

Workshop Manual

(Group 22-26)

TAD1240GE, TAD1241GE/VE
TAD1242GE/VE, TWD1240VE

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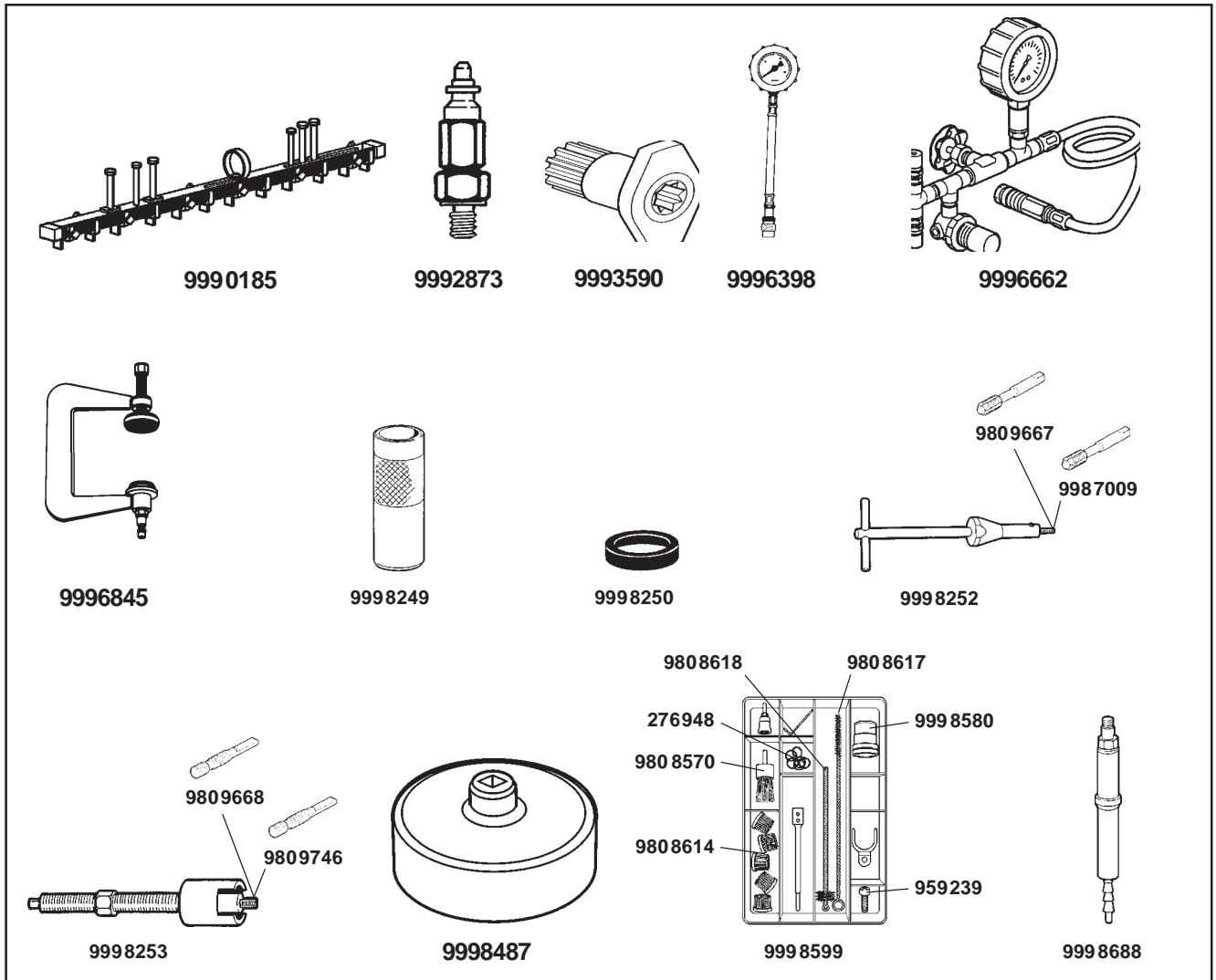


