



Action code: AT FIRST OPPORTUNITY

Potential Crack in Piston Crown

- in inner circular contact flange

SL2016-626/SBJ
September 2016

Concerns

Owners and operators of MAN B&W two-stroke marine diesel engines.
Type: S70MC

Summary

To prevent personal injury and damage to the engine during piston overhaul (exchange of piston crown), we recommend evaluating the condition of the piston crown inner circular contact surface at the first given opportunity by following the procedure described in this service letter.

Dear Sirs

We have recently received information about a potentially dangerous situation from the owner of an S70MC engine. During a routine overhaul of a piston, with an exchange of piston crown, the engine crew experienced that when loosening the bolts on the piston crown, the inner circular contact surface broke off.

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

In the procedure enclosed, we describe a method to check if a piston has a deviation in the bolted connection in the inner circular contact surface. The method involves the use of a reference screw before starting the lifting procedure. We recommend evaluating the condition of the piston crown contact surface at the first given opportunity.

If you find a deviation when following the procedure described in work card 8865-4204-0001, which is enclosed, the complete piston must be lifted as described in the same work card and the piston crown subsequently replaced.

If no deviations are found when using the reference screw, you can use the standard lifting procedure as described in the instruction book (work card 2265-0401 or M90201).

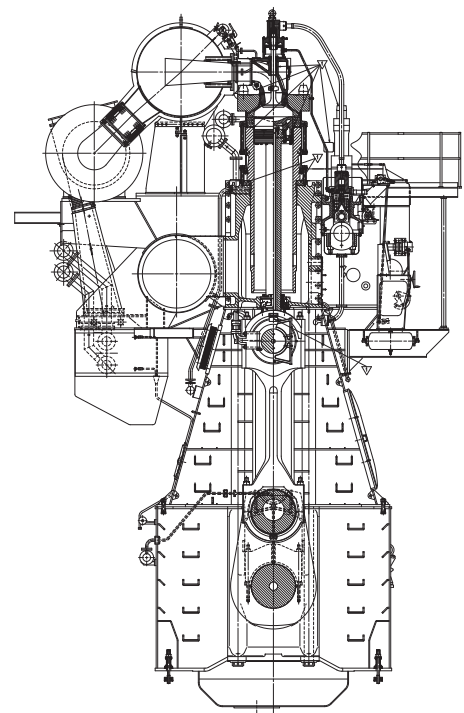
Please insert this service letter and work card 8865-4204-0001 in the instruction book. Insert the work card next to work card 2265-0401 or M90201.

Questions regarding this service letter should be directed to PrimeServ, at DT-CPH@mandieselturbo.com.

Yours faithfully

Mikael C Jensen
Vice President, Engineering

Stig B. Jakobsen
Senior Manager



Head office (& postal address)
MAN Diesel & Turbo
Tegholmegade 41
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 30
info-cph@mandieselturbo.com
www.mandieselturbo.com

PrimeServ
Tegholmegade 41
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 49
PrimeServ-cph@mandieselturbo.com

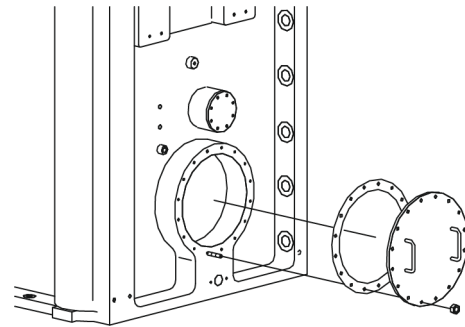
Production
Tegholmegade 35
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 17
manufacturing-dk@mandieselturbo.com

Forwarding & Receiving
Tegholmegade 35
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 16
shipping-cph@mandieselturbo.com

MAN Diesel & Turbo
Branch of MAN Diesel & Turbo SE,
Germany
CVR No.: 31611792
Head office: Tegholmegade 41
2450 Copenhagen SV, Denmark
German Reg.No.: HRB 22056
Amtsgericht Augsburg

Checking

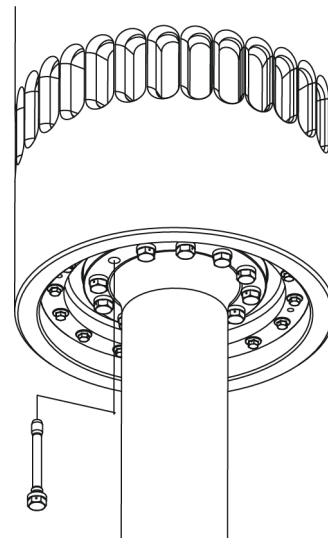
1. Check that the engine is stopped and blocked according to the safety precautions given on the data sheet D10201 or 2265-0400.
2. Open the acces hatch to the scavenge air reciever and remove the acces cover of the scavenge air box for the relevant cylinder.



