NORWEGIAN HULL CLUB

Casualty Information

No. 111 - April 2021

Reducing risks related to the operation of ship cranes

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 focus on preventive measures to reduce risks related to the operation of ship cranes.**

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

Dear Shipowner, Manager and Seafarer,

The number of unwanted incidents involving crane operation remains high. Over the past two years, Norwegian Hull Club has seen an increase in such occurrences - and this worrying trend is continuing.

For this reason, in this Casualty Information Newsletter, The Club would like to draw attention to the importance of establishing control of on-board Crane Operation Procedures and Maintenance Routines.

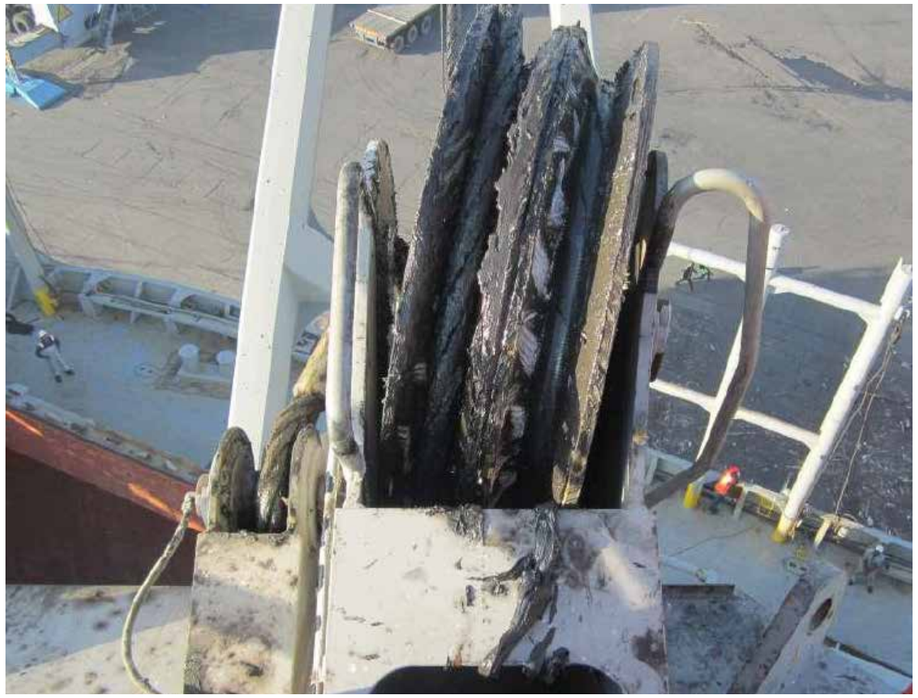
Damage to hydraulic cylinders due to contact with containers while loading / unloading

A number of incidents resulting in damage to vessels are caused by contact with shore cranes during berthing and unberthing. The Club has seen that such occurrences often cause severe damage not only to the vessel in question but also the shore crane and terminal facilities.

Not all vessels with loading and discharging cranes have a special Class Notation which includes the word 'crane', meaning that a crane(s) was subject to Class approval during the newbuilding phase and will be surveyed by Class during scheduled surveys. Hence, responsibility for following-up on required maintenance and routine testing rests with the Owner/Manager and the ship's staff, guided by the crane manufacturer's recommendations. Class Notation would require class survey of the crane and associated equipment from installation and during operation.

Regular load testing of cranes and keeping the cargo gear log-book updated is subject to inspection by authorities. However, it is clear from reports regarding crane damage that Norwegian Hull Club has seen, required regular maintenance and testing of safety functions are not always performed in accordance with a manufacturer's recommendations.

Deck machinery and systems on board are continuously subjected to harsh weather and a corrosive environment. Machinery such as cargo cranes and associated auxiliaries are important for commercial ship operations. Any problem with such equipment can lead to an extended port stay, loss of hire, damage to the property or - worst case - injury or loss of life.



This image shows a wire sheave which has been damaged

Deck cargo cranes feature safety devices such as emergency stop, overload protection, hydraulic oil filter and level alarms, brakes etc. The inspection and maintenance of a crane (including the base structure) must be performed as per the manufacturer's instructions and also included in the Planned Maintenance System (PMS) of the ship.

Damage to the main winch of an offshore crane

There now follow some observations from cases The Club has been involved in over the years:

OPERATION

- Damage to crane due to stevedore's negligence and / or lack of competence
- Ship crane touching the shore crane
- Damage to vessel due to contact with shore crane
- Crane wire damaged due to abrasion on hatch coaming
- Lifting higher loads than crane designed for
- Shock loads during operation anchorage (ship to ship -STS) due to vessel motion
- Crane damage due to movement – not properly secured (not in operation)
- Damage to crane during approach to vessel (STS operation)
- Damage to crane bearings due to overload
- Crane damage due to contact with shore gantry crane
- Contact with crane while berthing

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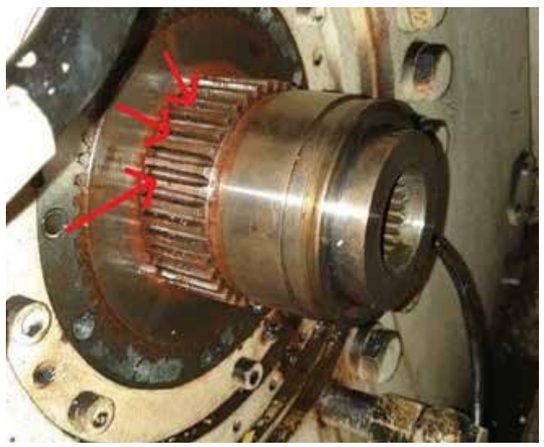
A container has been ripped open following wires breaking; the cargo inside was damaged

TECHNICAL

- Damage to crane jib bearings due to lack of lubrication routines
- Damage to main winch and spooling winch due to corrosion
- Failure of crane's safety devices
- Jib falls down due to failure of crane
- Hoisting-wire breaks and the crane falls
- Worn-out wire due to corrosion
- Worn-out slewing gear due to lack of lubrication routines
- Malfunction of the luffing wire drum-control system, causing crane to fall on hatch cover
- Damage to crane due to incorrect installation
- Incorrect maintenance and repairs during yard stay
- Wire damaged due to worn-out wire sheaves (lack of lubrication)
- Damage to crane winch
- Crane boom failure; crane falls down
- Damage to crane's knuckle boom cylinder – leakage from hydraulic sealings (dieseling effect/high temp)
- Damage to the jib cylinder, causing the crane to be inoperative
- Crane gearbox damaged



Hoisting gear scored – lack of lubrication

The effects of poor maintenance on hydraulic components

A cable in poor condition

'Dieseling effect' visible on hydraulic cylinders

RECOMMENDATIONS

As regulations and guidelines for crane operation maintenance, testing and surveys depend on actual crane and vessel requirements, Norwegian Hull Club wishes to highlight the following general guidelines:

- A ship-specific crane safety, operation and maintenance management system must be in place. This is to ensure that general safety procedures, manufacturer's maintenance instructions and international rules and regulations related to crane operation are followed;
- We recommend performing an assessment of crane operation procedures on board to ensure compliance with current regulations and guidelines, and that the procedures are verified as being followed by staff on board;
- A system should be in place for training of crew stevedores and familiarisation prior to operating the cranes;
- Maintenance / inspection of the crane to be carried out according to manufacturer's recommendations. As per their guidelines, only an authorised company can carry out maintenance that requires specially trained engineers;
- For vessels with 'crane' Class Notation, class rules regarding surveys must be adhered to.

Norwegian Hull Club wishes you all fair winds and following seas.

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