

## IMCA Safety Flash 26/20

September 2020

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learnt from them. The information below has been provided in good faith by members and should be reviewed individually by recipients, who will determine its relevance to their own operations.

The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat ([imca@imca-int.com](mailto:imca@imca-int.com)) to your internal distribution list for safety alerts and/or manually submitting information on specific incidents you consider may be relevant. All information will be anonymised or sanitised, as appropriate.

A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at [www.imca-int.com/links](http://www.imca-int.com/links) Additional links should be submitted to [info@imca-int.com](mailto:info@imca-int.com)

Any actions, lessons learnt, recommendations and suggestions in IMCA safety flashes are generated by the submitting organisation. IMCA safety flashes provide, in good faith, safety information for the benefit of members and do not necessarily constitute IMCA guidance, nor represent the official view of the Association or its members.

### Safe Mechanical Lifting

IOGP Life-saving Rule #7, *Safe Mechanical Lifting*, underpins all five events in this Safety Flash.

Members should be aware of:

- ◆ IMCA Are you prepared to work safely videos:
  - Lifting operations
  - Lifting equipment
- ◆ IMCA SEL 019 *Guidelines for lifting operations*



The following incidents may be of interest also:

- ◆ Pin From Crane Block Sheave Guard Fell 25m
- ◆ Object ['banana sheave' roller] Falling From Height
- ◆ Chain Hoist Failure Resulting In A Serious Near Miss
- ◆ High Potential Incident: Gantry Hoist Failure
- ◆ Failure Of Bell Winch Clutch Coupling During Bell Recovery
- ◆ Near Miss: Personnel Almost Caught Between Crane House And Scaffold Pipe

### 1 High potential DROPS near miss: failed crane component

#### What happened?

Whilst preparing a crane for operations, the additional man riding calliper brake casing cover on the primary winch failed, causing the brake pad, rings and cover to fall to the deck along with a small discharge of hydraulic oil.

Five items were found on the deck below, these would have dropped from a height of about 25m. Two of the largest items dented the wooden sheathing to a depth of 1 - 3 mm. One of these weighed 1100g, the other, 460 g. The remaining three items left no indents.

The casing cover was not found and was presumed to have fallen into the sea during the failure.

There were no crew nearby at the time and there were no injuries. The dropsonline.org calculator indicates this could potentially have resulted in a fatality.

**Applicable Life Saving Rule:**



Line of Fire



Safe Mechanical Lifting



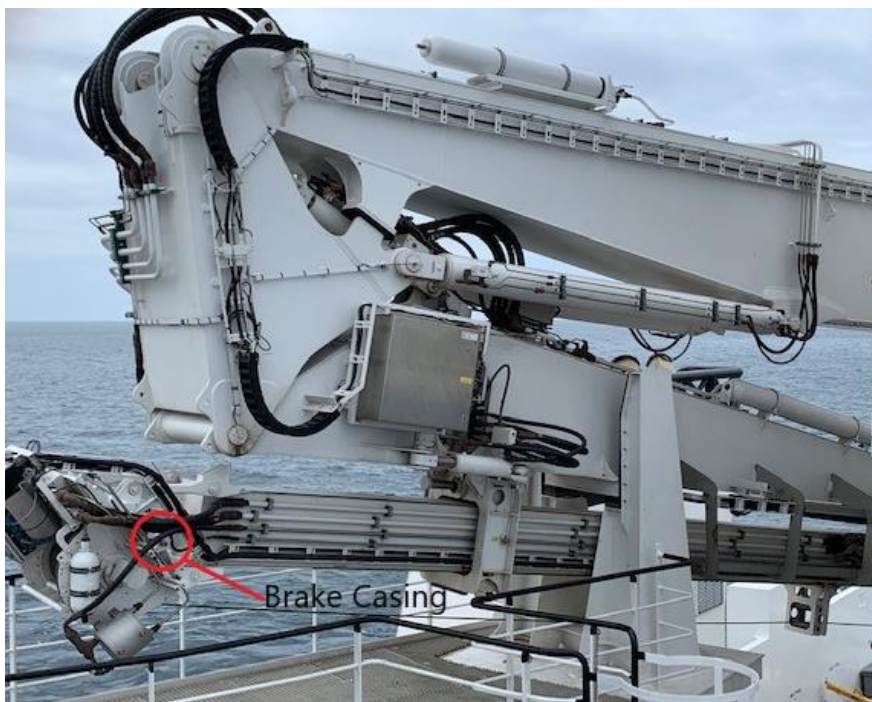
*Brake housing showing sheared bolts*



*Dents in the wooden deck*

### **What went wrong?**

Subsequent preliminary investigation by the manufacturer showed that the calliper had been subjected to significant hydraulic overpressure (up to 260 bar, as opposed to 170 bar design). Of the two pressure relief valves fitted to the man-riding brake system, which should have been adjusted during commissioning (the crane had been in service for only six months), one had a loose locking nut, the other was found screwed fully in, suggesting neither had been correctly set.



