General Instructions

The operating instructions and, in particular, the maintenance plans require that the valve clearances to be checked and if necessary readjusted at both regular intervals and after work has been carried out on the valve train.

The following valve clearances should be observed:
- Intake valve \( \rightarrow 0.4 \pm 0.1 \text{ mm} \)
- Outlet valve \( \rightarrow 0.6 \pm 0.1 \text{ mm} \)
- The clearance between both intake and outlet valves, should be adjusted at the valve bridges to zero clearance.
- The locking nuts are to be tightened in accordance with the torque requirements described in the instructions in section 000 030.
- Note attached work card 111.01: Check and adjust valve clearance

Findings

When carrying out certain work on the engine, such as the removal of a cylinder head, it is first necessary to remove the valve train assembly, consisting of the rocker arm bracket with screws, as well as the valve bridges and push rods.
When reassembling the engine, care must be taken to ensure that all parts are in their correct position and are not wedged or twisted.

There is a particular risk if the camshaft of the corresponding cylinder has not been turned to a position outside the cam lifting area (i.e. base circle); that components such as the valve bridges can become wedged or twisted while the screws of the rocker arm bracket are tightened against the pretension of the valve spring. There have been several incidents when such misalignments have not been noticed and the valve clearance was incorrectly adjusted as a result. Therefore we recommend to open the camshaft cover for a visual check.

![Valve bridge in correct position](image1.png)  ![Valve bridge misaligned (exaggerated)](image2.png)

**Caution**

Incorrect or wrongly adjusted valve clearances can lead to damage of the valve train assembly and in extreme cases can even cause the relevant valves to break, resulting in serious damage to the engine, the relevant cylinder unit and turbocharger.

**Recommendation**

1. Before setting up the rocker arm bracket, turn the camshaft of the relevant cylinder until the ignition TDC position is reached. Open the camshaft cover to check that the cam follower is positioned within the base circle of the cam before adjustment (see operating sheet 111.01).

2. Install the valve bridges and set zero clearance (both sides, thrust piece and adjusting screw, must touch the valve).

3. Install the rocker arm bracket. Do not tighten the retaining screws against the pretension of the valve spring.

4. After assembly, check that all components, in particular the valve bridges, are positioned correctly.

5. Adjust the valve clearance at the intake and outlet valves.

6. Observe the torque of the screws and locking nuts.
Contact

Should you have any queries, our Technical Service will be pleased to be of assistance:

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Please forward this information to your technical operating personnel and remember to inform us of the current operating hours of your MAN Diesel & Turbo engines.