Piston variations

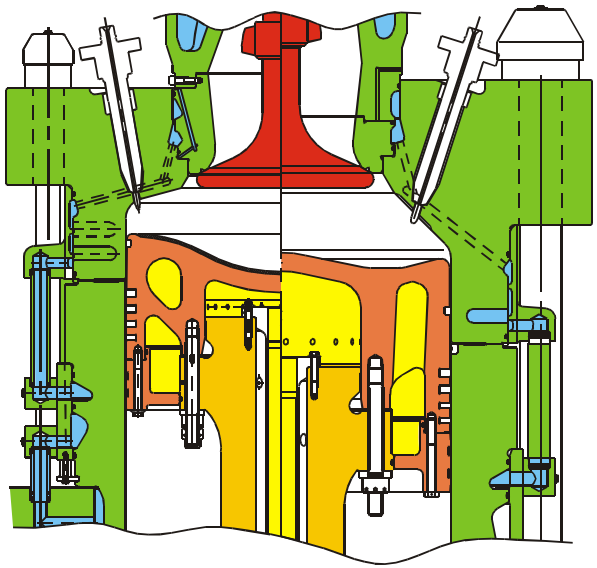
http://MarEngine.com

- Oros type
- Conventional type
- Bore cooled
- Standard cooled
- High topland
- Low topland
- Inconel on top
- Without Inconel on top
- Fully cast
- Cast/welded
- Forged/welded
- Configuration of ring grooves:
  - Four small
  - One big, three small
  - Two small, two big

Ordering non-genuine components increases the risk of receiving incorrect supplies

For genuine, fully guaranteed parts, contact : Man B&W Copenhagen, or the engine builder

Previous **High topland**



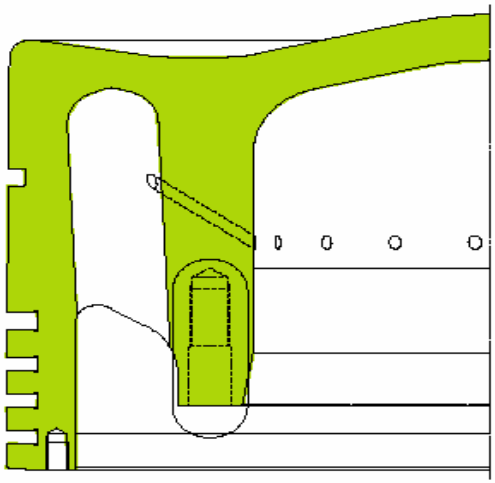
Piston ring groove development

http://MarEngine.com

Present standard:

1. Ring groove high.

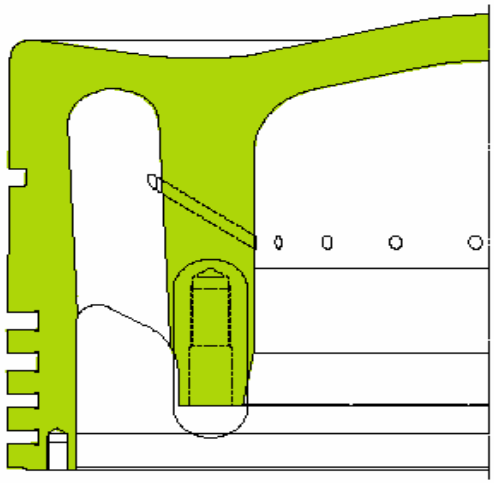
2.3.4 Ring grooves low.



Second standard:

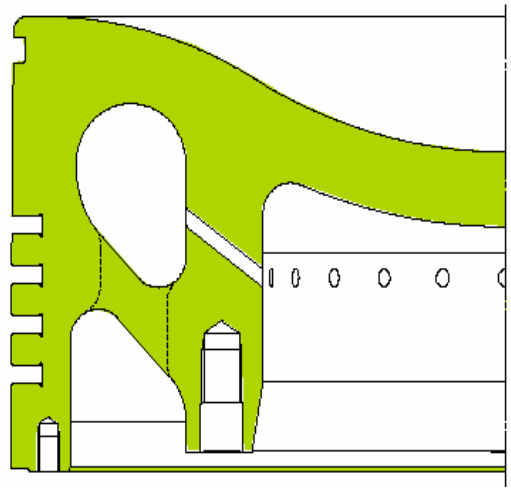
1.2. Ring grooves high.

