

Return Fuel Solution

Installation Instructions

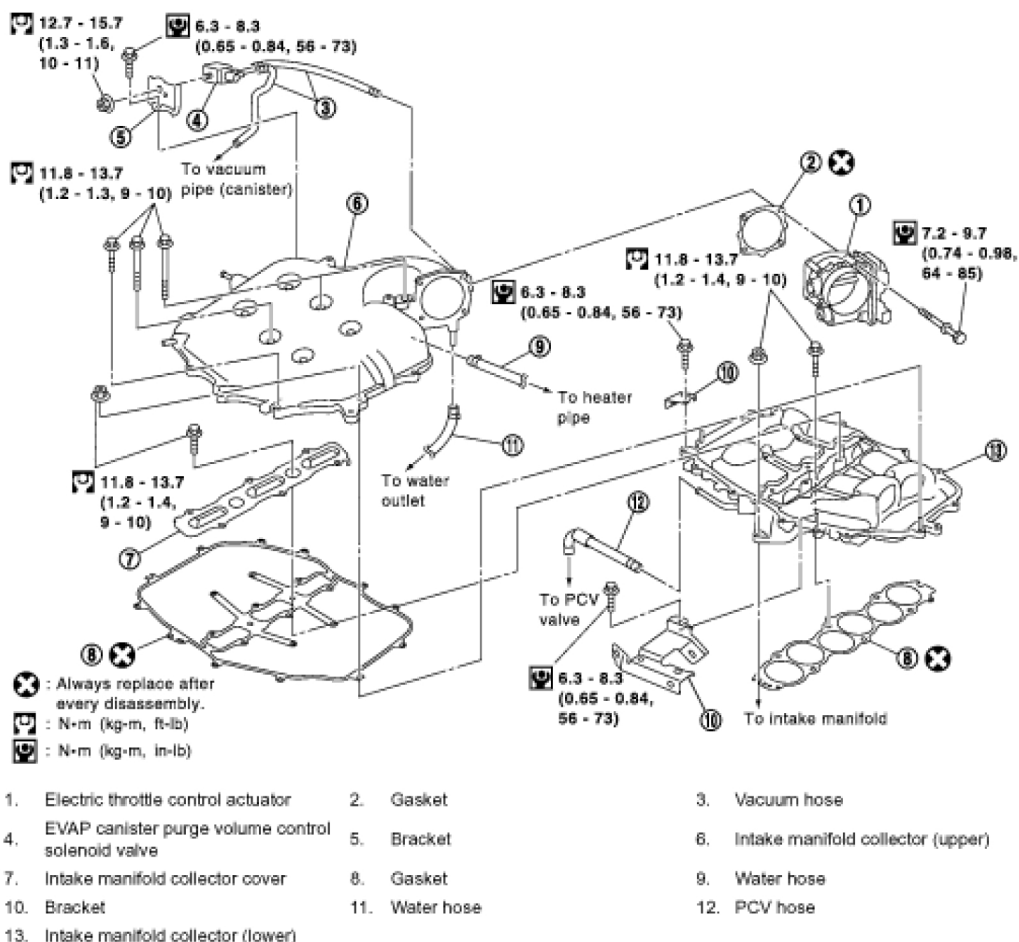
Parts List for 350Z/G35 Fuel System

Parts List:

- ✓ 1 – AAM Spec Driver side fuel rail (x 1)
- ✓ 2 – AAM Spec Passenger side fuel rail (x 1)
- ✓ 3 - -06 AN Adapters with O-rings (x 5)
- ✓ 4 - -06 AN 45° to straight hose, 5.5" length (x 1)
- ✓ 5 - -06 AN 45° to straight hose, 7.0" length (x 1)
- ✓ 6 - -06 AN Tee adapter (x 1)
- ✓ 7 - -06 AN straight to bare hose, 31.0" length (x 1)
- ✓ 8 - -06 AN 45° to -06 AN 45°, 34.0" length (x 1)
- ✓ 9 - -06 AN 90° to -06 AN 45°, 27.0" length (x 1)
- ✓ 10 - -06 AN Tee adapter (x 1)
- ✓ 11 - -06 AN 90° to straight hose, 7.75" length (x 1)
- ✓ 12 - -06 AN Port Plug with O-ring (x 1)
- ✓ 13 - -06 AN to -04 AN Adapter, with -06 O-ring (x 1)
- ✓ 14 – Aeromotive fuel pressure regulator (x 1)
- ✓ 15 – Fuel Pressure gauge (x 1)
- ✓ 16 - -04 AN straight to straight hose (x 1)
- ✓ 17 - (-04 AN 90° bulkhead fitting with nylon washers, o-ring, and nut) (x 1)
- ✓ 18 – In-tank fuel pressure regulator plug (x 1)
- ✓ 19 – Hose clamp (x 1)
- ✓ 20 – OEM Quick Disconnect Fitting (x1)
- ✓ 21 - 90° -04 AN to 1/8" NPT Fitting (x1)
- ✓ 22 - -04 AN 45° to 90° with AntiStatic Coating, 5.5" length (x1)

