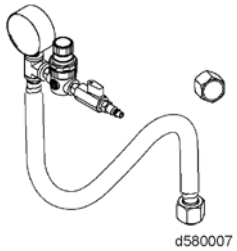
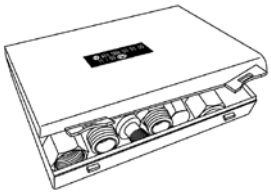
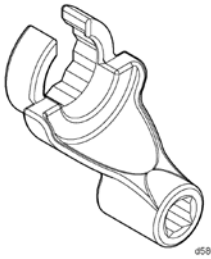
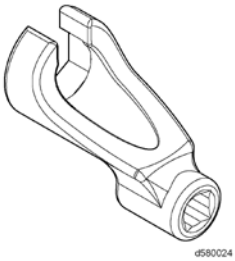
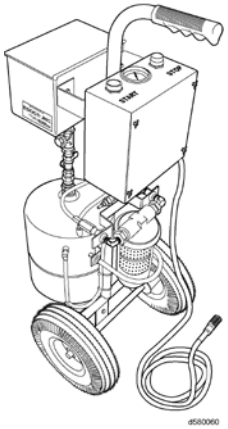
18SP716 – Installation/Replacement of the Fuel Cooler Delete Bypass Plate for the Two-Filter Fuel System (P/N: A4720700079)

KIT DESCRIPTION

Service kit P/N: A4720700079 contains all of the necessary parts to delete the fuel cooler on EPA10 and GHG14 DD13/15/16 engines with a two-filter fuel system. This kit will also be used to replace a fuel cooler delete bypass plate.

KIT CONTENTS

Part No.	Qty.	Description
A4700900243	1	Fuel Cooler Delete Bypass Plate
A4722030315	1	Fuel cooler rubber coupling
A4700900579	1	Gasket and Screws kit Contains: - (1) Fuel cooler gasket one - (1) Fuel cooler gasket two - (1) Fuel cooler gasket three - (6) Bolts
A4720940060	10	- O-ring [KM59 GEN 1] * (only use 4) Low pressure lines from module to HP pump. - O-ring [KM63 GEN 2] * (all 10) Low pressure lines from module to HP pump and for PLV, amp, and needle return
A4720940160	4	O-ring *For low pressure lines from fuel filter module to low pressure pump)
A4700780231	2	Cylinder head fittings
N000000001069	8	- Sealing Ring [KM59 GEN 1] * (all 8) For amp, needle, and PLV return lines - Sealing Ring [KM63 GEN 2] * (only use 2) PLV return line
18SP716	1	Installation Instructions

Service Tools used in the Procedure		
Tool Number	**Tool Description**	**Tool Graphic**
J-48710	Air Pressure Test Kit, Fuel System	 d580007
W470589039100	Fuel System Tool Update Kit without an MCM (Motor Control Module) cooler	 d580142
J-48836	Offset Wrench, 22 mm	 d580025
J-48770	HP Fuel Line Torque Adapt0r, 19 mm	 d580024
ESOC 350	Fuel System Primer	 d580060

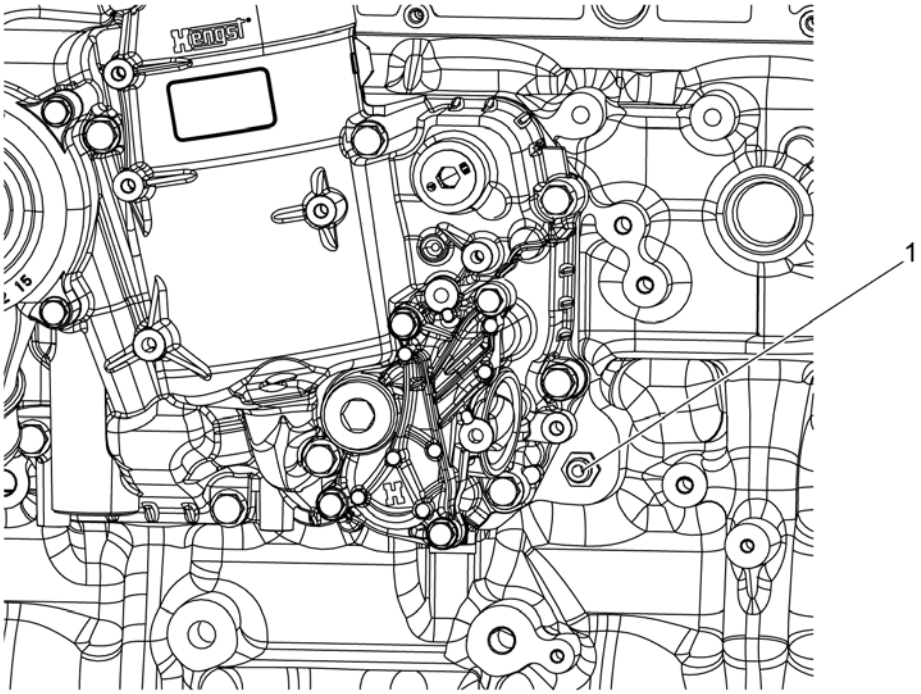
WARNING:

