

Timing Gear Cover D12C

Timing Gear Cover

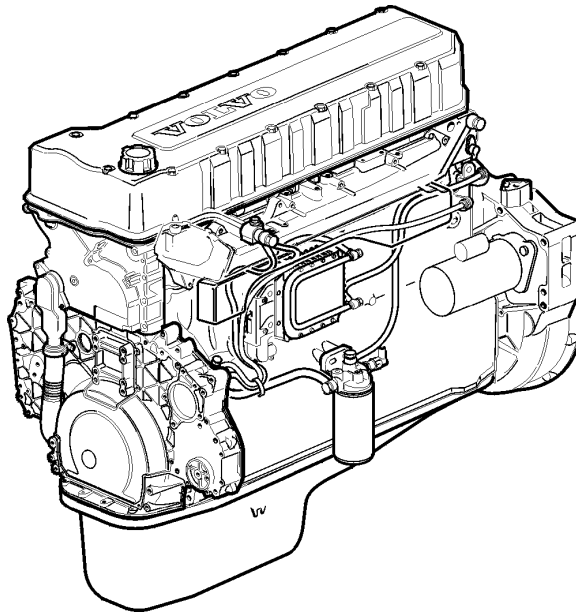


Fig. 1: VOLVO D12C Engine

W2003244

This information covers procedures for replacing the timing gear cover on VOLVO D12C engines.

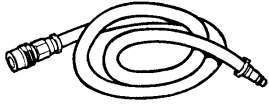
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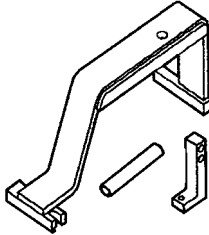
Tools

Special Tools

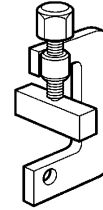
The following special tools are used to replace or repair components. The tools can be ordered from Volvo; please use the specified part number when ordering.



9996049
Drain hose



9998602-2
9998602-6
Upper Front Cover Alignment Tools



9998628
Press tool

Service Procedures

2151-03-02-02 Timing Gear Cover, Replace- ment



Before working on a vehicle, set the parking brakes, place the transmission in neutral, and block the wheels. Failure to do so can result in unexpected vehicle movement and can cause serious personal injury or death.

Special tools: 9996049, 9998602, 9998628

Removal

1
Remove the radiator assembly; see Service Information, Group 26.

2
Remove the fan ring.

3
Remove the fan stud nuts and the fan.

Note: When removed from the vehicle, the thermostat-controlled fan can be stored vertically **or** horizontally with the front (bimetal strip) downwards, **without** causing oil to leak internally.



C2002628

Remove the belts.

5
Remove the fuel pump drive pulley and the fan pulley.

6

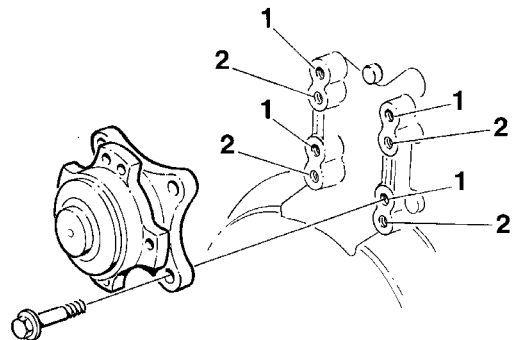


T2012862

Remove the alternator and air conditioning compressor.

7
Remove the support for the alternator and air conditioning, which is fastened to the timing gear cover.

8



T2007260

Remove the fan hub.

9
Remove the fuel pump driveshaft.

10
Remove the fan belt tensioner.

11
Remove the plate on the timing gear cover.

12

Remove the air pipe connecting the coil to the air drier.

13

Remove the vent pipe for the timing gear top cover.

Note: Loosen the compressor air pipe to remove the vent pipe.

14

Remove the water pipe for the thermostatic valve box, which is fastened to the timing gear cover.

15

Remove the sump front bolts in the timing gear cover.

16

Remove the valve cover.



CAUTION

Do not use an impact wrench to remove the bolts. Doing so may loosen the bolts from the cylinder head and can damage the electrical wiring and the valve cover.

17

Remove the camshaft sensor. Save the shims to reuse them when installing the sensor.

18

Remove the timing gear top cover.

19

Remove the timing gear bottom cover.

