

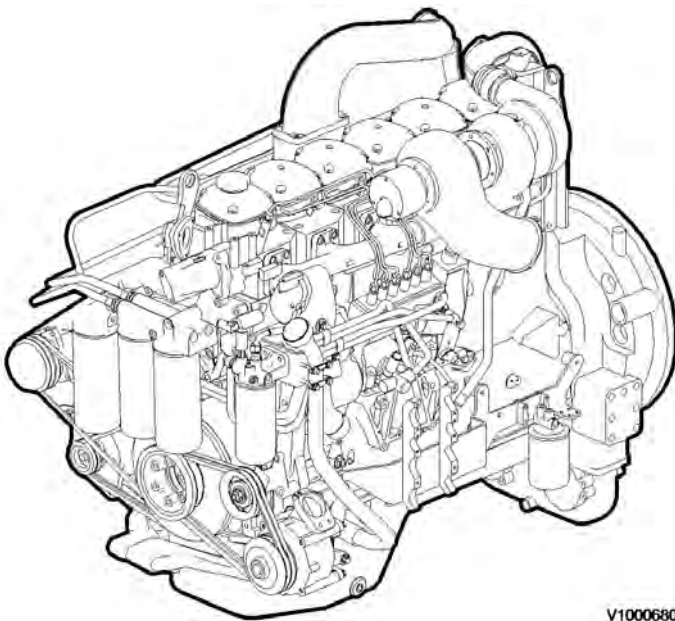
Document Title: Engine, description	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
Profile: ART, A25D [GB]			

Engine, description

Engine D10, description

Machine	Place of manufacture, serial number		
	EU	US	Brazil
A25D	11001–12999	61001–61118	71001–71999
A30D	10001–11999	60001–60093	70001–72999

The engine is a straight six cylinder, direct-injected diesel with 9.6 litres cylinder capacity, turbo, intercooler and electronically controlled fuel injection. The valve mechanism receives its movement from the camshaft via valve rods and rocker arms. The injection pump is equipped with a smoke limiter for torque limitation of the engine. The injectors are mounted in copper sleeves that are pressed into the cylinder head and directly surrounded by the coolant. The engine also has an electronic control unit (E-ECU), located on the right radiator bow.



V1000680

Figure 1
Engine D10B, left side

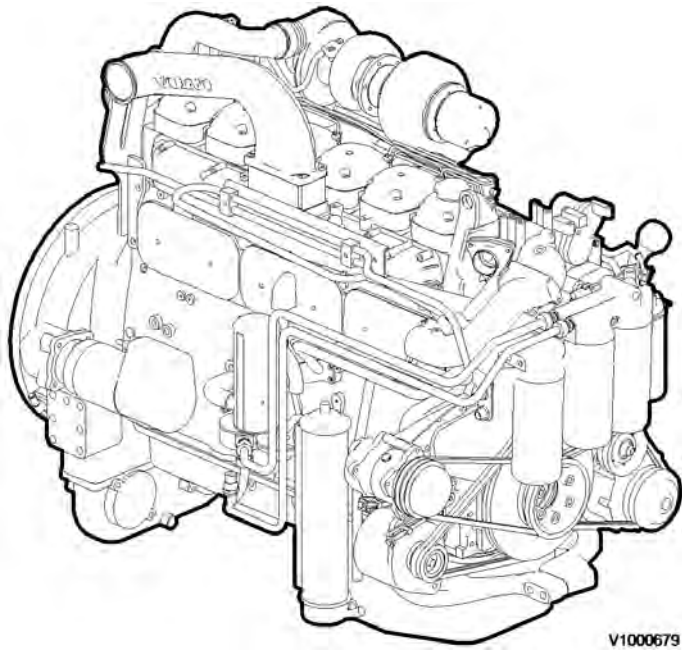
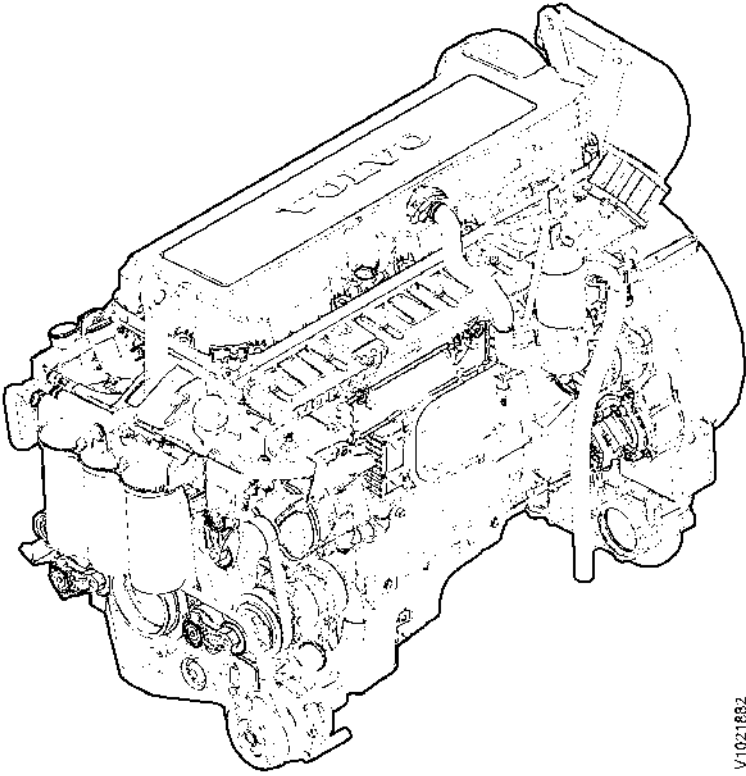


