

## Cleaning and Pressure-Testing of Crankcase and Surface-Grinding of same, if necessary

Job No.

01-26

The engines of the type 636.912, 636.914, 636.915 and part of the type 636.916 were equipped with the 1st version of the crankcase (see Figure 01-26/1). The inlet and outlet channels of the crankcase located on the injection pump side are closed by a cover. With the cylinder crankcase of the 1st version, the push rods run through the basic bores for the valve guides in the cylinder crankcase.

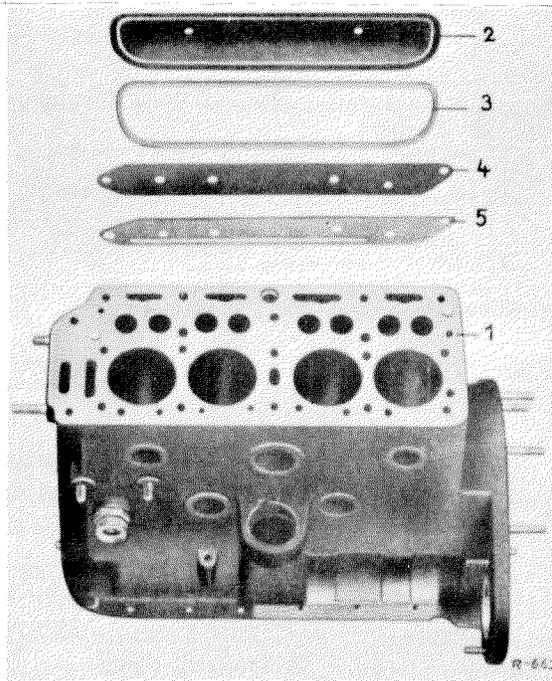


Figure 01-26/1

OM 636: 1st Version of Crankcase

- 1 Crankcase
- 2 Tappet housing cover
- 3 Cork gasket of tappet housing cover
- 4 Cover plate of inlet and outlet channel
- 5 Gasket of cover plate

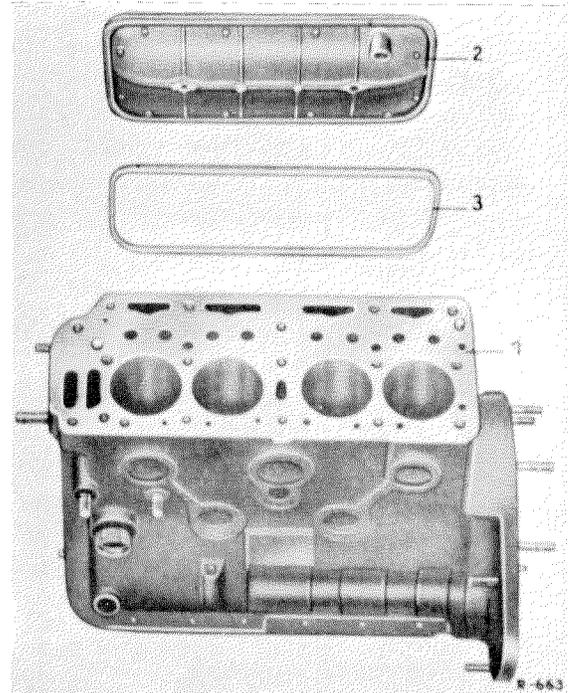


Figure 01-26/2

OM 636: 2nd Version of Crankcase

- 1 Crankcase
- 2 Tappet housing cover
- 3 Cork gasket of tappet housing cover

### Cleaning:

1. Remove scale and other impurities from the water passages and connecting channels.

**Note:** After a longer running time or when using unrefined cooling water containing lime the water passages and channels can become clogged.

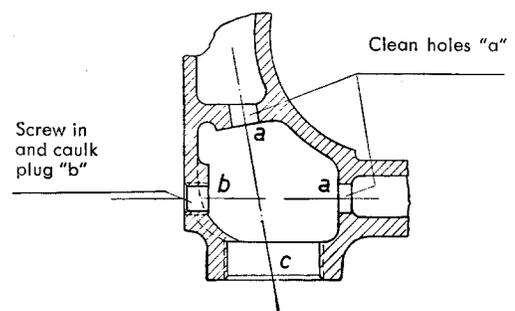


Figure 01-26/3

Cross Section of Cooling Water Inlet in Crankcase  
of OM 636

- Remove the plug (b) and clean the holes (a) in the crankcase with a suitable punch (see Figure 01-26/3). Apply sealing compound to the plug (b), then screw in and caulk the plug.

**Note:** On installed engines the holes of the cooling water outlet duct can be cleaned with a suitably bent piece of wire. (The holes have a diameter of 8 mm.)

