

Document Title: Valves, adjusting	Function Group: 214	Information Type: Service Information	Date: 2015/2/26
Profile: EXC, EC180D L [GB]			

Valves, adjusting

Op nbr 214-012

[885812 Timing tool](#)

[9998681 Rotation tool](#)



WARNING

Risk of burns - stop the diesel engine and allow it to cool down before starting any work.

NOTICE

Never adjust the valves with the engine running as the valves may strike the piston and cause serious damage.

NOTICE

Always cover open air connections with a plastic bag and rubber bands. Gravel, dust and other particles in these connections may result in engine failure!

1. Place the machine in service position B. See [091 Service positions](#)
2. Open the engine hood.
3. Remove the heating guard



V1102523

Figure 1

4. Remove the screws and put aside the crankcase ventilation duct from the engine.

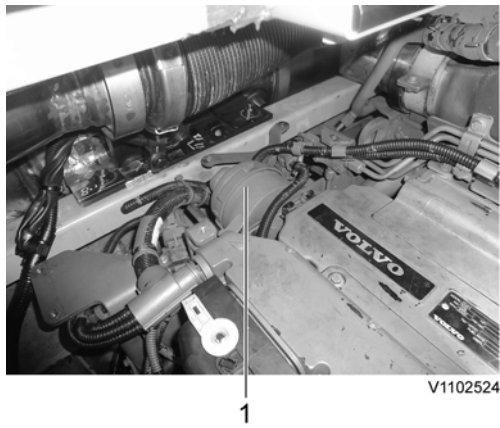


Figure 2

1. Crankcase ventilation duct

5. Disconnect the wire-harness connectors

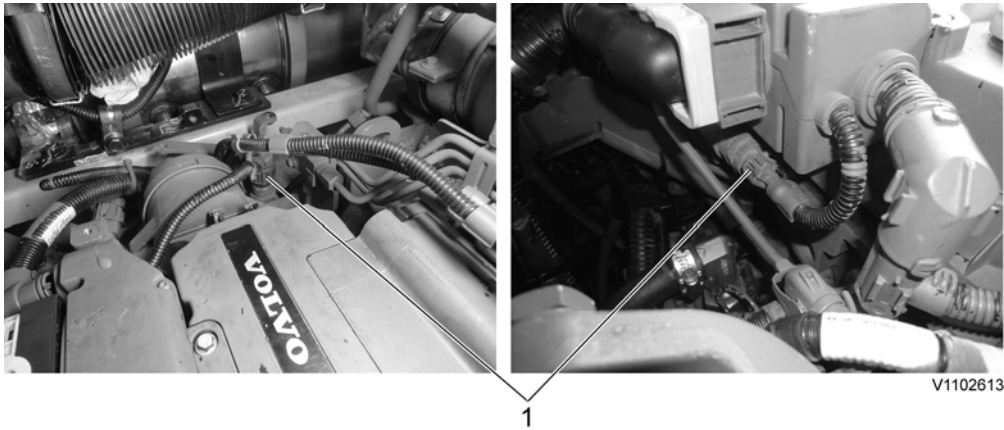


Figure 3

1. Connector

6. Disconnect the junction box connector and pull apart the cover plates

