

MARS – Lessons Learned

MARS Report No 373 November 2023

Editor's Note: In this edition of MARS we review several incidents and accidents where a correct procedure had been established but was bypassed and/or the safety critical information noted in the manufacturer's information manual was ignored. These types of accidents are particularly frustrating for management – as well as being of concern for the victims – because the risks have already been identified and mitigation measures are known. Ideally, if there is safety critical information contained in a manufacturer's information manual, this should be integrated into a procedure and the procedure should be scrupulously followed.

MARS 202349

Gangway falls from crane causing one fatality

As edited from MAIB (Hong Kong) report published 28 February 2023

➔ A tanker had discharged its cargo, and crew were making ready for departure. The portable gangway, 20 metres long and weighing about 770 kg, needed to be lifted on board and secured for sea in its cradle on deck. The gangway had four lifting pad eyes, each with a lifting wire sling attached with a shackle. Each wire sling had an eye on the lifting end. These were slipped individually onto the crane's hook.

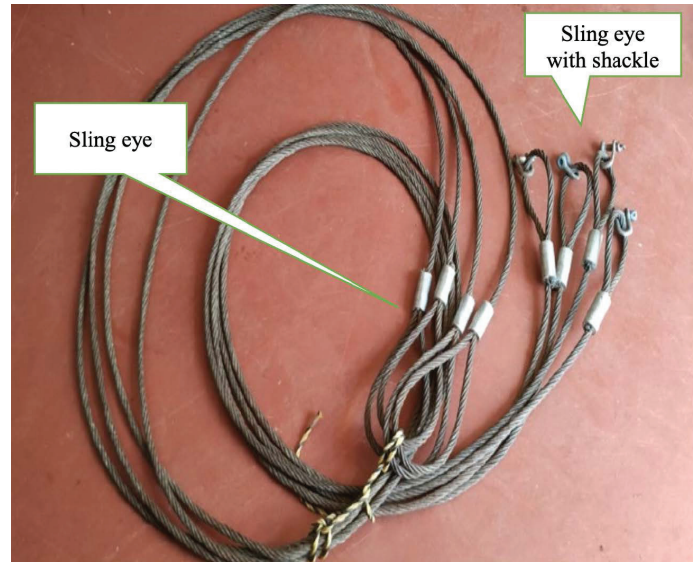
During the lifting operation the gangway was controlled by three people, each with a lanyard to guide the gangway. Two were on deck and one on shore. As the lift commenced, the outboard lifting slings were in tension and the inboard slings were slack. When the gangway reached the level of the deck rail, the inboard sling wires remained slack since the inboard end of the gangway was supported by the deck rail. As the outboard end of the portable gangway was lifted slightly above the deck rail, the tension of the outboard slings caused the gangway to swing inboard towards the vessel. This movement was enough to cause the two inboard slings to slip out of the crane hook and the end of the gangway immediately fell to the deck.

On the vessel, one of the crewmembers holding a control lanyard was hit by the falling gangway. Although immediately treated for his injuries he was unresponsive. The victim was transported to a local hospital where he was declared deceased.

The investigation revealed that the information manual produced by the manufacturer of the portable gangway recommended the use of a composite lifting unit with a master link to connect the four wire rope slings to the crane hook. Had this practice been adopted, in conjunction with a spring-loaded safety latch, it is likely that this accident would have been avoided.

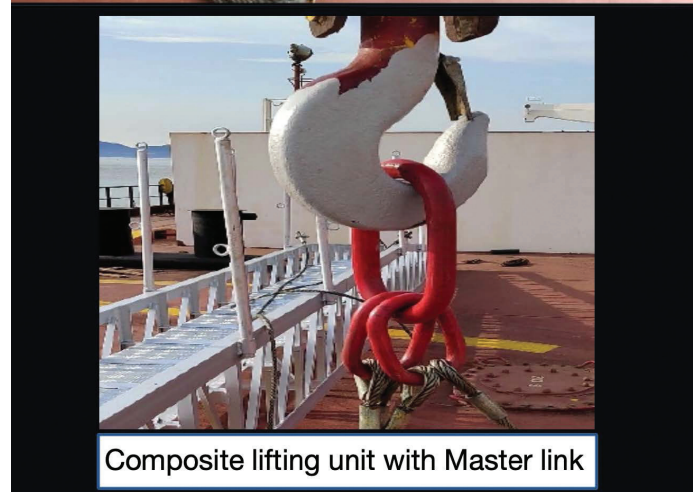
Lessons learned

- A manufacturer's information manual contains valuable and essential information. Neglect it at your own risk.
- Everyday tasks may become mundane and tedious, but they can contain unperceived hazards. Always keep an eye out for dangers in plain sight.



