



INSTALLATION INSTRUCTIONS

2GR-FE & 2GR-FZE Fuel Rail Kit

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Document: 19-0031

This instruction manual will focus on the 2GR-FE engine found in the N/A Lotus Evora. However, all other vehicles are similar in nature.

1. Open the trunk, unlatch and remove the Lotus engine cover.

To relieve fuel pressure on the Lotus Evora, pull the No. R19 (10A) "Fuel Pump" fuse. This fuse box is located in the cabin behind the rear left hand quarter trim panel. For access, use a coin to release the quarter turn fastener on the lower edge of the removable panel, and unhook the top edge. Use the fuse extractor tool clipped to the fuse box for removing the fuse.

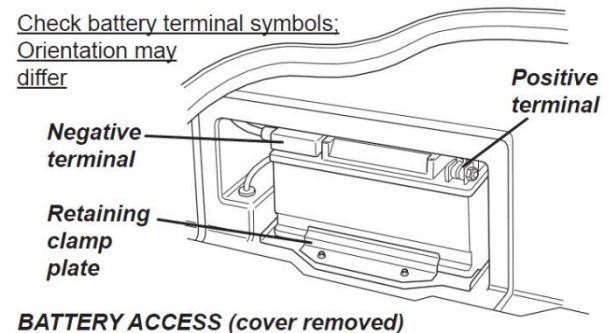


2. Start the engine and allow it to stall.

Reinsert the fuse and reinstall the rear quarter trim panel.

In the left hand front of the rear luggage compartment, unlatch and remove the plastic battery panel.

Unscrew and disconnect the negative terminal.

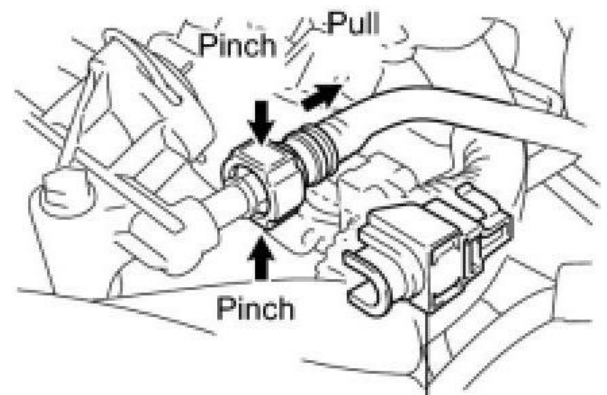


3. Located on the left rear side of the motor facing the rear is the fuel rail inlet connection.

Remove the fuel pipe clamp.

Make sure to surround the area with shop towels to absorb fuel contained in the pipe. Squeeze the two buttons on each side of the connector and simultaneously pull the fuel hose from the factory fuel rail.

Plug the hose to avoid fuel contamination.



4. Locate the 5/8" crankcase breather hose on the intake resonator box. Using a pair of pliers, squeeze the spring clamp and slide it down the breather hose a few inches. Now, pull this hose off the resonator box barbed fitting and plug it.

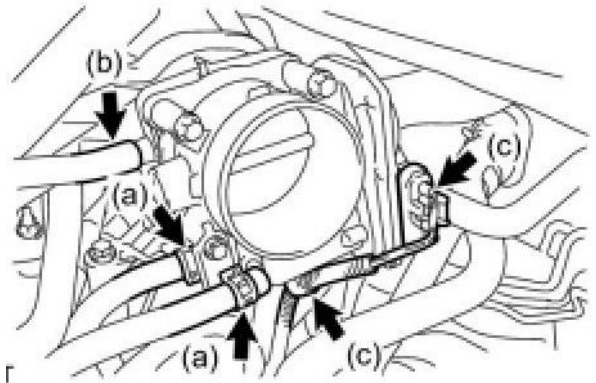
Next, loosen the two hose clamps on both sides of the resonator box using a 10mm socket or nut driver. Carefully remove the resonator box from the engine bay.



5. Locate the coolant hoses at the throttle body. Using a pair of pliers, squeeze the spring clamps (a) and slide them down the hose a few inches. Prepare the area for coolant to be spilled with shop towels. Carefully, pull these hoses off the throttle body barbs, and plug each hose quickly to avoid spillage.

Disconnect the vapor feed hose (b).

