MAN Energy Solutions

Dear Sir or Madam

Regrettably, the work card enclosed with SL2023-743 to eliminate a potentially dangerous situation was incorrect.

We have received a report from the owner of an MAN B&W engine where the engine crew became aware of a crack in the piston crown at the bolted connection.

It is important to note that the risk of experiencing such a crack in the piston crown is very low.

In a situation where the contact face on the piston crown towards the piston rod breaks off, the piston rod will either fall sideways or drop, depending on the circumstances. This poses a serious potential risk to people and property, and may even result in bodily injuries and/or fatal casualties.

Additionally, in the event that such cracks develop, they can lead to an oil spill inside the engine. Such oil spills can be detected at the scavenge drain. If undetected for a long time, oil spills might, in rare cases, lead to substantial engine damage that potentially could result in a complete breakdown.

Questions regarding this Service Letter should be directed to our Operation department at: <u>Operation2S@man-es.com</u>

Yours faithfully

Susanne Kindt Vice President, Two-stroke Engineering

Per Pallisgaard Head of Product Safety DK

Action code: AT FIRST OPPORTUNITY

Updated procedure due to potential crack in piston crown Replaces SL2023-743

SL2023-747/PRP November 2023

Concerns

Owners and operators of MAN B&W two-stroke marine combustion engines.

Summary

To prevent personal injury and damage to the engine during piston overhaul, we have introduced an updated work procedure.

This Service Letter replaces SL2023-743 which had an incorrect work card enclosed.

Enclosure

Work Card No. <u>8865-4204-0001</u> Special piston lifting



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When dismantling the piston, we recommend checking for cracks in the bolted connection in the inner circular contact surface. If you find a crack, replace the piston crown.



Fig. 1: Dye check revealing cracks in piston crown (yellow arrows indicate the crack line)

MAN Energy Solutions has updated the work card for piston overhaul. The update introduces two textile rope slings to be used during lifting operations. In the unlikely event that a breakage should occur, the slings will prevent the piston rod from dropping in an uncontrolled manner.



Fig. 2: Use textile rope slings for lifting operations

It is important that this information is communicated to the relevant technical personnel. You must make sure that any inspection, maintenance, and repair is carried out by trained staff, who are familiar with the related operating and maintenance instructions, and work cards.

Please insert this Service Letter and Work Card No. 8865-4204-0001 in the instruction book.

Checking

Check that the engine is stopped and blocked according to the safety precautions given on the data sheet [D10201] or [2265-0400].

Open the acces hatch to the scavenge air reciever and remove the acces cover of the scavenge air box for the relevant cylinder.



8865-4204-0001C01

Turn the piston of the relevant cylinder to BDC position.

Acces the underside of the piston from scavenge air box.

Remove the locking wire from one of the screws connecting the piston rod and the piston crown. Loosen and remove the screw from the piston







8865-4204-0001C05



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Screw a reference screw into the piston.

. **NOTICE** The reference screw must only be screwed in BY HAND.The reference screw is a new piston crown screw or a screw removed from a spare piston, provided that the screw has not been in service



8865-4204-0001C04

Using a 0.05 mm feeler blade check the full circumference of the contact face between the reference screw and the piston rod flange.



8865-4204-0001C07

If the screw shows signs of deformation or hard contact, as checked in step 5, OR if a gap is found between the reference screw and the piston rod flange, then the piston MUST be removed from the cylinder as described in the dismantling section of this S-instruction.

Subsequently the piston crown MUST be scrapped.

If the screw shows no signs of deformation or hard contact, as checked in step 4, AND no gap is found between the reference screw and the piston rod flange, the piston can be removed from the engine and overhauled using the standard piston instruction [M90201] or [2265-0401].



Dismantling

Turn the relevant piston to TDC position.

Mount the piston lifting tool on the piston crown as described in the standard piston instruction [M90201] or [2265-0401].

INFO Multiple designs of the piston lifting tool are available, so graphics are for guidance only.

If a collar ring (piston lifting tool for low lifting height conditions) is available remove the piston from the engine as described in instruction [M91309].



Special Piston Lifting Work Card



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Special Running

The checking procedure MUST be carried out prior to special running of a cylinder unit.

If the screw shows signs of deformation or hard contact OR if a gap is found between the reference screw and the piston rod flange, as described in steps 4 and 6 of the checking section of this S-instruction, then special running with that cylinder cut out of action and the exhaust valve in fixed open position is NOT allowed.

▲ CAUTION Special running may NOT be carried out until the piston crown of that cylinder has been replaced.



Workflow diagram



