Mariners' Alerting and Reporting Scheme

MARS Report No. 309 July 2018

MARS 201841

Collision goes unnoticed

As edited from official Japan Transport Safety Board report MA2017-3

➔ A small coastal container ship was en route at night in good visibility with an OOW and lookout on the bridge. The vessel was on autopilot at a speed of approximately 15.5 kts when the OOW observed another ship ahead on the radar. The target was plotted, showing that it would cross from the starboard side to the port side.

About 2 hours and 25 minutes later the relief OOW came to the bridge. He was given information about the approaching vessel before taking over the watch. At the radar, he extended the true speed vectors, which were set to a three-minute display, and found that the tip of the target's vector reached a point behind the tip of his vessel's vector. He therefore assumed that the target vessel would pass astern of his ship. Meanwhile, as was the practice, the relieved OOW was at the chart table completing the logbook entries with the curtain open and chart table light on.

A few minutes later the lookout reported sighting the target vessel. He also asked permission to leave the bridge to attend the head, which was granted. The OOW looked at the target vessel's true vector on the radar screen. It appeared to him that the direction and length of the vector had not changed. He then glanced out of the window and saw the vessel's lights at close range to starboard and realised there was a danger of collision. Using the daylight signalling lamp on the starboard side of the bridge, the OOW flashed the vessel about ten times. With no observable response, he then went to the helm and switched to hand steering, setting the rudder hard to port.

The OOW did not feel any impact, and assumed that a collision had been avoided. From the bridge wing he was unable to observe the other ship's lights astern. He then set the autopilot to the previous course and, when the lookout returned to the bridge, asked him if he had felt an impact. The lookout had not. The OOW telephoned the engine room and asked about an impact. The engineer of the watch said he had felt something like being hit by a wave.

Unsure of what to do, the OOW again went out onto the wing and searched astern together with the lookout. Nothing was sighted so, about 30 minutes later, he informed the Master. The Master decided to investigate further, and went to the bow to see if there were signs of a collision. He did not see any, so was inclined to believe that no collision had occurred.

At the next port the crew again searched for signs of a collision from the wharf but did not find any. The vessel left port but was intercepted by a patrol boat once underway and directed to another port for a detailed inspection.

The investigation later determined that the target ship was a fishing vessel manned by a sole person, the skipper. He had not returned at the usual time and his family had informed the authorities that he was missing. A search was instigated and the fishing vessel was found capsized and damaged on the port side. The skipper was recovered from inside the vessel and was later declared deceased. A search was initiated for the other vessel implicated in the collision. After some investigation the small coastal container ship was identified.

Lessons learned

- If you have the slightest doubt you may have collided with a small boat, stop immediately and investigate fully.
- At night, keep the bridge in 'blackout mode'. This is important for good night vision. Use red lights for the chart table and shield the light with curtains.
- Use your electronic navigation equipment to its utmost, but also your human power. The eyes of a dedicated lookout and the OOW are fine assets.
- When using the radar for collision avoidance, use relative mode instead of true to give a better visual representation of collision risks.

MARS 201842

Snap-back slip up 2

As edited from official UK MAIB report number 13-2017
First published as MARS 201614 'Snap-back slip up'

■ **Editor's note:** MARS first published this accident in 2016, based on an OCIMF bulletin. The MAIB has since issued its official report on the accident, which includes some additional findings that are of interest.

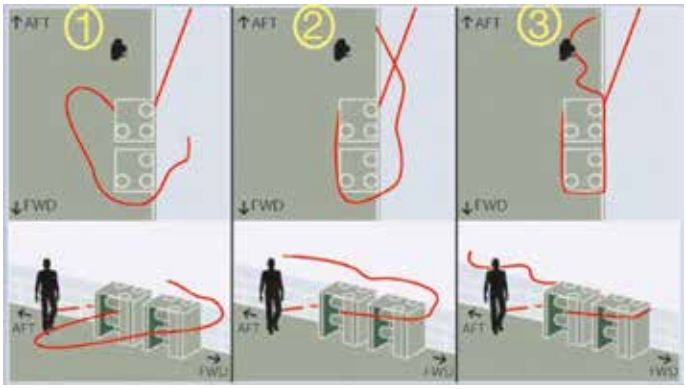
➔ A large LNG carrier was being warped into position by tensioning the forward back springs. The deck officer in charge of the forward mooring party was standing aft of the fairlead through which the spring lines passed. He was directing operations by signalling to a seaman who was located forward. From this position the seaman was able to relay the signals to the winch operator, who could not see the deck officer.