8865-4204-0001C01

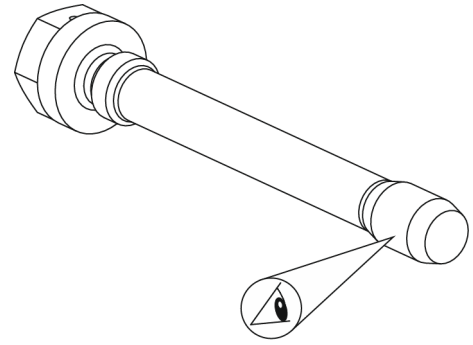
3. Turn the piston of the relevant cylinder to BDC position.
4. Acces the underside of the piston from scavenge air box.

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



8865-4204-0001C04

5. Check the thread end of the screw for signs of deformation or hard contact.



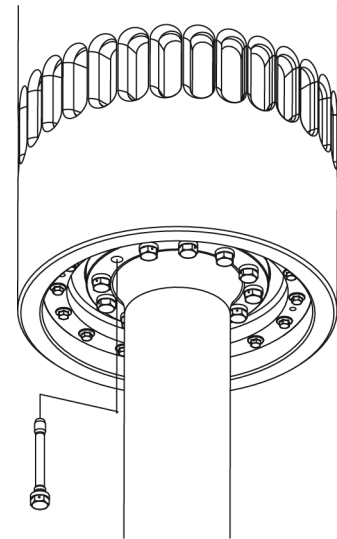
8865-4204-0001C05

6. Screw a reference screw into the piston.

NOTICE

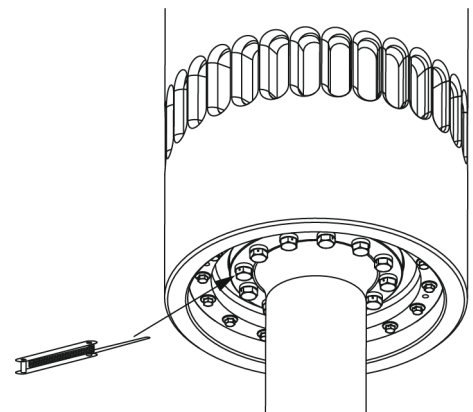
The reference screw must only be screwed in **BY HAND**.

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

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



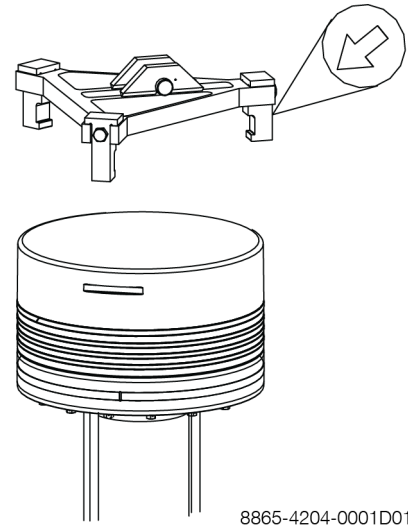
8865-4204-0001C07

8. 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.
9. 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.

