

# INSTALLATION INSTRUCTIONS

## FUEL SURGE TANK INSTALL KIT

### Honda S2000

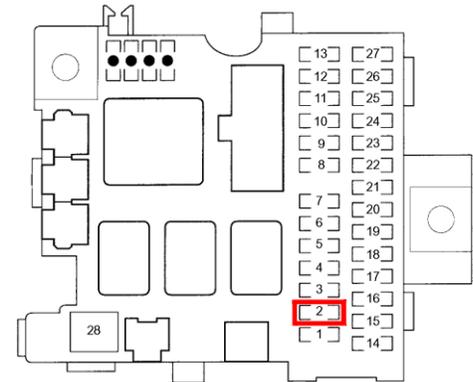
Document# 19-0063

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**WARNING: DO NOT SMOKE WHILE WORKING ON FUEL SYSTEMS. KEEP SPARKS AND OPEN FLAMES AWAY FROM FUEL SYSTEM.**

*NOTE: The 2000-2005 and 2006-2009 Honda S2000 fuel systems are different. Both versions will be covered in these instructions.*

1. From underneath the left side dash near the kick panel, there is a fuse box. To temporarily disable the fuel pump and relieve fuel pressure, remove fuse #2. Start vehicle and allow engine to stall. Turn off car and remove key. Reinstall fuse and glove box.



2. Caution: Disconnecting the battery may cancel the fault memories of some control units. Consequently, before disconnecting the car's battery, always interrogate the fault memories. Investigate stored faults and, once any faults have been remedied, cancel the fault memory. Also, be sure the radio code is recorded.

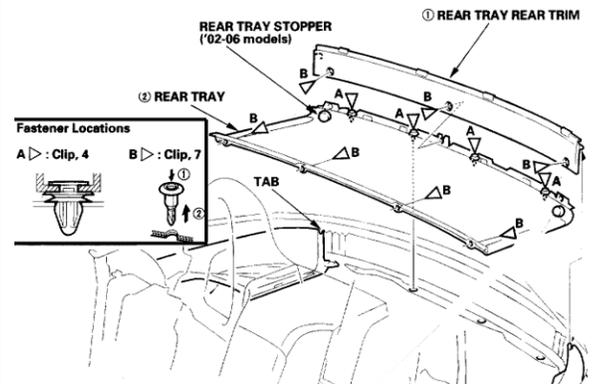
Open hood and unscrew and disconnect the negative terminal of the battery using a 10mm wrench.



3. Open the trunk. Unclip the fasteners and remove the carpet along the left and front (spare tire) wall. The right side stays in.

Remove the spare tire and the hardtop, if applicable. Next, temporarily unfold and close the soft top.

From behind the rear seats, carefully remove the rear tray and rear trim fasteners (shown). It is not necessary to remove either side trim.



4. The rear trim can be removed from the interior but the rear tray MUST be removed from the trunk, as shown.



5. Open the center console glove box.

Push the gas filler door button.

Temporarily remove the gas cap.

Use an 8mm socket wrench and remove the three M5 bolts shown.



6. To release the gas filler tubes from the chassis, use a 10mm socket wrench to remove the M6 bolt shown.

Pull the large rubber boot that in cases the 3 OEM rubber hoses slightly out of the gas tank area. This boot is partially shown at the bottom right of the picture.



7. From the trunk area, pull the gas filler inwards to release the 3 studs from the body.

Temporarily reinstall the gas cap to eliminate gasoline fumes.

As depicted, gently rotate and fold the 3 rubber hoses out of the way to gain access to the front left area.



8. To gain access to the area, some creativity may be required. We found that in order to quickly get in and out of the S2000 to grab tools and such, opening the soft top half way helps.

With this, the rear window likes to sag and get in the way. To counter that, we wedged a basketball between the roll bar cover and the rear window to allow the needed headroom.