The mooring line parted inboard from a pedestal fairlead while under tension. The section of the line between the break and the port shoulder roller fairlead struck the deck officer on the head as it whipped back before going overboard through the fairlead. The deck officer was found lying unconscious forward of the roller fairlead. He had sustained multiple skull fractures.

The mooring line that failed was a 44 millimetre diameter sheathed ultra-high-modulus polyethylene (HMPE) line. The line was fitted with a 22 metre polyester/polyethylene tail. The section of line in use between the winch and the connection with the tail was approximately 68 metres long.

The MAIB report found, among other things, that:

- The residual strength of the mooring line was substantially reduced from original specifications. The tensile load on the mooring line when it parted was less than a quarter of its specified minimum breaking load and below its accepted working load limit.



- The predominant factor for the loss of residual strength was axial compression fatigue. However, axial compression fatigue had not previously been considered as a likely failure mode or significant cause of strength loss in HMPE rope by the manufacturer.
- The decision to attempt to reposition the vessel using the spring lines rather than recalling the tugs placed the mooring parties in an unnecessarily hazardous position, particularly given the strength and direction of the winds.

Lessons learned

- Mooring line maintenance management and condition monitoring regimes must include clear and practical criteria for discarding compromised ropes.
- The condition of the load bearing core of jacketed ropes cannot be adequately assessed on board ship. Several of the rope discard criteria listed in the company's safety management manual, such as broken strands, abraded yarns and fused fibres, cannot be identified without destroying sections of the rope.
- The tensile strength of high modulus rope will diminish steadily over time regardless of how well it is maintained. For this reason, appropriate safety factors and anticipated life expectancies need to be applied, and parameters such as time, tension and temperature need to be closely monitored. Without these, the ropes will likely fail before being discarded.

MARS 201843

Keep your eye on the eye

➔ A vessel was leaving berth and deck crew were retrieving the lines. An officer and two ABs were on duty at the aft mooring station. After letting go the mooring ropes the ropes were taken on board using the winch.

One of the lines already on board was being attended to by an AB who was trying to remove the chafing guard. The officer came towards the AB with the intention of helping him, but he unintentionally crossed one of the mooring lines that was being heaved in. His foot got caught in the eye of the rope and before the winch could be stopped he had sustained an injury. An examination found his ankle was badly sprained.

Lessons learned

- A supervisor must maintain an overview of the work area to ensure a team's safety, conserving his/her situational awareness.
- There is no need for an officer to get involved in the work process unless there is an emergency.
- Never step into a bight or the eye of a mooring line

MARS 201844

Unlisted bulk cargo exploded

As edited from official MAIB report 26/2017

➔ The Master of a small coastal trader received instructions from the charterers to load a full cargo of unprocessed incinerator bottom ash (U-IBA). The instructions specified that the cargo was not dangerous, and stated '…cargo also includes some foreign materials which is no problem. Cargo can be loaded/discharged in rain.'

The Master and Chief Officer referred to the International Maritime Solid Bulk Cargoes Code (IMSBC Code), but did not find an entry for U-IBA. The Master decided to load as instructed, and did not receive any further information about the cargo.

Loading into the single hold took about eight hours, with heavy and persistent rain throughout. When loading was completed, the vessel departed, but anchored 30 minutes later to await better weather conditions for the voyage. The next day, while still at anchor, the chief engineer went to the forecastle store to investigate a problem with the emergency fire pump. He started the pump and from the sound of its operation suspected that it was running dry. After confirming this was the case, he pushed the stop button on the main panel. At the very same moment there were two loud explosions in quick succession and the chief engineer was thrown violently to the deck.

The victim was quickly evacuated by helicopter to a shore hospital. He had suffered first degree burns to his face and second degree burns to his body, hands and lower extremities. The vessel had suffered some minor damage. Five of the nine hatch covers had to be replaced, along with all of the hatch cleats and the cargo hold coaming bar among others.

