

Removal, Disassembly and Installation of Rocker Arm Brackets

Types 220 and 220 a

Operation No.
M 74

Special Tools:

Torque wrench 0 to 6 mkg
(0 to 43.5 ft.lb.) 000 589 27 21

Insert for torque wrench, opening
8 mm (0.315"), length 80 mm
(3.15") for rocker arm brackets,
from 000 589 06 07

Special Allen wrench, width over
flats 8 mm (0.315"), length 300 mm
(11.8"), for rocker arm brackets 187 589 04 07

Socket wrench insert, opening
17 mm (0.67"), for rocker arm
brackets, from 000 589 18 09

Special wrench, width over flats
14 mm (0.55"), for check nut on
lower side of rocker arm 187 589 00 01

Wrench combination for check nut
on upper side of rocker arm 187 589 01 09

Valve gauge bracket with
tolerance tape 136 589 00 23

Procedure:

1. Loosen vent line at cylinder head cover as well as air filter, unscrew cylinder head cover and take it off.
In the case of Type 220 the radiator stay must be removed first.
2. Loosen rocker arm bracket screws and remove the brackets. Place camshaft so that no load is placed on the rocker arm to be removed.

Note: Today the rocker arm brackets are fastened with hexagonal screws, whereas formerly hexagonal socket head screws were used.

3. Take out snap ring at one end of rocker arm shaft and take the various parts off the shaft (see Fig. M 74/5).

Note: In Type 220a the rocker arms are held in position by a yoke. This yoke is fastened to the rocker arm bracket by means of the fastening screw (Fig. M 74/3).

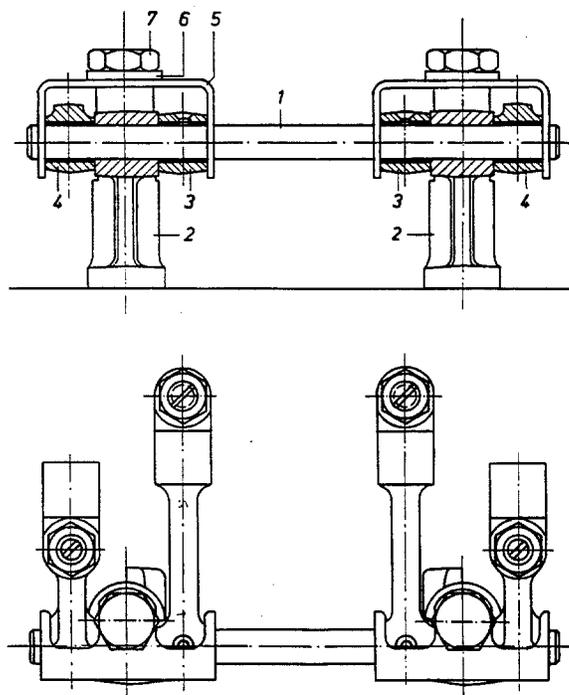


Fig. M 74/3

- | | |
|------------------------|-------------------|
| 1 Rocker arm shaft | 5 Yoke |
| 2 Rocker arm bracket | 6 Washer |
| 3 Rocker arm (intake) | 7 Expansion screw |
| 4 Rocker arm (exhaust) | |

4. Check all parts.

Note: In the case of rocker arms that have the check nut on their underside (engines of the first series), it must be checked whether the nut has worked loose. Loosen each check nut and check contact surfaces of nut and rocker arm. If the nut has born against the arm at a single point or spot, this can be readily seen. In this case the contact surface at the rocker arm must be smoothed, and a new nut must be used.

It is recommended to install new rocker arms with upper check nut next time you overhaul the engine.

Check shaft and bushings in rocker arms for wear:

Rocker arm shaft diameter: 9.972-9.987 mm
(0.39259-0.39319")

Rocker arm bore diameter: 10.000-10.015 mm
(0.39370-0.39429")

Side play: (0.025-0.043 mm
(0.00098-0.0017"))

Make sure that the ends of the rocker arm shaft are not damaged and the edges of the groove are not worn.

5. Type 220: Be careful to assemble the rocker arms in the correct order (Fig. M 74/5)!

The snap ring must be properly seated in the groove and be secured against snapping out by means of the recess in the ring (5). See Fig. M 74/5a.

Note: Formerly a washer with lock ring was used (Fig. M 74/5b).

If an engine is still provided with the old-type lock ring shown in Fig. M 74/5b, exchange it for the new one shown in Fig. M 74/5a.

6. Insert fitting rings for rocker arm brackets into bores in cylinder head. The rings must be snugly seated.

Install rocker arm bracket assemblies and tighten to 3.75 mkg (27 ft.lb.). During installation the cams of the camshaft must not bear against the rocker arms.

7. Adjust valve play (see Operation No. M 26c).

8. Install all parts that have been removed and run engine, checking whether cylinder head cover leaks oil.

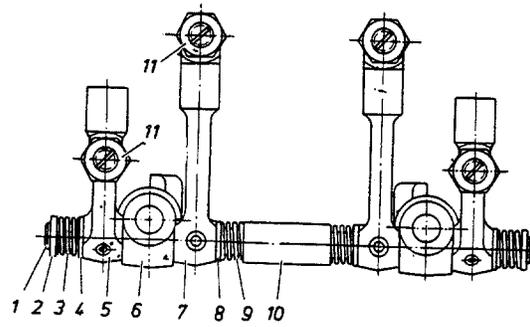


Fig. M 74/5

- | | |
|------------------------|-----------------------|
| 1 Rocker arm shaft | 7 Rocker arm (intake) |
| 2 Ring | 8 Washer |
| 3 Spring | 9 Spring |
| 4 Washer | 10 Sleeve |
| 5 Rocker arm (exhaust) | 11 Check nut |
| 6 Rocker arm bracket | |

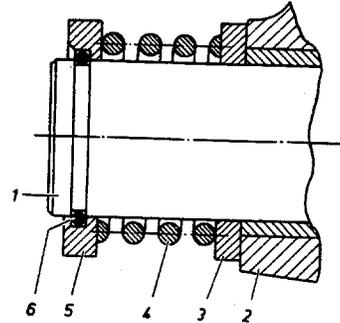


Fig. M 74/5a

- | | |
|--------------------|-------------|
| 1 Rocker arm shaft | 4 Spring |
| 2 Rocker arm | 5 Ring |
| 3 Washer | 6 Snap ring |

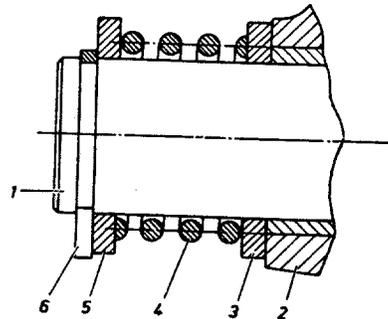


Fig. M 74/5b