Note: Do not use spatulas on the cover sealing area while removing the cover. Doing so may damage the cover and cause leakage.

Installation

1



WARNING

Always wear appropriate eye protection to prevent the risk of eye injury due to contact with debris or fluids.

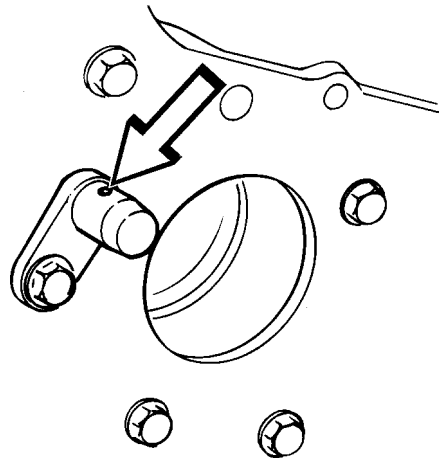
Clean the engine surface by carefully removing all sealant residue.

Note: Protect all gears; do not let tools, objects, or dirt fall inside the oil pan.

2

Thoroughly clean the timing gear cover.

3



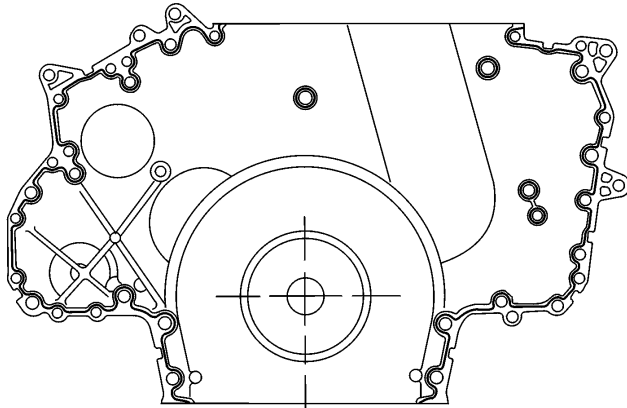
T2009026

Remove the oil injector nozzle from the timing gear plate and check to make sure that the oil channel is not clogged.

4

Install the oil injector nozzle and torque-tighten the bolt to 33 ± 4 Nm (24 ± 3 ft-lb).

5

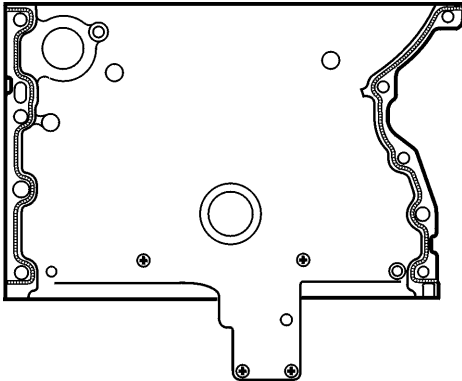


C2002668

Apply an even 2 mm bead of Volvo silicone (part no. 1161247) to the inside of the timing gear lower cover and install it in place. Torque-tighten the lower cover bolts to 34 ± 4 Nm (25 ± 3 ft-lb).

1161247

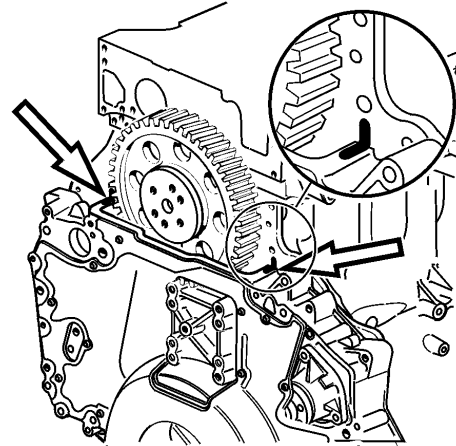
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T2015004

Apply an even 2 mm bead of Volvo silicone on the inside of the timing gear top cover.