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Tools

Special tools



- 9990185** Lifting tool for rocker bridge
- 9992873** Connector nipple
- 9993590** Twist tool
- 9996398** Pressure gauge
- 9996662** Leakage tester
- 9996845** Clamp
- 9998249** Protective sleeve²⁾ for unit injector (6 pcs. needed)
- 9998250** Seal ring²⁾ for fuel duct in cylinder head (2 pcs. needed)
- 9998252** Thread tap. Consists of:
 - 9809667** Threading tool (M9) for removing the copper sleeve for the unit injector
 - 9987009** Threading tool (M8) for removing the copper sleeve for the unit injector
- 9998253** Puller for copper sleeve for unit injector. Consists of:
 - 9809668** Puller for copper sleeve for unit injector (M9)
 - 9809746** Puller for copper sleeve for unit injector (M8)
- 9998487** Filter wrench
- 9998599** Cleaning kit for unit injector. Consists of:
 - 276948** O-ring kit
 - 959239** Screw M10
 - 9808570** Brush, white
 - 9998580** Socket Holder
 - 9808634** **Brush kit.** Consists of:
 - 9808614** Brush, yellow (10 pcs)
 - Holder (2 pcs)
 - Handle
 - 9808617** Steel brush, narrow
 - 9808618** Steel brush, coarse
- 9998688** Expansion tool (Ø 7.8 mm / 0.307") for copper sleeve for unit injector

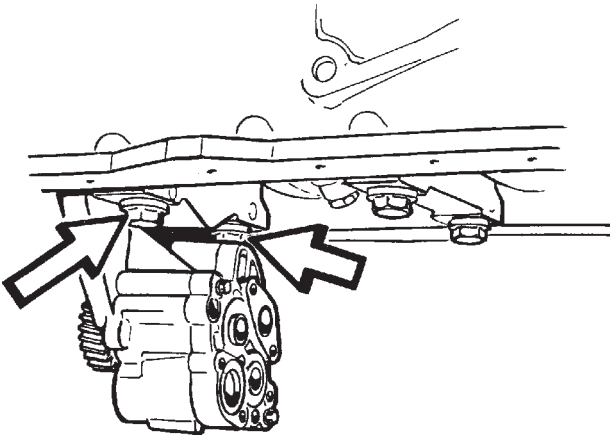
²⁾ Supplied individually.

Oil pump, changing

1
Pump out the engine oil.
See "Engine oil, changing".

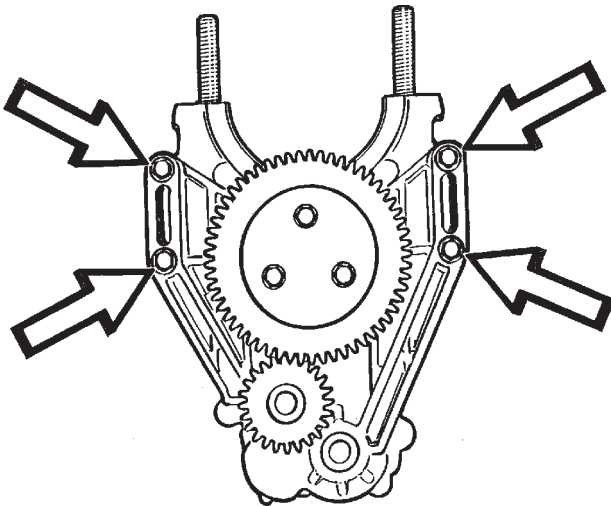
2
Remove the oil pan. See "Oil sump gasket, changing".

3



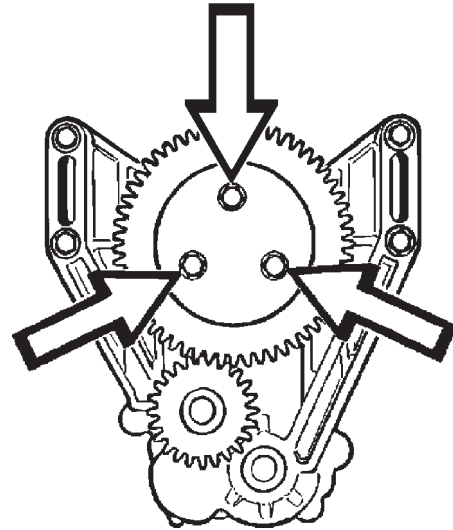
Remove the bolts for the front main bearing cap and lift down the lubricating oil pump together with the main bearing cap.

4



Remove the lubricating oil pump from the main bearing cap.

5



Remove the idler gear from the oil pump housing.

