

Document Title: Component locations	Function Group: 200	Information Type: Service Information	Date: 2014/3/14
Profile: WLO, L90G [GB]			

Component locations

Engine, component positions

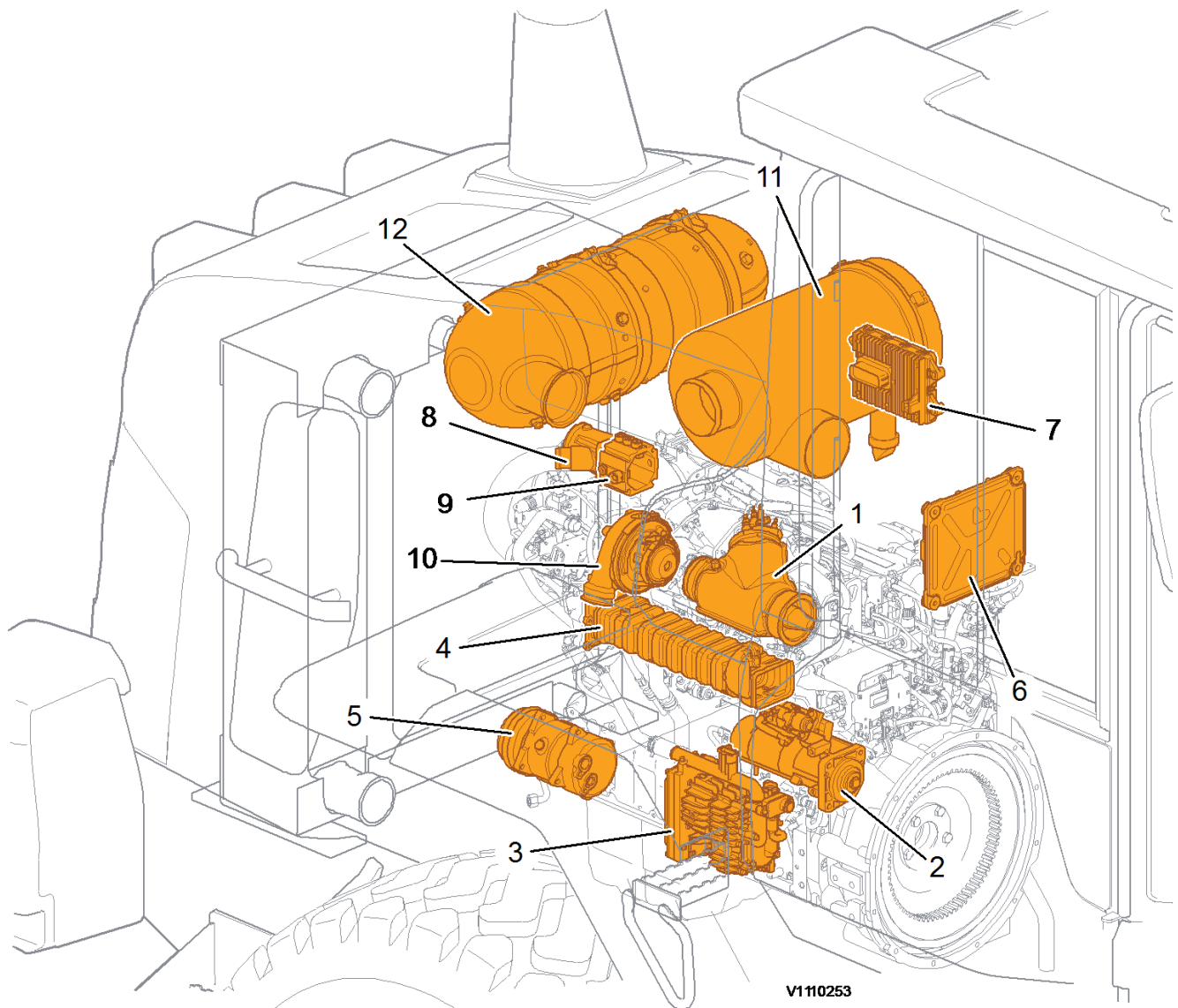
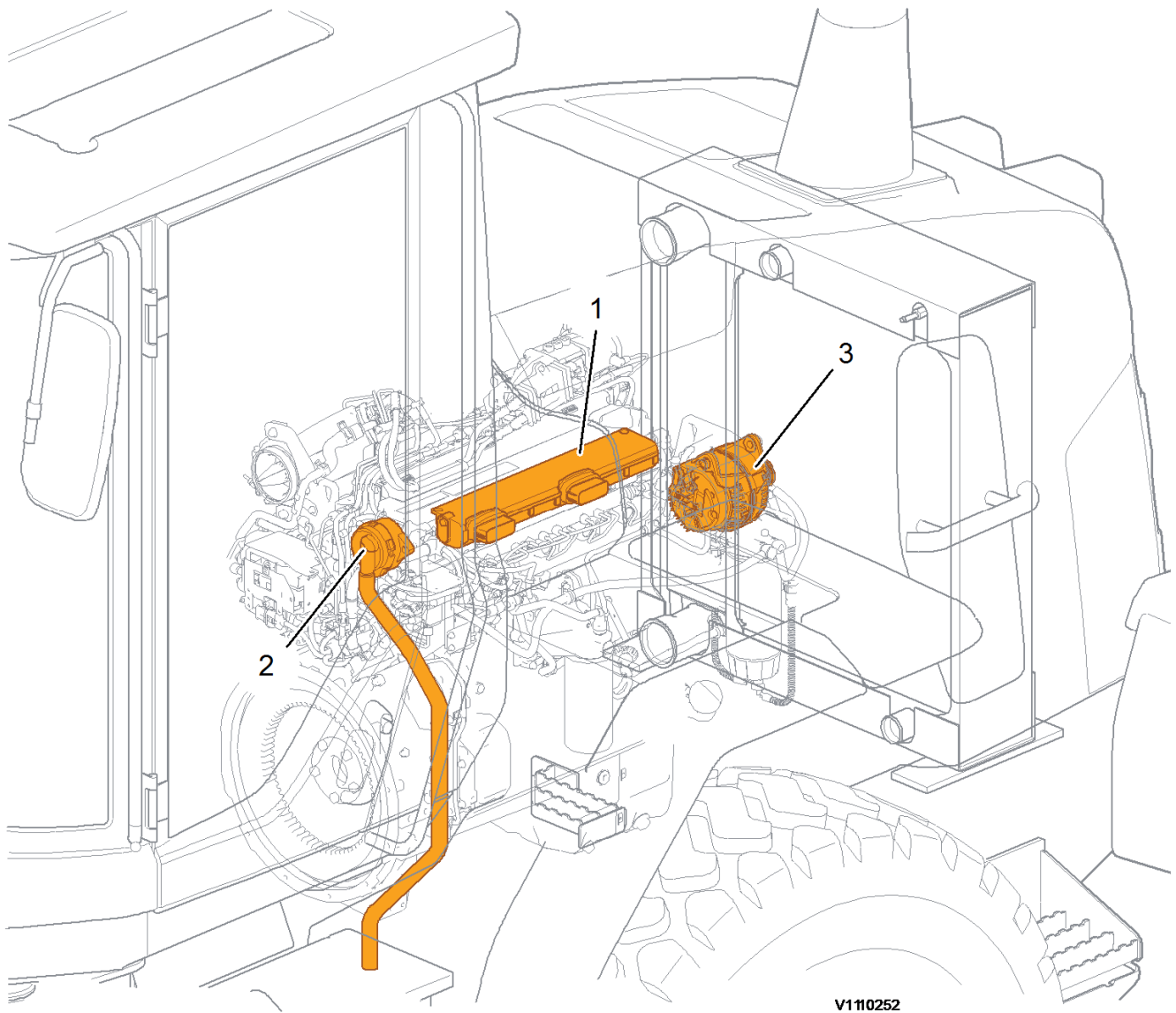


Figure 1

1. Burner
2. Starter motor
3. Air pump
4. EGR-cooler
5. AC compressor
6. E-ECU
7. ACM
8. Mixing chamber

- 9. Preheater
- 10. Turbocharger
- 11. Air cleaner
- 12. Muffler



V1110252

Figure 2

- 1. Electrical connections, grouping point
- 2. Crankcase ventilation, separator
- 3. Alternator

Document Title: VCADS Pro, Operations	Function Group: 200	Information Type: Service Information	Date: 2014/3/14
Profile: WLO, L60G, L70G, L90G [GB]			

VCADS Pro, Operations

The following VCADS Pro operations are available for function group 2. Operations used when changing or working on components are mandatory.