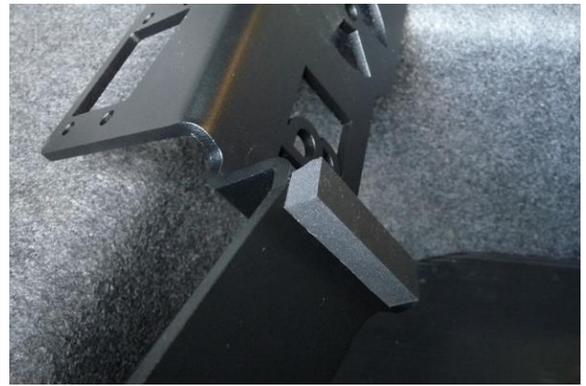
9. Remove the single OEM M8 bolt from the brace mounted on the floor board. NOTE: Some early S2000s may not use a bolt here. In this case, a threaded hole will need to be made. Use a Plier-Style Rivet Nut Tool and a M8 x 1.25mm Rivet Nut (both not included). Next, screw the included M8 rubber isolation mount in its place (shown bottom).

Screw the two small rubber isolation mounts into the M6 bosses on the floor near the roll bar mount, as shown.



10. Find the included 3" long adhesive-backed foam and secure to the bottom side of the Radium bracket, as shown.

When mounted, the foam will be sandwiched between the Radium bracket and the floor for isolation purposes.



11. Position the Radium Engineering bracket so that the 3 studs from the isolation mounts line up to the corresponding holes.

Place the included M6 and M8 stainless steel washers onto the studs.

Secure the Radium Engineering bracket down using the included M6 and M8 stainless steel nuts using a 10mm and 13mm wrench, respectively.



12. Before securing the FST to the bracket, confirm the FST is clocked so the fuel pump pickup is at the lowest point in the FST.

For 06-09 S2000 models, the FST-R should be clocked as pictured.

For 00-05, the green fitting should be at the bottom, except Bosch 044 FST where the arrow on the bottom cap should point upwards.

Using a 4mm Allen wrench, secure the FST to the bracket using the 4 included M6 screws. Use a medium thread locker, such as blue Loctite.



13. Using a 10mm socket wrench, remove the three M6 bolts from the fuel tank access cover.

Carefully set the fuel tank access cover aside without overstressing the wires shown.

Unplug the fuel pump connector to move the fuel pump cover temporarily out of the way.



14. The center port on the 2000-2005 S2000 fuel pump hanger is the drain back from the FPR back to the OEM tank. The other port (shown lower right) connects the OEM pump to the fuel rail. Note: The 2006-2009 S2000 only has this fitting.

To remove the OEM quick disconnect fittings from the fuel pump hanger, squeeze the white locking tabs and pull the black connector fittings away from the male barbs. If the white plastic locking tabs stay on the barbs, as shown, gently pry them off and reinsert and lock them into the black OEM connector fittings.



15. 2000-2005 S2000: The 2 short hoses and 2 long hoses will connect strategically to the FST. The short hoses connect to the OEM tubes previously disconnected from the fuel pump hanger. The long hoses will connect to the OEM fuel pump hanger.

2006-2009 S2000: The hoses will connect strategically to the FST. One short hose connects to the OEM tube previously disconnected from the hanger. The long hose will connect to the OEM fuel pump hanger. The other short hose connects to the fuel filler hose.



16. 2000-2005 S2000: Find the 2 SAE quick connect male to -6AN male adapter fittings in the kit. Using a vice, install these fittings to the straight hose end side of each of the short hoses as depicted.

2006-2009 S2000: Find the SAE quick connect male to -6AN male adapter fitting in the kit. Using a vice, install this fitting to the straight hose end side of one of the short hoses, as depicted.



17. 2000-2005 S2000: From inside the fuel pump hanger area, route these 2 hoses through the large gas filler rubber boot hole towards the fuel surge tank. Insert each SAE quick connect male end into the OEM female tube ends (as shown) until a "click" is felt.

2006-2009 S2000: From inside the fuel pump hanger area, route this hose through the large gas filler rubber boot hole towards the FST. Insert the SAE quick connect male end into the OEM female tube end until a "click" is felt.

Note: 2000-2005 S2000 shown.



