

X12 Fuel Injector Supply Line Campaign Procedure

The purpose of this campaign is to replace Injector Supply Lines and add Vibration Isolators on the Fuel Lines for cylinders 4, 5, and 6.

Verification

- Locate Injector Supply Lines on cylinders 4, 5, and 6.
- Check to see if there are Vibration Isolators installed on the Injector Supply Lines. See Figure 1 below.
- If there are Vibration Isolators installed on Injector Supply Line 4, 5, and 6 then no further action is needed.
- If there are **NO** Vibration Isolators installed on Injector Supply Lines 4, 5, and 6 then proceed with the campaign instructions below.

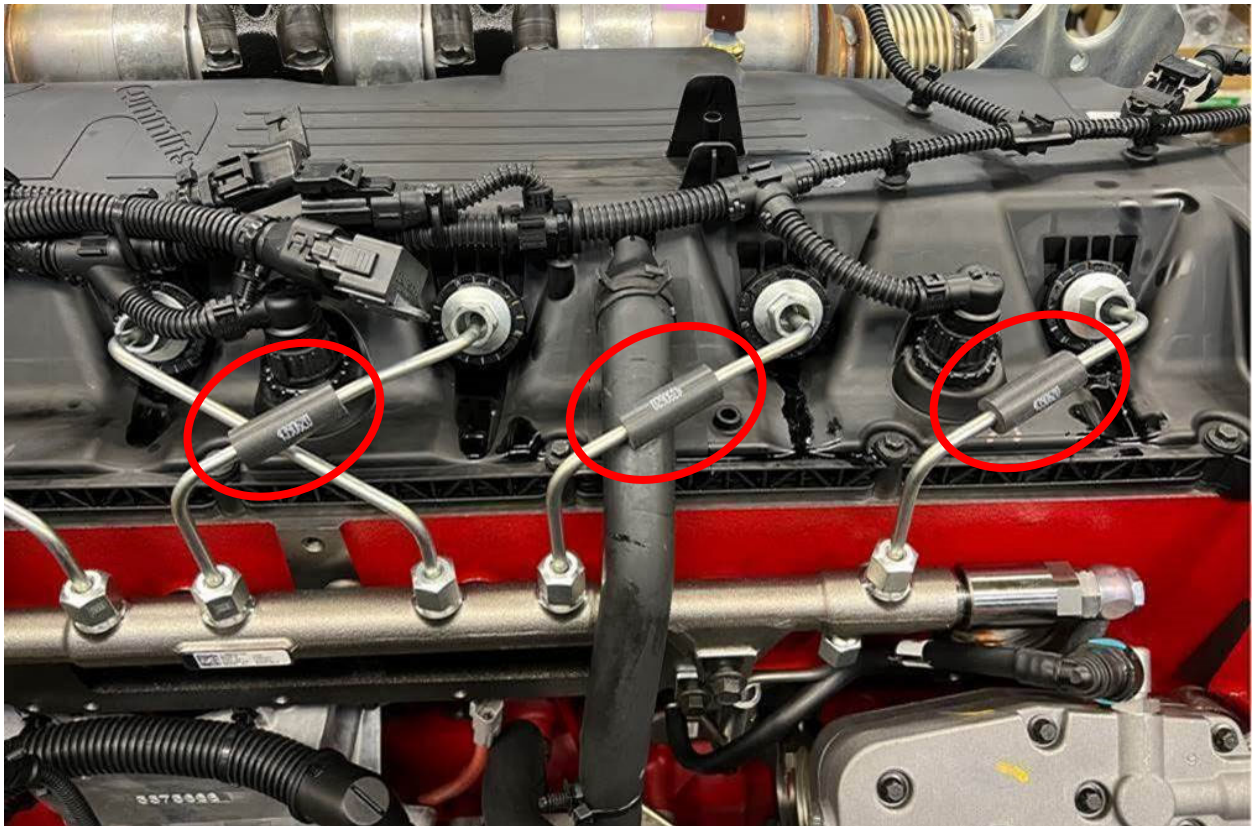


Figure 1: Location and example of what the Injector Supply Line Vibration Isolators look like. (Please note that the lines and Vibration Isolators may be painted if they were installed at the factory.)