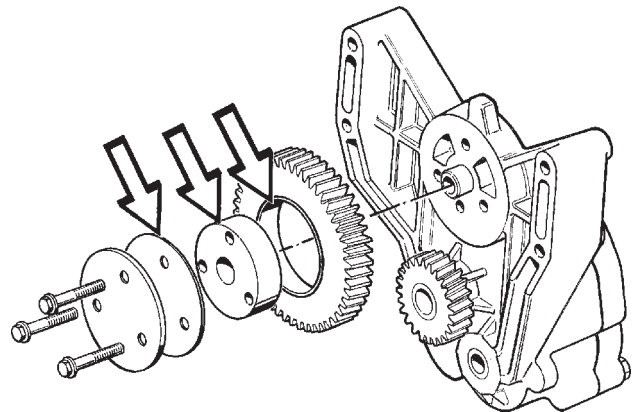
6

Clean the oil strainer. Check that the strainer is not damaged.

7

Clean and inspect the bearing and teeth on the idler gear.

8

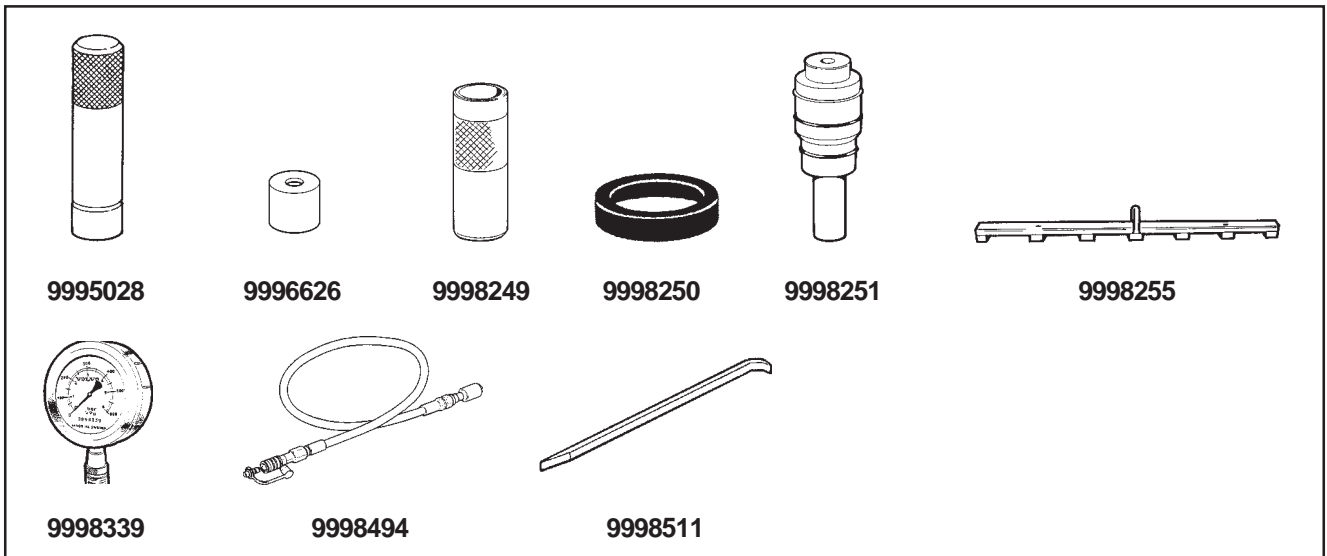


Oil the bearing with engine oil and install the idler gear on the new oil pump.

Torque the bolts to 24 ± 4 Nm (18 ± 3 ft-lbf).

Tools

Special Tools



9995028	Drift pin	9998251	Protective plug
9996626	Sleeve pin	9998255	Lifting bar
9998249	Protective sleeve	9998339	Pressure gauge
9998250	Ring seal	9998494	Connector nipple
		9998511	Pry bar

Fuel pump, rebuilding

The instructions below refer to the parts locations numbers shown in the figures.

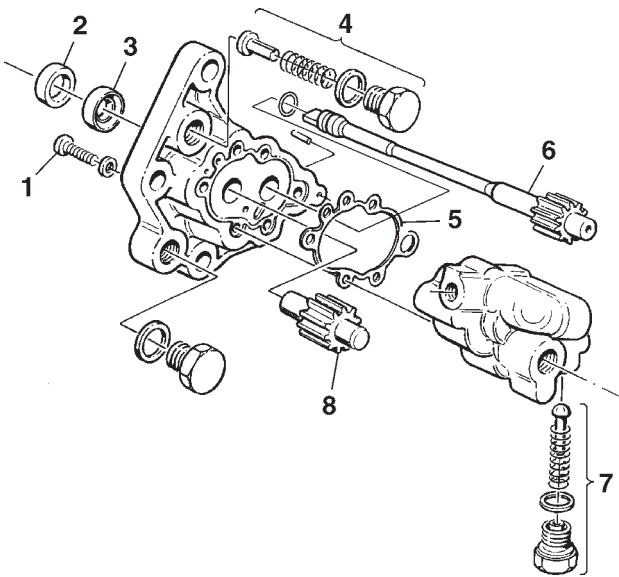
Check all parts for damage and wear.

