

IMCA Safety Flashes summarise key safety matters and incidents, allowing lessons to be more easily learnt for the benefit of all. The effectiveness of the IMCA Safety Flash system depends on members sharing information and so avoiding repeat incidents. Please consider adding safetyreports@imca-int.com to your internal distribution list for safety alerts or manually submitting information on incidents you consider may be relevant. All information is anonymised or sanitised, as appropriate.

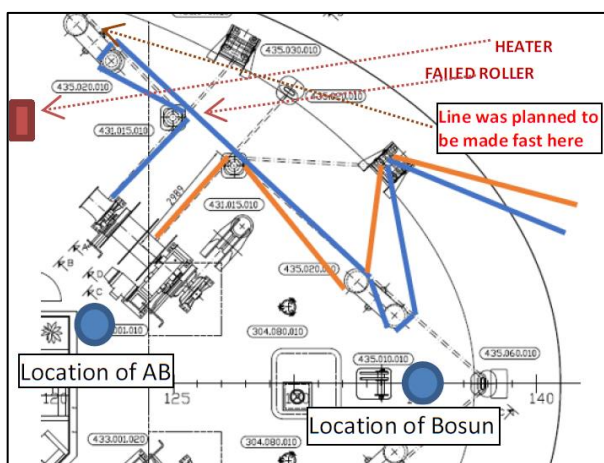
1 Mooring near miss: Guide roller pin suffered material failure

What happened?

A deck stand guide roller pin suffered material failure at its foundation whilst a vessel was mooring. Weather, wind and tide conditions were gentle at the time of the incident and the vessel was being held in position using thrusters with no appreciable movement or excessive loads which could have contributed to this incident.

During mooring operations at the forward station when the 3rd head line (blue line in diagram below) was being heaved up using the warping head (the plan was to make it fast on a bollard to the aft of the failed roller) the deck stand roller pin parted from its base and hit a heater located just aft of this position.

There were no injuries. However, it is evident that any crew member standing in the line of fire of the damaged roller would have been seriously injured. The winch pulling force was 12 tonnes, the roller stand SWL was 33 tonnes.



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What were the causes?

- The mooring layout on this vessel was complicated and also did not follow accepted and recommended practice, which caused overloading of structures;
- The routing of the mooring line caused an increase of axial forces on the roller;
- On further investigation it was noticed that roller pin was already in the process of degradation and at least some part of the welded structure had already disengaged from the base. The roller had not been inspected thoroughly;
- Multiple turns over various fittings increase the complexity of the mooring systems and introduce additional hazards such as complex snap back zones and overloading of structures.

Lessons learned

- Our member arranged to add to their Planned Maintenance System, dismantling and overhauling of deck stand guide rollers every third year;
- Ensure mooring plans use the most suitable and appropriate mooring arrangements;
- Avoid multiple turns which introduce complex snap back zones and additional hazards. Always discuss such risks as part of the daily planning and toolbox meeting;
- Be aware of your surroundings and of the line of fire.

Members may wish to refer to:

- [Corrosion: failure of bolts on a cargo barge bollard](#)
- [USCG: bollard failures at marine facilities](#)

The following IMCA Safety promotional material and safety guidance is available to members:

- [Mooring practice safety guidance for offshore vessels when alongside in ports and harbours](#)
- [In the line of fire](#)
- [Mooring incidents](#)
- [Line of fire](#)

2 American P&I Club: Fire Started from cutting torch work

The excellent American P&I Club “Good Catch” safety briefing series has published a [briefing on a fire](#) that started as a result of hot work.

What happened?

Crew members on a general cargo vessel in port were using an oxy-acetylene torch to remove various sea fastenings in a cargo hold. The hot work permit required fire blankets to be used and a fire watch. Fire blankets were placed around the work and were moved as the cutting operation progressed. As crew members were moving the fire blankets to the next work location, flames and smoke were seen from the cargo located on the tank top directly under the tween deck pontoons. The officer on watch was notified and sounded the general alarm. The crew members quickly evacuated the cargo hold. The crew was able to extinguish the fire, however, much of the cargo was damaged. Nearly \$400,000 of damage was done to the cargo and the vessel itself.

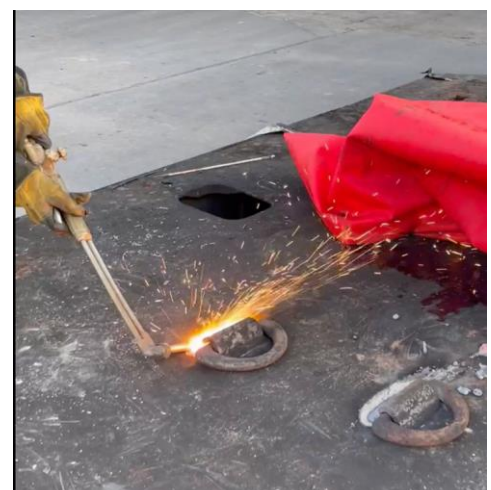
What went right?