Recommended Cummins® Service Tools

- Contact cleaner, Part Number 3824510, or equivalent
- Fuel System Clean Care Kit, Part Number 4919073, or equivalent

Required Part

Part Description	Part Number	Quantity
Kit with 3 Vibration Isolators and Injector Supply Lines 4, 5, and 6	6319267	1

Service Instructions

Follow the steps below to remove the Fuel Injector Supply Lines for cylinders 4, 5, and 6 and replace with new Fuel Injector Supply Lines with Vibration Isolators supplied in the parts kit.

⚠ WARNING ⚠

Fuel is flammable. Keep all cigarettes, flames, pilot lights, arcing equipment, and switches out of the work area and areas sharing ventilation to reduce the possibility of severe personal injury or death when working on the fuel system.

⚠ WARNING ⚠

Normal engine operation creates highly pressurized fuel in the fuel line which will remain in the fuel line after engine shutdown. Never open the fuel system when the engine is operating. Before servicing the fuel system, always loosen the pump to rail fuel line at the rail to vent the pressure. Keep hands clear of the line when loosening. High-pressure fuel spray can penetrate the skin, resulting in serious personal injury or death.

⚠ WARNING ⚠

When servicing the engine, do not use the starting motor to rotate the engine with a high-pressure fuel system joint open. Rotating the engine can create highly pressurized fuel in the fuel system. High-pressure fuel spray can penetrate the skin, resulting in serious personal injury or death.

1. Before starting the removal and installation of the Injector Supply Lines, loosen the pump to rail line at the rail to vent the fuel pressure. Keep your hand clear of the line when loosening the fuel rail nut. See Figure 2.

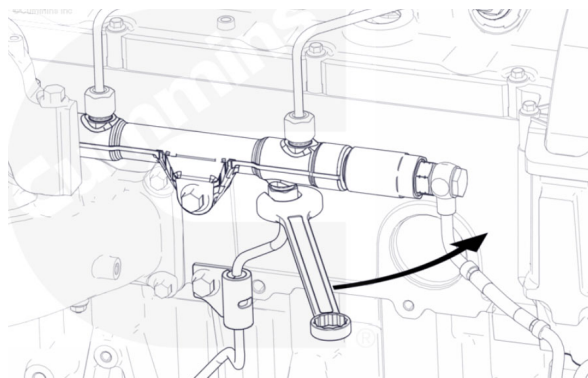


Figure 2: Location for relief of fuel pressure in the system

2. Tighten the fuel rail nut back to 31 Nm (23 ft-lbs).

⚠ WARNING ⚠

Batteries can emit explosive gases. To reduce the possibility of personal injury, always ventilate the compartment before servicing the batteries. To reduce the possibility of arcing, remove the negative (-) battery cable first and attach the negative (-) battery cable last.

⚠ WARNING ⚠

Fuel is flammable. Keep all cigarettes, flames, pilot lights, arcing equipment, and switches out of the work area and areas sharing ventilation to reduce the possibility of severe personal injury or death when working on the fuel system.

3. Disconnect the batteries. See equipment manufacturer service information.
4. Clean the fittings and area around the connection points for Injector Supply Lines 4, 5, and 6 using electrical contact cleaner.
5. Remove Injector Supply Lines 4, 5, and 6.
6. Cover the openings with clean care caps.
7. Break the capscrews for the fuel rail loose and then tighten them back up just enough so the fuel rail does not move. DO NOT fully torque the fuel rail capscrews back down.
8. Install a Vibration Isolator on each of the Fuel Injector Supply Lines 4, 5, and 6.
 - a. Make sure the Vibration Isolators are installed firmly on the straight section on the upper half of the Fuel Injector Supply Lines.
 - b. Make sure there is a gap between the Vibration Isolator on Fuel Injector Supply Line #5 and the Crankcase Breather Tube. See figure 3.
 - i. If there is contact between the Vibration Isolator and the Crankcase Breather tube, then you either need to try to position the Crankcase Breather Tube better or you can slide the Vibration Isolator up the fuel line farther. The Vibration Isolator must **NOT** be positioned past the bend in the fuel line. See Figure 4 below to see where the Vibration Isolators can be installed.
 - ii. Some configurations may have other interferences as well, see figure 5. The Vibration Isolator must not come in contact with any other component.