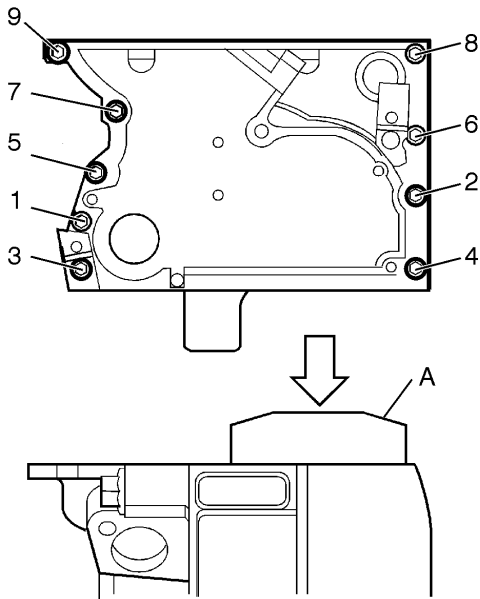
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T2015008

Apply an even 2 mm bead of Volvo silicone on the edge between the timing gear bottom cover and the cylinder head.

8



T2014150

Fig. 2: Upper timing gear cover, tightening sequence

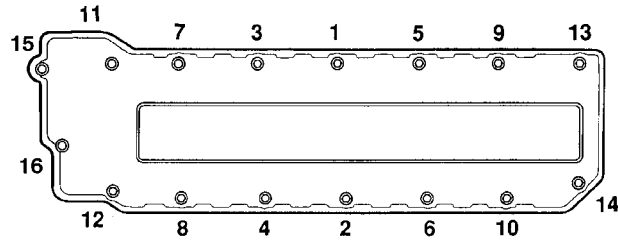
Install the timing gear top cover. Install the alignment tools 9998602-2 and 9998602-6 and tighten them by pressing the timing gear cover down so that the sealing surfaces between the valve cover, the cylinder head and the timing gear cover are lined up. Torque-tighten the upper cover bolts to 34 ± 4 Nm (25 ± 3 ft-lb) following the proper tightening sequence shown.

Note: Install and tighten down the timing gear cover within 20 minutes after having applied the sealant.

9
After torque-tightening the bolts, wait a few minutes for the silicone to harden, then remove the alignment tools.

10
Install the camshaft sensor. Adjust the sensor clearance.

11



T2012845

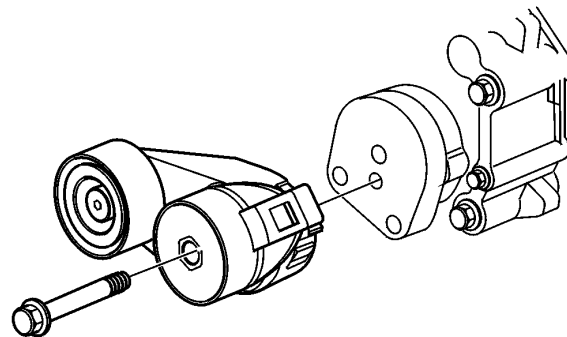
Fig. 3: Valve cover tightening sequence

Install the valve cover and torque-tighten the bolts to 20 ± 2 Nm (15 ± 1.5 ft-lb) and according to the sequence shown (see Fig. 4: Valve cover tightening sequence, page 6).

Note: Check that the nut flanges and rubber seals fit the valve cover holes properly to prevent damage to the valve cover.

12
Install the oil pan bolts in the timing gear cover.

13

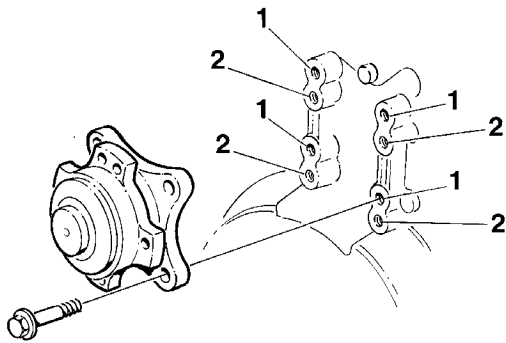


C2002643

Install the plate for the fan belt tensioner in the timing gear cover and install the fan belt tensioner.

14
Install the hub for the fuel pump drive-shaft.

15



Install the fan hub.

16

Install the venting pipe in the timing gear top cover.

17

Install the support for the alternator and for the air conditioning compressor in the timing gear cover. Install the alternator in the support.

18

Install the air conditioning compressor. Connect the electrical wiring for the air conditioning compressor.

19

Install the pulleys.

20

Install the belts and adjust the alternator belt.

21

Install the air compressor coil.

22

Install the water pipe for the thermostat valve box.

23

Install the fan and fan ring.

24

Install the radiator assembly; refer to Service Information, Group 26.

25

Fill up the reservoir with coolant.

26

Start the engine and check for leaks.