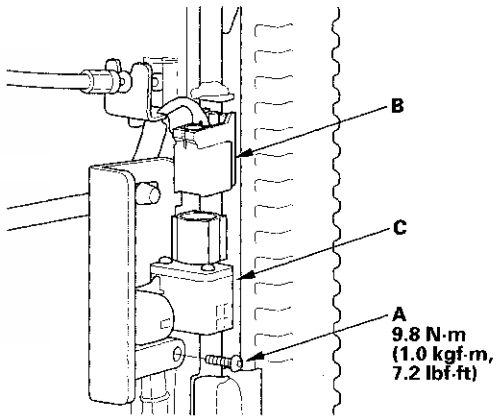


5. Using a TORX T30 bit, remove the TORX bolt (B), then remove the driver's seat position sensor.

Installation

NOTE:
- Be sure to install the harness wires so they are not pinched or interfering with other parts.
- Do not turn the ignition switch ON (II), and do not connect the battery cable while installing the driver's seat position sensor.
- After installing the driver's seat position sensor, make sure it is clean. Keep it away from dust.

1. Install the driver's seat position sensor with a TORX bolt (A), then connect the rear harness 2P connector (B) to the driver's seat position sensor (C).

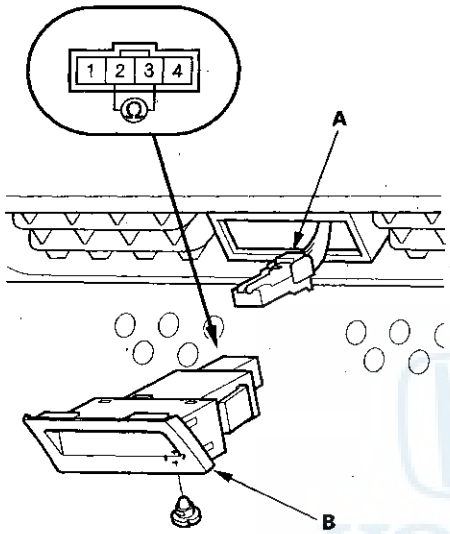


2. Install the driver's seat assembly (see page 20-93).
3. Reconnect the driver's airbag 4P connector.
4. Reconnect the negative cable to the battery.
5. Check the operation of the driver's seat position sensor with the HDS (see page 23-32).

Passenger's Airbag Cutoff Indicator Illumination Bulb Test

('06-08 Models)

1. Remove the dashboard radio panel (see page 20-84).
2. Push out the passenger's airbag cutoff indicator from behind the radio panel.



3. Disconnect the 4P connector (A) from the passenger's airbag cutoff indicator (B).
4. Check for continuity between the No. 2 and No. 3 terminals of the indicator. If there is no continuity, replace the bulb.
5. Install the parts in the reverse order of removal.

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