Installation Instructions:

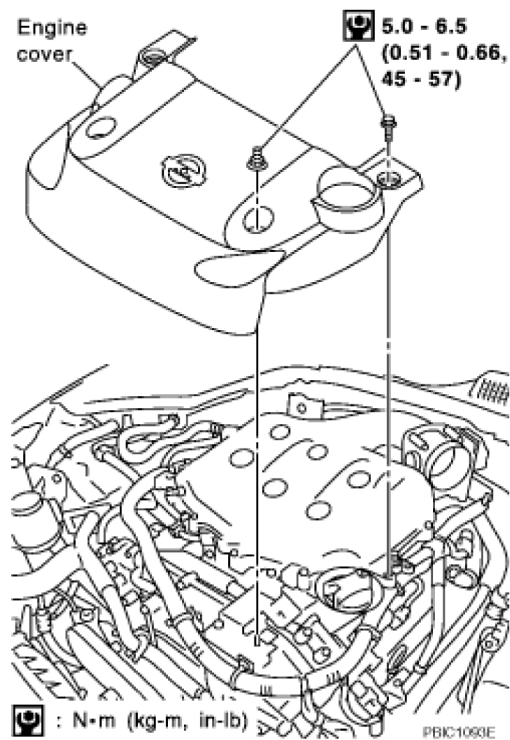
A. Intake Plenum Removal



REMOVAL

WARNING: To avoid the danger of being scalded, never drain the coolant when the engine is hot.

Gasket for intake manifold collector (upper) is secured together with mounting bolt for intake manifold collector (lower). Thus, even when only gasket for upper side is replaced, gasket for lower side must be also replaced.

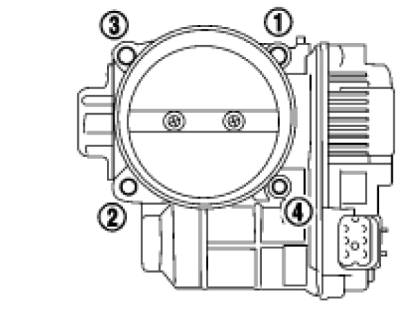


1. When removing intake manifold collector (upper) after servicing, remove strut tower bar.
2. Remove engine cover with power tool.

CAUTION: When removing/installing engine cover with strut tower bar installed, remove and install carefully in order to prevent damage to top surface.

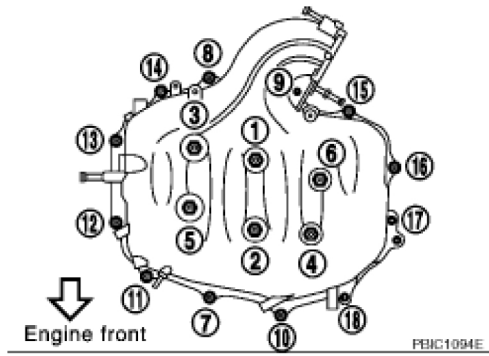
CAUTION: Perform when engine is cold.

4. Remove air cleaner case and air duct.

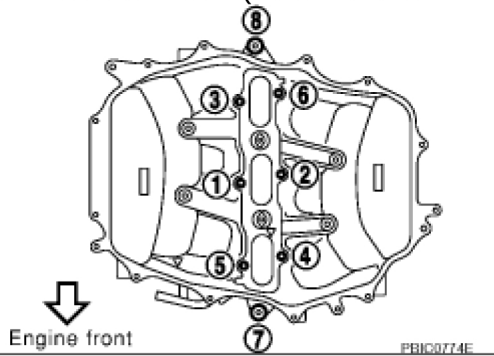


6. Remove fuel sub-tube mounting bolt to disconnect from rear of intake manifold collector (lower).
7. Disconnect vacuum hose and water hose from intake manifold collector.

- Disconnect EVAP canister purge volume control solenoid valve bracket mounting bolt from intake manifold.

