



MTB ENGINEERING

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STERN TUBE BEARING DAMAGE

1. Incident

During operation, a bulk carrier experienced abnormally high oil consumption from the gravity tank of the stern tube lubrication system, significantly exceeding the allowable level. The vessel repeatedly replenished the oil and continued operating for an extended period. The vessel's technical team initially suspected stern tube seal failure as the main cause and contacted MTB to supply a new seal and carry out seal bonding.

1.1. Initial Inspection

When the vessel arrived at Vung Duc Anchorage, Quang Ninh, MTB's technical team boarded the vessel to carry out the seal bonding work. During the inspection, MTB found a large amount of fishing net entangled around the seal area (Figure 1). When the seal was removed for inspection, water flowed out from inside the stern tube. Considering that this condition could seriously affect the bearing's operating condition, MTB carried out a further inspection and found a significant amount of bearing metal had peeled away from the working surface.

1.2. Initial Action

After discussing the findings with the vessel's technical team, MTB proceeded with the seal bonding to restore the sealing condition of the system. After completing the work, the vessel resumed its operation and subsequently proceeded to NOSCO dry dock for further inspection of the stern tube bearing.

1.3. Inspection and Repair in Dry Dock

Once the vessel was in dry dock, the stern tube bearing was removed for inspection. The inspection revealed severe bearing damage, with extensive peeling of the bearing metal from the working surface (Figure 2). MTB supplied and installed a new stern tube bearing. To ensure proper system concentricity, MTB performed an alignment check using the LASE method before bearing installation and rechecked the alignment after installation (Figure 3).

After installation, MTB also measured the internal diameter of the bearing to verify the actual dimensions after installation (Figure 4).

For the stern tube sealing system, MTB carried out the following work:

- Cleaned and inspected the seal housing;
- Installed a new seal on the system (Figure 5);
- Performed a vacuum leak test of the seal housing at the workshop;
- After completing the installation on the shaft line, performed a seal leak test to verify the sealing performance and operating condition of the system.

2. Lessons Learned & MTB Recommendation

This case shows that **abnormal stern tube oil loss should not be addressed simply by adding more oil**. The root cause should be identified promptly.

MTB recommends:

- Always operate the stern tube lubrication system in accordance with the maker's recommended procedures and parameters, particularly by maintaining the stern tube lubricating oil pressure within the specified range;
- When oil loss from the gravity/pressure tank exceeds the allowable level or the oil level increases abnormally, the cause should be investigated promptly and professional technical support, such as MTB, should be contacted for advice and assistance;
- During monitoring and corrective action, the vessel should continuously check for possible seawater ingress into the stern tube lubrication system, as water contamination can seriously affect lubrication conditions and bearing condition.

Early detection and proper corrective action can prevent minor stern tube abnormalities from developing into bearing damage, avoiding unnecessary dry-docking, repair costs, and downtime.

PROJECT FACTS

Vessel Type: Bulk Carrier

Location: Quang Ninh, Vietnam

Service: Stern tube system

Date: August 2026



Fig 1. Fishing net entangled around the propeller shaft



Fig 2. Peeling of bearing metal from the working surface.



Fig 3. Alignment check after installation of the new bearing.



Fig 4. Checking the bearing's internal diameter after installation.



Fig 5. Seal installation at the workshop