IMCA Safety Flashes summarise key safety matters and incidents, allowing lessons to be more easily learnt for the benefit of all. The effectiveness of the IMCA Safety Flash system depends on Members sharing information and so avoiding repeat incidents. Please consider adding safetyreports@imca-int.com to your internal distribution list for safety alerts or manually submitting information on incidents you consider may be relevant. All information is anonymised or sanitised, as appropriate.

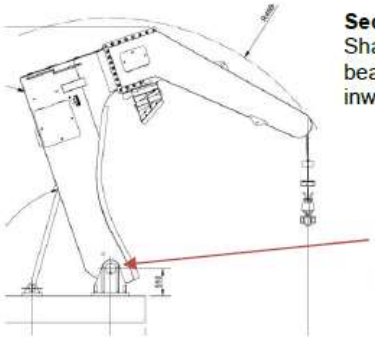
## 1 Service letter from Palfinger Marine relating to Davit types NPD 11300H and NPD 14800H

### What happened

A defect (see picture 1, sketch 1) was found during the annual maintenance of a lifeboat davit on a vessel. During scheduled maintenance it was discovered that one of the davit arm pivot pins had become detached from its retaining plate which allowed the pin to work its way out of its position. Palfinger Marine has found out that alignment of the pivot points between deck and davit can become fundamental in case of deck misalignments which can have an effect on the aligned pivot point positions during regular operation of the davit system.

Palfinger Marine is committed to safety of the products. All Palfinger Marine systems are approved and tested according to the latest relevant regulations. Functionality of the Palfinger products is ensured through correct production and certification, correct delivery and correct installation. Palfinger Marine offers the additional service of supervision aboard during installation to secure a correct installation if requested.

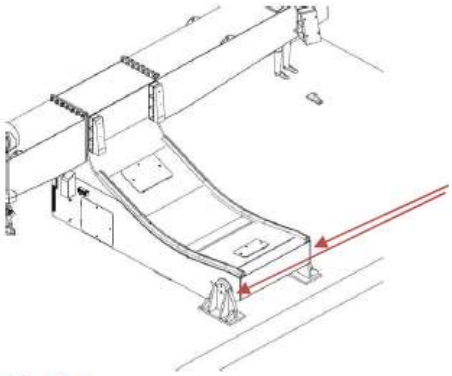
IMCA has worked closely with Palfinger Marine and the operator of the vessel involved to bring this Service Letter to the attention of our members. Please refer to the Palfinger Marine Service Letter on the following two pages.



Sketch 1

**Sequence of events as reviewed:**
Shaft started to rotate due to increased friction of the misalignment, bearing broke, bolts of shaft securing plate broke as a result, shaft moved inwards.

Picture 1: *Pin retaining bolts sheared, Pin has moved 30mm into 50mm foot plate.*



Sketch 2

**Safety warning:**
Due to the design and functionality of the davit system the davit stool is attached with two hinges to the deck, turning via their shafts, if one became loose the davit might collapse during operation!

**It is mandatory to stop an operation of the davit if a detached or loose securing plate has been detected! The root cause must be evaluated, and a repair must be carried out! In case a certified technician is requested, Palfinger need to be informed!**

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PALFINGER

## Palfinger Marine Service Letter

### Subject: Davit type NPD 11300H and NPD 14800H

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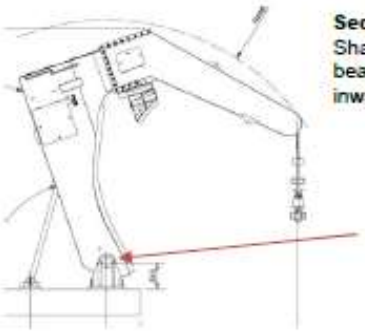
**Incident:**
A defect (picture 1, sketch 1) was found during the annual maintenance of a Lifeboat davit on a vessel. During scheduled maintenance it was discovered that one of the davit arm pivot pins had become detached from its retaining plate which allowed the pin to work its way out of its position. Palfinger Marine has found out that alignment of the pivot points between deck and davit can become fundamental in case of deck misalignments which are having an effect on the aligned pivot point positions during regularly operation of the davit system.

This observation is the reason for Palfinger Marine to inform and offer a suitable approach and potential solution.



