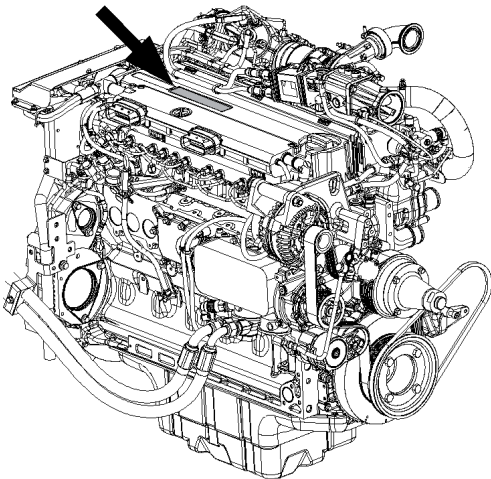


|  |                               |   |                           |
|--|-------------------------------|---|---------------------------|
| Document Title:<br><b>Engine, identification</b> | Function Group:<br><b>200</b> | Information Type:<br><b>Service Information</b> | Date:<br><b>2014/7/29</b> |
| Profile:<br><b>EXC, EW180D [GB]</b>              |                               |   |                           |

## Engine, identification

### Identification plate

The engine model, serial number and performance data are stamped on an identification plate which is attached on the cylinder head cover. The engine model designation and serial number must be indicated when ordering spare parts.



