

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) 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 Flash Fire in Gas Supply Equipment Onboard Dive Support Vessel

A member has reported a small explosion on a vessel, resulting in a flash fire which caused minor burns to the hand of one crew member and slight damage to some equipment, including pipework and fittings.

A life-support supervisor (LSS) was in the process of decanting oxygen to increase the percentage of an 18% oxygen kelly to 20%. An oxygen line on deck was opened by the LSS to allow oxygen down into the main gas storage/mixing flat. The line to the kelly was opened and then the panel valve on the diaphragm compressor was opened. At no time was the diaphragm compressor pump running.

On opening the needle valve to decant oxygen into the bulk gas mixing panel, the LSS a loud crack followed by a flash. He immediately closed the oxygen inlet valve and extinguished the burning remains of a hose with some water from a receptacle near by.

However, oxygen was still escaping from the back of the panel. The LSS went on deck and closed the supply valve on the quad of oxygen. He returned to the main gas storage/mixing flat, via the saturation control room, to raise the alarm. Fire detectors had already picked up the fire and the alarms were raised.

The LSS sustained superficial minor burns to his arm and hand, plus singed hair.

Following investigation, a clear direct cause for the explosion/flash fire was not found. There were three equally likely possible causes:

- ◆ a failing (crack) in a fitting or pipe, causing escape of oxygen and a flash fire from a fuel source external to the pipework;
- ◆ rapid oxidisation and a flash fire from a fuel source internal to the pipework;
- ◆ the valve being opened too quickly, causing friction/ignition within the pipework or a sudden increase in pressure on the pipework or fittings, leading to it rupturing and allowing oxygen to escape on to an external fuel source, either cause resulting in the flash fire.

The following remedial actions have been recommended:

- ◆ The panel, valves and all other pipework on the diaphragm compressor were replaced;
- ◆ video surveillance was installed in the main gas storage/mixing flat;
- ◆ a specific line for oxygen was installed, direct from the oxygen quads to the main gas storage/mixing flat;
- ◆ further non-destructive testing was conducted on parts of the diaphragm compressor to identify a failing in a fitting;
- ◆ internal swab and laboratory testing was conducted to determine the fuel source of the fire;
- ◆ signs were installed above all valves taps stating “open valve slowly to ease the pressure into the line”;
- ◆ a regular and documented oxygen cleaning program was instituted.

2 Open Lifeboat – Corroded Tie Band Side Plates

IMCA has received the following report regarding corrosion to lifeboat parts which could have resulted in loss of life.

An empty open lifeboat was lowered to the embarkation platform, when the aft boat hook tie band gave way from its attachment to the keel of the lifeboat. Tie bands are vital structural elements for the safe and controlled launching of lifeboats. Fortunately there were no persons in the lifeboat. No-one was injured, but there was some mechanical damage.

It is believed that the corrosive environment at the bottom of the lifeboat, combined with lack of maintenance over time, led to extensive corrosion of the tie bands. Access to them can be difficult, hampered by the presence of debris and bilge water.

Further tests were made of other similar lifeboats, and the tie bands on these lifeboats were also found to be heavily corroded. Though well painted and appearing to be well preserved, it was clear that these were in poor shape.

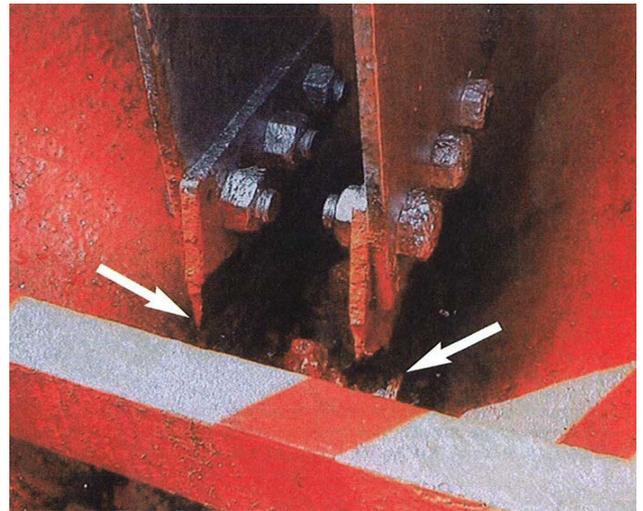


Figure 1 - Serious corrosion of tie band side plates at connection at bottom of lifeboat

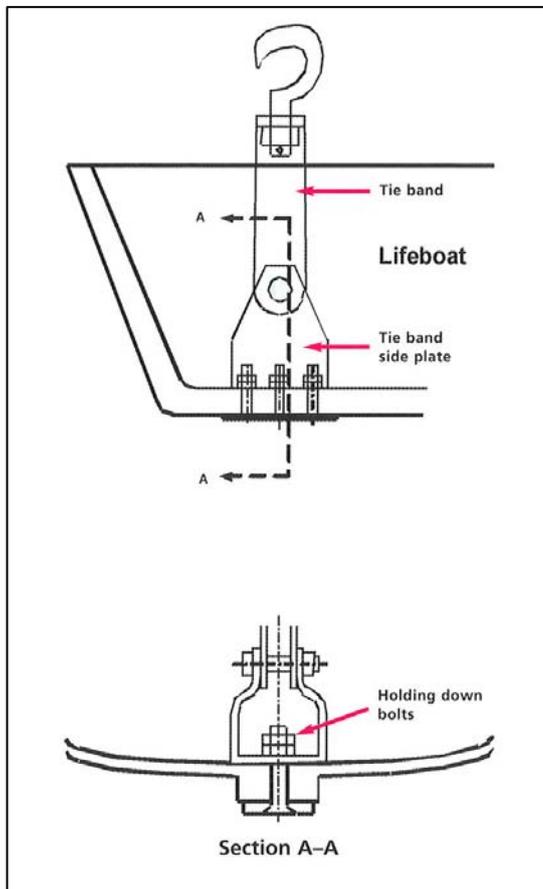


Figure 2 - Tie band side plates connected to the lifeboat with three bolts and with one counter-nut per bolt

Lessons learnt from this incident include:

- ◆ Lifeboat tie bands, hooks and release systems should be inspected and maintained according to the manufacturer's recommendations, and be included in the vessel maintenance schedule;
- ◆ All items encompassed by scheduled inspections should be properly examined on a regular basis;
- ◆ Access to, and cleaning of, the tie bands side plates should be made prior to inspection of lifeboats;
- ◆ Special attention should be paid to the cleanliness of lifeboat bilges;
- ◆ Corrosion damage of this sort may also occur on totally enclosed or partially enclosed lifeboats.

DNV, which originally issued this alert, has pointed out the following:

SOLAS does not require people to be onboard when the boat is lowered during drills. In order to reduce the probability of casualties during drills, the following alternate procedures may be applied:

- 1) Lifeboat first lowered to about 2m above water then hoisted for boarding by assigned operating crew and lowered to water for release and manoeuvring.
- 2) Alternatively, lifeboat to be lowered to the water without crew on board. Crew to embark via embarkation ladder, boat to be hoisted approximately 2-3m and lowered again, controlled from inside lifeboat.