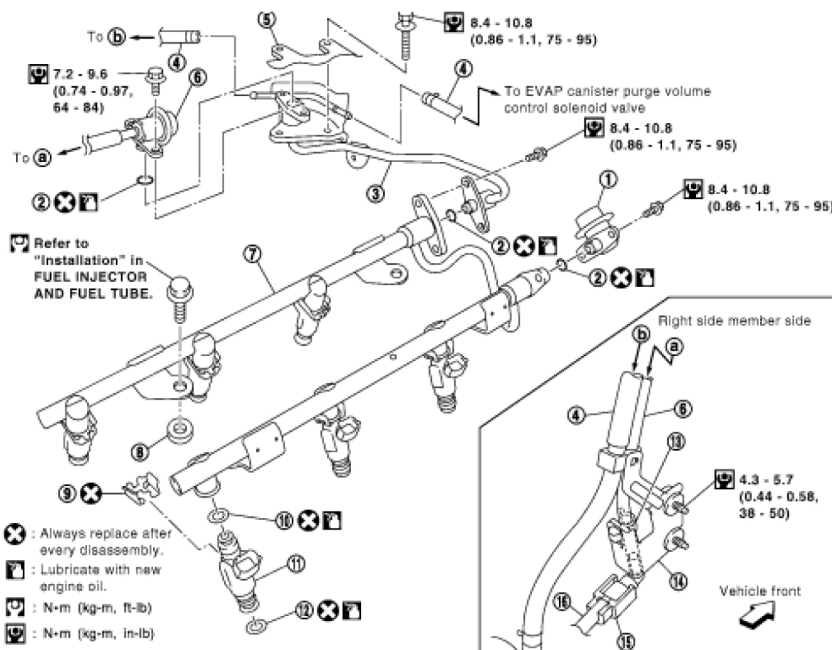


- Loosen bolts in reverse order of illustration to remove intake manifold collector (upper) with power tool.
- Remove PCV hose (between intake manifold collector and RH rocker cover).



- Loosen bolts in reverse order of illustration, and remove the intake manifold collector cover, gasket, intake manifold collector (lower) and gasket with power tool.

B. Factory Fuel System Removal

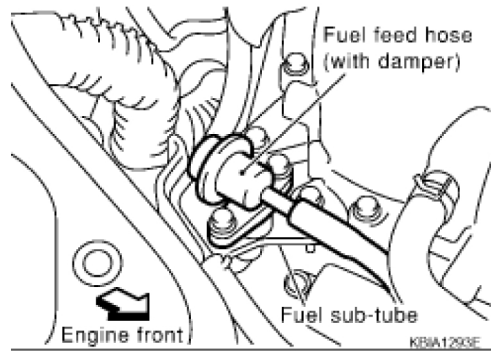


- | | | |
|------------------------------------|--|---------------------------------|
| 1. Fuel damper | 2. O-ring | 3. Fuel sub-tube |
| 4. EVAP hose | 5. Intake manifold collector (lower) rear right side | 6. Fuel feed hose (with damper) |
| 7. Fuel tube | 8. Insulator | 9. Clip |
| 10. O-ring (black) | 11. Fuel injector | 12. O-ring (green) |
| 13. Hose clamp | 14. Bracket | 15. Quick connector cap |
| 16. Centralized under-floor piping | | |

CAUTION: Apply new engine oil when installing the parts that specified to do so in the figure.
Do not remove or disassemble parts unless instructed as shown in the figure.

REMOVAL

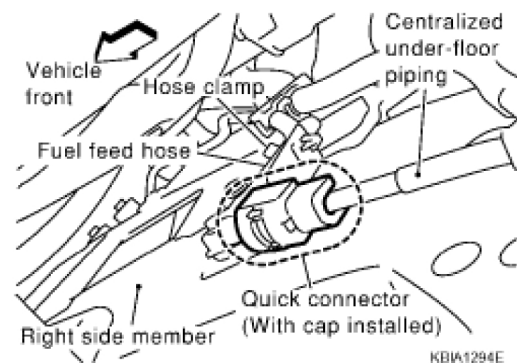
1. Remove engine cover with power tool. Refer to Intake Manifold Collector.