Figure 2
Engine D10B, right side

Engine D9, description

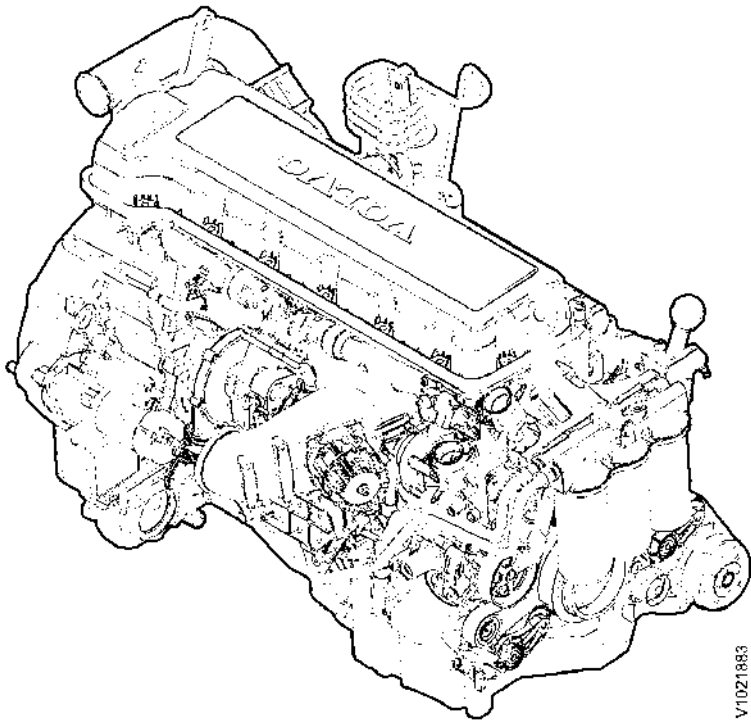
Machine	Place of manufacture, serial number		
	EU	US	Brazil
A25D	13001–	–	72000–
A30D	12001–	–	73000–

Engine D9 is a straight six cylinder, direct-injected diesel with 9.4 litres cylinder capacity, turbo, intercooler and electronically controlled fuel injection. The valve mechanism receives its movement from the camshaft via valve rods and rocker arms. The engine has an overhead camshaft and unit injectors, which are centred above the pistons and controlled by the camshaft and a control unit (E-ECU). The control unit is located on the engine's left side.



