Lubricating System

The engine is lubricated through a pressure lubrication system. The lubricating pump driven by the camshaft sucks oil from the oil sump through a rough filter. From the lubricating pump the oil is pressed through a fine filter to the respective lubricating points through oil ducts bored in the goods. A reduction valve in the lubricating system secures that the oil pressure is kept between 2.0 - 4.0 kg/cm^2 at hot engine and maximum revolutions.

Lubricating oil must be exchanged every 150 working hours or once a year.

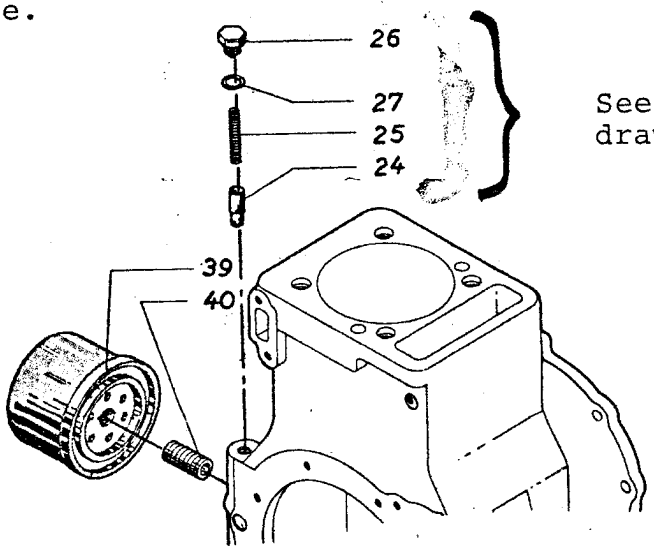
Excess-pressure Valve

The excess-pressure valve shown on the drawing below can be adjusted by stretching the spring. This is done when the oil pressure lies below the allowable. Smallest allowable oil pressure is 0.8 kg/cm^2 at hot engine.

If the oil pressure is too high, possible after replacement of the spring, the spring tension can be reduced by mounting two copper gaskets between plug and support.

Dismount the excess-pressure valve by unscrewing the plug 26 and removing the spring 25 and the piston 24.

When adjusting the oil pressure you must always check with a pressure gauge.



