Document Title: **Component locations**	Function Group: **200**	Information Type: **Service Information**	Date: **2014/12/2**
Profile: **EXC, EC140D L [GB]**			

Component locations

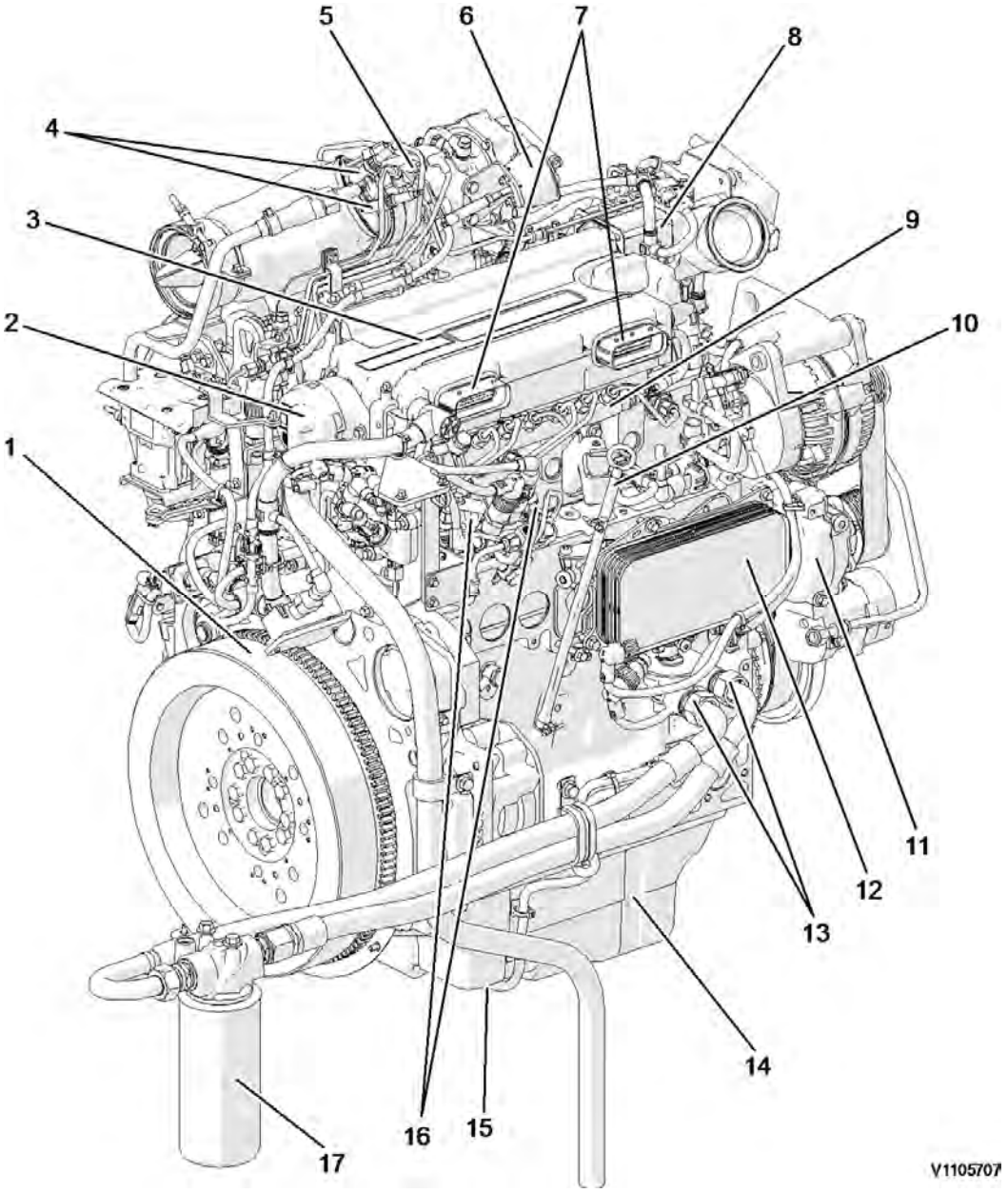

Figure 1
Engine, front side

1	Flywheel	10	Engine oil dipstick gauge
2	Crankcase ventilation duct	11	Coolant pump
3	Valve cover	12	Engine oil cooler
4	Spark plug	13	Engine oil filter remote port
5	Glow plug	14	Oil pan

