

IMCA Safety Flash 28/18

December 2018

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 info@imca-int.com

Any actions, lessons learnt, recommendations and suggestions in IMCA safety flashes are generated by the submitting organisation. IMCA safety flashes provide, in good faith, safety information for the benefit of members and do not necessarily constitute IMCA guidance, nor represent the official view of the Association or its members.

1 LTI: Severe Burn from Short Circuited Li-Ion Battery

What happened?

A crew member suffered severe burns when a Lithium-Ion battery on his person exploded and caught fire. The crew member was about to do the last task of the shift. He picked up a set of keys and a spare battery for his vaporizer from the table and put them in his pocket. He heard a loud bang and surprised, looked around to see the origin of the sound, and only then finding out that he was on fire. A motorman working nearby came to his aid and together they managed to get his boiler suit off. They saw the burning battery on the deck and stamped out the fire. Further assistance was called, and first aid was applied. The injured person was medevac'd shortly after to a shore-based hospital, where he was treated for 10 days before being repatriated to his home and undergoing further treatment.

What was the cause?

The metal keys created a short circuit with the battery. Carrying the battery in his pocket with the keys enabled the keys to provoke a 'thermal runaway' by either puncturing the outer shield or by making a connection between the plus and minus layers; the exact cause could not be determined conclusively.



The exploded battery and the one it was supposed to replace if required.



The keys that caused the short circuit



The burn – which was classed both 2nd and 3rd degree – temperatures estimated at approximately 1000 °C



The pocket – burnt through

What went wrong?

The crewman was carrying the Li-Ion battery loose in his pocket together with metal keys. This caused a short circuit of the battery and initiated a 'thermal runaway', which caused the battery to burst and explode into flames.

When he picked up his belongings, he stated that he was not even aware of the battery being amongst his belongings, he just scooped it all into his pocket.

Our member noted that the following:

- ◆ There was no box used for carrying the Li-Ion battery;
- ◆ The safety warning provided was only the one actually written on the battery. No information had been provided by the supplier of the equipment of which the battery was a part.

Actions taken, and lessons learned

Lithium-Ion batteries, which are more and more common in devices used onboard, are not controlled properly and it cannot always be expected that the proper and correct information has been provided by the supplier.

Lithium-Ion batteries sometimes come in size and design similar to 'AA' sized batteries and as such can be easily confused with a normal alkaline battery, and thus the risk associated is also confused.

Our member prohibited the carrying of loose Lithium-Ion batteries whilst at work, added appropriate issues and precautions to the vessel induction information displayed onboard, and ensured that a check was made by stewards during cleaning of cabins in order to identify batteries being charged unattended.

Members are recommended to:

- ◆ Ensure that all persons are properly informed about the hazards associated with Lithium-Ion batteries. This should include the charging, handling and storage and the risk associated with carrying the batteries loose in pockets;
- ◆ Consider more thorough control of small personal electronic devices using Lithium-Ion batteries.

Members should review the following incidents:

- ◆ [Fire in the accommodation: electronic items in cabins](#)
- ◆ [Laptop Battery Fire \(October 2017\)](#)
- ◆ [Fire in vessel accommodation – overheating notebook computer \(September 2016\)](#)
- ◆ [Mobile Phone Charger Failures \(June 2016\)](#)

2 UK HSE: Worker Suffers Life-Changing Crush Injuries – Rotating Machine

The UK Health and Safety Executive (UK HSE) have prosecuted a printing company after an employee suffered life-changing crush injuries whilst cleaning rotating machinery.

The injured person sustained the crush injury whilst cleaning a rotating roller on a production line. The cloth that the worker was using got caught in the machine, and the worker was drawn into the rollers. The incident resulted in the employee having the middle finger of the right-hand amputated; two other fingers were fractured and there was some degloving of the skin.