- A safety briefing was held prior to the start of the work;

Applicable
Life Saving
Rule(s)



Hot Work



- A hot work permit was obtained and reviewed by the crew involved in the work;
- The fire was discovered early, and the crew were able to quickly exit the cargo hold;
- The crew responded in a timely and professional way, saving much worse damage from otherwise occurring.

What went wrong?

Investigation determined that sparks and molten slag from the hot work had fallen through the gaps between the tween deck pontoons. The molten slag had also burned through the fire blanket and had fallen through the gap at several locations. The sparks and molten slag had landed on and ignited the plastic covering and protecting the cargo. Some of the cargo was damaged from the fire and other cargo was damaged by the smoke.

A review of the approved hot work permit indicated that while it specified the use of fire blankets in general terms, it did not specify a minimum required distance from the hot work or additional protective covering for cargo that may be exposed. More importantly, the permit did not address the specific risk from the hot work to the cargo located on the tank top under the tween deck pontoons.

Lessons to learn

- Hot work permits should be very specific to the exact risks associated with the specific hot work, specific location, specific time, and specific hazards;
- Fire watches are critically important during hot work to prevent fires. To be effective, the fire watch must be vigilant to the potential of fire in all the adjacent areas;
- Screens, shielding and fire blankets should be effectively placed to contain sparks and molten slag produced by hot work;
- Hot work permits should specifically address risks to all nearby cargo or any other flammable materials that may be exposed including the need for additional protective covers.

Members may wish to refer to:

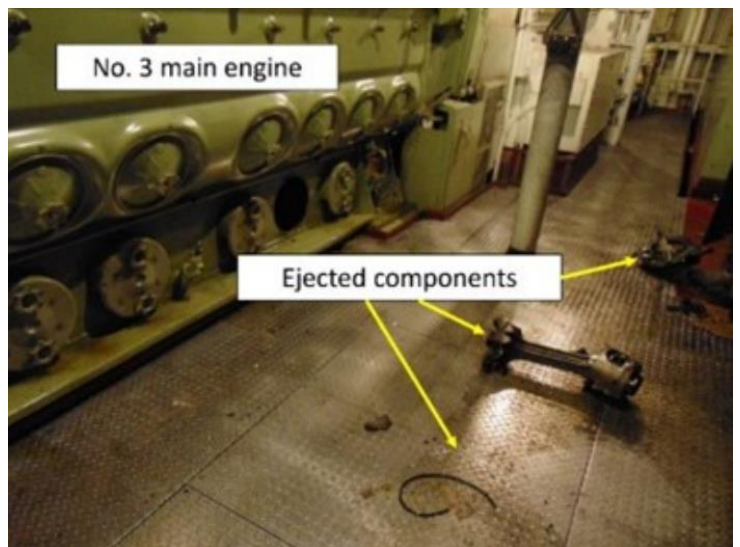
- [SIMOPS – Smoke from hot work task enters confined space](#)
- [Near Miss: Fire blanket caught fire during third-party hot work](#)
- [Fire caused by hot work](#)
- [Hole burnt in vessel deck during removal of sea-fastenings \(2010\)](#)

3 NTSB: Dangerous engine failure – improper torquing

The National Transportation Safety Board of the United States (NTSB) has published [Marine Investigation Report 22/06](#) relating to a Diesel generator engine failure aboard a ferry in Puget Sound, Washington state, USA. The failure led to the ejection of components from the engine and resulted in a fire in the engine room. Damage was estimated at almost \$4 million.

What happened

In November 2020, the ferry was taken out of service for maintenance. During the maintenance period, two of the four main diesel engines, numbers 2 and 3, were overhauled. In February 2021, following the completion of engine overhauls, the vessel crew conducted engine tests. Alarms activated for the no. 3 main engine. Crew members found pieces of a cigarette lighter in the lube oil



system. Technicians returned to inspect the engine and recover the pieces; they advised the vessel operator that it was acceptable to run the engine.

On April 22, while the vessel was conducting a post-maintenance sea trial in Puget Sound, the no. 3 main engine experienced a connecting rod assembly failure and ejected components that breached the crankcase, resulting in the ignition of hot pressurized gases that were released in the engine room.

What went right?

The crew effectively contained the spread of the fire by stopping all fuel supply and ventilation to the engine room and isolating the space. The fire self-extinguished before it could spread throughout the vessel. There were 13 crew on board and no passengers. No injuries or pollution were reported.

What went wrong?

NTSB investigation revealed that the probable cause of the mechanical failure of the no. 3 main engine was a connecting rod assembly that came loose and separated from the crankshaft **due to insufficient tightening** (torquing) of a lower basket bolt during the previous engine overhaul.

The NTSB has previously investigated other causalities caused by improperly torqued fasteners, including an engine room fire aboard the cruise ship Carnival Liberty in 2015, a fire aboard bulk carrier Nenita in 2016 and an engine failure on the offshore supply vessel Red Dawn in 2017.