Tests

Operation	Application
21006-3 Cylinder compression, test	Used when there is a suspicion of fault and/or at abnormal values/readings. This test indicates if there is any deviation in compression in any cylinder in relation to the other cylinders. As a first check this operation is both easy and fast to perform instead of a real compression test.
23017-3 Feed pressure, inspection	Used when there is a suspicion of fault and/or at abnormal values/readings.
23712-3 Injectors shut off, manual	Used when there is a suspicion of fault and/or at abnormal values/readings.
25410-3 Air pump exhaust aftertreatment, test	Used when there is a suspicion of fault and/or at abnormal values/readings.
25411-3 Burner exhaust aftertreatment, test	Used when there is a suspicion of fault and/or at abnormal values/readings.
25412-3 Components ASU, test	With this sub-test, the functions of the atomiser air valve, the main air valve, the fuel shut-off valve and the fuel pump are checked.
25457-3 Diesel Particulate Filter Service Regeneration	Used when the soot load is over 1.7. See 254 Exhaust Aftertreatment System, description Before starting service regeneration check the differential pressure over the diesel particle filter so that it is within stated value according to the service information. This is to make sure that the DPF won't get damaged by the service regeneration. After the service regeneration and when the exhaust temperature has stabilized to a normal level check the differential pressure over the DPF again so that it is within stated value according to the service information. This is to determine that the filter has been regenerated correctly and that it is not clogged with ash.
26385-3 Reversible cooling fan, test	When there is a suspicion of fault and/or at abnormal values/readings.
27102-3 Accelerator pedal, test	At abnormal values/readings.
28407-3 Sensor values, monitoring	When there is a suspicion of fault and/or at abnormal values/readings.
28420-3 Flywheel and camshaft signal, test	Used when there is suspicious of faulty signals or faulty connected sensor.
29332-3 Exhaust gas circulation, function test	Used when there is a suspicion of fault and/or at abnormal values/readings.

Programming

Operation	Application
25801-3 MID 233 Control unit, programming	When changing ACM or only reprogramming. See 254 ACM, replacing, non-programmed
28423-3 MID 128 ECU, programming	When changing ECU or only reprogramming. See 200 E-ECU, MID 128, changing non-programmed ECU

Document Title: Engine belts, replacing	Function Group: 200	Information Type: Service Information	Date: 2014/3/14
Profile: WLO, L90G [GB]			

Engine belts, replacing

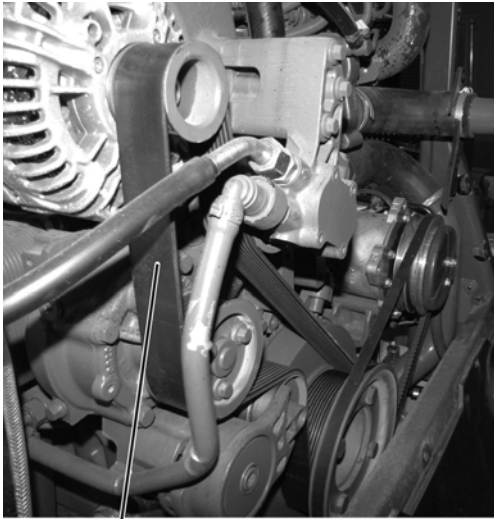
Op nbr 200-200

1. Place the machine in service position according to [191 Service position](#).
2. Open the engine hood.
3. Remove the plastic protection (24 screws).



