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Prevention of stern tube damages

Reference is made to

- Gard Insight article, 12 October 2023
- DNV Technical and Regulatory news no. 26/2023, 10 November 2023

Background

Nordic marine insurance companies have experienced a significant increase in claims related to stern tube damages over the past 10 years.

After the introduction of Environmentally Acceptable Lubricants (EAL) in 2013, the number of damages increased rapidly. The result of a recent study within Cefor members shows no significant reduction in the number of cases, and as such they continue to be of great concern.

In most cases, stern tube damages require docking of the vessel to conduct the repair. We learn that damage to the stern tube bearings is often discovered in connection with a scheduled docking. This delays the vessel in dock and interferes with the shipyard's docking plan of other vessels.

In severe cases, where the propeller shaft has been found damaged caused by the bearing damage, repairs or, in worst case, delivery time of a new propeller shaft, could be significant.

Recommendations

Based on Cefor members' experience from involvement in stern tube damage cases over the last decade, the Cefor Technical Forum would like to share knowledge with shipowners and the onboard crew to raise awareness of the subject, and to promote actions that can be taken to mitigate the risk of stern tube bearing damages on 'your vessel'.

Both Gard's Insight article, released in October 2023, and DNV Technical and Regulatory News No. 16/2023, released in November 2023, provide relevant information to shipowners and managers regarding damages to stern tube seals and bearings, and methods to reduce the risk of damages.

As stated in Gard's article, after the introduction of the Vessel General Permit (VGP) requirements in 2013 by the U.S. Environment Protection Agency (EPA) in all oil-to-water interfaces, the use of Environmental Acceptable Lubricants became an alternative for compliance prior entering U.S. waters. The number of stern tube claims have since increased.

Based on Gard's internal investigation and root cause analysis of these claims, their article gives an overview of claims frequency and cost, causes of damages and types of vessels.

Gard is providing shipowners with advice on how to prevent or mitigate stern tube damages, including maintenance, and suggestion of improvement to existing stern tube installation.

Link to Gard article: <https://www.gard.no/articles/increase-in-stern-tube-damages-a-concerning-new-trend/>

DNV's Technical & Regulatory News 'How to reduce the risk of propeller shaft bearing damage' provides valuable guidelines to shipowners regarding the challenges and suggested proactive measures to minimize the risk and severity of damage. The difference between Environmentally Acceptable Lubricants and Mineral Oil properties is well illustrated and explained.

DNV points out the importance to investigate and undertake prompt actions if main stern tube system lubricant analysis reveals elevated levels or an increasing trend of water content, Total Acid Number (TAN), bearing and/or shaft material wear elements, etc.

The news includes information regarding stern tube bearing design for better optimization of aft stern tube bearing, and the new Class notation TMON (Oil lubricated +), which is called the new perspective solution from DNV.

Link to DNV Technical & Regulatory News: <https://www.dnv.com/news/how-to-reduce-the-risk-of-propeller-shaft-bearing-damage/>

Stern tube damages can result in loss of propulsion, require tug assistance and in worst cases require salvage. Operational failures to the stern tube system should be reported to the classification society. In case of increased bearing temperature and/or water ingress to the system, do not continue operation over a longer period without assessment and guidance from maker.

Cefor Technical Forum is supporting Gard's article and DNV Technical News, and we urge Owners to pay attention to the information and recommendations they bring forward.