INSTALLATION INSTRUCTIONS

FUEL RAIL FOR INLINE-6 FORD BARRA

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Document# 19-0233

WARNING: DO NOT EXPOSE WORK AREA TO ANY SPARKS OR FIRE. DO NOT SMOKE WHILE OPERATING ON THE FUEL SYSTEM. CLEAN UP ALL FUEL SPILLS IMMEDIATELY. WORK IN A WELL VENTILATED AREA.

1. If accessible, refer to the factory service manual for disassembly questions.

To relieve fuel pressure, temporarily disconnect the fuel pump connector or remove the fuel pump fuse. Start and idle the vehicle and allow the engine to stall. Turn the ignition OFF and remove the key. Allow the engine to cool down.

Using a 10mm wrench, disconnect the (-) negative terminal.

2. Find the feed and return hoses attached to the rear of the OEM fuel rail. Note the function of each hose connector: feed = black, return = white.

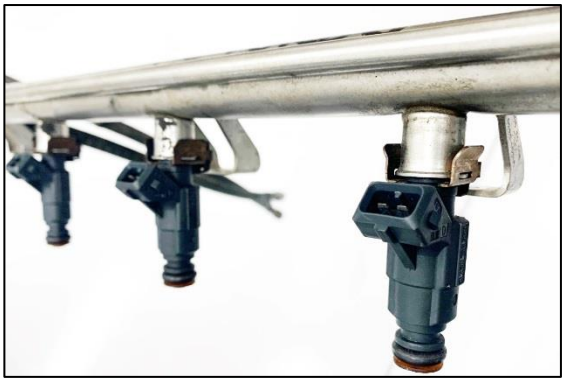
These hoses are secured to the OEM fuel hard lines with SAE quick connectors. No tools are required to disconnect each hose. First, push each fitting further onto the line. Simultaneously press the SAE plastic locks inwards and pull apart to release. Have a rag handy as fuel will leak from these connections.

3. Remove the throttle body and associated parts. Unplug the 6 injector connectors and pull off the FPR vacuum hose. Remove the fuel rail mounting bolts.

Carefully pull the fuel rail assembly away from the cylinder head to dislodge. As shown, the fuel injectors should remain attached to the fuel rail.

Place on a workbench and catch any fuel that drips out. Drain any excess fuel into a safe container for disposal.

Thoroughly clean out any dirt or debris found in the cylinder head ports with oil.



4. One by one, carefully unclip the fuel injectors from the OEM fuel rail. The OEM fuel injector locking clips will be reused.

Ford Barra fuel injector styles, for reference:
Left Picture: BA-BF Turbo Fuel Injector
Middle Picture: FG Non Turbo Fuel Injector
Right Picture: FG Turbo Fuel Injector

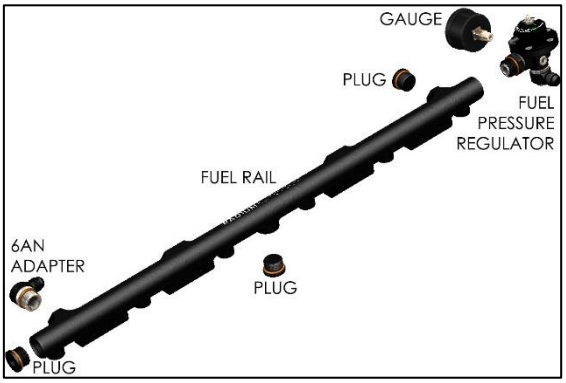
5. Lubricate all adapter fitting O-rings and secure to the five 8AN ORB ports. If NOT installing Radium Engineering 20-0536-PK, know that the front port will likely need to be plugged for thermostat housing clearance.

20-0536-PK Barra Fuel Rail Plumbing Kit

a. Secure the included fittings to the ports exactly as depicted.

b. Apply PTFE (Teflon) paste to the fuel pressure gauge NPT threads. Hand tighten, than add 1.5 to 3 turns to properly secure it to the adapter fitting. The opposing 1/8" NPT port should be plugged.

c. The DMR regulator's lower 6AN return fitting should point toward the hard lines.



