SUBJECT: HIGH PRESSURE FUEL LINE AND TRANSFER TUBE

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High pressure fuel line and transfer tube removal and installation procedure has been updated.

REMOVAL OF HIGH PRESSURE FUEL LINE AND TRANSFER TUBE
Remove as follows:

### WARNING: PERSONAL INJURY
To prevent the escape of high pressure fuel that can penetrate skin, ensure the engine has been shut down for a minimum of 10 minutes before servicing any component within the high pressure circuit. Residual high fuel pressure may be present within the circuit.

### WARNING: FIRE
To avoid injury from fire, keep all potential ignition sources away from diesel fuel, including open flames, sparks, and electrical resistance heating elements. Do not smoke when refueling.

### WARNING: FIRE
To avoid injury from fire caused by heated diesel-fuel vapors:
- Keep those people who are not directly involved in servicing away from the engine.
- Stop the engine immediately if a fuel leak is detected.
- Do not smoke or allow open flames when working on an operating engine.
- Wear adequate protective clothing (face shield, insulated gloves and apron, etc.).
- To prevent a buildup of potentially volatile vapors, keep the engine area well ventilated during operation.

1. Remove both engine trim covers.
2. Remove the cylinder head cover for each cylinder head.
3. Remove the intake manifold.
4. To prevent the transfer tube from rotating during the high pressure fuel line disassembly, secure the transfer tube thrust nut using a 24 mm fuel line wrench (J-47484 or J-45063) and loosen the high pressure fuel line nut at the transfer tube using a 17 mm fuel line wrench (J-47483) or a 17 mm open end wrench. See Figure 1.

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**Figure 1 High Pressure Fuel Line**

[Diagram of high pressure fuel line with labeled parts]

1. Unit Pumps
2. Damper Clamps
3. Fuel Injector
4. Bolts
5. Mounting Bracket
6. Mounting Bracket
7. Bracket Bolts

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**WARNING:**

**PERSONAL INJURY**

To avoid injury from the sudden release of a high-pressure hose connection, wear a face shield or goggles.
5. Using a 17 mm fuel line wrench (J-47483) or a 17 mm open end wrench, loosen the high pressure fuel injector line nut at the injector unit pump. Discard the high pressure fuel injector line. See Figure 1.

6. Using 24 mm fuel line wrench (J-45063 or J-47484), loosen the thrust nut on the transfer tube. Remove and discard the transfer tube and the O-ring. See Figure 1.

**INSTALLATION OF HIGH PRESSURE FUEL LINE AND TRANSFER TUBE**

Installation steps are as follows:

1. Apply a light coat of clean engine oil to the transfer tube O-ring and install the transfer tube into the cylinder head.

2. Using a 24 mm socket, torque the thrust nut to 45 N·m (33 lb·ft).

3. Align the new high pressure fuel injector line fittings to the transfer tube and unit pump. Ensure the fuel line is not installed backwards, and that the end of the high pressure fuel line is properly seated in the transfer tube and unit pump fitting.
4. Hand tighten the high pressure fuel injector line nut first at the unit pump, and then at the transfer tube. While hand tightening the nuts, gently move the high pressure fuel line back and forth to ensure the end of the line is properly seated in the transfer tube and unit pump fitting. See Figure 2 for the proper orientation of the fuel line. If the high pressure fuel injector line has been installed incorrectly and torqued, remove the high pressure fuel injector line and transfer tube and replace with new parts. Ensure that the damper is not touching any other fuel lines or other engine or vehicle components.

Figure 2  Orientation of Fuel Line
5. Once the high pressure fuel injector line nuts are hand tight, draw a vertical line with a highly visible marker along the front edge of both of the nuts and up the fuel line. The line drawn along the edge of the nuts and the fuel line should be aligned.

Figure 3 Marking Of High Pressure Fuel Injector Line And Nuts
6. Using a 17 mm fuel line wrench (J-47483) or a 17 mm open end wrench, tighten the high pressure fuel line nut at the unit pump end by turning the nut through 120 degrees. 120 degrees can be measured by turning the nut so that the nut edge which had been marked has been turned through 1/3 of a full turn, or through two nut flats. Lack of space in some engine configurations may mean that the 120 degree turn will have to be completed in two turns of 60 degrees, or one nut flat each.

Figure 4  Turning Fuel Line Nut 120 Degrees at Unit Pump End
7. Use a 24 mm fuel line wrench (J-45063 or J-47484), hold the transfer tube thrust nut. Using a 17 mm fuel line wrench (J-47483) or a 17 mm open end wrench, tighten the high pressure fuel injector line nut at the transfer tube end by turning the nut through 120 degrees. 120 degrees can be measured by turning the nut so that the nut edge which had been marked has been turned through 1/3 of a full turn, or through two nut flats. Lack of space in some engine configurations may mean that the 120 degree turn will have to be completed in two turns of 60 degrees, or one nut flat each.

8. Loosely install the damper clamp onto the high-pressure fuel line and attach it to the mounting bracket. See Figure 6.
9. Torque the high pressure fuel line mounting bracket bolts to 25 N·m (18 lb·ft.). Torque the damper clamp bolt and nut to 12 N·m (9 lb·ft.).

Figure 6 Mounting Bracket

10. Install the air intake manifold.

11. Install the cylinder head cover.

⚠️ WARNING: ENGINE EXHAUST
To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.
NOTICE:
Do NOT loosen any high pressure fuel injector line nuts or other fuel line connections for priming purposes. Use the priming port on the fuel filter housing for engine S/N 0460810824 (EGR) or S/N 0460805219 (non-EGR) and higher. Engines built prior to the change points will have the priming port installed through Campaigns 06C-2 (EGR) and 06C-1 (non-EGR). Never loosen fuel line connections to bleed air from the fuel system.

12. Prime the fuel system. Refer to section "Priming the Fuel System".

13. Run the engine and check for leaks.

NOTICE:
Do NOT re-torque high pressure fuel injector line nuts. If leaks are detected after installation, remove the necessary high pressure fuel injector line and transfer tube, discard them, and install new parts.

14. Shut down the engine and install the engine trim covers.

ADDITIONAL SERVICE INFORMATION
Additional service information is available in the Detroit Diesel EPA07 MBE 4000 Workshop Manual (DDC-SVC-MAN-0026). The next revision to this manual will include the revised information.