

Four different cylinder head versions have been installed in the engine OM 636. The 1st version has two cylinder head cover surfaces (see Figure 01-5/1), the 2nd version has one single cylinder head cover surface (see Figure 01-5/2). The 3rd version, which is only valid for the engines of the type 636.930, has in addition one air vent hole (see Figure 01-3/4 and Paragraph 20 on Page 01-3/3). The 4th version, which apart from the material is similar to the 3rd version, has light metal cylinder heads, which have partly been installed in the engines of the type 636.930 (Model 180 D). The milling and pressure-testing is similar for all four versions of OM 636 as well as the OM 621.

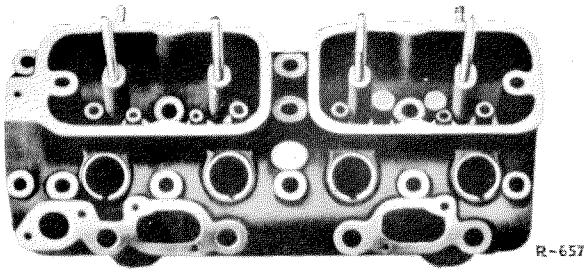


Figure 01-5/1

1st version of cylinder head  
(two cylinder head covers)

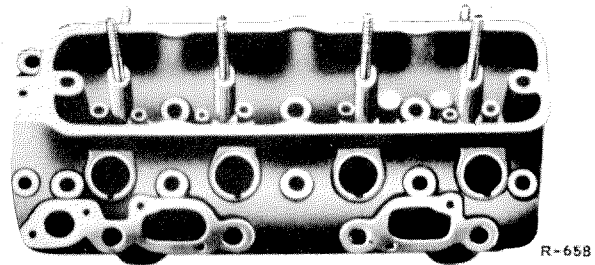


Figure 01-5/2

2nd version of cylinder head  
(one cylinder head cover)

If the contact surface or the top surface of the cylinder head is not level or has been distorted or shows slight damages such as scores, scratches etc., the damaged surface must be refinished.

The maximum unlevelness should not be more than 0.1 mm in longitudinal direction and not more than 0.01 mm in cross direction.

If the cylinder head surfaces have to be remachined, the stock removal on both sides (on the OM 636) must not exceed 1.0 mm.

On the OM 621, a stock removal on the cylinder head at the separating surface of up to 0.5 mm and at the upper side of up to 0.3 mm is permissible.

On the OM 636, the height (H) of the cylinder head, if new, amounts to 105.80–106.0 mm (see Figure 01-5/3) and on the OM 621: 84.8–85.0 mm (see Figure 01-5/4).

With respect to the total length, the deviation from parallelism of both surfaces must not exceed 0.1 mm.

When machining the contact surface, remove only so much material as necessary to obtain a level surface.

After the machining of the contact surface check the distances a and b between the contact surface and the valve disc (with the OM 636 see Figure 01-5/3 and with the OM 621 see Figure 01-5/4). **With the OM 636, the minimum distance on the intake valve (a) should be 0.6 mm and on the exhaust valve (b) 0.8 mm; with the OM 621: 0.5 mm on the exhaust valve.**

If the minimum distance (a) or (b) is not reached, cut the valve seats deeper and also remachine the web between intake and exhaust valve to the specified measure (see Figure 01-5/3 and 01-5/4, as well as Job No. 01-8).

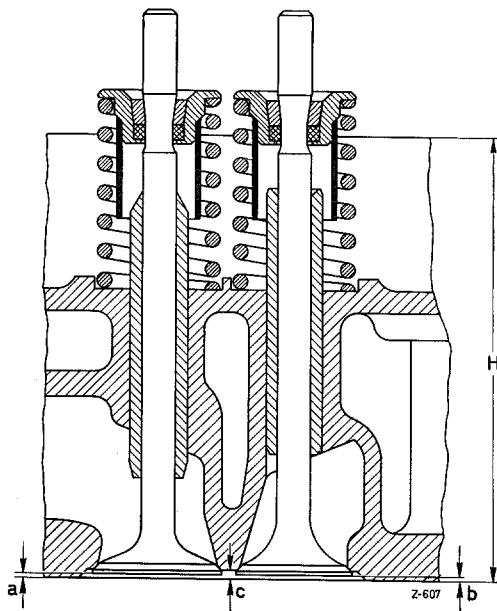


Figure 01-5/3

OM 636

H = Height of a new cylinder head = 106-0.2 mm  
 Min. height of a machined cylinder head = 105-0.2 mm  
 a = Distance from contact surface to inlet valve = 0.6 mm  
 b = Distance from contact surface to exhaust valve = 0.8 mm  
 c = Depth of bridge measured from contact surface = 2.6 to 3.2 mm

