

## IMCA Safety Flash 08/08

April 2008

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learned 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 [webmaster@imca-int.com](mailto:webmaster@imca-int.com)

### I Fall Through Open Hatch in Walkway

A member has reported a incident onboard an offshore construction vessel in which a crew member fell through an unprotected hatch on a walkway on to the deck below. The injuries sustained were only slight bruising and abrasions to left arm, upper chest and left knee. Whilst the injuries were light, the potential for serious injury was high.

The hatch, which had been installed along with an access ladder when an additional air conditioning (AC) unit was placed on top of the bridge, had been left tied open by another worker. The crew member fell through the hatch after raising a safety barrier on the walkway whilst going to inspect some heating, ventilation and air conditioning (HVAC) air ducts.

Following investigation, the following points were noted:

- ◆ The addition of the hatch in the walkway should have been risk assessed and a management of change (MoC) process followed.
- ◆ Following this incident the ladder access to HVAC air ducts was relocated to an area outside the walkway, thus eliminating the need for a hatch. The hatch was welded shut.
- ◆ Personnel were reminded never to leave a hatchway open without it being barricaded on all sides.
- ◆ Personnel were reminded never to raise a safety barrier in haste or to enter a danger zone without evaluating potential dangers.



Before



After

## 2 Near-Miss Involving Knuckle Boom Crane – Hydraulic Pump Selection

A member has reported a near-miss incident where a 220 litre drum and pallet lifter made an uncontrolled descent to within 2 metres of the deck. The drum was being moved on to the main deck from the quayside using the whipline of a knuckle boom, heave compensated, computer assisted type crane.

It is possible, on the type of crane used, for the crane operator to select the number of hydraulic pumps required dependent on the operations to be completed. There were four hydraulic pumps available but as the operation appeared to require only a single function at low speed the operator had selected only two pumps.

The crane operator was manoeuvring the load to the selected position using the left slew, boom up, knuckle in and whipline lowering functions.

On reaching the approximate landing area, the deck foreman and rigger were preparing to take control of the load with the taglines when the load commenced an uncontrolled descent of approximately three metres and then came to a stop approximately two metres from the deck. When the deck foreman and rigger heard the load descending they moved clear.

The crane manufacturer was contacted. One of its technicians inspected the crane and reviewed the circumstances leading to the incident. His findings were as follows:

*“The reported incident appears to be a combination of improper use of pumps during operation – the operator had only two out of the four main pumps running when using multiple functions. This resulted in reduced flow to all functions when all functions were activated. When the majority of functions were deactivated and the winch function was still fully active, all hydraulic flow was diverted to the fully open winch function, causing an unintended situation.”*

The crane manufacturer has confirmed that there is a danger that if only two pumps are running the system will produce this “unintended situation”.

The member involved has instigated the following corrective/preventative actions:

To ensure safe working for lifting operations involving this type of crane, supervisory staff, in consultation with workers and their representatives are to provide all crane operators with the information contained in this safety notice, and:

- ◆ during crane driver training/familiarisation, reiterate the requirement to have, as a minimum, three pumps working and warning of the danger of not doing so. It is appreciated that some operations can be completed with only two pumps; two pumps should only be selected for a lifting operation when careful assessment has been made of the likely risks and it is ensured that there is no possibility of a dropped load. An additional risk assessment must be completed to document two-pump operations and the precautions in place that ensure safe operations;
- ◆ install a warning notice in the crane cab highlighting the requirement to have, as a minimum, three pumps running;
- ◆ review the risk assessment for the crane, with additional focus on the potential for this type of incident;
- ◆ ensure supervisory personnel involved in lifting operations take responsibility for disseminating this notice and raise deck crew awareness of potential dropped loads through review of the revised risk assessment and the completion of a toolbox talk prior to lifting operations;
- ◆ provide all personnel onboard with information and instruction regarding the incident and the dangers of approaching any raised/suspended loads;
- ◆ issue this notice to IMCA and request distribution throughout the industry to warn others of the potential for incorrect set-up and operation of this type of crane system.

### 3 Partial Parting of a Bell Main Lift Wire

A member has reported the partial parting of a bell main lift wire.

During bell recovery a member of the dive team noticed damage on the bell main lift wire, 48m from the bell.

The bell recovery was stopped, the bell guide weights were brought up to support the bell, strands of damaged wire were removed by the diving technicians and deck crew and the bell was lifted using the bell guide wire. The bell was then locked into the cursor and safely clamped on to the system.



*Photograph showing partly parted wire*

After investigation by the company involved, the following points were highlighted:

- ◆ The cause of the wire rope failure was internal corrosion damage where the inner core wires of the rope had been reduced in size by up to 50% with no external damage visible;
- ◆ The rope lubricant had been lost internally and the galvanised coating was no longer present. Both of these two factors had accelerated the corrosion of the wires;
- ◆ The local corrosion of the core wires had led to a loss in diameter and strength. The loss in strength had resulted in overload of the individual wires and placed additional stress on the core.

When checking the size of the bell wire (nominally 22mm diameter) approximately 3m each side of the damaged area, the diameter was recorded as 21mm. At various other areas of the wire the readings were between 21.3mm and 21.8mm.

ISO 4309 2004 paragraph 3.5.7 allows for a 3% reduction for multi strand wire making 21mm outside acceptable tolerances.

Even though the wire inspection, testing and maintenance procedures used by the company were in accordance with local legislation, IMCA guidance and company procedures, the deterioration of the wire failed to be detected.

The company noted that inspections had been carried out for the wire at six monthly intervals, annual destructive tests had been carried out, a comment regarding lack of lubrication had been noted in last report of destructive testing and pressure lubrication of the wire had been carried out at six-month intervals.



*Photograph of a section taken from the core of the rope close to the fracture*

Possible contributory factors to the failure of the bell wire identified by the member company were:

- ◆ The extent of the detrimental effect of multiple sheaves and sheave diameters in use;
- ◆ The wire rope had, over a number of years, been bent over heave compensator sheaves which could have led to internal fretting taking place within the rope once the rope lubricant had been lost;
- ◆ High peak loads could have been experienced on the system when the heave compensators were fully compressed before the bell and cursor were handled in moon-pool;
- ◆ The bell wire was eight years old which was inside the company's discard policy of ten years which may need to be re-assessed.

Members are urged to consider all of the points raised and review their own wire rope maintenance and testing policies as appropriate.