

# Casualty Information

Information from DNV to the maritime industry No. 5 December 2007

## Crankpin bearing running hot

Ship type: Any    Size (grt): <1,000    Year built: 2005



Fig. 1: Colour coded rubber expansion joints.

### Course of events

The ship was alongside in port when the main engine was started, and the oil mist detector gave a warning alarm. When opening up the crank case a hot crankpin bearing was found. The crankshaft was found to be seriously damaged in way of one crankpin, causing the vessel to be put off hire for more than a month before resuming operation.

### Extent of damage

The original crankshaft was damaged beyond repair, and a new one was fitted, following the manufacturer's recommendations.

### Probable cause

The main medium speed diesel engine is elastically mounted by using rubber mounts. Thus all cooling water, fuel oil and lubricat-

ing oil system piping connections to the engine are equipped with rubber expansion joints, in order to allow for some flexibility during operation.

Investigation after the accident revealed that rubber particles of various size had blocked the lubricating oil system, originated from a disintegrated rubber expansion joint of the lubricating oil system.

This could have turned out to be very serious for the vessel if it had happened during operation!

It was confirmed that the manufacturer of such rubber expansion joints has separate specifications for various use of the joints, and the joints are consequently marked with different colour codes, see Fig. 1.

In this case an expansion joint intended for fresh- and sea-water cooling systems had been applied for the lubrication oil system from the new-building stage, causing disintegration of the rubber, which caused blocking of the lubrication oil system.

## Lessons to be learned

The shipping industry is to be alerted about:

1. Specific requirements or limitations for different applications of rubber expansion joints on board may exist, designated by the manufacturer's colour codes.
2. Possible operational consequences by application of rubber expansion joints with wrong colour code, as in this case.

Colour codes as mentioned above may not necessarily coincide with the generally applied colour codes for freshwater, seawater, fuel oil and lubricating oil systems on board vessels.

## We welcome your thoughts!

*Casualty Information* is published by DNV Maritime, Maritime Technology and Production Centre (Dept. for Ships in Operation).

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The purpose of *Casualty Information* is to provide the maritime industry with 'lessons to be learned' from incidents of ship damage and more serious accidents. In this way, Det Norske Veritas AS hopes to contribute to the

prevention of similar occurrences in the future. The information included is not necessarily restricted to cover ships classed with DNV and is presented, without obligation, for information purposes only.

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