Sling eye

Sling eye with shackle



Composite lifting unit with Master link

MARS 202350

Lifeboat self-launches causing two fatalities

As edited from Antigua and Barbuda report published November 2016

➔ The free-fall lifeboat launching system on board a general cargo vessel underwent a substantial onboard service by a manufacturer-certified service company. As the lifeboat needed a replacement release cable, among other things, the release system had to be reset and secured. This was done as per specifications and confirmed by the attending class surveyor.

The morning after the servicing and before departure, the safety officer found that the lifeboat release pin at the hook position (aft top of the boat) could not be moved. This was not as expected, and he discussed the matter with the Master and the vessel's bosun, who agreed to look into the problem during the day.

Once underway, the issue of the stuck pin was discussed on bridge with the Master and the safety officer. The bosun, an experienced mariner and regular on the vessel, was tasked to prepare the required risk assessment and permit to work, which was apparently done in accordance with the procedures set out in the vessel's Safety Management Manual. Shortly after lunch, the bosun reported to the safety officer, who was OOW at the time. He informed the officer that he and another deck crew were proceeding to the vessel's stern to commence work on the safety pin.

Some 45 minutes after the bosun's call, the OOW noticed a lifeboat in the water astern of the vessel. He immediately called the bosun via VHF radio but received no response. The Master was informed. At the same time, another crewmember reported by VHF radio that the bosun was lying on the aft deck and that the lifeboat was missing, as was the second crewmember.

Emergency procedures were instigated but the missing crewmember could not be located. The bosun was found to have very shallow breathing and was prepared for emergency evacuation by Search and Rescue (SAR) helicopter. He was later declared deceased.

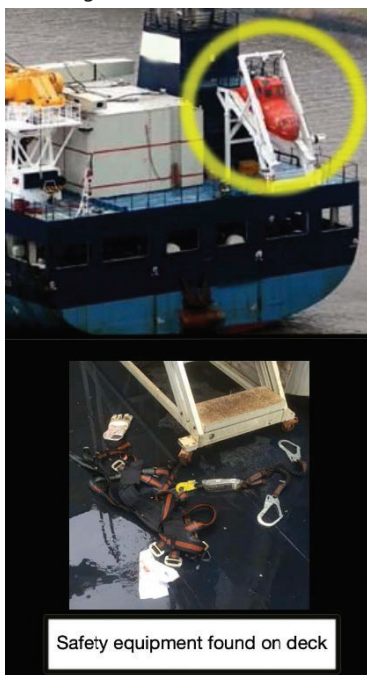
After further searches, the missing crewmember could not be found and was presumed to have fallen overboard. Search and Rescue units were activated, and search continued until darkness, without success. The lost lifeboat was retrieved and brought to shore for inspection. After close examination of the release gear and condition of the boat, it was reinstalled on board the vessel as it was undamaged.

Since the only persons on scene were the victims of the accident, and both tragically lost their lives, no information or details on how the work was conducted and how the situation evolved at the lifeboat could be assessed. The positions of the crew members could not be determined, nor the sequence of events elaborated. The launching arrangement showed no signs of failure or damage. The release of the free fall lifeboat seemed to have taken place as normal, but it was clear that the lifeboat maintenance securing and/or simulated launch device had not been connected at the time of the unintended release.

The lifeboat's release device at the helmsman's chair was found untouched and in a closed position. The safety officer's findings of a stuck hook safety pin prior to departure suggest that the hook might have been already in a 'released' state when the crew began their work. The lifeboat manufacturer's user's manual states 'If release hook safety pin cannot be removed off the hook casing without excessive force, the hook might be released. Secure boat release hook and check system.'

The working hypothesis of the investigation is that the service company technician did not properly reset the release mechanism in the closed position. When the crew tried to free the safety pin the hook released fully, allowing the boat to launch in free fall to the sea. The bosun probably fell to the deck while the other crewmember fell overboard and drowned.

The safety officer had initiated the task and verbally instructed the crew members but had not checked the situation at the boat deck during the work as he was still on OOW duties.



Safety equipment found on deck

The investigation concluded that it was likely that neither the safety officer nor the victims had consulted the manufacturer's information manual, as this edition specifically addressed the hazard encountered. In addition, it would appear that the necessary personal protective equipment (PPE) such as safety harnesses were not used as they were found lying on deck.

Lessons learned

- Adherence to the on board safety procedures and other instructions available such as the manufacturer's information manual is a prerequisite for safe operations.
- A toolbox meeting and verbal preparation and instructions are best done at the work location to allow better understanding of the situation and a discussion of the hazards and mitigating strategies.
- Proper supervision is a key element for safer operations.

