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# INSTALLATION MANUAL

## AEROFLOW PERFORMANCE

### FA20 FUEL RAIL KIT

#### Item list included in this kit:

- 2x Billet Fuel Rail to suit FA20
- 3x -6AN O-ring to -6AN adaptors
- 1x -6AN port block off plug
- 1x Push on EFI fuel fitting ( AF808-02BLK )
- 2x Fuel pulse damper adapter fitting
- 1x -6AN black PTFE pre-made 450mm hose ( 1x straight -6AN PTFE hose end and 1x 90 degree -6AN PTFE hose end )
- 1x -6AN black PTFE pre-made 650mm hose ( 1x 45 degree -6AN PTFE hose end and 1x 90 degree -6AN PTFE hose end )
- 1x ECU mounting bracket
- 2x Fuel rail mounting brackets
- 1x EFI disconnect tool
- 2x M6x1.0mm button head screws
- 2x M6x1.0mm nuts
- 8x M5x1.0mm socket cap screws and washers

## WARNING!

BEFORE PROCEEDING WITH INSTALLATION PLEASE READ INSTRUCTIONS CAREFULLY. THIS PRODUCT REQUIRES DETAILED KNOWLEDGE OF AUTOMOTIVE SYSTEMS. WE RECOMMEND THAT THIS INSTALLATION BE CARRIED OUT BY A QUALIFIED AUTOMOTIVE TECHNICIAN.

THE INSTALLATION OF THIS PRODUCT REQUIRES THE HANDLING OF FUEL. WE RECOMMEND TO WORK IN A WELL VENTILATED AND WEAR APPROPRIATE SAFETY WEAR FOR PROTECTION.

KEEP ALL IGNITION SOURCES AND OPEN FLAMES AWAY FROM VEHICLE AT ALL TIMES WHILE INSTALLING THIS PRODUCT.

THESE FUEL RAILS UTILIZE O-RING SEALED AN STYLE PORTS AND DO NOT REQUIRE THREAD SEALANT ONLY AN APPROPRIATE LUBRICATE SHOULD BE USED

## INTRODUCTION

Congratulations on your purchase of Aeroflow Performance billet fuel rail. Aeroflow Performance Products cannot and will not be responsible for any damage, or other conditions resulting from misapplication of the parts described herein. However, it is our intention to provide the best possible products for our customer, products that perform properly and satisfy your expectations. Should you have any questions, please call technical support at +61 2 8825 1900 and have the product part number on hand when calling.

This product suits FA20 engines from the Toyota 86, Subaru BRZ and Scion FR-S and suits the factory ¾" length 11mm injectors. If using aftermarket injector's modifications may be required.