6	Turbocharger waste-gate	15	Engine oil level sensor
7	ECU connecting port	16	High pressure fuel pump
8	Pre-heating coil housing	17	Engine oil filter
9	Common rail		

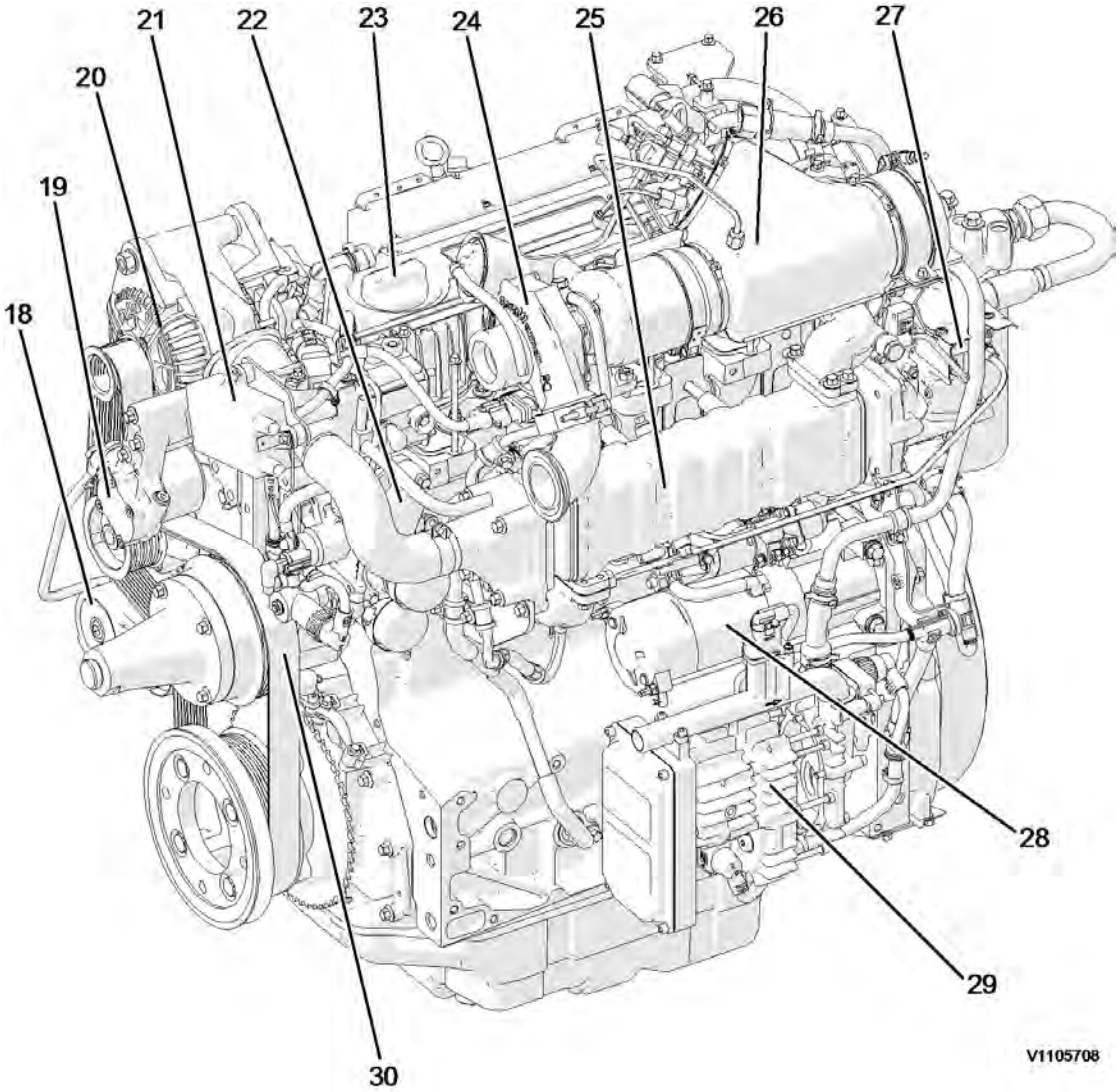

Figure 2
Engine, back side

18	Belt tensioner	25	EGR cooler
19	Fuel feed pump	26	Partial flow-burner
20	Alternator	27	EGR actuator
21	Spark plug control unit	28	Starter motor
22	Thermostat housing	29	Electric air pump
23	Engine oil filling port	30	Fan belt
24	Turbocharger		

VOLVO
Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
E-ECU, MID 128, changing non-programmed ECU	**200**	**Service Information**	**2014/12/2**
Profile: **EXC, EC140D L [GB]**			

E-ECU, MID 128, changing non-programmed ECU

Op nbr 200-068

VCADS Pro VCADS Pro Service Tool
88890180 Interface
88890027 Cable

1. Park the machine in the service position A, see 091 Service positions.
2. Open the side doors on the left side of the machine.
3. Turn OFF the battery disconnect switch.

