

Z1 350Z VQ35DE FUEL RETURN KIT INSTALLATION MANUAL



This Installation Manual is intended for the following models:

2003-2006	Nissan 350Z
2003-2007	Infiniti G35 (Coupe)

PROLOGUE:

Study these instructions completely before proceeding to assembly. The installer must have a thorough knowledge of automotive systems operation. If unfamiliar with any of the concepts outlined in this instruction, we recommend the installation be completed by a qualified professional.

WARNING!

Extreme caution should be taken when performing maintenance or performance upgrades to your vehicle. Please observe and abide by any Warning or Caution labels placed on the various components and tools used when servicing your vehicle. If you have any questions regarding installation or the various components included with the Z1 Motorsports VQ35DE Fuel Return Kit, consult with a Professional Mechanic or contact Z1 Motorsports for more information.

PARTS INCLUDED:

Item	Quantity	Description
1	1	DE Fuel Rail Set
2	2	OE Fuel Pulse Damper
3	1	Bulkhead Fitting, 3/8 Quick Disconnect
4	1	6AN Aluminum Bulkhead Nut
5	2	PTFE BULKHEAD WASHER
6	2	9.5mm-11.5mm Hose Clamps
7	1	PTFE Flexible In Tank Fuel Tube
8	1	Assembled Fuel Pressure Regulator Delete w/ (2) O-Rings
9	1	Z1 Fuel Pressure Regulator
10	1	Fuel Pressure Regulator Mount – (2) Pieces w/ (2) Nuts
11	1	Z1 In-Line External Fuel Filter
12	1	Fuel Filter Mounting Clamp Bracket w/ Fuel Line Clip and Hardware
13	1	Z1 Fuel Return Line Kit - 7 Lines
14	1	AN Tee Fitting
15	1	5/16" Quick Disconnect Threaded Adapter 6AN Male
16	1	3/8" Quick Disconnect Threaded adapter 6AN Male
17	3	6AN ORB fittings w/ O-Ring
18	1	0-100psi 1/8" NPT Mini Fuel Pressure Gauge
19	36"	VACUUM TUBE - 4.0 MM
20	2	Small Spring Clamp for Vacuum Line
21	1	Fuel Pump Grommet
22	2	Bonded Sealing Washer
23	1	Cushion Loop P-Clamp
24	1	Fuel Tank Top Hat O-Ring
25	1	Selected Fuel Pump (with relay kit depending on pump size)
26	6	Selected Fuel Injectors

TOOLS REQUIRED:

- Hydraulic Jack
- (2) 2-Ton (or greater) Jack Stands
- Ratchet
- Ratchet Extension(s)
- Assorted Metric Sockets
- Assorted Metric Wrenches
- 2.5mm Allen/Hex Key
- 4mm Allen/Hex Key
- Flat Head Screwdriver
- Torque Wrench
- Channel Lock Pliers
- File
- Snips
- Dremel w/ Flat Tip Bit
- Wire Strippers
- Wire Crimp Tool
- AN Wrenches
- 9/16" Drill Bit

SAFETY REQUIREMENTS:

- Always wear safety glasses and any necessary protective garments. If using any fluids, chemicals, or solvents, a respirator is recommended.
- Always turn the ignition to the OFF position and disconnect the NEGATIVE battery terminal.
- Always use properly rated jack stands when working under your vehicle.
- Always keep limbs and parts away from moving drivetrain parts.
- Only operate drivetrain in safe space and well-ventilated areas.
- **NO FIRES, SPARKS, OR SMOKING. WORK IN A WELL-VENTILATED AREA.**

BEFORE YOU BEGIN:

Remove contents from the Z1 Motorsports VQ35DE Fuel Return Kit and verify that ALL necessary hardware is present.

The full Z1 DE Fuel Return Kit is made up of several different Z1 products. The procedures below will be broken into various sections specific to each product. Depending on the configuration of products you choose for your fuel system, it may require jumping around to different sections of this guide. Many of the components and modifications required will depend on what options you choose, pay attention to the bold and underlined notes regarding specific steps. It is highly recommended to read through this entire manual to get an idea of what needs to be done before proceeding with the work.

All provided fittings are AN, ORB, or include sealing washers. DO NOT add your own thread sealant or PTFE sealant tape unless instructed. Aluminum fittings like AN lines and the ones included in this kit do not need to be torqued high like many steel bolts. Over torquing AN fittings will create a leak.

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FUEL PUMP UPGRADE AND FUEL PRESSURE REGULATOR DELETE:

1. Place the transmission in Park position (or in Reverse gear if equipped with a manual transmission). Apply the parking brake.
2. Locate proper jacking points on the vehicle's chassis (refer to Vehicle's Owner's Manual). Raise and support the vehicle using a jack and jack stands.
3. It is recommended to install this kit with the gas tank **NOT** full. If the Fuel Gauge indicates the level shown in diagram below or more, drain some fuel before continuing (or drive the car). It does not need to be empty, but the less fuel in the tank the cleaner this installation will be. *Figure 1.*

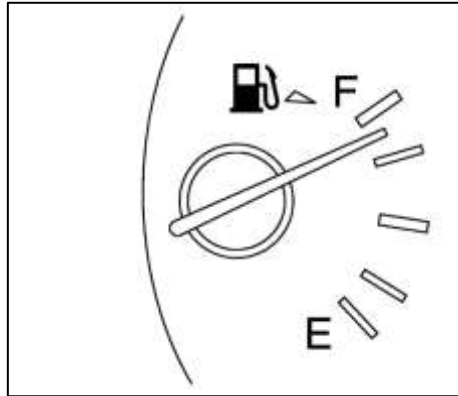


Figure 1

4. Open the compartment behind the passenger seat and remove the shelf and plastic cover. Then remove the thin metal access panel by rotating the plastic clips clockwise 90°. Shown below in *Figure 2.*



Figure 2

5. Remove the access panel and set aside. The wiring harness will remain attached through the grommet, just rotate the cover out of the way.
6. Release the fuel system pressure. There are a couple ways to do this:
 - a. If you have access to CONSULT:
 - i. Turn ignition switch ON.
 - ii. Perform "FUEL PRESSURE RELEASE" in "WORK SUPPORT" mode with CONSULT.
 - iii. Start engine.
 - iv. Wait for engine to run out of fuel and stall.
 - v. Crank engine over two or three times to release remaining fuel pressure.
 - vi. Turn ignition switch OFF
 - b. If you do not have access to CONSULT:
 - i. Disconnect the electrical connector on the top of the fuel tank.
 - ii. Start engine.
 - iii. Wait for engine to run out of fuel and stall.
 - iv. Crank engine over two or three times to release remaining fuel pressure.
 - v. Turn ignition switch OFF.
7. Remove the gas filler cap to release any pressure left in the tank.
8. Make sure the ignition is in the **OFF** position and disconnect the **(-) NEGATIVE** Battery Terminal.
9. Clean the top of the OE Fuel Top Hat and surrounding areas of the tank to prevent dirt or contaminants from falling in when you remove it.
10. Place a rag around the OE fuel supply hose ② on the OE Fuel Top Hat, and then disconnect the hose by pressing the sides of the retaining clip ① in and pulling the hose away. If the clip comes off with the hose that is fine, it can be put back on later. *Figure 3.*

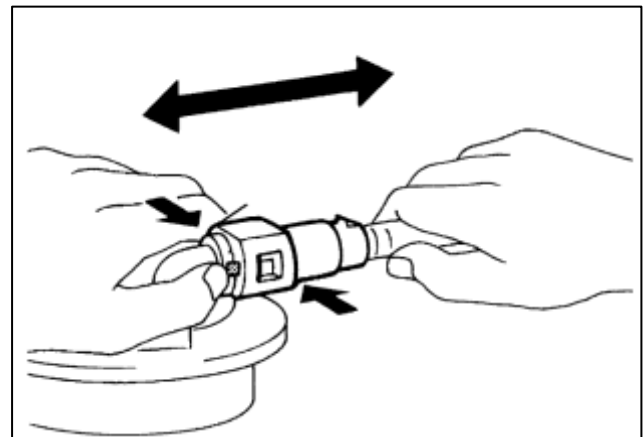
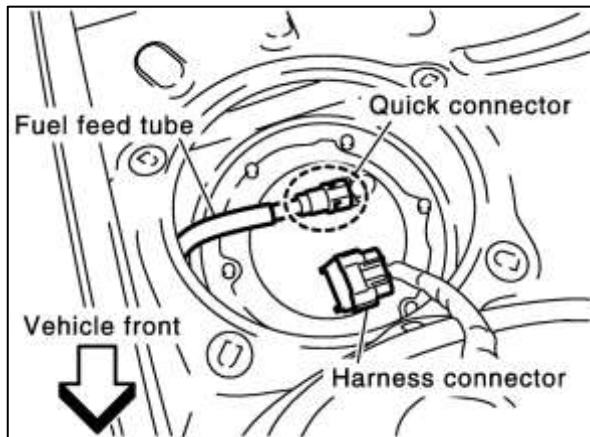


Figure 3

11. Using an 8mm socket, remove the (6) six M5 bolts securing the OE Fuel Top Hat to the Fuel Tank.

12. Carefully lift upwards to begin removing the Fuel Pump Basket Assembly. There is an internal siphon hose connected to the basket that needs to be removed. Once the basket is about halfway out, disconnect the siphon hose as shown in *Figure 4* below.

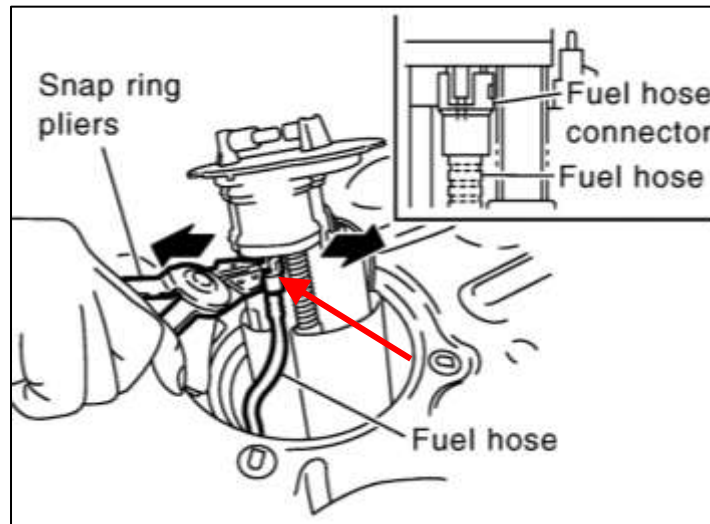


Figure 4

13. Once the siphon hose is disconnected, fully remove the Fuel Pump Basket Assembly. Be careful not to bend or damage the floater on its way out.
14. Depending on how much fuel is in your tank, the Basket Assembly will likely be full of fuel, drain any fuel into an appropriate container.
15. Move to a clean worktable to begin disassembly of the OE Fuel Basket.
16. Compress the Top Hat/Spring and using flathead screwdriver or your finger, release the locking tab shown below and separate the top and bottom of the Basket Assembly. *Figure 5*.

