IMCA Safety Flash 18/18

August 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.

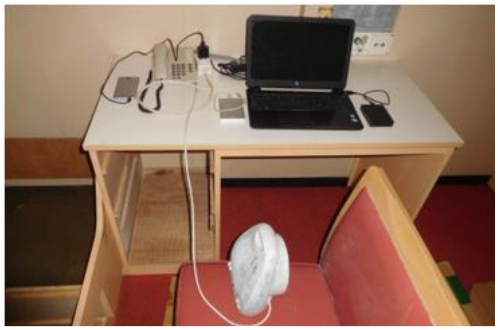
A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at www.imca-int.com/links Additional links should be submitted 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 Fire in the Accommodation: Electronic Items in Cabins

What happened?

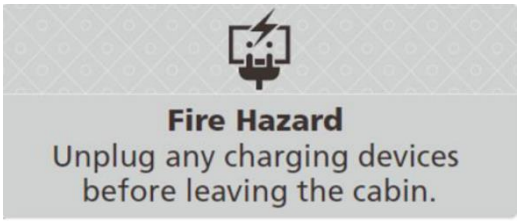
An incident occurred on board a vessel which almost escalated into a serious accommodation fire. A crew member finished his work for the day and returned to his cabin. He plugged his mobile phone into an extension cable to charge; also plugged into the extension cable was a fan heater. He then proceeded to his bathroom to wash.



Layout of the desk within the cabin.

Shortly afterwards the ship's fire detection system indicated alarms in adjacent cabins. At the same time, another crew member activated a manual call point in the alleyway having discovered smoke. The ship's alarm bells were sounded, and announcements made for fire teams to muster.

The crew member emerged from his bathroom to find his cabin filled with smoke and a fire on the desk; both the cabin telephone and extension cable were burning. The crew member attempted to extinguish the fire by hitting it with a pillow, at this point the cabin telephone exploded and fragments fell onto the mattress, starting a second fire. The crewmember left his cabin.



Once the electricity had been isolated, the fire was extinguished with fire hoses before it could escalate further.

Investigation noted that:

- There was no evidence of any power surge on the vessel power supply prior to the fire;
- All crew involved had signed safety management system (SMS) familiarisation forms, including initial actions upon discovering fire;
- This class of vessel has wall mounted fixed heaters in the cabins from build.

What went wrong?

- There was no control of personal electronics onboard; there was no testing of portable appliances (whether personal items or company supplied items) before use;
- Initial reports suggested that the cabin telephone had caught fire independently of any other electronics, until reconstruction of the setup was requested and revealed the extension cable and fan heater. This seriously hampered the investigation process.

Our member noted that events of this sort involving portable electronic equipment have become more common in recent years.

What were the causes?

- Electrical equipment was not used properly:
  - there was overloading of an extension cable/multiplug;
  - a number of electrical items (including high powered items) were plugged in and left unobserved
  - heaters, fans and extension cables/multiplugs were bought locally by vessel crew from different sources, with no quality control check in place;
- There was poor housekeeping:
  - the heater was placed on the chair and electronic equipment all laced together along with wires and extension cables on the desk;
- The vessel air conditioning and heating equipment were not being used for controlling cabin temperature;
- The initial reaction of the crew member to attempt to smother the fire with a pillow caused the fire to spread and become more serious.

The following causal factors were identified:

- Inadequate procedures:
  - no control procedure or testing requirement was in place for personal electronic equipment brought onboard
  - no requirement for warning signs/information within cabins
  - insufficient information in company training material with regard to the dangers of overheating electronic devices and good housekeeping
  - high powered electrical fan heaters were introduced to cabins without a management of change (MoC) process or risk assessment
  - heaters and fans were bought locally by vessel crew from different sources with no quality control check in place;
- Inadequate leadership:
  - when issues with vessel's air conditioning and heating systems affecting cabin temperatures were previously reported, onboard management introduced additional equipment rather than solving the issues.

The root causes our member identified were:

- Failure to comply: the risk involved was seen as tolerable, and there was lack of awareness of safety;
- Internal company management systems were not sufficiently robust.

What actions were taken? What lessons were learned?