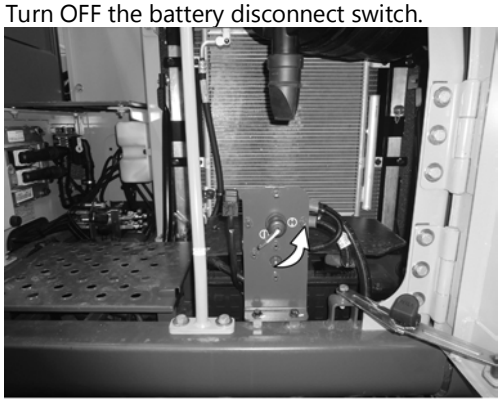

Figure 1

4. Download software to VCADS Pro computer for target machine.
5. Connect the VCADS Pro computer to the machine, and perform the operation '28423-7 MID 128 control unit, programming'.
6. When VCADS Pro 'MID 128 ECU, programming' window appears, follow the instructions for replacing E-ECU.
7. Disconnect the wiring harness connectors from E-ECU and remove 2 screws fixing the clamps.

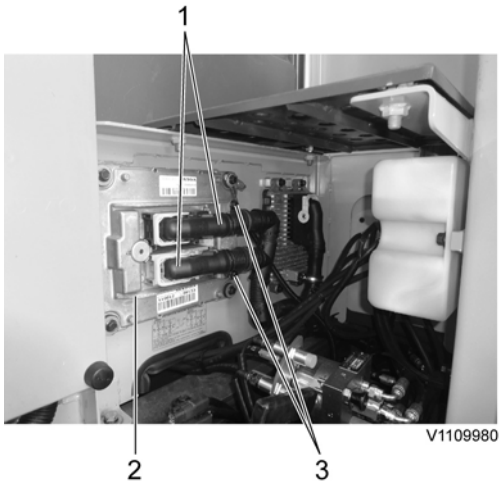

Figure 2

1. Connector
2. E-ECU
3. Screw

NOTE!
Pull up the locking device to disconnect the connector.

8. Remove 4 screws fixing the E-ECU.

9. Install new E-ECU, and tighten 4 screws.

10. Connect the wiring harness connectors to the E-ECU and tighten 2 screws fixing the clamps.

11. After replacing E-ECU, press OK button of VCADS Pro operation '28423-7 MID 128 control unit, programming'. Now VCADS Pro starts the programming of software and parameters to the new E-ECU.