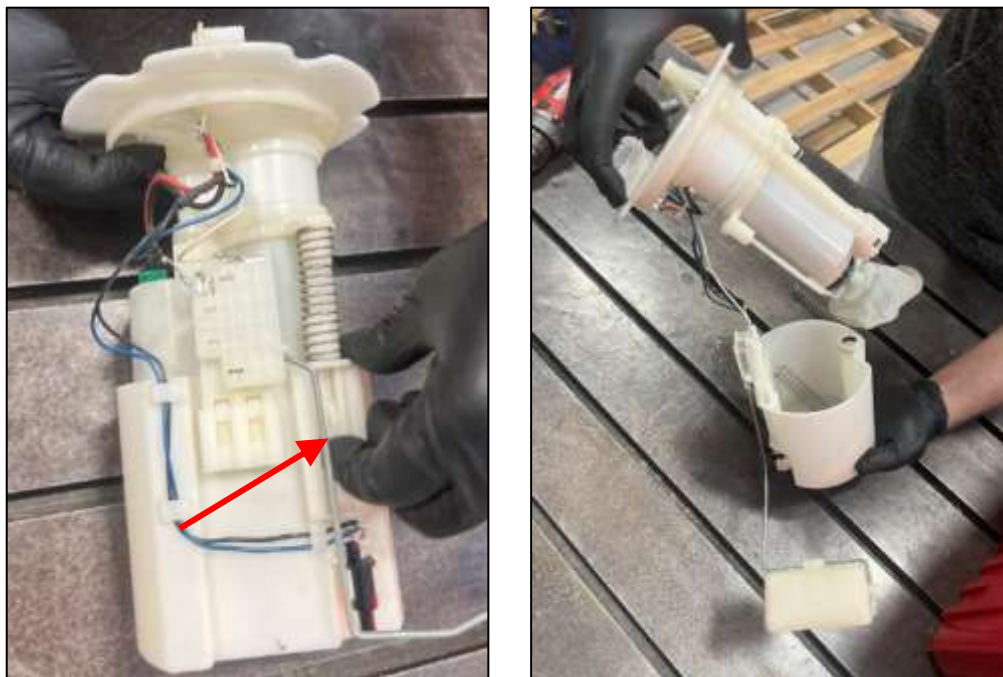


Figure 5

17. Once the halves are separated, disconnect the electrical connector on the top of the OE Fuel Pump.
18. Remove the Fuel Pump Sock/Pre-Filter, then remove the plastic Fuel Pump Retainer Piece (shown below) that is held in with (3) three tabs. Finally, remove the Fuel Pump from the housing. *Figure 6.*

NOTE: The images below are shown with the new Fuel Pump already installed.



Figure 6

19. Locate your new Fuel Pump. Most 340 Fuel Pumps are taller than the OE Fuel Pump and will require the Fuel Pump and the OE Fuel Pump Retainer to be modified to fit the taller pump. Using a file or Dremel, carefully remove/file the tabs on the bottom of the Fuel Pump and some material from the bottom of each of the channels on the retainer piece. *Figure 7.*



Figure 7

20. With the provided new Viton (rubber-like) Z1 Fuel Pump Grommet over The Fuel Pump Outlet, install the Fuel Pump into Fuel Pump Housing and secure it in place with the modified retainer. Install the OE Fuel Pump Sock onto the new pump. If your OE Sock is damaged, you can use the one supplied with the Fuel Pump. *Figure 8.*

If you are using a pump with the same factory style connector, plug the OE connector into the Fuel Pump. If you are using a pump that needs to be wired in, splice/crimp the wires to the wire on the OE Connector. *Figure 8.*



Figure 8

21. Using a flat head screwdriver remove the retainer securing the OE Fuel Pressure Regulator. *Figure 9.*

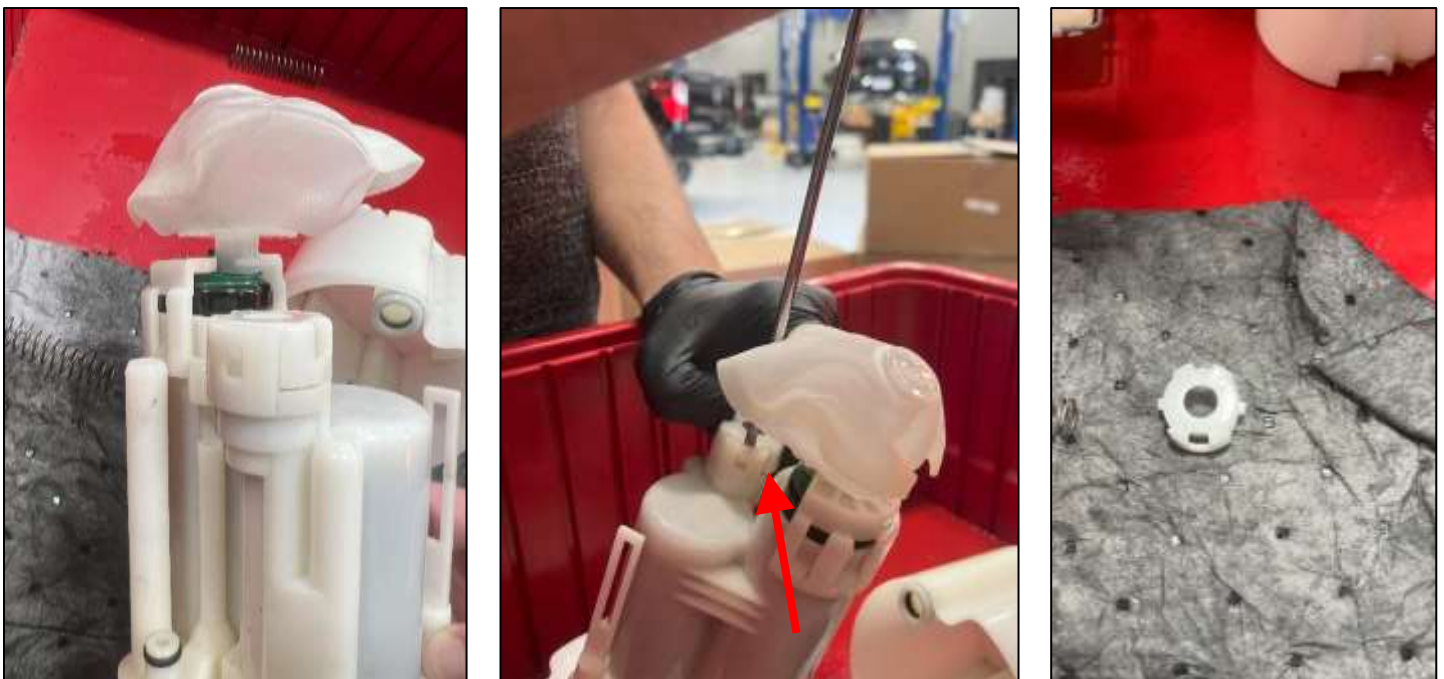


Figure 9

22. Using a pick or flat head screwdriver, remove the OE Fuel Pressure Regulator (**FPR**) from the Fuel Basket Housing. Shown below in *Figure 10*.



Figure 10

23. Insert the Z1 Regulator Delete into the opening where the OE FPR was (as shown below). The barb on the bottom of the Regulator Delete can rotate, so the orientation of it does not matter at this step. *Figure 11.*

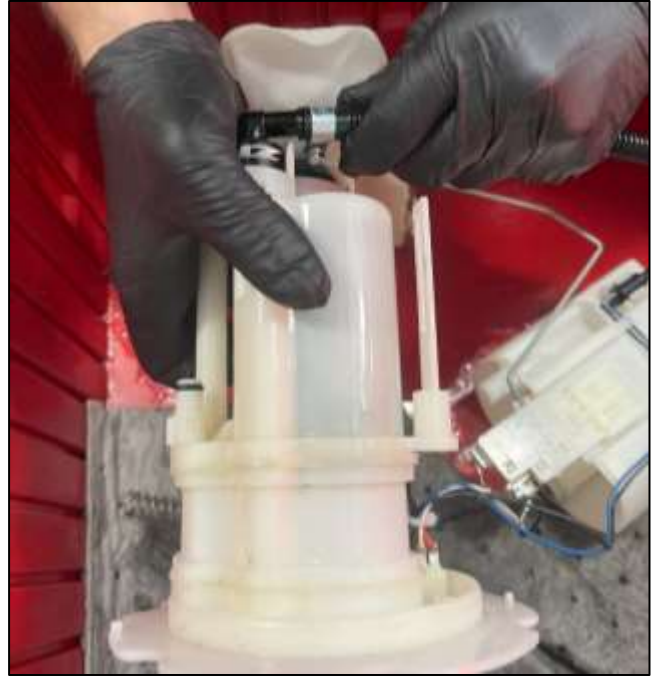


Figure 11

24. With a small screw clamp on the end, install one side of the PTFE Fuel Tube onto the Regulator Delete Barb.
25. The Fuel Tube will bend up towards the Top Hat and meet up with a Bulkhead Fitting that will be installed in the Top Hat in the upcoming steps. *Figure 12.*



Figure 12

26. Using a Dremel and flat tip bit, remove the webbing support on the underside of the Top Hat to allow the Bulkhead Fitting's Washer to sit flush (as shown below). There isn't a great spot to hold the Basket Assembly, but we found using a vice on the OE Feed Port worked best.