PERSONAL INJURY

To avoid injury, never remove any engine component while the engine is running.

NOTE:
Change the coolant only after the vehicle has cooled and no residual pressure is present.

1. Place the transmission in neutral. Refer to OEM procedures.
2. Chock the wheels. Refer to OEM procedures.
3. Set the parking brake. Refer to OEM procedures.
4. Open the hood. Refer to OEM procedures.
5. Disconnect the batteries. Refer to OEM procedures.
6. Steam clean the engine.
7. Remove the coolant reservoir cap.
8. Loosen the coolant drain plug (1) located on the left side of the engine block and attach a hose to the plug.



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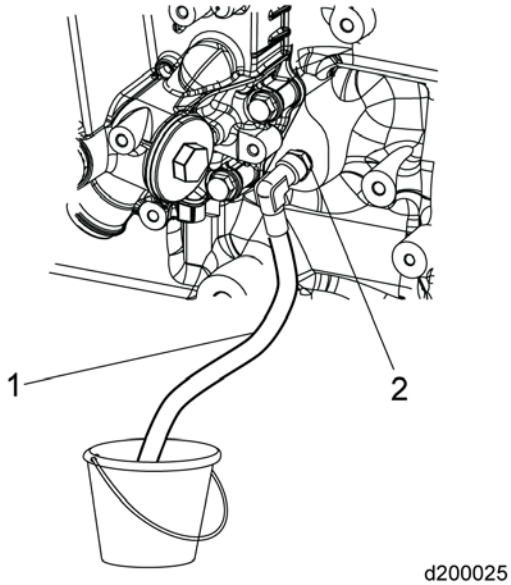
NOTICE:

Coolant is a hazardous material and needs to be disposed in an environmentally responsible manner.

9. Collect the used antifreeze in a suitable container and if necessary, dispose of the solution in an environmentally responsible manner according to state and federal Environmental Protection Agency (EPA) recommendations.



10. Remove the hose (1) and close drain plug (2). Torque to 30 N·m (22 lb·ft).

WARNING:

EYE INJURY

To avoid injury from flying debris when using compressed air, wear adequate eye protection (face shield or safety goggles) and do not exceed 40 psi (276 kPa) air pressure.

NOTICE:

DO NOT remove the return line from the fuel filter module.

11. Remove the fuel feed line from the fuel filter module.
12. Remove the fuel tank fill caps.
13. Using W470589039100, install J-48710 fuel pressure test kit onto the fuel feed port at the fuel filter module.

NOTE:
The high pressure side of the fuel system cannot be drained using air pressure, due to the fuel injectors being in a closed state which will not return fuel to the return side of the fuel system.

14. Use regulator and adjust the system pressure to 345 kPa (50 psi).
15. After one to two minutes, the system should be drained of fuel.
16. Remove test equipment and install the fuel tank fill caps.
17. Remove the chassis fuel return line. Refer to OEM procedures.
18. Disconnect the electrical harness connectors from the water-in-fuel and the low pressure fuel sensors.
19. Disconnect the plastic clip holding the low pressure fuel sensor harness on to the fuel filter module.
20. Remove the high pressure pump inlet and outlet lines from the fuel filter module and the high pressure flange.
21. Remove the two bolts holding the wiring harness bracket to the fuel filter module and the low pressure lines and set aside the wiring harness bracket.
22. Disconnect the plastic clip holding the quantity control valve harness from the low pressure flange.
23. Remove the low pressure fuel pump inlet and outlet lines from the fuel filter module and the high pressure pump.
24. Remove and discard all O-rings.

