Mariners' Alerting and Reporting Scheme

MARS Report No 327 January 2020

Distractions on the bridge are often cited in investigation reports as contributing factors – and now more than ever, with mobile phones and computers. Although each person is responsible for their own self-discipline and professionalism, company leaders also need to assist employees in this regard.

In this issue of MARS we report several serious navigation accidents that would never have happened had the OOW been paying attention and actually navigating the ship. Another area of concern, touched on in two reports here, is the impact of new technology as a contributing factor in accidents. In particular, touchscreen interfaces on control panels are raising new issues.

MARS 202001

Distracted OOW goes off track

As edited from official MAIB (UK) report 12/2019

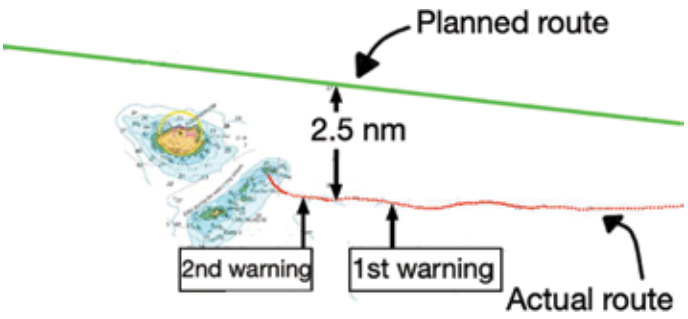
➔ A small coastal trader was underway in darkness and calm seas at a speed of almost 8kt. There was a change of officers on the bridge. At the time, the vessel was on autopilot 'track mode' steering. This mode applies the necessary helm to follow the track selected on the ECDIS. The relieving OOW deselected track mode steering and switched to 'course to steer' mode, setting the heading at 279°.

The OOW then sat in the chair on the port side of the bridge and started watching music videos that were being streamed to his mobile phone via wi-fi.

About two hours later, the OOW looked at the radar display and realised that the vessel was to port of the planned track. On the radar, he also observed two small islands ahead of the vessel and decided to proceed between them, more or less on his present course, with a plan to alter course to starboard afterwards to regain the planned track.

About 30 minutes later, a local coastguard officer warned the OOW by VHF radio that the vessel was running into danger. The OOW acknowledged the call, but did not change course. Some nine minutes later, the local VTS officer, having observed that the vessel was still heading into danger, called the vessel and issued a second warning.

During this conversation with the VTS officer, the OOW reduced the range scale on the port radar and added a chart overlay to the display. He then realised that his plan to pass between the two islands was unsafe, because there was a shallow reef between them. He quickly selected hand-steering and put the rudder full to starboard in an attempt to steer away from danger. The vessel grounded nonetheless at a speed of 7kt. Seconds before grounding, the ECDIS depth alarm sounded as the vessel crossed over the 10m depth contour.



Some three days later, after a partial cargo discharge, the vessel was refloated and brought to a safe haven.

Lessons learned

- A planned route is usually safer than an improvised one. Stick to your planned route.
- Avoid distractions while on watch – navigate your vessel.
- If a shore authority calls your ship to say you are running into danger, call the Master immediately and evaluate your position with care.

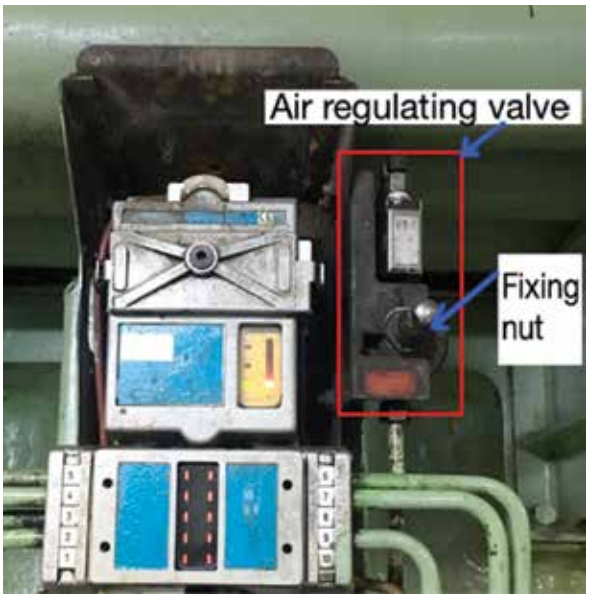
MARS 202002

Quick action helps avoid grounding

➔ A tanker had discharged cargo and was outbound under pilotage in a restricted waterway when an oil mist detector alarm for the main engine sounded. This caused the engine to shut down. The bridge team went into emergency status and made preparations to drop anchor.