12. Close the side doors.

VOLVO
Construction Equipment

Service Information

Document Title: **E-ECU, MID 128, changing pre-programmed ECU**	Function Group: **200**	Information Type: **Service Information**	Date: **2014/12/2**
Profile: **EXC, EC140D L [GB]**			

E-ECU, MID 128, changing pre-programmed ECU

Op nbr 200-070

VCADS Pro VCADS Pro Service Tool
88890180 Interface
88890027 Cable

1. Park the machine in the service position A, see 091 Service positions.
2. Open the side doors on the left side of the machine.
3. Turn OFF the battery disconnect switch.

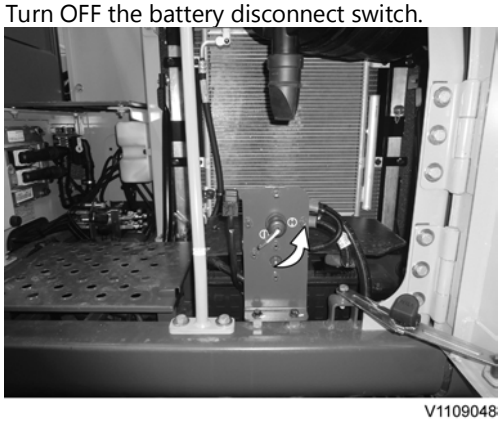

Figure 1

4. Connect VCADS Pro computer to the machine, and perform the operation '17030-3 Parameter, programming'.
5. Use the function 'save all parameters to job card'.
6. Disconnect the wiring harness connectors from E-ECU and remove 2 screws fixing the clamps.

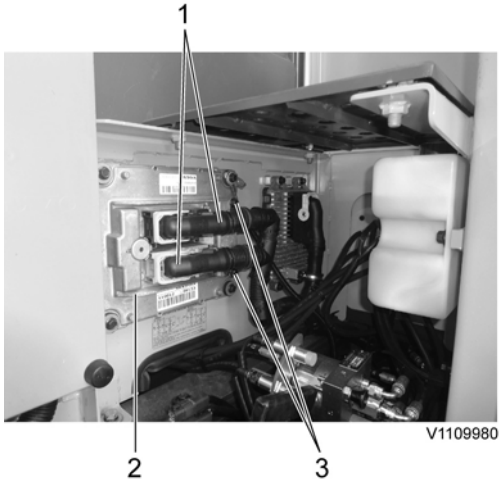

Figure 2

1. Connector
2. E-ECU
3. Screw

NOTE!
Pull up the locking device to disconnect the connector.

7. Remove 4 screws fixing the E-ECU.

8. Install new E-ECU, and tighten 4 screws fixing the E-ECU.

9. Connect the wiring harness connectors to the E-ECU and tighten 2 screws fixing the clamps.

10. Connect VCADS Pro computer to the machine, and perform the operation 17030-3 Parameter, programming'. Now the customer parameters are changed according to the job card saved at step 2.

11. Close the side doors.

Document Title: **VCADS Pro, Operations**	Function Group: **200**	Information Type: **Service Information**	Date: **2014/12/2**
Profile: **EXC, EC140D L [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
20046-3 Read out engine information	The operation is used to read out the engine emission and engine certificate information when requested by the customer or other interested parties.
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.
23777-3 Fuel system, check	Check the fuel system on common rail engines. In this test, it is possible to check the engine at different running condition.
25410-3 Air pump exhaust aftertreatment, test	Used when there is a suspicion of fault and/or at abnormal values/readings. Air for combustion and HC injection
25411-3 Burner exhaust aftertreatment, test	Used when there is a suspicion of fault and/or at abnormal values/readings.
25433-3 Fuel system exhaust aftertreatment, bleeding	Used to remove any air in the EATS system.
25440-3 Fuel pressure, exhaust aftertreatment system, test	The test checks; The fuel supply to the shut off valve, pressure and temperature The pressure after MV1 to the HC injector The pressure after MV2 to the burner
25456-3 Exhaust aftertreatment diagnostics	Perform a simple check of the included components in the exhaust aftertreatement system.
25457-3 Diesel Particulate Filter Service Regeneration	Used when the soot load level becomes higher than what can be removed by the normal regeneration process. See 254 Exhaust Aftertreatment System, description
25460-3 Reset soot and ash load	When the diesel particulate filter has been changed, the soot load and the ash load must be reset. The reset is needed to indicate to the system that the filter has been cleaned. The soot load and ash load must only be reset if a clean filter has been installed.
27502-2 Engine speed control, test	Used when there is a suspicion of fault and/or at abnormal values/readings.
28407-3 Sensor values, monitoring	Used 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.

