



DETROIT™
DEMAND PERFORMANCE™

**18SP745 – EPA07/10 Three-Filter Fuel
System DD15/16 Severe Duty High Pressure Fuel Rail
Feed Lines Service Kit (P/N: 23539998)**



WARNING:

PERSONAL INJURY

All parts provided within this kit **MUST** be installed in the proper locations, and **MUST** be fastened to the specified torque. Failure to properly torque hardware/components will result in failure of a high pressure fuel feed line, resulting in possible fire and/or personal injury.



WARNING:

PERSONAL INJURY

All parts provided with this kit, and those they are replacing on the engine, function as a complete system and are single-use items. The old parts cannot be reused. Reusing parts or failing to use all new parts contained in the kit may result in the failure of high pressure fuel lines, possibly resulting in a fire.

NOTICE: Failure to follow these instructions will result in catastrophic damage to the engine and will not be covered under warranty.

KIT DESCRIPTION

This service kit includes all the parts needed to replace high pressure fuel rail feed lines, mounting bracket, P-clips, bolt-on Vibration Dampers and mounting hardware. Use this kit when any of these parts are loosened, removed or missing from the engine.

KIT CONTENTS

Service kit P/N: 23539998 contains all the parts needed to replace severe duty high pressure fuel rail feed lines on three-filter EPA07/10 DD15/16 engines.

Part No.	Qty.	Description
A4720781010	2	High pressure fuel feed line
A4720703540	2	Solid P-Clip
N000000007957	4	Bolt M6x12mm
N910105008011	2	Bolt M8x20mm
A4720701040	1	Mounting bracket
A0049902003	2	E Torx Head P-clip Bolt M6X25mm
A4730700340	4	Bolt-on Vibration Dampers
18SP745	1	Installation Instructions

Removal of Severe Duty High Pressure Fuel Rail Feed Lines - Three-Filter System

Remove as follows:

NOTICE: The high pressure fuel rail feed lines, vibration dampers, P-clips, mounting bracket and hardware are one-time use components and **MUST** be replaced any time they are removed or loosened.



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.

1. Shut off the engine, apply parking brake, chock wheels, and perform any other applicable safety steps.



CAUTION:

ELECTRICAL SHOCK

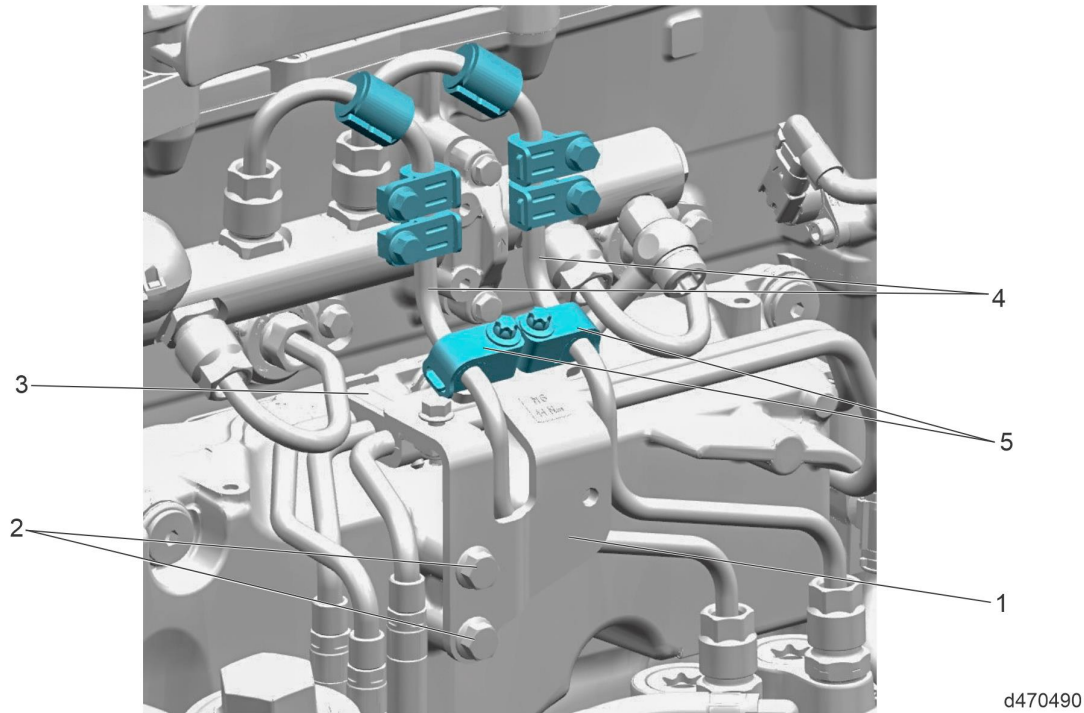
To avoid injury from electrical shock, use care when disconnecting battery cables. The magnetic switch studs are at battery voltage.

