Adjusting Valve Clearance

Job No.
00–3

The exact adjustment of the valve clearance is especially important for the smooth running and performance of an engine.

It has to be observed on the engine Model OM 636, that the inlet valve clearance is greater than the exhaust valve clearance. This is given by the design through the different length of the rocker arms. Mistakes by exchange have to be avoided by all means during the adjusting of the valve clearance (position of inlet and exhaust valves see Figure 00–3/2).

If the valve clearance is too small, the valves no longer close satisfactorily and burn out. Too large valve clearance causes valve noises. Furthermore, incorrect valve clearance causes changes in timing and reduction of engine power output.

A. OM 636

1. Remove air filter and cylinder head cover.

2. Check torque of cylinder head bolts and hex nuts for fixing rocker brackets, tighten according to instructions if necessary (see Job No. 00–1).

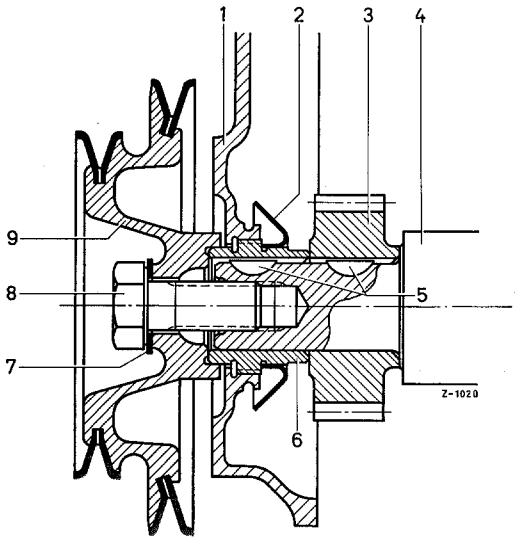

Figure 00–3/1

1 Timing housing cover
2 Oil deflector
3 Crankshaft gear
4 Crankshaft
5 Woodruff key
6 Spacer
7 Spring washer B 18 DIN 137
8 Hexagon screw M 18×1.5×40 DIN 960 – 8 G Torque 12 to 13 mkg
9 Double pulley Part No. 181 200 17 05 with TDC marking and scale to adjust feed begin (see Figure 00–6/1)

3. Bring the piston of the 1st cylinder to ignition dead center. The piston of the 1st cylinder is at ignition dead center if the inlet as well as the exhaust valve is closed. At the same time the rockers 1 and 2 are released and the valves 7 and 8 of the 4th cylinder are overlapping, meaning the exhaust valve closes and the inlet valve opens.

   The crankshaft is turned at the fixing screw (8), with which the pulley is attached to the crankshaft, by using a 27 mm wide box spanner with ratchet or a cranked double box wrench (see Figure 00–3/1).

   In vehicles the crankshaft can also be turned by shifting into 4th gear and pushing the vehicle.

   The ignition dead center of the other 3 cylinders is adjusted in the same way.

Note: To eliminate mistakes we recommend to proceed with the valve clearance adjustment in the same order as the firing order.

The firing order is 1 – 3 – 4 – 2

4. Measure the valve clearance of the respective cylinder with a feeler gauge or tolerance gauge with a thickness of the specified valve clearance (see Job 00–0) between valve stem end and rocker (see Figure 00–3/3).

Location of Inlet and Exhaust Valves

← Direction of driving

1st Cyl.	2nd Cyl.	3rd Cyl.	4th Cyl.
E I	I E	E I	I E
O O	O O	O O	O O

Figure 00–3/2

If the valve clearance is too small or too large, loosen the hex nut of the respective ball-head bolt with the combination wrench Part No. 000 589 64 09 and adjust ball-head bolt by screwing in or out (see Figure 00–3/3), in such a way that after the tightening of the hex nut the specified clearance is obtained between the valve stem end and the rocker.

Note: During tightening of hex nut the ball-head bolt must be held fixed and afterwards the valve clearance has to be checked again.

It should only be just possible to move the tolerance gauge between the rocker and the valve stem end. During the measuring the tolerance gauge should not be tilted, it should possibly be inserted vertically to the valve stem. If the tolerance gauge is jamming, move rocker sidewards before adjusting valve clearance. In many cases you will observe that the rocker was only tilted.

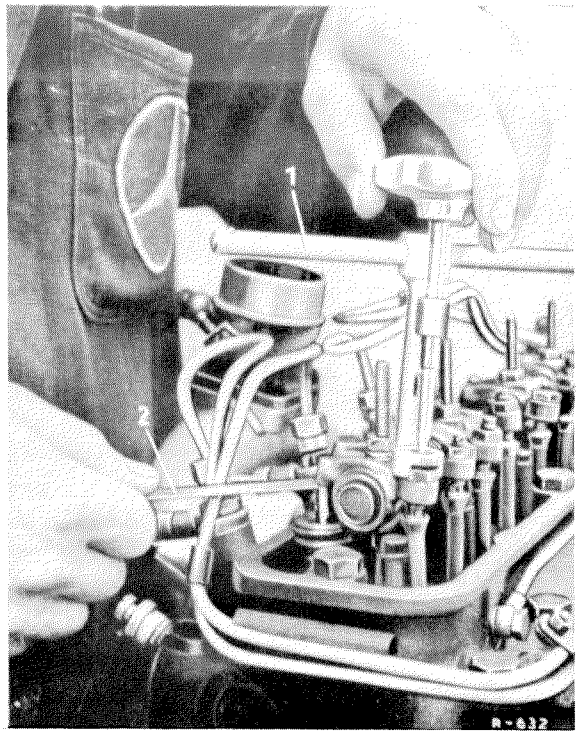

Figure 00–3/3

1 Combination Wrench Part. No. 000 589 64 09
2 Feeler gauge or tolerance gauge

5. Check again with feeler gauge the adjustment of the individual valve clearances and readjust if necessary.

6. Remount cylinder head cover. Make sure that the gasket is properly seated. The cover should not be screwed down too thightly, because it can sag and force out the rubber gasket.

7. Remount air filter, operate engine and check cylinder head cover for leaks at the contact surface.