2. Remove fuel feed hose (with damper) from fuel sub-tube.

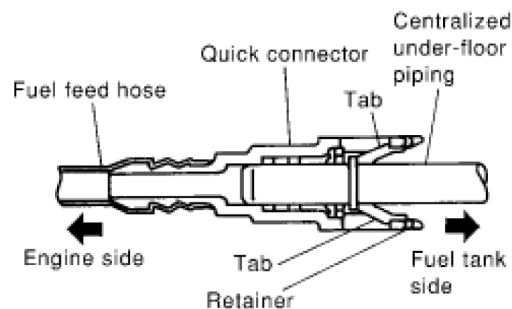
NOTE: There is no fuel return route.

CAUTION: While hoses are disconnected, plug them to prevent fuel from draining. Do not separate damper and hose.

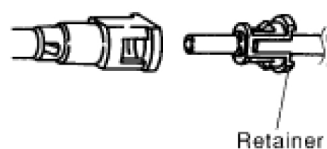


3. When separating fuel feed hose and centralized under-floor piping connection, disconnect quick connector with the following procedure.
 - a. Remove quick connector cap from quick connector connection on right side member.
 - b. Disconnect fuel feed hose from bracket hose clamp.

Connection (cross-section)



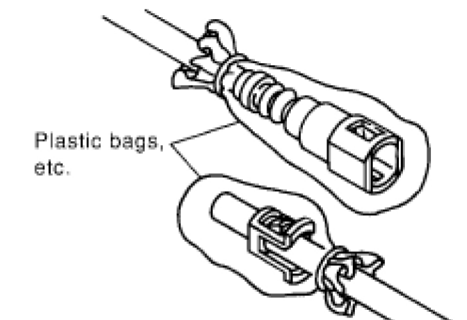
Disconnection



- c. Remove the quick connectors as follows.
 - Pick out retainer tab by hand and remove.
- If connector and centralized under-floor piping connection are stuck, push and pull several times until they start to move. Then disconnect them by pulling.

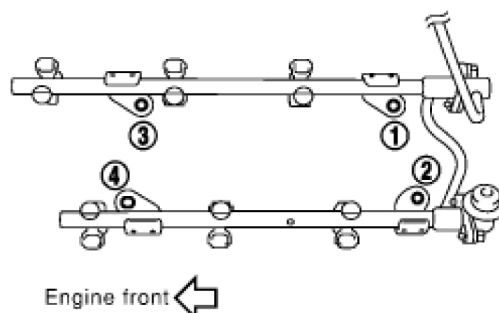
CAUTION: Keep parts away from heat source. Especially, be careful when welding is performed around them.
 Do not expose parts to battery electrolyte or other acids.
 Do not bend or twist connection between quick connector and fuel hose during installation/removal.
 Do not remove retainer.
 When replacing centralized under-floor piping, always replace retainer with a new one.
 When replacing retainer, use same color retainer as was originally installed.

Retainer color: Green



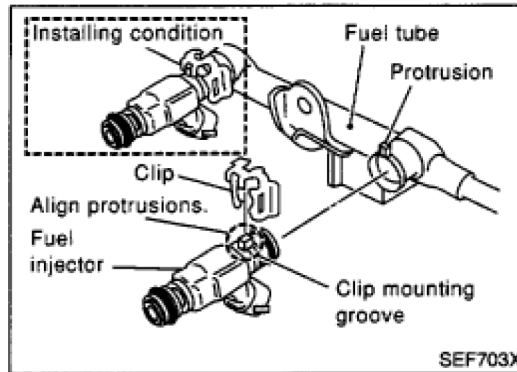
To keep clean the connecting portion and to avoid damage and foreign materials, cover them completely with plastic bags or something similar.

5. Remove intake manifold collector (upper) and (lower).
6. Remove harness connector from fuel injector.



7. Loosen mounting bolts in the reverse order in the figure, and remove fuel tube and fuel injector assembly.

CAUTION: Do not tilt it, or remaining fuel in pipes may flow out from pipes.



8. Remove fuel injector from fuel tube with following procedure.

- a. Open and remove clip.
- b. Remove fuel injector from the fuel tube by pulling straight.

