97/6
M 32

Cylinder head mounting with hydraulic tool

When mounting the cylinder head with new O-rings it sometimes happens that after putting down, it does not rest on the liner/flame ring but sticks on the O-rings of the starting air and cooling water passages.

Before applying the hydraulic device the cylinder head must be drawn up to the final support by manually tightening the hydraulic nuts crosswise.

WARNING: In no case press the cylinder head down with the hydraulic device until it touches the liner because this might lead to non-reparable damages at the hydraulic jacks, if the maximum admissible stroke without load is exceeded.

Additionally to the existing operating instructions about the maximum stroke of the hydraulic jacks, attention must be paid to this indication.

Enclosure: Altered sheets No. A5.05.01.11.01.xx of the operating instructions - **Please exchange!**

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M32

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See also:	*01.06.01.nn/03.04.01.nn/06.01.01.nn*
Spare parts list:	*B1.05.01.9.2107*
Time requirement:	*1 Pers./ 1 h*
Personnel qualification:	*skilled engine hand*
Operating medium:	*Heavy fuel and distillate fuel*

Tools:

See maintenance sheet 01.06.01.nn.

Auxiliary material:

High temperature thread paste "Dag S-5080" *
Molykote paste "G-Rapid Plus" *
Vaseline *

* or a product of equal standard

Attention:

The actual bending value must not fall below the minimum bending radius r = 120 mm of the high pressure hoses. Use only hydraulic oil.

Safety note:

Do not place any parts of the body over pressurized devices.

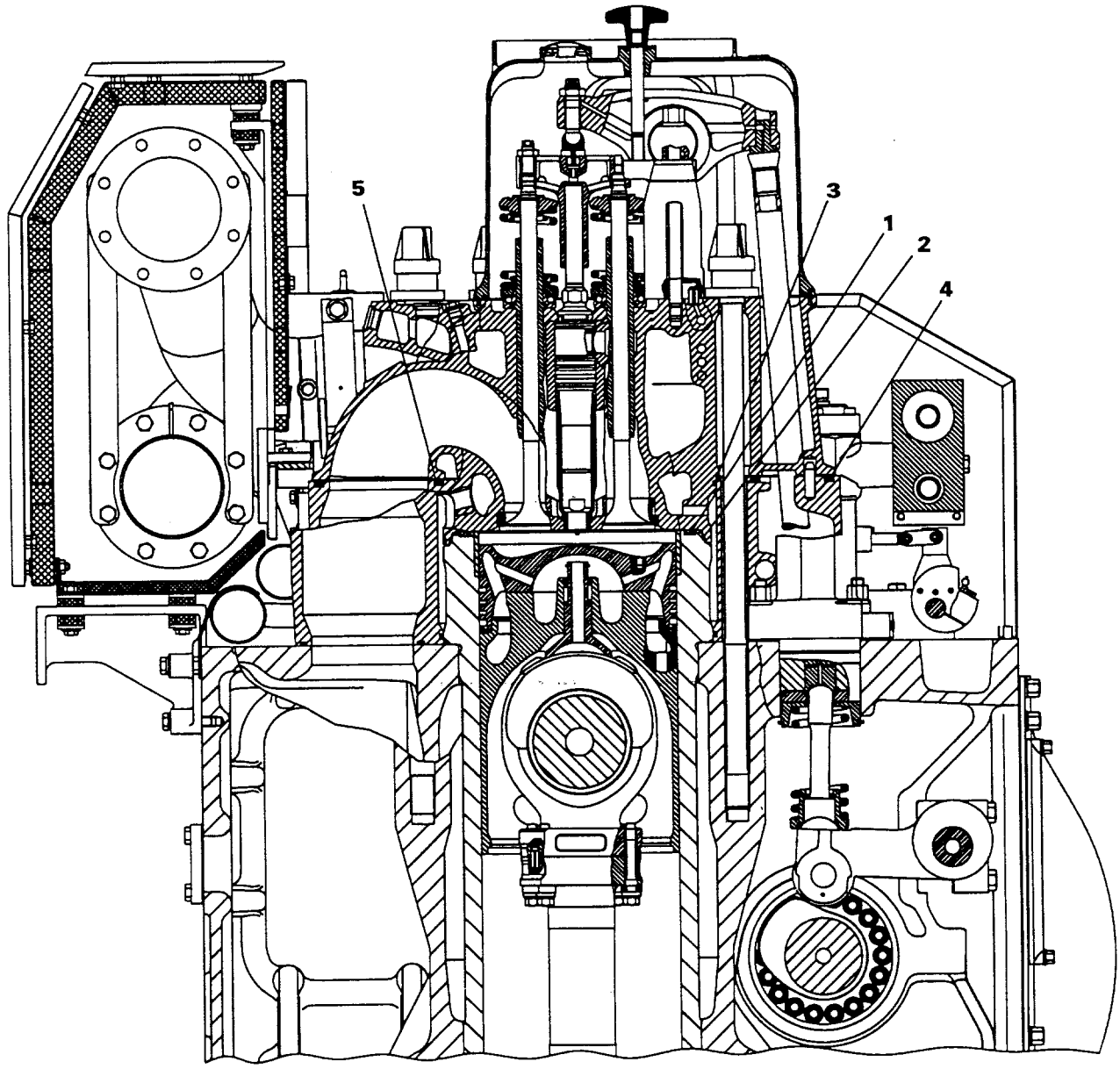
Sequence of operations:

