Dear Sir or Madam

We have recently updated the piston skirt design of the old type with bronze bands to the well-proven molybdenum (Mo) coated design. For many years, the Mo-coated barrel shape design has been the standard on engines from 60 cm bore and up and it is therefore well proven in service. The update is a step in our ambition to reduce the use of lead (Pb) in our engines. A further description of the piston skirts is given in the attached two pages from work card 2265-0401-0034.

This update also includes engines in service, and for that reason new piston skirts might differ in design from the existing ones, especially on smaller and older engines.

Complete piston skirts and bronze bands already produced for retrofit (already on board vessels or in warehouses) can safely be used. But as new piston skirts are entering the market, some vessels will have a mixture of the old bronze band skirt and the new Mo-coated skirt. All interfaces are kept the same. Existing piston skirts can be used, and an engine can have a mixture of both the new and the old design without any influence on the performance.

Please communicate this information to the technical personnel and make sure that all relevant personnel know about the update.

Insert this Service Letter and the work card 2265-0401-0034 in the instruction book.

Questions regarding this Service Letter should be directed to our Operation department at: <u>operation2s@man-es.com</u>

Yours faithfully

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Susanne Kindt Vice President Engineering

Encl.: Pages 5 and 6 from work card 2265-0401-0034

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Action code: WHEN CONVENIENT

Piston skirt design update

Bronze band piston skirts updated to Mo-based piston skirt with barrel shape

SL2023-746/HRA November 2023

Concerns

Owners and operators of MAN B&W two-stroke marine diesel engines. Type: MC/MC-C and ME/ME-C

Summary

To meet modern requirements to omit the use of lead (Pb) in our engines, piston skirts with a bronze band design are updated to Mo-based piston skirts with a barrel shape.





Non-coated with chamfers and bronze band(s)

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MAN Energy Solutions

Checking

9. Piston Skirt

The Piston skirt may be either *Molybdenum* coated and barrel shaped, or non-coated with 1 or 2 bronze bands.

See the sketch showing the running surface of the skirts (details exaggerated for visibility).

For both types of piston skirts, the skirt must always be replaced if damaged by for example, Mo-coating peeling off or by active seizures.







Non-coated with chamfers and bronze band(s) 2265-0401-0034C08

10. Molybdenum coated barrel At both the top and bottom of the shape skirt skirt running surface a 2–3 mm

skirt running surface a 2–3 mm rounding will be present. Between the roundings, a barrel shape (with cylinder diameter dependent radius) will be present. The roundings and barrel shape surface are covered by a wear layer of molybdenum.

NOTICE If the Mo-coating is worn through to the base material, the cast iron will become visible by a locally more shiny appearance and the coating thickness measurement will thus locally result in "0" µm of remaining Mo coating.

The level of wear on the barrel shape geometry can be seen by the height of the skirt center contact zone. If the contact has increased to the full height of the skirt, the barrel shape is worn out.



Light barrel shape skirt wear



Moderate barrel shape skirt wear

11. Piston skirt replacement cri- If either the skirt barrel shape is worn away **or** the Mo-coating is worn through to the cast iron base material in any position, the skirt should be replaced when convenient.

If both the barrel shape is worn away **and** the Mo-coating is worn through in any position, the skirt must be replaced as soon as possible.



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- Checking
- 12. Non-coated bronze band skirt face

In the middle of the skirt running surface 1 or 2 bronze bands are mounted. At the top and bottom of the skirt running surface a chamfer of 7-25 mm height is cut (depending on engine bore size).

The following criteria apply regarding replacement of the skirt:

- Wear of the bronze band(s) is natural and does not require replacement.

- When the chamfer is worn flush with the skirt running surface in any position, that is the chamfer has locally disappeared, the skirt is worn out and must be replaced as soon as possible.



As new, perfect condition



Bronze bands worn flush, but chamfers in fine condition.

2265-0401-0034C12

Piston Work Card