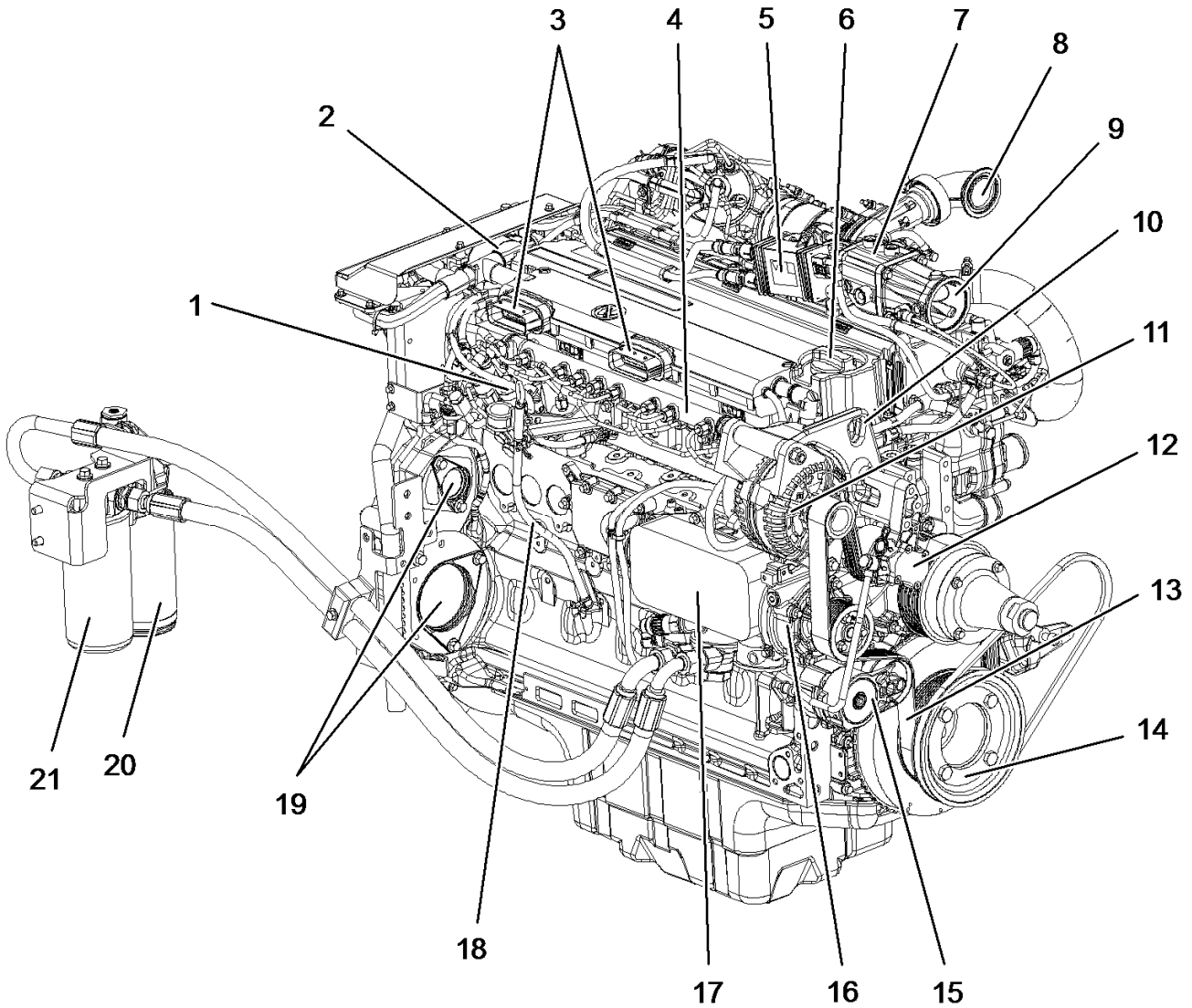
V1105285

**Figure 1**  
**Engine identification, D6H**

|   |                               |   |                           |
|---|-------------------------------|---|---------------------------|
| Document Title:<br><b>Component locations</b> | Function Group:<br><b>200</b> | Information Type:<br><b>Service Information</b> | Date:<br><b>2014/7/29</b> |
| Profile:<br><b>EXC, EW180D [GB]</b>           |                               |   |                           |

## Component locations

The following figures show the position of a number of components on engine D6H.