18. The next step is important. The "FST fuel pump outlet" fitting on the FST needs to connect to the OEM tube which routes to the fuel rail. This is the tube that connected into the side port of the fuel pump hanger. For 00-05 kit (shown), this is the green fitting. For 2006-2009 kit, this is the fitting that comes out of the side of the FST-R.

The next step is for 2000-2005 kits ONLY. The other fitting shown needs to connect to the OEM tube which routes to the FPR outlet tube. This is the tube that connects to the center port of the hanger.



19. 2000-2005 S2000: Find the 2 SAE female adapter fittings in the kit. Install these fittings to the straight hose end side of each of the long hoses as depicted.

2006-2009 S2000: Find the SAE female adapter fitting in the kit. Install this fitting to the straight hose end side of the long hose.

NOTE: The Radium SAE female fitting(s) may look different than pictured.



20. From inside the hanger area, route these hose(s) through the large gas filler rubber boot hole towards the FST. Insert SAE female end(s) into the OEM fuel hanger. Note: The 2000-2005 kit is shown with 2 hoses. The 2006-2009 kit will use only 1 hose.

NOTE: The Radium SAE female fitting(s) may look different than pictured.



21. 2006-2009 HONDA S2000 KIT ONLY:

Loosen the OEM hose clamps and temporarily remove the rubber OEM filler hose from the vehicle.

Cut the OEM fuel filler hose in the area depicted.



22. 2006-2009 HONDA S2000 KIT ONLY:

Find the green billet barb adapter and the -6AN to 1/4" NPT elbow adapter fitting in the kit. Apply PTFE paste to the tapered 1/4" NPT threads and install into billet barb adapter.

Install the green billet barb adapter, as shown. Secure both sides using the 2 included stainless steel hose clamps. Reinstall the OEM fuel filler hose.



23. 06-09 kit: Route the other short Radium hose from the port fitting closest to the top of the FST (upper left) to the fuel filler -6AN male fitting installed in the previous step. (06-09 kit not shown)

00-05 kit: The top fitting on the FST needs to connect to the Radium hose that came from the OEM fuel hanger return "center" port.

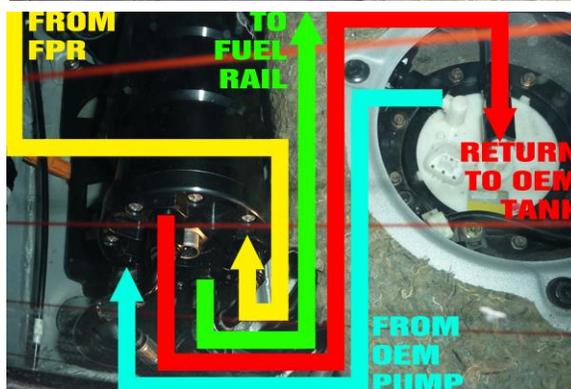
The last FST port fitting needs to connect to the Radium hose that came from the OEM fuel pump hanger (OEM fuel pump outlet).



24. Verify the hoses are routed. For 2000-2005 kits reference the diagram pictured.

Make sure none of the hoses are chaffing on any sharp edges or objects, such as the sheet metal.

Tighten all hose ends, preferably using a non marring wrench.



25. The following tools will be required for assembly: wire cutters, wire stripper, crimp tool (shown), pick, and heat gun.

Find the following electrical components in the kit: relay with flying leads, fuse with holder and flying leads, Posi-Tap "tee" connector, red 10AWG wire, solder heat shrink butt connectors (x3), ring terminals (x2), convoluted loom,

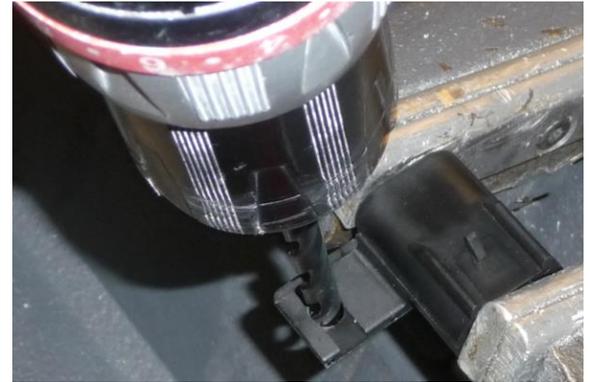


26. A couple modifications need to be made to the existing components.

An OEM M6x1mm bolt will be used for securing the fuse in a later step. However, the current mounting hole is too small.