Figure 1

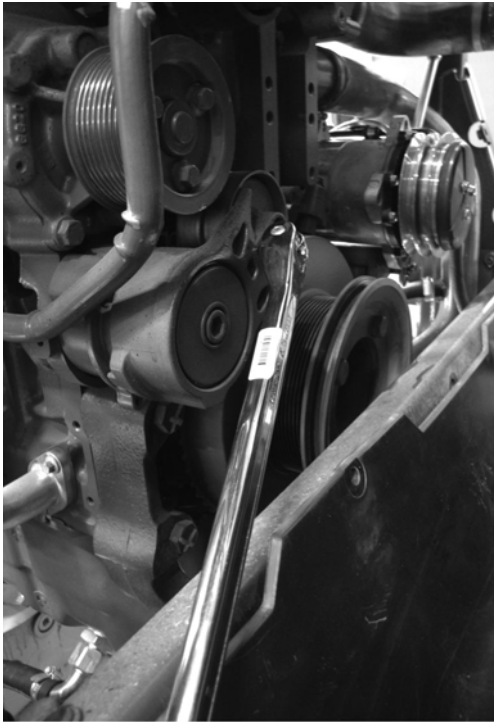
1. Plastic protection
4. Remove the AC-belt (3 screws).



V1110572

Figure 2

1. Alternator belt

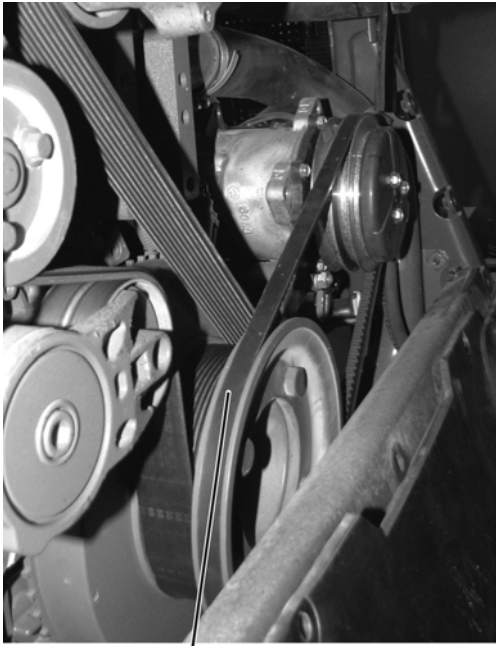


V1110582

Figure 3

Loosen the tensioning pulley and remove the belts.

5. Remove the alternator belt.



1

V1110573

Figure 4

1. AC-belt
6. Install new alternator belt and AC-belt.
7. Install the plastic protection.
8. Restore the machine.

Document Title: Compression test	Function Group: 210	Information Type: Service Information	Date: 2014/3/14
Profile: WLO, L90G [GB]			

Compression test

Op nbr 210-002

[885812 Timing tool](#)

[9988539 Pressure gauge](#)

[88800070 Spanner](#)

[88830197 Rotation tool](#)

[88830205 Adapter](#)

[88830206 Counterhold](#)

This operation also includes required tools and times for applicable parts of the following operations:

[214 Valves, adjusting](#)

NOTICE

Maintain greatest possible cleanliness when working on the fuel system.

1. Place the machine in service position 1, see: [191 Service position](#).
2. Open the engine hood.

3. **NOTICE**
Plug all pipes, hoses and connections when removing.