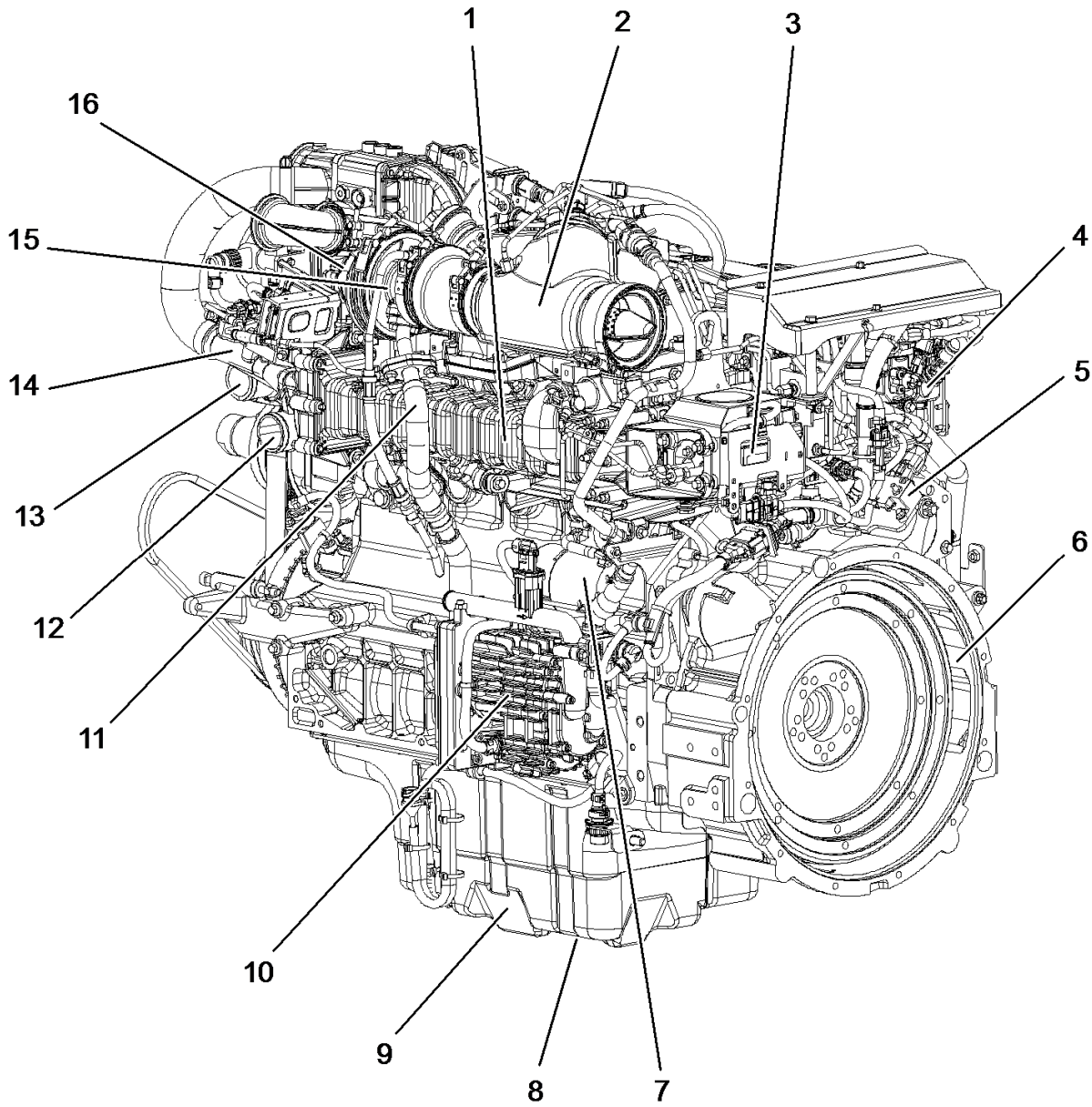


V1102441

**Figure 1**  
**Component locations, front view**

- |   |                                  |    |                                |
|---|----------------------------------|----|--------------------------------|
| 1 | High pressure fuel pumps         | 12 | Fuel feed pump                 |
| 2 | Crankcase bleeding valve         | 13 | V-rib belt                     |
| 3 | Connectors to E-ECU              | 14 | V-rib belt drive on crankshaft |
| 4 | Common fuel rail                 | 15 | Automatic belt tensioner       |
| 5 | Spark plug control unit (CU2503) | 16 | Coolant pump                   |