3.4. Ring grooves low.



First standard:

1.2.3.4. Ring grooves low.



Piston crown
98 MC/MC-C

http://MarEngine.com

Original design

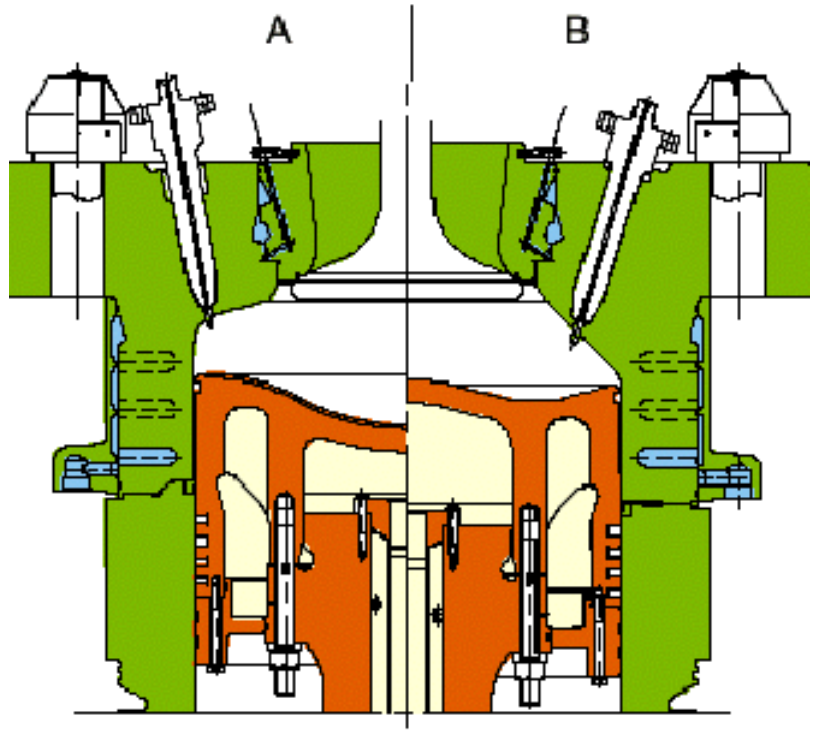
Expected lifetime 80,000 hours.

MBD-C produced crown

Always made according to the latest design (Oros).

Oros type is a multi-bore cooled piston with high topland giving improved combustion and approx 100 degrees C lower temperature on the top.

Produced with increased chrome layer 0.5mm on bottom surface of ring grooves (SL 02-404).



http://MarEngine.com

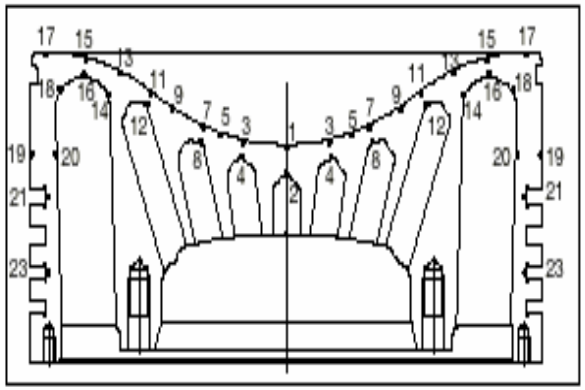
Piston crown
98 MC/MC-C

http://MarEngine.com

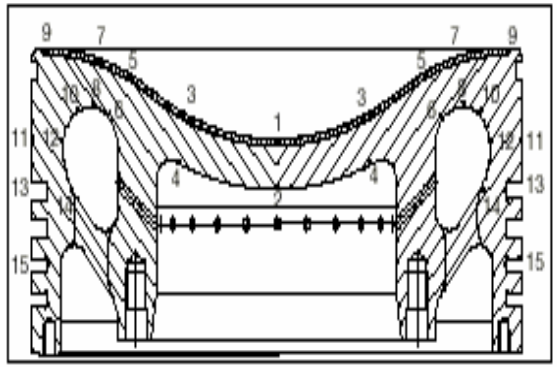
MBD-C supply

- Ensures the correct topland.
- Ensures the correct ring configuration.
- Ensures the correct ring material for the original cylinder liner.

