Safety Flash

34/21 – December 2021

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 64mm polyester rope in subsea mooring operations

Applicable Life Saving Rule(s)

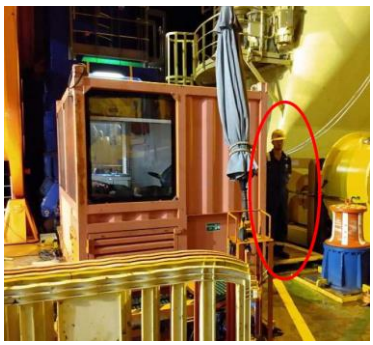
Bypassing Safety Controls

What happened

A 64mm polyester rope parted during the lowering of subsea equipment to depth. The failure occurred between the Mooring Line Deployment Winch (MLDW) and the pennant, due to overload caused by lack of synchronism between the crane and the MLDW winch. The operation was immediately stopped. No-one was injured, but damage was caused: there was a break in the balustrade of the cable lowering ramp and damage to the window of the MLDW control cabin.

MLDW winch

Parted rope



Place where the MLDW operator stood

What went wrong

Although the MLDW operator **three times** raised his concern to the supervisor to pay out extra line to reduce the tension, this was not recognised as a STOP WORK or other signal to stop and re-assess the situation. The supervisor was concentrating on moving the vessel into position as there were simultaneous operations (SIMOPS) taking place. A clear “STOP” was not used.

Our members’ investigation found:

- Tension on the rope increased leading to it parting;
- Company procedures were not followed;
- Cranes were lowered without giving sufficient slack on the rope;
- There was miscommunication and a lack of situational awareness during the operation;
- No-one stopped the job - STOP WORK authority was not used.

Actions

- Indicator installed to allow winch operator to see rope tension;
- Better practice developed on co-ordination of simultaneous movement of crane and winch;

- Reiteration of and retraining in, existing procedures;
- Encourage all in their right and responsibility to use the STOP WORK Authority and how to exercise it.

Members may wish to refer to:

- Rope under tension parted on deck
- Line of fire near miss – almost a head injury
- *In the line of fire* (IMCA SEL 036, video)
- Short video ("Are you prepared to work safely") *Line of fire*

2 ROV main lift failure

What happened

A termination failed during launch of an ROV for a test dive, and the ROV/TMS assembly fell to the seabed. No-one was harmed. The umbilical termination slipped through the wirelock socketing.

It was noted that the umbilical termination had been done only a few days beforehand and been load tested to 1.5 x the weight of the ROV/TMS assembly.

What was the cause?

Third-party investigation concluded that the four main causes of the failure were:

- The volume of the bullet/cone was too small giving too narrow a passage for the wirelock to flow and fill the bullet;
- Uneven distribution of strains, with the majority close to the outside perimeter of the cone;
- Too high force applied during docking;
- Excessive resin in the broad end of the cone changed the intended shape of it, thereby decreasing the cone's function.

Corrective action/lessons learned:

- The root cause was suboptimal cleaning and strand distribution within too small a cone, which was difficult to work with. The cone was changed to a bigger one;
- Adjustment of docking head dampers.

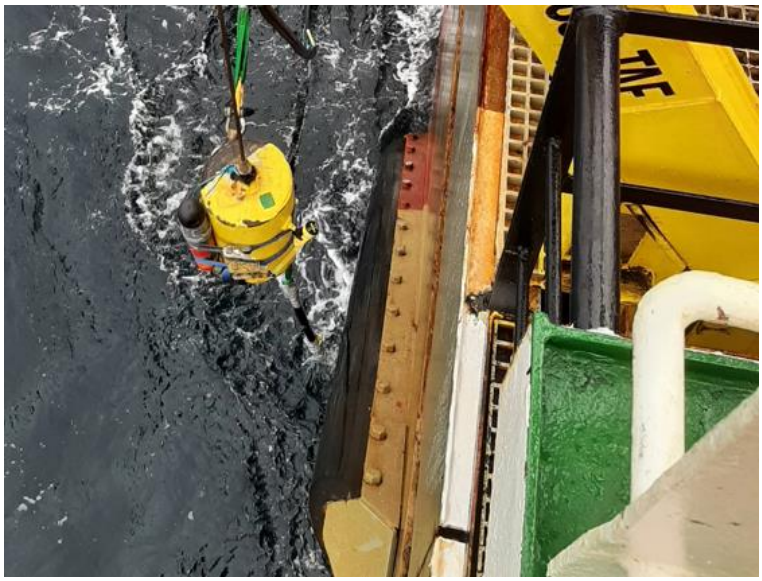
Members may wish to refer to:

- Main ROV lift wire umbilical and bullet parted
- Umbilical termination failure and loss of ROV
- Loss of ROV after umbilical termination failure and damage to ROV during recovery
- *Guidance for the safe and efficient operation of remotely operated vehicles* (IMCA R 004)
- *The initial and periodic examination, testing and certification of ROV launch and recovery systems* (IMCA LR 011, IMCA R 011)

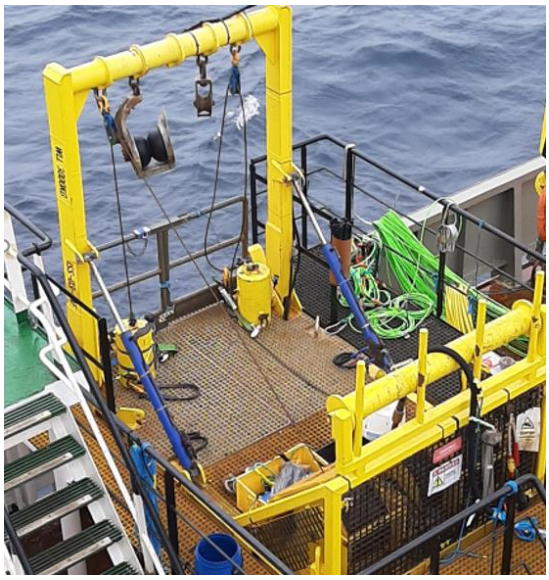
3 Importance of safety by design: acoustic beacon damage in splash zone

What happened

During recovery of tugger winches on an A-frame workstation, the headache ball experienced normal movement when exiting the splash zone. However, in this instance, the headache ball came into contact with the vessel fender and damaged an acoustic beacon. The damaged beacon was taken out of service and repair arranged.



Location of fender in relation to beacon on the Headache Ball



A-Frame Workstation

What went wrong?

- The damage occurred with normal perpendicular movement of the headache ball as it went through the splash zone;
- The A-frame, due to its height, did not allow the outboarding of a load far enough away from the vessel hull;
- This was a known hazard associated with vessel design, however team onboard had previously worked around the problem during equipment overboarding and recovery.

The actions were:

- Design and install a protective cage for the acoustic beacon;
- Undertake a full design review with a focus on the Tooling Skid and associated tasks and systems, and also a review of the design of the A-Frame.
  - A-frame design modifications implemented, to extend the reach and keep the load away from vessel hull during overboarding and recovery.

Members may wish to refer to:

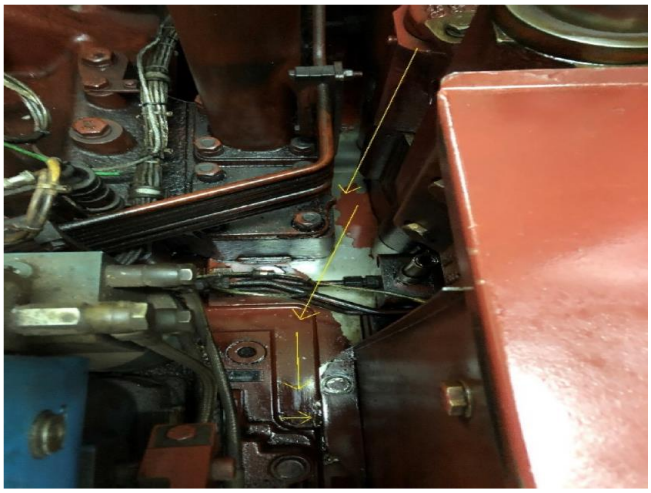
- Dropped object – unexpected release of spool
- Positive: vessel improvements made following a man overboard incident
- Vessel hull damage due to quayside contact