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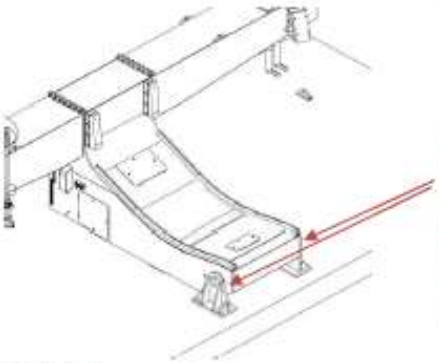


Sketch 2

**Safety warning:**
Due to the design and functionality of the davit system the davit stool is attached with two hinges to the deck, turning via their shafts, if one became loose the davit might collapse during operation!

**It is mandatory to stop an operation of the davit if a detached or loose securing plate has been detected! The root cause must be evaluated, and a repair must be carried out! In case a certified technician is requested, Palfinger need to be informed!**

**A check to be carried out:**
To be sure that the pivot points between deck and davit are in good condition, extra attention should be given to these pivot points during the regular maintenance checks as described in the manual.

See **sketch** 1 & 3: Pivot point construction.
A pivot point consists out of a plate welded to the deck, a shaft through this plate into the davit and a bearing in the davit.
The shaft (**sketch** 2) is locked with a locking plate (right side, **sketch** 2) towards the plate on the deck.

- Remove the locking plate.
- Check if shaft is completely flush with plate → **see sketch** 2.
- Put back locking plate.

When the shaft is **not flush** with the davit side, the securing bolts are stressed due to the alignment between deck and davit is not constantly within tolerances during operation of the davit.

**Countermeasure in case a misalignment has been detected:**
If the shaft is flush with the plate, there is no reason to do any modification, provided that this check is done regularly.

When thorough, regular inspection is not optional, the following 2 options are possible:

- a modification can be done on the locking plate: *drill a hole in the locking plate for easy visual inspection*, when in doubt about this option, contact your local Palfinger Marine Service Station
- an upgrade kit can be ordered via your local Palfinger station, containing a new type of shaft which has a welded securing plate already installed.

**In case of doubt, please contact your local Palfinger Marine Service Station.**

## 2 Crane whip line parted during hook stop testing

**What happened**

The crane was positioned in the rest while the Crane Operator carried out hook stop testing of the auxiliary winch. An uncontrolled hoisting movement resulted in the headache ball striking the jib and falling with the hook stop rigging assembly back to deck.

The Crane Operator was testing both the main winch and the auxiliary winch. The main winch was tested and operated normally. When the Crane Operator started to test the auxiliary winch, the winch accelerated to full speed pulling the headache ball into the sheave. The headache ball collided with the jib and the wire snapped, approximately 19 meters from the headache ball. The headache ball (500kg) and the hook stop rigging (25kg) dropped 4.2 meters to deck. There were no personnel in the vicinity.

**What went wrong?**

- The winch was actuated by two hydraulic motors and the speed of the motors measured by encoders. The encoders were badly corroded inside and within the circuit board which resulted in erroneous signal being sent. Both speed encoders required replacement. The crane software was updated to include a second barrier preventing wrong signals from the encoder;
- The winch wire was in poor condition, corroded and dry. The investigation identified deviations from the wire rope management requirements of both the company and the owner of the vessel;
- The auxiliary winch wire was the original wire installed on the winch and had been in service for approximately 7.5 years. Magnetic Rope Tests (MRT) were performed every second year with wire cut-back completed in accordance with the recommendations from the examination. The latest MRT was not completed successfully due to failure in the test equipment and was overdue at the time of the incident. The wire used was 2160 grade which is vulnerable to brittleness; the company does not accept this grade if it is avoidable;
- The risk for using the wire had been identified however, it was not supported by a Management of Change (MoC) and risk assessment and so no corrective action taken.

**Actions**

- Check and see if this same encoder component fault can occur on your worksite and check the maintenance routines for encoders;
- Further asssure the integrity of wire ropes by carrying out a thorough visual examination combined with either annual Destruction Test or MRT Traces;
- Identify the age of the wire ropes and confirm appropriate in-service reviews have been carried out;
- Ensure formal MoC process is followed where compliance with existing procedures is not possible;

- Review risk assessment for the crane start-up process and ensure that safe positioning of personnel and associated controls are an included control requirement.

Members may wish to review:

- SEL 019 *Guidelines for lifting operations*
- LR 001 *Wire Rope Integrity Management*

## 3 MSF: Near miss - potential dropped object found on bundle of casing

The Marine Safety Forum published Safety Alert 20-11 relating to a potential dropped object in a load. The near miss incident occurred during offloading of casing from a supply vessel. The rig crew spotted a hook resting on the bundle. The load was set down and the job stopped.

