

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 Failure of dive chamber overhead door centre pin

What happened

Minutes after a dive team transferred from the entry lock into the diving bell, there was a failure of the diving bell overhead door centre pin. A “bang” was heard and it was seen that components of the top door mechanism had failed.

The bell and dive system remained safe, there was no loss of pressure. Following discussion with the team onboard the door was lowered in a controlled manner supported by the diver recovery hoist in conjunction with the top door hydraulic ram. The divers were transferred to an adjacent chamber and the system made safe.

The top door hinge pin, weighing 0.5kg, fell from its position approximately 1.8m to the deck of the entry lock; there was no-one in the entry lock at the time.

What went wrong?

Our member notes that investigation is still ongoing including (and not limited to) design review, metallurgical analysis etc.

This failure appears to be limited to this specific design of hinge and operating mechanism. It should be noted that the hydraulic ram did not act directly onto the pin that failed. The hydraulic ram was, however, directly attached to the door (via clevis).

Our member estimates that the door would have been operated between 1500 – 2000 times per year for an average diving year (200-250 days diving), and suggests that the root cause is likely to be design related, corrosion and cyclic stress fatigue cracking (applied over many years).

What actions should be taken?

Doors with a similar design should be checked for cracks at the earliest opportunity.

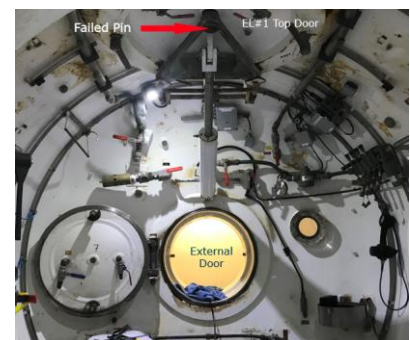
Members may wish to review:

- Failure of bell winch clutch coupling during bell recovery
- High potential near-miss: Dropped ROV/TMS leading to equipment damage
- Finger injury: diver caught finger in bell door

Applicable
Life Saving
Rule(s)



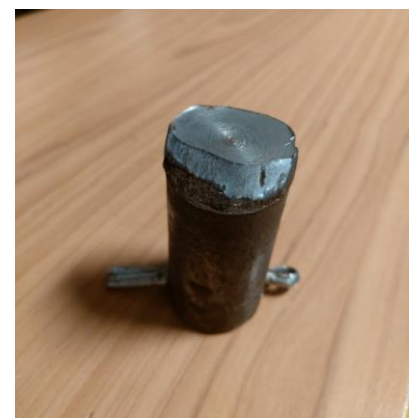
Line of Fire



The entry lock



Portion of pin remaining on door



Broken Pin Section

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2 HSE: Catastrophic failure of marine loading arm

What happened

The UK Health and Safety Executive (HSE) has published a safety alert on the catastrophic failure of a marine loading arm. Marine loading arms (MLAs) are used to transfer material from ship to shore. Full alert found [here](#).

This safety alert is aimed at users and companies that service MLAs to ensure they carry out suitable and sufficient inspection and maintenance to help avoid similar incidents. It has wider applicability to all lifting equipment.

What went wrong?

The MLA failed as it was being manoeuvred towards a ship manifold for connection. A section of the MLA fell backwards onto a jetty handrail narrowly avoiding live plant and pipework. This hydraulically operated MLA had been in service for 11 years and had been regularly maintained by various recognised industry contractors. It had a rigid link pantograph balancing system with independent primary and secondary counterweights linked to the inboard and outboard arms.

What was the cause?

Investigation found that a failed pantograph pivot pin led to the resulting collapse of the arm.

The immediate cause of the failure was from corrosion of the bearing that led to a complete fracture, emanating from the circumference. The underlying causes were inadequate inspection and maintenance practices which had led to the corrosion. The failure to properly inspect and maintain an MLA could result in a serious risk of a joint failing, allowing the pantograph arm to fall – with the potential of causing death, serious injury or damage to process pipework.

There was no convenient means of accessing the pivot pin for inspection and maintenance. As a result, it had not been lubricated during servicing by several different contractors.