Multi Bore Cooled piston



Standard piston



100% Load Piston crown temparture

Piston crown
90MC/MC-C , 80MC/MC-C

http://MarEngine.com

Original design

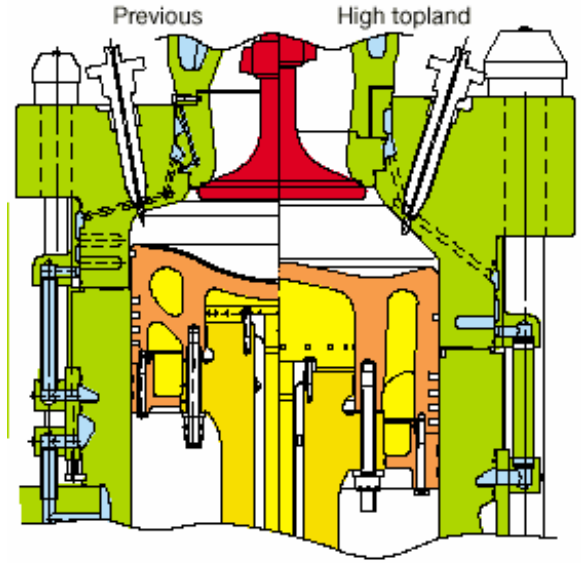
Expected life time: 90MC/MC-C 80,000 hours

Expected life time: 80MC/MC-C 70,000 hours.

MBD-C produced piston

Always produced according to latest design (Oros, Conventionel).

Oros type is multi-bored cooled piston with high topland given an improved combustion and approx 100 degrees C lower temperature on the top.



Piston crown
90MC/MC-C, 80MC/MC-C

http://MarEngine.com

MBD-C produced piston

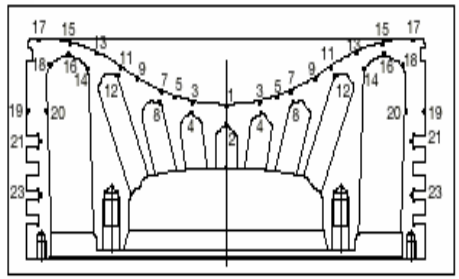
Conventionel type with high and low topland

and 8 mm inconell on the top, multi-bore or standard cooled.

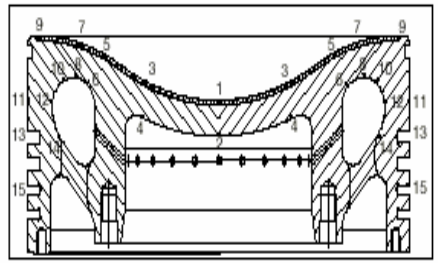
Produced with increased crom layer 0,5 mm

on the bottom of the ring grooves (SL 02.404).

Multi Bore Cooled Piston



Standard piston



100 % Load Piston crown temperature

MBD-C supply

- Ensure the correct topland.
- Ensure the correct ring configuration.
- Ensure the correct ring material for the original cylinder liner.

Piston crown, 70MC/MC-C

http://MarEngine.com

Original design

Expected lifetime 70,000 hours.