Remove the fuse holder cover.

Using a 1/4" (6.35mm) bit, drill out the mounting hole larger.



27. The large red wire located in the center of the relay flying lead harness (terminal 87A) will not be used.

To remove this pin, insert a pick into the socket from the front side.

Release the terminal from the internal lock and simultaneously push the wire through the front of the connector, as shown.

Discard the wire terminal.



26. **FUEL SURGE TANK P/Ns: 20-0933 and 20-0960**

Use the shrink tube and ring terminals provided with the FST. Cut each piece of shrink tube to length and insert onto each wire. Crimp a ring terminal to each wire. As shown, heat shrink into place.

**FUEL SURGE TANK P/Ns: 20-0011-00, 20-0011-01, 20-0058-00, 20-0058-01, 20-0059-00, 20-0059-01, 20-0078-00, 20-0078-01, 20-0090-00, 20-0124-00, 20-0124-01, 20-0129-00, 20-0129-01, 20-0130-00, 20-0130-01, 20-0133-01, 20-0134-00, 20-0134-01, 20-0135-00, 20-0135-01, 20-0211-00, 20-0257-00, 20-0368-00**

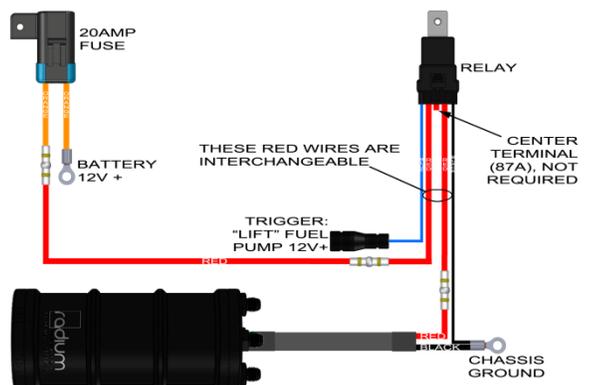
Install the circular flying lead connector. To secure, insert into the mating FST connector then spin fully clockwise to lock into place.



27. Assemble the components as shown in the wiring schematic.

Note: The 2 red wires on the relay flying lead are interchangeable.

To properly use the solder butt connectors, strip the wire insulation back and insert both wires into the butt connector ends. Use a heat gun. Be careful with the surrounding area as the internal solder will take a few minutes to melt. Next, verify the connection is solid.



28. NOTE: After crimping both ring terminals in the schematic, give the wires a tug for verification. Use the included heat shrink and a heat gun to cover the 2 wire (relay and FST fuel pump) ground terminal connection to add strain relief to the crimp, as shown.

Secure the chassis ground ring terminal and relay mounting tab to the chassis. On most S2000s, there is a spare threaded boss near the OEM fuel tank access cover. Use the included M6 bolt. But first, sand down the boss contact area to expose the raw metal for good electrical conductivity.



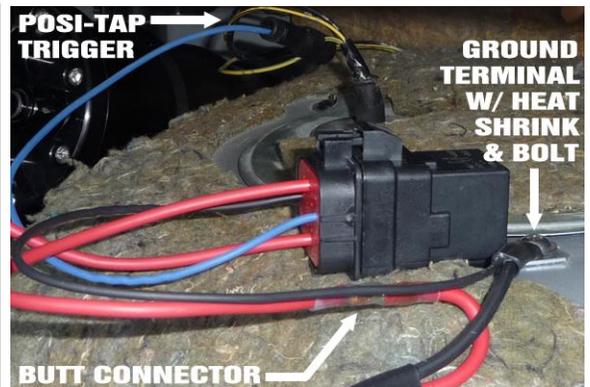
29. The FST pump's relay trigger will be tapped from the OEM fuel pump's yellow/green strip power wire.

