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 EGS valve stem on dive helmet

What happened

A member reported an incident in which the emergency gas system (EGS) valve handle on a commercial diving helmet broke off. At the time of the failure the dive helmet was undergoing pre-dive inspection on deck.

What went wrong

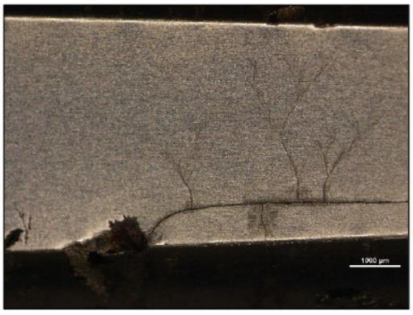
A dive technician stripped the valve and discovered the break to be located at the valve stem – where the threaded portion meets the square section. Both parts of the valve stem, adjacent to the break, were noted to be pitted and a fine hairline crack was noted. The failed component was replaced with a new spare. Following a gas leak and function test, the dive helmet was placed back into service. The failed component was sent ashore for further investigation.





What were the causes?

The member arranged an independent laboratory review of the material to try and identify the root cause. The finalised laboratory report indicated that failure occurred as a result of pitting and stress corrosion cracking under the action of the chlorides present in salt water.



Actions taken and lessons learned

- Following its investigation our member took the following actions:
  - The company preventative maintenance system (PMS) was modified to require NDE dye penetrant testing of EGS valve stems for all base and field diving helmets at a minimum of 12 monthly intervals.
  - Internal instructions were issued stating that if the post-dive, inspection, or maintenance routines recommended by the

manufacturer highlighted any concerns, the relevant valve stem(s) should undergo immediate NDE dye penetrant testing. If any anomalies are then detected, the component should be discarded and replaced.

Since these measures were put in place our member has identified three additional valve stems with stress-like indications in the material. Note the pin hole in this example that our member detected in a rental asset.

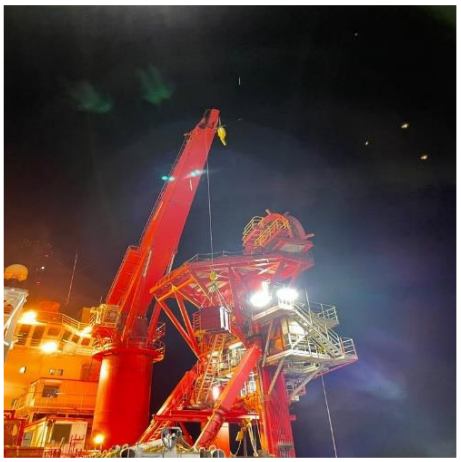
2 Dropped object during lifting operations

Applicable Life Saving Rule(s)

Safe Mechanical Lifting

What happened

A part weighing 8.5kg fell over 15m from a pipelay tower to deck. The incident occurred when tensioner pads were being changed out on a Tiltable Lay System (TLS). The discarded pads were packed into two dedicated tensioner pad baskets on the TLS tower for transfer back to deck. The crane operator lifted a first basket and placed it in the landing zone on deck. When lifting the second basket, a higher boom angle was needed in order to clear the TLS. As the basket cleared the TLS, it started swaying. This movement was amplified after the basket hit the crane boom, causing a single tensioner pad to fall from the basket down to the main deck.



The displaced tensioner pad fell approximately 15 to 18 meters. There was no-one in the area at the time, and the area of the crane lift path had been barriered off as an exclusion zone.

What went wrong?

Our members' findings were:

- The dropped object (tensioner pad) resulted from the excessive movement of an unsecured load;
- The change-out of tensioner pads was considered a "routine lift" and did not require a designated Lift Plan (with a specific slew path identified);
- The operation took place at night and the sea conditions were not apparent to the crane operator or banksman when they started the lift;
- Risk assessments
  - Although a risk assessment for routine lifts had been reviewed at the Toolbox Talk (TBT), the risk assessment specific to tensioner pad change-out (which includes the lifting of the baskets) was not reviewed before starting the task;
  - The risk assessment specific to the tensioner pad changeout was inadequate - it did not specify a cover for the tensioner basket, nor did it take into account the effect of the sea state/swell on the swing of the load and how this should be factored into the chosen slew path;

- The locking mechanism on the side door of the tensioner pad basket was found to be inadequate and could have quite easily sprung open.

Lessons learned

- An alternate slew path with a high boom angle would have avoided the basket striking the crane and cause increased swing;

- A cover or net fitted to the basket would have prevented the pad being displaced.