- Add requirement for PAT testing to vessel SMS and planned maintenance system (PMS);
- Implement more appropriate control of personal electronic equipment on board;
- Investigate and repair vessel air conditioning to ensure that accommodation temperature control using fixed vessel equipment is achievable;

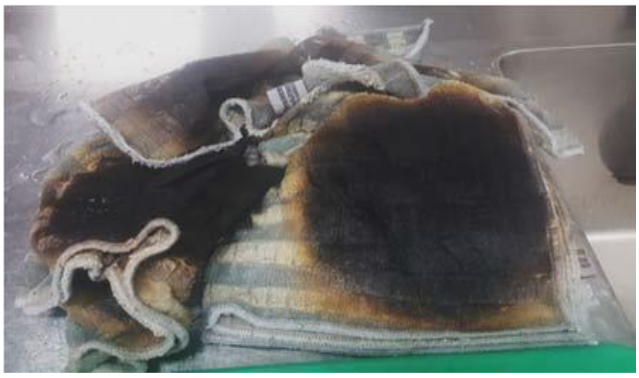
- Post appropriate warning signs by sockets in cabins (see illustration above);
- Retraining and refamiliarization of crew on fire prevention on electrical equipment, raising the alarm and electrical safety in general.

IMCA considers that fires arising from inappropriate management of personal electronic items, particularly those with Lithium batteries, is a potentially serious and growing risk. Please see the following similar events:

- Laptop Battery Fire (October 2017)
- Fire in vessel accommodation – overheating notebook computer (September 2016)
- Mobile Phone Charger Failures (June 2016)
- Laptop Battery Fire and explosion (October 2008)
- Small Fire caused by portable fan heater (December 2007)

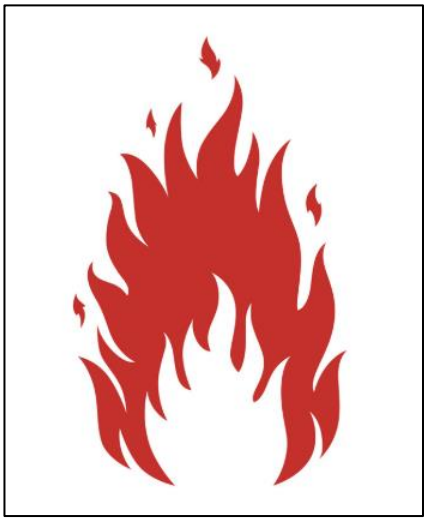
2 Auto-Ignition of Laundry Items

What happened?



Cloths used for general galley cleaning were removed from a tumble dryer, immediately folded and piled in a steel bucket. Three hours later they were stowed in a cupboard. After a further three hours (six hours after removing the cloths from the dryer) a burning smell and the presence of smoke were reported. Upon investigation, the cloths were found smouldering. Immediate action was taken, and no further damage was noted.

What went wrong? What were the causes?



- Following the fire, it was discovered that the cloths were still contaminated. This indicates that the items had been washed at the wrong temperature (40° instead of 90°) to reduce the wash time. This was not sufficient for them to be fully cleaned;
- Either the cloths were removed from the tumble dryer prior to completion of the full cool down cycle or the wrong temperature setting was used (too high). As a result, the hot contaminated cloths were not cooled before being stowed. This led to them starting to smoulder.

What actions were taken? What lessons were learned?

- Ensure items are washed at suitable temperatures to remove residue;
- Ensure that the correct temperature setting is selected and that cool-down cycles are completed when using tumble dryers;
- Hot laundry should never be folded and stowed. Allow suitable time for cooling down;
- Discard cloths that can no longer be cleaned;
- Reiterate these lessons to all catering crew.

IMCA notes that this is an 'evergreen' safety issue that has come up often before. Our members may wish to bring this potentially serious issue once again to the attention of their management and crew.

Please see the following:

- Near Miss: Potential fire in the laundry room (2018)
- LTI: Burn to hand while working in laundry (2017)
- Fire: Spontaneous combustion of towels (two incidents, 2016)
- Near Miss: Laundry Fire Hazards (two incidents, 2016)
- Tumble dryer fire onboard a vessel (2009)

3 High Potential Near Miss Working on Pressurised Pipeline

What happened?

During the dewatering of a 6'' flexible jumper, a near miss incident occurred when the pull head was removed whilst it was still under pressure. This resulted in a foam pig that was inside the flexible jumper being unexpectedly ejected by the residual pressure. The pig narrowly missed personnel in the immediate vicinity and landed on the ground approximately 2m away from the jumper end.

The incident had the potential for serious injury to personnel standing in the line of fire. Activities were being controlled and supervised by our member at a third-party worksite.

Showing 6" pull head that was removed for inspection of the foam pig

Position of personnel before removal of the 6" pull head.

What went wrong? What were the causes?