While these preparations were in progress, the engine team checked the oil mist alarm system. It was found that the air feed flow into the oil mist detector was not operating according to specification. A loosened fixing nut on the air regulating valve was causing a false alarm.

The system air pressure was immediately increased to normal level, the fixing nut was tightened and the oil mist detector was re-set. The main engine was quickly restarted and the vessel was able to continue the voyage without suffering any negative consequences or needing to drop anchor.



Lessons learned

- Quick and effective action in an urgent situation is often possible when the crew are thoroughly familiar with their ship.

MARS 202003

The ghost in the machine – unwanted touchscreen activation

As edited from official TSB (Canada) report M17C0108

➔ Staff on an up-bound tanker in a river waterway decided to anchor the vessel just below the lock to wait for traffic ahead to clear.

While it was anchoring the vessel lost propulsion. The Master immediately contacted the engine room crew, who requested that propulsion control be transferred to the engine room. This would allow them to attempt to restart the engine. As the engine room crew were working to restart the main engine, the port bow anchor was remotely released from the bridge.

Despite these efforts, the vessel grounded. Although the main engine was soon restarted and propulsion control was transferred back to the bridge, attempts to free the vessel under power were unsuccessful. Two days later the vessel was refloated with the assistance of two tugs and towed to a nearby dock. Subsequent underwater inspection showed there was no apparent damage to the vessel.

Touch screen control interface

The investigation found that the main engine shutdown feature on the touchscreen integrated alarm monitoring and control system had inadvertently been activated. The touchscreen was mounted horizontally in the centre bridge console, close to other controls such as steering and propulsion. At the time of the loss of propulsion, four crew members were within 2m of the touchscreen. Tests showed that the touchscreen was reactive to a variety of inputs – including the telephone cord situated next to it.

When the main engine shutdown button was activated on the touchscreen, a generic and ambiguous system status message appeared on the screen. The message did not specify that the engine was about to shut down, nor did it indicate how the shutdown was activated or from where (bridge, engine room, emergency stop etc).

Action taken

A plastic cover was placed over the touchscreen to prevent another inadvertent shutdown. After a thorough review, the equipment manufacturer disabled the main engine shutdown function on the touchscreen and the plastic cover was removed. In case of an emergency, the main engine can still be shut down from the bridge via the traditional shutdown button.

Lessons learned

In order to use shipboard equipment effectively, crews must know how to operate that equipment during routine and emergency situations.

In this case, given that the screen controlled the vessel's integrated alarm monitoring and control system, it was especially important for crew members to familiarise themselves with the sensitivity level of the screen and the lack of any confirmation message after any action was taken using it.

MARS 202004

Another touchscreen ghost

➔ A small split-hull suction dredger was fully loaded and on its way to the dumping ground. The vessel was on autopilot and the duty seaman decided to dust the wheelhouse consoles. The vessel, still making way, was close to the dumping ground but not yet in position when the hull opened unexpectedly and the dredged material was prematurely released.

The investigation found that the 'virtual button' on the touchscreen control panel for the emergency open had been activated by the operator while he was dusting the screen. This button was only one level deep in the touchscreen menu control. Two unintended touches with the duster, one to reveal the 'emergency opening' button and one to activate it, had opened the vessel.

Lessons learned

- This incident and MARS 202003 demonstrate that touchscreen devices, which are increasingly common on ships, have introduced new risks. These devices can control a wide range of vessel functions. Crew need to have a thorough understanding of the particularities and sensitivities of each touchscreen device.
- For touchscreen applications on control panels, procedures and protections should be implemented to protect against unwanted activations and their consequences.

MARS 202005

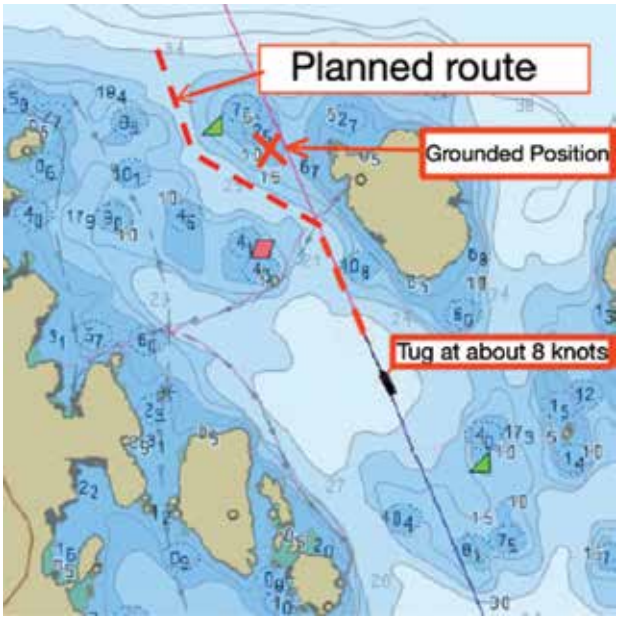
Another OOW alone at night: another grounding

As edited from official AIBN (Norway) report 2019-07

➔ A small tug was underway in good visibility but in darkness. The vessel was making about 8kt with the OOW as sole person on the bridge and the helm on autopilot. They were on a well-travelled route, which was loaded into the vessel's chart plotter. The two other crew members came up to the bridge from time to time for social interaction, but they were not there as dedicated lookouts.