Actions

- Check all lifting appliances, supports and baskets to ensure they are fit for purpose including that doors have secure locking mechanisms;
- Never overfill and always secure the load in open top containers;
- Crane operators and banksman should work together to identify the best possible routes for moving equipment around the vessel taking sea state/swell into consideration;
- The vessel bridge should always be consulted before starting lifting operations, to ensure the sea state and vessel movements are within limits and where practical a heading to reduce vessel movement is taken.

Members may wish to review:

- Lifting basket with unsecured cargo which fell out
- MSF: Potential dropped objects – nets or tarps to cover cargo?
- High potential near miss: tensioner pad dropped to under deck carousel

3 MSF: Potential dropped object

Applicable Life Saving Rule(s)

Safe Mechanical Lifting

The Marine Safety Forum has published Safety Alert 21-08 relating to a potential dropped object which was found during lifting operations between a vessel and a platform.

What Happened

A metal plate of size 25 x 17 x 6cm, weighing 1.6kg, was found inside a forklift pocket hole on a 10' container when the container was landed onto a platform from a vessel. The MSF noted that the size and weight of the plate meant that this potential dropped object could have been life-threatening had it hit someone.

What went wrong?

The MSF noted that *"one of the possible reasons that this particular plate may have been washed from its position within the main deck could have been that it was quite badly buckled or bent. This could have enabled water breaking onto the vessel's main deck, to work beneath the plate to lift it."*

What are the actions?

Check pin post/lifting point plates, to ensure:

- that they are not buckled;
- that they fit correctly;
- that they can be secured appropriately.

Members may wish to refer to:

- Dropped Object – Steel deck plate falls from pipelay tower
- MSF: Near miss - potential dropped object during cargo operations
- High potential dropped object during lifting operations

4 Dropped Object - door detached from TMS during dive

Applicable Life Saving Rule(s)

Bypassing Safety Controls

What happened

During offshore installation activities a Remotely Operated Vehicle (ROV) and Tether Management System (TMS) recovered to deck was observed to have a TMS door missing. The ROV team confirmed that the remaining doors on the TMS were attached. The aluminium TMS door (2m x 1m x 4mm thickness, approximate weight 15kg) is secured to the TMS frame with 2 pins on top of the door and 2 stainless steel latches on the bottom. In this instance, both the bottom latches failed allowing the door to detach from the TMS frame whilst subsea.

The water depth at the dive location was approximately 1400 meters. The vessel was located approximately 830m from the nearest subsea asset. The surface current was approximately 1.5–2.0 knots. The door was not found. Analysis of the DROPS cone determined it was very unlikely that the TMS door would have struck or damaged any of the subsea assets.

Showing a TMS door in place

Showing a TMS door missing

What went wrong?

Our members' investigation noted that there had been no check to confirm secondary retention was in place on the TMS doors as described in the company ROV Operations Checklists.

The securing pins at the top of door did not contribute to the incident.

A bottom securing latch

A failed latch

Actions and recommendations

- Check and ensure that all fixings are in good working order and that where required, secondary retention is used;
- Review pre-dive/post-dive checklists and add any additional items as required based on the existing condition of the TMS. Purely as an example, for *this specific TMS*, our member added "confirm that tie wraps are in place";
- Consider the potential environmental, safety, schedule and legislative impacts from items dropped/lost at sea.

Members may wish to refer to:

- Near miss: dropped magnet during dry docking
- Near miss: Potential dropped object due to unsecured door
- Equipment damage - dropped ROV/tether management system (TMS)

5 Lifting frame detached from fast rescue craft (FRC)

What happened

IMCA has received information relating to an incident in which a lifting frame became detached from a fast rescue craft (FRC) during operations.

The incident occurred when the FRC was attempting to come alongside a vessel in good weather with choppy seas. During recovery, the complete lifting frame detached from the boat. No one ended up in the water, but one member of the boat crew was pulled up with the lifting frame and fell down into the boat. The crew member sustained only minor injuries. An investigation and checkup of similar boats revealed cracks around the lifting frames.

This was considered a high potential incident with a potential outcome of multiple fatalities had the frame come loose later in the recovery operation.

What went wrong?

- Investigation uncovered cracks, delamination and potential weaknesses in the structure of the anchoring of the lifting frame on this type of FRC.

Lessons learned

- Surface cracks are early signs, but it is very difficult to assess severity and any potential delamination as the attachment of the lifting frame is inside the hull.

Actions

In this case, a management decision was taken to cease use of this specific type of FRC and notify the manufacturer immediately. Members may wish to:

- Inspect all FRC, lifeboats and workboats lifting frames and attachments;
- Ensure that there is an appropriate focus on inspection and the detection of cracks in planned maintenance systems.

Members may wish to refer to:

- MSF: Air cylinder failure in lifeboat *(causal factor: corrosion)*
- Pallet lifter failure (causal factor: failure to identify corrosion in timely way)