

Operation/Maintenance BFM 1015

Service/Maintenance: Lubrication System



6.1.1 Oil Change Intervals

- The first oil change after commissioning or recommissioning following repair work is carried out after 50 running hours.
- The oil change intervals are dependent on :
 - Lube oil quality
 - Sulfur content in the fuel
 - Engine application
- Should, within a year, the engine run less than the hours stated in the table, the oil must be changed at least once a year.
- The table refers to the following conditions:
 - For diesel fuel max. sulfur content > 0.5 % by wt.
 - Continuous ambient temperature down to -10 °C (+14 °F)
- If the sulfur content is > 0.5 to > 1 % or the continuous ambient temperature below -10 °C (+14 °F), the intervals between the oil changes should be halved.
- In the case of fuels containing sulfur > 1 % , ask your service representative.

Change the oil with the engine off but still warm (lube oil temperature approx. 80 °C / 176 °F).

			Oil Change Intervals (running hours)	
			Moteurs suralimentés	
Oil Grade	API - Klassifikation		CF/ CF-4	CG-4/ CH-4
	ACEA - Klassifikation		E1+E2-96	E3-96/ E4-98
Light duty, e.g.:				
Road vehicles, cranes, construction equipment, rail traction units, ships, generating sets, pumps			250	500
Heavy duty, e.g.:				
Combine harvesters, underground mining, road sweepers, winter service equipment, emergency sets, emergency pumps			125	250
			Oil Change Intervals (km)	
			Moteurs suralimentés	
Qualité d'huile	API - Klassifikation		CF/ CF-4	CG-4/ CH-4
	ACEA - Klassifikation		E1+E2-96	E3-96/ E4-98
Service Group	Annual Performance (km)	Mean Driving Speed approx. (km/h)		
I	< 30 000	25	5 000	10 000
II	> 30 000 < 100 000	40	10 000	20 000
III	>100 000	60	15 000	30 000

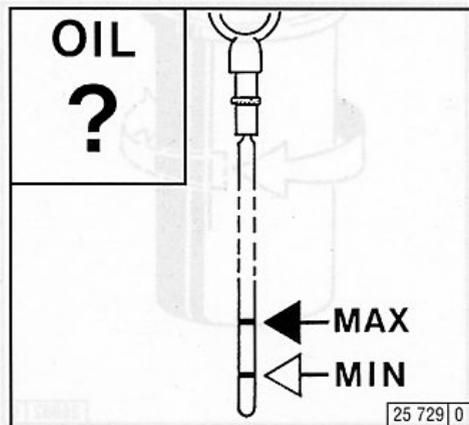
Operation/Maintenance BFM 1015

Service/Maintenance: Lubrication System



6.1.2 Checking Oil Level / Changing Engine Oil

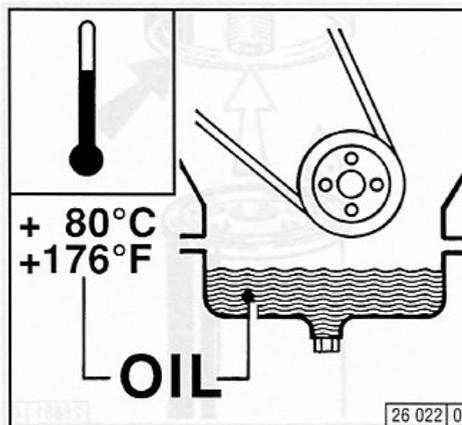
6.1.2.1 Checking Oil Level



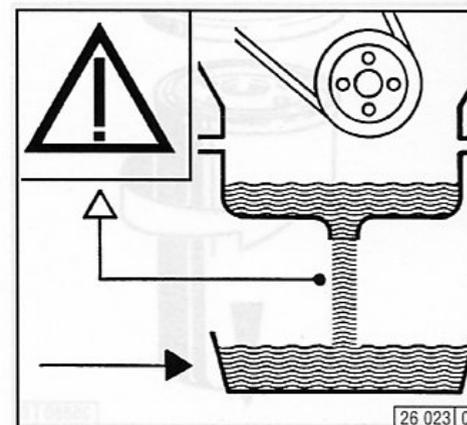
- Ensure that the engine or vehicle is on a level surface.
- Immediately before the oil level is measured, the engine should be driven at low idling speed for approx. 2 minutes.
- Switch off the engine.
- Pull out the oil dipstick.
- Wipe off with a non-fibrous, clean cloth.
- Insert up to the stop and pull out again.
- Check the oil level and if necessary fill up to the "MAX" level.
 - If the oil level is just above the "MIN" marking, extra oil must be added.