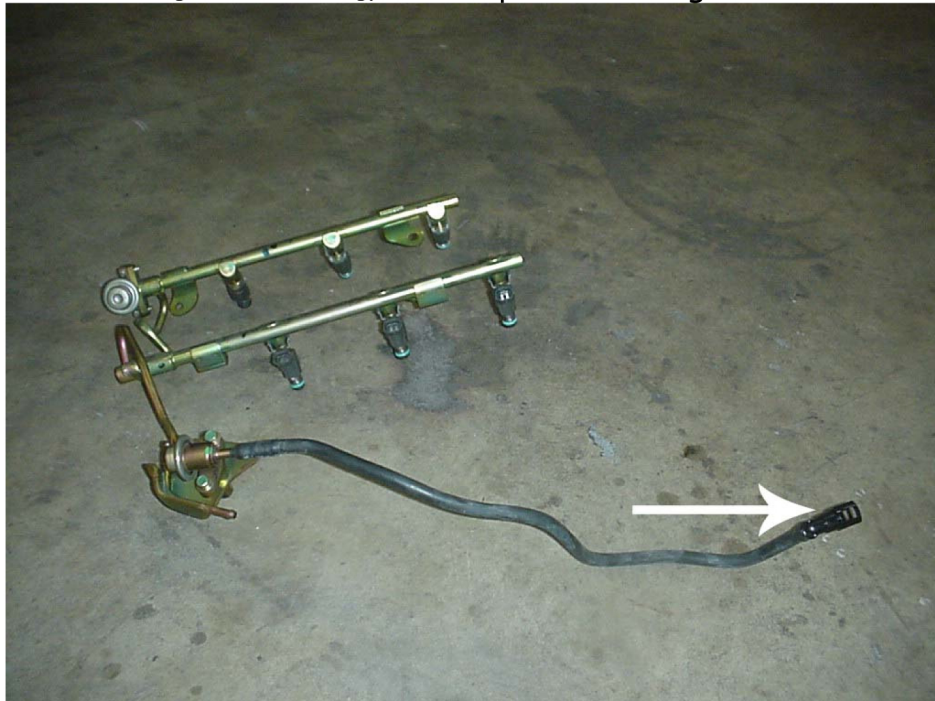
CAUTION: Be careful with remaining fuel that may go out from fuel tube.
Be careful not to damage injector nozzles during removal.
Do not bump or drop fuel injectors.
Do not disassemble fuel injectors.

9. Remove fuel sub-tube and fuel damper.

C. AAM Return Fuel Solution Installation:

In order to install this fuel system it is necessary to remove the factory upper intake manifold, as well as the factory fuel rails, pressure regulator, brackets and lines.

1. Lubricate the barbed end of the OEM Quick Disconnect connector with some motor oil and press the barbed end into the bare end of item #7 (*Bare -06AN Line to -06AN Straight Female Fitting*). Using the included hose clamp, item #19, clamp item #7 (*Bare -06AN Stainless Line to -06AN Straight Female Fitting*) to the plastic fitting.



2. Install Item #7 (*Bare -06AN Stainless Line to -06AN Straight Female Fitting*), now with the plastic fitting, onto the factory feed line. Run line to the rear of the intake manifold.
3. Install 4 pieces of item #3 (*Blue -06 Male to Male Unions with integrated O-Ring*) onto fuel rails.
4. Install fuel rails onto engine. **The longer rail is the passenger side rail.**

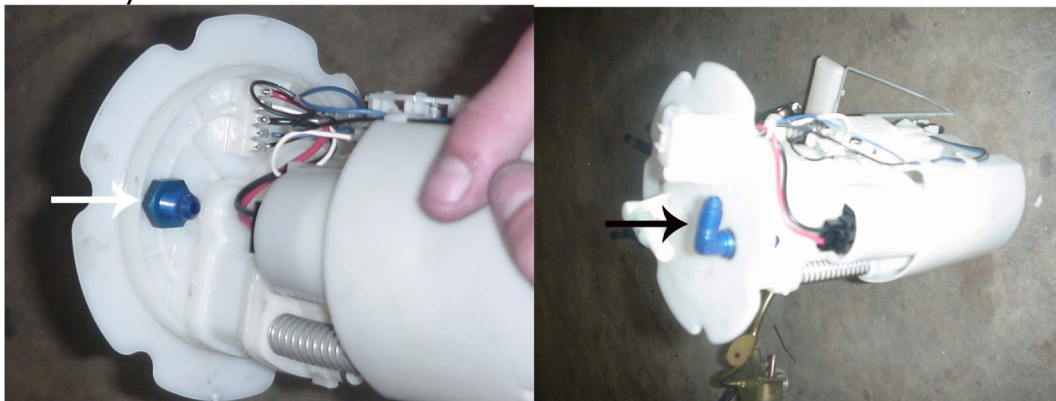
Note: When using RC Engineering fuel injectors, use additional rail spacers that are provided.