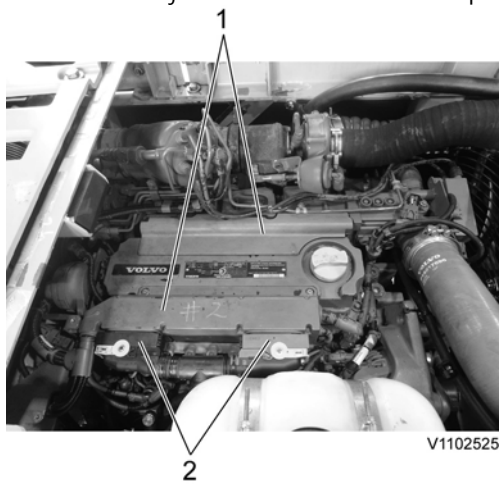


Figure 4

1. Cover plate
2. Junction box connector

7. Disconnect the connector.

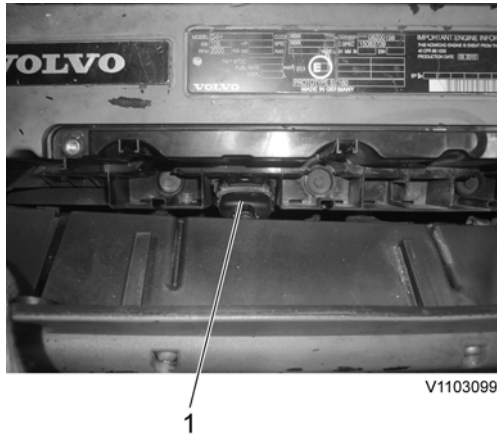


Figure 5

1. Connector

NOTICE

Clean round the valve cover, intercooler and turbo to avoid oil residue and the like from getting into the engine while work is in progress.

8. Remove the valve cover.

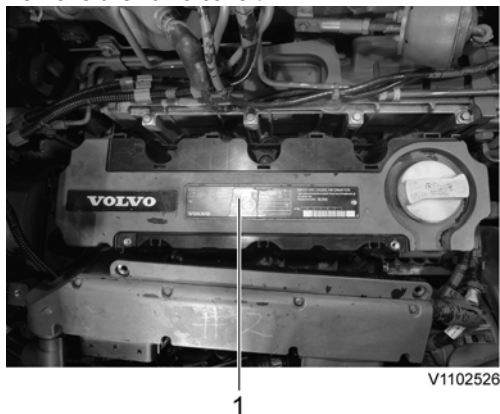


Figure 6

1. Valve cover
9. Open the side door on the right side of the machine.
10. Remove screws and put away the cover between the engine room and the pump room.

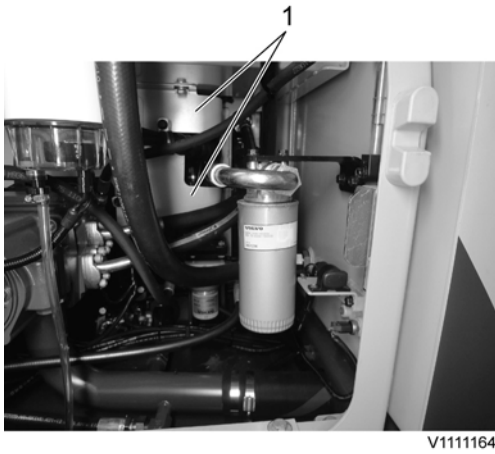


Figure 7

1. Cover plate

11. Remove the gear cover.

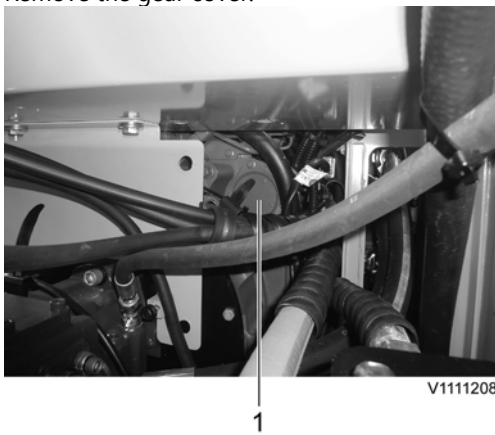


Figure 8

1. Gear cover

12. Install the engine rotating tool.

NOTE!

The teeth of the rotation tool must mesh fully with the teeth of the flywheel gear.

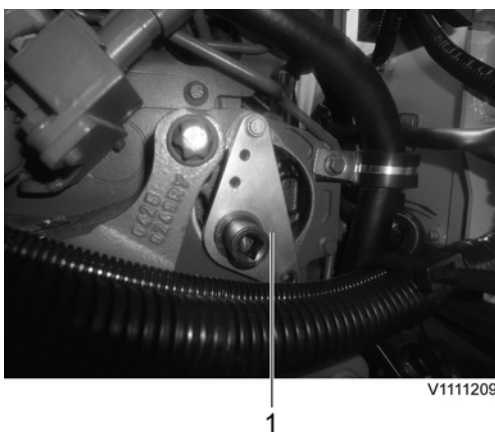


Figure 9

1. 9998681 Rotation tool

13. Setting engine to valve overlap

Turn the engine using the rotation tool until the valve overlap of cylinder 1 is reached.