| 6 | Engine oil filler cap            | 17 | Engine oil cooler              |
| 7 | Pre heater (HE2501)              | 18 | Oil dipstick                   |

|    |                                    |    |                   |
|----|------------------------------------|----|-------------------|
| 8  | Air outlet (to charge air cooler)  | 19 | Power take off    |
| 9  | Air inlet (from charge air cooler) | 20 | Fuel filter       |
| 10 | Transport eye                      | 21 | Engine oil filter |
| 11 | Alternator (AL3201)                |    |                   |



V1102442

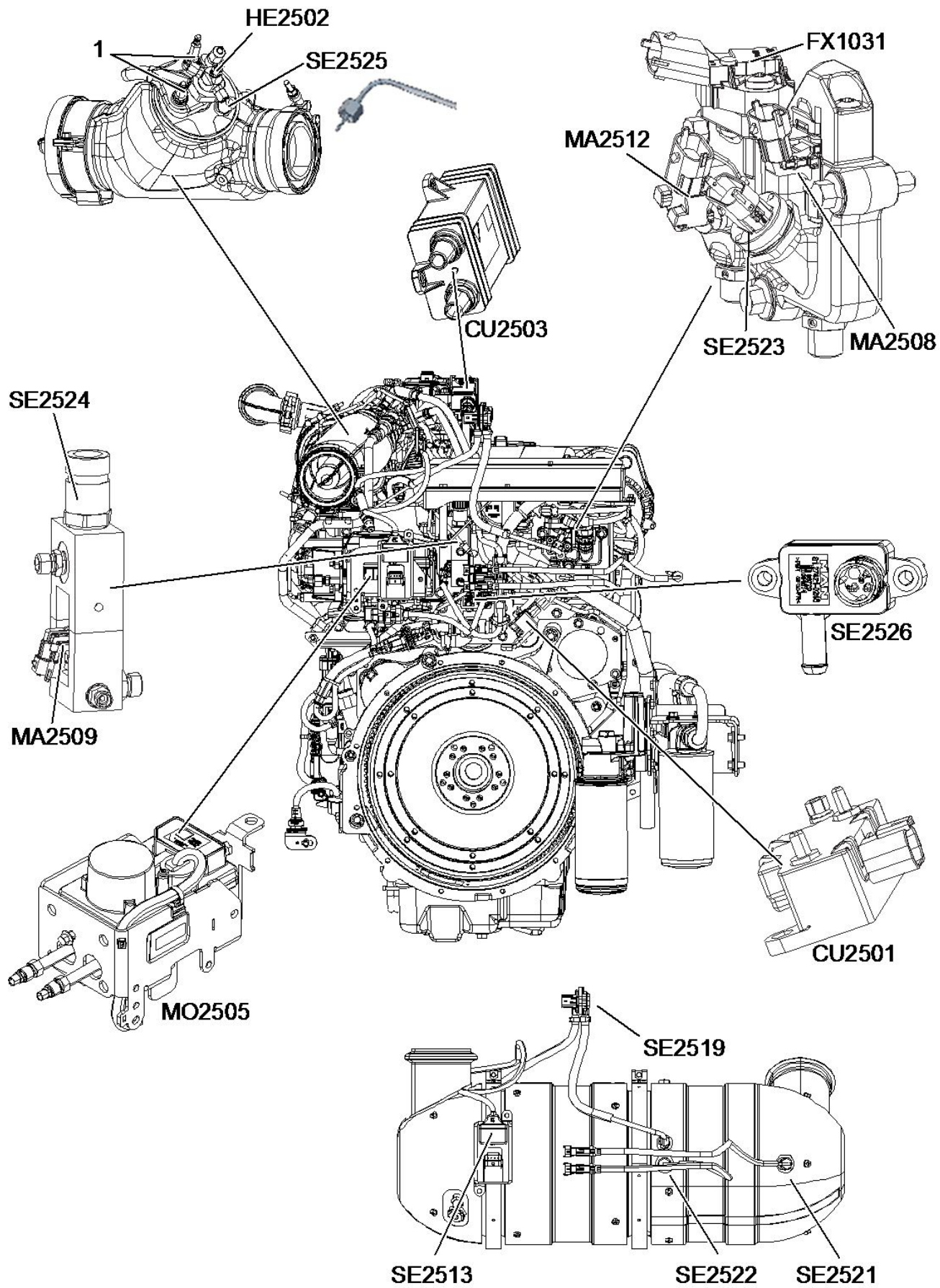
**Figure 2**  
**Component locations, rear view**