Actions

A review of MLA designs suggests the problem of access to all parts requiring maintenance may not be specific to one manufacturer. Anyone using or servicing MLAs should use a structured management system to ensure they have adequate inspection and maintenance preventing a possible catastrophic failure.

The HSE outline the following, which is applicable to lifting equipment in general:

- Examine what is in place and identify areas that need to be addressed
 - Establish what inspection and maintenance work is recommended by the manufacturer and relevant industry guidance
 - Review inspection and maintenance activity carried out
 - Determine any parts of their MLA that have not been suitably maintained
- Identify areas at risk and prioritise accordingly
 - Update the inspection and maintenance plan accordingly

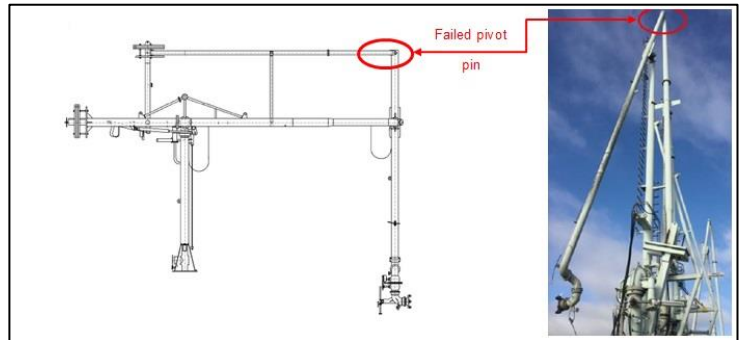
Applicable
Life Saving
Rule(s)



Bypassing
Safety
Controls



Safe
Mechanical
Lifting



- As soon as practicable, inspect structural components such as the pivot pin and seals, ensuring they are in good condition
- Implement the updated inspection and maintenance programme, ensuring it is suitable and sufficient, and capable of detecting and remedying any foreseeable deterioration before it results in unacceptable risk
- Evaluate the work
 - Verify the work has been undertaken satisfactorily
 - Assess that risks are being adequately controlled
 - Ensure that a clear, detailed and accurate record of the work is made
 - Highlight any servicing requirements that are not carried and make a judgement regarding the potential impact
- Review your performance
 - Learn from what was found, taking action as necessary
 - Review issues arising from inspection and maintenance and take suitable remedial action
 - Review industry good practice and manufacturer’s guidance as well as inspection and maintenance plans periodically to see if they need updating

Members may wish to refer to:

- HSSE 019 *Guidelines for lifting operations*
- *Are you prepared to work safely?* videos [Lifting equipment](#) and [Lifting Operations](#)
- [Lifting operations: wire hoist rope failure](#)
- [Galvanic corrosion causes dropped object – satellite dome fell from mast](#)

3 WSH: Two workers passed out and died in dredge ballast tank

The Workplace Safety and Health Council of Singapore (WSH) reported in [Accident Notification of 24 May 2021](#), that two workers had passed out and died in a dredger's ballast tank.



What happened

A supervisor entered a dredging vessel’s ballast tank, which is a confined space, for an inspection. The supervisor entered the tank without any appropriate Personal Protective Equipment (PPE) and did not check if the confined space was safe. Shortly after entering, he collapsed and passed out.

After some time, another worker entered the tank in an attempt to rescue the supervisor, but also passed out upon entry. A third worker attempted a rescue as well, but he too collapsed inside the tank.

The rest of the crew subsequently introduced forced ventilation into the tank. The second worker eventually regained consciousness and managed to climb out of the tank. The supervisor and the third worker were later extricated by the Singapore Civil Defence Force but unfortunately did not survive. This tragic accident highlights the invisible dangers of confined spaces.



