

# Safety Alert

**Number: 18-25**

**Published: 20/11/2018**

**Subject: Anchor Brake Failure**

## What Happened / Narrative

A vessel experienced a potentially fatal near miss incident during a dry-docking period.

As is normal practice in dry dock, the vessels anchors were ranged on the dock bottom for inspection and painting. With this complete, and the vessel due to depart from the dock, both anchors were recovered.

With the anchors brought home, the brakes were applied, guillotines on both anchors were dropped across, and devils claws engaged. After disengaging the clutch, the brake on the port anchor was tightened to ensure it was properly applied prior to finishing the task.

At the point of tightening the brake, the threaded spindle sheared, completely releasing the brake band. The full weight of the anchor was taken up by the devils' claw. The weight of the anchor coming on the claw forced the arms of the claw open, allowing the chain to run freely and the anchor and chain to run out to the dock bottom unrestricted.

## Why Did it Happen / Cause

On stripping the brake assembly for investigation of the failure it was found that both linkages housing the failed threaded spindle were seized. The lack of rotation in the linkages caused a bending force to be applied to the spindle when the brake was tightened. Over time this has caused stress within the spindle, and eventually complete failure.

### Maintenance:

The maintenance on the windlass and associated parts was conducted in line with the requirements of the planned maintenance system. All parts of the windlass were greased regularly, however, as has been identified in other mechanical failures, grease from the greasing nipples has not penetrated every part of the equipment. This has led to the linkages becoming seized.

### Claw:

The devils claw had been engaged on the anchor cable and tightened leaving no gap or slack in the lashing. The two arms of the claw opened as the weight came on them, allowing the cable to pass through. No significant corrosion was noted on the equipment that would have materially altered its strength.

### Guillotine:

Whilst the guillotine had been dropped across the cable, it was not yet secured in place when the brake failed. Therefore it did not effectively stop the anchor cable running out when the claw failed.

## Corrective Actions Taken / Recommendations

- All vessels to conduct thorough inspection of moving parts of the anchor windlass with particular focus given to the brake band assembly. All moving parts are to be confirmed operational.
- Routine greasing must be carried out to ensure all parts are properly lubricated. When greasing, moving parts are to be moved to full extent of operation to ensure they are still functional.
- Any seized or non-operational parts to be freed up at first opportunity.
- Devils claws of the design shown are to be replaced with wire strops of appropriate SWL. Any alternative design are to be reviewed by vessel, with on shore assistance if required, and their continued use re-evaluated.
- All anchoring operations must include a check of the area to ensure no other party is placed at risk by the job, i.e. overside check for small craft at sea or in port, and exclusion zone in the proximity of the anchor during dry dock.

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Photographs / Supporting Information

01 – Claw as Intended



02 – Claw; post incident



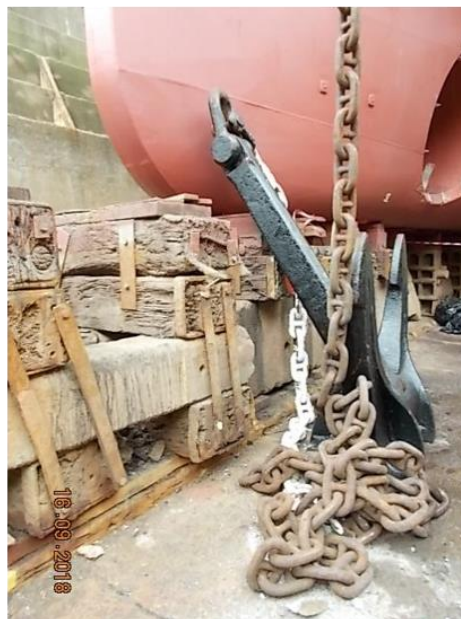
03a – Failed section of brake assembly



03b – Failed section of brake assembly



04 – Anchor; post incident



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