2. Disconnect the batteries.
3. Open the hood.
4. If necessary, remove the bumper. Refer to Original Equipment Manufacturer (OEM) procedures.
5. If needed for access, remove the air cleaner. Refer to (OEM) procedures.

NOTE: Do not discard the return lines P-clip and bolt. They will be reused on the installation of the high pressure fuel rail feed lines.

6. Remove the return lines P-clip bolt from the mounting bracket and save for re-use.
7. Remove and discard the two P-clip bolts from the mounting bracket.

7. Remove and discard the mounting bracket bolts (2) from the intake manifold and discard the mounting bracket (1).



- | | |
|-------------------------------|---------------------------------------|
| 1. Mounting bracket | 4. High pressure fuel rail feed lines |
| 2. Mounting bracket bolts | 5. P-clips and E Torx bolts |
| 3. Reused Return lines P-clip | |

NOTE: Hold the high pressure pump fitting with a 24 mm wrench when removing high pressure fuel rail feed lines. If these fittings are loosened during high pressure fuel rail feed line removal, re-torque the fittings to 75 N·m (55 lb·ft).

8. Remove and discard the high pressure fuel rail feed lines (4), P-clips (5), and vibration dampers as an assembly from the fuel rail and high pressure fuel pump. See graphic above.
9. Remove and discard the mounting bracket bolts (2) from the intake manifold and discard the mounting bracket (1). See graphic above.

Installation of Severe Duty High Pressure Fuel Rail Feed Lines - Three-Filter System

Install as follows:

NOTICE: The high pressure fuel rail feed lines, vibration dampers, P-clips, mounting bracket and hardware are one-time use components and **MUST** be replaced any time they are removed or loosened.

NOTE: DO NOT install bolts and fittings using power tools. All bolts and fittings **MUST** be installed using hand tools.