V1021882

Figure 3
V1021882



V1021883

Figure 4
V1021883

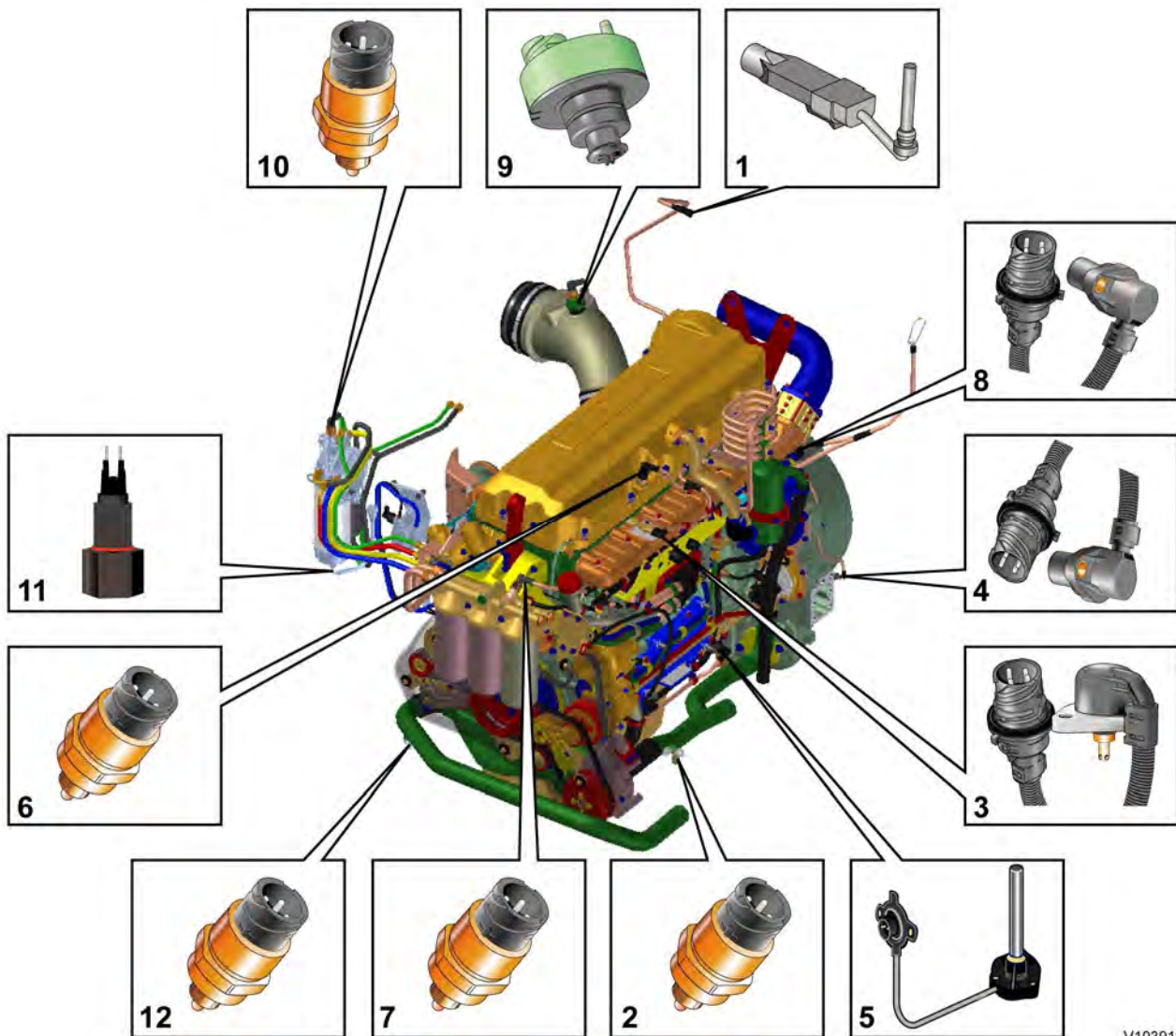
Document Title: Engine, sensor positions	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
Profile: ART, A25D [GB]			

Engine, sensor positions

Control unit sensors

The following is a brief summary of the parts on the engine. There are a number of other parts that affect the system, for example, the throttle pedal sensor.

The central part of the system, the control unit is positioned on the left side of the engine. All cable connectors for the engine's sensors are of DIN-standard and are connected in a so-called cable box.



V1039126

Figure 1
Engine D9, sensors (some have double functions)

1. Sensor for coolant level, SE2603
2. Sensor for coolant temperature, cooling circuit converter, SE2601
3. Sensor for charge air pressure/temperature, SE2507/SE2508
4. Tachometer sensor, flywheel, SE2701

5. Sensor for oil level/temperature, SE2205/SE2202
6. Sensor for crankcase pressure, SE2509
7. Sensor for oil pressure, SE2203
8. Camshaft sensor, engine position, SE2703
9. Sensor for air pressure/temperature, SE2501/SE2502
10. Sensor for feed pressure, fuel, SE2301
11. Sensor for water indicator, SE2302
12. Sensor for coolant temperature, cooling circuit engine/retarder, SE2602

Document Title: Engine, identification	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
Profile: ART, A25D [GB]			

Engine, identification

Identification plate 1

Engine designation, serial number, part number and assembly plant are stamped in one field on the engine block's left front edge.

Identification plate 2

A decal with the software's ID-number, the engine's serial number and assembly plant is located on the valve cover to ensure installation of correct ECU on the engine in production. On the back of the ECU, there is a decal indicating its hardware number. The E-ECU is located on the engine's left side.