HSE investigation revealed that the company had not adequately guarded the rotating rollers, which would have prevented access to the dangerous parts of the machinery. The UK HSE noted that *"This injury could have been easily prevented, and the risk should have been identified. Employers should make sure they properly assess and apply effective control measure like suitable guards, to minimise the risk from dangerous parts of machinery"*.

3 MSF: Two LTIs – A Slip and a Fall, and Trapping a Thumb

The Marine Safety Forum (MSF) have recently released two safety alerts relating to lost time injuries (LTIs). These are [Safety Alert 18-27](#) and [Safety Alert 18-24](#).

Incident 1: fractured toe

A crew member was going to a lower deck using an external stairway. He was holding a bucket in one hand and holding the handrail with the other. As he descended the staircase, his foot slipped off the step, causing him to fall. In order to prevent further slipping down the remaining steps, he put his left foot in the space between the upright stanchions to break the falling motion, and as a result broke his toe.

The weather conditions were dry, and the vessels' movement was not excessive. The injured person was wearing appropriate footwear.



Why did it happen? What were the causes?

The MSF notes that the only potential problem could have been an ineffective grip on the steps; the vessel had the standard perforated steps found on many vessels, however, there was no additional anti-slip grip strip.

What actions were taken?

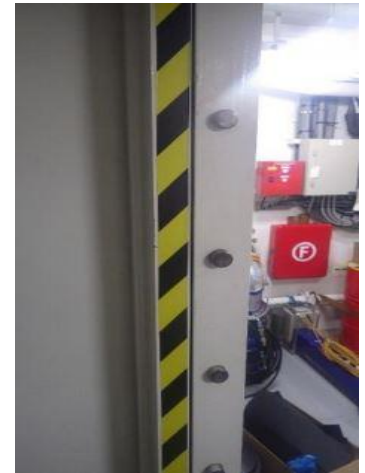
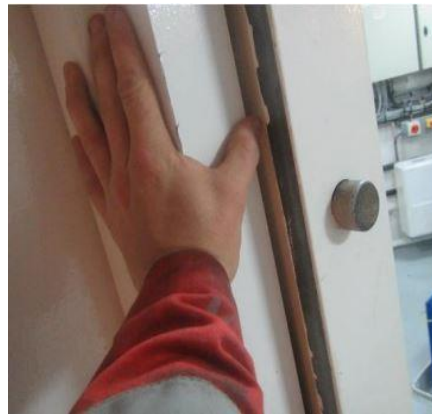
- ◆ Check that the anti-slip design or measures remain fit for purpose, and that they have not been painted over or worn – check it is still effective;
- ◆ During wet weather or when decks and surfaces are wet, particular care should be taken to use the 'trailing hand' technique or the 'one hand for the ship and one for yourself';
- ◆ Always wear appropriate personal protective equipment (PPE).

Incident two – squeezed thumb

A crew member was opening a watertight door into the bow thruster room. As he placed his hand on the operating handle, he placed the other hand on the watertight door framework opposite. As the door opened, his thumb was squeezed between the frame plating and the door housing.

What happened?

The injured person placed his hand on the opposite side of the door to steady himself, just in case of vessel movement. However, the framework provides a flat surface and is easily mistaken as a 'safe spot' to place a hand when operating the operating lever.



What actions were taken?

- ◆ Ensure all new crew members undertake a familiarisation tour of the vessel, effectively highlighting potential hazards (particularly, moving machinery, stored energy situations and equipment etc.);
- ◆ Encourage crew members to ask questions if any task or part of their role is not understood;
- ◆ All new crewmembers onboard should be supervised – this is key in providing trainees with a safe working environment. All supervisors are encouraged to ensure close mentoring and supervision;
- ◆ Highlight hazards surrounding the weather tight and watertight doors onboard;
- ◆ Add hazard markings to the door frame (as demonstrated in the above photos);
- ◆ Concentrate on the task at hand – concentration is vital in ensuring every crew member departs the vessel in the same condition they joined.