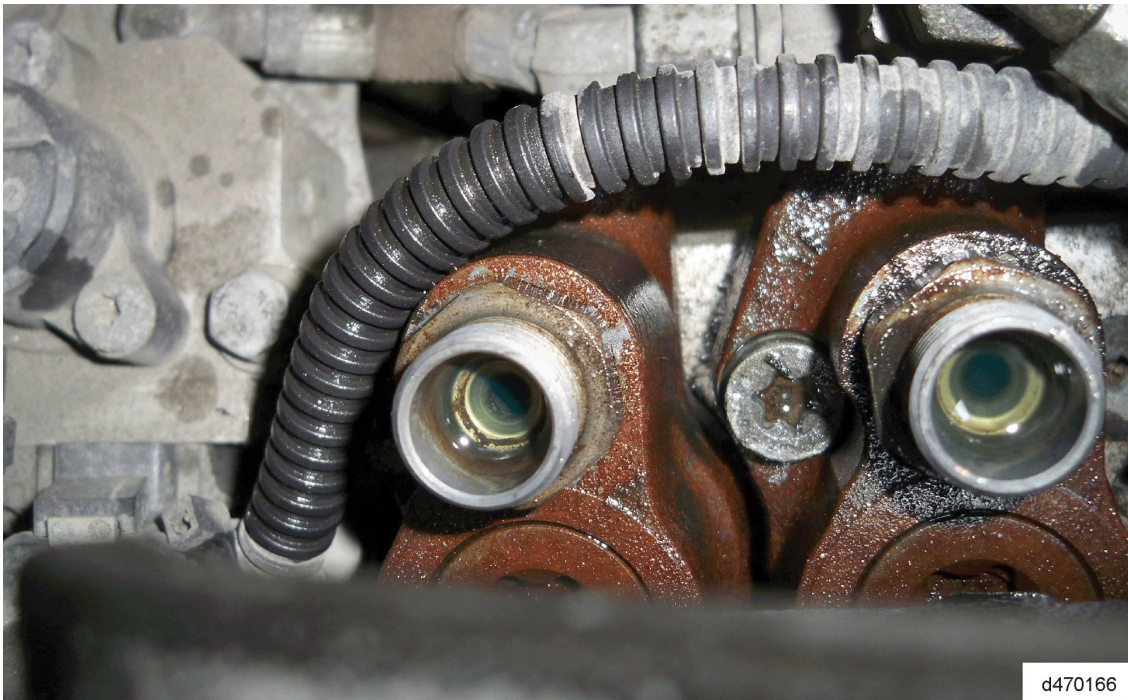


WARNING:

PERSONAL INJURY

All hardware/components **MUST** be installed in the proper locations, and **MUST** be fastened to the specified torque. Failure to properly torque hardware/components will result in failure of a high pressure fuel feed line, resulting in possible fire and/or personal injury.