Always replace any parts that are damaged or worn.

Parts that are not replaced must be cleaned very thoroughly.

Special tools: 9996626, 9995028

Other special equipment: 9986173, 9986177



1

Remove the valves (4 and 7).

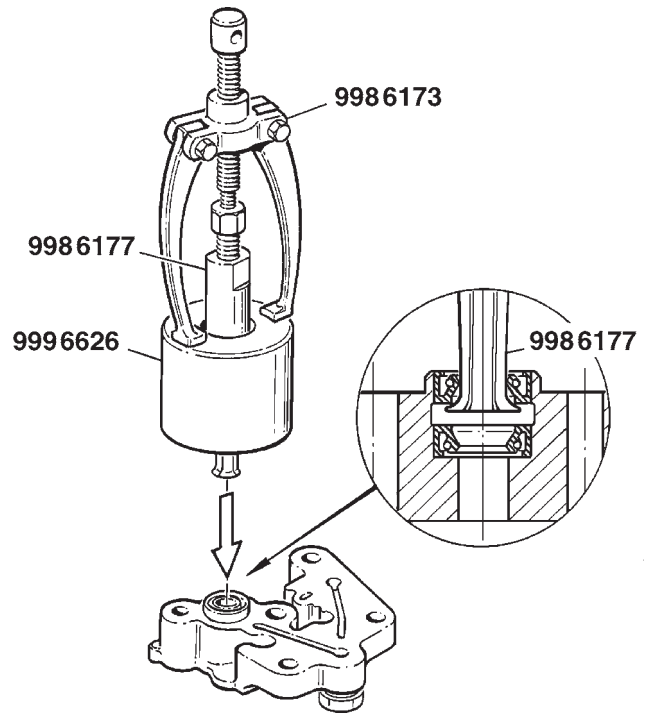
2

Remove the bolts (1) and take apart the housing.

3

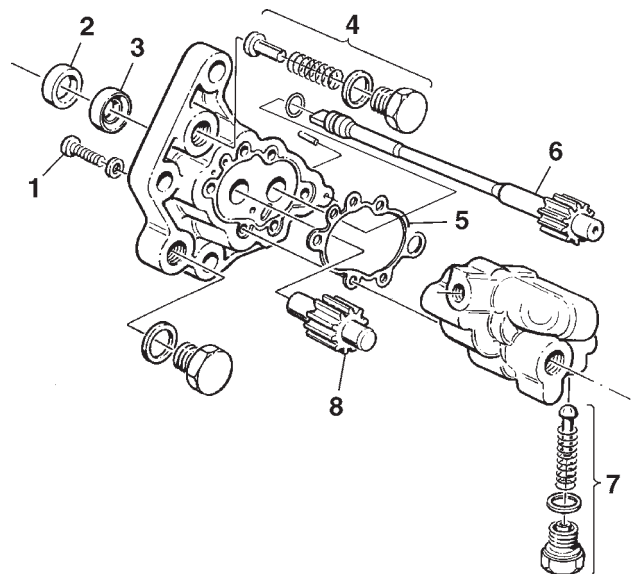
Remove the pump impellers (6 and 8) and the gas-gasket (5).

4



Remove the seals (2 and 3) from the impeller shafts with puller 9986173 and extractor 9986177. Use sleeve pin 9996626.

5



The instructions below refer to the parts locations numbers shown in the figures above.

21191

Copper sleeve for unit injector, change

NOTE: Two different variants of copper sleeve can occur on the D12C. **Always check the variant of copper sleeve that is installed in the cylinder head before work starts, to ensure that the correct special tool is used.** Please refer to item 7 on the next page.

Special tools: 999 0185, 999 3590, 999 8249, 999 8250, 999 8252, 999 8253, 999 8599**, 999 8688*

* Threading tool 999 8252 includes thread tap 980 9667 (M9) and 998 7009 (M8).