6. There are 3 different fuel rail kits based on the vehicle's intake manifold.

20-0536-01 Ford Barra Fuel Rail, BA-BF Turbo

Note: Front and rear mounting brackets are unique (different).

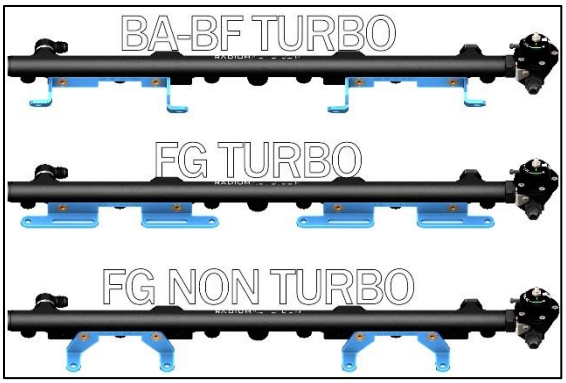
20-0536-02 Ford Barra Fuel Rail, FG Turbo

Note: Front and rear mounting brackets are identical (same).

20-0536-03 Ford Barra Fuel Rail, FG Non Turbo

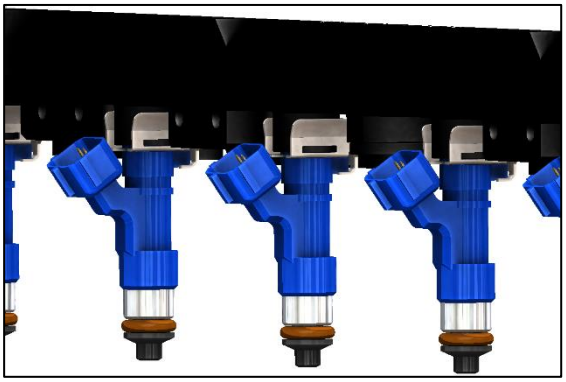
Note: Front and rear mounting brackets are identical (same).

Secure brackets using the supplied M6 flat head bolts and a 4mm Allen wrench.



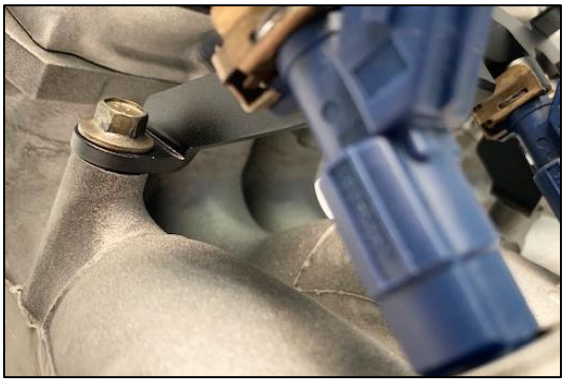
7. If reusing stock or OEM compatible fuel injectors, slide the OEM clips into the slot on the top portion of the injectors. NOTE: The OEM clips can be installed prior to inserting the injectors into the fuel rail.

After lubricating the top injector O-rings, fully insert the fuel injectors into the Radium fuel rail ports. If using the OEM clips, they will "snap" into place.



8. Lubricate the lower injector O-rings. Position the fuel rail assembly over the intake manifold. Press down until the injectors slide into the intake manifold ports.

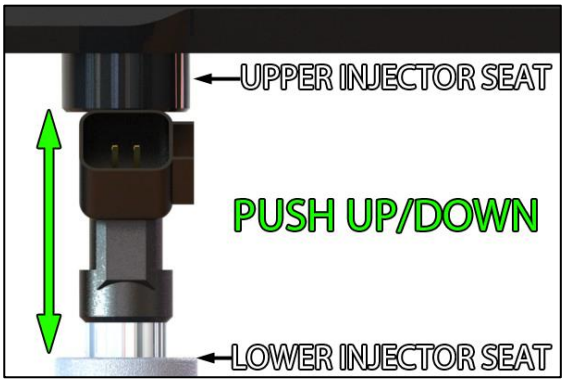
Secure the fuel rail to the intake manifold using the OEM mounting bolts.