Programming

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

25802-3 MID 233 Control unit, campaign	
28423-3 MID 128 ECU, programming	When changing ECU or only reprogramming. See 200 E-ECU, MID 128, changing non-programmed ECU
28422-3 MID 128 ECU, campaign	

Document Title:	Function Group:	Information Type:	Date:
Engine characteristic curve	**210**	**Service Information**	**2014/12/2**
Profile: **EXC, EC140D L [GB]**			

Engine characteristic curve

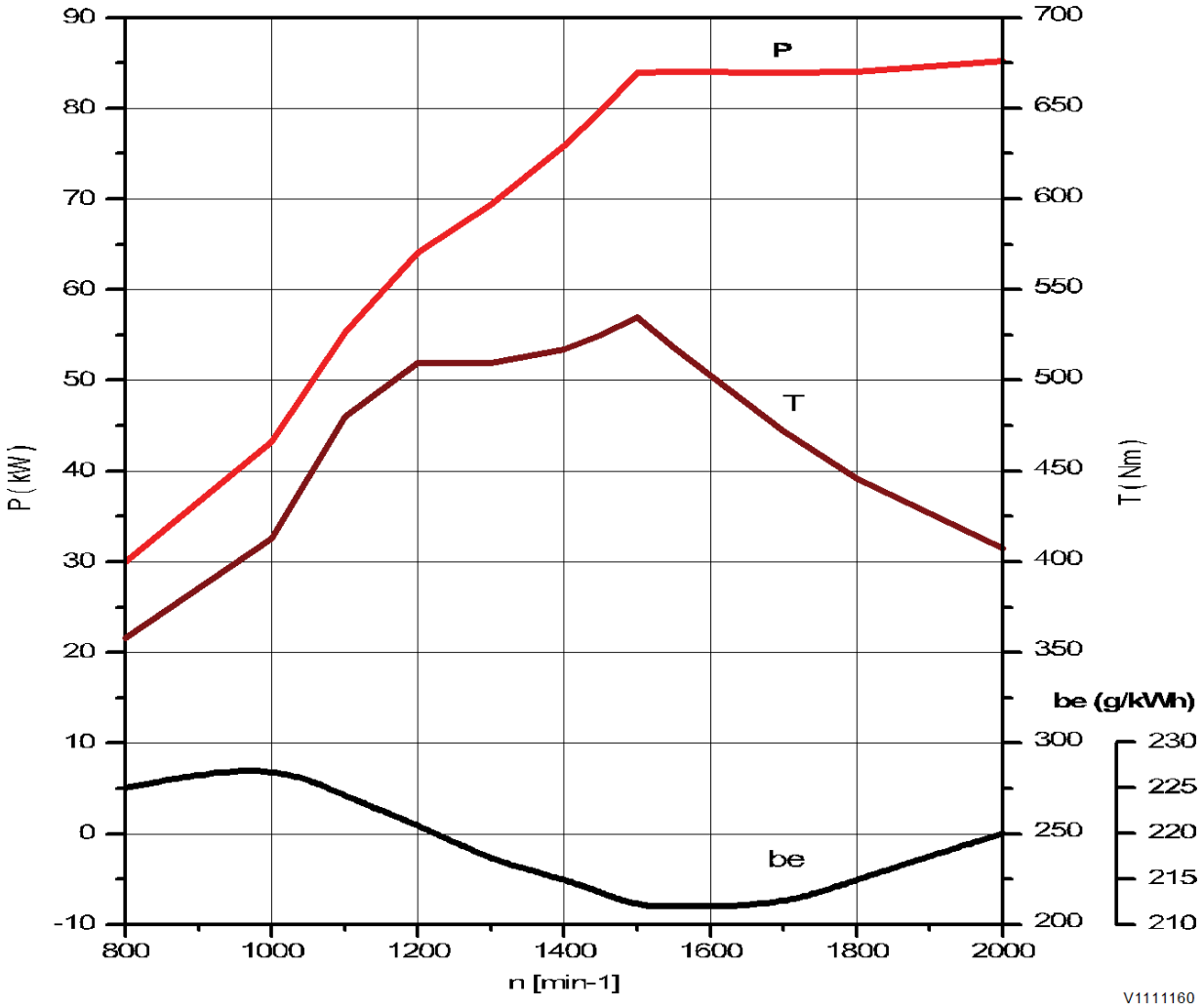

Figure 1
Engine characteristic curve, ISO 14396 Gross power

P	Output power
rpm	Engine speed
T	Torque
be	Fuel consumption

Document Title: **Engine, removing**	Function Group: **210**	Information Type: **Service Information**	Date: **2014/12/2**
Profile: **EXC, EC140D L [GB]**			

Engine, removing

Op nbr 210-070

WARNING