** Cleaning kit 999 8599 includes: 276 948, 959 239, 980 8570, 999 8580 with holder, and brush kit 980 8634.

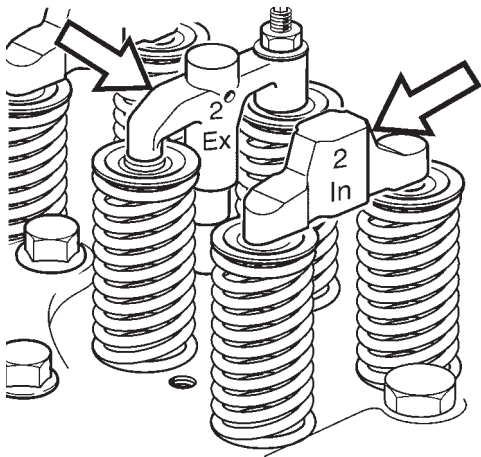
1

Drain the coolant as appropriate. "Cooling system, draining" on page 49.

2

Remove the unit injector when the copper sleeve is to be changed. Please refer to "Unit injector, changing", page 175.

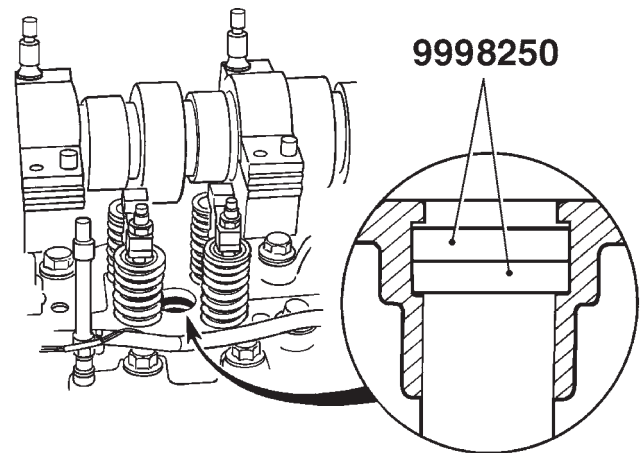
3



Remove the valve yokes beside the copper sleeve to be changed.

NOTE: Mark the valve yokes so that they can be put back in the right places.

4



Install two seal rings 999 8250 in the cylinder head fuel gallery, as a protection against dirt.

5



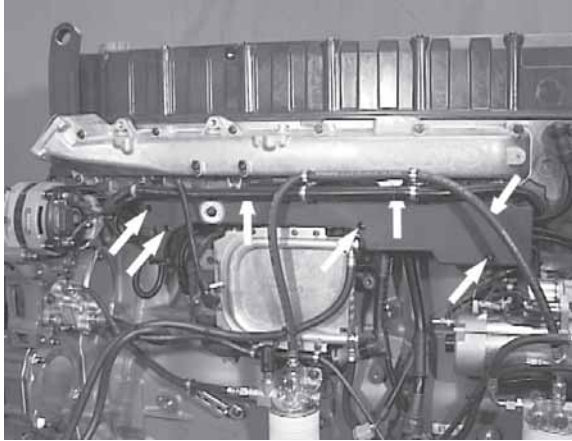
Install turning tool 999 3590.

6

Crank the engine until the piston is at **TDC** for the cylinder where the copper cylinder is to be changed.

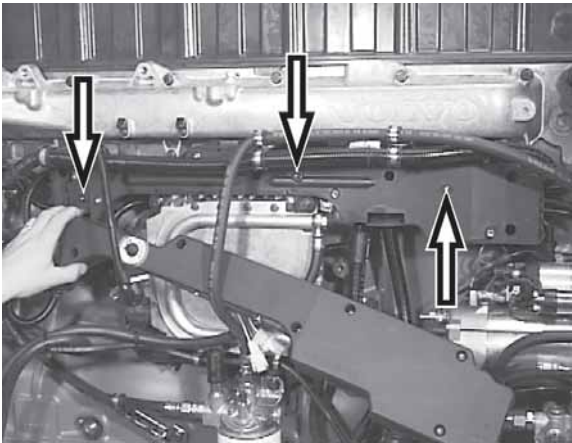
NOTE: This must be done to prevent the drill from falling down into the cylinder when the sleeve diameter is checked (next task).