NOTE:
KM59 GEN1 fuel filter module return lines are secured to the module with banjo bolts.

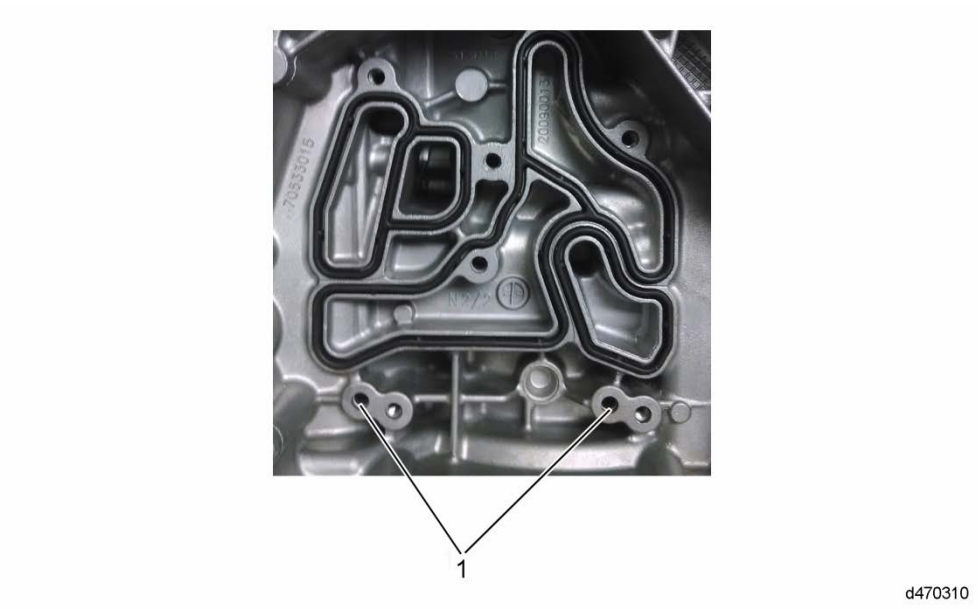
NOTE:
KM63 GEN2 fuel filter module return lines are secured to the module with a mounting plate attached to the Pressure Limiting Valve (PLV) return line.

25. Remove the return line p-clip bolt securing the return lines to the mounting bracket.
26. Remove the return line p-clip from the engine.
27. Using J-48836 to hold the cylinder head fitting, remove the needle return line from the cylinder head fitting using J-48770.
28. Remove the PLV return line from the fuel rail and discard sealing washers.
29. Using J-48836 to hold the cylinder head fitting, remove the amplifier return line from the cylinder head fitting using J-48770.
30. For KM63 GEN2: Remove the two bolts securing the return lines to the fuel filter module. For all others: Remove the three banjo bolts securing the needle, amplifier and PLV from the fuel filter module.
31. For KM63 GEN2: Remove the needle, amplifier and PLV from the fuel filter module and discard the O-ring seals.
32. Remove the needle, amplifier and PLV return lines from the engine.
33. Remove both cylinder head fittings from the cylinder head and discard the sealing washers.
34. Remove bolts securing coolant line clips to the fuel filter module and oil/coolant filter module.
35. Disconnect and remove the coolant line from the air compressor, fuel filter and oil/coolant filter module.
36. Inspect the coolant line for damage; replace if necessary.

37. Remove the five mounting bolts securing the fuel filter module to the cylinder block.
38. Remove the fuel filter module.
39. Remove and discard the fuel cooler rubber coupling from the engine block.
40. Remove and discard the bolts securing the fuel cooler to the fuel filter module and the fuel cooler.
41. Remove and discard the fuel cooler gaskets from the fuel filter module.
42. Lubricate the new fuel cooler gaskets (4) with a light coat of clean diesel fuel.
43. Install the new fuel cooler gaskets in to their correct locations on the fuel filter module.

