

Action code: **WHEN CONVENIENT**

**Water Mist Catcher**

New improved design

SL11-542/JAP

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**Concerns**

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

**Summary**

Improved engine reliability and stable cylinder condition can be achieved by exchanging existing water mist catchers with the new version from 2009.

Dear Sirs

MAN B&W engines are equipped with a water mist catcher (WMC) to remove the free water from the scavenge air. This is necessary to prevent the water from carrying over into the combustion chamber, which would have a negative impact on the cylinder condition.

The efficiency of the WMC and the drain system is extremely important to ensure a reliable cylinder condition. Failure to remove the water in the scavenge air may damage the oil film between the piston rings and the cylinder liner and, in the worst case, lead to scuffing.

A number of incidents have occurred where loose or broken bolts on the WMC have led to cylinder liner scuffing. Therefore, we recommend that operators check the condition of the WMC carefully at each port inspection and, furthermore, remove the covers for thorough checking every 3,500 running hours in order to assure that the WMCs are intact and secured properly.

A new WMC design for all engine types was introduced in 2009. The new design features many improvements to ensure that the above-mentioned incidents are avoided. The new design incorporates an improved WMC efficiency, a stronger frame and a new feature to secure sealing against the frame by means of a soft gasket.

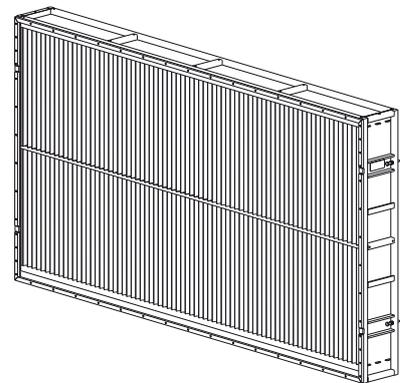
Yours faithfully

  
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**Contents**

WMC malfunction	page 2
New design	page 3
Ordering new water mist catchers	page 3

**WMC malfunction**

In a number of cases, WMCs have been found to be loose with either broken bolts or frames.

On many engines, the WMC is secured against the air flow by means of bolts holding the WMC element against the frame in the cooler casing on the engine, see Fig. 3. If the bolts break, the WMC is pushed away from the frame, and air will be able to bypass the WMC.

This will often lead to an unfortunate water carry over, especially in humid areas, which may cause high amounts of water to enter the cylinders. This has an adverse effect on

the cylinder lubrication and, in the worst case, may lead to total oil film breakdown and subsequent scuffing between the cylinder liner and piston rings.

The WMC can be checked easily from the scavenge air receiver by lifting the non-return valve flap lids and visually checking that there is a gap between the WMC and the frame box, see Fig. 1.

Viewing from inside the scavenge space, the crew should look for a small gap between the painted area and the stainless steel WMC. In most cases, the bolts can also be viewed from above to confirm that they are in place.

This inspection may cause doubt as to whether the WMC is in fact secured properly. In that case, we recommend removing the covers on the side of the cooler casing to check the WMC. It is important to make sure that the WMC is pressed firmly against the cooler casing and sealing.