Figure 13

27. Once the webbing has been removed, position the PTFE Bulkhead Washer on the underside of the Top Hat and mark the center with a sharpie. Then, flip the Top Hat over and hold it up to the light and place the 2nd PTFE Bulkhead Washer on the top of the Top Hat, and mark the top of the Top Hat. *Figure 14.*



Figure 14

28. Drill the marked spot out to 9/16", debur/clean up the edges, and with a PTFE Bulkhead Washer on each side install the Bulkhead Fitting and nut onto the Top Hat. *Figure 15.*



Figure 15

29. Using a file or Dremel remove some material on the plastic webbing on the side of the Fuel Pump Housing. This will allow the PTFE Fuel Tube to sit nicer when routed to the Bulkhead Fitting. *Figure 16.*

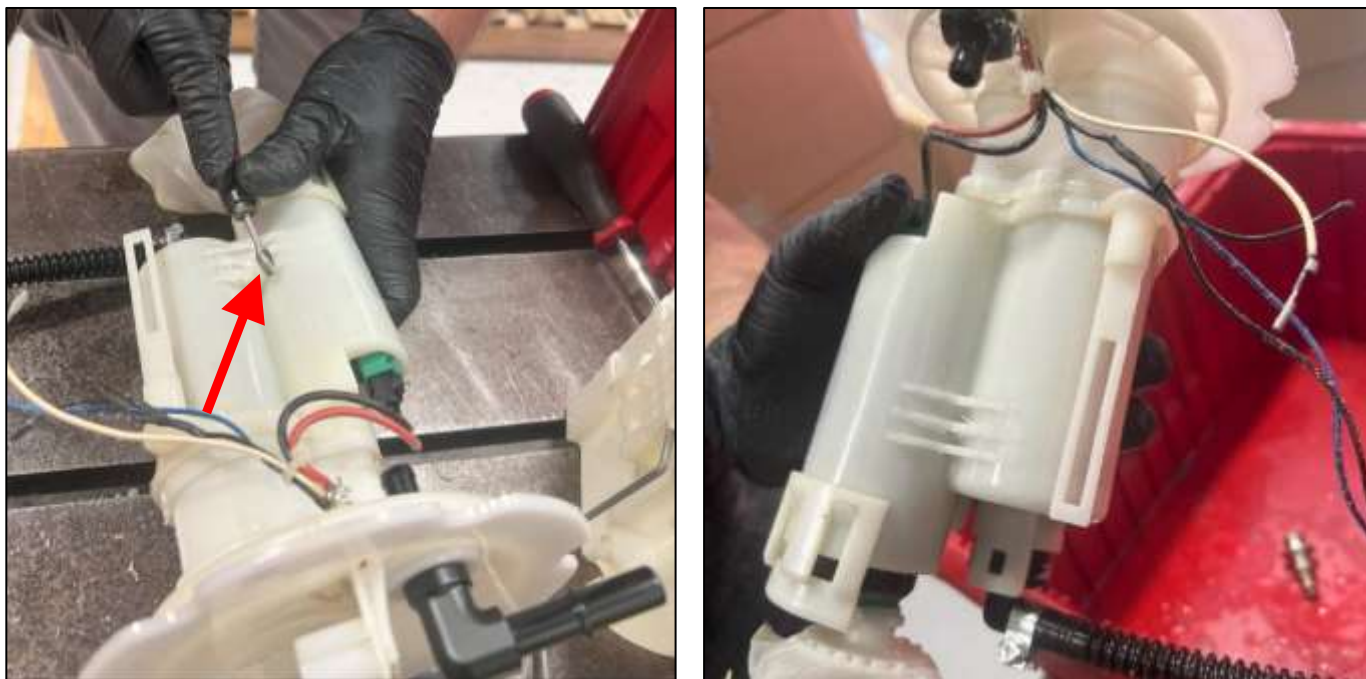


Figure 16

30. With the other screw clamp on the end, attach the other end of the PTFE Fuel Tube to the Bulkhead Fitting installed in the previous step. *Figure 17.*

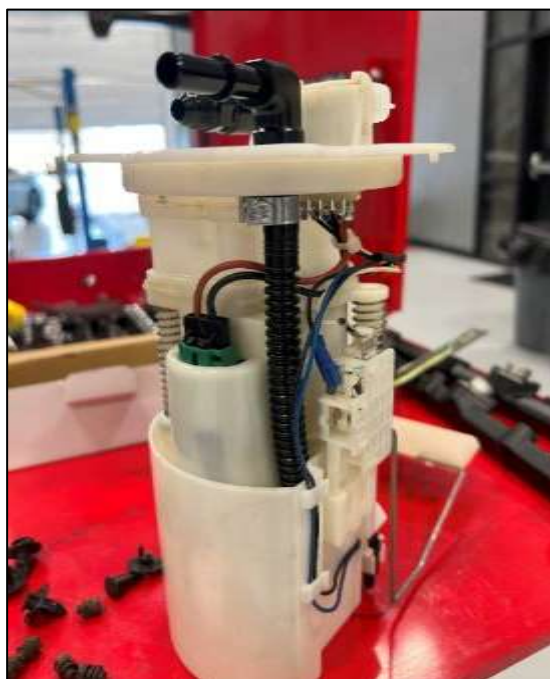


Figure 17

31. Install the larger (3/8") Quick Disconnect Threaded 6AN Adapter onto the OE Pump Outlet on the Top Hat.
Figure 18.



Figure 18

32. At the bottom of the Lower Basket there is a small yellow plastic piece that is part of the Venturi Refill System. This piece directs the output of the fuel that is bled off by the Fuel Pressure Regulator. When you upgrade your fuel pump and increase the amount of fuel the regulator must relieve at low idle situations, this Venturi component can become a restriction causing high fuel pressure at idle. To increase the amount this piece can flow, you must slightly drill out the orifice on the bottom. The orifice is roughly 0.050" when unmodified.

Using pliers or a pick, pull the Venturi piece slightly out of the bottom of the basket. You do not need to remove it, just pull it out enough to access the orifice on the side. *Figure 19.*



Figure 19

33. This is not an exact science, as many components affect how well the Venturi System will function. If your Fuel Pressure Regulator is unable to maintain low enough fuel pressure at idle, this step will need to be repeated with a slightly larger drill bit. It is better to start small and have to redrill, then to drill too much.

Be careful when drilling as this component is not sold separately and if damaged, will require the purchase of an entire new Sending Unit/Fuel Basket. Be careful to make sure the drill bit does not quickly thread into the orifice but is actually drilling. Do not drill through the backside of the piece, it will need to be drilled roughly 10mm deep. You can put a tape mark/stop on your drill bit if desired.

Drill out the orifice to the recommended size shown below:

Pump Size	Recommended Orifice Size	Recommended Drill Bit Size
255lph or 340lph	~0.075"	#49 drill bit = 0.0730", #48 drill bit = 0.076", 5/64 drill bit = 0.0781", 2mm drill bit = 0.0787"

34. Once drilled, reinstall the Venturi Orifice piece into the Lower Fuel Basket.
35. Clean off any debris, dirt, and plastic shavings from all fuel basket components.
36. Reassemble the Fuel Basket Assembly with the spring from *Step 16*. Take the assembled Fuel Basket over to the vehicle.
37. Carefully install the Fuel Basket Assembly into the Fuel Tank. Be careful not to bend the Fuel Level Sensor or pinch/cut the submersible fuel hose on the fuel tank opening. Make sure to also reconnect the siphon hose from inside the tank. *Figure 20*.



Figure 20

38. The Fuel Basket should rest on the bottom of the tank and will need to be compressed a small amount, roughly 5mm, to secure the Top Hat. Secure the Top Hat to the Fuel Tank with the (6) six provided M5 x 6mm Socket Head bolts. Connect the new Chassis Side Harness Connector to the Z1 Top Hat. *Figure 21.*



Figure 21

39. Reconnect the OE Fuel Line that was removed in *Step 10* to the new Quick Disconnect Fitting installed in the Top Hat. *Figure 22.*



Figure 22

FUEL RAILS:

1. Raise and support the hood of the vehicle.
2. If present, remove the Strut Tower Brace and Engine Cover.
3. Remove the Intake Tube running from the Air Filter to the Throttle Body.

Use Figure 23 below as reference for the following steps:

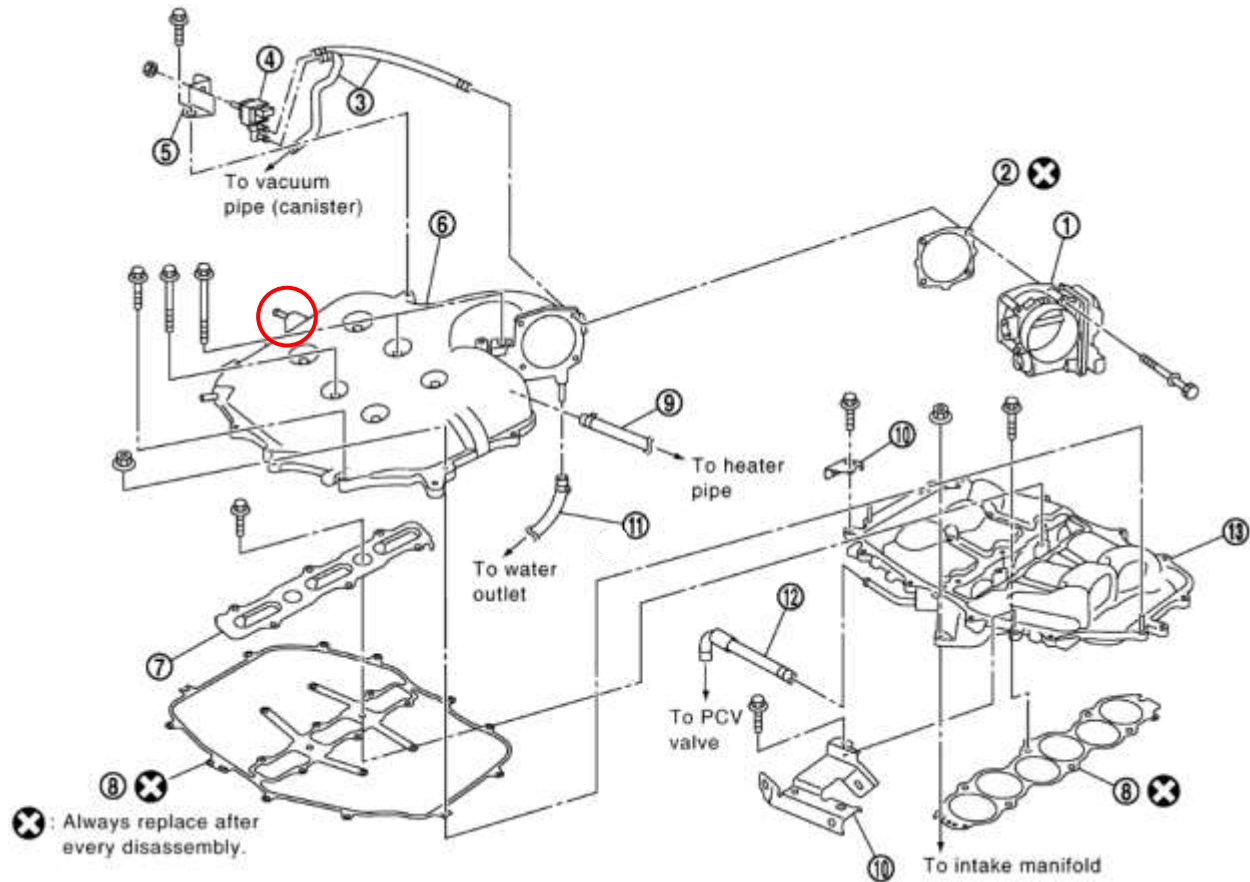


Figure 23

4. If a Coolant Bypass has been installed you can skip to Step 5, otherwise ensure engine is cold. Loosen the hose clamps and remove (2) two water hoses (9) & (11) running to rear of Upper Plenum (6). Plug hoses to prevent coolant leakage. *Figure 23.*
5. Disconnect electrical connector at Throttle Body (1). *Figure 23.*
6. Loosen the hose clamp and remove the vacuum hose at the side of the Upper Plenum, circled above in *Figure 23.*