Assembly plants:

A = Skövde, Sweden

E = Curitiba, Brazil

F = Flen, Sweden

L = Lyon, France

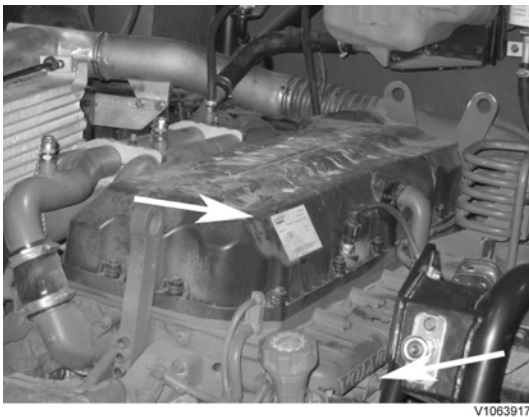


Figure 1

Identification plate 3

The certification decal is located on the valve cover as well as on the left side, at the back of the machine's front frame inside of the steps.



Document Title: E-ECU, MID 128, changing pre-programmed ECU	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
Profile: ART, A25D [GB]			

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

Op nbr 200-070

Applies to machine equipped with engine D10, with serial number according to the table.

Machine	Place of manufacture, serial number		
	EU	US	Brazil
A25D	11001–12077	61001–61118	–
A30D	10001–10682	60001–60093	70001–72999

1. Connect VCADS Pro computer and perform 17030-3 Parameter, programming.
 - Use the function – Save all read parameters to job card.
2. Perform [200 E-ECU, MID 128, changing non-programmed ECU](#) step 2–15.
3. Connect VCADS Pro computer and perform 17030-3 Parameter, programming.
 - Program earlier read-out parameters according to the job card.

Document Title: E-ECU, MID 128, changing pre-programmed ECU	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
Profile: ART, A25D [GB]			

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

Op nbr 200-070

Applies to machine equipped with engine D9A, with serial number according to the table.

Machine	Place of manufacture, serial number		
	EU	US	Brazil
A25D	13001–	–	–
A30D	12001–	–	73000–

1. Connect VCADS Pro computer and perform 17030-3 Parameter, programming.
 - Use the function – Save all read parameters to job card.
2. Perform [200 E-ECU, MID 128, changing non-programmed ECU](#) step 2–17.
3. Connect VCADS Pro computer and perform 17030-3 Parameter, programming.
 - Program earlier read-out parameters according to the job card.

Document Title: E-ECU, MID 128, changing pre-programmed ECU	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
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E-ECU, MID 128, changing pre-programmed ECU

Op nbr 200-070

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

- [200 E-ECU, MID 128, changing non-programmed ECU](#)
 1. Connect VCADS Pro computer and perform 17030-3 Parameter, programming.
 - Use the function: Save all read parameters to job card.
 2. Perform [200 E-ECU, MID 128, changing non-programmed ECU](#) step 2–14.
 3. Connect VCADS Pro computer and perform 17030-3 Parameter, programming.
 - Program earlier read-out parameters according to the job card.

Document Title: E-ECU, MID 128, changing non-programmed ECU	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
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E-ECU, MID 128, changing non-programmed ECU

Op nbr 200-068

Applies to machine equipped with engine D10, with serial number according to the table.

Machine	Place of manufacture, serial number		
	EU	US	Brazil
A25D	11001–12077	61001–61118	–
A30D	10001–10682	60001–60093	70001–72999

1. Connect VCADS Pro computer and perform 28423-3 MID 128 ECU, programming.
 - When instructed to connect the new control unit, perform steps 2–15.

CAUTION

Always follow instructions according to Electrical system, work instructions, electronic components

[3001 Electrical system, special instructions for servicing, electronic components](#)

Removing E-ECU

CAUTION

Always follow instructions according to Electrical system, work instructions, electronic components

2. Place the machine in service position.

NOTICE

Turn off the electric power with the battery disconnect switch before starting any work. Also remove the fuse for respective component.