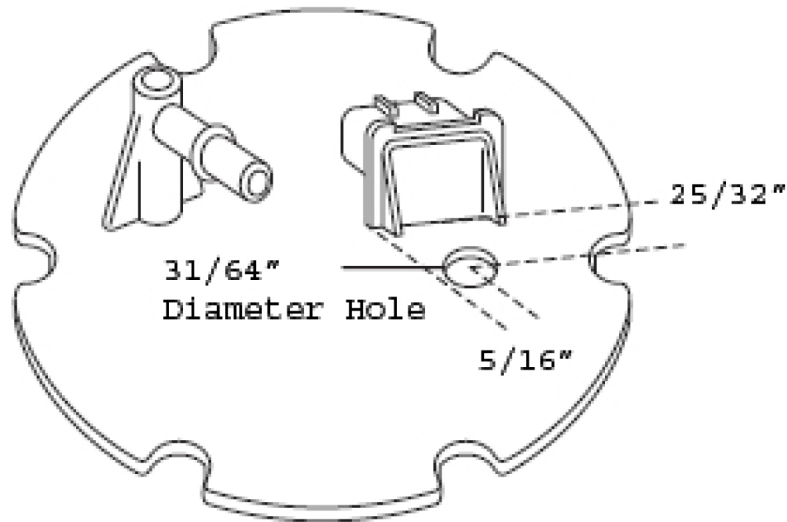
Note: Injector Clips must be seated onto injector prior to being inserted into rail



5. Install item #6 (-06AN Tee Adaptor) to item #7 (Bare -06AN Stainless Line to -06AN Straight Female Fitting).
 - a. The female AN fitting of #7 (Bare -06AN Stainless Line to -06AN Straight Female Fitting) should be connected to the right side of #6 (-06AN Tee Adaptor) when it is written.
6. Install items #4 (-06 AN 45° to straight hose, **5.5" length**) and #5 (-06 AN 45° to straight hose, **7" length**) to item #6 (-06AN Tee Adaptor).
 - a. #4 (-06 AN 45° to straight hose, **5.5" length**) attaches to the passenger rail (longer rail)
 - i. Attach to left side of #6 (-06AN Tee Adaptor)
 - b. #5 (-06 AN 45° to straight hose, **7" length**) attaches to the driver rail.
 - i. Attach to top side of #6 (-06AN Tee Adaptor)
7. Item #9 (-06 AN 90° to -06 AN 45°, **27.0" length**) attaches to the passenger rail and wraps around the driver rail to connect to the left side of item #10 (-06 AN Tee adapter) at the rear of the engine.
8. Item #8 (-06 AN 45° to -06 AN 45°, **34.0" length**) attaches to the driver rail and wraps around the passenger rail to connect to the right side of item #10 (-06 AN Tee adapter) at the rear of the engine.
9. Take #11 (-06 AN 90° to straight hose, **7.75" length**) and connect the straight end to #10 (-06 AN Tee adapter)

10. Take #11 (-06 AN 90° to straight hose, 7.75") and connect the 90° end to #3 (Blue -06 Male to Male Unions with integrated O-Ring) installed at #14 (Aeromotive Fuel Pressure Regulator)
11. Item #14 (Aeromotive Fuel Pressure Regulator) mounts on the firewall. One piece of item #3 (Blue -06 Male to Male Unions with integrated O-Ring) installs on the right side of the regulator, under the vacuum port. Item #12 (-06 AN Port Plug with O-ring) installs on the left side of the regulator, and item #13 (-06 AN to -04 AN Adapter, with -06 O-ring) installs on the bottom.
12. Item #16 (-04 AN straight to straight hose, 110" length) can be fed past the fuel tank from the access area under the glove box area (350Z) or the rear seat (G35). Item #16 (-04 AN straight to straight hose, 110" length) runs under the car with the other fuel lines, and attaches to item #13 (-06 AN to -04 AN Adapter, with -06 O-ring) at the firewall on the bottom port of #14 (Aeromotive Fuel Pressure Regulator).
13. Item #17 (-04 AN 90° bulkhead fitting with nylon washers, o-ring, and nut) and #18 (In-tank fuel pressure regulator plug) are installed at the tank.
14. A hole is drilled in the top of the tank, and item #17 (-04 AN 90° bulkhead fitting with nylon washers, o-ring, and nut) is installed with one Nylon washer and o-ring on the outside of the tank, and the nut and one Nylon washer on the inside.