1. Clean the sealing area inside the high pressure fuel pump outlet fittings using a clean lint-free cloth.

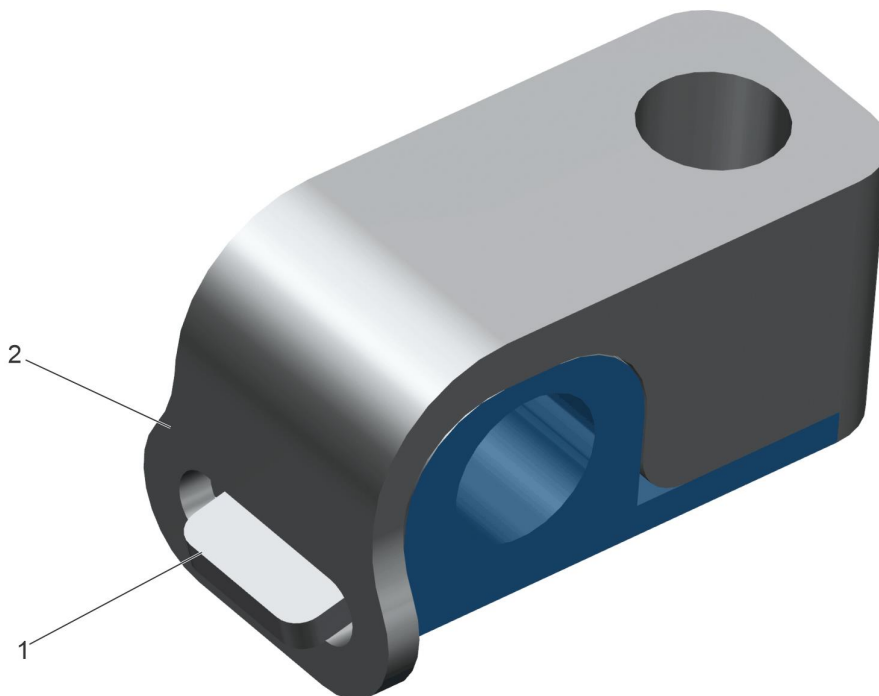


2. Clean the sealing area inside the high pressure fuel rail using a clean lint-free cloth.



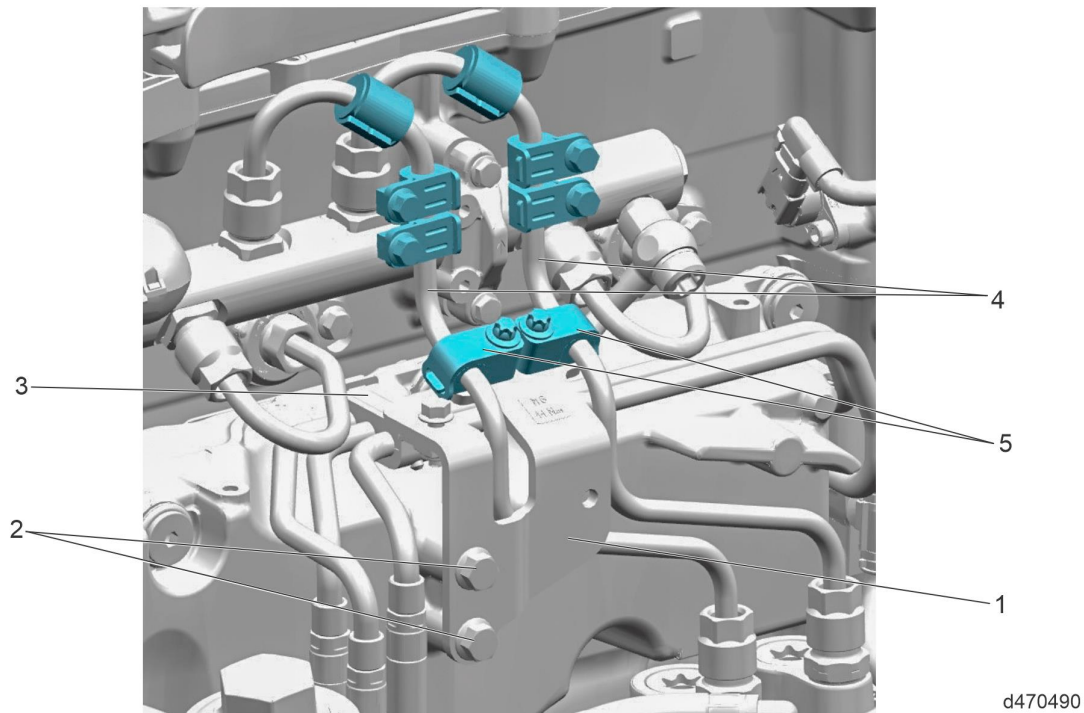
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NOTE: A new P-clip **MUST** be installed onto the high pressure fuel rail feed lines with the lower P-clip plate (1) inserted into the P-clip window (2); see graphic below.



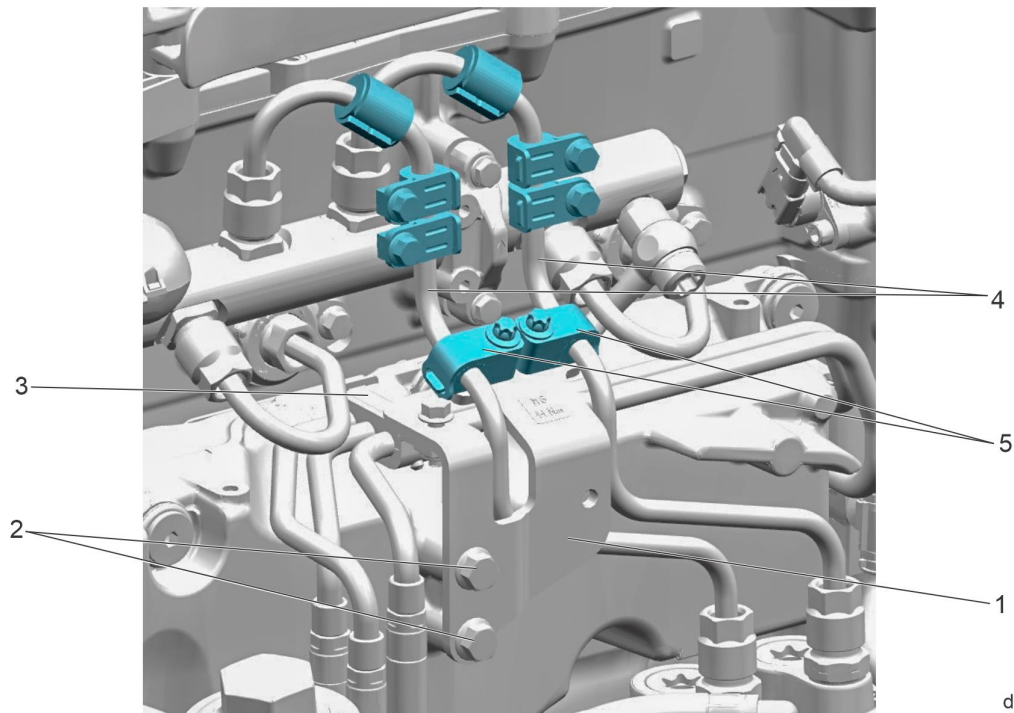
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3. Before installing the lines, loosely install both of the new P-clips and four bolt-on vibration dampers onto the high pressure fuel rail feed lines as shown in the graphic below. Start the threads of the bolt-on vibration damper bolts but do not tighten.