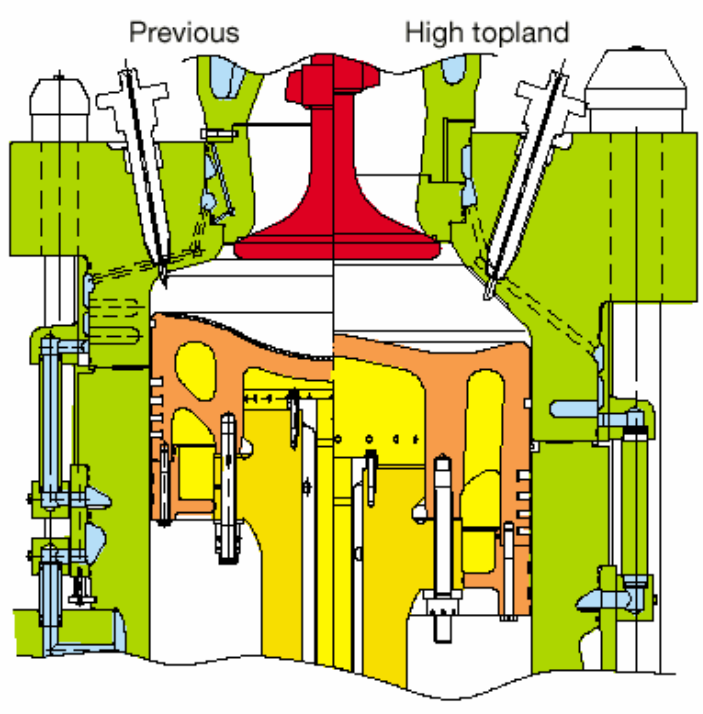
MBD-C produced piston

Always made according to the latest design (Oros, conventionel).

Oros type is a multi-bored cooled piston with high topland giving improved combustion and approx 100 degrees C lower temperature on the top.

Conventional type with high and low topland with and without 8 mm inconel on the top, depending on the type of engine and bore-cooled/standard cooled.

Produced with increased chrome layer 0.5mm on bottom surface of ring grooves (SL02-404).

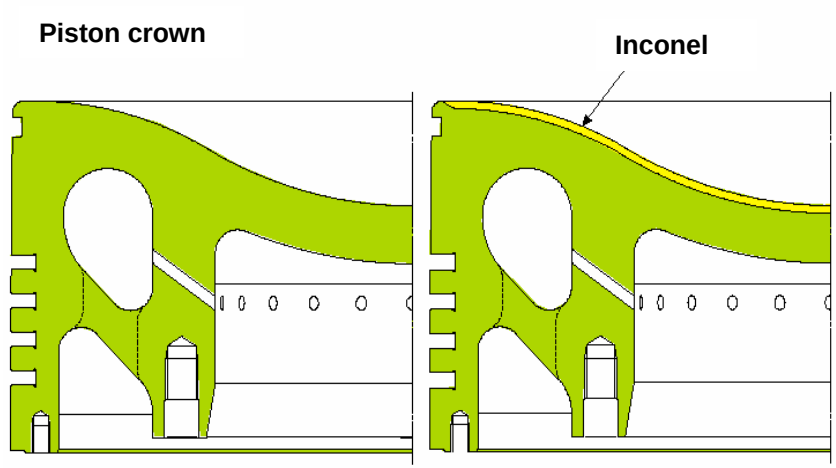


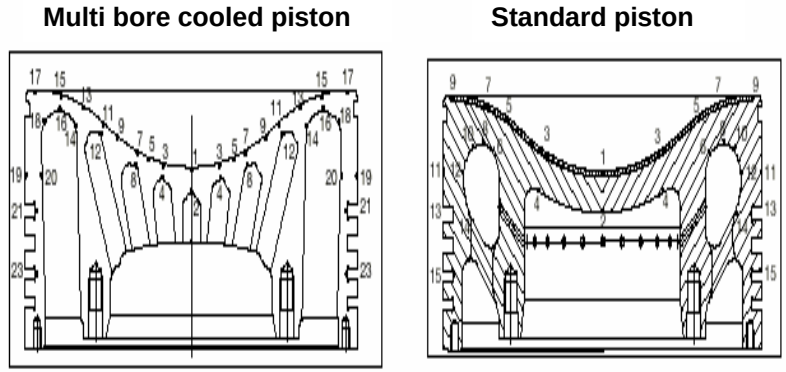
Piston crown, 70MC/MC-C

http://MarEngine.com

MBD-C supply

- Ensures the correct topland.
- Ensures the correct top surface with or without Inconell layer.
- Ensures the correct ring configuration.
- Ensures the correct ring material for the original cylinder liner.