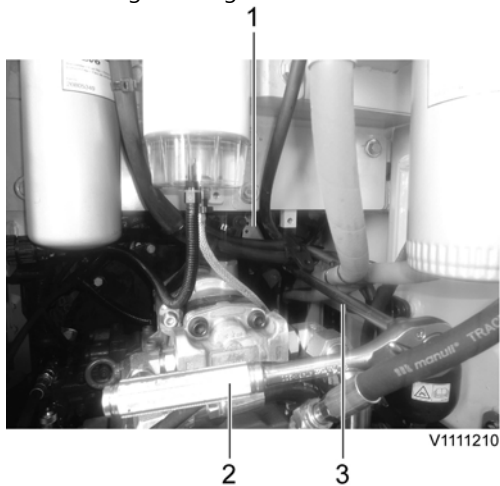


Figure 10

1. 9998681 Rotation tool
2. Handle
3. Extension bar

14. Crank the engine, clockwise, to a position where the valves on the cylinder number 1 (closest to the flywheel side) overlap.

Overlapping means that the exhaust valve is about to open and the inlet valve is about to close. In this position is should not be possible to rotate any of the push rods by hands for the cylinder in question.

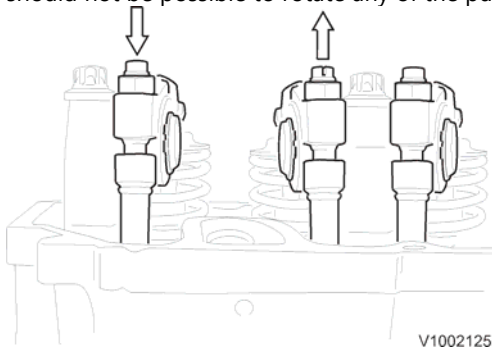


Figure 11
Overlapping

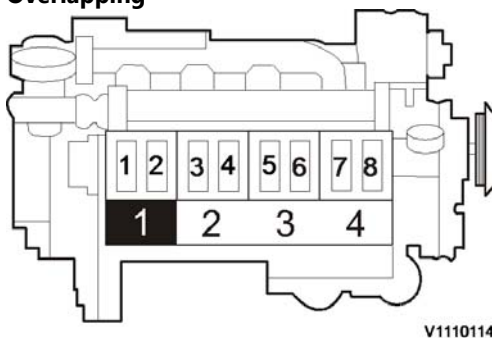


Figure 12

- 1, 3, 5, 7 are exhaust valves
2, 4, 6, 8 are inlet valves

15. Adjust the valve clearance for each cylinder according to the black markings in the figure. Procedure for adjusting:

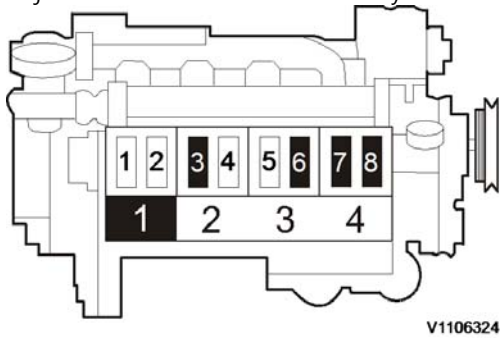


Figure 13
Setting schematic overlap cylinder 1 (located on the flywheel side)