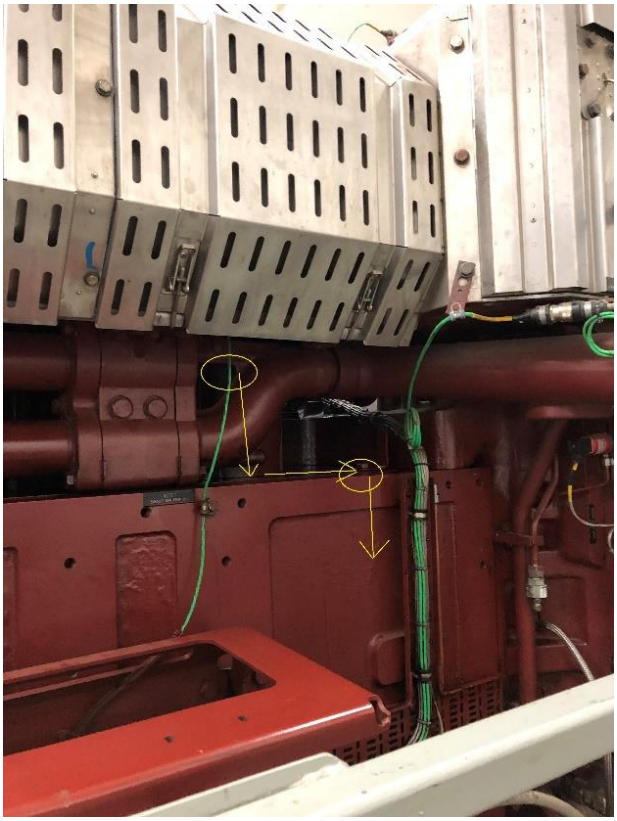
4 Oil leakage from cylinder head cover

What happened

After completion of regular planned maintenance on one of the main engines, the cylinder covers were mounted back. However, the cover of cylinder number one was not mounted correctly and the guide pin of the cover was not in the recess of the cylinder head on the exhaust side (see image top left).

The misaligned mounted cover resulted in a small 3mm gap between cover and the sealing surface (see image bottom left). This was not noticed at that time by the crew executing the regular maintenance as the gap is not visible from the walk platform side (cam-side).





The next day the main engines where started for departure and the regular checks were done, but the gap was not noticed.

What went wrong

The gap was not noticed because the vessel had a slight list to starboard so the leaked oil was flowing from the cylinder head on the block in between the turbo charger and the regulator into the fuel oil leak tray (see image top right). Only after the vessel made a turn to portside, did the duty engineer notice the oil leak (see image bottom right).

Actions

Investigation into the source of the leaked oil led to the discovery of the wrongly mounted cover. Quick action by losing the cover and giving it a gentle tap to make it fall back in its correct position, stopped the oil leakage. The remaining spilled oil was quickly removed from the cylinder head and block. The oil underneath the exhaust gas line was already starting to vaporize so quick removal of this oil was essential to prevent a possible fire.

After the clean-up, one of the engineers was assigned as a fire watch to check the exhaust gas line and engine.

The potential consequences of the oil leakage could have been an engine room fire.

Members may wish to refer to:

- IMCA Safety Flash 10/14 fires in engine room spaces
- Near miss: unplanned release of 2" blasting hose outlet from air receiver coupling clamp
- Fuel spray fire – Déjà vu: Prepare and prevent it from happening to you!

5 MSF: Crankcase failure

What happened

The Marine Safety Forum has published Safety Alert 21-19 relating to a crankcase failure. A vessel suffered a crankcase failure on one of four diesel generators, which resulted in two small fires and excessive damage to the pistons, con-rods, and the engine block. Fortunately, no personnel were injured during this event and due to the swift actions from the crew and additional barriers already in place, the situation was quickly and effectively controlled, and any potential secondary damage to surrounding machinery was prevented.

What went right

- The vessel had plexiglass guards surrounding the diesel generators which meant that there was less secondary damage than normally results from these types of failures;
- No-one was working nearby – by design and planning. The Chief Engineer's standing orders required that no prolonged work scopes would be carried out alongside a running diesel generator;
- The Emergency Response Plan was effectively implemented by the well trained and drilled crew.

What went wrong?

After investigation, it was found that a main bearing had worn out. It had been very hot at some point. When the main bearing cap was dismantled the upper bearing was located in the bearing cap,

with the result that the bearing had been turning on the crankshaft. This blocked the lubrication hole on the main bearing, and the con-rod at one cylinder received its oil supply from this main bearing. This meant that this cylinder con-rod also lost its oil supply. This was probably the main failure from the start. The investigation also noted that:

- The diesel generator had recently undergone a major overhaul;
- The maintenance of the diesel generator was in order as per manufacturers instructions;
- The running hours were well below manufacturers guidance.

Members may wish to refer to:

- MAIB: Engine failure and subsequent fire
- Exhaust valve cage assembly blow-out