100% Load Piston crown temperature

http://MarEngine.com

Piston crown
60 MC/MC-C, 50 MC/MC-C

http://MarEngine.com

Original design

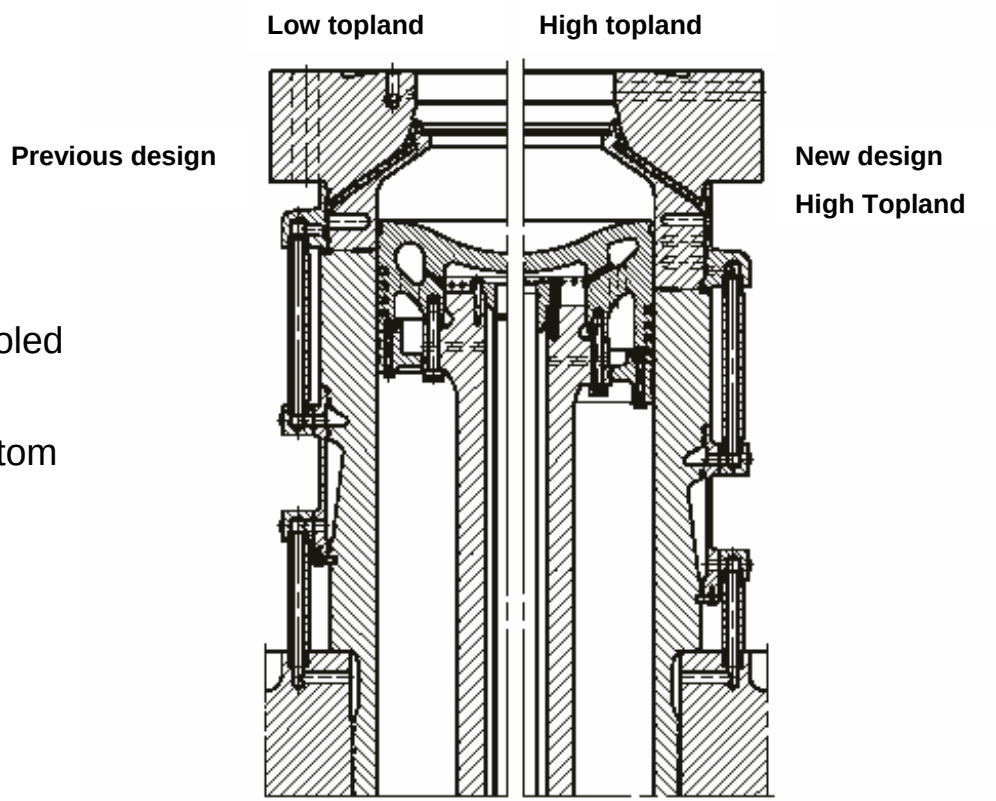
Expected lifetime 60,000 hours.

MBD-C produced piston

Always made according to latest design.

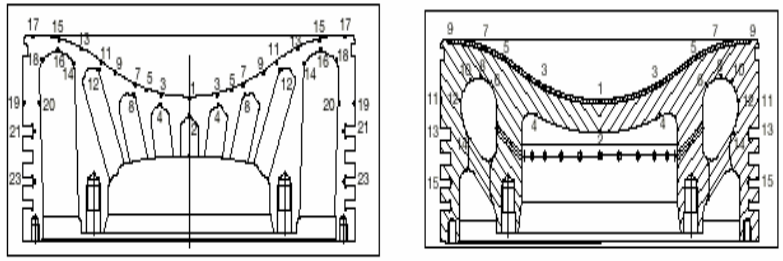
Produced with high and low topland; bore-cooled and standard cooled.

Produced with increased chrome layer at bottom of ring groove 0.5 mm (SL02-404).



Piston crown
60 MC/MC-C, 50 MC/MC-C

http://MarEngine.com



100% Load Piston crown temperature

MBD-C supply

- Ensures the correct topland.
- Ensures the correct ring configuration.
- Ensures the correct ring material for the correct cylinder liner.

Piston crown
46MC/MC-C, 42MC, 35MC

http://MarEngine.com

Original design

Expected lifetime 50,000 hours.