1. Loosen the adjusting screw's lock bolt on the rocker arm.

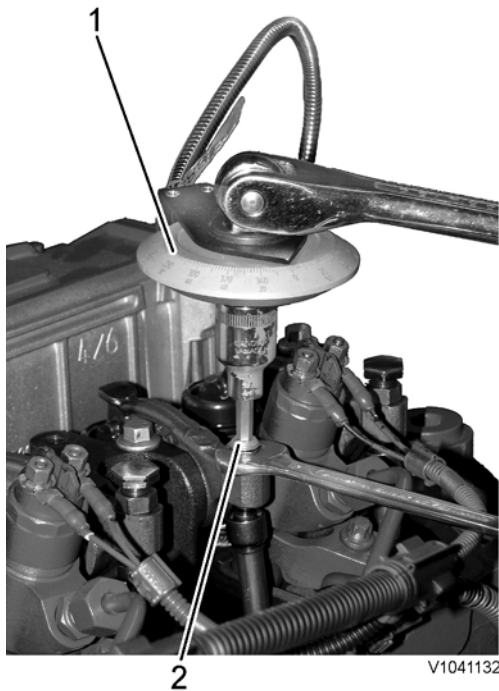


Figure 14

1. 885812 Timing tool
 2. Adjusting screw
2. Install the protractor on the adjusting screw.
 3. Turn the adjusting screw until zero clearance is obtained between rocker arm and valve. Reset the protractor to zero.
 4. Turn the adjusting screw counterclockwise 75° for inlet valve and 120° for exhaust valve.
 5. Hold the adjusting screw and tighten the lock nut at the same time. Tightening torque: see [210 Engine, tighten torques](#)
16. Rotate the crankshaft another full turn until the valves for cylinder 4 overlap. Adjust the valve clearance for each cylinder according to the black markings in the figure.

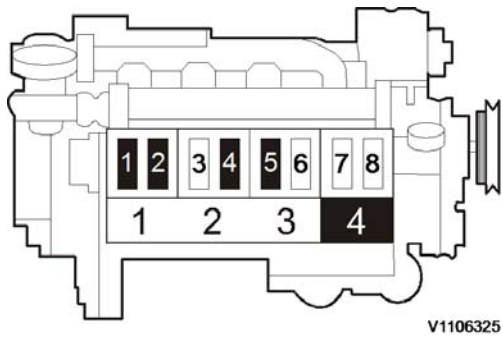


Figure 15
Setting schematic overlap cylinder 4

Assembly

17. For assembly, reverse disassembly procedure.

NOTE!

Do not reuse the O-rings and gasket.

18. After the completion of the work, start the engine and check for leaks and operating condition.

Document Title: Oil level sensor, changing	Function Group: 217	Information Type: Service Information	Date: 2015/2/26
Profile: EXC, EC180D L [GB]			

Oil level sensor, changing

Op nbr 217-005



Risk of burns - stop the diesel engine and allow it to cool down before starting any work.

NOTE!

Cable ties and clamps that secure hoses and electrical wiring must be removed and then replaced when installing.

1. Place the machine in the service position B. See [091 Service positions](#)
2. Turn the battery disconnect switch to off position.
3. Remove the engine room under covers.

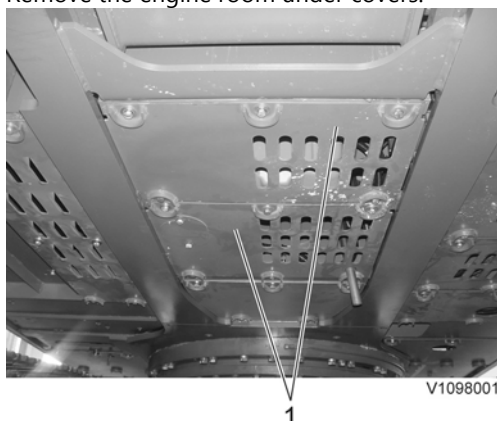


Figure 1

1. Engine room under cover
4. Open the oil drain valve cap and install the engine oil drain hose and then allow the oil to drain from the engine into a suitable collection container.

