IMCA Safety Flash 03/11

April 2011

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 Failure of Hydraulic Fitting at Pressure

A member reports an incident in which a hydraulic fitting failed under pressure. The hydraulic fitting was part of a hydraulic intensifier panel used during live testing of a guillotine cutter and intensifier. (Hydraulic intensifiers are used to boost ROV pressure up to around 690 bar for various tooling requirements like cutters and linear override tools).

The fitting that failed connected a pressure gauge to the high pressure (output side) side of the intensifier and was an integral and permanent component of the equipment. The gauge was being used to monitor output pressure on the circuit while the cutter test was performed. This connection failure resulted in the high velocity ejection of the gauge under very high pressure. There were no injuries. The intensifier in question was removed.

Figure – Typical intensifier panel

Figure – Open fitting that held the gauge

Preliminary findings from our member's investigations were:

- The hydraulic fittings that connected the gauge to the intensifier were not 690 bar rated;
- The other hydraulic fittings in this part of the circuit were not 690 bar rated;
- Urgent checks revealed that there were several intensifier panels with non-rated fittings in service elsewhere.

Our member took the following actions:

- All on-deck testing involving high pressure intensifiers was stopped immediately and any required testing was conducted in the water with a wire sample, until confirmation of correct fitting was made;
- All worksites checked intensifiers and verified the specification with tooling department(s) and arranged for replacement or upgrade as necessary;
- Steps were taken to upgrade affected units held onshore and these were systematically changed out with affected units offshore until all panels had the correct fittings.

It should be noted that this specification shortfall may not be limited to ROV intensifiers and therefore vigilance is recommended with all high pressure hydraulic equipment.

2 Crane Motion Reference Unit (MRU) Malfunctions after Overheating

A member reports the following incident in which a crane paid out winch wire unexpectedly whilst in active heave compensation (AHC) mode. A vessel was engaged in inspection of a floating production storage and offloading unit (FPSO) mooring chain in around 80 metres of water, with the AHC crane being utilised to lift and hold sections of the mooring chain off the sea bed for cleaning and inspection by ROVs. During one lift while operating in the AHC mode, the crane unexpectedly disengaged from AHC mode and the wire slowly paid out approximately three to four metres, lowering the chain and then coming to a complete stop all without operator intervention. There was no damage to the crane, mooring chain or the ROV. All activities were stopped, the chain lowered and the seabed and the crane de-rigged. Once the condition of the crane was established and a risk assessment had been conducted, the rigging was recovered to deck and the crane taken out of service.

The chief engineer and electrical technical officer of the vessel investigated the incident in co-operation with the crane manufacturer, who was able to remotely interrogate the crane's computer diagnostic system. The following details were recorded:

- Crane type – Active Heave Compensated Offshore Knuckle – Jib;
- Crane safe working load (SWL) – 70 tonnes (T);
- Lift weight – 44T at time of incident;
- MRU location – Crane Pedestal – Mounted in lower section;
- Winds – 7-10 knots;
- Sea State – 0.5-1.2 metres (calm conditions);
- Ambient temperature – 32°C;
- Solar Radiation – high.

With regard to the causes of the incident, the following points were noted:

- The MRU returned a signal error that resulted in the AHC mode being deactivated by the high-high-position deviation alarm. This was confirmed by the crane log print out;
- Activation of the AHC high-high-position deviation alarm activated a stop condition for the AHC mode and therefore the crane control system reacted accordingly by shutting down the AHC mode;
- The MRU produced spurious signals due to overheating:
  - the calm conditions, high ambient temperature and solar radiation resulted in reduced cooling capability of the crane hydraulic power unit (HPU) cooling circuit. As a result of this and the AHC being in use, there was a very high ambient temperature within the upper and lower crane pedestal. This high temperature caused the internal temperature within the MRU junction box to increase over time, which in turn increased the MRU operating temperature, and caused it to supply a spurious signal
  - the air-conditioning (AC) unit in the crane pedestal tripped out resulting in reduced cooling to the pedestal mounted MRU junction box.