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

WARNING

Removal of residual pressure from the circuit must be done prior to any maintenance.

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

NOTE!
Disconnected hoses, lines and connections must be plugged. Oil that drains from hoses, lines and connections should be collected in a container.

1. Place the machine in the service position B. See 091 Service positions
2. Turn off the battery disconnect switch.
3. Drain the coolant in a collection container. See 261 Coolant, changing.
4. Remove the muffler (DPF) hood and the engine hood using a lifting device.

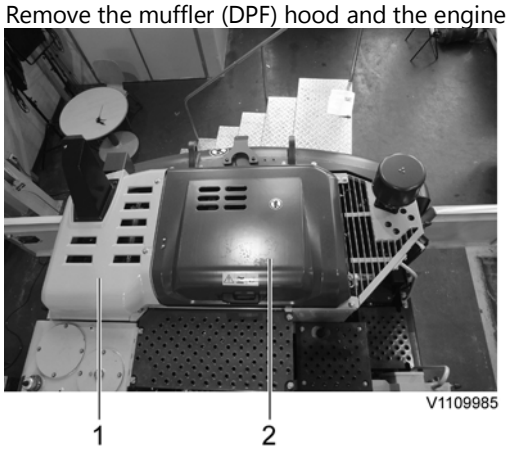

Figure 1

1. Muffler (DPF) hood
2. Engine hood

5. Remove the counterweight, see 716 Counterweight, removing.
6. Remove the screws on the bracket of the CAC (Charge air cooler) line.