4. Unplug the connector and remove the hoses (2 pcs.) between the air cleaner and the turbo (3 clamps).

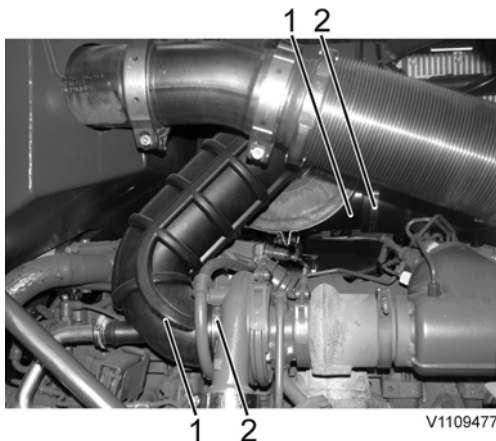


Figure 1

1. Hoses
 2. Clamps
5. Remove the bracket for the air cleaner (2 clamps).
Remove the air cleaner.

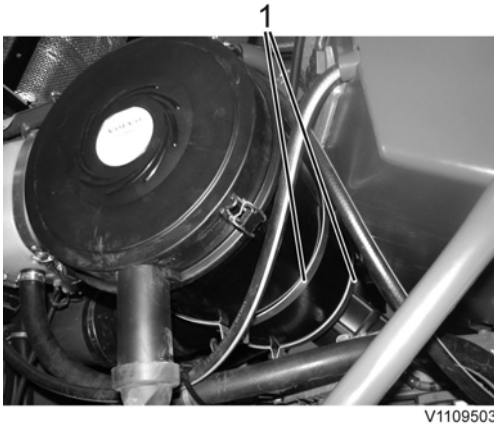


Figure 2

1. Clamps

6. Remove the dust cover between the valve cover and the inlet pipe. Unplug the connector and remove the control unit (3 screws).

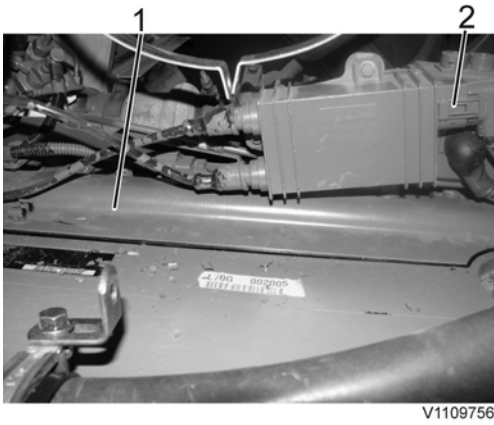


Figure 3

1. Dust cover
2. Connector

7. Unplug the connectors (2 pcs.) Remove the screws (2 pcs.) for the cable holder. Place the cable holder in appropriate work position.