*Location of brake at head of crane*

During the commissioning phase, adjustments are made to the AOPS (Automatic Overload Protection System) function of the crane. The Caliper disc brake is in the same part of the hydraulic circuit as the AOPS function and is therefore influenced by these adjustments.

The manufacturer's technical investigation concluded that the likelihood of failure would have been greatly reduced, had adjustments been made on a hardware basis, rather than hydraulically.

It is likely that the bolts holding the calliper assembly together failed due to repeated overloading.



*First valve with slack locking nut*



*Second valve set incorrectly*

### What were the causes of the incident?

- ◆ Immediate – hydraulic pressure relief valves failing to operate;
- ◆ Root – Changes made during commissioning were not evaluated thoroughly.

### Actions and lessons learned

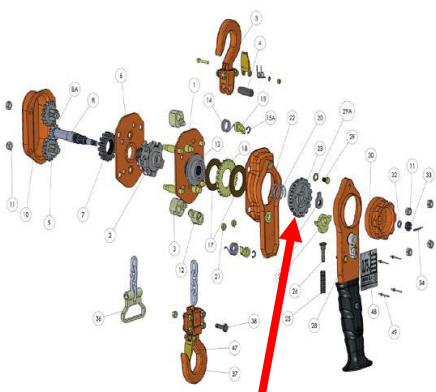
- ◆ Affected lines were isolated by blanking. allowing safe continued use for general loads, although no man-riding can take place;
- ◆ Ensure all pressure-relief valves are correctly adjusted, in order to prevent further overloading;
- ◆ Advise manufacturer reviews robustness of Management of change (MoC) and commissioning procedures; and personnel competence;
- ◆ Review on-board maintenance procedures for suitability;
- ◆ Advise manufacturer to verify correct adjustment of valves on other installations.

## 2 Near miss: Lever Hoist Failure

### What happened?

A lever hoist failed causing a load to descend to deck in an uncontrolled manner. The near miss incident occurred when a set of 1m trenching swords were being lowered to deck. The lever hoist being used was rated to 1.6Te, more than capable of lifting the load which was approximately 200kg in weight.

The rigging arrangement used was correct and all items of rigging had been recertified by a competent authority in recent months, including a limited load test.



*Figure 1 showing worn part*



*Worn cog teeth found*

### What were the causes? What went wrong?

- ◆ On investigation and inspection, worn cog teeth were found. A toothed part of the gear assembly (see figure 1) was found to have excessive wear;
- ◆ This gear assembly was not visible without stripping the unit, so wear would not have been evident during pre-use checks. Strip down of a working unit would invalidate the manufacturer's warranty and certification;
- ◆ Our member noted that a thorough examination cannot be conducted *in situ* and units must be taken to a workshop for full examination.

### Actions

Our member took the following actions:

- ◆ Review and amend the process for recertification of rigging with moving / wearing parts;
- ◆ Arrange for supply of newly certified rigging lofts on a 6-monthly basis;
- ◆ Revised internal documentation on lifting operations appropriately.

## 3 Provisions Crane damaged by Main Deck Crane

### What happened?

During vessel mobilization the boat cradle had to be shifted from centre of the main deck towards the starboard side closer to the accommodation. The Main Crane was used for this lift and the Provisions Crane was parked in standby facing aft. While slewing the Main Crane to starboard, the Main Crane jib crane came into contact with the jib on the Provisions Crane. The Provisions crane was inspected after impact and mechanical damage was found on the slewing gear and pinion gear.

Applicable  
Life Saving  
Rule:



Bypassing  
Safety  
Controls



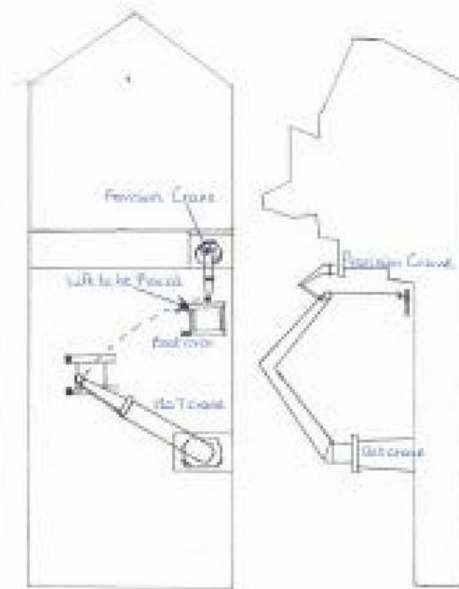
Line of Fire



Safe  
Mechanical  
Lifting



*Pinion gear damage*



*Sketch of Movement and position of cranes*

### What were the causes? What went wrong?

- ◆ The Provisions Crane was in the blind spot of the Main Crane operator cabin;

- ◆ The Banksman was focusing on the lift and not the position of the Provisions Crane;
- ◆ The Provisions Crane had been left parked facing aft in standby;
- ◆ The person who had most recently operated the Provisions Crane had not been part of the mobilization plan toolbox talk.

#### Actions

- ◆ All crew and mobilization team to be included in the mobilization plan toolbox talk;
- ◆ A procedure would be implemented for parking the Provisions Crane;
- ◆ An emphasis would be placed on communication and awareness for the crane operator and banksman as well as the mobilization team.