Figure 2

1. Screw

7. Remove the screws on the bracket of the air inlet line.

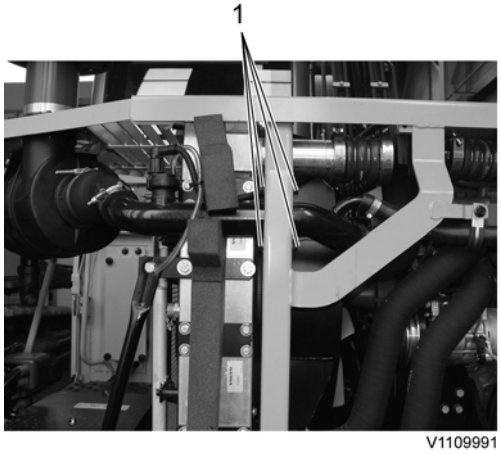

Figure 3

1. Screw

8. Remove the screws on the cowl frame.

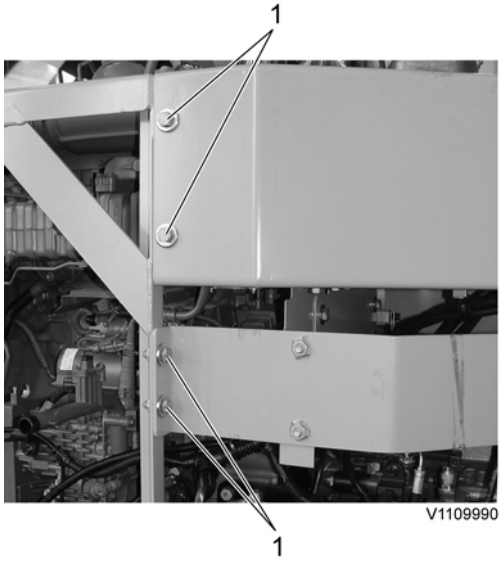

Figure 4

1. Screw

9. Remove the clamp and the air pump hose.
   Remove the mounting screws and the rear cowl frame.

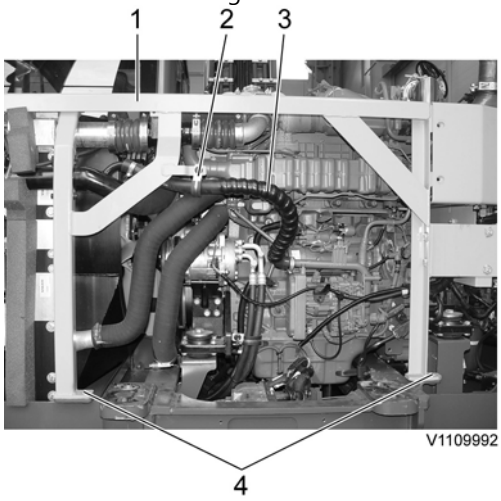

Figure 5

1. Cowl frame
2. Clamp
3. Air pump hose
4. Mounting screw

10. Remove the clamps and the charge air cooler hoses.

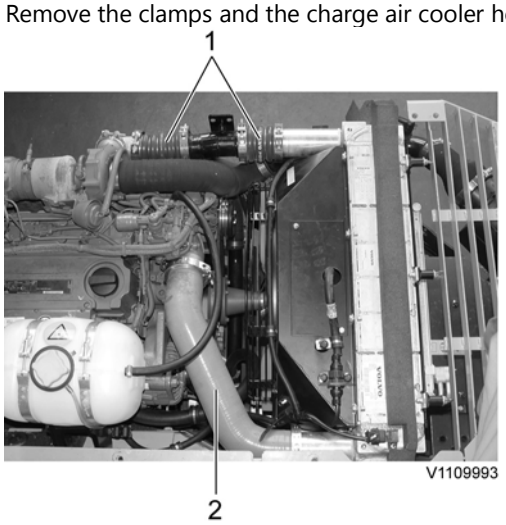

Figure 6

1. Charge air cooler hose (Outlet)
2. Charge air cooler hose (Inlet)

11. Remove the clamps and the air inlet hose.

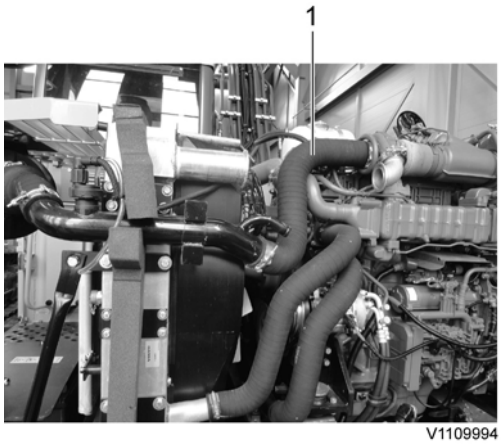

Figure 7

1. Air inlet hose

12. Remove the clamps and disconnect the radiator hoses.

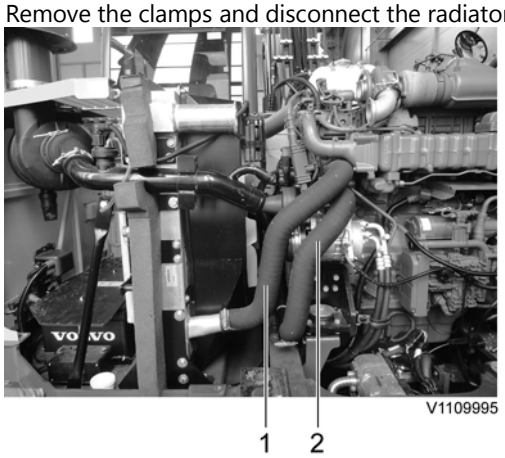

Figure 8

1. Radiator hose (Outlet)
