



Service Letter

SL07-488/PMN
November 2007

Work Inside Cylinder Liners

Action Code: IMMEDIATELY

Dear Sirs

We regret very much having to inform you about an accident that occurred recently on a vessel in Bremerhaven.

During modification work inside the cylinder liner on a K90MC engine, only the exhaust valve had been removed to allow access into the cylinder liner. One fitter was inside the liner when cooling water was admitted by accident, see Encl. 1.

The cooling water entered the combustion chamber from the bores in the cylinder cover, where cooling water passes from the cylinder cover to the exhaust valve. Further to normal precautions practices and safety procedures, we therefore stress the following:

Risks

A number of risks must be taken into account when a person enters a restricted working space, such as the combustion chamber:

- *Exhaustion/fatigue*
Due to the high temperature of the cylinder liner surface, the piston crown and the cylinder cover, and combined with restricted air circulation, the air temperature can reach 50 to 60 degrees Celsius.

The exhaustion of the human body in this environment can cause a collapse, and it is difficult to transport a collapsed person out through the small opening in the top.



- *Cooling water*
Opening the cooling water inlet cock to the cylinder unit will cause approximately 80 degrees Celsius hot cooling water to enter, with severe consequences for a person working inside.
- *Fire*
In case of an engine room fire, the person inside the cylinder liner cannot escape without help from outside.

Precautions to be taken

For any work, inspection or cleaning inside a cylinder liner, the cylinder cover **must** always be removed before entering. A cylinder liner should never be entered by only removing the exhaust valve and gain access by either standing on the piston and turning, or by climbing down a ladder through the bore in the cylinder cover.

A safety assistant **must**, at all times, be present outside the cylinder liner and be in constant contact with the person working inside the cylinder liner.

A ladder **must** be present in order for the person inside the liner to be able to escape even in the event of a power failure.

Basic safety guidelines

- During work in an engine room it is essential to follow basic safety guidelines as outlined in our Operation manual, section 701-01 Safety Precautions.
- Before entering restricted spaces such as cylinder liners, scavenge air receivers, crankcases, etc., take the following safety precautions:
 - Plan for escape exit by opening all covers
 - Prepare ladders and/or wear safety harness
 - Always place a safety assistant outside who is in contact with the person inside the restricted space.

Be aware that the noisy environment in an engine room makes communication very difficult and can lead to misunderstandings.

Questions or comments regarding this SL should be directed to our Dept. AE-CPH.

Yours faithfully
MAN Diesel A/S

A handwritten signature in blue ink, appearing to read "Otto Winkel".

Otto Winkel

A handwritten signature in blue ink, appearing to read "Peter Michael Nielsen".

Peter Michael Nielsen

Encl.

**Person working inside a cylinder liner
with cylinder cover mounted**