Our member noted the following:

- The approved procedure for the pressure testing and dewatering activities was not followed correctly (a vent valve that should have remained opened at the other end of the jumper was closed);
- A 'working copy' of the approved procedure was not available at the task location for reference by personnel;
- There was no on-going sign-off being conducted as each task was completed;
- There was no check conducted for positive confirmation that the system was at ambient pressure before starting to remove the pull head to access the foam pig;
- There was no requirement for formal sign-off/handover of system control from the pre-commissioning services company to our members' personnel who were required to remove the pull head for the foam pig inspection.

What actions were taken? What lessons were learned?

- When lines have been pressurised, isolation and venting processes should be in place, which ensure the ambient pressure is verified before breaking pressure containment;

- Supervision on worksites should highlight safety critical points within the procedures and ensure that they are strictly followed by personnel;
- Where stored pressure or energy is involved, ensure approved procedures contain requirements for formal sign-off/handover of system control, particularly when third party sub-contractors are involved.

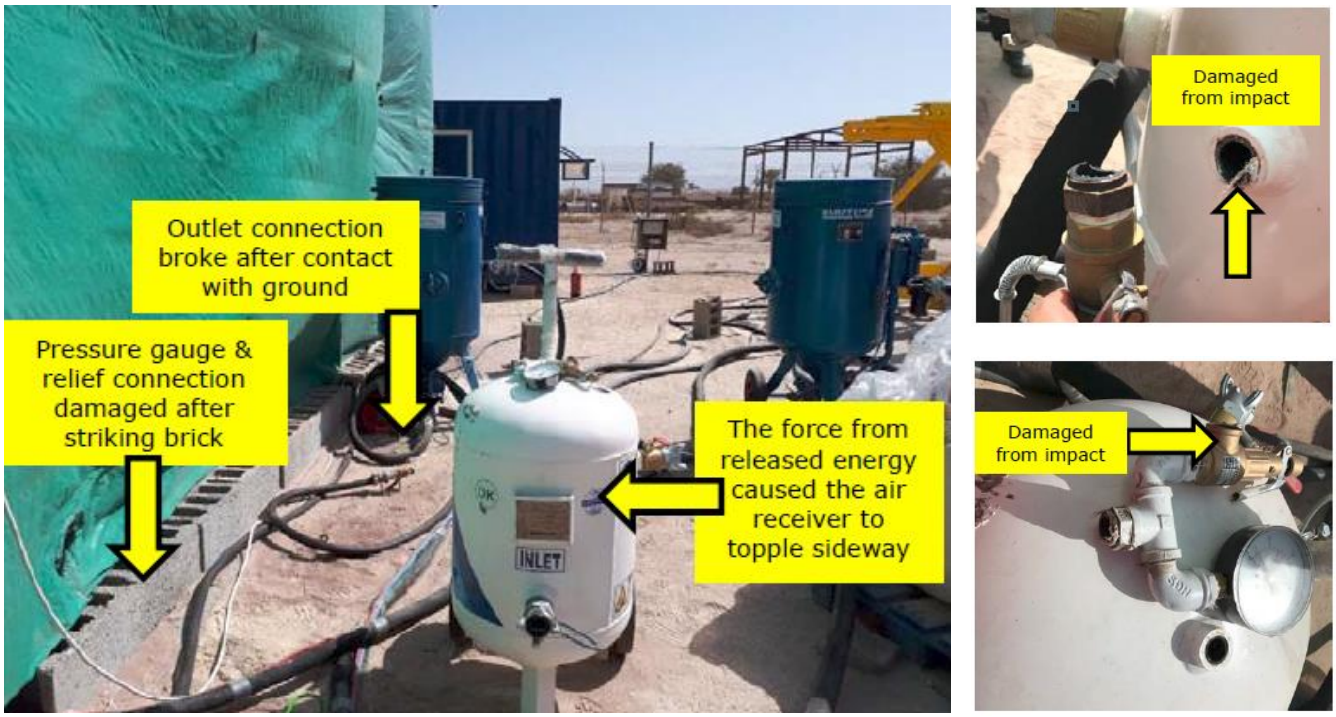
Members may wish to refer to the following:

- High potential stored energy incident: inner buoyancy module clamp failure during removal [a causal factor being failure to properly manage the task]
- Fatality: Stored Pressure Release

4 Near Miss: Unplanned Release of 2" Blasting Hose Outlet from Air Receiver Coupling Clamp

What happened?