The oil level must not fall below the "MIN" marking.

6.1.2.2 Engine Oil Change



- Ensure that the engine or vehicle is on a level surface.
- Allow the engine to warm up
 - Lube oil temperature approx. 80°C.
- Switch off the engine.



- Place oil tray under the engine.
- Unscrew drain plug.
- Drain oil.
- Fit oil drain plug, with the new gasket and tighten firmly (for torque, see 9.2).
- Fill with lube oil.
 - For grade / viscosity, see 4.1
 - For quantity, see 9.1
- Check oil level, see 6.1.2.1



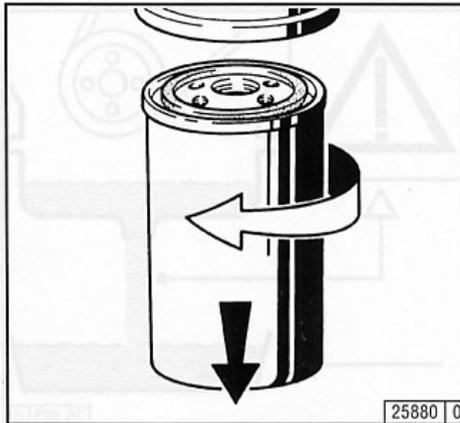
Be careful when draining hot oil – danger of scalds! Do not let used oil run into the soil but catch it in a container ready for proper disposal.

Operation/Maintenance BFM 1015

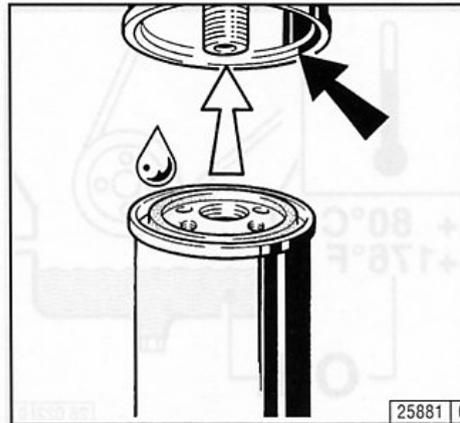
Service/Maintenance: Lubrication System



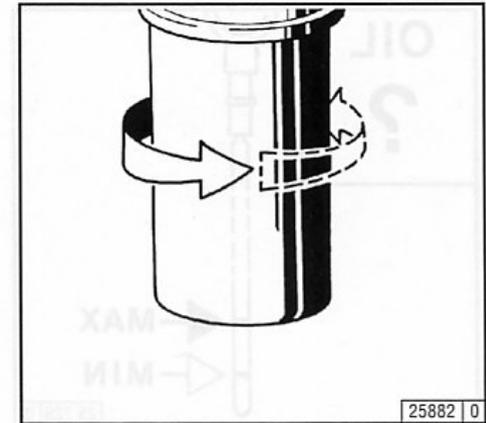
6.1.3 Renewing Oil Filter



- With fitted torsion lock:
Loosen screws and slide clamps downwards.
- Undo the oil filter cartridge with commercial tool and spin off.
- Catch any escaping oil.



- Clean sealing surface of the filter carrier if necessary.
- Lightly oil the rubber gasket of the new oil filter cartridge.
- Screw in the new cartridge finger tight against the gasket.



- Tighten oil filter cartridge tightly by giving a final half turn.
- If a torsion lock is fitted, slide clamps up into position and tighten screws.
- Check oil level, see 6.1.2.
- Check oil pressure, see 3.3.1.
- Check sealing of oil filter cartridge for leaks.



