



Action code: **WHEN CONVENIENT**

Bearing Wear Monitoring System update

SL2013-569/HWC
May 2013

Concerns

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

Summary

A BWM system update lowers the response time from 46 min. to 9.5 min.

Reference is made to SL12-552/HWC, SL08-498/AAB, and SL05-460/NHN

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Dear Sirs

This service letter describes why updating of approved bearing wear monitoring (BWM) systems is recommended.

The background for this service letter is a reported bearing seizure incident on an MAN B&W two-stroke engine equipped with an approved BWM system. However, in this case the alarm signals from the BWM system were not complied with.

MAN Diesel & Turbo recommends owners of engines with pre-update BWM systems to arrange for an update.

Yours faithfully

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Bearing wear monitoring installation

Encl.:

List of approved BWM makers

Procedure for checking update status

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A main bearing damage was recently experienced on an MAN B&W S-MC-C main engine of medium bore size. The damage was caused by a sudden ingress of foreign matter into the bearing via the lubricating oil system, and it developed rapidly into a bearing seizure.

The engine was equipped with a bearing wear monitoring (BWM) system as recommended by MAN Diesel & Turbo (MDT). However, for reasons not relevant in this context, the crew did not react to the alarm and slow-down signals from the BWM system.

Operation of the engine continued until the oil mist detector (OMD) alarm set off and requested slow-down. At this stage, the bearing damage had evolved into a situation where comprehensive repair of the crankshaft and bearing housing (bedplate) was called for.



Fig. 1: Damaged bearing shell

A subsequent analysis of the signals stored in the BWM system log provided detailed information about the course of the bearing failure. It has been established that:

- 9.5 minutes passed from the initial stage of the seizure until the alarm set off and slow-down was requested by the BWM system.
- 58 minutes passed from the initial stage of the seizure until the alarm set off and slow-down was requested by the OMD system.

The BWM specification issued by MDT was updated in 2011 to enable early detection of a sudden and rapidly

developing damage like the one mentioned above. The system fitted to the engine in question was of the updated type, however, as mentioned, proper responsive action to the alarm and slow down signals was not taken.

Analysis of data from the incident mentioned shows that:

- a BWM system of the early type (pre-update) would have set off an alarm 46 min. after the initial stage of the seizure.

Fig. 2 shows the alarm times of an updated BWM system installed and of an earlier type system (pre update).

Considering the response time of the pre-update type BWM (46 min.) and of an updated type BWM (9.5 min.), the updated system provides a significantly better protection against severe bearing damage.

MDT recommends that owners of engines fitted with pre-update BWM systems arrange for an update.

BWM systems approved by MDT, have been delivered from six individual makers listed in Encl. 1. Depending on the maker, the ability of a BWM system to detect rapid wear can be checked by following the procedures in Encl. 2.

If the ability to detect rapid wear cannot be assured by these procedures, MDT recommends owners to contact the maker directly (ref. Encl. 1). The maker can relate to the following criterion: Systems in compliance with MDT specification No. 3091686-8.2 or later are capable of early detection of rapidly developing damage.

Note that this update introduces connection of the BWM system to the automatic slow-down/load reduction function of the main engine safety system.

Questions regarding this service letter can be directed to our Operation department in Copenhagen (email: leo@mandieselturbo.com).

