The Nautical Institute
Mariners' Alerting and Reporting Scheme
MARS Report No 210 April 2010

Providing learning through confidential reports – an international cooperative scheme for improving safety

MARS 201020
Colregs violation

Just before midnight, own vessel was transiting the Alboran Sea westbound, approximately 10 nm west of Cabo de Gata TSS. Traffic conditions were moderate with about eight to 10 other ships around. A strong westerly wind of Beaufort force 7 was raising very rough seas and a moderate swell, and visibility was good.

My vessel had reduced her speed to around 7.5 knots because of the weather and sea conditions.

Earlier, at about 23:30 hours, I had encountered a head-on vessel and, in accordance with Colregs, I altered our original course from 259 degrees to a new course of 285 degrees in order to pass the other at a safe distance. After about 15 minutes the oncoming vessel had passed clear, I resumed our original course of 259 degrees. At that time, I noticed a large, speeding container vessel closing from astern, making about 22 knots, with a closest point of approach (CPA) of zero.

I kept monitoring the overtaking vessel which appeared to take no action to increase the CPA. When she was approximately 1.7 nm astern from our ship, I raised her on the VHF and after going to a working channel, I asked the duty officer what he considered to be a safe passing distance with other ships. He only 'instructed' me to keep our course and speed and scornfully said that he would pass us with no problem. I requested him to pass at a safe distance of minimum half a mile.

By this time, the local VTS, having observed the developing dangerous situation, instructed the overtaking container vessel on VHF to change course and pass at a safe distance. Then, much to my surprise and annoyance, the container ship's duty officer complained to VTS, accusing me of ignorance of Colregs and good seamanship.

I hope that the container ship's duty officer will improve his professional knowledge and conduct and show more courtesy to other vessels.

■ **Editor's note:** A number of actions could be taken in such cases in addition to sharing the problem with MARS. If the reporter can identify the owner/operator of the other ship, he could report the matter to that company's Designated Person, and similarly to the flag state of the ship as they both have responsibilities for the competence of the crew. Depending on the local regulations and the destination of the container ship, VTS may be able to report the matter to port state control and again the flag state. There are well established civil, rather than criminal, proceedings to deal with professional incompetence and they should be used.

MARS 201021
Incorrect use of firefighters' outfits

During a fire drill with a newly-joined crew, the designated fire-fighting team was observed to wrongly put on the firefighter's suit over the self-contained breathing apparatus (SCBA). This caused the jackets to be torn under the armpits, restricted movement and prevented quick changing of the air bottle. The error was pointed out and the equipment was then worn correctly. It appears that the seamen had previously received fire-fighting training with outfits that were designed to be worn over the SCBA, having suitable pockets in the back to accommodate the same. However, the ship's firefighters' outfits were not of this type.

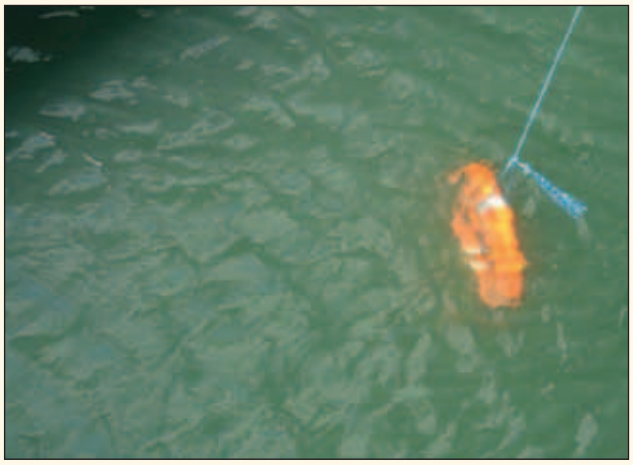
This illustrates the need for crews to receive thorough and proper familiarisation with safety equipment immediately after boarding. In the absence of such type-specific training, there is a real danger that emergency response may be ineffective if they wrongly assume on board equipment to be the same or similar to those as previously encountered in other companies, on other ships or in shore-based training.

▲ Figure 1: With this type of firefighter's suit, the SCBA set must be worn over the jacket.