See arrangement drawing page N 4

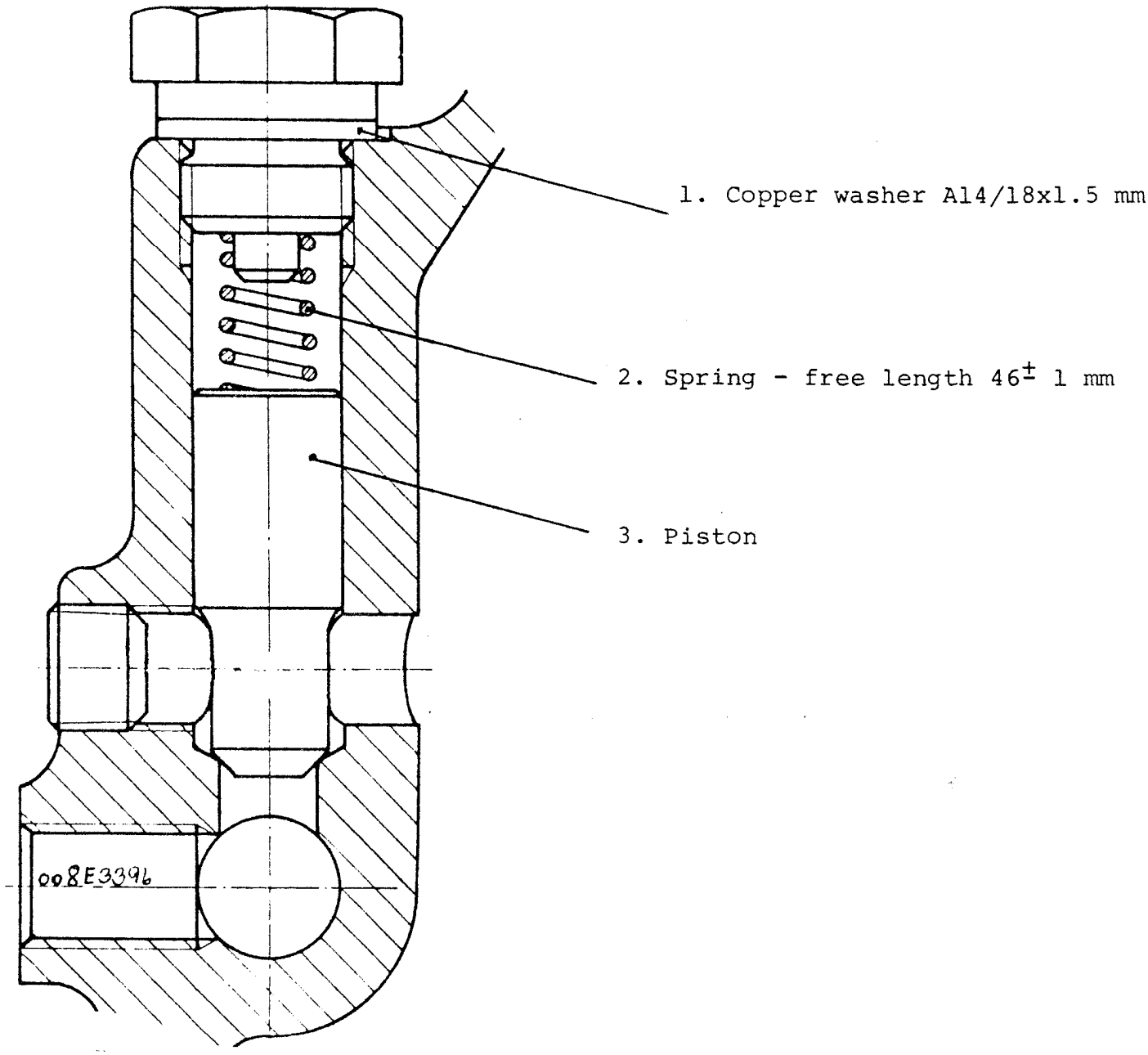
Lubricating Oil Filter

The lubricating filter 39 cannot be cleaned, but must be replaced every 150 working hours or once a year. Dismount the filter by the hand and scrap it.

A new filter must also be screwed on by the hand.

When replacing the filter clean the bearing surface on the engine if necessary.

Arrangement Drawing of Lubricating Oil Reduction Valve



The above fig. Nos. show the lubricating oil reduction valve in the new execution. The improvement is that the designing of the valve has been changed. The function is still the same.

Lubricating Pump - Old Type

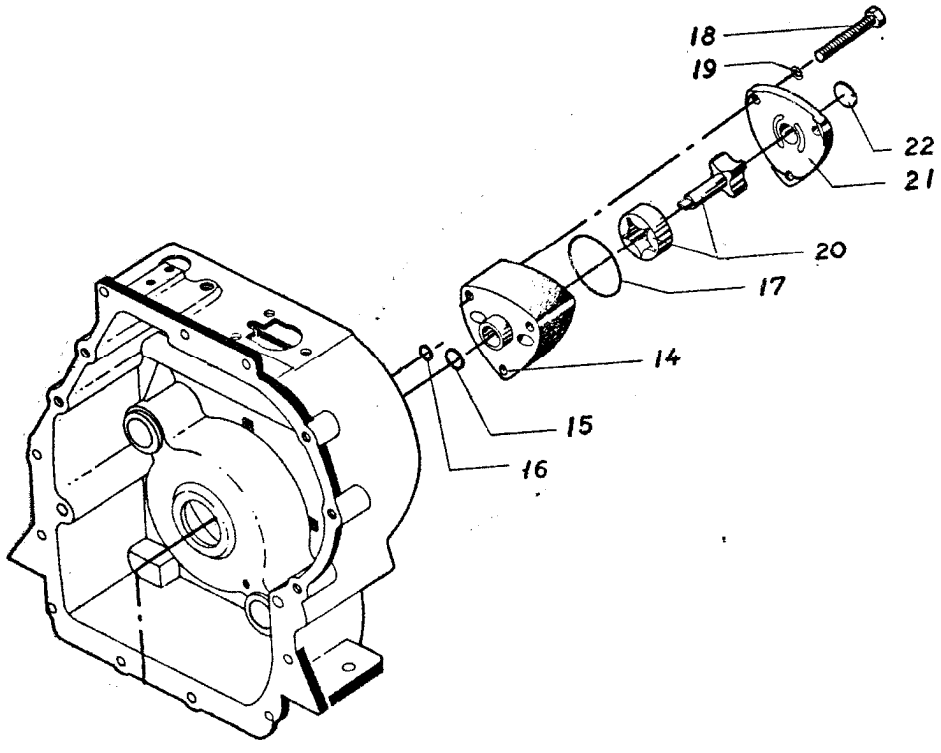
The lubricating pump make Eaton has a capacity of 10 l/min.
See page N 6 fig. 1.