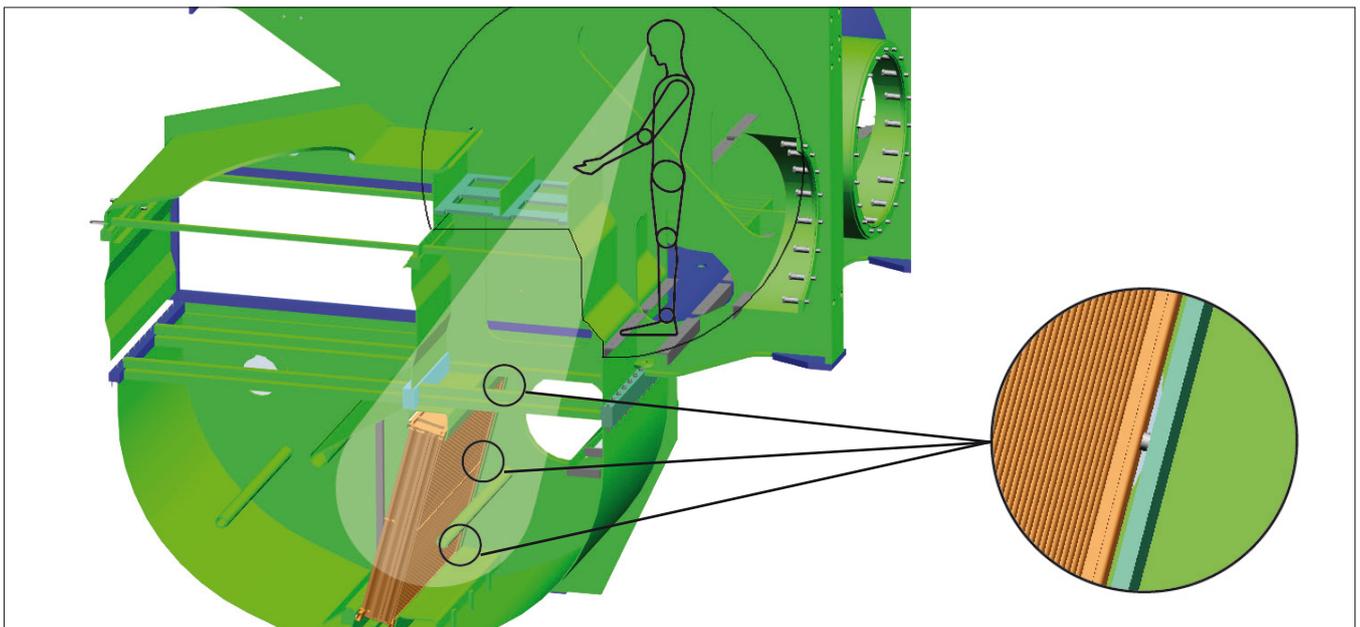


Fig. 1: Inspection from the scavenge air space. The water mist catcher is secured in the frame; note the bolts holding the WMC in place

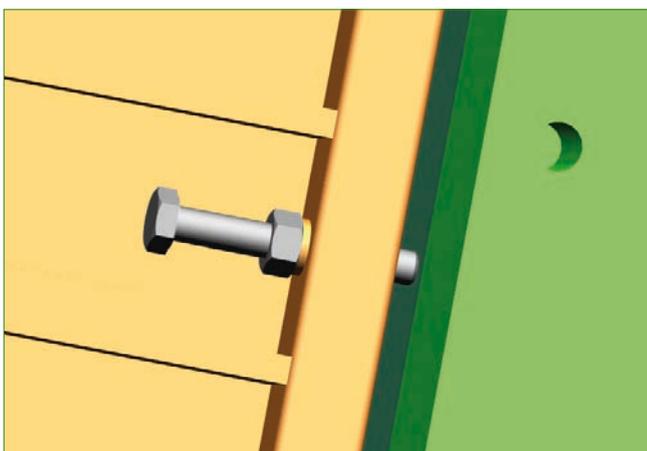


Fig. 2: Holding bolt pressing the WMC away from the frame; note the gap

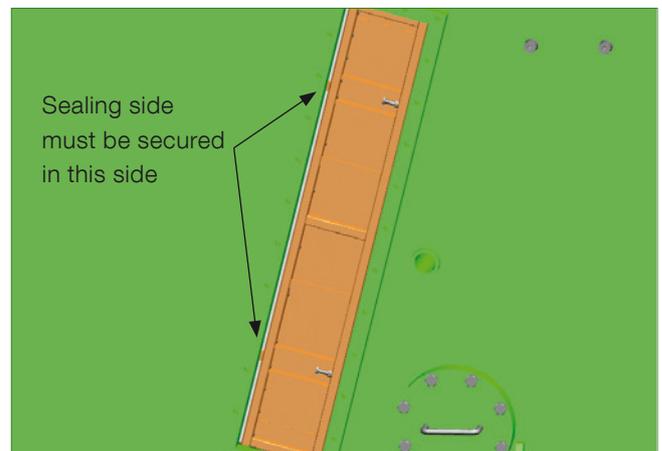


Fig. 3: The WMC viewed with the side cover removed

If the visual inspection from above does not lead to 100% confirmation, we advise to remove the side covers for better inspection, see Fig. 3. Check all bolts and the position of the WMC using a pry bar to confirm that the WMC is pressed fully against the sealing flange.

The bolts must be tightened and the soft hose gasket suppressed to the extent where the distance pieces are pressed fully against the frame in the cooler casing side.

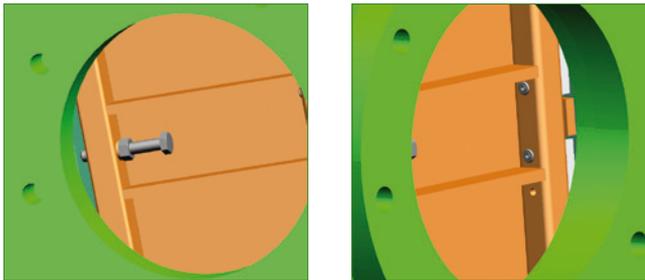


Fig. 4: The WMC seen through the small covers, bolts to be secured, and the gasket to be squeezed tightly against the frame, pressing the distance pieces all the way to the frame

**New design**

A new design of the WMC was introduced in 2009. The new design incorporates a much improved effectiveness to remove water, even at high air speeds, and a more durable frame. On the sealing side, a gasket has been fitted to ensure a good seal, see Fig. 5.