5



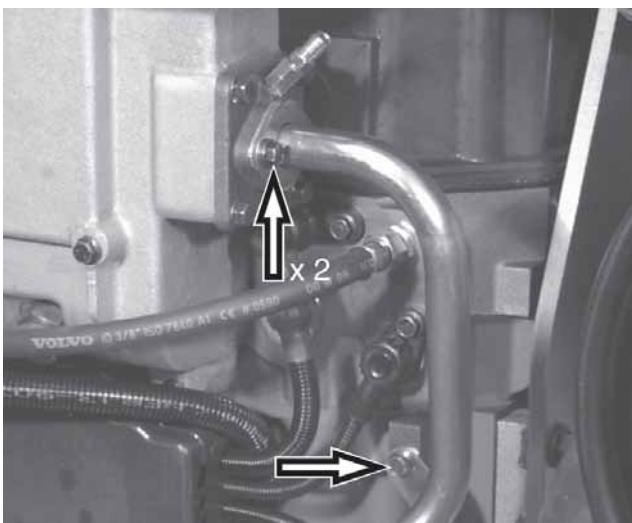
Remove the cover from the wiring box. (Torx bolts).

6



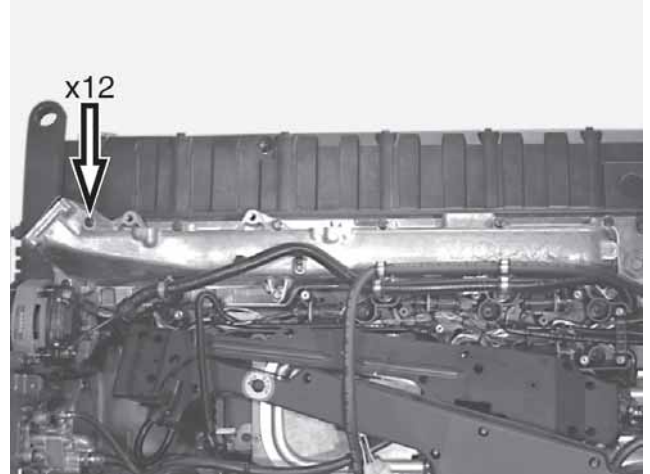
Remove the intermediate bracket (Torx bolts).

7 (TWD)



Remove the water pipes on both ends of the charge air cooler.

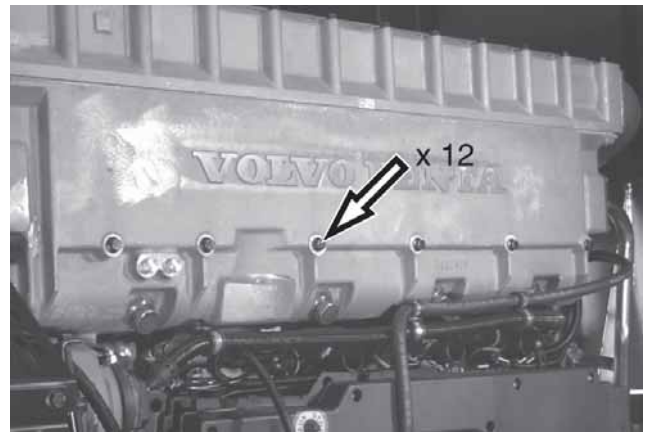
8 (TAD)



Remove intake manifold.

NOTE: The intake manifold may be stuck tight if the sealing compound has hardened.

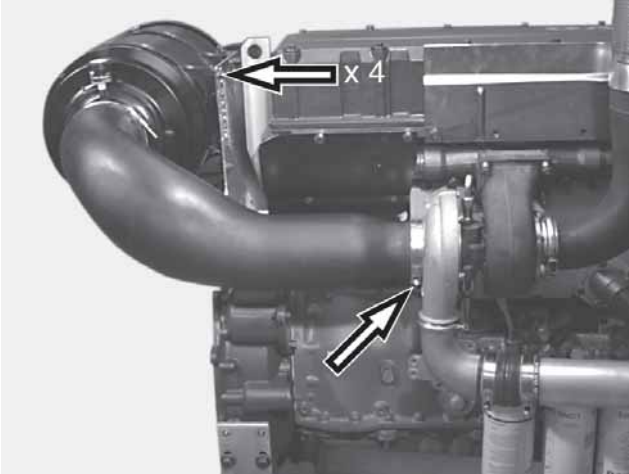
8 (TWD)



Remove the intake manifold.

NOTE: The intake manifold/charge air cooler is heavy. If no lifting device is available, avoid injury and damage by having two persons ready to lift the intake manifold/charge air cooler.

10



Reinstall the air filter and air duct.