## STEP 1: REMOVAL

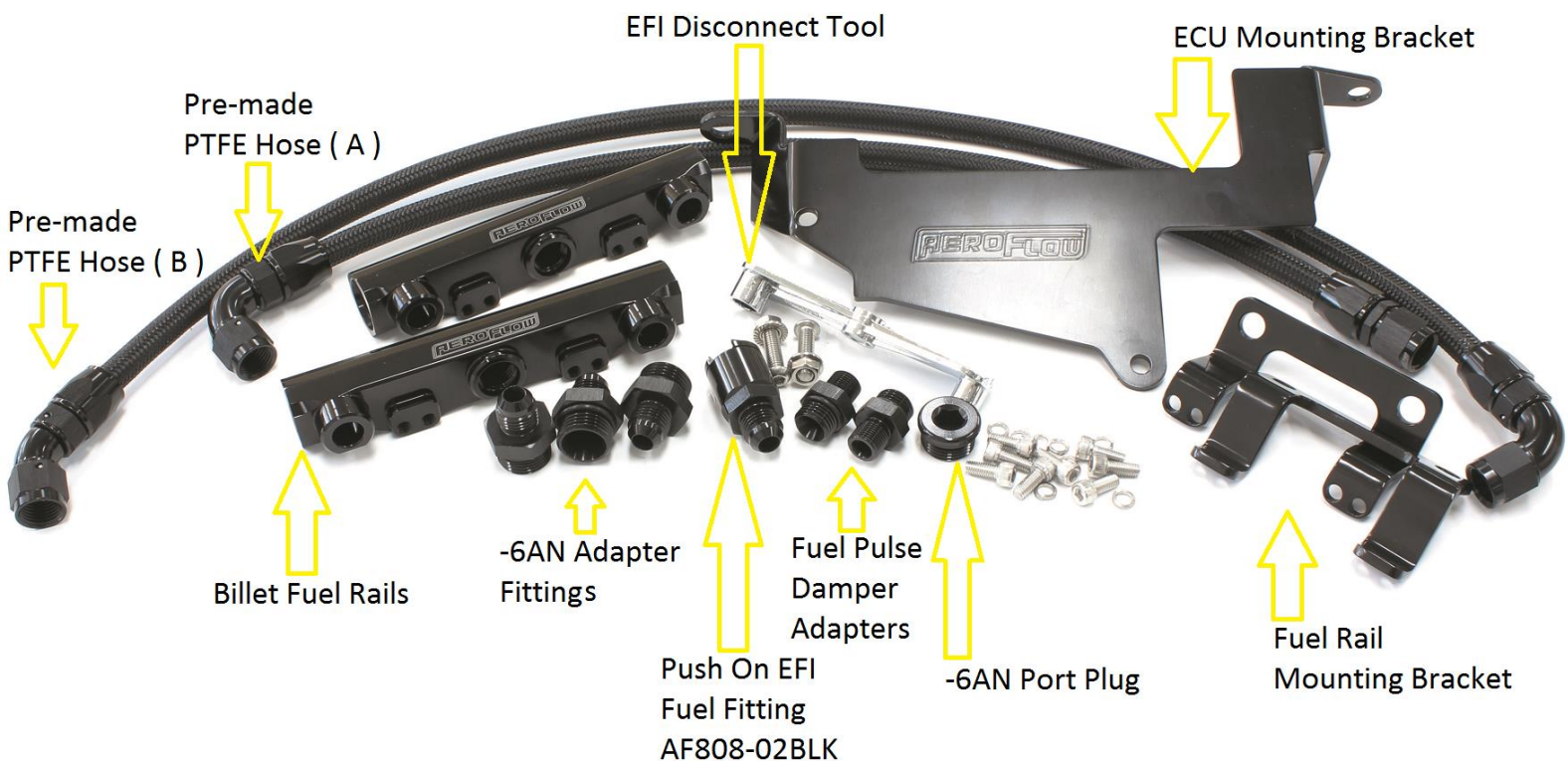
1. Please refer to the factory service manual of the vehicle for the correct removal of the factory fuel rail. This is a guide only.
2. Disconnect the negative terminal on the battery.
3. Clean the area around the fuel rail to prevent dirt getting into injector holes and blocking them.
4. Remove the fuel cap to relieve all pressure from fuel system
5. To disassemble the factory passenger side fuel rail from the vehicle, remove the LH fuel rail cover by removing the two M8 bolts holding it in place.
6. Locate the crossover fuel hose connection on the front of the passenger fuel rail. The hose end fitting has a blue clip. Pull the blue clip upward to unlock it. It may help to release the lock tabs on the bottom while pulling up. After it is unlocked, slide the crossover fuel hose off the fuel rail pipe. Some fuel will drain out, be prepared.
7. Use the EFI disconnect tool (supplied with kit) to detach the fuel feed hose from the fuel rail pipe. Insert the metal tool between the green plastic collar of the fuel hose and the metal pipe of the fuel rail. Push the metal tool in as far as it can go. While inserting metal tool, push the fuel hose further onto the fuel pipe. The hose will release from the pipe given enough effort and patience. Some fuel will drain out, be prepared.
8. Unplug the electrical connectors on each fuel injector and the wire harness retainer from the fuel rail tab. Remove the two M8 bolts holding the fuel rail to the intake manifold. The fuel rail and injectors can now be removed and set aside for now. Ensure to cover injector holes so nothing can enter the fuel system or the engine.
9. On the opposite side of the engine (drivers' side), remove the two M8 mounting bolts holding the steel fuel rail cover in place.
10. Unclip the electrical harnesses from the ecu cover and remove the three M6 bolts holding the ecu cover in place. Set aside the ecu for now (do not disconnect ecu plugs this is not required)
11. Unlock the fuel cross-over hose by pulling out on the blue clip. Disconnect this hose from the fuel rail pipe.
12. Unplug the electrical connectors on each fuel injector and the wire harness retainer from the fuel rail tab. Remove the two M8 bolts holding the fuel rail to the intake manifold. The fuel rail and injectors can now be removed and set aside for now. Ensure to cover injector holes so nothing can enter the fuel system or the engine.