Figure 3: Example of the gap that should be present between the Vibration Isolator on Fuel Injector Supply Line #5 and the Crankcase Breather Tube

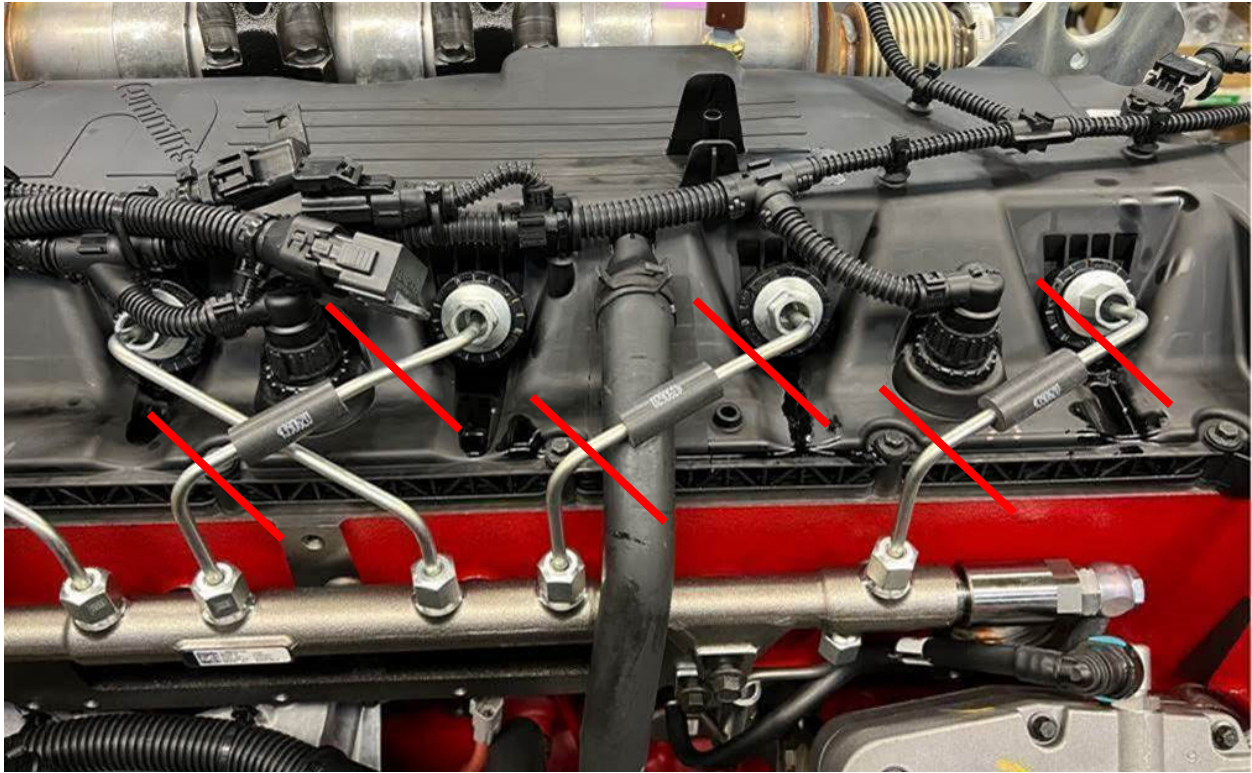


Figure 4: Visual reference for where the Fuel Injector Supply Line the Vibration Isolators can be installed. The Vibration Isolators **MUST** be installed between the bends of the fuel line or between the red lines in the example above.