MBD-C produced piston

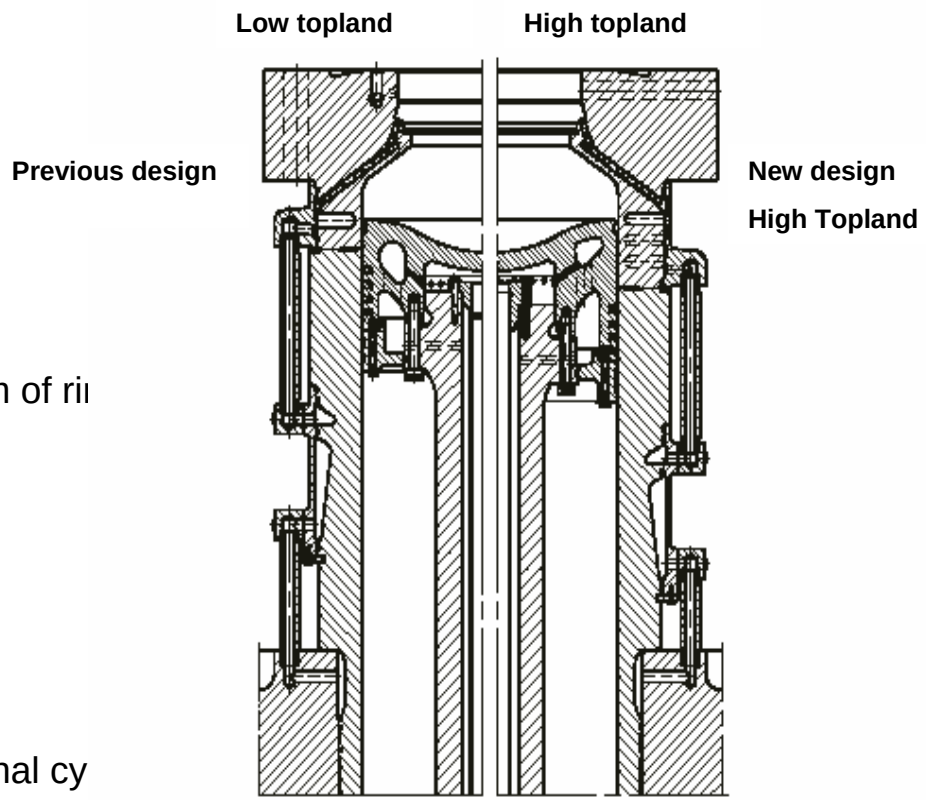
Always made according to latest design.

Produced with high and low topland.

Produced with increased chrome layer at bottom of ri
grooves 0.5mm (SL 02-404).

MBD-C supply

- Ensures the correct topland.
- Ensures the correct ring configuration.
- Ensures the correct ring material for the original cy
  liner.



Piston crown 26MC

http://MarEngine.com

Original design

Expected lifetime 40,000 hours.

MBD-C produced piston

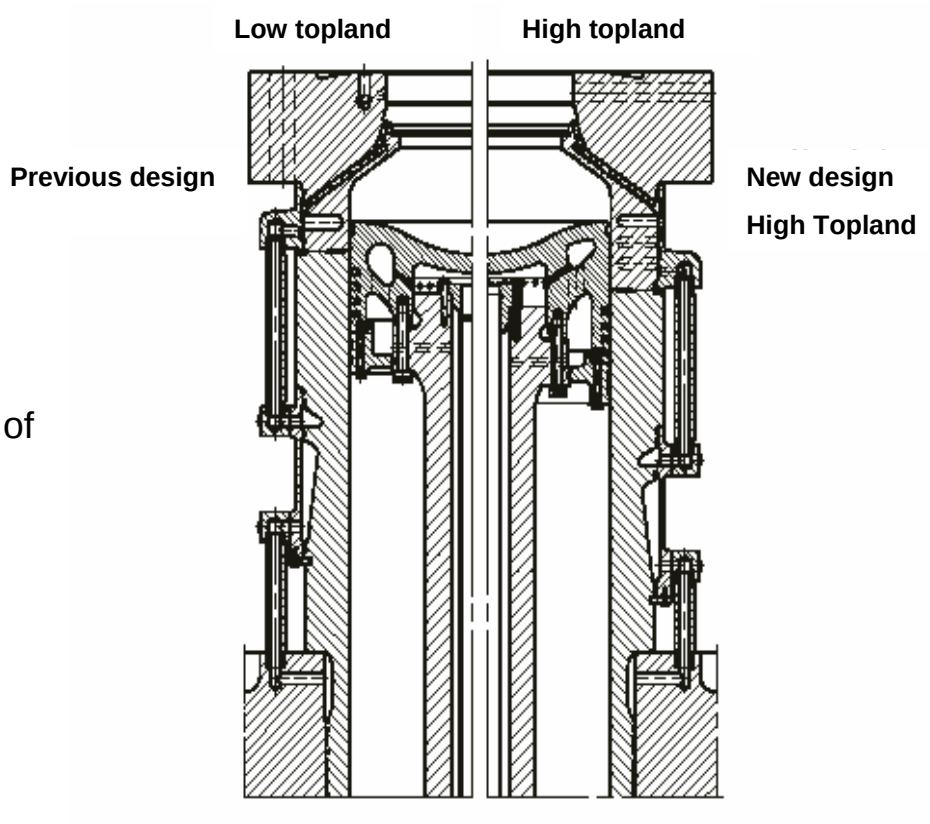
Always made according to latest design.

