IMCA Safety Flash 01/13

January 2013

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.

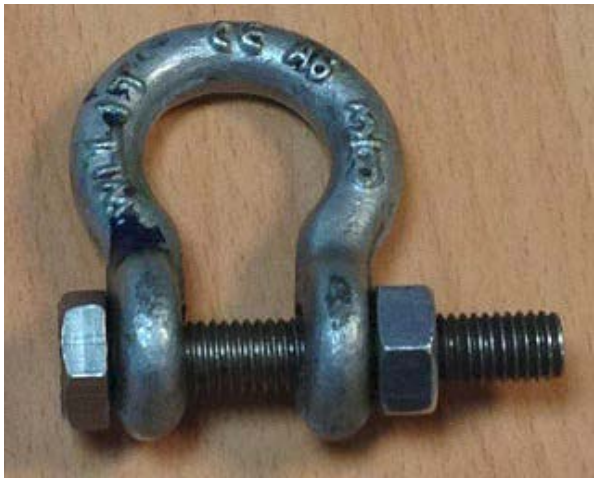
The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat (imca@imca-int.com) to your internal distribution list for safety alerts and/or manually submitting information 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 Additional links should be submitted to webmaster@imca-int.com

1 Near Miss: Shackle Configuration

A member has reported finding shackles used for lifting equipment in an unsafe condition. A third-party lifting inspector was re-certifying lifting equipment when a 1 ton lifting shackle was discovered which had lost its pin, and the missing pin had been replaced with a standard bolt and nut which was not certified for lifting operations.

Additionally, the shackle was found to be pinched due to excessive pressure being applied when tightening the nut due to the bolt having thread along its entire length. It was not clear whether or not this shackle had been used for lifting but the potential for injury to personnel or damage to assets was high.



Non-compliant shackle with nut and bolt (note shackle lugs pinched)

Shackle with correct configuration and split pin (but colour code unclear)

The following lessons were learnt:

- Lifting equipment should be fit for purpose and certified by a competent authority for use;
- Replacement or repair of lifting equipment invalidates the certification;
- Lifting equipment should be reviewed regularly for non-compliance and any non-compliant items taken out of service;
- Where damage is evident or pins/bolts are missing, the equipment should be removed from service and either destroyed or new parts ordered;
- If new parts are ordered, the lifting equipment should be re-tested with a certificate issued prior to return to service;
- Lifting equipment should follow the current colour coding;
- Lifting equipment colour codes should be well communicated and displayed;
- Identifying and reporting faults in lifting equipment is a regulatory requirement in many places and should be seen as a first line of defence.

Members may also refer to IMCA SEL 019 – *Guidelines for lifting operations.*

2 Damage to Crane Winch

A member has reported an incident in which a crane winch was badly damaged and the load dropped as a result. The incident occurred on a vessel when the crane was being used to deploy a small boat for personnel transfer.

The crane operator started the crane and also disabled the limit switch. Whilst one of the riggers on deck connected the hook to the small boat, another rigger (banksman) gave the signal to the crane operator to start heaving up. Two tag lines were connected to help control the movement of the small boat. The crane operator heaved up till the "headache ball" touched the limit switch weight, then the rigger (banksman) signalled for the operator to swing the boom to the port side and over the bulwarks.

It was observed that, when the small boat was situated 2-3 meters above the water, it was still not clear from the vessel's fenders. The crane operator extended the boom in order to clear the boat from the fenders; however, as the headache ball was already against the stopper, tension was placed on the winch drum sufficient enough so as to cause it to break from its foundation bolts. As a result, the boat fell into water and the crane block fell into the boat. There were no injuries, as no one was in the boat at the time.

Our member's investigation revealed the following:

- The vessel initially had one crane operator on board and, two weeks before the incident, had switched to 24-hour operations which required the use of a second crane operator;
- The limit switch for the crane was disabled by the crane operator without prior approval from the officer in charge of the watch. The more senior crane operator onboard revealed that he normally disables the limit switch for the crane as this causes a nuisance every time the crane shuts off when the vessel is rolling;
- Internal company checklists were not followed;
- The crane operator had full visibility on the lift and the crane block from the crane cabin;
- A toolbox meeting and risk assessment for lifting operations had been conducted and was in place, although some specific control measures within the risk assessment were not complied with;
- The crane operator extended the boom without observing that the block was already heaved to the maximum level.

The following lessons were learnt:

- As part of a planned maintenance programme, functionality of crane limit switches should be regularly tested;
- Alarms on the switch limits should not be altered without approval;
- Crane limit switches should be checked and calibrated only by competent persons;
- Full induction and training should be given to crane operators for the specific crane type being used, with crane operator competency assessed by an agreed third party company;
- There should only be one identified banksman for each shift, who should be provided with special vest for easy identification;
- Always ensure communications (including hand signals and radio) are tested prior to starting operations.