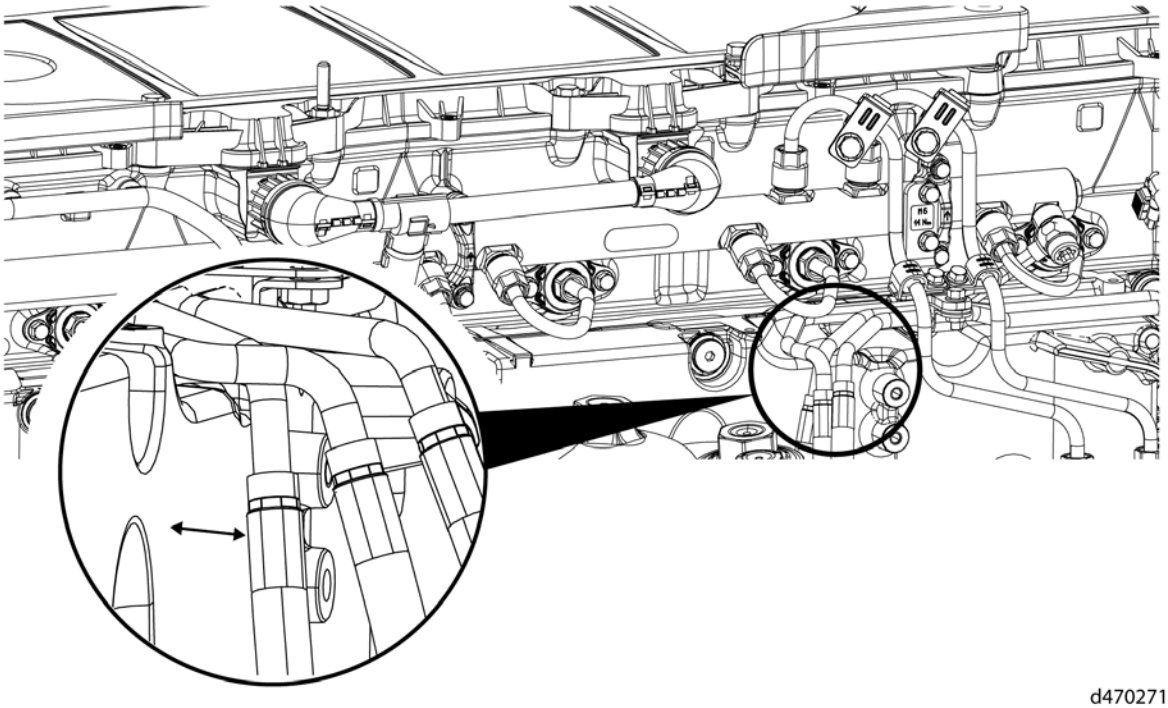
NOTE:
New mounting bolts have self-tapping threads.

NOTE:
When installing the fuel cooler delete bypass plate on to the fuel filter module, un-threaded holes (1) will be tapped with new threads when new bolts are installed.



44. Install the fuel cooler delete bypass plate on to the fuel filter module. Torque the new mounting bolts to 12 to 13 N·m (106 to 115 lb·in).
45. Lightly lubricate the fuel cooler rubber coupling with clean engine coolant and install the coupling into the cylinder block.
46. Install the fuel filter module and the five mounting bolts securing the fuel filter module to the cylinder block. Torque to 60 N·m (44 lb·ft).
47. Install and connect the coolant line from the air compressor, fuel filter and oil/coolant filter module.
48. Install the mounting bolts securing coolant line clips to the fuel filter module and oil/coolant filter module. Torque to 30 N·m (22 lb·ft).
49. Using new sealing washers, install both cylinder head fittings at the rear of the cylinder head. Torque to 55 to 60 N·m (40 to 44 lb·ft).
50. For KM63 GEN2: Lubricate new O-rings with a light coat of clean diesel fuel and install them on to the needle, amplifier and PLV return lines.
51. Install the needle, amplifier and PLV return lines on to the engine.

52. For KM63 GEN2: Install the needle, amplifier and PLV return lines on to the fuel filter module.
53. Install the needle and amplifier return lines on to the cylinder head fittings at the rear of the cylinder head. Hand-tighten the return lines. Do not torque at this time.
54. Install the PLV return line on to the fuel rail with new sealing washers. Hand-tighten the line. Do not torque at this time.
55. For KM59 GEN1: Install the return lines on to the fuel filter module with new sealing washers. Hand-tighten the lines. Do not torque at this time.
56. Install the return lines p-clip on to the return lines.
57. Install the return lines p-clip on to the mounting bracket. Torque to 15 N·m (11 lb·ft).
58. Using J-48770, torque the needle and amplifier return lines on to the cylinder head fittings at the rear of the cylinder head to 25 N·m (18 lb·ft).
59. Torque the PLV line to the fuel rail to 30 to 33 N·m (22 to 24 lb·ft).