The new modified design improves the strength and durability of the WMC and produces an improved performance.

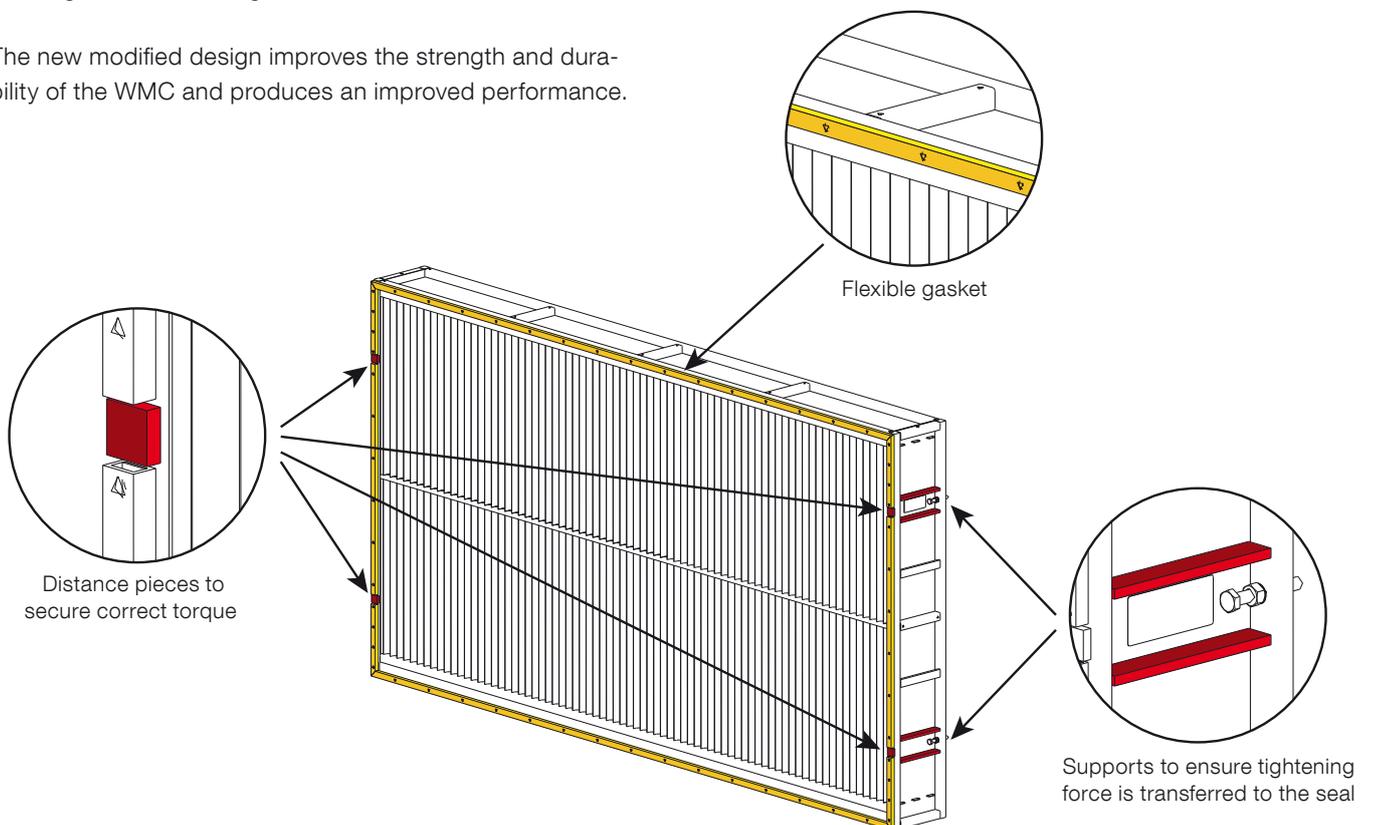


Fig. 5: The new water mist catcher design

Service tests have confirmed the durability of the frame in preventing cracks and broken bolts.

To confirm the improved performance under extreme conditions, both the new and the previous designs have been submitted to thorough performance testing at our research facilities. The aim of the new design is to obtain both a low differential pressure and a high efficiency.

