

## Spark Plug replacement DIY

### Time:

30-60 minutes start to finish, including laying out and putting away tools

Honda calls for the plugs to be replaced (in North America) every 100k mi or seven years (typically 60k-80k mi).

### What you'll need:

- 5mm Allen Key/hex for plug cover
- 10mm socket for the ignition coil bolts
- Spark Plug Socket (5/8" or 16mm)
- Short (2-4") and medium (6-8") length socket extensions
- Torque wrench for 8-20 #ft range
- Rubber mallet/hammer (to "snap" bolts loose)
- Some electrical tape to tape the spark plug socket to the extension
- Wire gap feeler gauge - DO NOT use a slide gap tool (see below for details on the difference)
- 4 spark plugs - OEM (and widely accepted as the best option for stock) is NGK (part no. 7772) PFR7G-11S Laser Platinum Spark Plug

You can get them for \$10 ea. at Advance Auto, or ~\$20 at your local Honda dealer.

[Advance Auto Parts Link](#)

- Anti-seize lubrication if you do not use NGK plugs. NGK Laser Platinum plugs (and most other NGK plugs) have anti-seize on them already as a Trivalent coating



! - Spark plug gap should be around .039"-.043"/ 1.0mm-1.1mm - check it at the store when you buy them. You don't want to re-gap if possible because you may break/crack the electrode, but just be careful if you do. **Do not expect any plug to come gapped correctly.** These days plugs generally come gapped for vehicle specific applications, but there's always the random bad gap. If one plug has a larger gap than others but its still within spec, I'd put it in the #4 cylinder (closest to the firewall).

Per NGK, how to gap a precious metal plug - <http://docs.google.com/viewer?a=v&pid=site...INmNkNTQwMjc1OQ>

Honda Service Manual Guidelines:

Electrode Gap:

Standard (New): 1.0 1.1mm (0.039 - 0.043 in.)

Service Limit: 1.3mm (0.051in)

### Directions:

Make sure all your tools are in order.



Start off by taping the spark plug socket to the medium-length extension with some electrical tape. This is good for ensuring the socket doesn't come off the extension when replacing the plugs. (If it gets stuck on the spark plug, you'll have to remove that plug and start over.)



On a Cold engine:

Working from the right side of the car, use the 5mm allen key/hex to remove the four bolts holding the plug cover on. Insert your allen wrench or hex and try and "snap" them loose - if you apply slow steady pressure you can strip the bolts, so just be careful and make sure the tool is properly seated. A rubber mallet comes in handy for applying quick force to the bolt. I find its best to use an allen wrench to get the bolt unstuck, then the hex to quickly unscrew the bolt.



Remove the cover and bolts, and place them outside the engine bay somewhere. Now you have access to the ignition coils.



Next step is to remove the ignition coil retainer bolts. Use a 10mm socket on a short extension to unbolt each ignition coil (once again, "snap" them loose with a mallet and quick force), and pull to extract it from

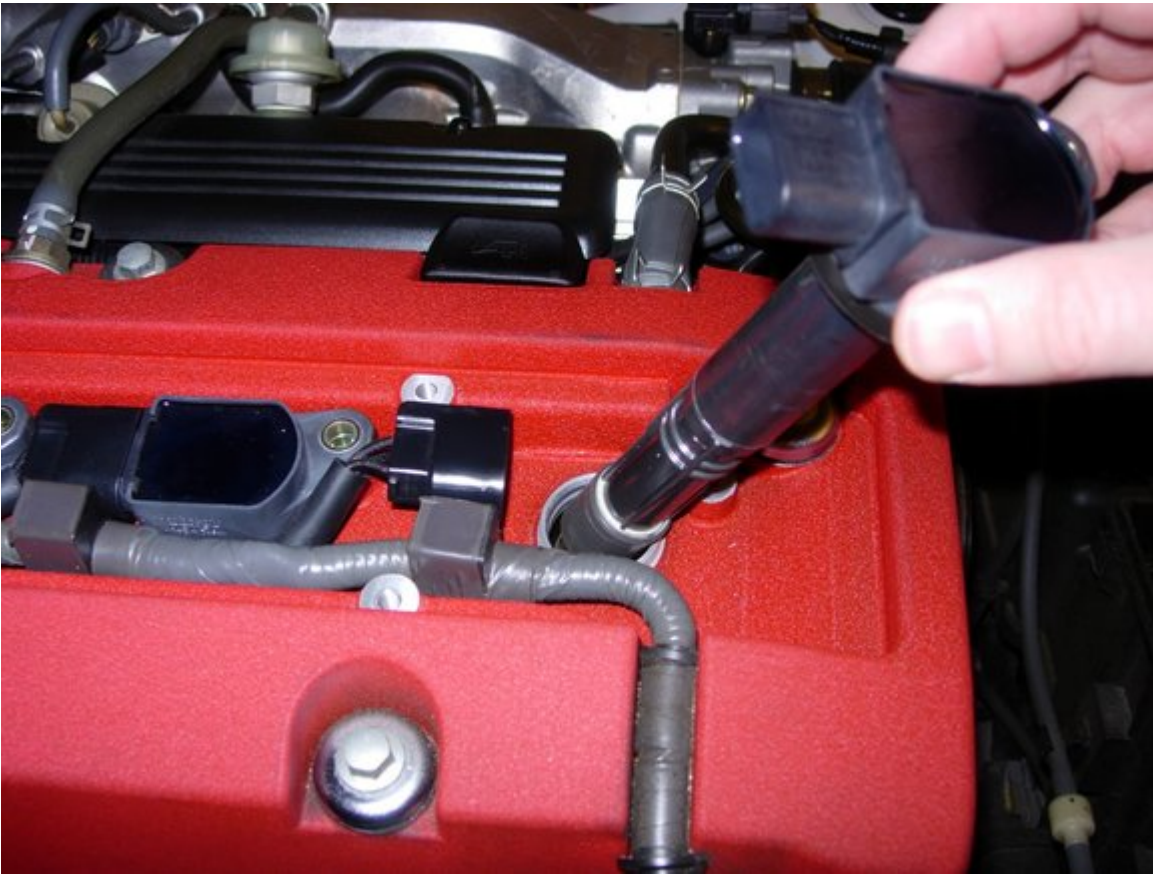
the plug. Place the 10mm bolts someplace safe outside the engine bay.