9. As a test, push the fuel injectors downward until they bottom out. Now inspect the injectors' upper O-rings and confirm they are still inserted into the fuel rail injector bores. Do not pressurize the fuel system until the proper height is achieved.

Orientate the fuel injectors such that the electrical connectors do not experience any interference with the surrounding area. Plug in each of the injector connectors.

If not installing the 20-0536-PK Barra Fuel Rail Plumbing Kit, skip to the last step.



10. **20-0536-PK Barra Fuel Rail Plumbing Kit**

Cut a 17” (432mm) section out of the included fuel hose.

Lubricate the barbs of the 2 provided PushLok hose ends. Fully insert one PushLok hose end into the short hose and one PushLok hose end into the long hose.

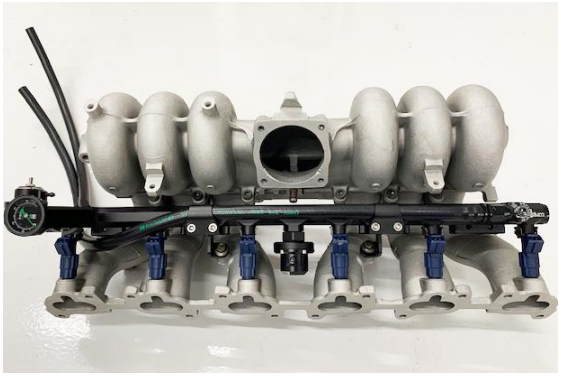
NOTE: PushLok hose ends DO NOT require hose clamps.

11. **20-0536-PK Barra Fuel Rail Plumbing Kit**

Screw the long hose into the 6AN fuel rail adapter fitting. Screw the short hose into the 6AN direct mount regulator fitting. Tighten the hose ends using an 11/16” non marring wrench.

Secure the long hose to the fuel rail using the included M6 socket head bolts and fuel rail clamps. Tighten the 4 bolts using a 5mm Allen wrench.

NOTE: Optional Radium Engineering Fuel Pulse Damper shown in center port.



12. **20-0536-PK Barra Fuel Rail Plumbing Kit**

Line up the longer hose to the OEM feed hard line and cut to length. The feed line will likely reach further than the return hose by about 2” (51mm).

13. **20-0536-PK Barra Fuel Rail Plumbing Kit**

Slide an EFI clamp over each hose and insert the provided SAE quick connect fittings. As shown, tighten using a Phillips head screwdriver.

Lubricate each internal SAE fitting O-ring and push onto each OEM hard line until click is “felt”. Be sure not to get these 2 lines swapped around.

14. **20-0536-PK Barra Fuel Rail Plumbing Kit**

The direct mount regulator (DMR) is NOT preassembled to a specific fuel pressure. As shown, the Ford Barra fuel pressure is 4.0 bar (58 psi) static from the factory.

15. **20-0536-PK Barra Fuel Rail Plumbing Kit**

To increase fuel pressure, tighten the set screw. To reduce fuel pressure, loosen the set screw. Once adjusted, lock the 3/32” set screw in place with the 3/8” jam nut.

16. **20-0536-PK Barra Fuel Rail Plumbing Kit**

Two DMR orifices with different inside flow diameters are included for optimal response efficiency. They are used to match the pump(s) flow rate, fuel hose restrictions, and targeted base static fuel pressure. The DMR is preassembled with the “silver” orifice and is a perfect match for the vast majority of pump systems.

However, if several multiple high flow pumps are used in a low static pressure system, the “gold” orifice can be easily swapped in using common tools.

17. After everything is reinstalled in a reverse order, cycle the key a few times (without starting engine). This allows the fuel pump to prime the system. CHECK FOR LEAKS! If no leaks are found, start the engine and check for leaks again while the engine is running.

Installation Complete