Recommendations

The WSH recommendations are as follows:

- Do not open up any manhole into a confined space without proper authorisation;
- Do not enter any confined space unless you have had appropriate training;

- **Do not attempt any rescue on your own without proper PPE.**

Members should review:

- *Are you prepared to work safely?* Short video [Confined spaces: The dangers](#)
- [Britannia P&I Club: double fatality resulting from confined space entry](#)
- [Confined spaces: silent and invisible killers \(US Coast Guard\)](#)
- [Confined space entry fatality](#)
- [High potential near miss: person found unconscious in confined space](#)
- [Crew member fainted after working in water ballast tank](#)
- [Confined space entry: person overcome by fumes and rendered unconscious](#)

4 MAIB: fatality during transfer from a workboat to a barge

The UK Marine Accident Investigation Branch (MAIB) has published [Accident Investigation Report 6/2021](#) into the death of a crewman whilst transferring between the workboat *Beinn Na Caillich* and a barge at a fish farm.

What happened

The assistant manager of a fish farm drowned after falling into the water from a feed barge access ladder during a boat transfer. He stepped from the deck onto the ladder while *Beinn Na Caillich* was still moving forward, and he was crushed between the boat and the barge. A fish farm technician on board the barge attempted to stop the injured assistant manager from falling into the water by holding onto the back of his personal flotation device and oilskin jacket, but the severely injured casualty slipped out of them. Despite the assistant manager being recovered from the water and the determined efforts of the fish farm workers, emergency services, and medical staff, the assistant manager could not be resuscitated.

What went wrong?

The investigation concluded that:


- The conduct of the boat transfer had not been properly planned or briefed and was not adequately supervised or controlled;
- The transfer of personnel by workboat had not been properly risk assessed, and safe systems of work had not been put in place;
- The crew on board the workboat *Beinn Na Caillich* were not fully prepared to deal with the emergency situation. They had not conducted regular man overboard recovery drills and were not familiar with the vessel's recovery equipment;
- Neither the workboat nor the fish farm which owned the workboat had an effective marine safety management system and both lacked staff with the experience to oversee the marine operation.

Fuller details are available here: [Accident Investigation Report 6/2021](#).


Actions/recommendations

- Ensure thorough preparation, planning and risk assessment for small boat activities and personnel transfer;
- Ensure appropriate man overboard recovery drills are held and that all personnel are familiar with emergency equipment;

Applicable Life Saving Rule(s)



Bypassing Safety Controls



Line of Fire



- Ensure there are sufficient trained and experienced crew to do the job safely.

Please see IMCA HSSE 025 *Guidance on the transfer of personnel to and from offshore vessels and structures*

Members may also wish to review:

- Positive: vessel improvements made following a man overboard incident
- Double man overboard resulting in one fatality
- MOB fatality: person fell between vessel and jetty
- MAIB: fatal man overboard incident whilst boarding tug

5 HSE: Allergic reaction at work

What happened

The UK Health and Safety Executive (HSE) have fined a company over £100,000 after an employee developed an allergic form of dermatitis after coming into contact with metalworking fluids. See [here](#) for press release.

Our members’ operations may make use of potentially hazardous substances, so this may be of interest.

An employee was splashed on the face and upper body with metalworking fluid whilst cleaning out a grinding machine. As a result of the contact the employee had an allergic reaction, consisting of a very painful burning sensation, inflamed, broken and oozing skin, and was diagnosed with allergic contact dermatitis. This was a permanent allergy, which meant that even small quantities of this substance could result in a further serious reaction. The employee received medical advice that they could no longer continue in their job as it was a risk to their health.



What went wrong?

The company had:

- Failed to carry out a suitable and sufficient risk assessment to identify the potential for exposure to the hazardous chemicals;
- Not implemented the necessary controls to prevent skin contact. This was particularly important in this case as the company *was already aware* (IMCA italics) the employee had a history of dermatitis.

The HSE inspector noted that *“Dermal risks from metalworking fluids are well known within industry and there are simple and effective controls available to prevent contact with the skin. This serious health condition could have been prevented if the company had carried out the required risk assessment and implemented the necessary control measures, including suitable personal protective equipment, particularly gloves. All of these risks and controls are described in HSE and industry guidance, which is widely available.”*

Members may wish to review:

- Hazardous substance safety guide – IMCA (imca-int.com)
- Cargo contamination causing LTIs during clean-up