- Thoroughly clean the water passages to the cylinder head at the contact surface.
- Clean very clogged spaces through the cored holes. For this purpose knock out the cover plates closing the cored holes and caulk in new cover plates after thoroughly cleaning the passages and after applying sealing compound to the edge of the cover plate.
- Clean all oil passages thoroughly. For this purpose remove the two screw plugs in the front and rear of the main oilway (see Figure 01-26/6). The oil passages and the hole in the front end for the lubrication of the timing gears of OM 636 (Figure 01-26/4) must be thoroughly cleaned with brushes and wires and then blown out with compressed air.

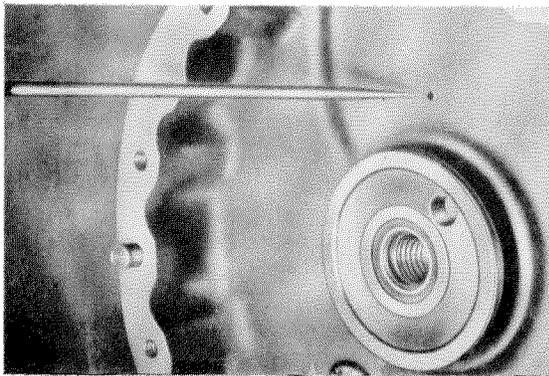


Figure 01-26/4  
OM 636

If a washing plant is available, then force a hot P3-solution through the oil passages after the washing operation.

- Check tight seating of screw plugs in the machining holes of the camshaft and crankshaft oilways (5 and 7) (see Figure 01-26/5).

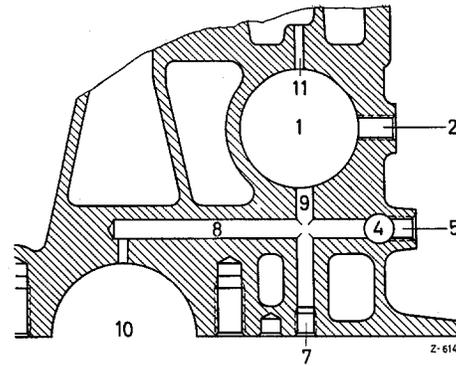


Figure 01-26/5

#### Cross section of the 1st crankshaft bearing

- Base bore of the camshaft bearing
- Tapped hole of the locating screw of camshaft bearing
- Main oilway
- Screw plug in machining hole of oilway to 1st main bearing
- Screw plug in machining hole of oilway to camshaft bearing
- Oilway to main bearing
- Oilway to camshaft bearing
- Base bore of main bearing
- Drain hole of oil pocket in tappet housing

This is especially true for the screw plugs (7) located inside the crankcase, because the oil pressure is reduced by a loose or leaking plug at this point, but such leaks cannot be observed from the outside of the engine. Remove loose plugs and screw in new plugs; apply sealing compound to the thread of the plugs and caulk them after installation (see Figure 01-26/5).

- Apply sealing compound to the front and rear screw plugs and screw them into the main oilway (see Figure 01-26/6).

#### Pressure-testing:

- Check the water jacket of the crankcase for leaks by a pressure-test with hot water at approx. 70° C and a gauge pressure of 3 atm.

The cylinder crankcase can also be checked for leaks by dipping it into water of approx. 70 deg C and pressure testing with compressed air at 3 atü.

## Surface-grinding:

9. Check levelness of upper crankcase contact surface. Max. permissible departure from plane is 0.05 mm in a longitudinal direction and 0 in a lateral direction. If there is an unevenness in excess of this, the contact surface must be surface-ground or milled.

**The total height of the material removed should not exceed 0.2 mm.**

Departure from parallelism between the upper contact surface and the main bearing axis must not exceed 0.1 mm in relation to the overall length.

The height H of the crankcase is  $289 \pm 0.1$  mm for the OM 636 and 238.4–238.5 mm for the OM 621, measured from the contact surface for the oil pan to the contact surface for the cylinder head (see Figure 01–26/6).

**Note: If the total height of the material removed exceeds 0.2 mm, there will be the danger that the pistons knock against the valves.**

The so-called "gap measure", the distance between the piston crown at top dead center and the contact surface of the crankcase, is

with the OM 636:  $0 \pm 0.3$  mm

with the OM 621: +0.7 to 1.2 mm

(— = piston retracted, + = piston protruding.)

Therefore, check the gap measure after machining of the crankcase contact surface.

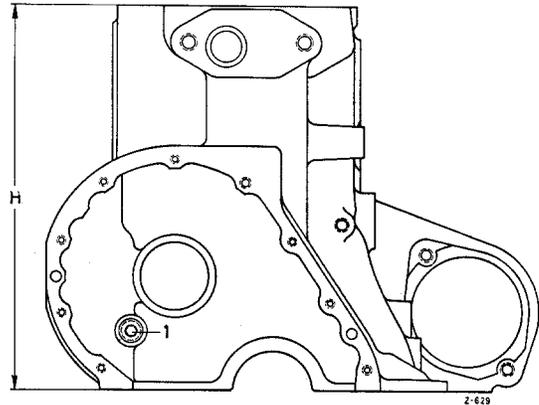


Figure 01–26/6

OM 636

H = Height of crankcase

1 = Front screw plug in main oilway