2. Radiator hose (Inlet)

13. Disconnect the starter motor wire harness.

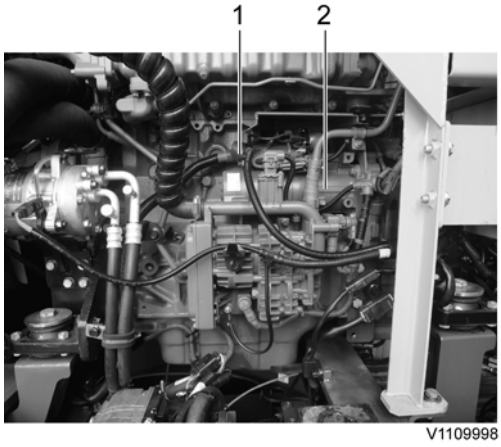

Figure 9

1. Wire harness

2. Starter motor

14. Remove the air conditioner compressor belt.
Disconnect the wire harness connector, remove the compressor and lay it down on the frame.

WARNING

Do not disconnect or loosen connections for the air conditioning unit (AC). Risk of gas leakage.

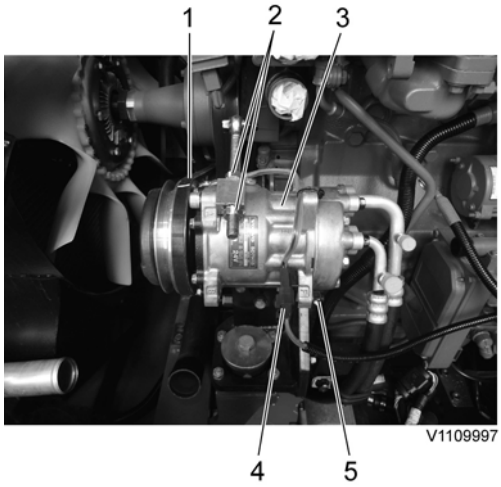

Figure 10

1. Air conditioner compressor belt
2. Nut
3. Air conditioner compressor
4. Wire harness connector
5. Mounting screw

15. Remove the screws and lay down the cooling fan inside the radiator shroud safely.

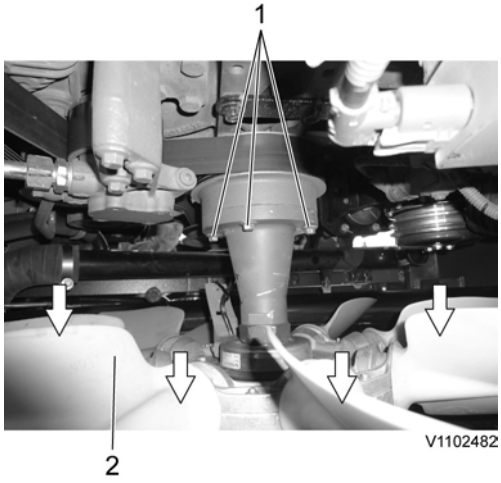

Figure 11

1. Screw
2. Cooling fan

16. Disconnect the hose and remove the clamps on the expansion tank

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