|   |                                 |    |                                   |
|---|---------------------------------|----|-----------------------------------|
| 1 | EGR cooler                      | 9  | Oil sump                          |
| 2 | Burner                          | 10 | Air pump                          |
| 3 | EGR actuator                    | 11 | Oil return line from turbocharger |
| 4 | EATS fuel metering units        | 12 | Coolant inlet                     |
| 5 | Glow plug control unit (CU2501) | 13 | Coolant outlet                    |
| 6 | Flywheel housing                | 14 | Venturi tube                      |
| 7 | Starter motor (MO3301)          | 15 | Turbo charger                     |
| 8 | Drain plug                      | 16 | Air inlet (from air filter)       |

|   |                               |   |                           |
|---|-------------------------------|---|---------------------------|
| Document Title:<br><b>Component location, sensors</b> | Function Group:<br><b>200</b> | Information Type:<br><b>Service Information</b> | Date:<br><b>2014/7/29</b> |
| Profile:<br><b>EXC, EW180D [GB]</b>                   |                               |   |                           |

## **Component location, sensors**

The following figures show the position of sensors and electric components on the engine D6H.

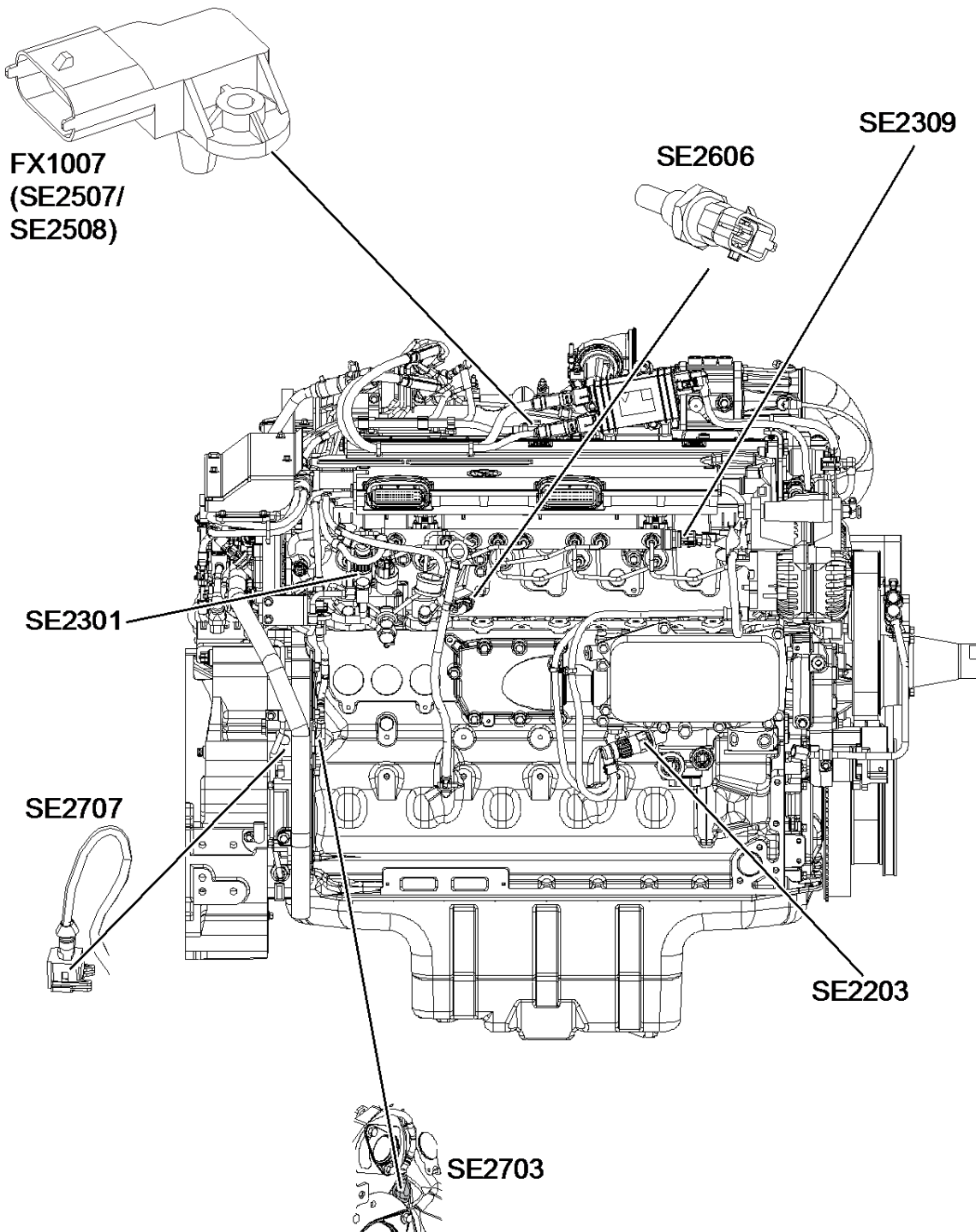


V1104451

Figure 1  
View pump side

**Components view pumps side**

| <b>Name</b> | <b>Description</b>                        | <b>Name</b> | <b>Description</b>                                  |
|-------------|---|-------------|---|
| 1           | Spark plugs                               | FX1031      | Fuel temperature and pressure sensor before MV 1 +2 |
| HE2502      | Glow plug                                 | MA2508      | Fuel metering valve MV1                             |
| SE2513      | NOx sensor                                | MA2509      | Fuel metering valve MV2                             |
| SE2519      | DPF differential pressure sensor          | MA2512      | Shut-off valve                                      |
| SE2521      | Exhaust gas temperature sensor before DOC | CU2501      | Glow plug control unit                              |
| SE2522      | Exhaust gas temperature sensor after DOC  | CU2503      | Spark plug control unit                             |
| SE2523      | Fuel pressure sensor after MV1            | MO2505      | EGR actuator  |
| SE2524      | Fuel pressure sensor after MV2            |             |   |
| SE2525      | Burner exhaust temperature sensor         |             |   |
| SE2526      | Exhaust gas pressure sensor               |             |   |