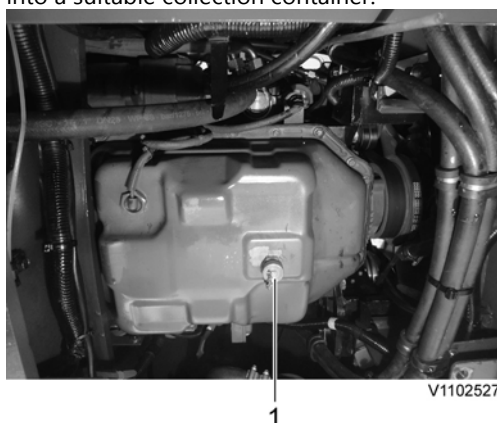


Figure 2

1. Engine oil drain valve cap
5. Disconnect wire harness connector and then remove all clamps and ties.

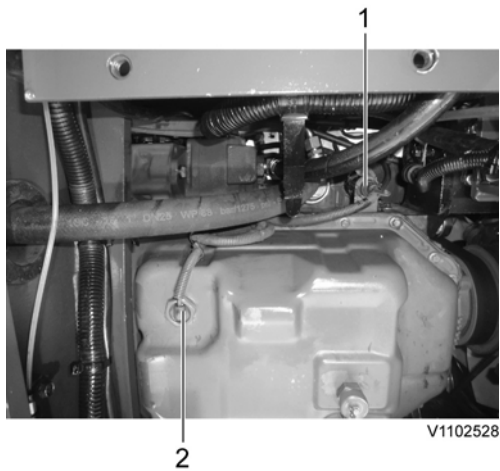


Figure 3

1. Wire harness connector
2. Oil level sensor
6. Remove the oil level sensor and replace it as a new one.
7. Restore the machine to operating condition.
8. Fill the engine oil through the engine oil filling port

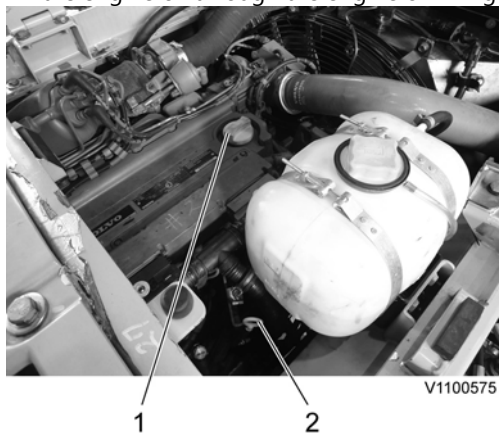


Figure 4

1. Engine oil filling port cap
2. Dipstick gauge

NOTE!

Engine Oil capacity: see [030 Specification, filling capacities](#).

9. Set the ignition switch to "ON" position and check the oil level on the I-ECU.



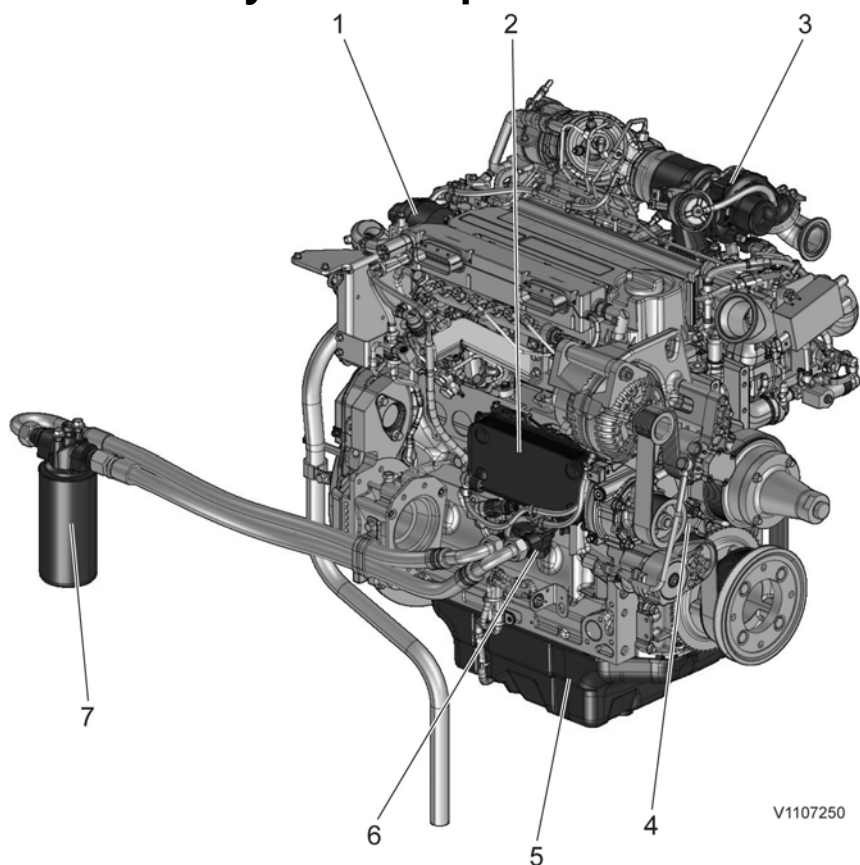
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Figure 5