Return Line Fitting

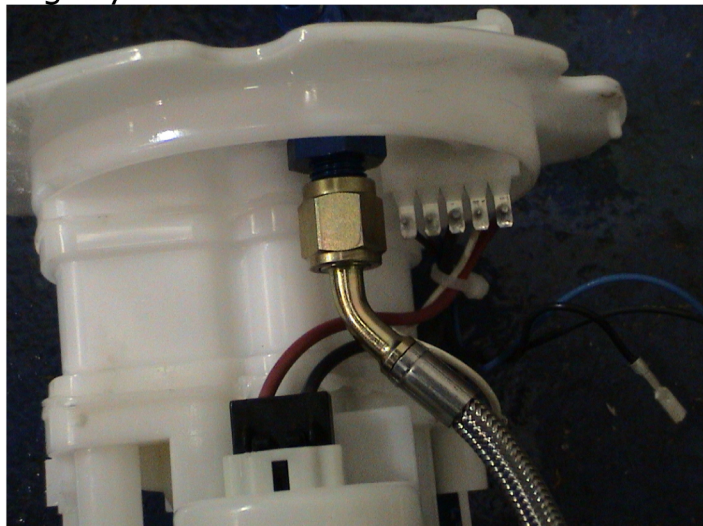
15. Assemble fuel pressure plug replacement by first removing the factory part at the bottom of the pump assembly.
 - a. Take the white plastic cover and position it below the new fuel pressure plug.
 - b. Then insert and tighten the #21 (*1/8" NPT to -04AN 90° fitting*).
 - c. Install the factory spacer FIRST and then factory o-ring.



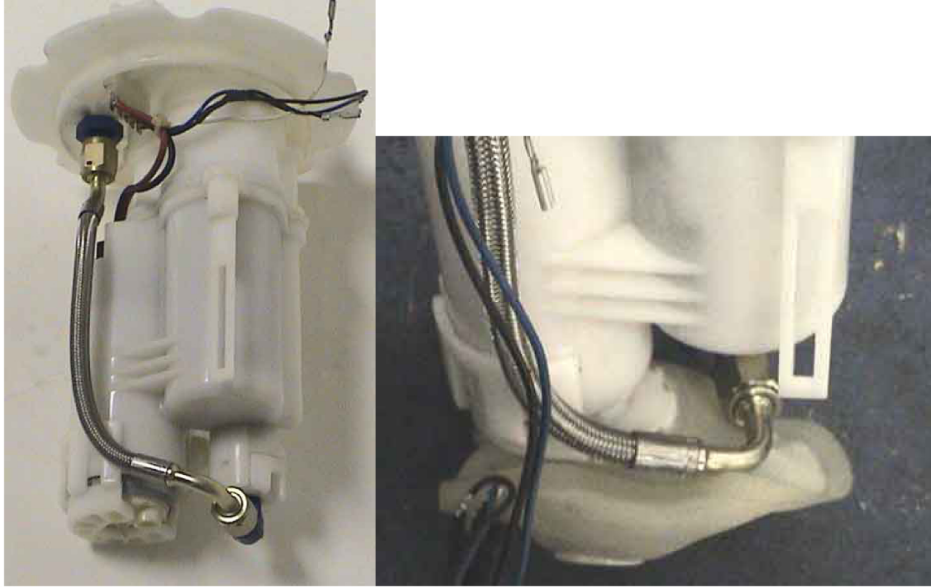
16. Reinsert the new fuel pressure plug assembly into the pump assembly. Use light pressure and a rotating action to push the assembly in. It may take a little bit a patience to get the part to seat without tearing the o-ring. Please use care!



17. Connect the #22 45° end (-04 AN 45° to 90° with AntiStatic Coating, 5.5" length) fitting to the bottom of #17 (-4 AN 90° Fitting) with the angle facing to the right (see picture). Leave the fitting loose so that it can move slightly.

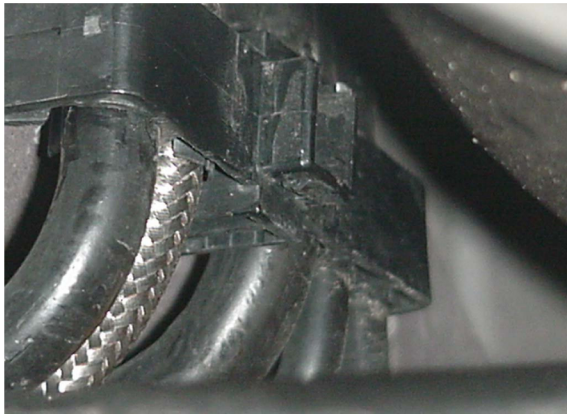


18. Use your thumb to hold the line close to the fuel pump.
19. Take the 90° fitting side of #22 (-04 AN 45° to 90° with AntiStatic Coating, 5.5" length) and twist it up to meet #21 (1/8" NPT to -04AN 90° fitting) - 04 AN fitting from the fuel pressure plug. (see picture)