Produced with high and low topland.

Produced with increased chrome layer at bottom of ring grooves 0.5mm (SL 02-404).

MBD-C supply

- Ensures the correct topland.
- Ensures the correct configuration.
- Ensures the correct material for the original cylinder liner.



http://MarEngine.com

MAN B&W Diesel A/S

Service Letter

SL02-404/JNM
June 2002

Increase of Chrome Layer Thickness
Action Code: WHEN CONVENIENT

Dear Sirs

This Service Letter is only valid for engines which have pistons on which the uppermost or the two uppermost ring grooves are higher than the rest.

Progress in chrome plating technology has made it possible to increase the plating thickness in the ring grooves of the pistons, without sacrificing the hardness or incurring too high extra costs.

The useful life of a piston crown depends, in many cases, on the wear in the ring grooves. Therefore, we have taken advantage of the improved plating technology to increase the plating thickness in the grooves of the piston crowns from 0.3 mm to 0.5 mm on engine types utilising “high” piston rings.

Since, the wear limit of the ring grooves corresponds to the plating thickness, the acceptable wear will be increased from 0.3 mm to 0.5 mm.

Our authorised repair shops have been instructed to increase the plating thickness to 0.5 mm in the grooves when reconditioning piston crowns of the types concerned.

We wish to draw your attention to the fact that piston crowns which were originally produced with a 0.3 mm plating will be returned from reconditioning with a 0.5 mm plating; thus the wear limit of the reconditioned units is increased to 0.5 mm. The clearance in the ring groove will remain unchanged.

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General comments on reconditioning

We find it is practical to divide the reconditioning of piston crowns into the following two types of jobs:

1. “Small jobs” affecting only the chrome plating in the ring grooves.

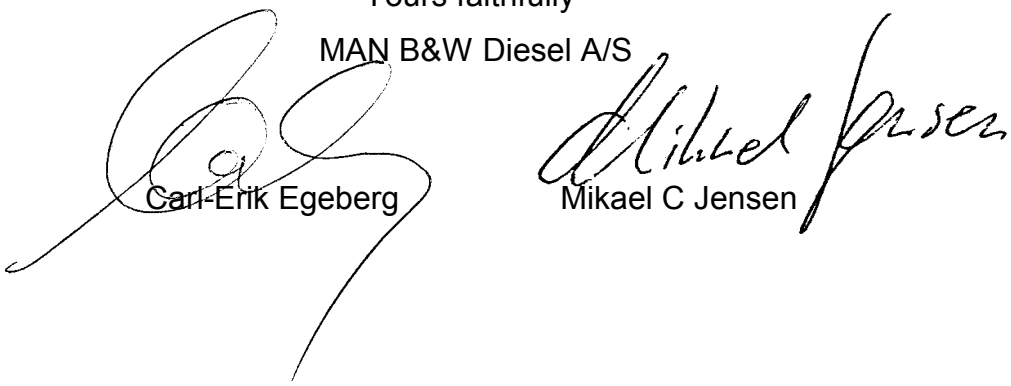
2. “Big jobs” where the base metal of the piston crown must be rebuilt by welding before chrome plating.

It goes without saying that the expenses for reconditioning a piston crown increase substantially if the ring groove is worn through the chrome plating. In that case the groove will most frequently have to be rebuilt by welding, making full reconditioning necessary.

Questions or comments regarding this SL should be directed to our Dept. 2300.

Yours faithfully

MAN B&W Diesel A/S



Carl-Erik Egeberg Mikael C Jensen

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