1. Turn piston to ignition top dead center.

2. Clean sealing faces and contact surfaces of cylinder head and liner thoroughly and check for damage. Insert new sealing ring (**Fig. 1**/1) into cylinder liner collar.

   Check and clean sealing surface on exhaust pipeline (06.01.01.nn).

3. Renew the following O-rings. Upper O-ring on cylinder liner collar (2) on the cylinder head (3), at the pushrod sleeve (4), at the cooling water transfer at the starting air inlet, at the control air inlet and at the charge air inlet port (5).



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Note:

Insert all O-rings untwisted in the grooves with vaseline or green soap. Align transfers for cooling water and starting air vertically in cooling water distributor housing and check completeness.

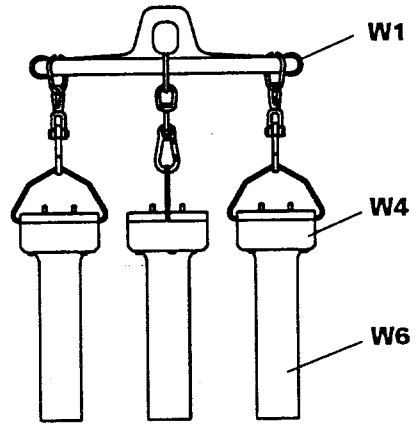
4. Carefully place cylinder head with cylinder head lifting device (W9) and lifting gear onto cooling water distributor housing and/or flame ring. Insert pushrods into cylinder head. Pay attention to correct positioning towards rocker arm.

5. Align cylinder head. Mount clamping ring for exhaust pipeline and hook in chain links (06.01.01.nn). Grease screw with high temperature thread paste "Dag S-5080" and tighten by hand (no seal).

Attention:

Before using the hydraulic equipment take care that the cylinder head is resting firmly on the cylinder liner. To do this, finger-tight fasten the round nuts (fig. 3/12) with pin (W8) in turn. Failure to do this can cause damage to the hydraulic equipment.

6. Tightening of the six cylinder head screws together with the hydraulic tightening device.



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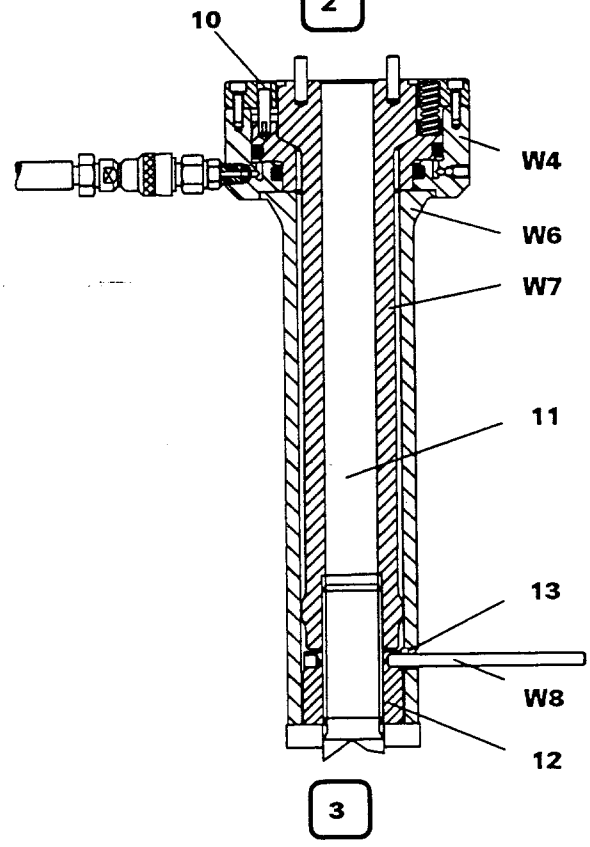
Attention:

The indicator max. stroke (Fig. 3/10) must not be projected above cover upper limit.