MARS 201022
Defective lifebuoys

Official report: edited from Maritime Investigation Unit, Swedish Transport Agency

While engaged in carrying out maintenance on deck, a seaman on board a merchant ship had to temporarily remove one of the vessel's lifebuoys from its holding bracket. When lifting it off, he felt that the lifebuoy seemed to be unusually heavy and appeared to be saturated with water. Water was also seen to be dripping from under one of the retro-reflective tapes. When he pressed the damp section of the tape, it gave way, revealing a 15 mm diameter hole through which several litres of water had entered and filled the space between the plastic outer shell and the buoyant material. In this condition, it was seen that the lifebuoy was unable to float freely and would have been useless in an emergency. Further investigations on board other vessels revealed more such defective lifebuoys that had been manufactured in European Union countries and were accompanied by valid type-approval certificates.



▲ Figure 2: Water-logged lifebuoy has insufficient buoyancy to float by itself

▲ Figure 3: Hole in the lifebuoy

MARS 201023
Injury due to parted stage rope

On a ship on voyage, two seamen were painting the ship's funnel, working from a stage at the height of approximately two metres above the walk-around platform. After they had painted the accessible area from where the stage was positioned, both crew members decided to lower the stage to get access to the bottom part of the funnel where painting was to be continued. One of the seamen had already disconnected his lifeline in preparation for the descent and had secured the harness safety line to the ship's fittings. The second seaman had just disconnected his lifeline but, before he could secure his harness safety line to the ship's fitting, one of the stage ropes parted suddenly, causing the stage to drop and hang vertically.

The second seaman, who was not secured, fell off the stage on to the walk-around platform, a height of approximately two metres. He dislocated his right shoulder and also suffered some minor bruises and abrasions on his face. He was moved to the ship's hospital for closer examination and administration of first aid.

The crew obtained medical advice from ashore, and under guidance from an orthopaedic surgeon, successfully reset the dislocated shoulder, while the ship deviated to the nearest port to disembark the casualty.

Results of investigation

1. The ropes used for securing the stage, including the parted rope, were 22 mm three-strand manila ropes, while those used for the safety lines were 22 mm three-strand polypropylene ropes, all of adequate strength for the purpose, using a maximum safety factor of 12, which exceeds the generally accepted safety factor of 10 for the use with personnel.

2. All ropes were personally inspected by the chief officer before work began and found in apparently good condition (although some random paint spots were observed).

3. The ropes were additionally checked by the ratings, who rigged the stage.

4. The point where the rope parted was not contaminated by paint. Therefore, it is presumed that this contamination did not cause the parting of the rope.

5. The rigging equipment was stored on board under acceptable conditions.

6. The work permit for working aloft and pre-work instructions for the workers were completed in accordance with the pertinent company procedures.

7. The painters working on the stage were wearing proper safety harnesses, with the safety line kept properly secured to ship's fittings during all work, except for the periods when the painters had to change the positions of the securing points.

Root cause/contributory factors

1. Insufficient thoroughness during the inspection of the equipment by the ship's crew – failure to detect internal rot by untwisting the manila rope's strands;

2. The casualty was re-positioning the securing point of his safety line at the moment of the incident; therefore, it was not secured to any ship's fittings;

3. Restricted access to the area to be painted, preventing the rigging of scaffolding.

Lessons learned

1. Although the ropes were reportedly inspected by the chief officer and then by the seamen rigging the stage before the work, all of them failed to detect deterioration of the fibre's condition in the inner part of the ropes.

2. It cannot be overemphasised that a thorough inspection of each rope before its use is extremely important in preventing accidents on board.

3. In particular, such an inspection should include examination of the entire length of rope for wear, deterioration, abrasion, broken or cut fibres, displacement of yarns or strands, discoloration and internal rot.

4. To inspect the inner fibres, the rope should be untwisted in several places to make sure the fibres inside are clean and unaffected by rot.

Corrective/preventative actions

1. Management circulated additional information on the proper use and inspection of the fibre ropes by means of electronic fleet notice.

2. The instructions on the proper use of the fibre ropes are to be reviewed with all crew members and the knowledge of the crew to be verified by the master.

MARS 201024
Hand injury during crane maintenance

On a tanker in port, a leading seaman's right hand was injured during an attempt to remove the sheave axle (pin) from the port hose crane jib head block. The work involved the renewal of a bearing on the port hose crane sheave to ensure free movement of this critical component. The same task had been successfully completed the previous day by the same team on another crane.

Before starting the work, the chief engineer, leading seaman and a cadet completed a toolbox talk on the intended operation, including a discussion on the use of a hydraulic jack designed to draw out the pin.

The following documentation was also completed for the work planned:

- Toolbox meeting;
- Working aloft permit general;
- Lock-out permit for the main breaker on the port hose handling crane.