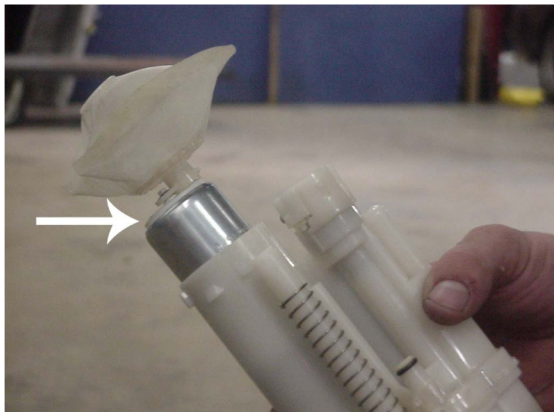


20. Tighten all the fitting while keeping the line tight against the body of the fuel pump.
21. Reinsert the fuel pump assembly into the canister. Use caution as the new line may cause the canister to swell slightly. Slowly press the assembly into the canister until it hits the bottom of the canister without snagging on the line or ridges of the plastic.

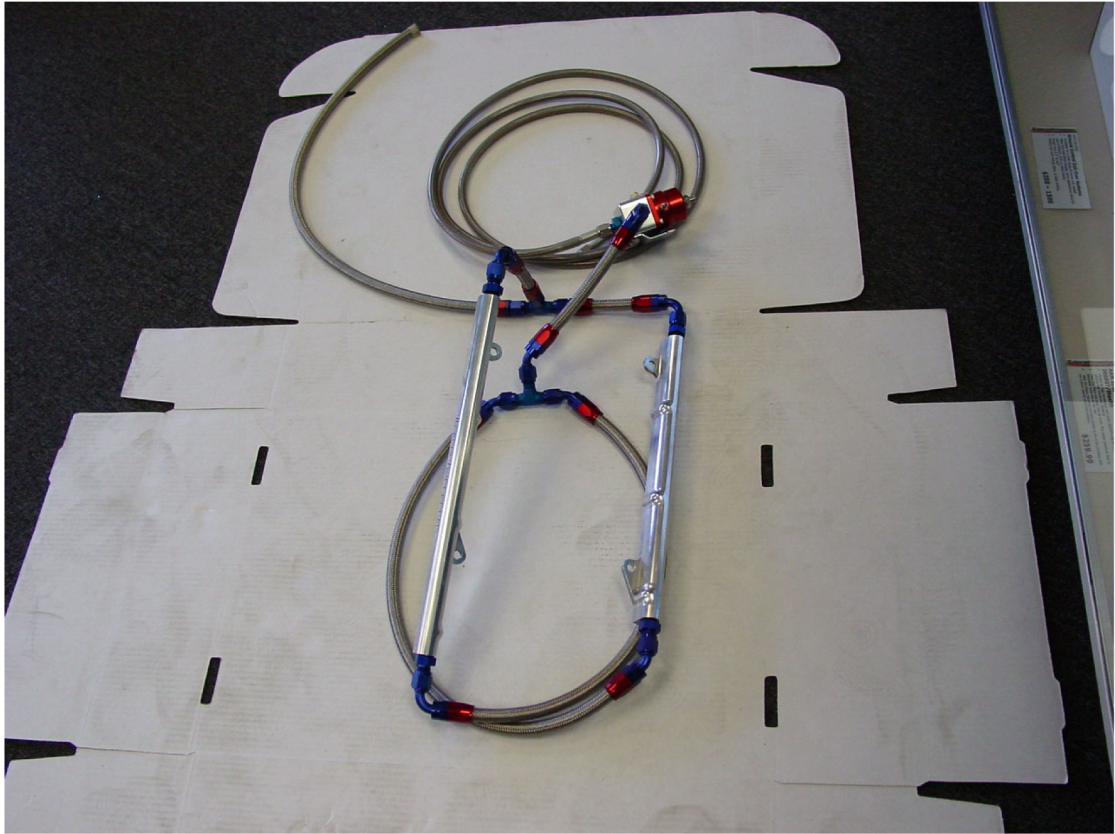




Routing of Return Line



Fuel Pump and FPR Block Off/Replacement Plug



System Picture for Reference