**Applicable Life Saving Rule(s)**

Bypassing Safety Controls | Line of Fire | Safe Mechanical Lifting

The hook was later identified as part of the vessel's cargo securing equipment which had been found defective before use but had not placed in the quarantine area for damaged lifting and securing equipment.

The weight of the hook was 1.4 kg. The hook could have fallen 19m on the rig and significantly higher (70m +) to the supply vessel deck.


**What were the causes?**

- Lack of sufficient pre-lift checks;
- Failure to follow procedures;
- Inadequate supervision and training.

IMCA notes: Unfortunately there is nothing special or noteworthy about this event. The learning for us is that it happened at all. Continuous vigilance with regard to potential dropped objects, remains of the utmost importance. A search of all the safety events and incidents available through the IMCA Safety Flash web page https://www.imca-int.com/safety-events/ reveals that there are many incidents like this one.

- DROPS – 46 events
- Dropped object – 193 events

IMCA provides for its members the following safety promotional material on dropped objects:

- HSSE 039 – Technip DROPS
- HSSE 042 Saipem DROPS – *choice not chance*
- HSSE 043 Subsea 7 DROPS
- IMCA SPB 016 pocket card *Avoiding dropped objects*

- IMCA SPP 04 *Avoiding dropped objects*

## 4 Failure of remote control/emergency stop on rescue boat winch

**What happened**

There was a failure of the winch remote control and emergency stop during recovery of the rescue boat to the davit. The incident occurred on completion of rescue boat testing in good weather. The personnel in the small boat were disembarked at sea level and used a ladder to access the main deck. The AB started recovery of the boat using a remote control. When close to the final stowage position the remote control failed and the limit switch did not activate as designed. The main power supply switch was then operated to isolate the power supply to the winch.

**What went wrong/what were the causes?**

Testing revealed that the control circuitry for davit recovery was fully operational. However, the recovery was not automatically stopped by the limit switch. On inspection and disassembly of the contactor, it was found stuck, with contacts in the closed position. The system had undergone annual inspection by an approved independent inspector three weeks previously with the following notes:

- *Remote control checked all OK.*
- *Davit fall wire sheave inspected.*
- *All electronics checked and found OK.*

The most probable cause of failure was frequent intermittent use of the winch for fine adjustment of boat level to make it easier for crew to get into and out of the fast rescue craft. The davit winch was being repeatedly switched on and off for very short time intervals, which can cause the contacts to burn out.

Remote control which failed

E-stop which failed to stop the winch

Failed breaker

**Actions/lessons learned**

- Ensure correct retrieval procedure is practiced by all winch operators - limit switches should not be relied on to stop the recovery of craft;
- Confirm correct installation of components including limit/proximity switches for davit systems.
- Where limit/proximity switches have noted systems faults, inspection should be completed before further use;
- Ensure planned maintenance system covers regular function testing of emergency stop switches;
- Limit/proximity switches found to be at fault should be replaced. Replacement switches are not high cost items.

Members may wish to refer to:

- Marine Safety Forum: two incidents relating to fast rescue craft
- Fire-fighting water jet hits antenna - Failure of limits, stops and safeties
- Dropped object near-miss: Falling crane block *[The rig crane's limit switches/stops were apparently not fully operational, thereby allowing the hook block to be heaved all the way up to the boom ]*