7. Loosen the (4) four Throttle Body Mounting Bolts in reverse order as shown below. *Figure 24.*

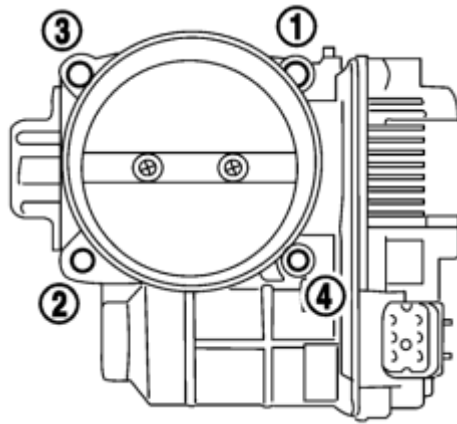


Figure 24

8. Carefully remove the Throttle Body and set aside.
9. Remove (1) one bolt securing the bracket (5) to Upper Plenum. *Figure 23.*
10. Loosen the hose clamp and remove the Vacuum Hose (3) from the port on the back of the Upper Plenum. *Figure 23.*
11. Loosen the Upper Plenum Mounting Bolts in reverse order as shown below. It is recommended to NOT remove the bolts from the Upper Plenum but instead unscrew them from the Lower Plenum and leave them in their respective spots inside the Upper Plenum. The bolts vary in length depending on location. If you remove the bolts completely, ensure you are keeping track of where they were. *Figure 25.*

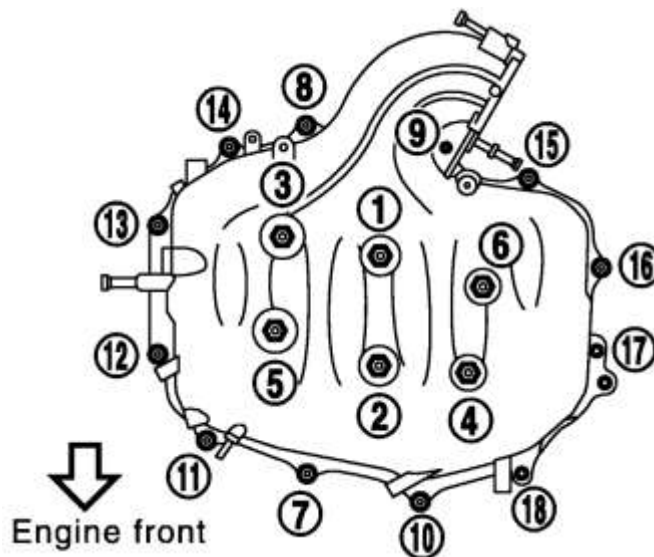


Figure 25

12. Loosen the hose clamp and remove the PCV Hose (12) at the front of the Lower Plenum (13). *Figure 23*

13. Loosen the Lower Plenum Mounting Bolts in reverse order as shown below. *Figure 26.*

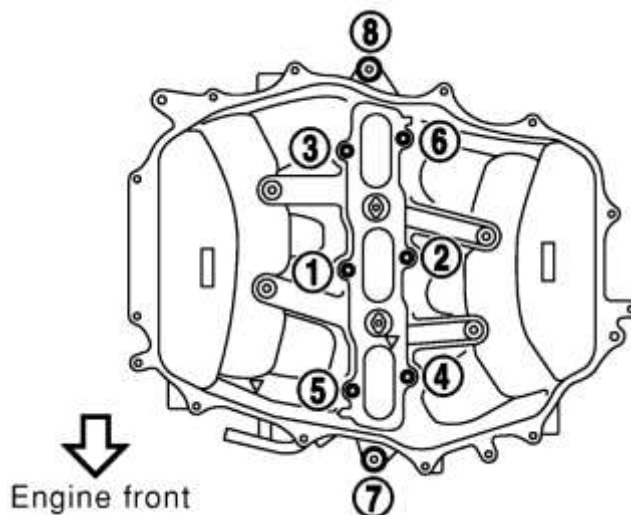


Figure 26

14. Remove the Lower Plenum, Metal Bracket, and Plenum Gaskets.

15. Clean and inspect the Lower Intake Manifold to Lower Plenum Gasket, replace if necessary.

16. Cover with tape or place rags in the Intake Runners to prevent parts or debris from falling into the engine.

17. If not completed in the Fuel Pump Upgrade and Fuel Pressure Regulator Delete section above, it is time to release fuel pressure. There are a couple ways to do this:

a. If you have access to CONSULT:

- i. Turn ignition switch ON.
- ii. Perform "FUEL PRESSURE RELEASE" in "WORK SUPPORT" mode with CONSULT.
- iii. Start engine.
- iv. Wait for engine to run out of fuel and stall.
- v. Crank engine over two or three times to release remaining fuel pressure.
- vi. Turn ignition switch OFF

b. If you do not have access to CONSULT:

- i. Disconnect the electrical connector on the top of the fuel tank.
- ii. Start engine.
- iii. Wait for engine to run out of fuel and stall.
- iv. Crank engine over two or three times to release remaining fuel pressure.
- v. Turn ignition switch OFF.

18. Place a rag around the Fuel Damper connected to the Fuel Feed Hose at the back left of the engine bay (circled below). While applying light pressure to the damper, loosen the (4) four bolts securing it to vehicle. *Figure 27.*



Figure 27

19. Disconnect the electrical connector at the back of each Fuel Injector.
20. Loosen the (4) four bolts which attach the Fuel Rails to the Lower Intake Manifold in reverse order as shown below. *Figure 28.*

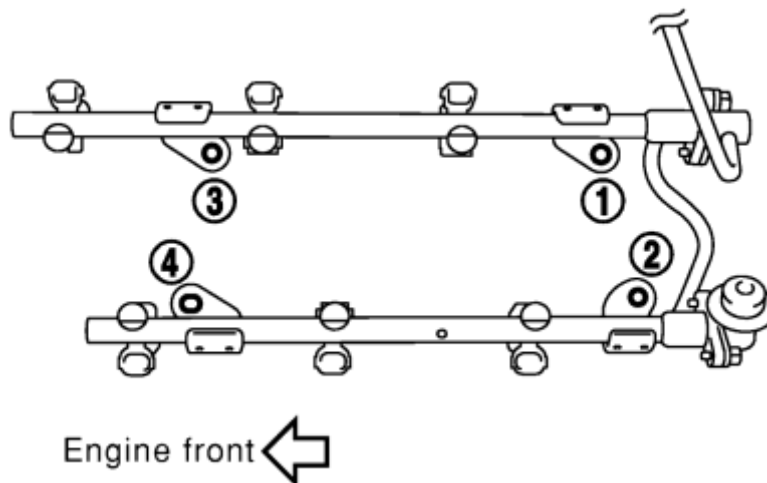


Figure 28

21. Carefully lift straight up on the front of the Fuel Rail to unseat the Injectors. Remove the Fuel Rail, Fuel Supply Tube, and Fuel Injectors.
22. With the Fuel Rail and old Injectors removed, inspect the Lower Intake Plenum where the Fuel Injectors sit. Remove the (4) four thick washers that were underneath (circled below) the rails and any O-rings that may be present and clean the area of any debris, oil, or fuel. *Figure 29.*

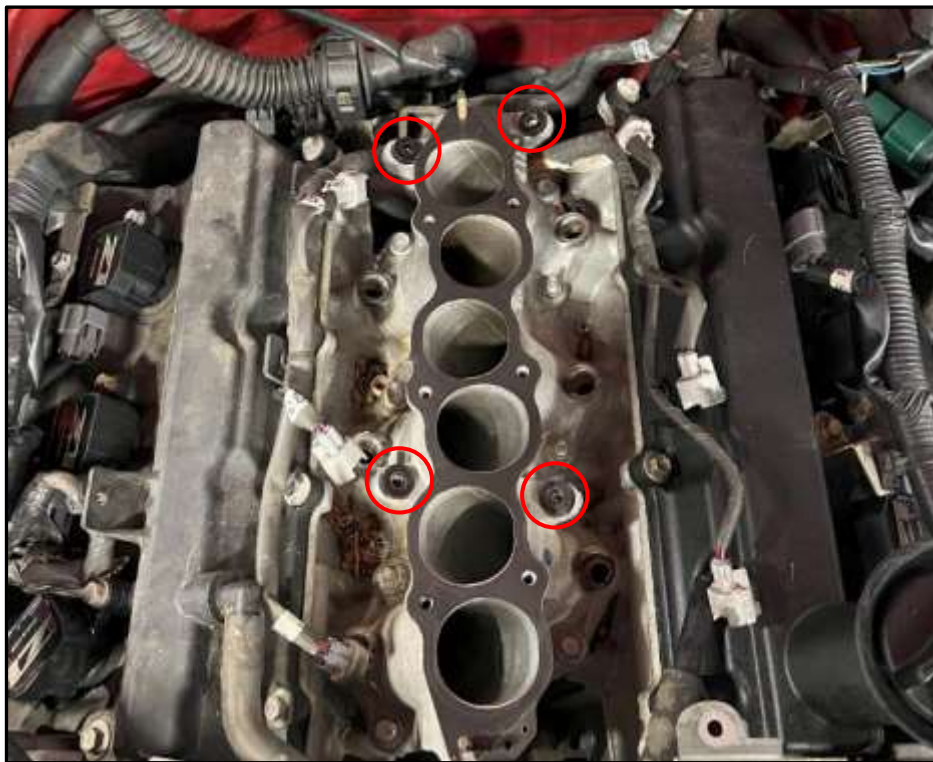


Figure 29

23. Open and remove the clip (3) securing each Fuel Injector to the Fuel Rail. These can be removed by pressing down on the tapered edge on each side to unseat them from the Fuel Rail or by pushing straight back away from the electrical connector. Use *Figure 30* below for reference.