The following actions were taken to mitigate against re-occurrence:

- An additional cooling fan was installed on the MRU cabinet to provide additional air circulation to increase the cooling capacity;
- A trip alarm was installed on the pedestal AC unit to alert engine control room of a shut-down of the cooling to the junction box;
- MRU inspection was added to crane start-up checklist.

Additional actions were considered:

- MRU junction box temperature sensor with readouts to crane operator and engine control room;
- Purpose designed AC for the MRU.

The important lesson is to keep a close eye on MRU operating temperature when crane operating in the AHC mode and the vessel is in calm conditions, high ambient temperatures and high levels of solar radiation.

3 Fake Emergency Escape Breathing Devices (EEBD Sets)

The Marine Safety Forum (MSF) has published Safety Flash 11-09 (attached) regarding the discovery of EEBD that are fake copies of the Unitor/MSA type Uniscape 15H.

As noted in the MSF safety flash, it is of the utmost importance that these fake sets are taken out of service whenever discovered, and the owners informed. This fake equipment will not work properly, and will create an extremely dangerous situation for the user in the event of an emergency.

Further information can be found at http://www.marinesafetyforum.org/upload-files//safetyalerts/msf-safety-flash-11.09.pdf.

MSF marine safety forum

Marine Safety Forum – Safety Flash 11-09

Issued: 8th March 2011
Subject: Fake EEBD-set – useless and dangerous

The purpose of this notification is to warn potential users of EEBD-sets. (Emergency Escape Breathing Device) against accidents and loss of life.

WSS Safety service station in Stavanger, Norway received EEBD-sets for annual inspection from one of our regular customers. The service engineer discovered that the bags and the EEBD-sets were fake copies of the Unitor/MSA type Uniscape 15H – and of the same type (copy) as previously discovered and informed.

IT IS OF UTMOST IMPORTANCE THAT THESE FAKE SETS ARE TAKEN OUT OF SERVICE WHENEVER DISCOVERED – AND THE OWNERS ARE SERIOUSLY INFORMED. THESE FAKE COPIES DO NOT WORK AS THEY ARE SUPPOSED TO, AND WILL CREATE AN EXTREMELY DANGEROUS SITUATION FOR THE USER WHEN IT IS NEEDED FOR ESCAPE.

- **The mask hood is impossible to get over your head**. This is the most serious identification; The neck tightening rubber membrane is not flexible enough to be able to pass a normal head size, and it is sewed to the hood with one single seam – not welded as an original Unitor hood.

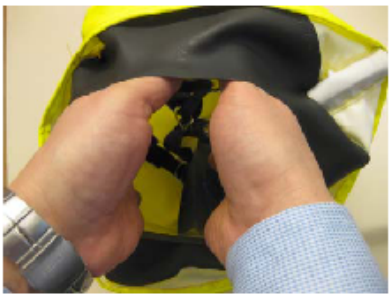
- The bag has similar print as the WSS original: "UNITOR UNISCAPE 15H" and "Safety by MSA" is printed on the frontside (together with 4 sketches of how to use.

- The bag material is different; Unitor: shiny PVC. Fake: Dull canvas-like material.

- The zipper is opened from right to left, which means that we evaluate the **functionality of the automatic release mechanism to be doubtful.** When the zipper is opened, it moves towards the cylinder valve – not away from it/pulling also the air release line.

- All sets that are discovered per now has a company label/service tag, with the following information:

UNIscan Marine Products & Services
Uniscan Middle East L.L.C.
Shed No.: 71, Al Jadaf Dry Docking Yard
P.O.Box 62487, Dubai, U.A.E.



Unitor EEBD copies in circulation

Upper:
Original Unitor EEBD with shiny PVC bag

Lower:
Copied equipment, with dull canvas-like material

Original Unitor EEBD:
Zipper has 2 cm opening on the teeth
Zipper closes from right to left
Copied equipment:
Zipper has no opening
Zipper closes from left to right. Air-release cannot be activated automatically.