## 4 Dropped Object from Derrick

### What happened?

While running in drill pipe on a drilling vessel, part of a guide sheave failed and fell approximately 15m to the drill floor. A 'Red Zone' was in place to restrict access to the drill floor during hazardous activities. Nobody was injured.

**Applicable  
Life Saving  
Rule:**



Bypassing  
Safety  
Controls



Safe  
Mechanical  
Lifting



Working at  
Height

### What were the causes? What went wrong?

The sheave had seized and failed due to a combination of the following:

- ◆ Design - lack of inspection hole in the sheave;
- ◆ A small fleet angle resulting in lateral forces on one side of the sheave;
- ◆ Installation - incorrect thickness spacer fitted by a contractor during refurbishment and a lack of a protective coating (paint);
- ◆ Quality control - inadequate inspection & testing of the installation / contractor's work;
- ◆ Maintenance and inspection - failure to spot equipment defects and inadequacy of secondary retention.



### Lessons learned

- ◆ Planned preventative maintenance systems should take account of all equipment including ancillary equipment, irrespective of whether or not the equipment was original or retrofitted;
- ◆ Robust supervision and quality control of contractors is essential to ensure that the technical specifications, installation process, functional testing and documentation requirements are complied with;
- ◆ A dropped object 'Red Zone' is intended to keep unauthorised personnel out of the potentially hazardous area and should be continually assessed for effectiveness.

### Actions

- ◆ Amended vessel preventative maintenance system to include more detailed requirements for the inspection of ancillary equipment (e.g. sheaves, floodlights and other potential dropped object hazards) including the details of any applicable standards;

- ◆ Implemented Work Report templates to be prepared and submitted by contractors describing completed refurbishment / maintenance works;
- ◆ Revised designated 'Red Zones' to include "Safe Standing Zones" with overhead protective shielding.

## 5 Fall of a suspended load on general cargo vessel *ZEA Servant* injuring two crew

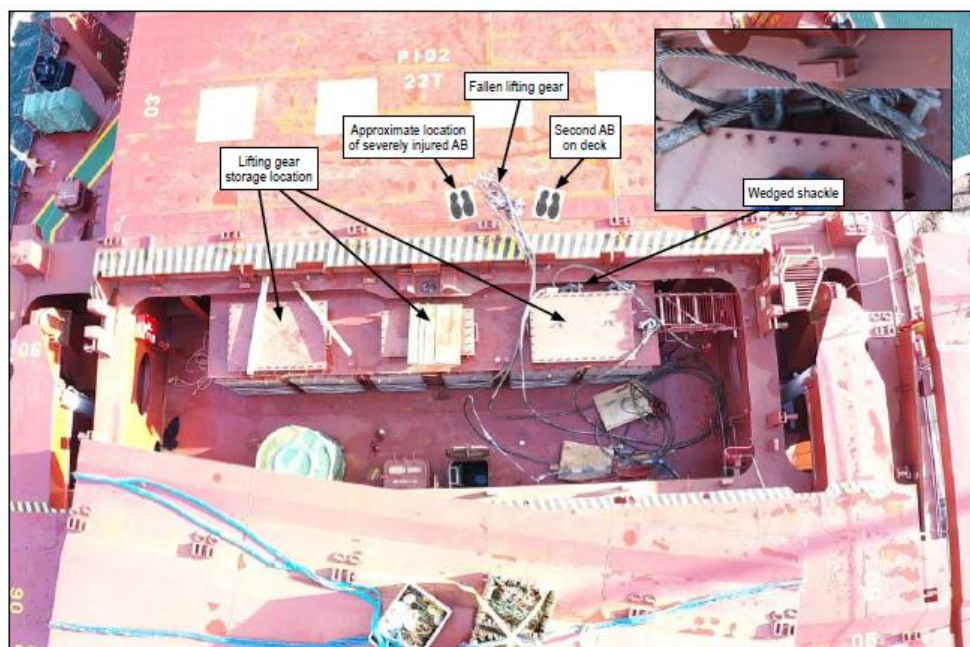
### What happened?

The UK Marine Accident Investigation Branch (MAIB) has published an Accident Investigation Report [11/2020](#) relating to an incident on the general cargo vessel *ZEA Servant* in Campbeltown, Scotland. Two crewmen were injured when a suspended load fell and struck them.

Applicable  
Life Saving  
Rule:



The suspended load was the cargo hatch lifting gear; as it was lifted by crane from where it had been stored, a shackle on the gear snagged. The crane was stopped but not before the fibre sling attaching the gear to the crane's hook parted under tension, and the load fell to the deck, striking the two crewmen. Both crewmen had been standing close to the suspended load in order to guide it out its storage area, where previous snaggings had occurred.



### What were the causes? What went wrong?

- ◆ Both injured crewmen were standing within the hazardous zone beneath a suspended load, but no action was taken to halt the operation;
- ◆ The operation being undertaken had not been subject to a risk assessment and the storage areas was inappropriate due to the snagging hazards.

More detailed findings are found in the full report [here](#).