3. Open the engine hood.
4. Press in the catch and unplug the connector EA/EB from the E-ECU.

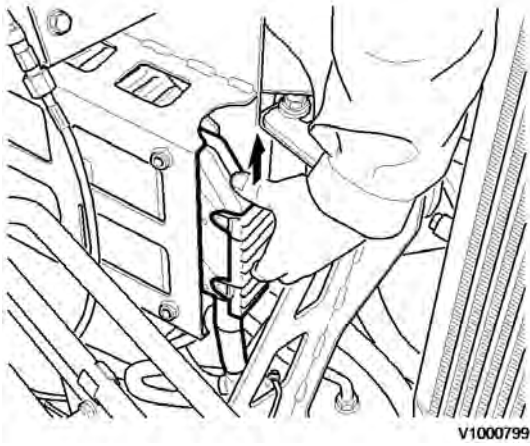


Figure 1

5. Remove the screws (8 screws) that hold the cooling coil on the E-ECU.

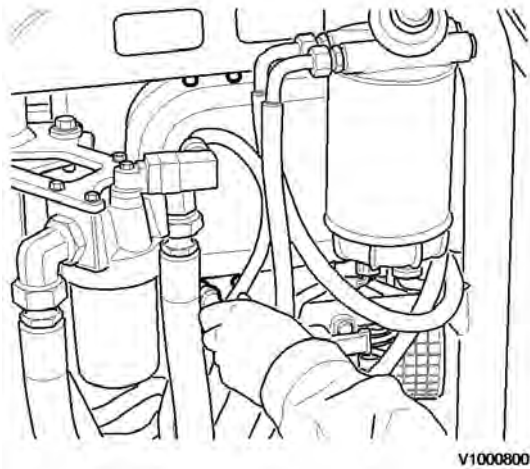


Figure 2

6. Remove two of the four bolts that hold the E-ECU against the console.

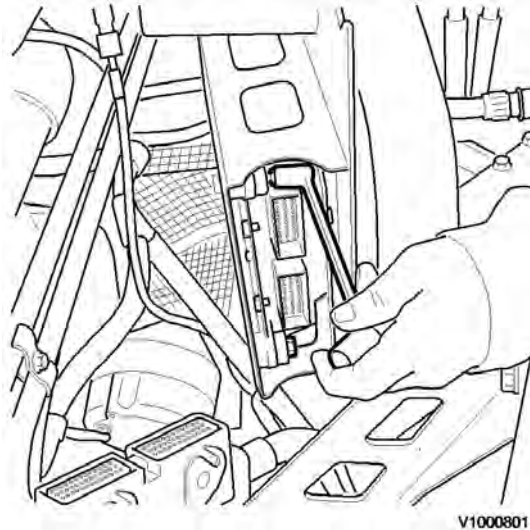


Figure 3

7. Hold the E-ECU and remove the two remaining bolts.

8. Lift away the E-ECU.

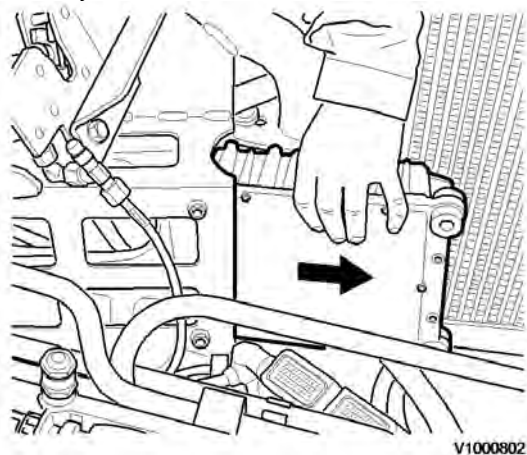


Figure 4

Mounting E-ECU

9. Grease the upper right connection point with contact grease (to safeguard ground connection).
10. Lift the E-ECU into place.