Dismounting

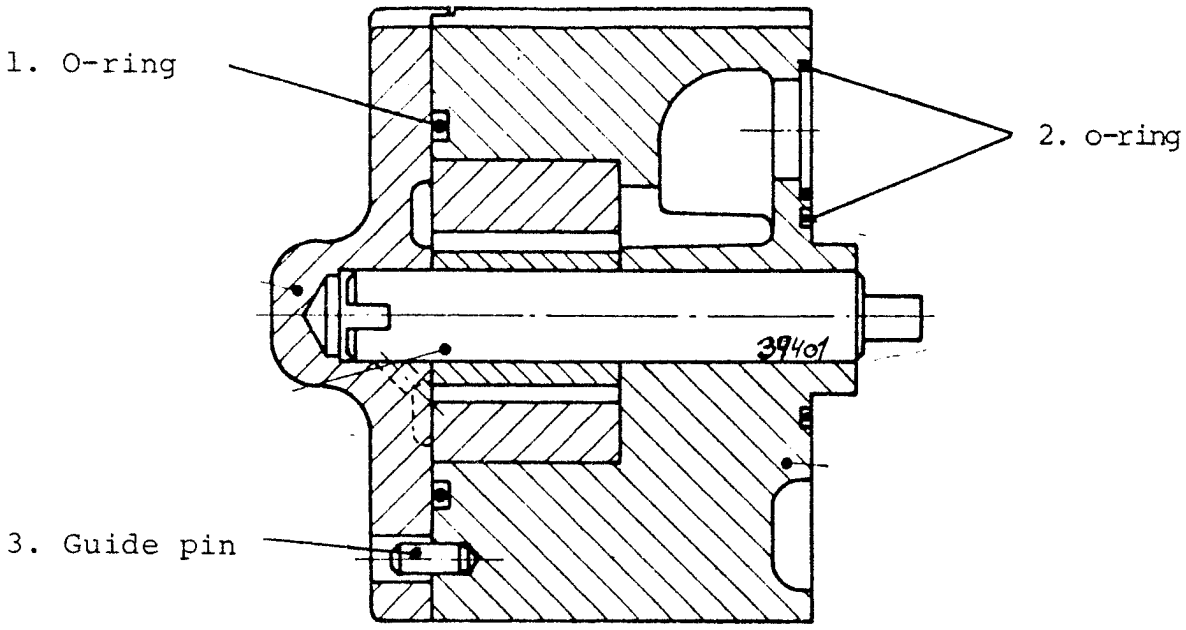
1. Dismount the bolts 18.
2. Pull out the inner rotor 20.
3. Dismount the pump housing 14 and pull out the outer rotor 20.
4. Dismount the O-rings 15, 16, and 17.

Mounting

1. Examine the O-rings for wear and replace if necessary.
2. Mount the O-rings 15 and 16.
3. Assemble the outer and the inner rotor 20.
4. Mount the outer rotor in the pump housing. The tolerance between housing and rotor must be 0.05 - 0.15 mm (0.002 - 0.006 inch.).
5. Place a steel ruler across the terminal face of the housing and check the tolerance between rotor and ruler. This tolerance must be 0.025 - 0.075 mm (0.001 - 0.003 inch.).
6. Mount the O-ring 17 and the cover. Tighten the bolts with a torque of 2 - 2.3 kgm (14.5 - 16.6 ft.lb.).