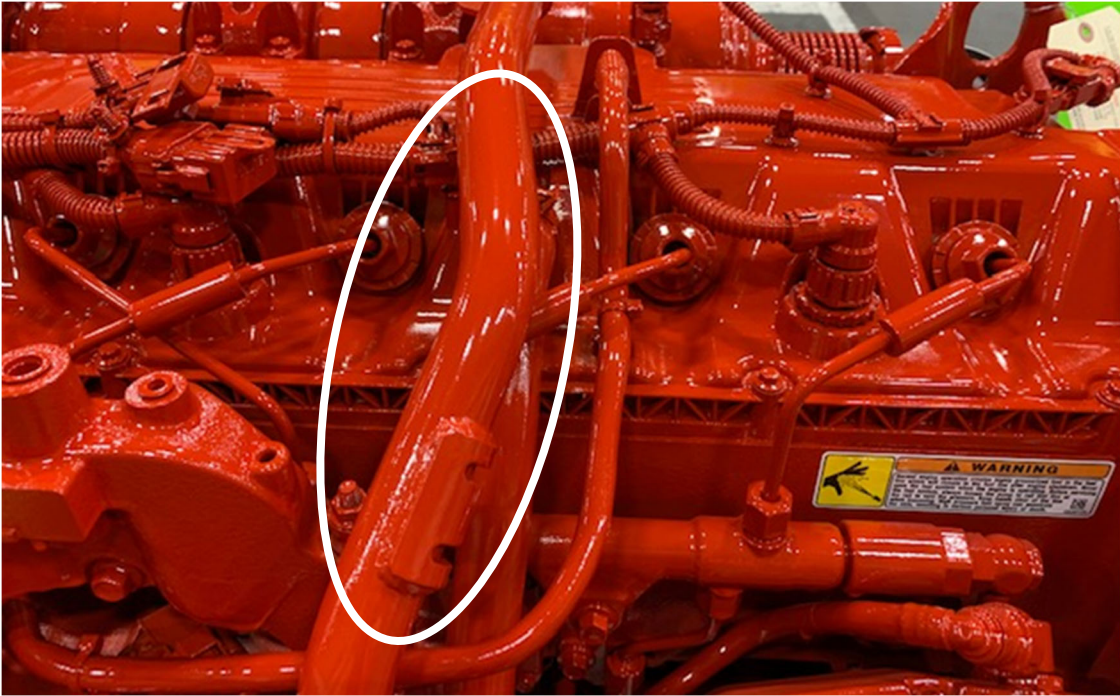


Figure 5: Some configurations may have a Compressor Air Inlet Tube going above line #5. Make sure the Vibration Isolator does not come into contact with this tube or any other component.

9. Using clean engine oil, lubricate the three Fuel Injector Line grommets in the rocker cover before fitting the Fuel Injector Lines.
10. Install the Fuel Injector Supply Lines one at a time following the steps below.
 - a. Hand tighten the Fuel Injector Line Nut at the Injector. Make sure the lines are centered within the nut.
 - b. Hand tighten fuel line nut at the rail. Make sure the line is centered within the nut.
 - c. Torque the injector end of the Fuel Injector Line to 31 Nm (23 ft-lb).
 - d. Torque the Fuel Rail end of the Fuel Injector Line to 31 Nm (23 ft-lb).
11. Repeat steps a – d for the other two Fuel Injector Supply Lines.
12. Torque the capscrews for the rail to 46 Nm (36 ft-lb).
13. Connect the batteries. See equipment manufacturer service information.
14. It is **not** necessary to vent air from the high-pressure fuel system before starting the engine. Cranking the engine will prime the fuel system.
15. Operate the engine. Check for leaks.
16. Destroy the 3 Fuel Injector Supply Lines that were removed from the engine.