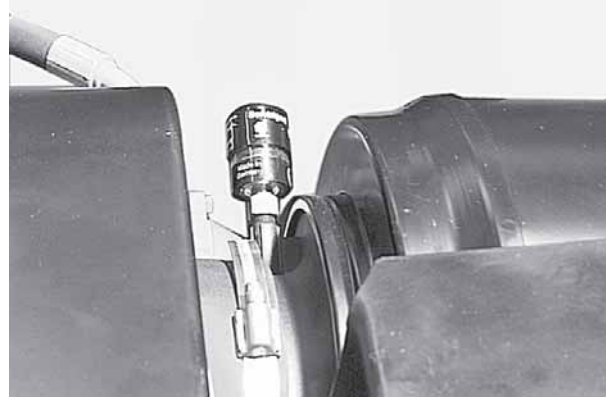
11

Check the oil level and if necessary add engine oil according to specifications. See "Technical data TAD1240GE, TAD1241GE/VE, TAD1242GE/VE, TWD1240VE".

12

Start the engine and perform a functional test and leak check.

Pressure drop indicator, checking



1

Remove the pressure drop indicator. Check the pressure drop indicator by applying a vacuum (reduced pressure) until the indicator shows red. Press the button on top of the pressure drop indicator to reset.

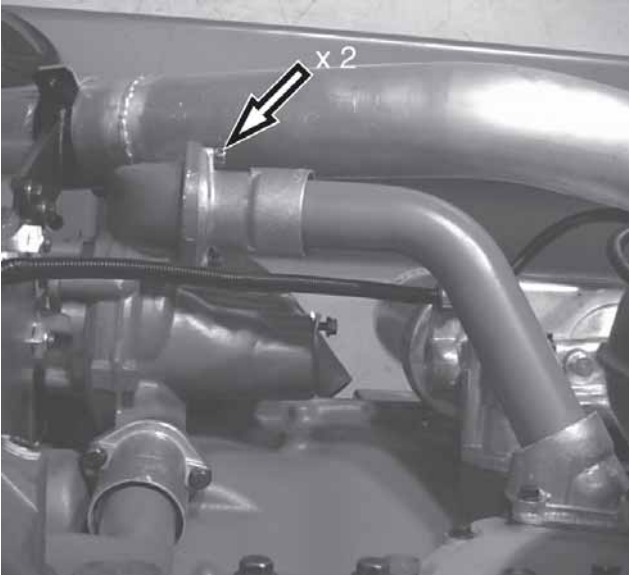
2

When the air filter is clogged, for example, and the pressure falls, the pressure drop indicator indicates this by showing red. If the pressure drop indicator is not working as described in step 1, it should be changed.

3

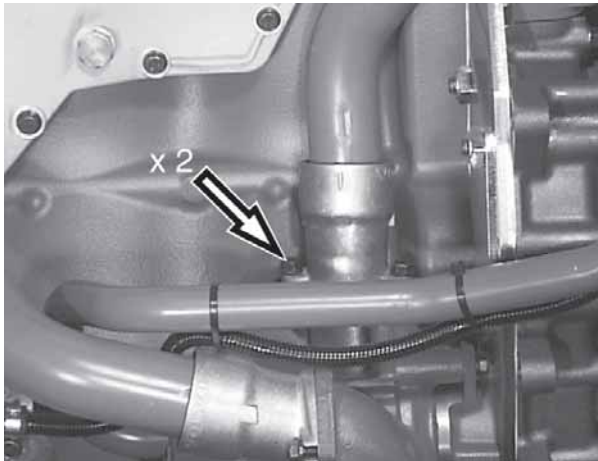
Reinstall the pressure drop indicator.

15



Reinstall the water pipe between the oil cooler element and the coolant pump. Use new gaskets.

16



Reinstall the water pipe between the oil cooler element and thermostat housing. Use new gaskets.

17



Reinstall the water pipe to the coolant pump and to the radiator connection.

18

Add coolant according to specifications. See "Technical data TAD1240GE, TAD1241GE/VE, TAD1242GE/VE, TWD1240VE".

NOTE: Mix the correct volume in advance to be sure that the system is filled.

19

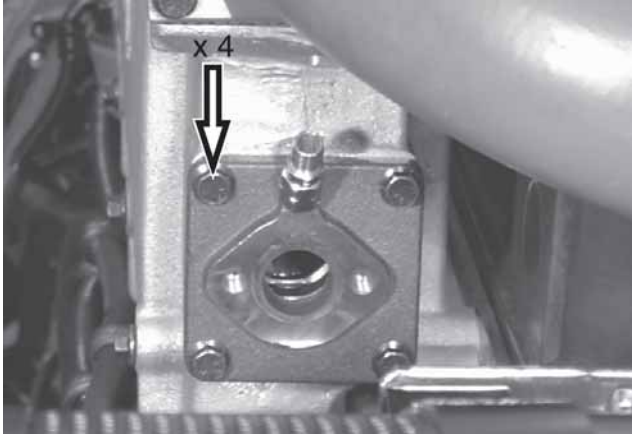
Start the engine and check for leaks.