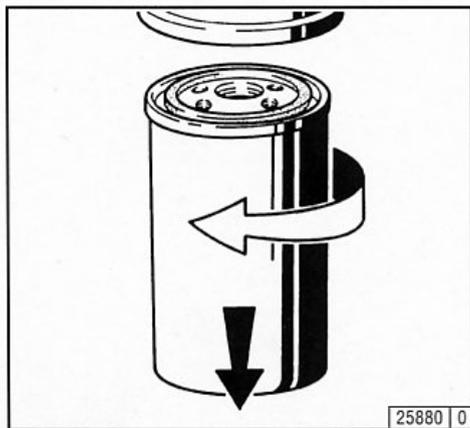
Beware of hot oil:
Danger of scalding!

Operation/Maintenance BFM 1015

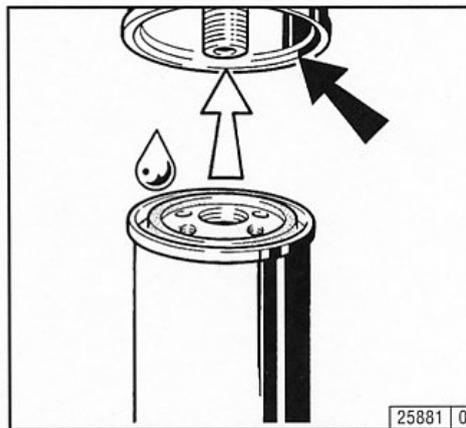
Service/Maintenance: Fuel System



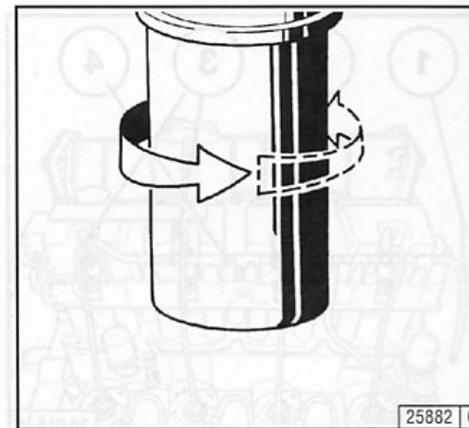
6.2.1 Renewing Fuel Filter



- Close fuel stopcock.
- Undo fuel filter cartridge with commercial tool and spin off.
- Catch any escaping fuel.



- Clean sealing surface of filter carrier if necessary.
- Apply light film of oil or diesel fuel to rubber gasket of new fuel filter cartridge.
- Screw in the cartridge finger tight against the gasket.



- Tighten fuel filter cartridge firmly.
- Open fuel stopcock.
- Check for leaks.



When working on the fuel system,
keep open flames away!
Do not smoke!

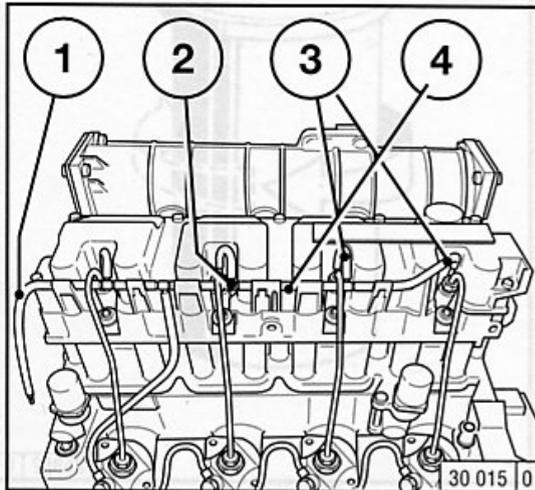
Bleeding of the fuel system is not necessary.

Operation/Maintenance BFM 1015

Service/Maintenance: Fuel System



6.2.2 Change Fuel Leakage Line



- Close the fuel shutoff valve.
- Disconnect rubber hoses 3 from the injection valves.
- Disconnect rubber hose 1 from fuel tank.
- Disconnect rubber hoses 4, 3 and 1 from unions 2 and dispose of in an environmentally friendly manner.
- Connect new rubber hoses 4, 3 and 1 to unions 2.
- Connect rubber hoses 3 to injection valves.
- Connect rubber hose 1 to fuel tank.
- Open fuel shutoff valve.
- Check for leaks after start-up.