10. Install the engine room under covers.

Document Title: Lubrication system, component locations	Function Group: 220	Information Type: Service Information	Date: 2015/2/26
Profile: EXC, EC180D L [GB]			

Lubrication system, component locations



V1107250

Figure 1

1. Crankcase ventilation duct
2. Engine oil cooler
3. Turbocharger
4. Oil pump
5. Oil pan
6. Engine oil remote port
7. Engine oil filter

Document Title: Lubrication oil pressure, checking with pressure gauge	Function Group: 221	Information Type: Service Information	Date: 2015/2/26
Profile: EXC, EC180D L [GB]			

Lubrication oil pressure, checking with pressure gauge

Op nbr 221-022

[11666052 Pressure gauge](#)

[14290266 Hose](#)

[15018967 Testing nipple](#)

NOTE!

The check should be performed with the engine at operating temperature.

1. Place the machine in service position B, see [091 Service positions](#).
2. Turn off the electric power with the battery disconnect switch.
3. Remove the engine room under covers.
4. Remove the engine oil port under the oil cooler.

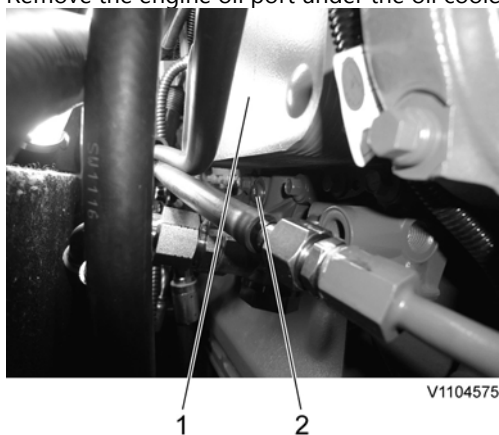
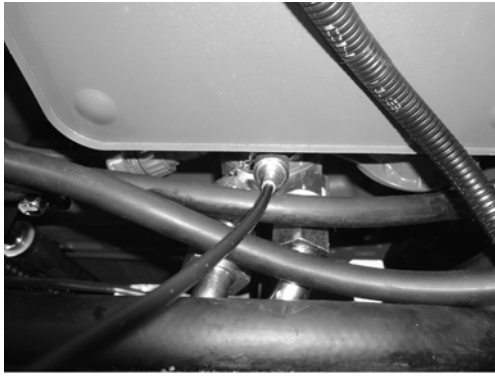


Figure 1

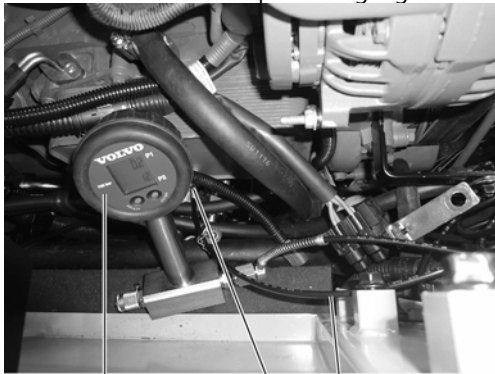
1. Engine oil cooler
 2. Port
5. Install the nipple.