6.1 Place hydraulic pulling elements (**Fig. 2**/W4) connected with support rings (W6) with receiver ring (W1) over round nuts (**Fig. 3**/12). Pay attention to accessibility of the slits (13).

6.2 Screw threaded sleeve (W7) by hand onto cylinder head screw (11).



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6.3 Connect hydraulic pulling elements (**Fig. 4**/W4) and distributor (W5) to high pressure pump (W2) via high pressure hoses (W3).

6.4 Close valve (Z) on high pressure pump and extend all six cylinder head screws simultaneously and stepless with a hydraulic pressure of

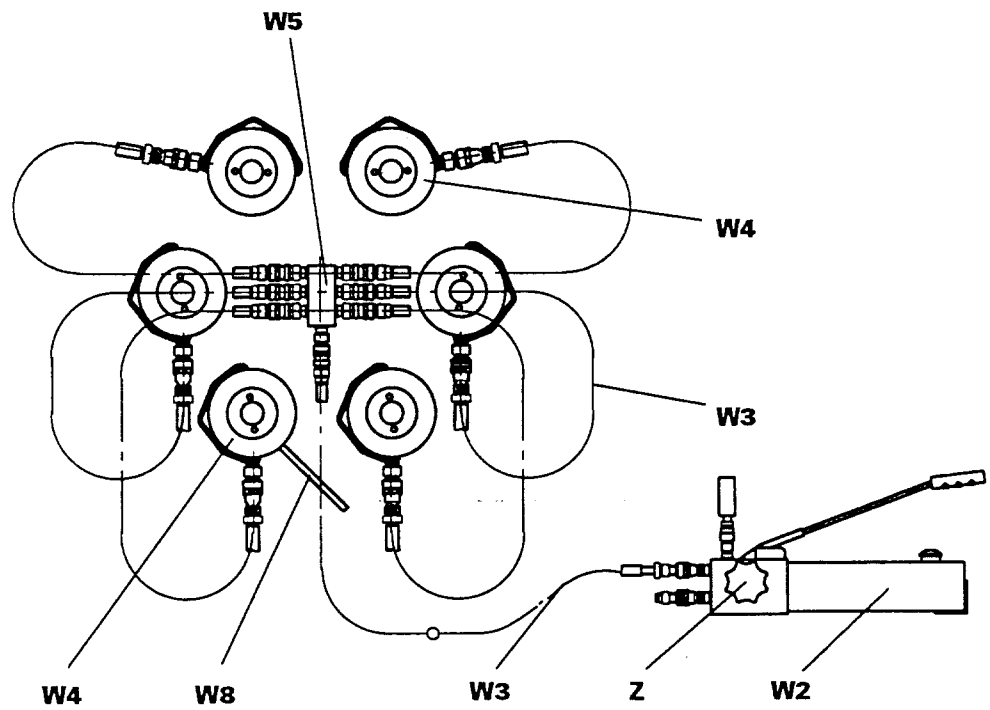
p = 850 bar.

Attention:
The pressure must remain constant when the pump is not used, otherwise pulling error.

6.5 Tighten round nuts (**Fig. 3**/12) with pin (W8). Pay attention to easy movement.

6.6 Check the firm positioning of the round nuts.

- reduce pressure by **50 bar.**
- it should no longer be possible to loosen the round nuts with the pin.



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6.7 Unload hydraulic pulling elements and dismantle.

7. Tighten clamping ring for exhaust pipeline. The position of the clamping ring is fixed at the lower part by a retaining screw (06.01.01.nn).

8. Mount the removed connecting flange of the media supply with new seals. Pay attention to the positioning of the tension pins.

9. Mount the removed pressure gauge pipelines and fill up with cooling water. Venting at cooling water return flow pipeline from turbolader.

10. Connect fuel pressure pipe with corresponding injection pump.

11. Adjust valve clearance (01.01.01.nn) and mount pump compartment panelling.

12. Check sealing of all connections after taking engine into service.