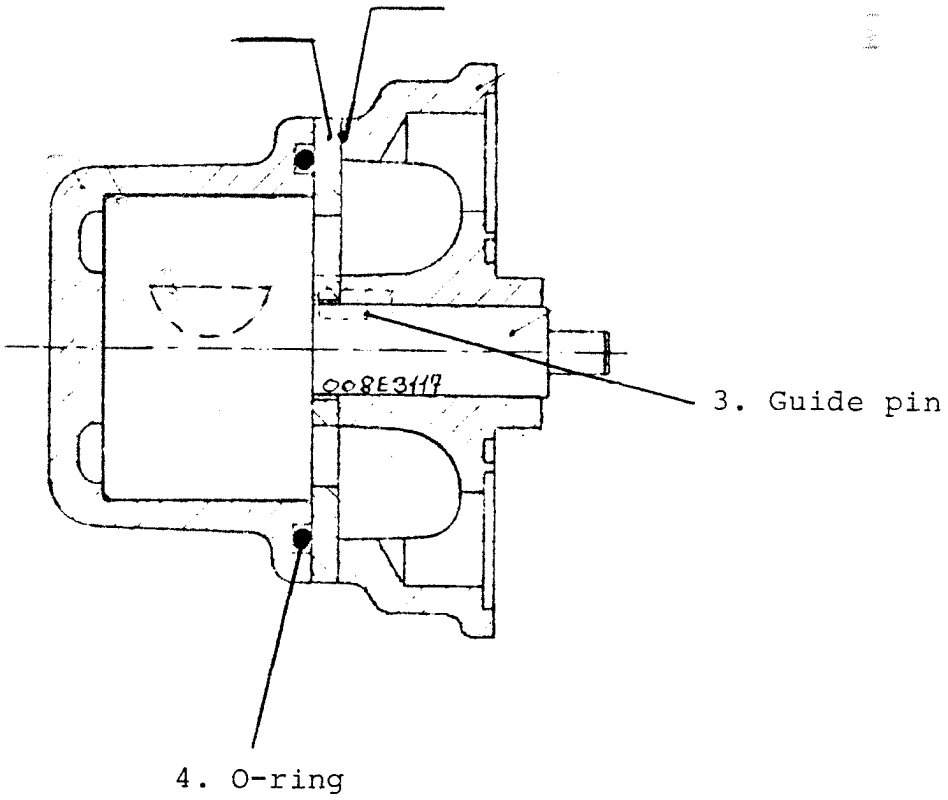
Lubricating Oil Pump in Old Execution



4. Fig. 1

Lubricating oil Pump in New Execution

1. Intermediate plate
2. Gasket



5. Fig. 2

Lubricating Oil Pump - New Type

	From eng. No.	To eng. No.	Parts List No.	Year
DV10	203612		021D0007	1976
DV20	96233		021D0007	1976

From the above engine numbers a new type of lubricating oil pump has been introduced. The pump is shown on page N 6 fig. 2.

The capacity of the pump is the same as the one of the old execution.

Contrary to the old type of pump the new execution is used for both DV10 as well as for DV20.

As lubricating oil pump the new lubricating oil pump can direct replace previous executions.

Lubricating Oil Quality

The designations used until now, DM and DS, which are designations for the lubricating oil quality from the old API classification system are replaced by the corresponding designations CC and CD from the new API classification system.

Normally a lubricating oil quality mark "Service CC" must be used, but for operation under difficult conditions, i.e. frequent cold starting, short working hours, very varying load, quality mark "Service CD" must be used.

Besides, quality mark "Service CD" must be used if the sulphur content of the fuel is higher than 1 per cent.

In air temperatures at the engine below $5^{\circ}C$ viscosity SAE 10 is used.

In air temperatures at the engine between $5^{\circ}C$ and $25^{\circ}C$ viscosity SAE 20 is used.

In air temperatures at the engine above $25^{\circ}C$ viscosity SAE 30 is used.