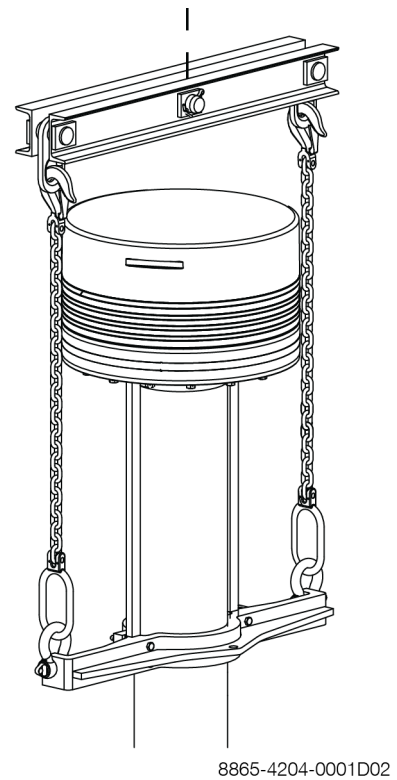
Dismantling

1. Turn the relevant piston to TDC position.

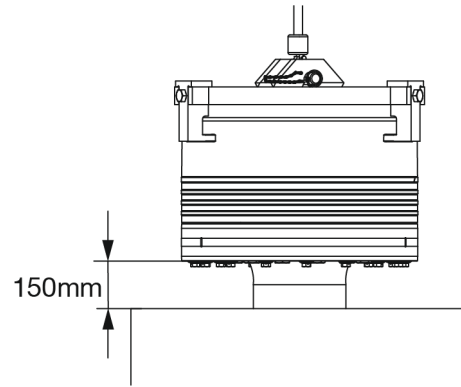
Mount the piston lifting tool on the piston crown as described in the standard piston instruction M90201 or 2265-0401.



2. 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.

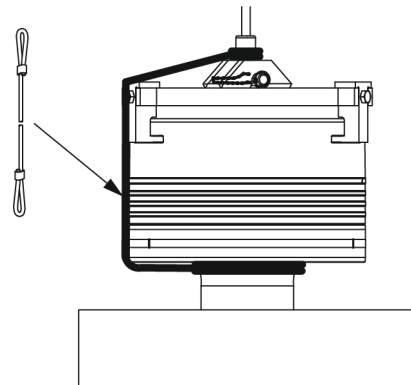


- 3. If a collar ring (piston lifting tool for low lifting height conditions) is not available remove the piston from the engine as described below :
- 4. Lift up the piston until there is a gap of approx. 150 mm between the underside of the piston skirt and the top of the cylinder liner.



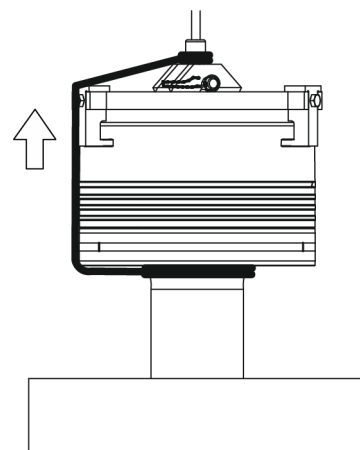
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- 5. Mount one end of a wire rope around the upper end of the piston rod.
- Mount the other end of the wire rope as tight and securely as possible around the hook or the block of the engine room crane



8865-4204-0001D05

- 6. Lift away the piston from the engine as described in the standard piston instruction M90201 or 2265-0401.



8865-4204-0001D06

Special Piston Lifting

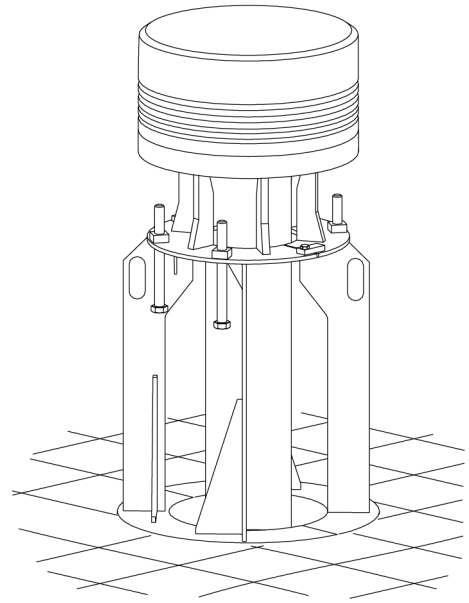
Work Card
8865-4204-0001

7.

The piston MUST be mounted in the support iron during dismantling of the piston crown and mounting of the new piston crown.

 **CAUTION**

A damaged piston crown (as described in the checking section of this S-instruction) can NOT be re-used or reconditioned.