V1104576

Figure 2

6. Install the hose and the pressure gauge



V1104577

Figure 3

1. Pressure gauge
2. Testing nipple
3. Hose

7. Start the engine and warm up to operating temperature.
8. Check the oil pressure, see [220 Lubrication system, specifications](#). Compare the measured value with that which was shown by the VcadsPro test 28407-3.
9. Restore the machine to the operating condition.

Document Title: Fuel system, component location	Function Group: 230	Information Type: Service Information	Date: 2015/2/26
Profile: EXC, EC180D L [GB]			

Fuel system, component location

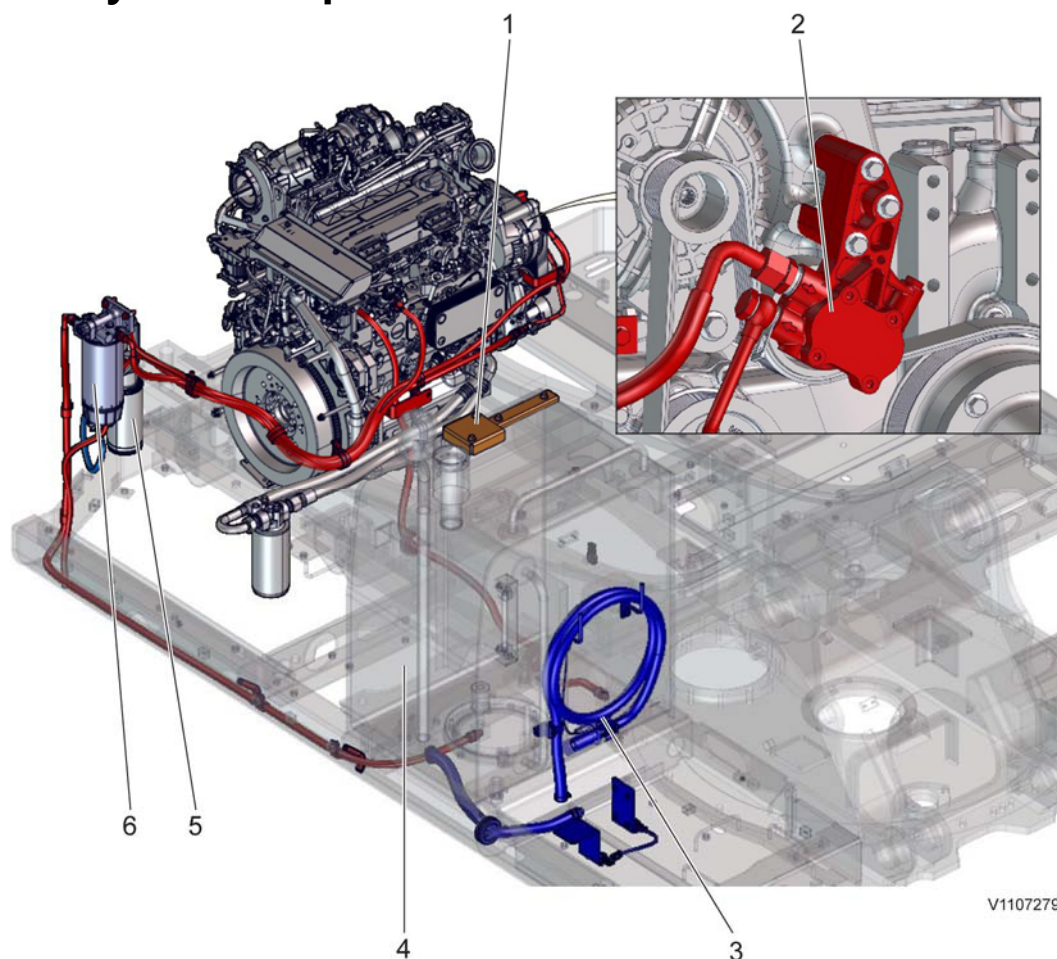


Figure 1

1. Fuel level sensor
2. Fuel pump
3. Fuel filling pump hose
4. Fuel tank
5. Fuel filter
6. Water separator filter element

Description

- [230 Fuel system description](#)



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