Coolant filter, changing

NOTE: Turn the valve at the coolant pump 90 degrees before removing the coolant filter. Do not forget to turn the valve back after the new coolant filter has been installed.

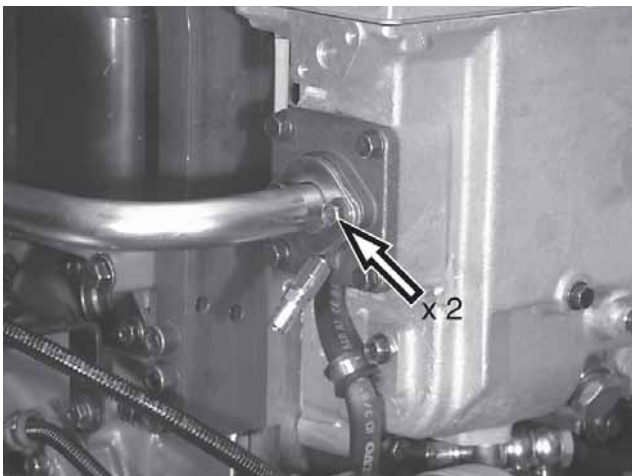
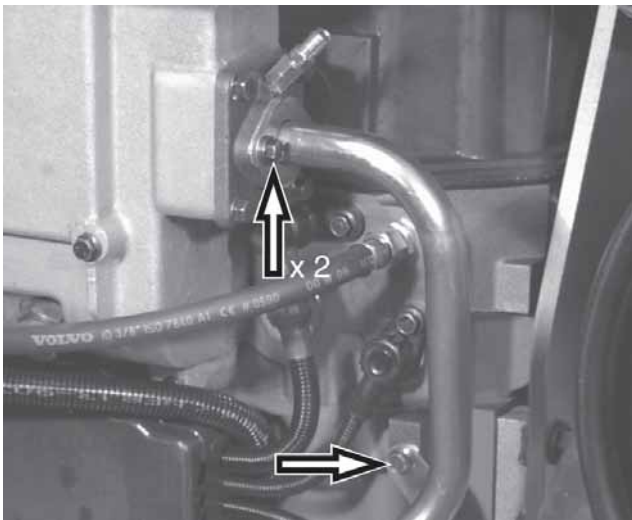
See "Coolant pump, changing" steps 6 and 12.

10



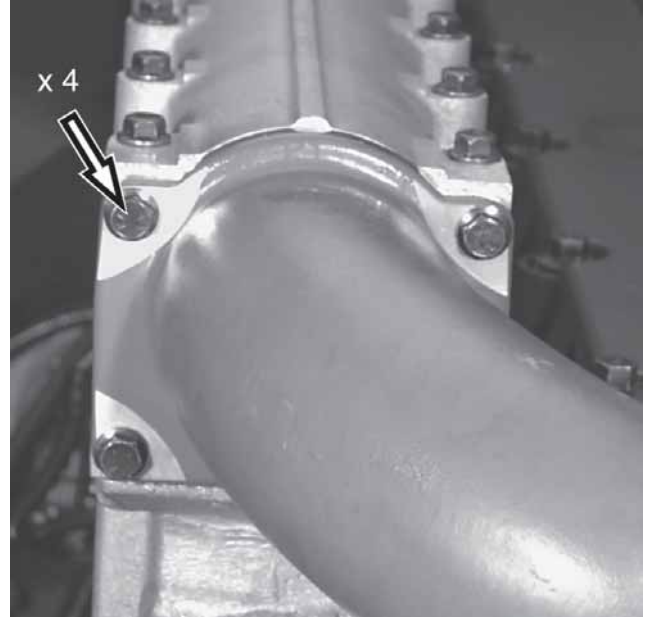
Reinstall the water pipe connectors on the ends of the charge air cooler using new sealing rings.

11



Reinstall the water pipes on the ends of the charge air cooler using new sealing rings.

12



Reinstall the turbo delivery pipe. Use new sealing rings.

13

Add coolant according to specifications. See "Technical data TAD1240GE, TAD1241GE/VE, TAD1242GE/VE, TWD1240VE".

NOTE: Mix the correct volume in advance to be sure that the system is filled.

14

Start the engine and perform leakage and functional checks.

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