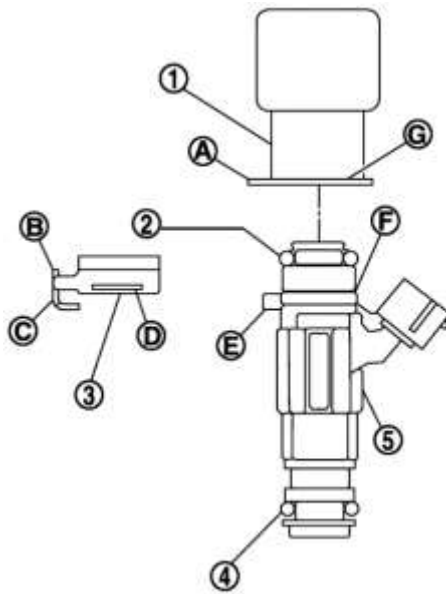


Figure 30

24. Remove each Fuel Injector from the Fuel Rail by pulling straight down.
25. Remove the clip ③ from the mounting groove ⑥ in each injector. Inspect the clips and replace them if necessary. *Figure 30.*
- NOTE:** Nissan's Factory Service Manual (FSM) recommends replacing these clips as well as a few other parts here after every disassembly. They can be found [HERE](#).
26. If you are re-using the OE Injectors, inspect each injector and their O-rings.
27. If you are using aftermarket Injectors, like the [Z1 350Z / G35 1000cc Drop-In VQ Fuel Injectors](#), locate them at this time.
28. Locate the Z1 Fuel Rails and (2) two OE Fuel Pulse Dampers. Remove the (2) two M5 button head screws securing the Damper Retainer to the bottom of the Z1 Fuel Rails, circled below. Install the OE Dampers into the Z1 Fuel Rails with the O-ring in between. Reinstall the retainer and M5 screws. *Figure 31.*

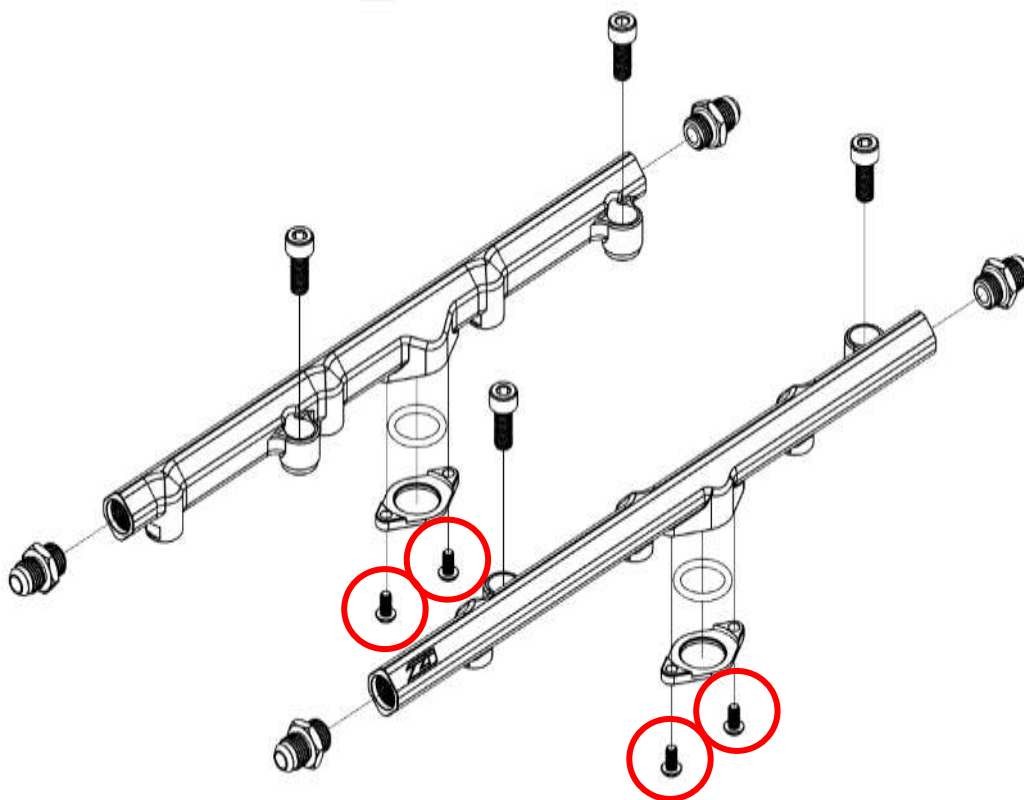


Figure 31

29. With some petroleum jelly on the bottom O-rings, carefully position the Fuel Rail and Fuel Injector assembly into the Lower Intake Plenum with the Z1 logos on the rails facing the front. Reference *Figure 32* below.

NOTE: Be careful not to let the tip of the Injector Nozzle contact other parts.



Figure 32

30. Secure the Rails to the Lower Intake Plenum with the bolts provided with the rails. The Rails should be torqued in two steps, starting at the rear then the front.

1st step: 6.9 - 7.9ft-lbs

2nd step: 16 - 19ft-lbs

31. Reconnect Injector Connectors to the correct injectors.
32. If you installed new larger Injectors, make sure to load an updated tune file before starting the vehicle.

33. Locate the 5mm Vacuum Hose and connect the PCV Line back to the EVAP Canister on the back of the Intake Manifold. Secure with Hose Clamps. *Figure 33.*



Figure 33

FUEL PRESSURE REGULATOR:

1. Your Z1 Fuel Pressure Regulator will arrive mostly assembled except for the Orb fittings/plugs for the Fuel Lines. *Figure 34* below shows the regulator and what each component/port is used for:

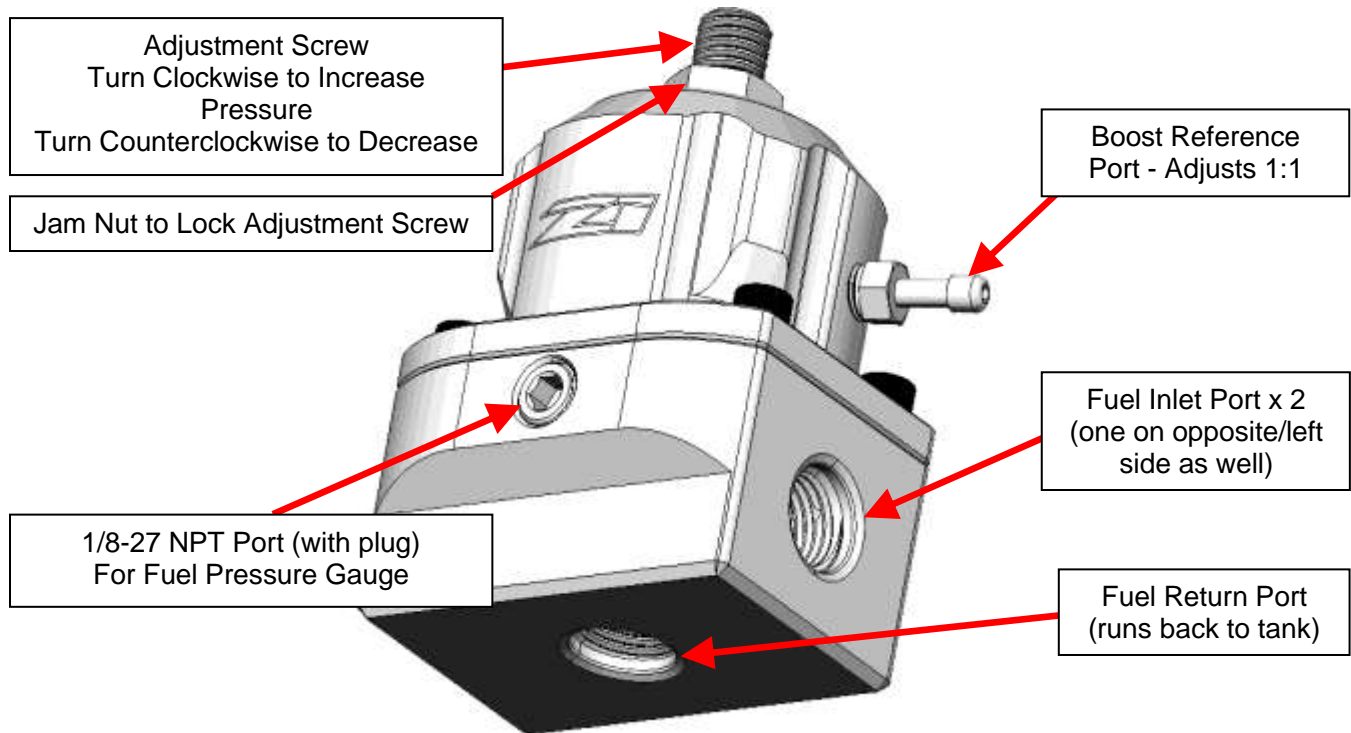


Figure 34

2. Install the (3) three 6AN ORB fittings on the bottom and sides of the Regulator. Remove the plug on the front of the Regulator and install the provided Fuel Pressure Gauge with Thread Sealant.
3. Remove the passenger side plastic battery cover and cowl trim piece. Then remove the white plastic clip on the back of the firewall, shown below with a yellow arrow. Use pliers to pinch the nubs and push towards the rear of the vehicle to remove it from the firewall. *Figure 35*.