## STEP 2: ASSEMBLY

1. Remove the factory injectors from the passenger side fuel rail.
2. Secure the fuel rail in a vice and remove the fuel pulse damper using a 7/8" or 22mm wrench
3. Install the fuel pulse damper adapter into the centre port of the fuel rail. Make sure the side that screws into the rail has an O-ring on it.
4. Reinstall fuel pulse damper onto adapter fitting on fuel rail.
5. Install the mounting bracket using the supplied socket cap bolts and torque down to 10Nm
6. Lubricate the fuel injector O-rings (replace if necessary) and carefully press them into the ports to seat them. Make sure the O-rings do not get pinched while doing this.
7. Repeat the above steps 1-6 for the driver's side fuel rail.
8. Install the supplied -6AN adapter's fittings in both sides of the passenger side fuel rail. On the driver's side fuel rail, the end will have a block off plug and another -6AN adapter. Be careful not to damage the thread or O-ring when doing so.

### STEP 3: INSTALLATION

1. Install passenger fuel rail and injectors onto intake manifold with bolts provided in the kit. Do not fully tighten fuel rail to manifold until all injectors are correctly seated into the injector adaptors.
2. Tighten all mounting bolts to correct torque specs. Do not overtighten this may cause damage to fuel rail and injectors.
3. Remove the fuel feed line from the vehicle hard line. This fuel line and hose clamp will not be reused and can be set aside.
4. Using the EFI push on fitting (AF808-02BLK) unscrew the collar and attach to the hard line ensuring both O-rings are seated and pushed into the hard line. Screw the locking collar onto the fitting and tighten.
5. Install the PTFE pre-made hose ( A ) with the straight -6AN hose end onto the above EFI push on fitting (AF808-02BLK) and the 90 degree -6AN hose end onto the fuel rail.
6. Install driver's fuel rail and injectors onto intake manifold with bolts provided in the kit. Do not fully tighten fuel rail to manifold until all injectors are correctly seated into the injector adaptors.
7. Tighten all mounting bolts to correct torque specs. Do not overtighten this may cause damage to fuel rail and injectors.
8. Install the PTFE pre-made hose ( B ) with the 45 degree -6AN hose end onto the driver's side fuel rail adapter fitting and the 90 degree -6AN hose end onto the passenger side fuel rail.  
NOTE: The factory fuel crossover hose may be removed from the engine bay. It is clipped in one spot to the underside of the intake manifold, but can be released without removal of intake manifold or throttle body.
9. Install the metal covers on both the driver's and passenger side fuel rails and reuse the factory bolts to secure it in place.
10. Reconnect wiring harness and all connectors as per factory service manual. If using non factory injectors wiring plugs may require replacement or adaptors must be purchased separately.
11. Reinstall the ECU using the supplied ecu bracket in kit and bolt back into factory OE position.
12. Reconnect negative terminal on battery.
13. Turn the ignition the switch to the accessories position only at this point, wait two the three seconds and turn ignition back to off position. DO NOT ATTEMPT TO START ENGINE.
  - I. Repeat the above step and cycle the ignition three times.
  - II. Check all fittings, injector adaptors, fuel fittings for any signs of fuel leakage.
  - III. If there are any signs of leakage they must be corrected before proceeding on to the next step.
  - IV. If aftermarket injectors and/or fuel regulators have been installed ensure vehicle ECU has been adjusted to suit before attempting to start the engine.
14. If no signs of leakage have been found, then start the engine and be sure to check for any signs of leakage while engine is running. If no leakage is found on the final inspection, then the installation is complete.



*For more information or technical enquires*

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