MARS 202351

Un-inspected engine mods are a risk

As edited from MAIB (UK) SB1/2023

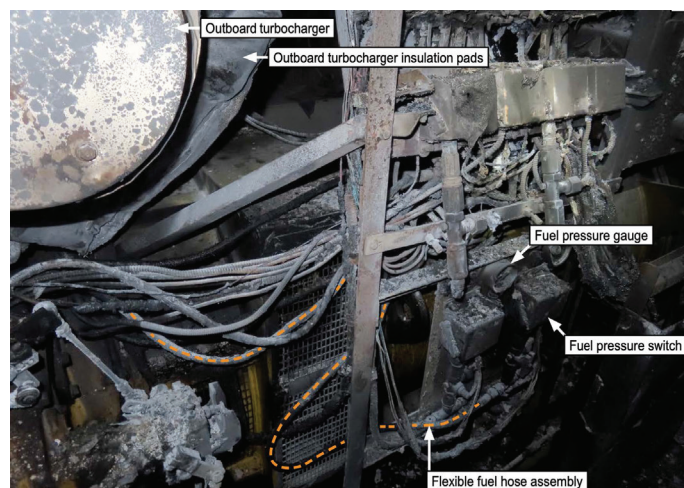
→ While departing port, a RoRo vessel suffered a fire in the auxiliary engine room. The fire was contained and subsequently extinguished without injury to the crew, but the equipment in the auxiliary engine room suffered serious damage. The fire originated below the outboard turbocharger when a small-bore flexible fuel hose failed, spraying marine gasoil (MGO) onto a high temperature surface, where it ignited.

The auxiliary engines had been modified many years earlier, when low pressure fuel alarm pressure switches and gauges were installed using flexible fuel hoses. This was contrary to MSC/Circ.647 – Guidelines to Minimize Leakages from Flammable Liquid Systems, which states that flexible hose assemblies should only be used where necessary to accommodate relative movement between fixed piping and machinery parts. In this case, flexible hose assemblies were not needed for this purpose. Furthermore, the hoses were routed under the turbochargers covered by the insulation pads, exposing them to the risk of contact with high temperatures and making them difficult to inspect.

The investigation also established that the initial proposal to modify the system was not submitted to the classification society for approval and the installation was not surveyed on completion.

Lessons learned

- The risks associated with modification to safety critical equipment should be considered before and during the work being completed.



Damaged auxiliary engine and flexible hose routing

For example, a rigid metal pipe secured with clamps and routed at an appropriate distance from the engine's exhaust might have been a safer option than flexible hoses.

- Flexible hoses have a higher risk of failure than a properly fitted metal pipe. An isolation valve fitted at the point of supply allows a flexible hose to be safely isolated in the event of leakage.
- If you modify a system, inform your classification society. Better safe than sorry.

MARS 202352

Missed steps in a procedure = misstep

→ A vessel was at sea, proceeding to the next scheduled port. An engineer was tasked with replacing the fuel filter on one of the diesel generators as part of planned maintenance schedule. As he was removing nuts to replace the filter, the gasket suddenly burst. A jet of hot diesel fuel sprayed out and onto him and another attending crewmember who was in training.

The affected crewmembers were transferred to a safe place for first aid. One victim reported a skin burn to the right part of the neck and lips, while the other reported minor skin irritation on the hand near the fingers.

The manufacturer's information manual contained the steps to be followed for this procedure. An analysis of the sequence of events showed the crewmember had missed four important steps in this task. Among other things, and most notably, he had not shut the inlet and outlet valves of the fuel filter nor checked the pressure gauge before unbolting.

Further investigation revealed that he was not sufficiently familiar with that specific maintenance job. The lack of strict supervision from senior staff also contributed to the chain of errors resulting in the incident.

Lessons learned

- As in MARS 202350 above, adherence to the onboard safety procedures and other instructions such as the manufacturer's information manual is a prerequisite for safe operations.
- Also as in MARS 202350, proper supervision is a key element for safer operations.

MARS 202353

Unsafe condition in plain sight

→ A tanker was in port, and two engine crew were to tidy up the steering gear compartment. Some empty wooden boxes were to be taken out. They were currently stored on top of various 45 gallon drums. The crew members climbed on top of the drums and were collaborating on lifting the boxes out when one crew member slipped and fell. He landed safely on top of the drums, but his left leg remained stuck in between the drums. With assistance, the victim was transferred to ship's hospital for evaluation of his condition and provision of first aid. He soon returned to the vessel and continued the recommended treatment onboard with light duties.



Lessons learned

- Some unsafe conditions are in plain sight but become invisible because they are so familiar to us. In this case a commonplace task was not properly analysed for unsafe conditions.
- A deck full of holes is clearly unsafe; if you would not walk on a deck full of holes; why would you walk on a surface made of barrels that is full of holes?



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