

Action code: AT FIRST OPPORTUNITY

**Excessive wear on the locking keys of crankshaft thrust bearing**

SL2022-721/JNN  
January 2022

**Concerns**

Owners and operators of  
MAN four-stroke engines.

Type:

Marine: L27/38

Stationary: L27/38S

Propulsion: L27/38

Dear Sir or Madam

As a designer of premium quality products, we are continuously monitoring the performance of our products in the field.

You receive this Service Letter as we have observed an operational issue that can be relevant for the operation or safety of your engines in service.

Service experience has shown a number of cases with excessive wear on the locking key of the crankshaft thrust bearing. In case this issue is not attended, the locking key may over time be worn to an extent where the fixation of the thrust bearing will be lost, and the thrust bearing ring will be able to turn in the bearing saddle. So far this has not caused any major breakdowns. However, operation in such a condition is not desired and may lead to major thrust bearing issues and, in the worst case, affect the engine frame and thrust bearing surface of the crankshaft.

We recommend to carry out a visual inspection of the locking keys on the thrust bearing rings at the first opportunity.

As is shown in Figure 1 on page two, the thrust bearings are positioned on each side of the aft end main bearing, and the inspection can be done easily via the crankcase doors.

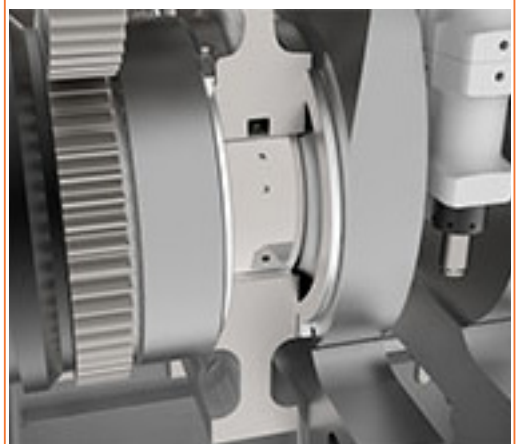
Yours faithfully

  
**Mikael C. Jensen**

Vice President  
Engineering

  
**Lars Danefeld Sønderby**

Senior Manager,  
Production Support



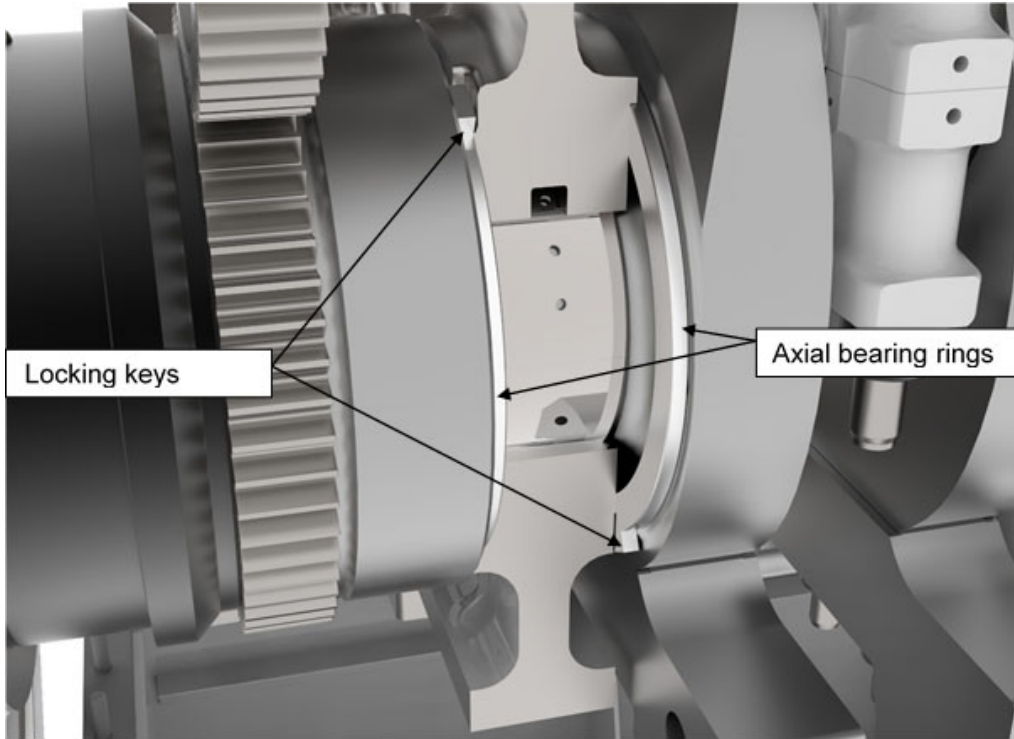


Figure 1.