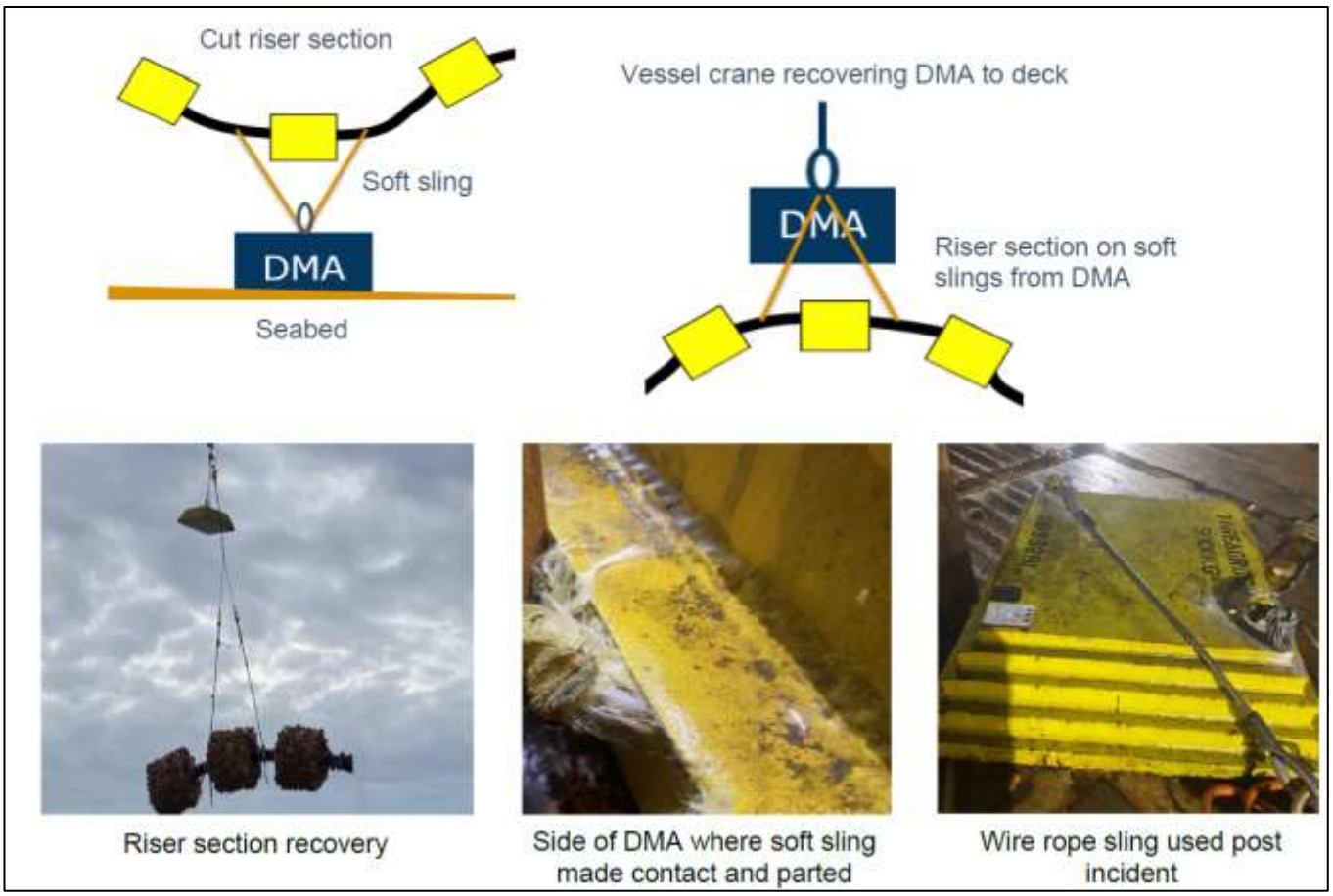
## 5 Rigging failure during riser recovery – soft slings parted

**What happened**

During recovery of a 10m riser section with buoyancy modules attached, the riser section dropped 2.5m to deck when the soft slings parted after rubbing on the sharp edge of the Deadman Anchor (DMA). During decommissioning activities, the riser was cut into approximately 10m long sections.

The section had been weighted down with a DMA prior to cutting. On completion, the DMA was recovered along with the riser section suspended below the DMA. When slewing the riser section inboard, the riser section (3.8Te) fell approximately 2.5m to deck when the slings parted after rubbing on the sharp edge of the DMA.

Control measures were being followed with all personnel standing clear of the lifting area, behind the barriers as stipulated by the risk assessment.




**What went wrong – findings**

- A pendulum effect occurred whilst the product was draining before recovery onboard, which resulted in the riser section suspended below the DMA moving against the sharp edges on the DMA, and thus cutting the soft slings;
- The sharp edges of the DMA had not been identified as a potential hazard in relation to the use of soft slings.

**Lessons learned/actions**

- Wire rope slings should be used where slings connect with a DMA;
  - The exception would be, unless the use of soft slings has been fully risk assessed with specific consideration given to the possible contact with the edges of the DMA;
- Consider the use of rounded DMAs where there is a potential for sharp edges to connect with the rigging;

- Consider having pad eyes welded along the bottom profile of the DMA to mitigate against fouling with the rigging.

Members may wish to refer to:

- SEL 019 *Guidelines for lifting operations*
- High potential near-miss – Lifting equipment failure
- Failure of lifting equipment: Dropped ROV
- Parting of slings causing fall of heavy object onto seabed