The necessary scaffolding had been erected earlier under the supervision of the leading seaman. After completing an inspection of the scaffolding, the chief engineer and leading seaman proceeded to climb it and began the work. Both were properly fitted with appropriate personal protective equipment (PPE), including approved full body harnesses and fall arrest equipment. The cadet remained on the deck, serving as a helper. The first step in the work process included tying off the crane wire to reduce the load on the sheave.

In order to remove the sheave pin, a length of threaded rod was screwed into a bore at the end of the pin. The free end of the rod was passed through a hollow pipe section and the annular hole of the jack's piston and then secured with a nut. As pressure was built up in the jack, a pulling force was applied to the sheave pin. The force applied was registered on a pressure gauge in bar. An initial pulling force of approximately 250 bar was applied to the pin. To assist the applied force, the chief engineer tapped the free end of the pin with an 8 lb maul. To prevent damage to the pin end, the leading seaman held a heavy brass stock between the pin and maul.

The chief engineer initially applied three blows with the maul, resulting in a pressure drop indicating movement in the pin. Again the hydraulic jack was pumped to approximately 250 bar pressure, the pin was struck again and the deflected maul landed heavily on the leading seaman's right hand. He immediately descended the scaffolding with the assistance of the chief engineer. On reaching the deck atop of the midship store, additional crew members were available to assist him to the ship's hospital.

The vessel's captain immediately arranged transport to the hospital ashore for medical attention. There, X-rays determined a fracture in the upper right hand and the casualty was repatriated for treatment and recovery.

Result of investigation

1. Weak assessment of the risk associated with swinging an 8lb hammer in close proximity to a co-worker's hand.

2. The leading seaman indicated he heard a slight 'click' prior to the maul making contact with his hand, and suspects the handle of the maul struck the crane wires, thus causing the maul blow to deflect off the stock.

Root cause/contributory factors

1. Failure to follow procedures. There was no evidence of a proper risk assessment for the intended work. A risk assessment must identify all hazards associated with the work;

2. Failure to warn. Both individuals failed to identify the 'line of fire' issue with swinging a maul in very close proximity to an unprotected hand and the potential for injury;

3. The fact that the same job had been completed on another crane the previous day without incident seemed to give a false sense of safety on the day of the incident. This is often a common thread in many serious accidents;

4. There was evidence from a post incident interview that the crew members felt that time devoted to completing a formal risk assessment would have consumed valuable maintenance time. This indicated an improper assessment of priorities.

Corrective/preventative actions

1. Incident report circulated throughout the fleet.

2. Decision taken to expedite the implementation of a work safety training programme in the fleet.

3. New procedure adopted for ships' safety officers to ensure supervision of ships' crew during major onboard maintenance tasks. This will include attending daily work planning, toolbox meetings and assisting with risk assessments.

4. Company's standard toolbox meeting form to include a system of 'hazard hints' to assist crew in identifying hazards in their daily work routines.

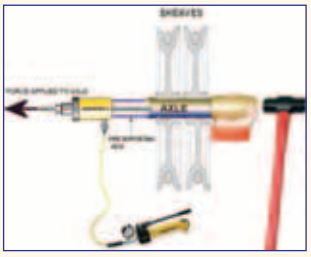
5. Shore staff attending the vessel during major projects shall review the daily work planning and provide oversight and input to ensure safe operations on board.

6. Share findings of this report with the industry.

7. Issue company safety bulletins to create awareness of safer hand tools.

■ **Editor's Note:** Although the arrangement for extracting the sheave pin appears to be in order, the risk assessment must consider the possibility of two more hazards when applying tension with the hydraulic jack; 1) the rod coming off the the pin due to corroded / wasted threads, and, 2) the threaded rod fracturing, especially if not of approved strength or part of original manufacturer's kit. In both cases, the separate components (bolt, jack and supporting pipe) are certain to be projected with great force and represent a injury hazard to crewmembers, and if the vessel is a tanker, a spark ignition hazard under certain conditions. It is suggested that a shroud made of strong canvas should be rigged to cover the rod at the free end and also pass underneath to entire length of the apparatus to prevent the components falling on the deck.

▲ Figure 4: Crane wire tied off to reduce load on sheave


▲ Figure 5: Hazardous arrangement of tools and equipment for extracting sheave pin


▲ Figure 6: Sample of safe tool grip


▲ Figure 7: Patented hand-held 'pump-action' hammer permits one-man operation and increases safety and efficiency. Further information on this equipment can be seen on the link www.youtube.com/watch?v=tHtk1hlVwbw