A high efficiency, even at high air speeds, is crucial to obtain good water separation at high engine loads. The best performance of the test was achieved with a relatively minor drop in efficiency as the air speed went up, see Fig. 6.

The differential pressure over the new WMC is also less than on some of the previous designs.

**Ordering new water mist catchers**

The outer dimensions of the new WMC design are identical to the dimensions of previous designs, and the new design can therefore substitute existing WMCs in older engines. When ordering new WMCs, we recommend that the new design is implemented.

To place an order, or for further advice or clarification, you are welcome to contact MAN PrimeServ in Copenhagen (email: [Primeserv-cph@mandiesel.com](mailto:Primeserv-cph@mandiesel.com)).

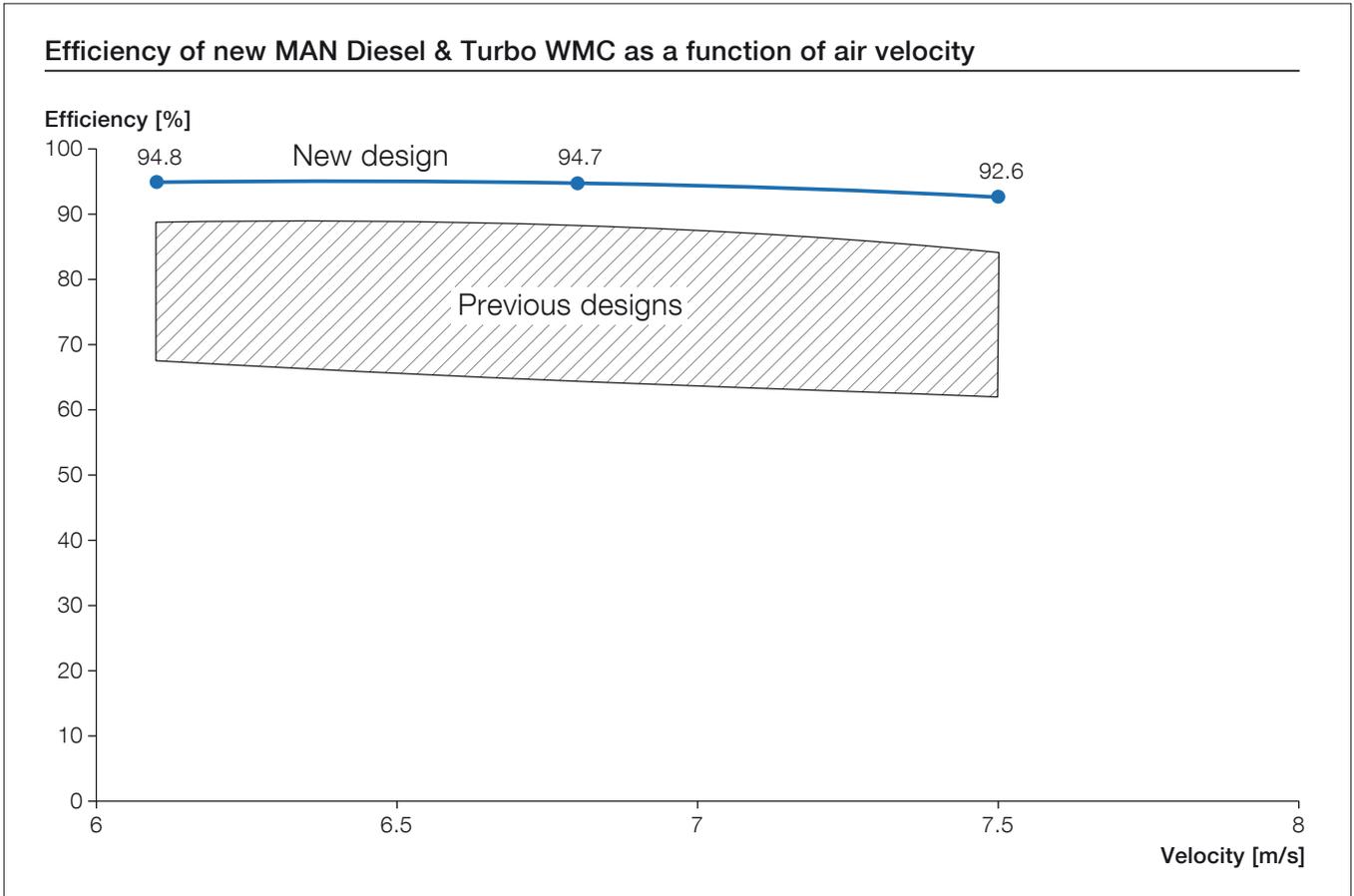


Fig. 6: Comparison of water removal efficiency between different types of WMC designs