**Note:** With the OM 621 also observe the following: after a stock removal on the separating surface of the cylinder head, keep to the distance 'c' when installing the prechambers (see Figure 01-1/10 and Job No. 01-1, item 12).

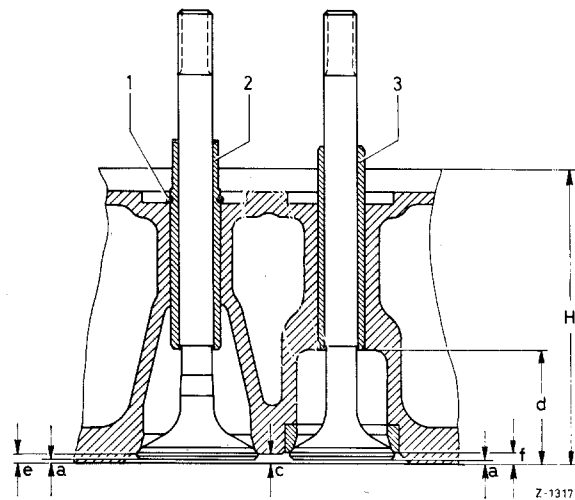


Figure 01-5/4

OM 621

1 locking ring  
 2 valve guide for intake valve  
 3 valve guide for exhaust valve  
 H = height of the new cylinder head = 84.8-85.0 mm  
 minimum height of a remachined cylinder head = 84.0 mm  
 a = distance from the separating surface of the cylinder head to the intake and exhaust valve = 0.5-0.6 mm  
 c = depth of web, measured from the separating surface = 2.1 mm  
 d = distance from the separating surface to the front face of the exhaust valve guide = 31.5-32.5 mm  
 e = depth of recess of intake valve = 2.1 mm  
 f = depth of recess of exhaust valve = 2.6 mm

Damages of the contact surface for the cylinder head covers, which were caused by outside influences, can be repaired by welding and subsequent milling. For this purpose make sure that sufficient material is available for the machining of the contact surface.

After machining of the cylinder head clean the water passages and the glow plug holes. Take out loose water distributing pipes, install and caulk new ones. The pipes must not protrude at the contact surface. Pressure-test the cylinder head with hot water of approx. 70° C and a gauge pressure of 5 atm. The tightness of the cylinder head can also be checked by submerging it in water with a temperature of 70° C and pressure-testing (4.5-5 atm.).

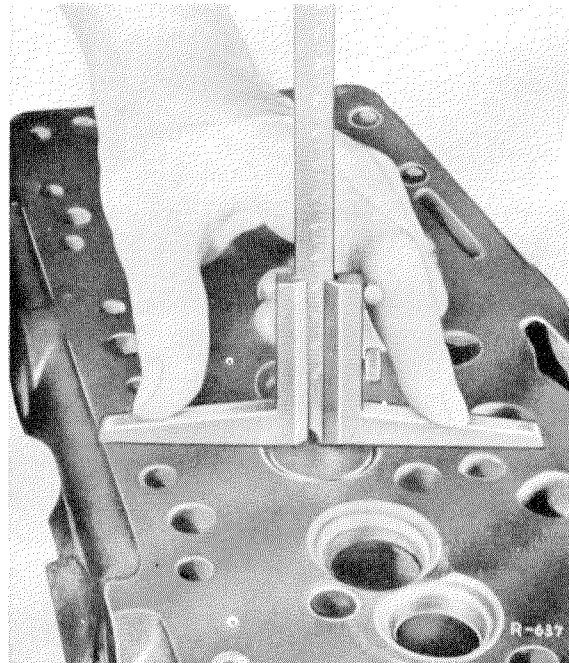


Figure 01-5/5