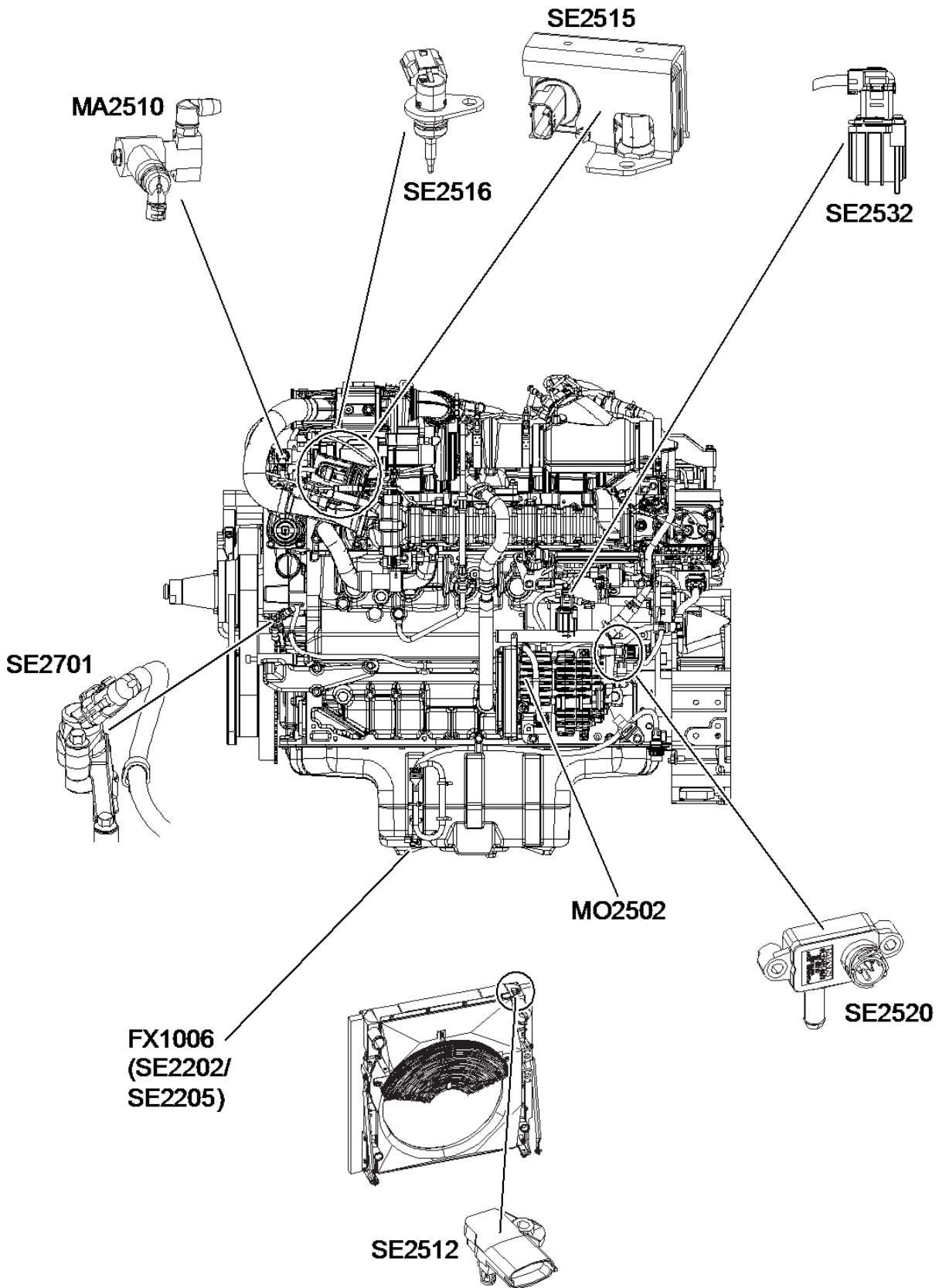
V1104452

**Figure 2**  
View front side

**Components front side**

| Name                    | Description                               | Name   | Description                            |
|-------------------------|---|--------|--|
| FX1007<br>SE2507/SE2508 | Boost air pressure and temperature sensor | SE2606 | Engine coolant temperature sensor      |
| SE2203                  | Engine oil pressure sensor                | SE2703 | Engine speed sensor, camshaft          |
| SE2301                  | Fuel feed pressure sensor                 | SE2707 | Engine speed sensor, crankshaft second |
| SE2309                  | Common rail fuel pressure                 |        |  |

sensor



V1104453

Figure 3  
View rear side



**Components front side**

| <b>Name</b>             | <b>Description</b>                      | <b>Name</b> | <b>Description</b>             |
|-------------------------|---|-------------|--------------------------------|
| FX1006<br>SE2202/SE2205 | Engine oil temperature and level sensor | SE2532      | Air pump mass flow sensor      |
| SE2512                  | Charge air temperature cooler           | SE2701      | Engine speed, crankshaft first |
| SE2515                  | EGR differential pressure sensor        | MA2510      | Purge air valve (PAV)          |
| SE2516                  | EGR temperature sensor                  | MO2502      | Air pump motor                 |
| SE2520                  | Air pump pressure sensor                |             |                                |

|   |                               |   |                           |
|---|-------------------------------|---|---------------------------|
| Document Title:<br><b>Valves, adjusting</b> | Function Group:<br><b>214</b> | Information Type:<br><b>Service Information</b> | Date:<br><b>2014/7/29</b> |
| Profile:<br><b>EXC, EW180D [GB]</b>         |                               |   |                           |

## Valves, adjusting

Op nbr 214-012

[9998681 Rotation tool](#)

[885812 Timing tool](#)



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

1. Place the machine in service position B, see [091 Service positions](#).
2. Turn **OFF** the battery disconnect switch.

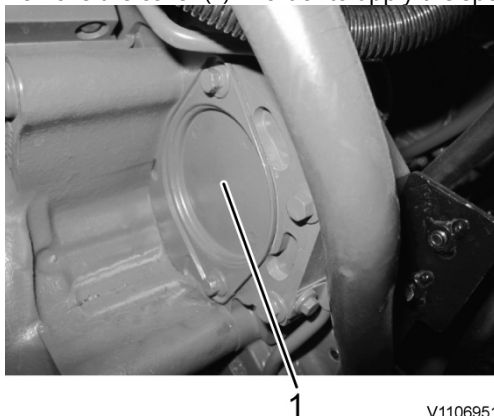
### Valve cover, removing

3. Remove the valve cover, see [214 Valve cover, removing](#)

**NOTE!**

For valve adjusting it is not necessary to remove the valve cover gasket!