Members should refer to the following IMCA publications for further information:

- IMCA SEL 019 – *Guidelines for lifting operations*
- IMCA pocket safety card 04 – *Lifting operations*
- IMCA pocket safety card 05 – *Lifting equipment*
- IMCA SEL 030 – *Safe lifting (DVD)*

3 First Aid Injury: Contact with Spinning Spooler Arm

A member has reported an incident in which a spinning handle on a spooler arm hit someone on the upper arm, wrist and knuckles, causing light bruising. The incident occurred when a hydraulic grapple (complete with 12m section of 20" pipe) was being recovered to deck using the vessel's crane whip line. A third party technician, who was operating the hydraulics at the powered reeler, was paying in on the hydraulic hoses, and using the manual handle on the spooler arm to evenly wrap the hoses on the drum. As the grapple was being lifted inboard the vessel took a heave, which pulled the hoses tight causing the handle on the spooler arm to spin round. As the handle spun it caught the third party technician on the upper arm, wrist and knuckles. The technician was wearing full personal protective equipment (PPE) at the time but was taken to the medic, where he was checked over and found to have light bruising.

Figure showing spooler arm and hydraulic spooler controls where injured person was standing

An investigation revealed the following root causes:

- The vessel experienced a heave while the hydraulic hoses were being manually spooled/wrapped around a drum during grapple/pipe recovery operations;
- Insufficient slack left on the hydraulic hoses to accommodate the conditions/heave being experienced by the vessel led to the hoses becoming tight and the spooler arm handle to spin;
- Lack of recognition of a potential hazard (the spooler arm handle spinning if the hoses went tight) was such that there was no recognition of the need to ensure that sufficient slack was left on the hoses to avoid the handle spinning, or that body position during grapple recovery operations (if too close to the spooler arm handle) could potentially result in contact with it;
- The design/layout of the work area and location of equipment allows for hand/body positioning to get close enough to the spooler arm handle to make contact with it, in particular during times when vessel was experiencing a heave;
- A toolbox talk/pre-task assessment was carried out with the third party personnel in attendance; however it appears to have focused mainly on lifting/rigging operations hazards and escape routes should problems arise during lifting operations, but not potential vessel heave in moderate sea states, subsequent hydraulic hoses tightening and workspace issues that could result in contact with the protruding spooler arm handle on recovery of the grapple;
- The initial revision of the job safety and environmental analysis for the grapple operations did not include the potential hazard/risks associated with tightening of hoses and safe body positioning for returning/lifting the grapple to deck or debris pile job step. In addition the necessary control measure of ensuring that the operators stand clear of the spooler arm handle and/or ensuring that the handle is locked was not included.

The following lessons were learnt:

- Use of an automatic spooler would prevent the need for hand/body positioning so close to the spooler arm handle during recovery of the grapple;
- In addition to ergonomic issues, it was found that personnel were exposed to environmental hazards, i.e. the weather, when operating the controls. Adapting this area to include some form of habitat would mean operators were protected from the weather.

Additionally, a formal change was made to the launch and recovery operations process/tasked based risk assessment.

4 Luff Ram Clevis Failures

A member has reported a number of incidents in which a luff ram has parted at the clevis. The first incident occurred during a load test of a remotely operated vehicle (ROV) system. During recovery of the ROV whilst latched into the snubber, another luffing ram on the same launch and recovery system (LARS) parted in the same manner. Subsequently, during an ROV launch of the same system, the replacement starboard luffing ram parted at the clevis. There were no injuries or damage to equipment.

Clevis pictured after failures

An investigation identified the following:

Contributory factors:

- No evidence of anti-seize compound or other corrosion inhibitor in the rod end threads or on the rod threads;
- Dead space between rod eye and cylinder rod allows generation and collection of moisture/condensation.

Immediate causes:

- Excessive corrosion of each clevis (rod eye);
- Dimensional check shows clevis to be deformed.

The company notes that root cause analysis for multiple failures is on-going; however the causes of the corrosion are in part attributable to a missed step during the service and maintenance of the cylinders.

The following actions were taken:

- Updated planned maintenance system with manufacturer's recommendations for inspection of cylinder rod eyes:
  - while A-frame foot is approximately 1" from the hard stop so the luff cylinders are in tension, use a feeler gauge to determine if there is any gap between the faces of the rod eye and rod. There should be zero gap. If there is a gap, the cylinder should be removed, rod eye removed and inspected
  - the counterbalance valves should be verified that they are adjusted properly
  - perform a visual inspection of the A-frame operation to focus on cylinder timing or excessive lateral movement
  - perform visual inspection of rod eye surface for excessive signs of corrosion at point of rod entry.

5 LTI: Crewman Broke Leg Falling Into Tank

The Marine Safety Forum (MSF) has published the following Safety Flash regarding an incident in which a crewman fell over four metres from the main deck into a tank and broke his leg. The incident occurred during preparation for tank cleaning onboard a platform supply vessel. The crewman was securing the area with blocking (barrier) tape and while moving backwards, he stepped into the tank, fell and fractured his femur.

The report can be downloaded from www.marinesafetyforum.org/upload-files//safetyalerts/msf-safety-flash-12.45.pdf