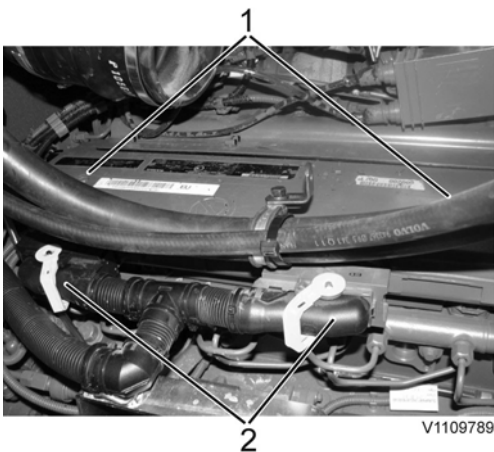


Figure 4

1. Bolt
2. Connectors

8. Unplug the connectors (2 pcs.) for the injectors.



Figure 5

1. Connector

9. Remove the crankcase ventilation (2 bolts) and the valve cover (14 bolts).

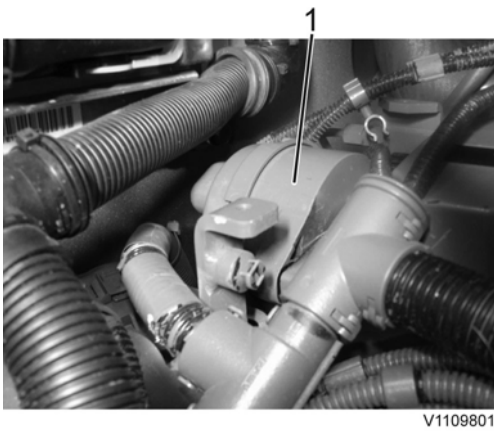


Figure 6

1. Crankcase ventilation

10. Unplug the connectors (2 pcs.) for the FCV and the high-pressure pump.

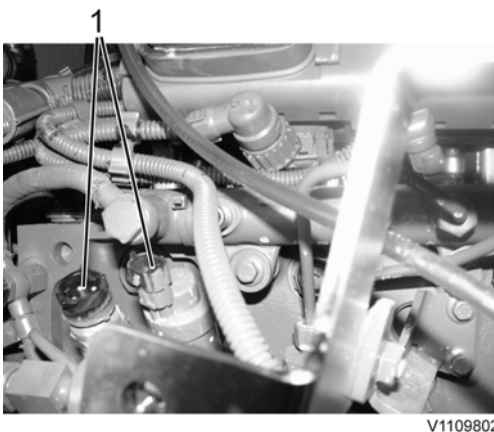


Figure 7

1. Connectors

11. Install 88800070 Spanner to remove the injector pipes (6 pcs.) and the rail pipes (2 pcs.) from the pump.

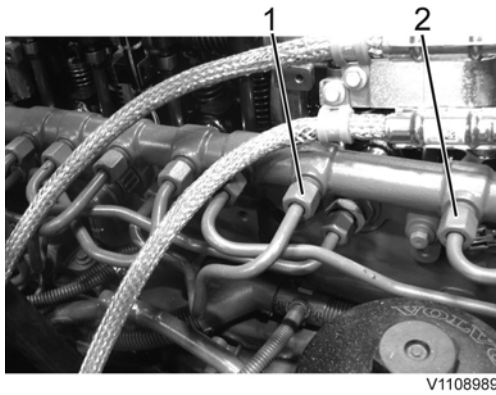


Figure 8

1. Rail pipe
2. Injector pipe

12. Remove the feed line. Attach a 10 mm (0.4 in.) hose to the feed line for circulating the fuel to the tank.

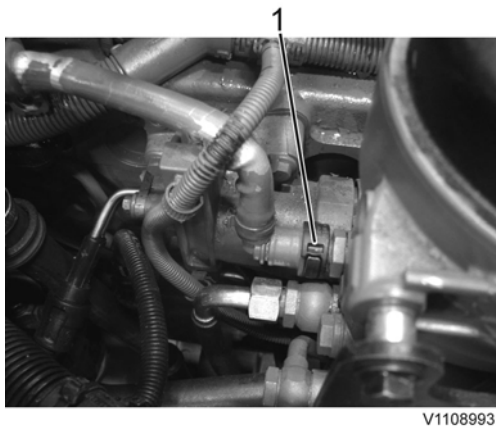


Figure 9

1. Feed line

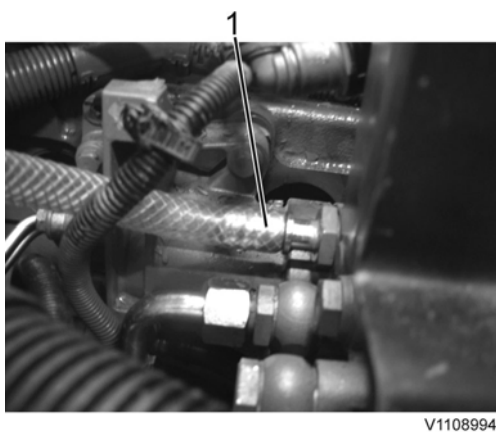


Figure 10

1. Hose for fuel circulating
13. Remove the nut (6 pcs.) and the nozzle (6 pcs.) for the injector (6 pcs.).

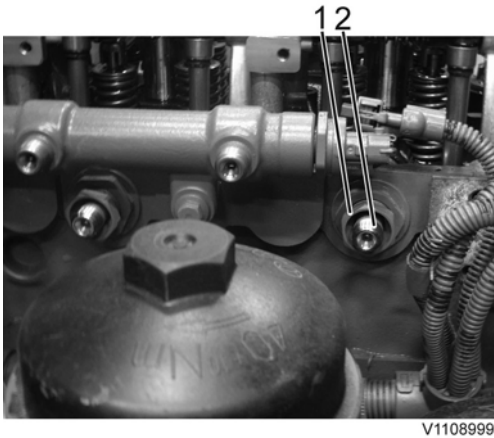


Figure 11

1. Nut
2. Nozzle
14. Disconnect the electric connections (12 pcs.) from the injectors and remove the screws (6 pcs.) for the bracket. Remove the cable harness (2 screws).