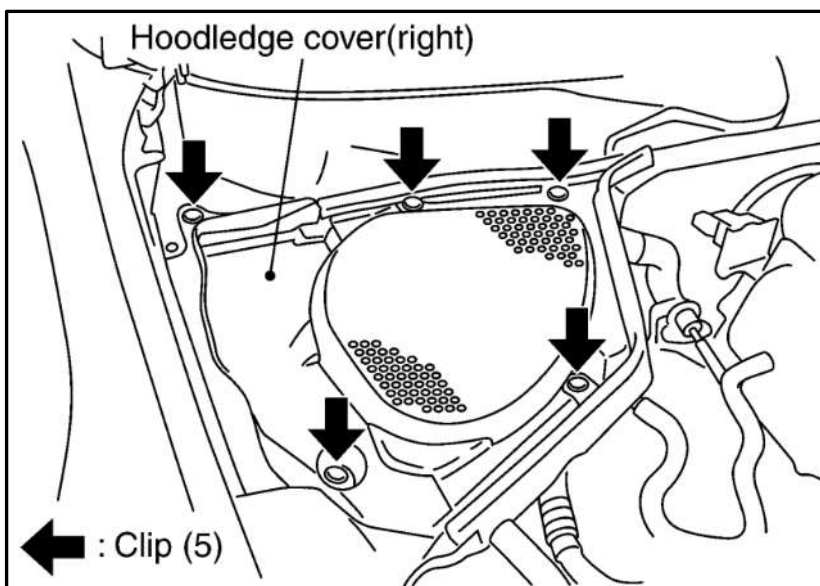


Figure 35

4. Remove the universal bracket that comes on the Regulator. Retain the hardware.
5. Attach the larger piece of the other provided bracket onto the rear of the Regulator with the bolts removed in the previous step. The orientation the bracket should be bolted on in is shown below. *Figure 36.*

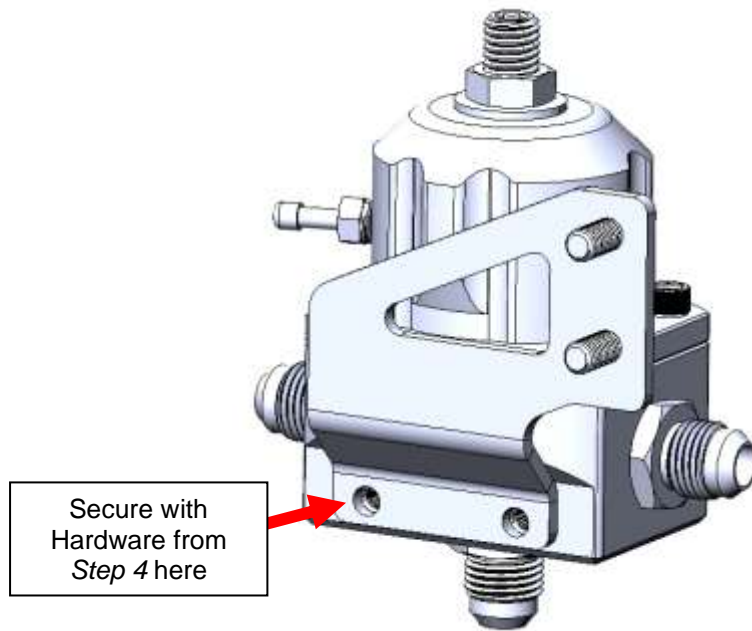


Figure 36

6. Install the (2) rubber bonded washers onto the PEM studs.

NOTE: Some Brackets will not have the PEM Studs installed but will have included Bolts instead. Install the Bolts through the bracket and place the Rubber Bonded Washers on the backside of the Bracket.

7. Install the FPR Bracket's studs into the (2) two holes on the firewall where the plastic clip was removed from in *Step 3*. Then place the other L-shaped bracket onto the studs and secure with the provided flange nuts. *Figure 37.*

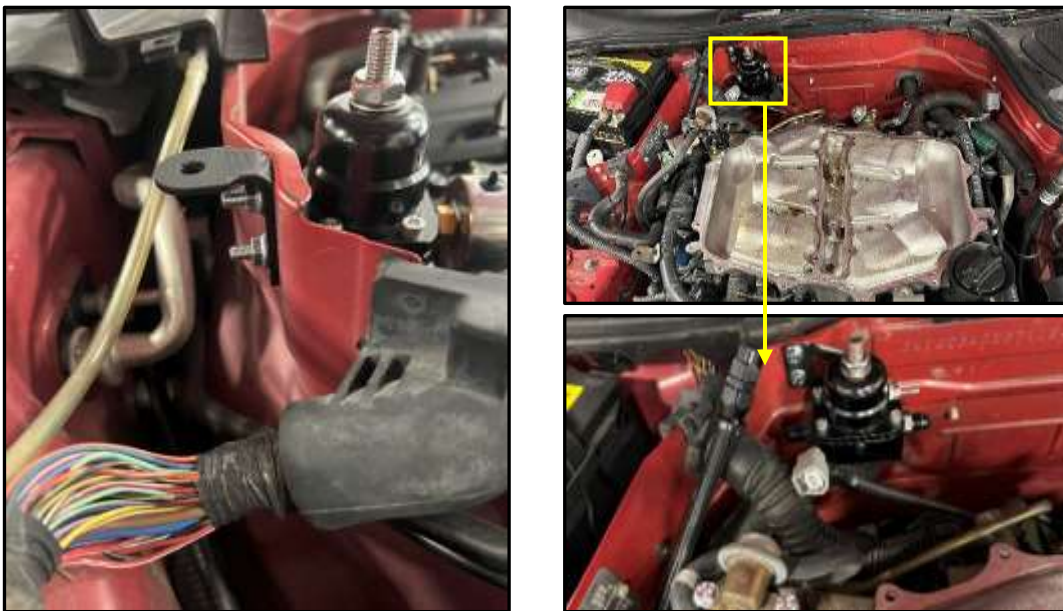


Figure 37

8. Consult your tuner on whether they would like to use boost reference for the Regulator. If you need boost reference, locate the 4mm Silicone Vacuum Hose. There is an unused port on the OE Upper Intake Plenum that is capped off. Remove the cap and run the vacuum hose from the FPR to the port on the front corner of the Upper Plenum. Secure with the two provided small clamps. You can optionally route the Vacuum Hose to other ports or tee into other vacuum lines. *Figure 38.*



Figure 38

FUEL LINES AND FUEL FILTER:

1. With the Z1 Fuel Return Kit, the Factory Fuel Feed Line will function as the return line back to the tank. The feed hardline will need to be disconnected from the rubber feed hose connected to the damper in the engine bay. The OE rubber hose connects to the OE hardline on the inside of the passenger side frame rail with a quick connector. Remove the plastic cover circled below. Then separate the lines just like the one from *Step 10, Fuel Pump Upgrade and Fuel Pressure Regulator Delete*. *Figure 39*.

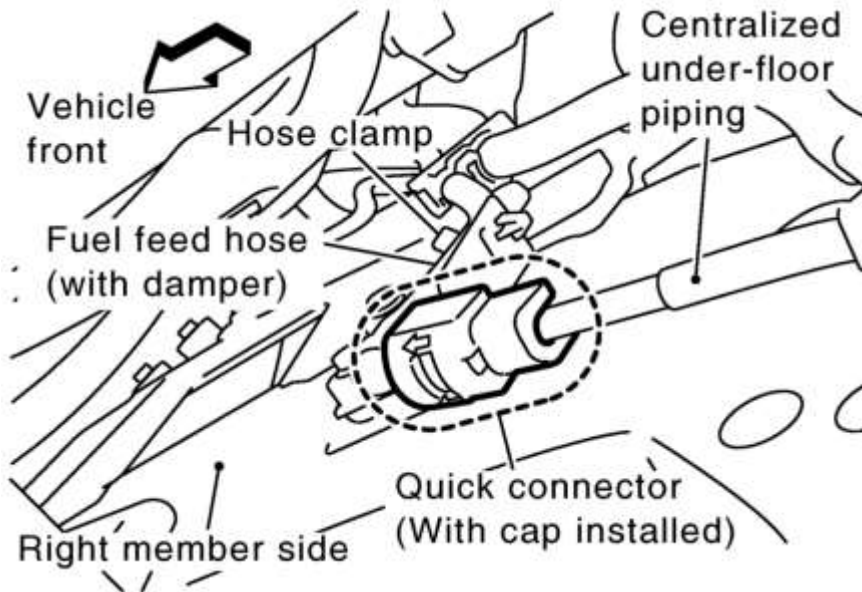


Figure 39

2. Remove the release piece from the OE hardline if it did not come off with the rubber hose. Install the provided 5/16" (smaller) Billet Quick Disconnect Threaded Adapter onto the OE Hardline. It is a two-part adapter; the smaller grooved piece will slide over the lip on the OE Hardline and then the larger piece will thread onto the smaller. *Figure 40*.



Figure 40

3. Locate the fuel line kit. The kit contains 7 different lines. The lines will be slightly different depending on if you have a 350Z or G35. Each line will be bagged individually with a part number on the bag, do not separate the line from its bag until you are ready to install it. **These lines have a PTFE core that if kinked cannot be un-kinked.** Be careful when routing and maneuvering these lines, if you kink one you will need to order a replacement. **DO NOT overtighten the fuel line fittings or use any additional sealant on the lines.**

Refer to *Figure 41* below as reference to how each Line will be run.
The chart below details all (7) seven provided Fuel Lines and what each fitting connects to.