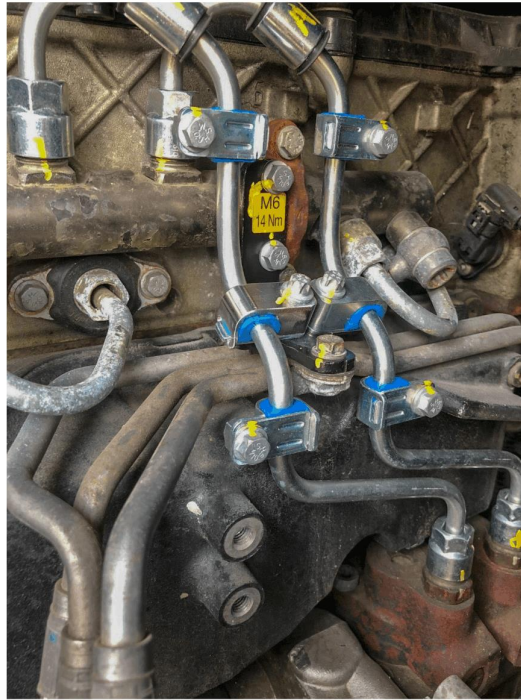
4. Position the rear high pressure fuel rail feed line into the fuel rail and the high pressure fuel pump. Do not start the threads of the fuel line nuts at this point.
5. Position the front high pressure fuel rail feed line into the fuel rail and the high pressure fuel pump. Do not start the threads of the fuel line nuts at this point.

6. Install a new mounting bracket (1) and two new mounting bracket bolts (2) to the fuel rail clamp. Hand-tighten the mounting bracket bolts all the way until the bracket and bolts are flush. Do not torque at this time.



8. Ensure the rear high pressure fuel rail feed line is in place so that the P-clip mounting hole lines up with the bracket nut. Do not apply excessive to any components in the high pressure fuel rail feed lines kit during their loose assembly.
9. Install a new E Torx rear P-clip bolt hand tight. Do not torque at this time.
10. Hand-tighten the rear high pressure fuel rail feed line starting with the rail side nut, and then the nut at the high pressure fuel pump.

NOTICE: After torqueing each fuel line nut, P-clip bolt, mounting bracket bolt, vibration damper bolt and return line triple-clip bolt, mark the fittings and fasteners with a paint pen. Draw a paint pen line on the fitting, fastener and adjacent metal as shown in the photograph below. The photograph shows a two-filter system, the three-filter system is similar.