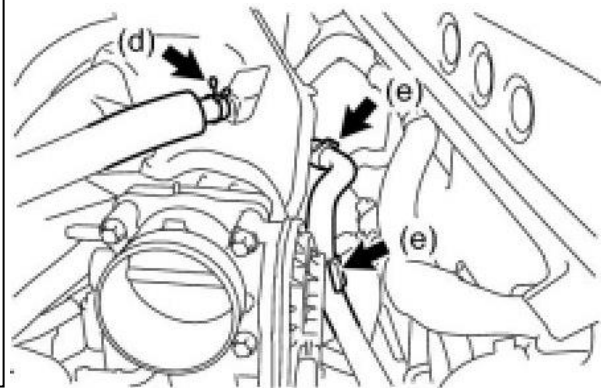
Disconnect the throttle body motor assembly clamp (c) and connector (c).



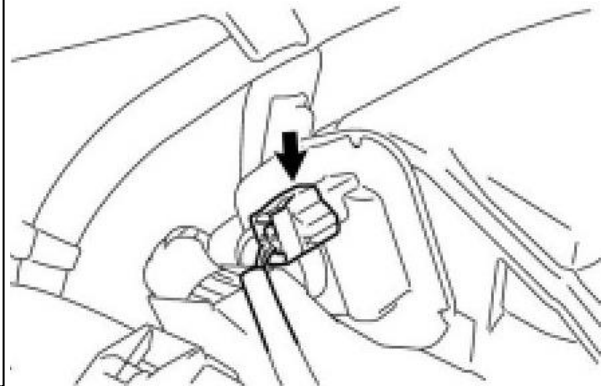
6. Locate the 5/8" crankcase breather hose just downstream of the throttle body (d).

Using a pair of pliers, squeeze the spring clamp and slide it down the breather hose a few inches. Now, pull this hose off the resonator box barbed fitting and plug it.

Disconnect the union to check valve hose (e) and cap it.



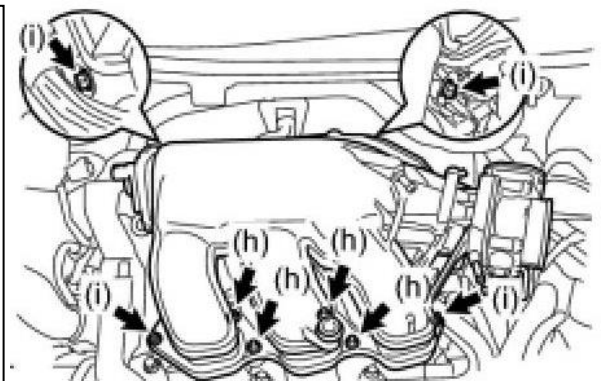
7. Disconnect the electrical connector for the actuator on the front of the intake manifold plenum.



8. To access the fuel rails, the upper intake plenum (or supercharger) must be removed from the intake manifold.

For supercharger models (not shown), relieve belt tension from the supercharger pulley and remove the belt.

Next, the hardware shown in the picture will need to be removed.



9. Some of the bolts cannot be accessed from the top of the engine.

To remove the rear access panel in the trunk, pull the carpet back which is held in by Velcro.

Unscrew the bolts and remove the access panel. This will expose another access panel through the heat shield. Remove the second access panel.

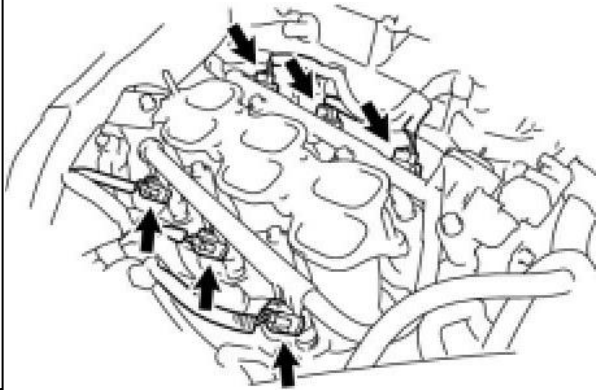
Through this access hole, it is now possible to remove the last brace that holds the plenum to the cam cover. Once this is removed, carefully remove the plenum (or supercharger) from the engine bay.



10. It is advised to plug (or tape over) all 6 cylinder intake ports to prevent objects from falling down into the engine.

Disconnect all 6 injector clips.