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NOTICE:
For KM59 GEN1 only, when tightening to the specified torque, ensure the amplifier return line to the fuel filter module does not come in to contact with the intake manifold.

60. For KM63 GEN2: Install the two bolts securing the return lines to the fuel module. Torque to 30 N·m (22 lb·ft).
    For KM59 GEN1: Torque the return lines to the fuel module to 30 to 33 N·m (22 to 24 lb·ft).
61. Lubricate the new O-rings for the low pressure lines with a light coat of clean diesel fuel.
62. Install new O-rings on to the high pressure pump inlet and outlet lines and the low pressure fuel pump inlet and outlet lines.
63. Install the low pressure fuel pump inlet and outlet lines on to the fuel filter module and the high pressure fuel pump. Torque to 30 N·m (22 lb·ft).
64. Connect the plastic clip holding the quantity control valve harness from the low pressure flange.
65. Reinstall the wiring harness bracket on to the fuel filter module and low pressure lines. Torque to 30 N·m (22 lb·ft).
66. Install the high pressure pump inlet and outlet lines on to the fuel filter module and the high pressure flange. Torque to 30 N·m (22 lb·ft).
67. Connect the plastic clip holding the low pressure fuel sensor harness on to the fuel filter module.
68. Connect the electrical harness connectors from the water-in-fuel and the low pressure fuel sensors.
69. Install the chassis fuel feed and return lines on to the fuel filter module. Torque to 55 N·m (40 lb·ft).
70. Fill the engine with coolant.
71. Install the coolant reservoir cap.
72. Reconnect the batteries.

NOTE:
The ESOC® 350 fuel priming pump is used to properly prime the fuel system after a repair or fuel filter replacement on a DD Platform engine.

When a high pressure fuel pump is replaced on a DD13, DD15, or DD16 engine, the fuel system must be primed for two minutes at 483 kPa (70 psi) to properly prime the lubrication circuit on the pump. The tool uses shop air pressure 827 kPa (120 psi) to prime the fuel system at 483 kPa (70 psi). The fuel system will prime quicker after a normal filter change; however, a full two minute prime cycle will allow for quick, easy start up and less potential damage to the starter.

To use the ESOC® 350 fuel priming unit, follow this procedure:

73. Connect air supply 827 kPa (min. 120 psi) to the ESOC 350.
74. Press STOP button once.
75. Open ball valve.
76. Fill the unit with approximately two gallons of clean ultra-low sulfur diesel fuel by pouring the fuel into the fill box on the top of the machine. Ensure that the ball valve is open when pouring the fuel into the fuel fill box.
77. Close the ball valve when the fuel tank is full.
78. Connect the priming port adaptor on the end of the hose to the priming adaptor on the engine.
79. Depress the START button on the machine and watch the gauge. The gauge should rise up to around 90 psi. If there is a need to stop the machine for any reason (leaks, forgot to connect the hose, etc.), depress the red STOP button.

80. The machine will prime at 483 kPa (70 psi) until the unit is almost out of fuel (it is designed to shut off before pumping air in to the system); allow the machine to turn off on its own. There will be a sound of air pressure relieving when the prime cycle is complete.
81. Disconnect the priming hose and start the engine.

NOTICE:
Leaving the hose connected with the engine running will cause the holding tank to overfill.

NOTICE:
If an alternative priming pump is used, it must be capable of maintaining 483 kPa (70 psi) during the entire priming event, typically a minimum of two minutes. To maintain 483 kPa (70 psi) pressure during priming normally requires a pump with a minimum rating of 5 g.p.m. at 70 psi flow rating. Priming with pressures below 483 kPa (70 psi) can result in damage to the high pressure pump.

NOTE:
To refill the holding tank without pouring fuel into the filler box, the priming hose may be connected with the machine off and the engine running. This will use engine fuel pressure to refill the holding tank. Disconnect the machine when the holding tank fuel level reaches the top of the gauge.

82. Allow engine to reach operating temperature of 60°C (140°F).
83. Reduce rpm and check for fuel leaks or service codes. Repair or clear if necessary.
84. Close the hood.
85. Allow the engine to run until any remaining air in the system is purged.

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