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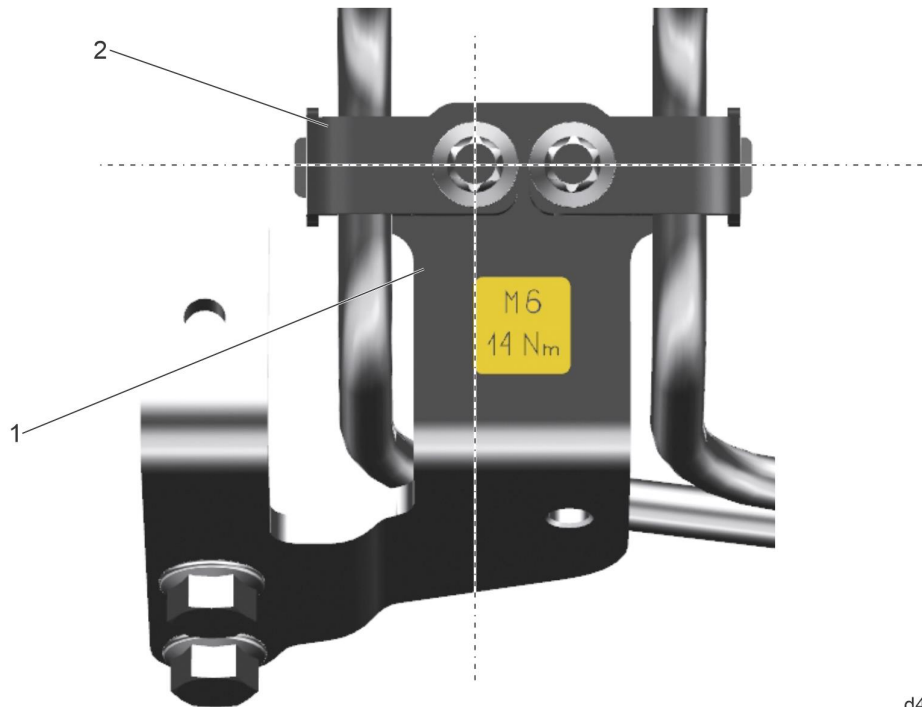
WARNING:

PERSONAL INJURY

All parts provided within this kit **MUST** be installed in the proper locations, and **MUST** be fastened to the specified torque. Failure to properly torque hardware/components will result in failure of a high pressure fuel feed line, resulting in possible fire and/or personal injury.

11. Using fuel line socket W314589010300 or a commercially available 19 mm fuel line socket, torque the rear high pressure fuel rail feed line nuts to 40 N·m (30 lb·ft) starting with the rail side nut, and then the nut at the high pressure fuel pump. Using a paint pen, draw a paint line on the torqued fuel line nut and adjacent metal, as shown in the photograph above.
12. Ensure the front high pressure fuel rail feed line is in place so that the P-clip mounting hole lines up with the bracket nut. Do not apply excessive force to any components in the high pressure fuel rail feed lines kit during their loose assembly.
13. Install a new E Torx front P-clip bolt hand tight. Do not torque at this time.
14. Hand-tighten the front high pressure fuel rail feed line starting with the rail side nut, and then the nut at the high pressure fuel pump.
15. Using fuel line socket W314589010300 or a commercially available 19 mm fuel line socket, torque the front high pressure fuel rail feed line nuts to 40 N·m (30 lb·ft) starting with the rail side nut, and then the nut at the high pressure fuel pump. Using a paint pen, draw a paint line on the torqued fuel line nut and adjacent metal, as shown in the photograph above.

NOTE: New P-clips (1) MUST be installed perpendicular to the bracket (2) and parallel with each other. Hold P-clips in place during tightening to avoid rotating the P-Clips.