Take note that the hose that connects the two fuel rails together on the factory fuel system wrap around cylinders 5 and 6. The connecting hose in the Radium fuel rail kit wraps around cylinders 1 and 2.

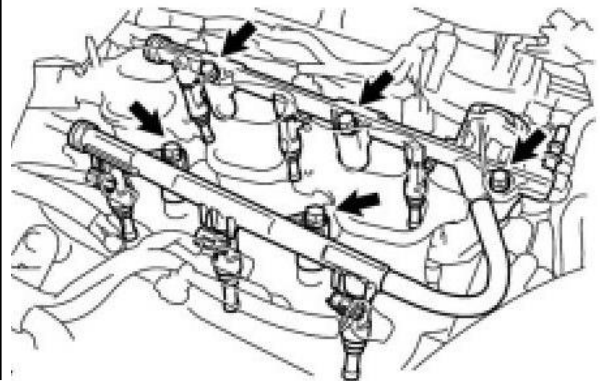


11. Remove the five M8 bolts securing the fuel rail to the cylinder heads.

Carefully remove both fuel rails with the injectors still attached.

Keep close track of the rubber grommets at the base of the injectors. These will be needed later.

Take care not to allow dirt or debris into the injector ports.

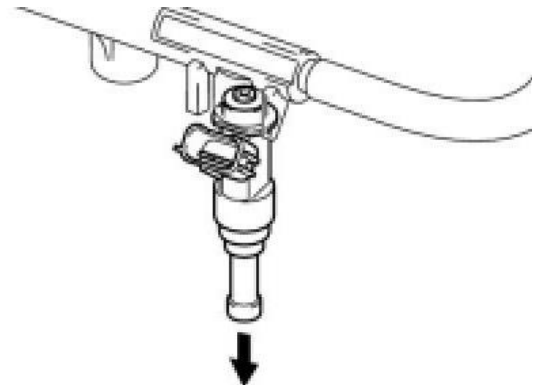


12. Carefully remove the 6 fuel injectors from the 2 fuel rails by gently pulling away from the fuel rails.

Caution: Fuel remaining in the fuel rails will trickle out.

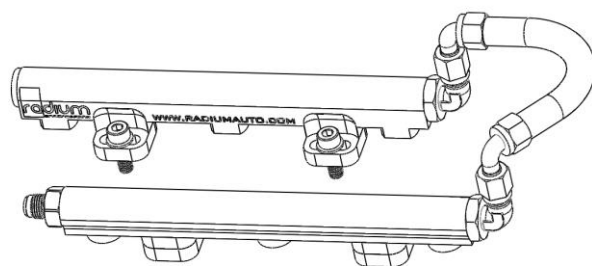
Removal is complete.

Prepare the Radium Engineering fuel rails for installation.



13. When viewed from the rear of the vehicle, the Radium fuel rails should be orientated as pictured. For 20-0198-00 and 20-0198-PK, the two rails are connected to each other by a PTFE fuel hose which is needed to clear the engine brace. Modification to this brace may be necessary in some newer vehicles.

To prevent failure, lubricate the injector O-rings with lightweight oil. Install the fuel injectors previously removed from the factory rails into the Radium fuel rails. Be very careful not to damage the O-rings.



14. Inspect the lower grommets (shown) for debris and replace if needed.

Verify that each injector port has a grommet.

Install the Radium fuel rails. Make sure each injector is fully seated in the port.

Fasten down the rails using the included M8 bolts and washers using a 6mm Allen wrench.

Plug in all six fuel injector electrical connectors.



15. If installing 20-0198-PK or 20-0198-00, rotate and point the SAE quick disconnect fitting (as shown) towards the fuel tank. Push the OEM fuel tubing over the billet fitting until a positive click is felt.

Tighten all fittings.



16. Optionally a Radium Engineering -8AN ORB direct mount fuel pulse damper can be installed in one of the available ports, as shown.

Reinstall in the reverse order. Fill and bleed the coolant system.

Cycle the ignition switch to the ON position a few times (without starting the engine) to allow the fuel pump to prime the system. Check for leaks.

If no leaks are found, start the engine and check for leaks while the engine is running. If no leaks are found, be sure to finish bleeding the coolant system and keep an eye on the gauges as the coolant comes up to temperature.

INSTALLATION COMPLETE