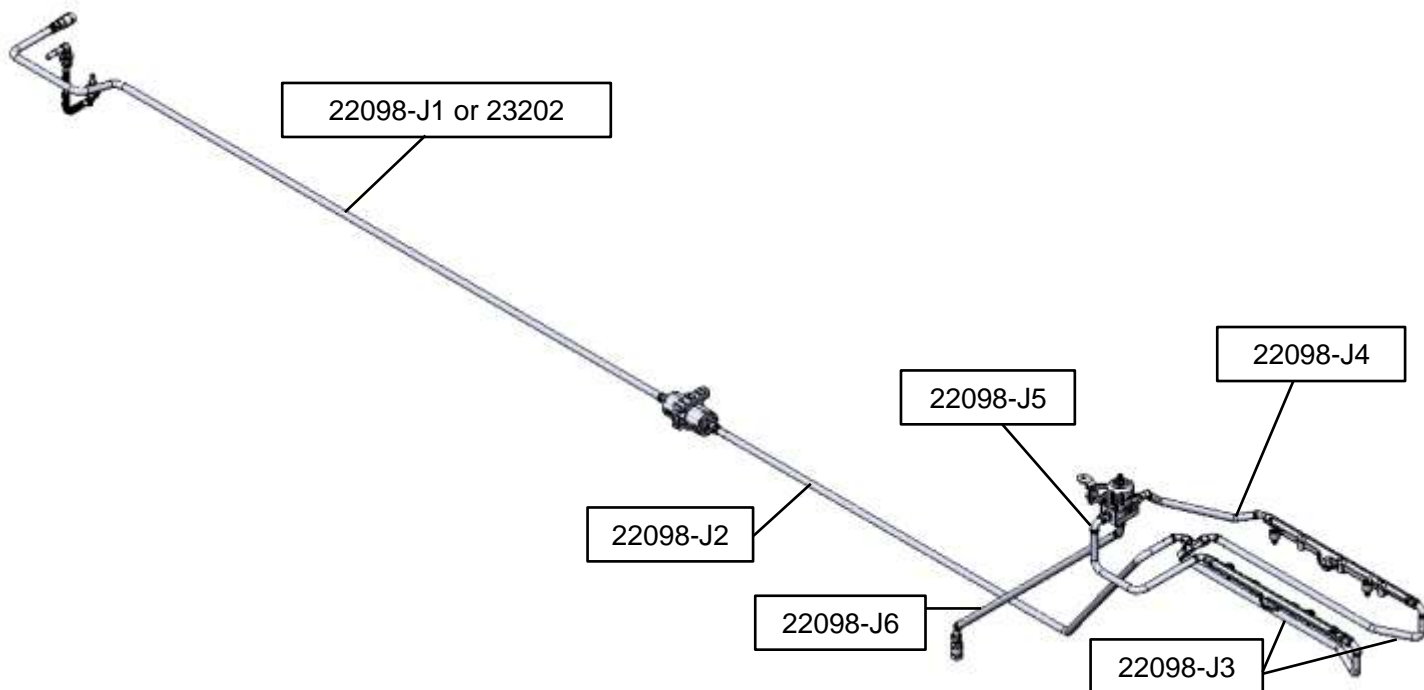


Figure 41

PN	Desc.	Fitting #1	Fitting #2
22098-J1 (350Z)	Top Hat Outlet → Fuel Filter Inlet	Straight – Top Hat Outlet	Straight – Fuel Filter Inlet
23202 (G35)	Top Hat Outlet → Fuel Filter Inlet	Straight – Top Hat Outlet	Straight Fuel Filter Inlet
22098-J2	Fuel Filter Outlet → Single T-Adapter	Straight – Fuel Filter Outlet	90° – Single Side of T-Adapter
22098-J3	Dual T-Adapter → Front of Fuel Rails	90° - Dual Side of T-Adapter	90° – Front of Fuel Rails
22098-J4	Rear of Driver Fuel Rail → Driver FPR	120° - Rear of Driver Fuel Rail	135° – Driver Side of FPR
22098-J5	Rear of Pass. Fuel Rail → Pass FPR	90° - Rear of Pass. Fuel Rail	90° – Pass Side of FPR
22098-J6	Bottom of FPR → Factory Feed Line	135° - Bottom of FPR	135° – Adapter on Factory Feed Line

4. From the underside of the car, push the Pump Feed Line (**22098-J1/23202**) up between the chassis and the front of the Fuel Tank towards the Fuel Pump Top Hat. *Figure 42.*

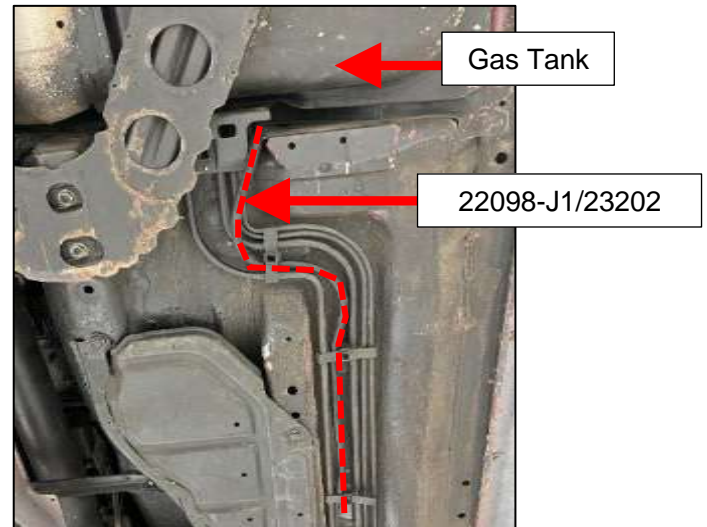


Figure 42

5. Inside the vehicle, grab the feed line pull it towards the Top Hat but do not install the line yet.
6. On the underside of the vehicle there will be several OE hardline retaining clips (shown below). The 4th clip from the rear will be removed and replaced with the Z1 External Fuel Filter Mounting Bracket. Remove the 4th clip (shown below with an arrow) from the vehicle by pulling down. *Figure 43.*

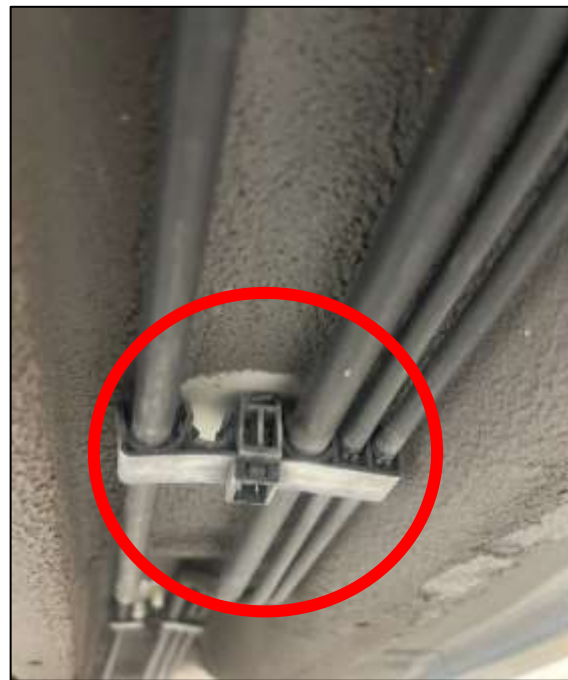


Figure 43

7. Locate the Fuel Filter and Mounting Bracket. Position the Fuel Line Clip piece of the Bracket onto the stud where the OE fuel line clip was removed in *Step 6*. Secure the Z1 Fuel Line Clip with the supplied flange nut.
8. Position the Z1 Fuel Filter into the clamp piece of the Bracket and tighten clamp with the supplied socket head bolt. Then secure the clamp to the Fuel Line Clip with the (2) two supplied flange bolts. **Make sure the flow arrow is pointing towards the front of the vehicle; Fuel will not flow if it is reversed.** *Figure 44.*



Figure 44

9. Route the rest of the Feed Line along the Factory Hard Fuel Line against the passenger side frame rail (shown below). There is an open spot on the hardline retaining clips, route the Z1 Lines in that spot. *Figure 45.*

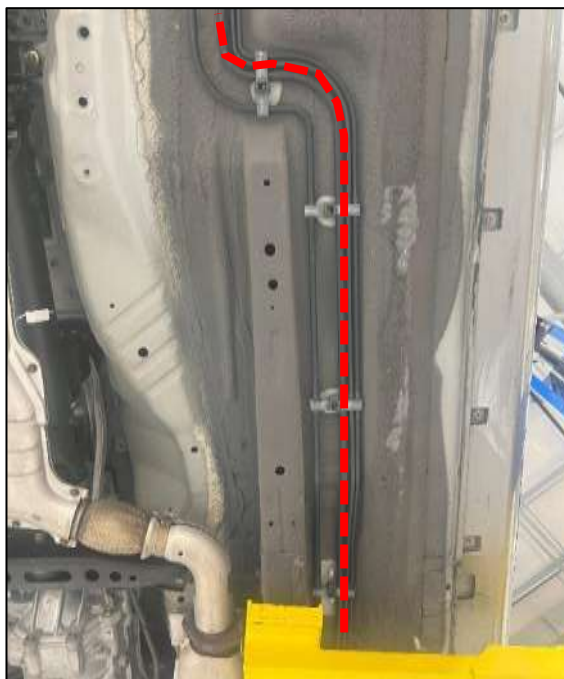


Figure 45

10. Secure the Pump Feed Line to the INLET of the Fuel Filter. The filter is marked with “IN” and “OUT” on each fitting.
11. Install the Filter Outlet Fuel Line (**22098-J2**) onto the Outlet of the Fuel Filter and route the rest of the line along the factory hard fuel lines against the passenger side frame rail towards the engine bay.
12. Once passed the frame rail, route the feed line over the suspension arm and up towards the engine.
13. Using the supplied Cushion Loop Clamp, on the inside of the passenger side frame rail, secure the feed line to the bolt on the OE hard line bracket.
14. Route the feed line towards the rear of the engine.
15. Locate the 6AN T-Fitting. Install the single side T-Fitting onto the Feed Line behind the engine.
16. Install either side of both **22098-J3** lines onto the dual side of the 6AN T-Fitting. *Figure 46.*

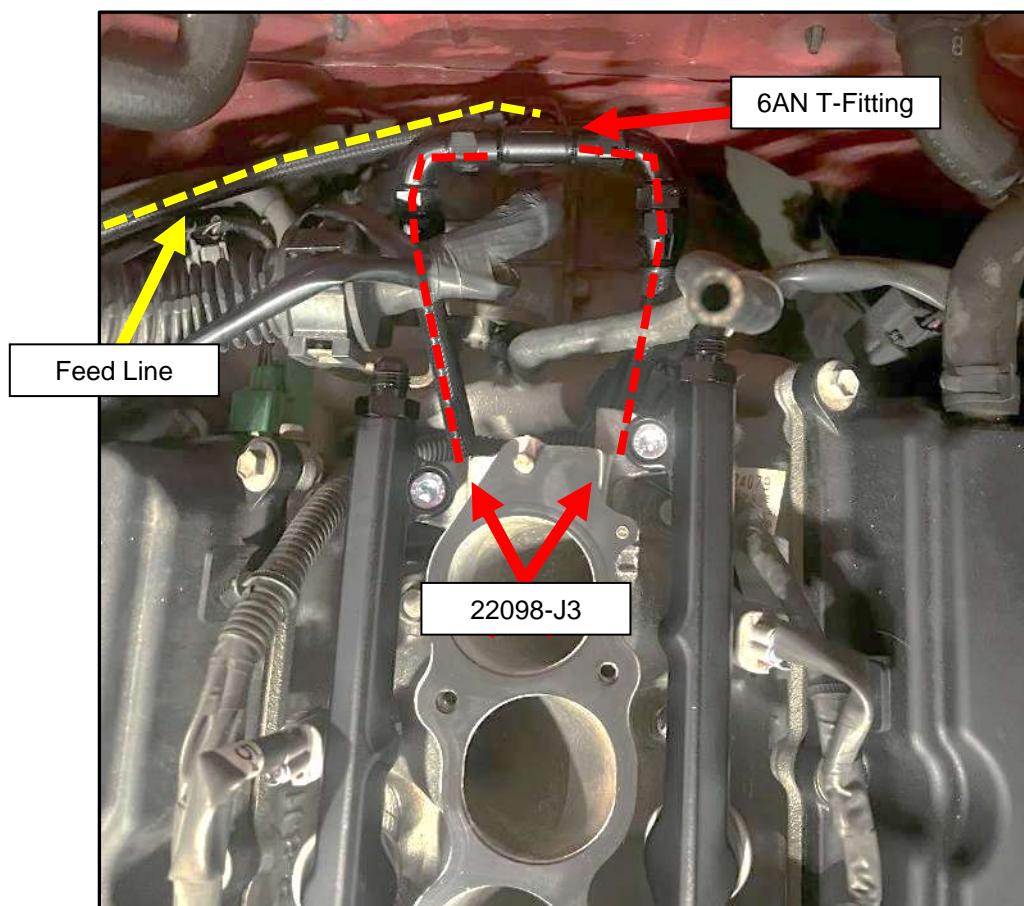


Figure 46

17. Run the (2) two 22098-J3 Feed Lines Underneath the middle of the Lower Plenum towards the front of the engine. You should be able to push them through from the rear, if not you will need to remove the Fuel Lines and Lower Intake Plenum. Install the other end of the short feed lines onto the fittings at the front of the Z1 Fuel Rails. *Figure 47.*