4. Remove the cover (1) in order to apply the special tool.

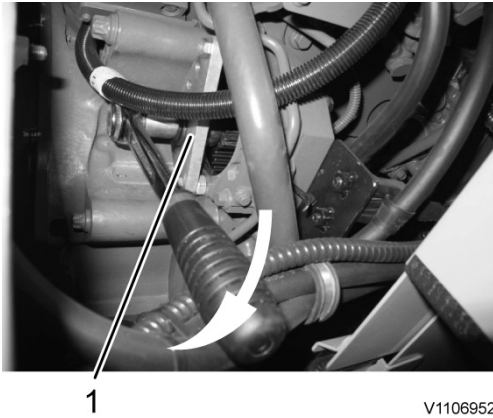


V1106951

**Figure 1**  
**Cover**

### Setting the valve overlap for cylinder 1

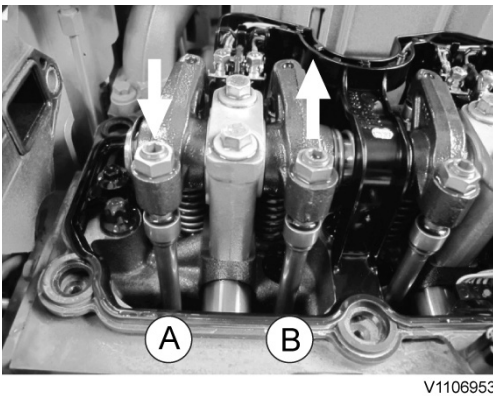
5. Install the rotation tool (1).  
Special tool: 9998681 Rotation tool



V1106952

**Figure 2**  
**Rotating tool**

6. Turn the crankshaft using the rotation tool (1) until the valve overlap of cylinder 1 is reached.
7. Set the valve overlap for cylinder 1.
  - The valve overlap for a cylinder is reached when the outlet valve is about to close and the inlet valve is about to open. It should not be possible to rotate any push rods by hand for the cylinder in this position.



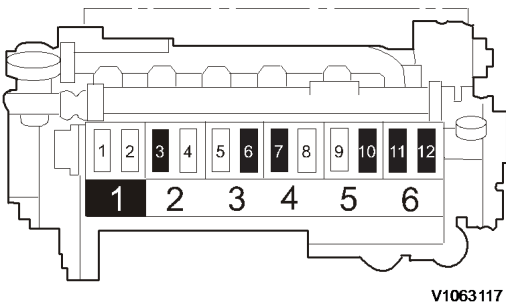
V1106953

**Figure 3**  
**Overlapping**

A — Outlet valve  
B — Inlet valve

8. The black marked valves in the setting schematic can be adjusted.  
Set the clearance for inlet and outlet valves by following the steps:

- **Setting the inlet valve clearance**
- **Setting the outlet valve clearance**



V1063117

**Figure 4**  
**Setting schematic overlap cylinder 1 (located on the flywheel side)**

6, 10, 12 are inlet valves  
3, 7, 11 are outlet valves

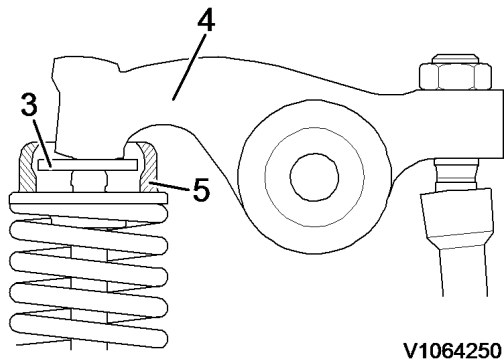
## Setting the inlet valve clearance

9. Set inlet valve clearance according to the setting schematic for overlapped cylinder.

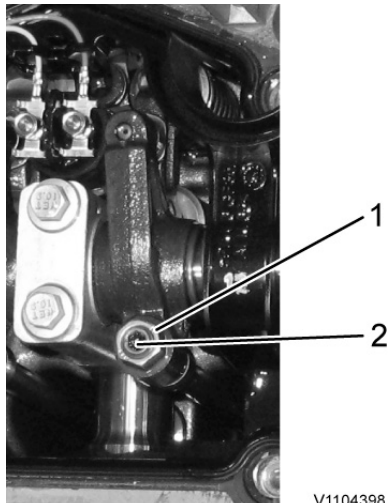
- Loosen lock nut (1) counterclockwise.  
Turn setting screw (2) clockwise by hand until it stops.