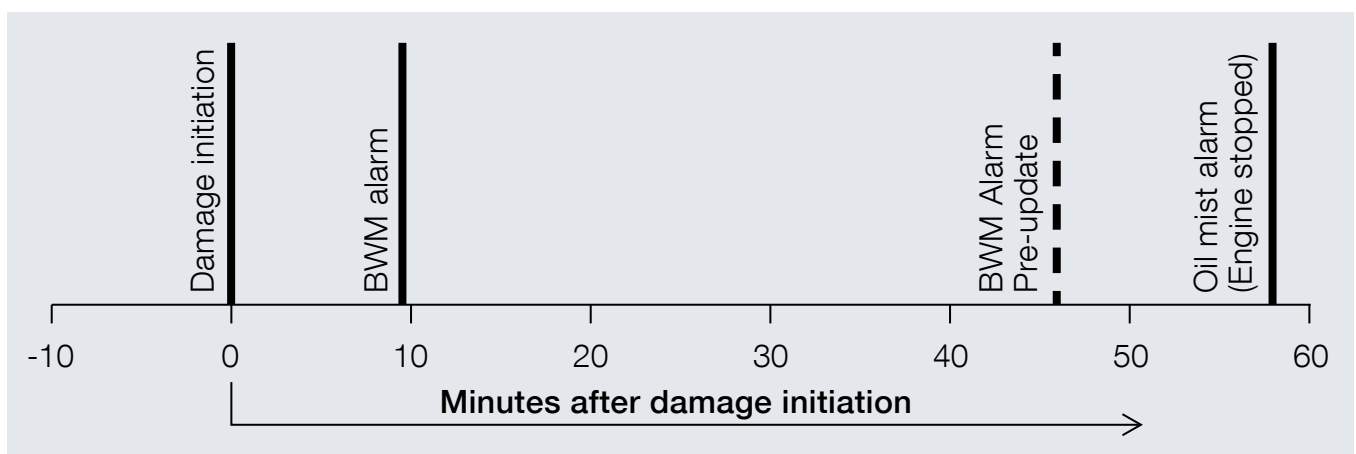


Fig. 2: Sequence of alarms



BWM makers approved by MAN Diesel & Turbo

Kongsberg Maritime
www.km.kongsberg.com
km.sales@kongsberg.com

Rovsing Dynamics A/S
www.rovsing-dynamics.com
info@rovsing-dynamics.com

AMOT
www.bearingwear.com
xtswsupport@amot.com

Mitsui Engineering & Shipbuilding
www.mes.co.jp
diesel@products.mes.co.jp

Dr. E. Horn GmbH
www.dr-horn.org
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Doosan Engine Co
www.doosanengine.com
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Bearing Wear Monitoring

Procedures for Checking for Update Status

Ability to detect rapidly developing bearing damage

Kongsberg Maritime

The ability to detect rapid wear can be checked in the following manner:

From the Navigator panel "Bearing wear" is selected. If a screen named "Rapid wear" appears, the system is capable of early detection of rapidly developing damage and no update is required.

AMOT

The software versions below indicate whether the "rapidly developing bearing damage" detection is implemented:

- Software versions 3* & 4* – "rapidly developing bearing damage" detection not present (can be upgraded).
- Software versions 5* & 6* – "rapidly developing bearing damage" detection present.

The software version is included within the label on the outside of the engine-mounted SPU box and can also be viewed on the "Diagnostic" or "Install" software screens.

Dr. E. Horn GmbH

The ability to detect rapid wear depends on the software version.

The software version can be read from the label on the display unit.

Alternatively it can be seen by unloading the log file from the system. In the Engine Info Part the software version is indicated.

If the software version is 3.33 or higher, the system is capable of early detection of rapidly developing damage and no update is required.

Rovsing Dynamics A/S

The ability to detect rapid wear can be checked in the following manner:

Enter the "Help" menu and select "About". The version of the OPENpredictor software can now be read from the screen. If the software version number is 3.2.1 or higher, the system is capable of early detection of rapidly developing damage and no update is required.

Mitsui Engineering and Shipbuilding

All BWM systems from Mitsui Engineering and Shipbuilding are capable of early detection of rapidly developing damage and no update is required.

Doosan Engine Co.

The ability to detect rapid wear can be checked in the following manner:

When entering the "Configuration menu" the system software version can be seen.

If the system software is "B-WACS Ver. 1.5" or higher, the system is capable of early detection of rapidly developing damage and no update is required.