At one point, the OOW switched on the searchlight to see the reflectors on two navigation markers that indicated some reefs. When the OOW saw that he was abreast of the red marker (see image), he moved the autopilot control stick a few 'clicks' to port. Although the OOW later stated that the vessel did not change course, the AIS signals show that the vessel's course changed by 6° to port during the final 31 seconds before the grounding.

The OOW stated that he then wished to put the vessel into manual steering, but the vessel ran aground before he could do this, and he was thrown violently forward.



The OOW immediately tried to reverse the grounded vessel off, but found that the vessel's propulsion system did not respond. Not long after the grounding the vessel slipped off the rocks, drifted and then sank about 40 minutes after grounding. The crew abandoned ship and were later rescued.


Tug during salvage operation

Lessons learned

- In restricted waters, close attention to navigation is needed to avoid negative consequences.
- Contrary to the rules, there was no dedicated lookout on duty. A dedicated lookout might have been able to assist the OOW in his situational awareness and could have helped prevent the accident.

MARS 202006

Crew saved but ship lost

As edited from IMO Lessons Learned from Marine Casualties III 5 (III 5/15, Annex 1)

➔ A ship with new management and a new crew sailed in ballast. The new crew reportedly did not verify the status of the ballast tanks, which were about 80% full. In the next port 116 stuffed twenty-foot-equivalent containers were loaded in the holds and on deck. The crew made no changes to the ballast configuration. Fresh water was taken on in the next port before departing for the final destination.

Shortly after leaving port, the ship encountered strong winds and waves. Rolling heavily, the ship developed a list of about 25° to starboard. After about an hour the list increased to 30°. Without attempting to establish the cause of the list, the Master issued a mayday and ordered the crew to abandon ship into a liferaft. All 12 crew were later recovered by helicopter. By that time the ship was listing about 45° but all deck containers were still in place.

Six days later a search found the ship still afloat and listing between 15° and 30° to starboard. All of the deck containers were now missing, but the hatch covers were in place and appeared intact. By the time a salvage tug arrived about four days later, the ship had sunk.

The cause of the list and subsequent sinking was not conclusively identified. The investigation found that the crew were not fully aware of the severity of the forecast weather conditions and consequently did not take precautions for heavy weather. The vessel's course was beam-on to a heavy sea and swell, resulting in heavy rolling for a sustained period.

In the absence of any other obvious factors, the reason the ship developed a heavy list was probably related to a change in stability resulting from an ingress of water, and/or an uninitiated change in the status of the ballast tanks.

Lessons learned

- Weather is your master. Implement heavy weather procedures when in doubt. If the vessel seems at risk, heave to and reduce speed to reduce rolling.
- A new crew on a newly acquired vessel? Sound all tanks to determine the state of the vessel.
- When something unusual happens to a ship, such as taking on a substantial list, every effort should be made to identify the cause and take remedial action before it is too late.

MARS 202007

Ships wedged together after collision

As edited from BEA (France) official report published July 2019

➔ A ro-ro vessel was underway at 19kt in good visibility with a single OOW on the bridge. The radar had auto-acquired a target ahead and, with three nautical miles to go, a collision risk alarm was indicated on the screen. No audible alarm sounded, because these had been muted on the radar.

The OOW did not notice this alarm and was now busy plotting the position on the chart and completing the logbook at the chart table, behind curtains.

About nine minutes after the alarm appeared on the radar screen the ro-ro vessel collided with an anchored container ship at an angle of almost 90° and became wedged into the side of the anchored vessel. The personnel on the bridge of the container vessel did not see the ro-ro approaching and took no action to warn it.

Four days later the vessels were separated and salvage was initiated.

The investigation was not able to determine why the OOW did not see the anchored container vessel in time to prevent the collision. Fatigue, complacency, distraction or lack of properly prioritised jobs could have played a role. The lack of a proper lookout on both vessels was undoubtedly a substantial contributing factor.

Lessons learned

- Permanently muting alarms is not best practice.
- The best 'screen' to be viewing when visibility is good is the bridge window.
- Bridge personnel on vessels at anchor have a duty to survey the traffic and take appropriate action if collision is imminent.

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