Lessons learned

The NTSB notes that *“When installing fasteners, personnel should use a calibrated torque wrench, follow the manufacturer's recommended tightening guide and torque values, and verify that all required torque requirements have been completed. Under-torquing a fastener may cause excess vibration or allow the fastener to come loose, while over-torquing may lead to failure of the fastener or the machinery component being secured.”*

Members may wish to refer to:

- [NTSB: Engine Failure leads to fire aboard offshore supply vessel](#)
- [MSF: Crankcase failure](#)
- [MSF: Engine damage after routine maintenance](#)

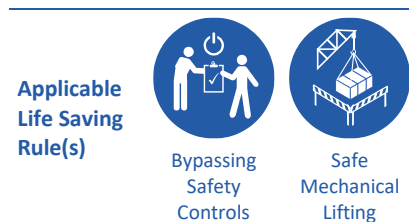
4 MSF: Unsafe Cargo Transfer Using Pallets

The Marine Safety Forum (MSF) reports in [Safety Alert 22-06](#) that an MSF member reported two separate incidents during deck cargo transfer operations involving pallets.

What happened

Incident #1: Lifting strops were passed through the side of the pallet (See red arrows in diagram) allowing the tension to be placed on the deck boards. The load weighing approximately 150kg was centred on the pallet. The stress on the deck boards allowed them to separate from the pallet eventually failing and allowing the load to fall to the deck.

Incident #2: Loose items were placed on a pallet which was to be loaded onboard. During the lift, the pallet came in contact with slings attached to a gangway stowed in the immediate area. The contact caused the pallet to shift allowing a box of copy paper to fall off and fall to deck. Fortunately, there was no-one in the immediate vicinity when the box landed.



What went wrong?

The MSF notes that both incidents were different in nature but did have some similar attributes:

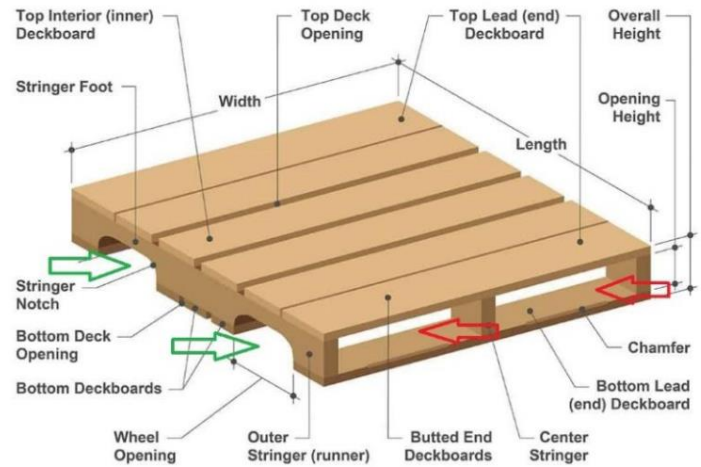
- Task Planning, Risk Assessment and Toolbox Talk did not identify specific hazards associated with the operation;
- There was complacency – a failure to recognize a hazardous situation developing.

Lessons

- Pallets have no safe working load (SWL) and have the potential for shifting if the load is not evenly distributed, or if external forces are present during the lifting operation;
- All items being lifted, whether on pallets or otherwise, should be properly secured.

Members may wish to refer to:

- [Dropped pallet during loading of stores](#)
- [Unsafe lifting operations – potential dropped object \(MSF\)](#)
- [Dropped load \(bottled water\) during lifting operations](#)
- [High potential near miss – storage box dropped from forklift](#)



5 UK HSE: worker falls from height during oil platform decommissioning

The UK Health and Safety Executive (HSE) has prosecuted a civil engineering company after a worker suffered life threatening injuries after falling 15 metres when a platform he was working on unexpectedly collapsed. See [here for press release](#).

Applicable
Life Saving
Rule(s)



Bypassing
Safety
Controls



Working at
Height

What happened

A worker was involved in the dismantling of the Brent Bravo platform in the North Sea. The incident occurred during the removal of a module located on the North West corner of the platform. In planning for the removal of the module, it was noted that there were three platforms on the cellar deck of the structure that would need to be moved to allow the module to fall safely.

It was **not recognised by the planning team** that one of the platforms did not form part of the main structure and was attached to the platform using bolts that had corroded over time. This affected the structural integrity of the platform and the methodology required to remove it safely. During the cutting of bracing beams, the platform unexpectedly collapsed causing one of the employees to fall 15 metres.



What went wrong?

An investigation by the Health and Safety Executive (HSE) into the incident found that the company had failed to carry out a full structural appraisal of the platform prior to demolition. This would have informed the risk assessment and method statement being used by the cutting crew at the time of the incident to ensure that the work could have been carried out safely.

The inspector said: *“When undertaking demolition work where structures are being left in a pre-weakened state, it is essential for those in control of the work to take appropriate measures to ensure the safety of all those involved with the work. This includes ensuring that consideration is given to the stability of structures before and during demolition work, as well as ensuring that control measures are in place to mitigate other associated health and safety risks such as work at height.”*