Now remove all the ignition coils. I work front to back, from the bumper to the passenger compartment. Dust off the area, maybe use some compressed air, to make sure its as clean as possible. You don't want debris falling into the cylinders.

Now that you can lift each ignition coil up, you can access a clip that holds the wiring harness to the ignition coil - it is on the side that faces the intake. Lift the coil a bit, squeeze the clip, pull the wiring harness off of the ignition coil, and pull the coil out. The trick here is to apply pressure to the rearmost part of the clip, and tug and push there while trying to turn your thumbs away from each other, like if you were snapping a carrot in two. Place the coils somewhere safe, outside the engine bay.







Now, use the 5/8" or 16mm spark plug socket on the medium length extension to remove the spark plug. Make sure you properly seat the socket on the plug - you don't want to break the plug off in the engine! Again you want to "snap" the plug loose - make sure you have a good seat. A rubber mallet will be helpful to break the spark plug's seal against the engine - be careful of stripping the spark plug hex - you don't want to deal with a stripped spark plug!



After you get a spark plug out, I replace that plug immediately with a new plug since you have all the tools at hand already. Before you insert your new plugs, confirm your gap again - Honda states: Standard (New): 1.0 - 1.1mm (0.039 - 0.043 in.).

If you need to, be careful how you gap your plugs - you do not want to damage the ceramic or the precious metal electrode in the middle of the ceramic! To gap properly, you use a wire gap tool, and you adjust the electrode at its base, pivoting against the outer metal threading, NOT the ceramic or precious metal tip.

Here are NGK's directions on how to gap:  
<http://docs.google.com/viewer?a=v&pid=site...INmNkNTQwMjc1OQ>

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**Important note!**

If you use NGK plugs, they use a "Tivalent coating" that replaces anti-seize lubrication. This coating is designed to break away from the plug when you remove them after initial installation. Do not apply anti-seize to new NGKs or you will over-lube the plugs and you will not get a correct seat - in other words, they'll be more likely to back out.

NGK's tech note - <http://docs.google.com/viewer?a=v&pid=site...1NTVjMDNhOTA5Yw>

**If you do NOT use NGK plugs:**

Take a single plug and apply a light coat of anti-seize to the threads - try to avoid lubing too close to the electrode. This will help get the plugs off next time you change them, but be careful about applying too much or the plugs will back out of the engine. Go ahead and lube all the plugs at once, before you start replacing them.