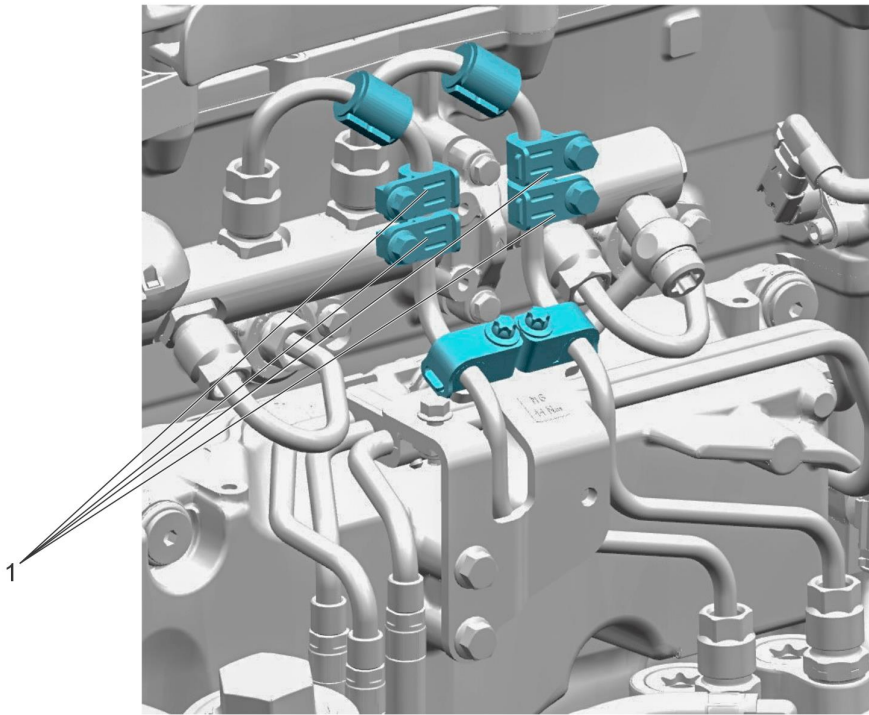


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16. Torque the two new high pressure fuel rail feed line E Torx P-clip bolts to 14 N·m (124 lb·in.). Using a paint pen, draw a paint line on the torqued bolt head and adjacent metal, as shown in the notice after step 10.
17. Torque the two new mounting bracket bolts to 30 N·m (22 lb·ft). Using a paint pen, draw a paint line on the torqued bolt head and the adjacent metal, as shown in the notice after step 10.
18. Install the bolt for the amplification, needle, and pressure limiting valve return line triple-clip. Torque to 14 N·m (124 lb·in.). Using a paint pen, draw a paint line on the torqued bolt head and adjacent metal, as shown in the notice after step 10.

NOTE: Install the bolt-on vibration dampers with adequate clearance to surrounding objects to ensure contact cannot be made with any components other than the high pressure fuel rail feed lines.

19. Ensure the four bolt-on vibration dampers (1) are positioned properly on the straight sections of the high pressure fuel rail feed line, parallel to the engine as shown in the graphic below.



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20. Once correctly positioned, torque the four bolts of the bolt-on vibration dampers to 14 N·m (124 lb·in.) starting with the front top vibration damper and the rear lower vibration damper. Once all four are torqued, use a paint pen to draw a line on the bolt head and adjacent metal.
21. Inspect all components of the high pressure fuel rail feed line kit to make sure all fittings and fasteners have been properly installed, torqued and marked with a paint pen. Have the lead hand or supervisor review the installation and sign off on the repair order to ensure that all components were properly torqued and painted.
22. If removed for clearance, install the air cleaner. Refer to Original Equipment Manufacturer (OEM) procedures.



CAUTION:

ELECTRICAL SHOCK

To avoid injury from electrical shock, use care when disconnecting battery cables. The magnetic switch studs are at battery voltage.

21. Connect the batteries.

22. Prime the fuel system. [Refer to section "Priming the Fuel System - Three-Filter System"](#) .
23. Perform the Rail Pressure Bleed-Off test using DiagnosticLink® to verify that there are no leaks.
24. If leaks are found, locate the leak's source and repair, as necessary.
25. If necessary, install the bumper. Refer to Original Equipment Manufacturer (OEM) procedures.
26. Close the hood.



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18SP745. 2009 As technical advances continue, specifications will change. Printed in U.S.A.