Unscrew both ends of the Posi-Tap connector. Insert the OEM (yellow/green) wire into the slotted end and screw the center section back on making sure the OEM wire gets pierced. Next, strip the blue insulation of the relay wire back to expose 3/8" of copper. Slide the opposite end of the Posi-Tap connector over the blue wire, as shown.



30. Insert the blue wire through the center section of the Posi-Tap connector. Screw the Posi-Tap connector together and give the wire a quick tug to make sure it seated properly.

Note: For more information, there are detailed instructional videos on the internet on how to assemble Posi-Tap wire connectors.



31. Pop off and remove the front interior kick panel and door sill. Find a pass through on the firewall. On LHD vehicles, use the lower rubber grommet near the battery. Using a blunt object, carefully puncture a hole for the included 10AWG red wire to pass through while maintaining a weather tight seal.

Starting from the engine bay, route the wire through the interior along the door sill (shown) and into the trunk area.

From the trunk, the wire can be routed behind the rear seat panel but in front of the trunk wall. Keep the wire clear of the spare tire area to eliminate chaffing.



32. To mount the fuse holder, remove an OEM M6 bolt near the battery. On LHD vehicles, the windshield washer reservoir (shown) is ideal. Reinstall the bolt and position the fuse wires accordingly.

Using a solder butt connector, secure 1 of the fuse wires to the 10AWG red wire from the previous step. Strip the other fuse wire and crimp-on a ring terminal.

Remove the battery's 12V+ terminal and slip the ring terminal onto the battery post clamping screw and reinstall the nut.

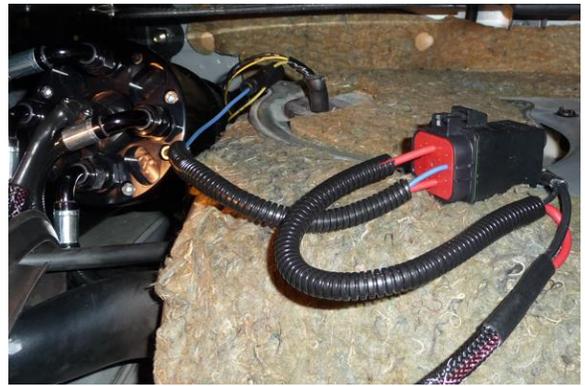
Cut a short piece of the included convoluted wire loom to cover the wires.



33. Use the convoluted wire loom for the trunk wiring, as shown. Reconnect the battery.

The FST must be primed with fuel before the engine can start. Remove the FST fuse. Cycle the ignition several times. Wait a few seconds each time to allow the ECU to cycle. This will activate the "lift" fuel pump for a few seconds each time. After 3-4 cycles it should be ready to start.

Replace FST fuse.



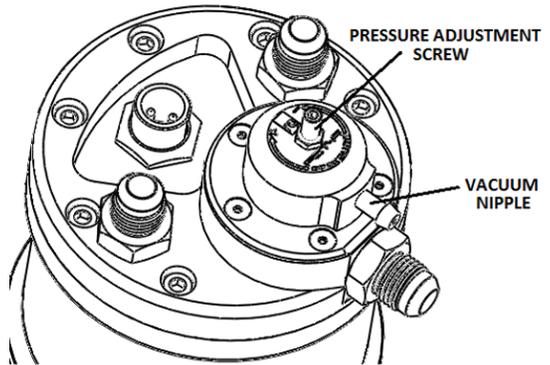
#### 34. 2006-2009 FST Kit:

Use a gauge to adjust fuel pressure. Tighten the set screw to increase pressure, loosen screw to reduce pressure.

Once adjusted, lock set screw in place with jam nut.

Note: OEM fuel pressure is 3.8-4.3Bar (55-63psi) constant.

Connect a vacuum hose to the nipple only if a 1:1 rising rate boost reference is required.



35. Cycle the ignition and listen for the FST pump to confirm the electrical was performed properly.

Start the engine. It may run rough for a few seconds until all air is bled from the system. With the engine running inspect ALL CONNECTIONS for leaks.

Next, reinstall all parts that were removed. Test-drive the vehicle and inspect again for leaks.