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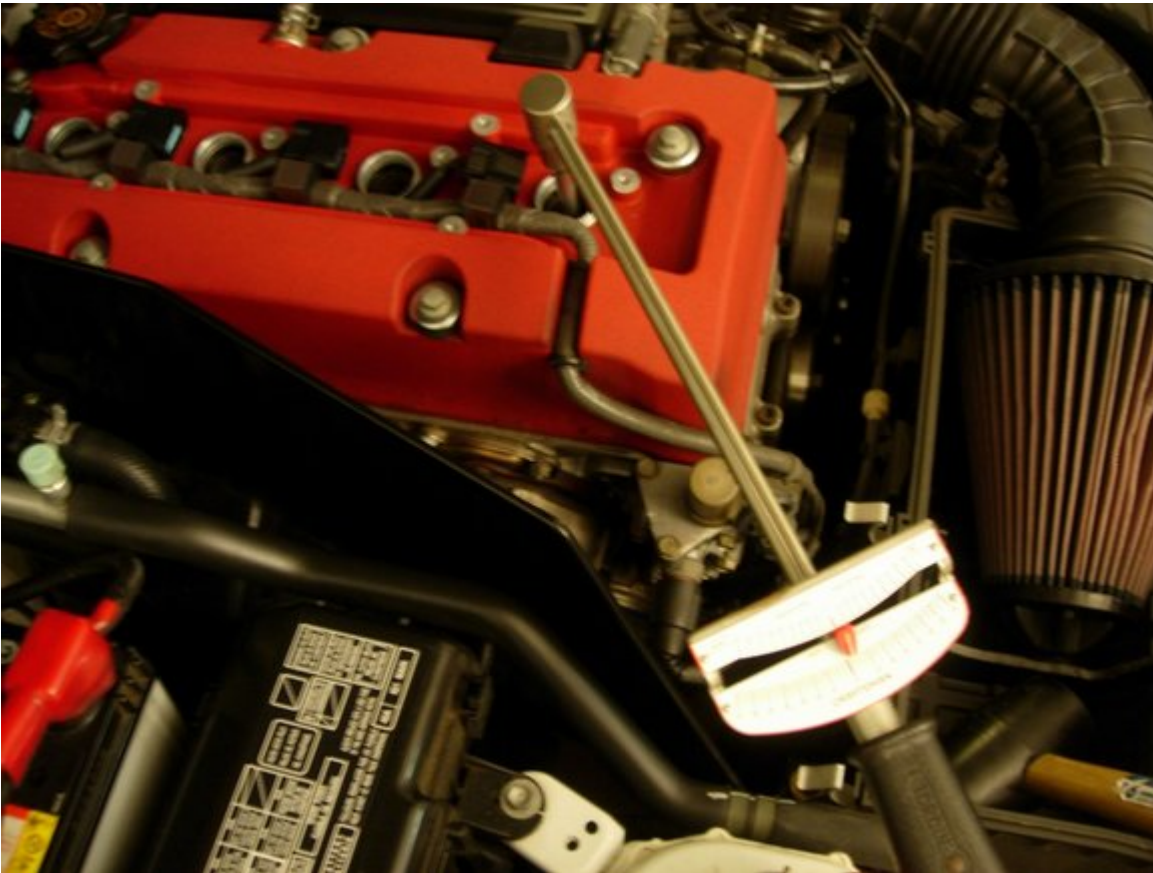
Using your hand, place a single plug into the spark plug socket - do not push the spark plug too far into the socket or the socket might get stuck to the plug once you've screwed it into the engine - just make sure the hex is completely in the socket and nothing more.





Now lower the plug into its cylinder. Be very careful about not crossthreading the hole! The best way to do this is to insert the plug, turn it counter-clockwise a half turn to ensure its flush, and then hand-tighten it clockwise. With 180° turns of the socket, it will take about 25 turns to get the spark plug snug. It should turn in pretty smoothly - never force a spark plug in!

Once all four plugs are replaced, use the torque wrench to torque them to Honda specs. Fyi. original specs were 13#ft, but Honda later revised it to 18#ft when the spark plugs changed to metal washers: I torque to 20#ft (I think thats 24-25 Nm for metric folks), anything 18-20#ft is good. You might make 2-3 turns at ~15#ft torque before the spark plug finally tightens to 20#ft due to friction, fyi.



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Once all four of the old plugs are out, check them out - this is a great time to get an idea of how your engine is running.

Here's the general rundown on plugs:

- White - lean and hot
- Light brown - perfect
- Dark brown - rich
- Black - oil fouled or very rich (wet black is oil, dry black is carbon)

S2000s generally run white to light brown. If you see dark brown, I wouldn't worry, but you shouldn't see black unless you were having problems before you checked the plugs. Also, with our engines, cylinders 3 and 4 (the back two) are more likely to look fouled due to blow by through the PCV, fyi.

My plugs:







Good overall, with 56k mi and 6 years on them, you could still use them. Gaps were borderline for within spec on a couple of them.

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Now replace the ignition coils. Slide them into the plug holes, attach the wiring harness, then snug them down. Fyi, I work front to back when removing the coils, and back to front when replacing them. Make sure you adjust the wiring harness so it doesn't interfere with replacing the coils.

Replace the four 10mm bolts that hold the ignition coils down - tighten to 8-9#ft.

**Make sure you have no tools in the engine bay**, and try and start the car - it should fire up and run smoothly. If you have a misfire or no fire, you'll need to inspect your wiring first, then get more detailed with checking for problems.

Assuming the car runs with no problems, shut off the engine and replace the spark plug cover. The hex should torque to 8-9#ft- aka snug. Don't use a torque wrench as you could strip the threads.

Make sure the engine bay is clear of tools, and close the hood - you're finished!