2265-0401-0001C07

Special Running

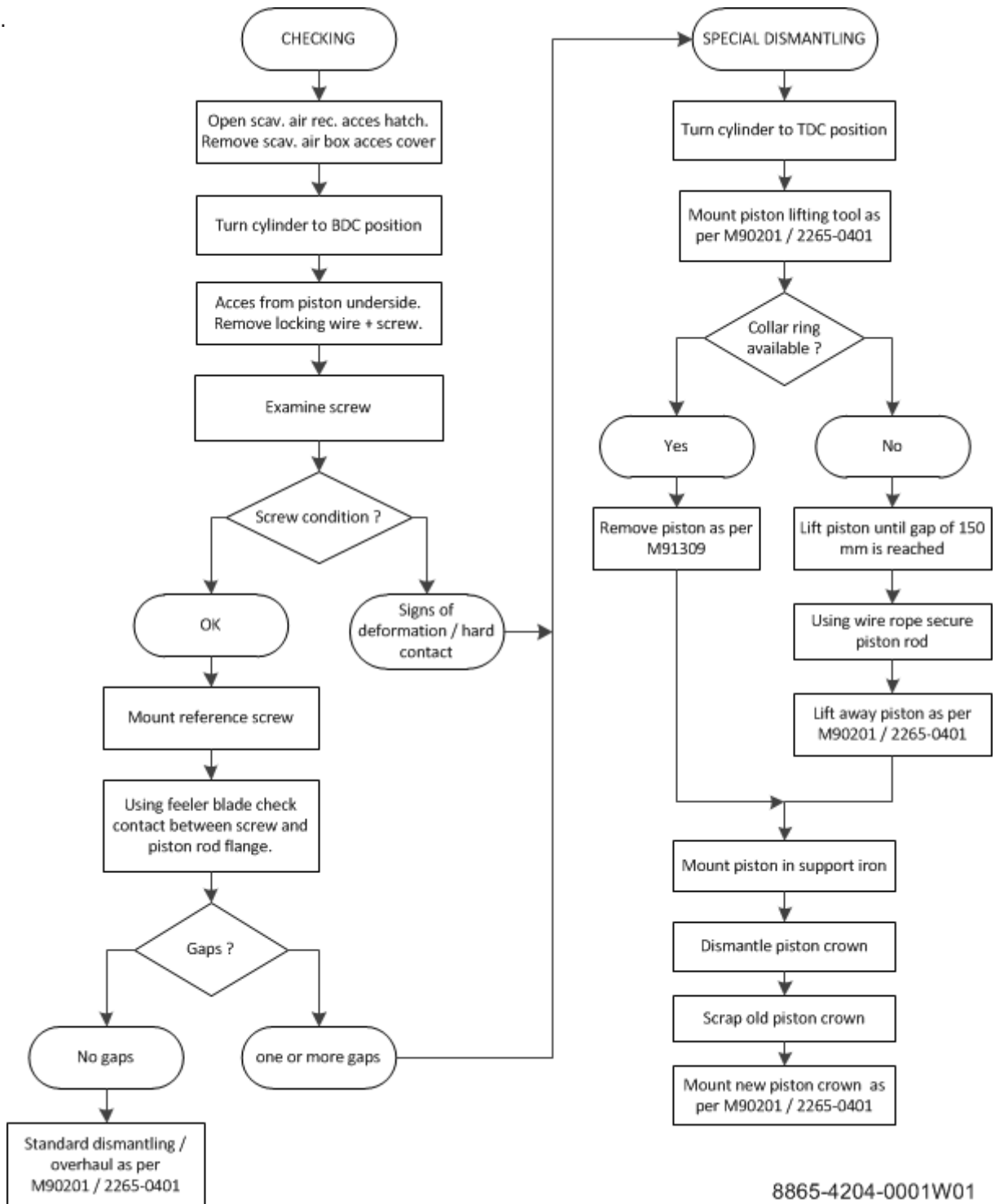
1. The checking procedure **MUST** be carried out prior to special running of a cylinder unit.
2. If the screw shows signs of deformation or hard contact **OR** if a gap is found between the reference screw and the piston rod flange, as described in steps 4 and 6 of the checking section of this S-instruction,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



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

Workflow diagram

1.



8865-4204-0001W01