Members may wish to refer to the following incidents:

- ◆ [Badly sprained ankle resulting in LTI](#)
- ◆ [LTI: Hand injury resulting from clothing catching on door](#)
- ◆ [Lost time injury \(LTI\) to leg](#)

4 Suspected Case of Legionella Onboard Vessel

What happened?

Two cases of “*acute pneumonia in severe form*” were identified on a survey vessel with 42 persons onboard, including crew and client’s representatives. The client’s health team assumed it to be a case of Legionella. The vessel went into port and both affected personnel were evacuated and sent to a medical clinic for examination.

What were the causes?

Legionella infection is caused when bacteria gains entry into the respiratory system. This can occur from water suspended in air in the form of a fine mist as created by showers or tap sprays.

Well maintained water tanks, pipe work, pumps and hoses, along with good water management practices can help control the legionella bacteria.

Corrective Actions

- ◆ Legionella and throat culture tests were arranged for all personnel onboard;
- ◆ Swab tests were taken from the ventilation systems in the cabins of the two affected personnel;

- ◆ Deep cleaning of all vessel cabins and washing and cleaning of all ventilation air grates (as well as pipes);
- ◆ Appropriate cleaning chemicals were passed through the ventilation system by a specialized contractor so that air flow could assist in the disinfection process. Treatment of portable water tanks was arranged also;
- ◆ Arranged appropriate cleaning/chlorination of cabin shower heads at quarterly intervals.

Medical test reports later confirmed that:

- ◆ The two persons were not infected with Legionella. They were diagnosed with acute respiratory infection and appropriate medicines prescribed;
- ◆ There were no signs of Legionella disease confirmed onboard.

Members may wish to review the following:

- ◆ [Staphylococcal Infection in deep water saturation dive to 200 metres \(2004\)](#)
- ◆ [Two cases of contaminated drinking water](#)
- ◆ [Guidance on occupational health \(IMCA SEL 033\)](#)

Members can search the IMCA catalogue for further LTI related incidents by using the search bar on our safety flash webpage:

The screenshot shows the IMCA Safety Flashes webpage. At the top, there is a navigation menu with links for ABOUT IMCA, COMMITTEES, NEWS, EVENTS+MORE, and RESOURCES. Below the menu is a search bar with the text "LTI" entered and a magnifying glass icon. To the left of the search bar, there is a section titled "SAFETY FLASHES" with a lightning bolt icon. Below this, there is a paragraph of text explaining the purpose of safety flashes and a link to the submission and approval process. To the right of the search bar, there is a section titled "Annual Listings" with a grid of years from 2018 to 1999. The search bar and the "LTI" text are circled in red.

5 Sharp Wire: Injury During Routine Maintenance

What happened?

Whilst conducting routine engine maintenance a seafarer caught his arm on a sharp piece of wire, causing the need for medical treatment. The seafarer was using a spanner to tighten bolts connected to the main engine exhaust system where a piece of sharp reinforcing wire was protruding from some nearby flexible hose. The spanner slipped, causing the seafarers arm to forcefully come into contact with the wire resulting in a cut requiring medical treatment.

The seafarer visited a shore-side hospital for medical treatment. After receiving stitches, he was able to return to work.

What was the cause?

The sharp reinforcing wire was sticking out and should not have been.



What lessons were learned?

Before conducting the routine maintenance, a simple check would have highlighted the sharp wire. The seafarer could then have either removed the wire or, if not possible, bent it back or covered it so as not to cause any harm.

This highlights the need for thorough pre-maintenance checks to prevent or control the potential for unnecessary maintenance related injury.

Members may wish to refer to these injuries with the same immediate cause – unexpected, undetected and inappropriate sharp edges in the workplace:

- ◆ [LTI: Cut To Hand From Protruding Hose Clip](#)
- ◆ [Two Recent Cases Of Hand And Arm Injuries](#)