Figure 2. Axial thrust bearing with undamaged locking key

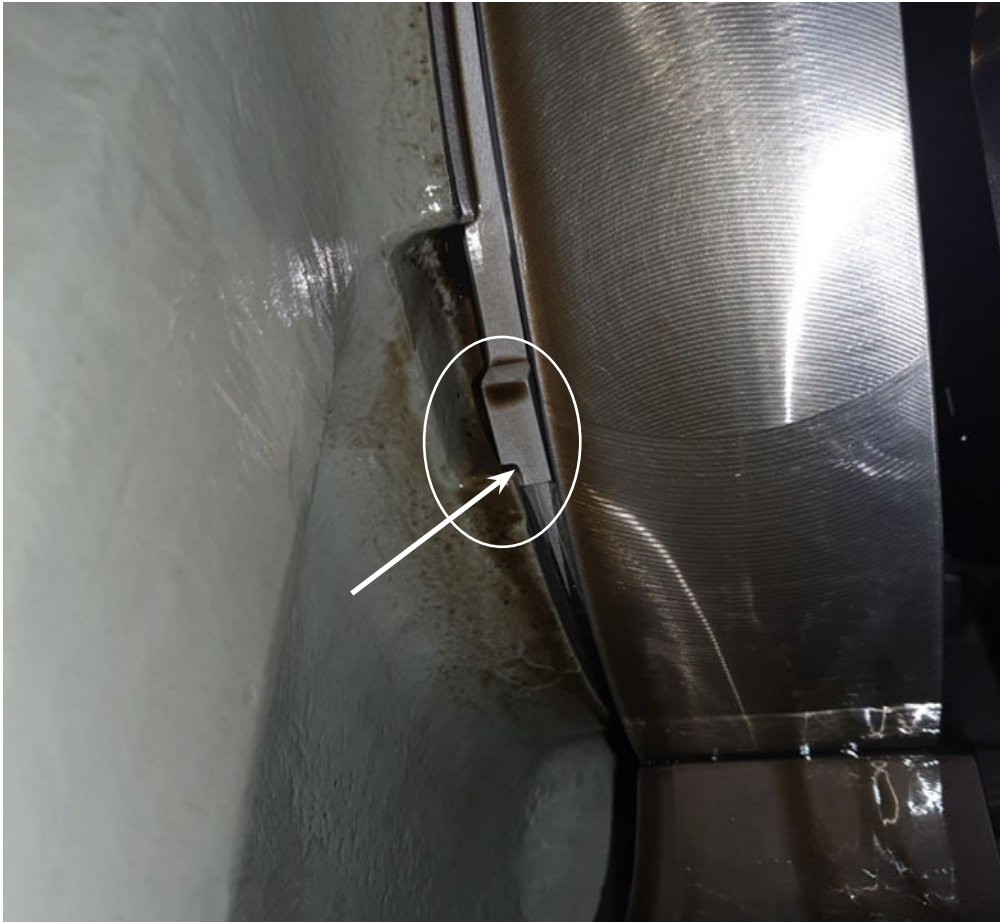


Figure 3. Inspection of locking key, wear is clearly visible

#### Inspection results:

- Wear below 25% of the locking key width  
Operation can be continued, but the next inspection must be scheduled according to the actual running hours and the observed wear rate (mm/1000 running hours).
- Wear below 50% of the locking key width  
Prepare for a replacement and upgrade to the new design.
- Wear beyond 50% of the locking key width  
Replace or upgrade the axial bearing immediately.

#### Observation

As the present design of the thrust bearing assembly allows some free movement of the thrust bearing rings during operation, variation in engine installations and propeller designs etc. may lead to difference in the vibration/resonance level in service; causing the excessive wear.

#### Design and installation

The bearing design and load conditions have been verified and are found well within the requirements and meet the expected load conditions under even heavy sea conditions.

The alignment of the engines has been checked in the reported issues, and so far there is no indication that the wear issue on the thrust bearing is related to the engine alignment.

**Countermeasure**

In order to reduce possible influence of vibrations/resonance on the thrust bearing system, a stronger fixation of these has been introduced as the standard for all newbuildings and is also available as a retrofit for engines in service.

The new design adds two 12 mm guide pins to the bearing cap, and 12 mm holes for fixation of the guide pins have been added to the thrust bearings.

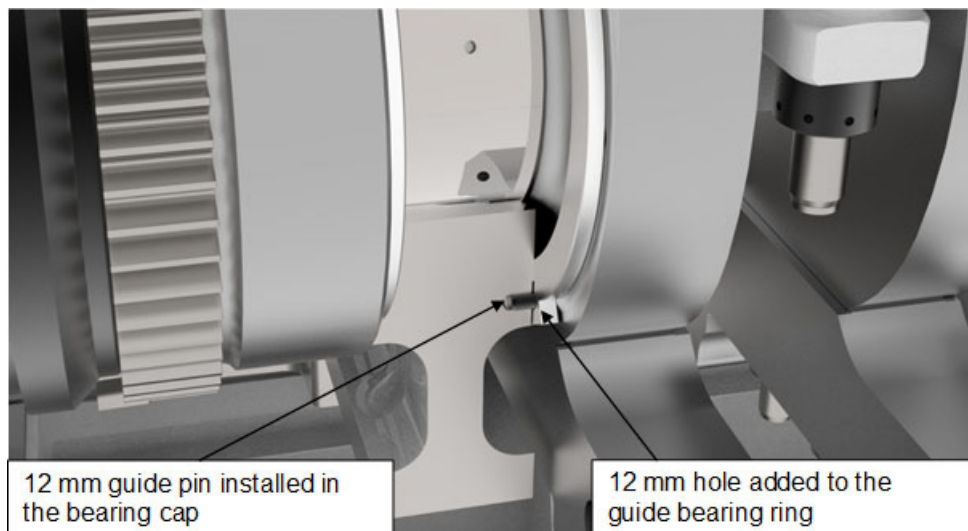


Figure 4. View of the application with guide pin and hole in the guide bearing ring

In case wear is observed on the axial bearings, a service kit for introduction of the new fixation is available through out our PrimeServ organisation.

Should you have any queries, our Technical Service will be pleased to be of assistance:

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