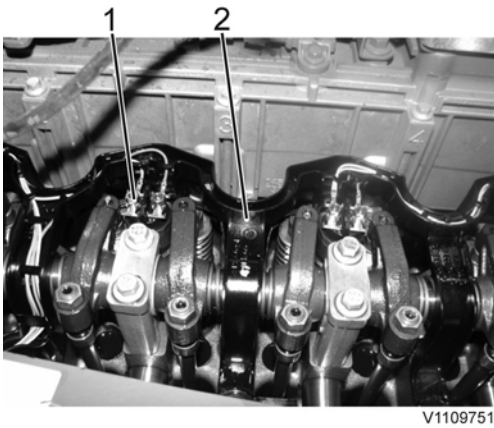


Figure 12

1. Electric connections
2. Cable harness
15. Replace the injector, use: 88830206 Counterhold.

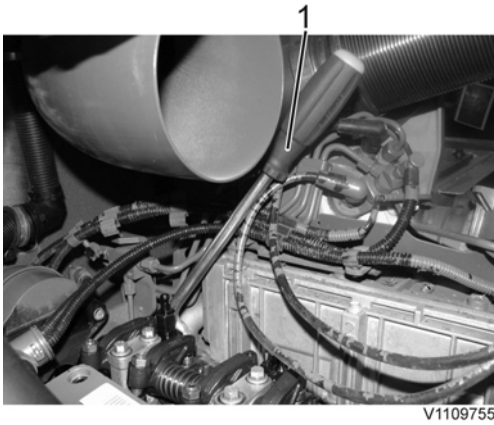


Figure 13

1. 88830206 Counterhold

NOTE!

The engine must cool down for approx. 30 minutes and the oil temperature must not exceed 80 °C (176 °F).

16. Check that the valve clearances are correct, adjust as needed, see: [214 Valves, adjusting](#).
17. Install the compression test equipment: 88830205 Adapter, 9988539 Pressure gauge. Run the engine with the starter motor for 5–10 seconds. Repeat the procedure for all the other cylinders. The difference in compression pressure should not exceed 15%.

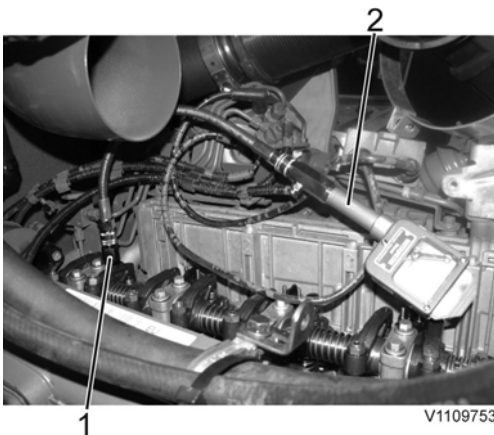


Figure 14

1. 88830205 Adapter
2. 9988539 Pressure gauge

18. Remove the compression test equipment.
19. Install the injectors with new copper gaskets. Install the nut and the nozzle for the injectors. Tightening torque, attaching yoke, see: [230 Tightening torque, fuel system](#)
20. Connect the electric connections for the injectors. Install the cable harness.
21. Install new fuel delivery lines. Tightening torque, see: [230 Tightening torque, fuel system](#)
22. Remove the hose between the fuel feed pump and the fuel tank. Connect the fuel hose to the fuel feed pump.
23. Plug in the connectors for the FCV and the high-pressure pump.

24. Install the valve cover and the crankcase ventilation. Tightening torque, see: [214 Valve system, specification](#)
25. Plug in the connectors for the injectors.
26. Install the cable holder, control unit, dust cover, and the air cleaner with clamps.
27. Plug in the connector and install the hoses between the air cleaner and the turbo.
28. Bleed the fuel system, see: [233 Fuel system, bleeding](#)



WARNING

Make sure that high-pressure fuel cannot come into contact with unprotected parts of the body when working with injection equipment.