### NOTE!

The rocker arm (4) must touch the thrust washer (3) of the spring cap (5).



V1064250



V1104398

**Figure 5**

### Rocker arm inlet valve

- Set special tool (885812 Timing tool) on the setting screw with a suitable socket.  
Fix magnet of the special tool to the cylinder head.  
Set the angle gauge clockwise to "0".

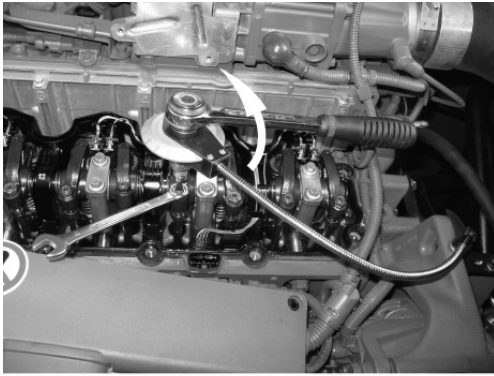


V1104399

**Figure 6**

### Set to zero

- Turn the setting screw **75° counterclockwise**.



V1104400

**Figure 7**

**Set clearance**

- Hold the setting screw to prevent it turning and tighten the lock nut clockwise, tightening torque: **20 Nm (14.8 lbf ft)**.

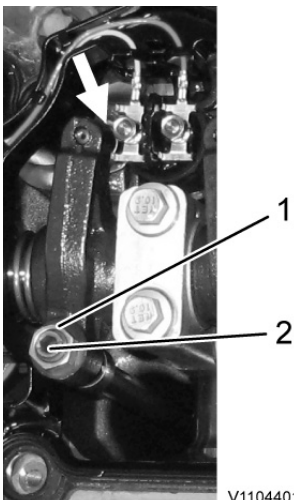
**Setting the outlet valve clearance**

10. Set the outlet valve clearance according to the setting schematic for overlapped cylinder.

- Loosen lock nut (1) counterclockwise.  
Turn setting screw (2) clockwise by hand until it stops.

**NOTE!**

The rocker arm must touch the thrust washer of the spring cap (arrow).



V1104401

**Figure 8**

**Rocker arm outlet valve**

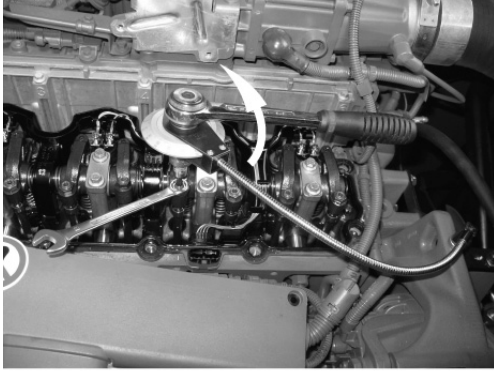
- Set special tool (885812 Timing tool) on the setting screw with a suitable socket. Fix magnet of special tool to the cylinder head. Set the angel gauge clockwise to **"0"**.



V1104399

**Figure 9**  
**Set zero**

- Turn the setting screw **120° counterclockwise**.



V1104400

**Figure 10**  
**Set clearance**

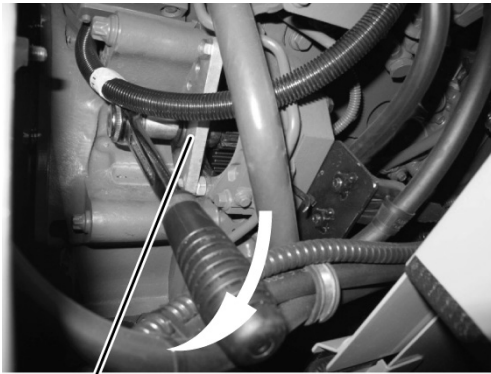
- Hold the setting screw to prevent it turning and tighten the lock nut clockwise, tightening torque **20 Nm (14.8 lbf ft)**.

### Set the valve overlap for cylinder 6

11. Turn the crankshaft using the rotation tool (1) clockwise one turn (360°).

**NOTE!**

Make a check mark on the belt pulley for better control.



1

V1106952

**Figure 11**  
**Rotating tool**

12. Set the valve overlap for cylinder 6.
  - The valve overlap for a cylinder is reached when the outlet valve is about to close and the inlet valve is about to open. It should not be possible to rotate any push rods by hand for the cylinder in this position.

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