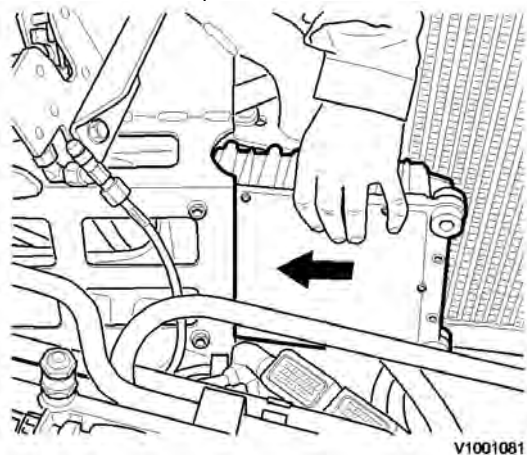


Figure 5

11. Hold the E-ECU and fit two of the bolts holding the E-ECU against the bracket.

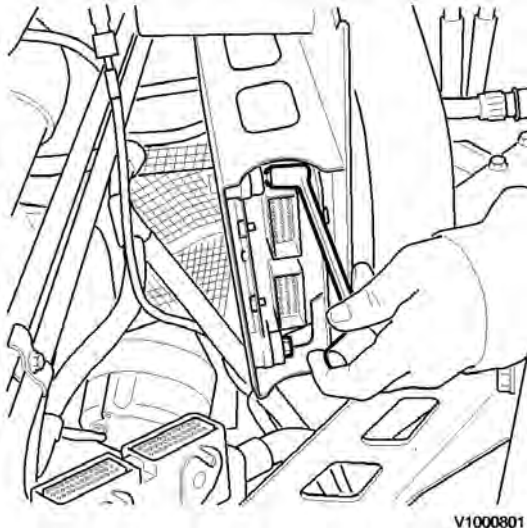


Figure 6

12. Fit the two remaining bolts.
13. Fit the screws (8 screws) that hold the cooling coil on the E-ECU.

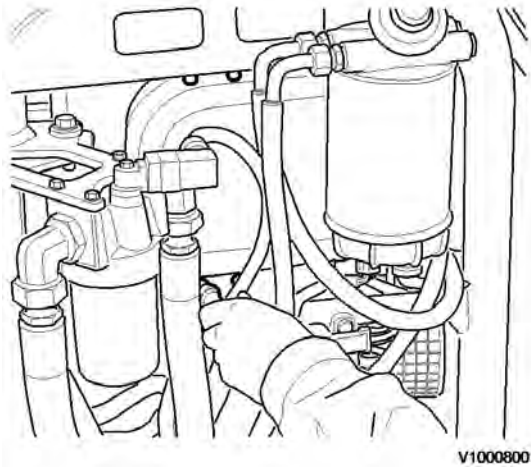


Figure 7

14. Plug in the connector EA/EB to the E-ECU.



Figure 8

15. Close the engine hood.

NOTE!

When changing pre-programmed ECU, return to [200 E-ECU, MID 128, changing pre-programmed ECU](#) step 3.

16. Finish VCADS Pro operation 28423-3 MID 128 ECU, programming.

Document Title: E-ECU, MID 128, changing non-programmed ECU	Function Group: 200	Information Type: Service Information	Date: 2014/7/30
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E-ECU, MID 128, changing non-programmed ECU

Op nbr 200-068

Applies to machine equipped with engine D9A, with serial number according to the table.

Machine	Place of manufacture, serial number		
	EU	US	Brazil
A25D	13001–	–	–
A30D	12001–	–	73000–

1. Connect VCADS Pro computer and perform 28423-3 MID 128 ECU, programming.
 - When instructed to connect the new control unit, perform steps 2–17.

CAUTION

Always follow instructions according to Electrical system, work instructions, electronic components

[3001 Electrical system, special instructions for servicing, electronic components](#)

Removing E-ECU

CAUTION

Always follow instructions according to Electrical system, work instructions, electronic components

2. Place the machine in service position.

NOTICE

Turn off the electric power with the battery disconnect switch before starting any work. Also remove the fuse for respective component.