During blasting and painting operations conducted at an onshore worksite, a near miss incident occurred when a 2" blasting hose outlet released from the coupling clamp connected to an air receiver. The 2" hose was arrested by the hose restraint. The force from the released energy caused the air receiver to fall sideways striking the ground and adjacent objects, resulting in equipment damage. No personnel were standing in the immediate area or line of fire when the incident occurred.



What went wrong? What were the causes?

- The 2" hose dislodged from the hose shank due to an improperly tightened Chicago connector;
- The air receiver was placed on sand and was unstable and contributed to the air receiver tank falling sideways.

What actions were taken? What lessons were learned?

- Ensure that risk assessments are carried out. Implement controls to ensure that equipment is appropriately placed on suitable stable footings (hard standing) and that appropriate restraints are in place;
- Assess the application of Chicago connectors with a view to replacing them with alternatives when high pressure applications are identified;

- Regularly review and inspect all pressure related connections to ensure that they are correctly assembled and fitted with adequate whip checks/restraints;
- Assess that barriers are in place to ensure an effective safe distance is achieved to protect personnel from any unplanned pressure release or equipment failure.

Members may wish to refer to:

- Failure of high pressure fitting
- Failure of hydraulic fitting at pressure

Two older incidents from 2003:

- Engine start air fitting incident
- Fatality: Injury From An Air Hose

5 Unplanned Stored Pressure Release: Worker Struck by Gas Cylinder – Company Fined

What happened?

The UK HSE (UK Health and Safety Executive) has fined a company for health and safety breaches after a technician was struck by a cylinder and left severely injured on the Brent Delta offshore installation. Technicians were required to replace a gas cylinder within a system used to extinguish fires. When one of the technicians rolled what he thought was an empty cylinder along the floor and took off the protective cap, he realised that it was a fully charged cylinder. The trigger mechanism on the cylinder was activated causing a loud bang and the instantaneous release of the cylinder contents in a white cloud of concentration. The force of the gas release caused the technician to drop the cylinder to the floor, causing a valve to shear. This resulted in both cylinder and valve becoming projectiles which struck and severely injured a second technician.

The UK HSE investigation found the company had failed to take suitable and sufficient steps to ensure risks associated with the handling of pressurised cylinders were eliminated. The company also failed to remove pressurised cylinders which were not suitable for use in a safe and secure manner, and also failed to ensure the provision of appropriate information and instruction in respect of the handling and use of energised gas cylinders.

Speaking after the hearing, the HSE inspector said: "*This incident could so easily have been avoided by simply carrying out correct control measures and safe working practices.*"

The full press release can be found on the HSE website.

Members may wish to review incidents relating to failed pillar valves, threads and other failures leading to unplanned release of gas:

- High potential near miss: failure of valve on gas bottle
- Injuries due to failure of diver's emergency gas cylinder
- Diver Injury during air cylinder recharging

6 Serious Injury Caused by Energy Isolation Failure

What happened?

A yard worker was cleaning debris from underneath a hydraulic pipe. Whilst performing this task, the worker placed his forearm on a hydraulically operated pipe stand. This put the forearm in the line of fire between a lift pocket and a recently modified plate. A serious injury occurred to the worker's forearm when the pipe stand (see photograph) was lowered by another worker operating the hydraulic lowering mechanism.

What went wrong? What were the causes?

- There were no energy isolation routines to prevent the lowering operation from occurring inappropriately, though this was covered and required by our members' permit to work (PTW) system;
- There were simultaneous operations (SIMOPS) taking place and these presented risks which had not been properly assessed;
- There had been modification of this equipment and this had not been fully risk assessed;
- The task plan was not detailed enough to define all of the hazards in the work area;
- The injured person did not notice that his task placed him 'in the line of fire'.

What actions were taken? What lessons were learned?

- All activities require a risk assessment. Where simultaneous operations have the potential to expose a person to harm, the PTW and isolation process should show that a higher level of control, communication and mitigation is in place;
- Use the MoC process to ensure that modifications to equipment are assessed and do not introduce a new hazard.

Members may wish to refer to:

- Fatal accident in connection with the operation of an A-frame based launch and recovery system (LARS) used for ROV operations [causal factor: failure of isolation]
- Inadvertent lowering of lifeboat [causal factor: failure to identify hazards]
- Serious Finger Injury: Procedures During Engine Maintenance [injured person was in the line of fire]
- Line of fire (video)
- In the line of fire (IMCA SEL 036) (video)
- Guidelines for Management of Change (IMCA SEL 001)