



NORWEGIAN HULL CLUB

# Casualty Information

No. 115 - October 2022



## Deck and Engine Machinery & Equipment

Repair Planning Procedures, Risk Assessments and  
Quality of Maintenance and Repairs

Norwegian Hull Club wishes to emphasise the importance of safety on board by focusing on welfare, environment, assets and the sharing of useful experience.

In this Casualty Information newsletter, we would like to draw attention to repair planning procedures, risk assessments and quality of repairs regarding deck and engine machinery and equipment.

As is usual in such newsletters, The Club makes a number of recommendations in order to promote best practice and avoid unwanted incidents.

**Dear shipowners, technical managers and seafarers,**

Norwegian Hull Club is frequently involved in insurance cases in which severe damage has occurred to deck and engine machinery and equipment. Often this damage has been fully or partly caused by a lack of routine maintenance, or substandard work rendered in connection with overhaul and repairs.

The ISM code is clear in regard to the responsibility of a ship's manager in ensuring that the vessel's hull, machinery and equipment are maintained and operated in accordance with applicable rules and regulations, as well as any additional requirements that may have been established by the company concerned.

**ISM CODE - Maintenance & Testing**

**Paragraph 10.1** - "The Company should establish procedures to ensure that the ship is maintained in conformity with the provisions of the relevant rules and regulations and with any additional requirements which may be established by the Company."

These procedures should be documented, and should ensure that applicable statutory, class, international (e.g. SOLAS, MARPOL) and port state requirements are met, and that compliance is maintained in the levels between third-party surveys and audits.

**Typical timings of damage occurrences:**

- After routine overhaul and unscheduled repairs of machinery by untrained crew;
- After docking and/or services carried out by external unauthorised companies;
- After conversion/upgrade of a ship and machinery; mechanical and electrical systems.

**We have observed damages due to:**

- A lack of general maintenance routines; planned Maintenance System (PMS) not in use/not updated according to the latest guidelines from the manufacturer;
- Lack of routines in place for sampling and laboratory testing of lubrication oil and bunker. Insufficient understanding and/or follow-up of the off-spec parameters stated in the laboratory report;
- Lack of routines for testing and treatment of boiler and cooling water;
- Damage after taking-over the technical management of the vessel from previous owner/manager; maintenance system overhaul history not transferred to or shared with new owner/technical manager.

**Proposed corrective actions based on our experience from cases:**

- Proper training of crew and service personnel engaged in the overhaul and repair of machinery;
- Proper training of crew following upgrading, modifications and conversions of equipment and systems on board;

- Assessment of the PMS to ensure it reflects machinery manufacturer's recommendations, and that procedures are in place and in accordance with the latest procedures and services letters from manufacturers
- Follow the manufacturer's instructions. If proper guidelines are not available, obtain information before commencing overhaul;
- Ensure that correct tools are used and that, for example, special tools are regularly tested and calibrated;
- Ensure correct spare parts are used;
- Proper planning and Risk Assessment to be conducted prior to overhaul/repairs and before start-up/testing of machinery and machinery systems;
- In connection with conversions/upgrades or complex repairs, support from a professional Risk Assessment company should be considered;
- Testing and commissioning to be performed in accordance with manufacturer's instructions, preferably supported by a project-specific risk assessment, especially for complex repairs and conversions.
- Shipboard personnel to be included in any risk assessment and commissioning processes. The importance of machinery manufacturers and Class Society involvement in connection with planning and execution of the repairs, including testing/commissioning procedures, should be highlighted.

**ISM CODE - Maintenance & Testing**

**Paragraph 10.3** - "The Company should establish procedures in its SMS to identify equipment and technical system the sudden operational failure of which may result in hazardous situations. The SMS should provide for specific measures aimed at promoting the reliability of such equipment or systems. These measures should include the regular testing of stand-by arrangements and equipment or technical systems that are not in continuous use."

**SUMMARY**

We are of the opinion that a substantial number of serious and costly damages - as well as lost time - could have been avoided with proper planning and maintenance quality awareness, as well as an increased focus on training of personnel and use of risk assessment in all activities onboard.

This also applies to external companies and personnel attending the vessel to carry out repairs.

The same issues have been raised before in previous Casualty Information Newsletters released by The Club. We do, however, believe that a reminder is due.