Position of Valve Rotators

As there has often been confusion in the past regarding the position of the valve rotators, we would like to take this opportunity to point out once more that the valve rotators on the M 20 engines are generally mounted on the inlet valves. Only the HFO engines are additionally equipped with valve rotators on the exhaust valves.

The corresponding job cards which you will find attached to this Service Information have been provided with clear indications regarding the position of the valve rotators.

Should you have any further questions in this connection or need the job cards in another language, please contact your regional MaK agency.

44.00/12.99

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See also: *01.07.01.nn, 01.10.00.nn*

Spare parts list: *B1.05.01.2.2107*

Time requirement: *1 Pers./ 0,10 h*

Personnel qualification: *skilled engine hand*

Operating medium: *Heavy fuel and distillate fuel*

Inspection:

of the valve rotator	every	150 h

Attention:

Heavy fuel operation:	**=**	**4 valve rotators**	**inlet and exhaust valves**
Distillate fuel operation:	**=**	**2 valve rotators**	**inlet valves only**

Note:

Check the rotational speed of the valves versus engine speed immediately after starting a new engine or when a plant has been overhauled. Use this rotational speed for reference later.

Sequence of operations:

1. Check valve rotation.

2. The valve rotator works properly if a uniform and engine speed dependent rotation can be detected.

3. Lubricate the valve rotator with some drops of lubricating oil/gas oil mixture (mixture ratio 1:1) if a considerable deceleration of rotation, is detected in comparison to the new condition.

3.1 If, at nominal engine speed, the rotational speed goes down to **approx 1 rpm**, the valve rotator has to be changed.

Note:

Deceleration of the valve rotation can also be caused by hard motion of the valve stem in the valve guide. Remedy: Inject the gas oil/lubricating oil mixture drop by drop onto the valve stem.

Attention:

Do not apply too much lubricating oil/gas oil mixture. There is danger of lubricating oil dilution!

See also: *01.02.01.nn, 01.05.01.nn, 01.06.01.nn, 01.08.01.nn*

Spare parts list: *B1.05.01.2.2107*

Time requirement: *1 Pers./ 0,50 h*

Personnel qualification: *skilled engine hand*

Operating medium: *Distillate fuel*

Inspection:

of inlet and exhaust valves of one cylinder after Check contact reflections of the valves and coating.	6,000 h

Maintenance:

of all inlet and exhaust valves after	24,000 h

Tools:

Valve spring compressor	W1	2.9222-A

Note:

The overhaul intervals of the valves depend on the fuel grade used, the operating conditions of the plant and the quality of the reconditioned valves and seats. They are therefore different for each plant.

For this reason, the operator must fix the maintenance intervals according to the condition of valves inspected. With any removal of valves, check seat geometry and recut if necessary (**01.08.01.nn, 01.08.02.nn**.).

Sequence of operations: (Fig. 1)

1. Disassembly

1.1 Remove cylinder head (**01.06.01.nn**).

1.2 Remove the valve rocker (**01.02.01.nn**) and lift off valve bridge.

1.3 Place the valve spring compressor (W1) onto the spring plate (2).

1.4 Compress the valve springs (3) and remove the clamping cone halves (4). Expand valve springs (3) carefully.

Safety note:
Spring tension

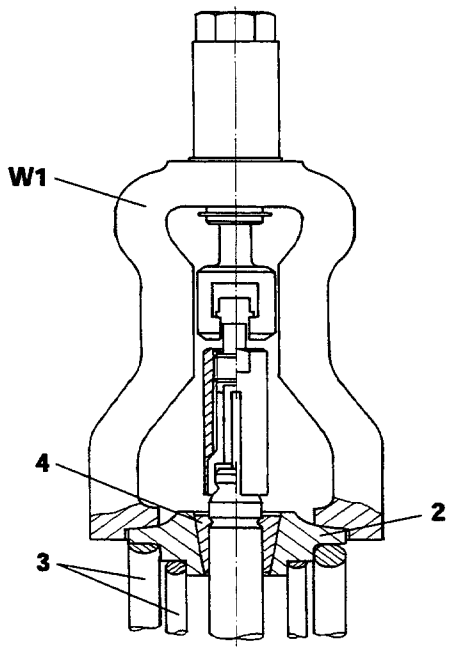

Fig. 1

1.5 Remove valve spring compressor (**Fig. 1**/W1), spring plate (2), internal and external valve springs (3) as well as valve turning device from the cylinder cover.

1.6 Extract valves from the cylinder head

Note:

Renew any valves which are heavily worn in the clamping area and any clamping cone halves which have large burrs. Remove projecting burrs before disassembling such valves. Maintenance of valve cone/valve seat (**01.08.01.nn/01.08.02.nn**).

2. Reassembly

2.1 Check valve guide clearance, **renew** the O-ring (**01.05.01.nn**).

2.2 Lubricate the valve stem well before fitting and fit the valve cone by **screwing** it in.

2.3 Assembly is carried out in reverse order to removal.

2.4 After inserting the clamping cone halves, slowly expand the valve springs and make sure that the clamping cone halves are in the correct position.