3. Open the engine hood.
4. Unplug the EM connector from the engine.

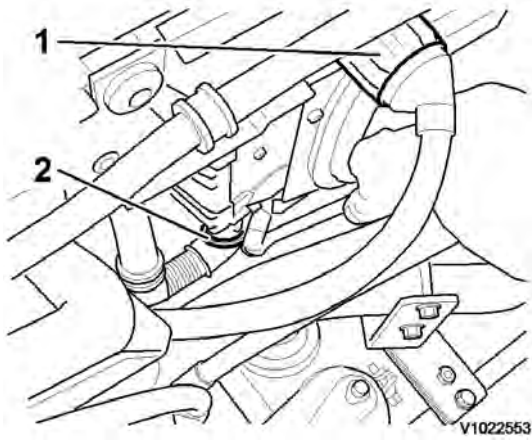


Figure 1

1. EM connector
2. Clamp

5. Remove the clamp that holds the cable harness to the E-ECU.

6. Remove the screws (8 pcs.) that hold the cooling circuit and the console for the clamp.

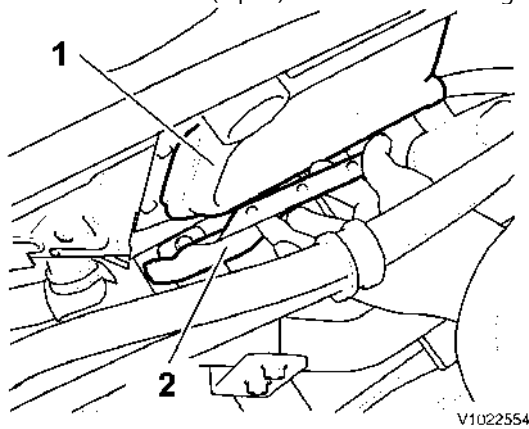


Figure 2

1. Cooling circuit
2. Console

7. Press in the catch and unplug the connector EA/EB from the E-ECU.

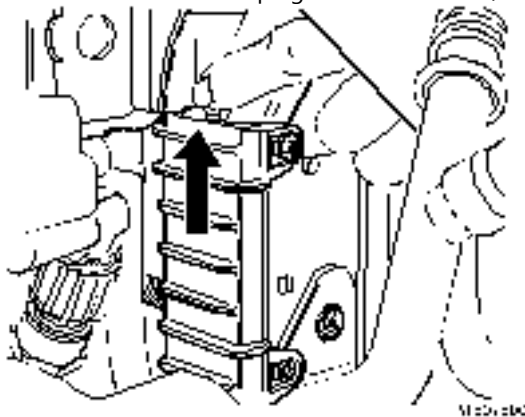


Figure 3

8. Remove the four screws that hold the E-ECU against the engine block
9. Uncover and lift away the E-ECU upward

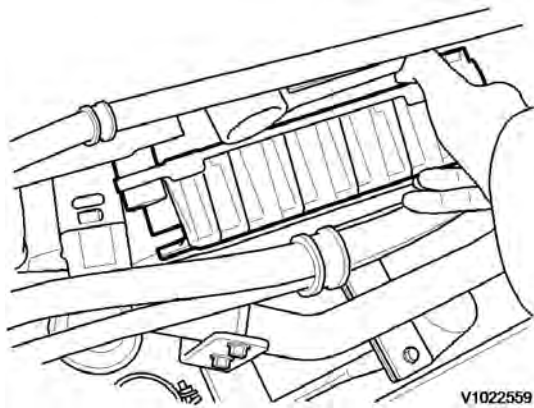


Figure 4

Mounting E-ECU

10. Grease the upper right connection point with contact grease (to safeguard ground connection).

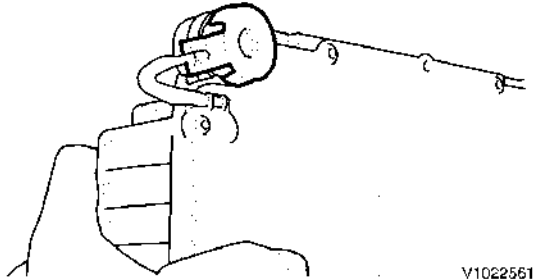


Figure 5

11. Lift the E-ECU into place.

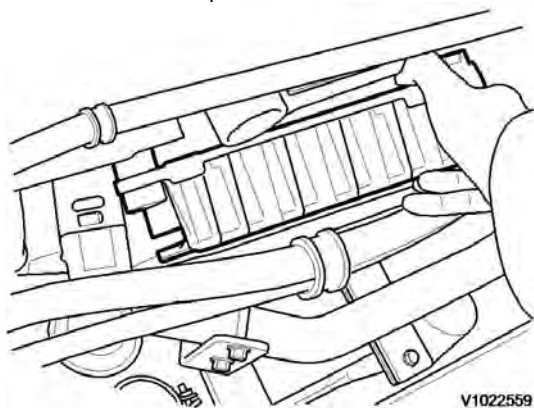


Figure 6

12. Fit the screws that hold the E-ECU against the engine block
13. Fit the screws (8 pcs.) that hold the cooling circuit and the console.

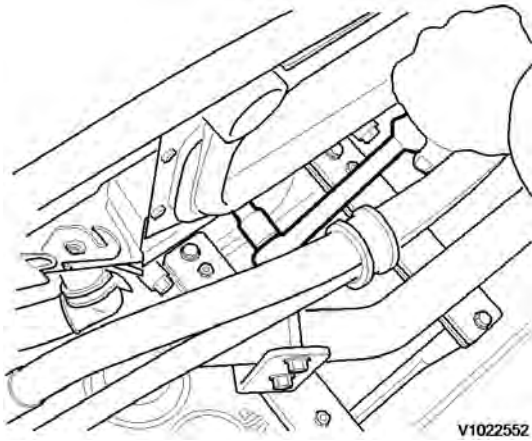


Figure 7

14. Plug in the connector EA/EB to the E-ECU.
15. Secure the cable harness for the ECU by fitting the clamp in the console.
16. Plug in the connector EM for the engine.
17. Close the engine hood.

NOTE!