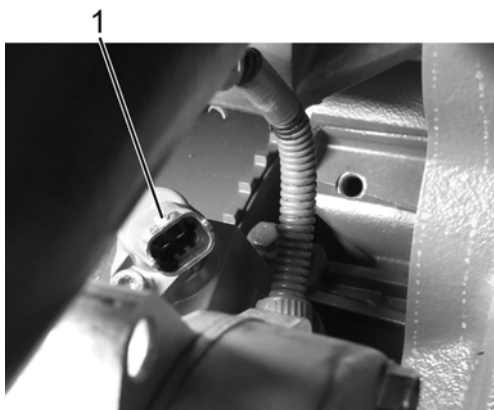
29. Restore the machine.

Document Title: Engine rotation speed sensor (crank shaft), replacing	Function Group: 210	Information Type: Service Information	Date: 2014/3/14
Profile: WLO, L90G [GB]			

Engine rotation speed sensor (crank shaft), replacing

Op nbr 210-093

1. Place the machine in service position according to [191 Service position](#).
2. Open the engine hood.
3. Unplug the connector and loosen the screw that holds the speed sensor.

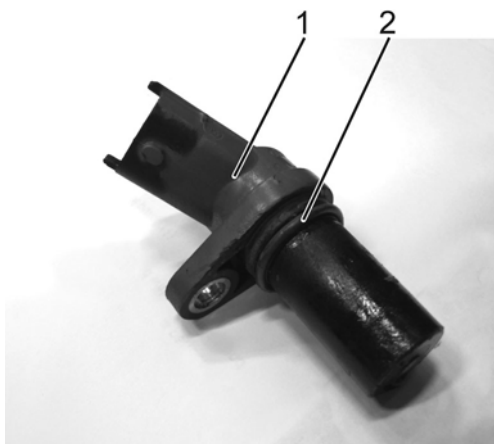


V1110057

Figure 1

1. Connector

4. Remove the speed sensor.



V1106196

Figure 2

1. Loose speed sensor
2. O-ring

5. Replace the O-ring.
6. Install a new speed sensor and plug in the connector.
7. Restore the machine.

Thank you very much for reading.

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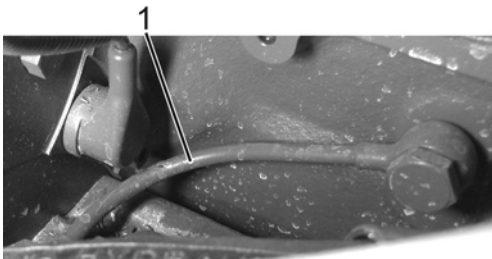
the Complete Manual.

Document Title: Engine rotation speed sensor (camshaft), replacing	Function Group: 210	Information Type: Service Information	Date: 2014/3/14
Profile: WLO, L90G [GB]			

Engine rotation speed sensor (camshaft), replacing

Op nbr 210-092

1. Place the machine in service position according to [191 Service position](#).
2. Open the engine hood.
3. Remove the oil pipe (2 screws).



V1110129

Figure 1

1. Oil pipe
4. Cut the cable tie, unplug the connector and loosen the screw that holds the speed sensor.



V1110071

Figure 2

1. Connector
5. Remove the speed sensor.

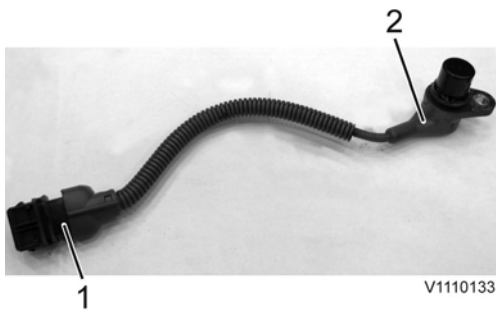


Figure 3

1. Connector
2. Speed sensor
6. Replace the O-ring.
7. Install a new speed sensor and plug in the connector.
8. Install the oil pipe. Tightening torques:
 - M12 (banjo screw): **20 ± 3 Nm (14.8 ± 2.2 lbf ft)**
 - M16 (banjo screw): **40 ± 5 Nm (29.5 ± 3.7 lbf ft)**
9. Restore the machine.