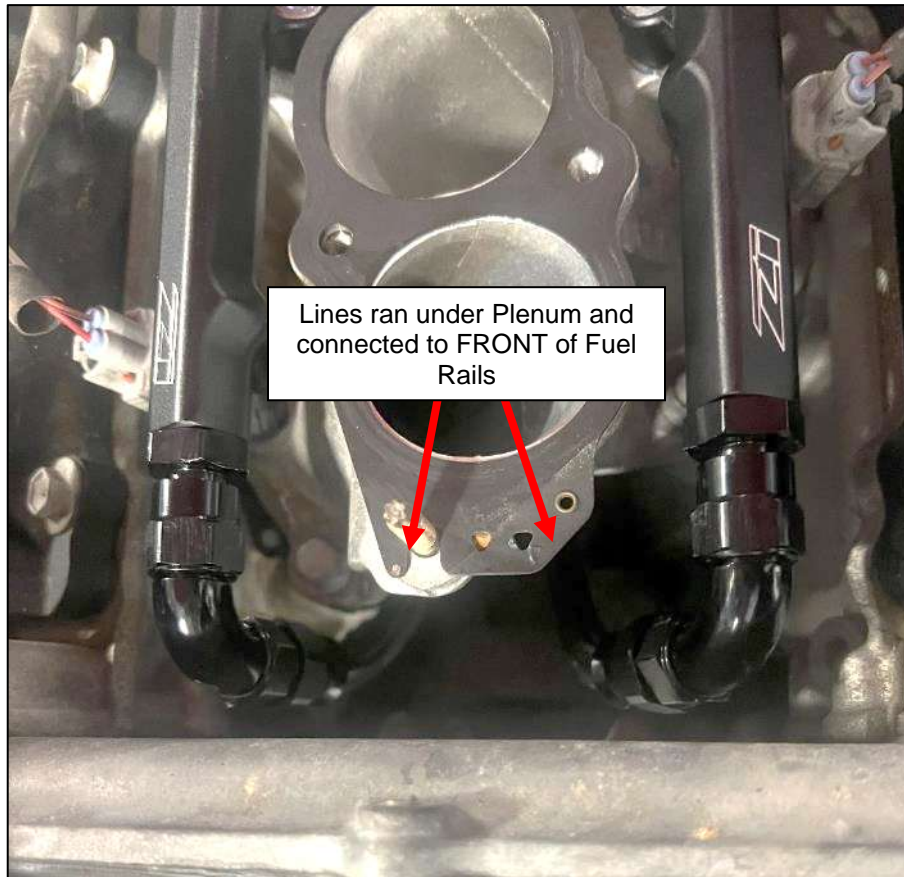


Figure 47

18. Install the 120° fitting on the **22098-J4** line onto the rear of the Driver Side Fuel Rail. Install the 135° fitting onto the Driver Side of the FPR. *Figure 48.*
19. Install the 90° fitting on the passenger **22098-J5** line onto the rear of the Passenger Side Fuel Rail. Install the 90° fitting onto the Passenger Side of the FPR. *Figure 48.*

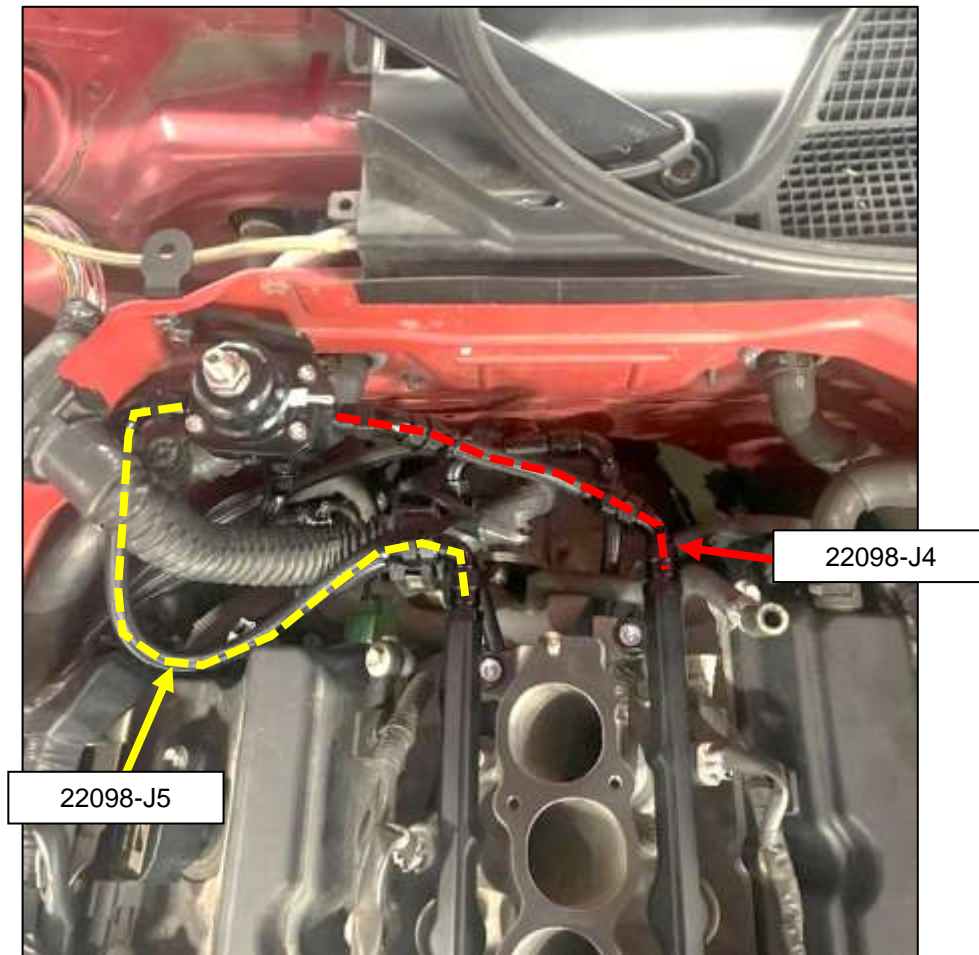


Figure 48

20. Install either end of the **22098-J6** line onto the bottom side of the Z1 Regulator and route towards the Factory Feed Line on the passenger side frame rail. *Figure 49.*

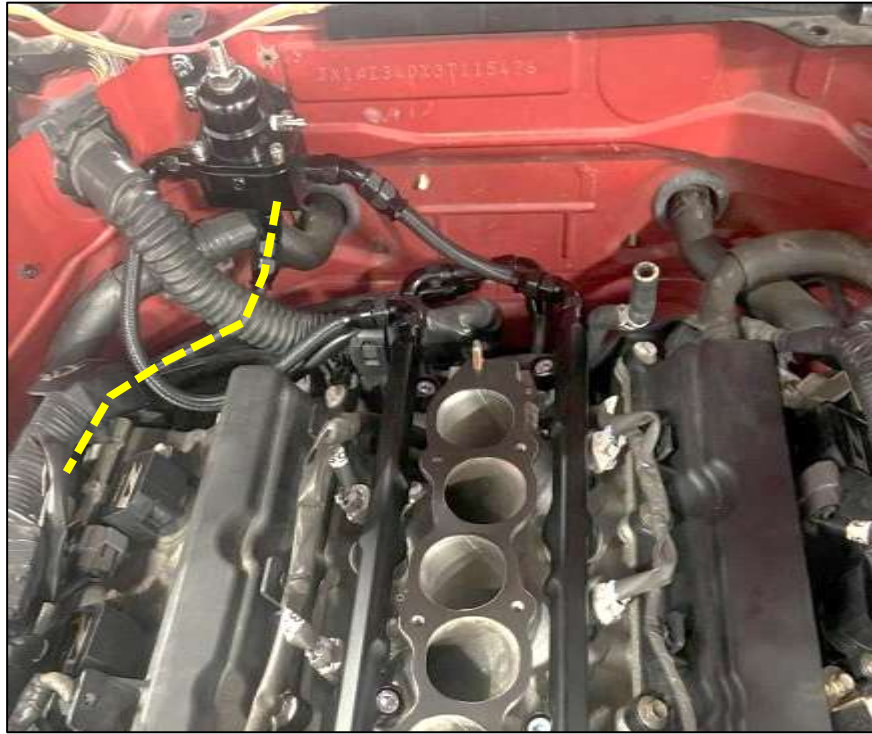


Figure 49

21. Connect the other end of the **22098-J6** line to the quick disconnect AN adapter fitting on the factory feed line that was installed in *Step 2. Figure 50.*



Figure 50

22. Make sure all connection points are tight.

23. Go back inside the vehicle and thread the new Z1 AN feed line onto the adapter fitting on the pump side of the Z1 Top Hat. *Figure 51.*



Figure 51

24. Connect the OE Hard Fuel Line (what used to be the stock feed line) to the return side of the Z1 Top Hat.

25. Reinstall all other components removed in the previous steps (intakes, cowl panel, trim pieces, etc.).

26. Check the vehicle for loose tools/items.

27. Reconnect the negative battery cable.

28. Prime the fuel system by turning the key to the ON position, but do not start the vehicle.

29. Check the fuel pressure gauge to see if you have fuel pressure and check for leaks. This may take several priming sequences for pressure to build up.

30. If you installed new larger injectors, contact your tuner for an updated tune before start up.

31. Start vehicle.

32. Check for leaks again.

33. Quickly monitor the Fuel Pressure Gauge and adjust the Z1 Regulator to the desired fuel pressure. Rotating the adjustment screw clockwise will increase pressure, while rotating it counterclockwise will decrease pressure. Most OEM Nissan fuel systems are set to 52 PSI. The Z1 Regulator can adjust pressure from 40-75psi.
34. Once you confirm the base fuel pressure is correct, tighten the jam nut on the adjustment screw.

END

Additional Technial Support:

Contact Z1 Motorsports at info@z1motorsports.com
Or call 770-838-7777 between 9am and 6pm ET