When changing pre-programmed ECU, return to [200 E-ECU, MID 128, changing pre-programmed ECU](#) step 3.

18. Finish VCADS Pro operation 28423-3 MID 128 ECU, programming.

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

Op nbr 200-068

1. Connect VCADS Pro computer and perform 28423-3 MID 128 ECU, programming
 - When instructed to connect the new control unit, perform steps 2–15.

Removing E-ECU

CAUTION

Always follow instructions according to Electrical system, work instructions, electronic components

[3001 Electrical system, special instructions for servicing, electronic components](#)

CAUTION

Always follow instructions according to Electrical system, work instructions, electronic components

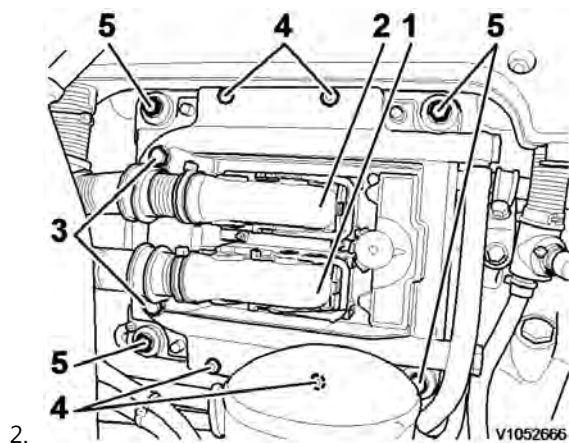


Figure 1
E-ECU

1. Connector EA
2. Connector EB
3. Screw for clamp
4. Screw for cooler
5. Screw for ECU

Place the machine in service position.

3. Open the engine hood.

NOTICE

Turn off the electric power with the battery disconnect switch before starting any work. Also remove the fuse for respective component.

4. Remove the three screws (3) that disconnect the clamps from the E-ECU.
5. Unplug the connectors EA and EB from the E-ECU.
6. Remove the screws (4) (6 pcs.) that hold the cooler (3).
7. Remove the screws (5) (4 pcs.) that hold the E-ECU.
8. Carefully move aside the cooler and remove the E-ECU.

NOTE!

Work carefully so that hoses for the cooler are not damaged.

Mounting E-ECU

9. Lift in the E-ECU inside of the cooler.
10. Install the screws (5) (4 pcs.) that hold the E-ECU against the engine block.
11. Install the screws (4) (6 pcs.) that hold the cooler against the E-ECU.
12. Plug in the connectors EA and EB for the E-ECU.
13. Install the screws (3 pcs.) that hold the clamps against the E-ECU.
14. Close the engine hood.

NOTE!

When changing pre-programmed ECU, return to [200 E-ECU, MID 128, changing pre-programmed ECU](#) step 3.

15. Finish VCADS Pro operation 28423-3 MID 128 ECU, programming.

Document Title: Compression test	Function Group: 210	Information Type: Service Information	Date: 2014/7/30
Profile: ART, A25D [GB]			

Compression test

Op nbr 210-002

[9998009 Adapter](#)

[9998532 Extractor](#)

[9988539 Pressure gauge](#)

Condition: Valves correctly adjusted, see [214 Valves, adjusting](#).

1. Place the machine in service position.
2. Clean thoroughly around the injectors, also around the connections for the fuel pressure lines and leak-off fuel lines.

WARNING

The fuel pressure lines are pre-shaped and may not be altered for any reason.

If a pre-shaped fuel line is bent or deformed, there is a great risk that it will rupture.

A damaged fuel pressure line must always be changed!

Removing

3. Remove the fuel pressure lines. The pipes are clamped in two groups of three, and the clamping should not be loosened.

NOTICE

Fit protective caps on all injectors and on the injection pump's connections.

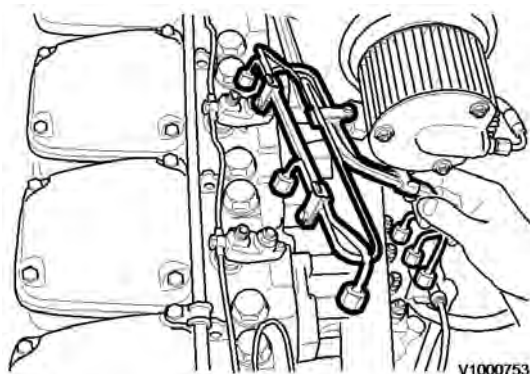


Figure 1

4. Unplug the connector for sensor SE2308 and remove the bracket.
5. Remove the leak-off fuel line between the injectors.

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