There had been 34 shipments of U-IBA from the same port on 26 vessels without incident. However, U-IBA was not listed in the IMSBC Code and no steps had been taken to seek approval from the competent authorities for its carriage, as required by the Code. The charterparty stated that U-IBA was non-dangerous and non-IMO classed (implying that it was not a recognised dangerous cargo under the IMDG Code). Therefore, it is not surprising that the Master, along with the Masters of the vessels carrying the previous 34 shipments, followed the loading instructions from the charterer.

The investigation found, among other things, that U-IBA, when exposed to water, generates a low rate of H2, with a risk of explosive atmosphere formation. In this case, H2 gas had probably migrated from the vessel's hold to the forecastle store and into the pump's start/stop panel, initiating the first explosion.

Lessons learned

- If the bulk cargo is not listed in the IMSBC Code, do not load until approval for carriage is received from the competent authorities.
- Had the IMSBC Code requirements been followed it is likely this accident would not have happened, as the dangers would probably have been identified and procedures for safe carriage developed and implemented prior to loading.
- For purposes of transportation in bulk by sea, the release of any quantity of flammable gas should be considered dangerous.

MARS 201845

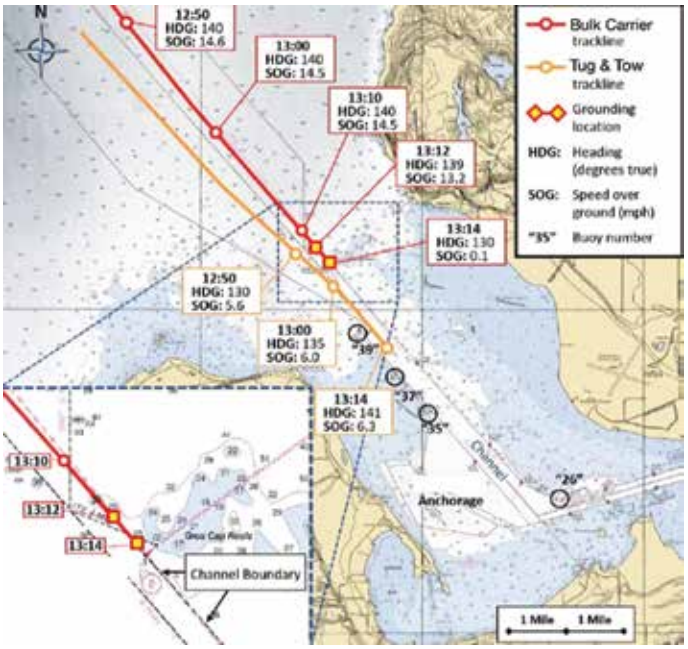
Grounding while overtaking

As edited from official US NTSB marine accident brief 17/25

➔ A loaded inland bulk carrier was making way and preparing to pass a tug and tow. The bridge teams on the two vessels agreed that the tug and tow would keep to the starboard side of the channel and the bulk carrier would overtake on its port side.

As the overtaking manoeuvre was taking shape, in daylight and good visibility, the bulk carrier's port side came outside the channel and very close to a charted reef. The OOW was looking out of the windows to navigate, and had not glanced at the electronic chart nor positioned the vessel on the paper chart. Without having moderated the engine, the vessel began to slow down. Its heading then quickly shifted about eight degrees to port. The vessel continued to move forward, dragging the hull an additional ship's length over the rocky bottom until it came to rest.

Immediately following the accident, the crew sounded the tanks. Multiple punctures and large fractures to the hull had been sustained. There was significant deflection of the steel deck in the forward end of the port side cargo belt tunnel and the cargo belt pulley system was misaligned. Damage cost in the order of USD 4.5 million and took over two months to repair.



Lessons learned

- Use all available means at your disposal to navigate the vessel. In this case the electronic chart would have clearly shown the vessel was in danger of grounding.
- The bulk carrier's OOW must have felt some pressure to complete the overtaking manoeuvre as previously agreed, and therefore did not moderate the vessel's speed; a sharp port course alteration was coming up very near to where the overtaking would have been completed. Don't be afraid to change your plans, and when in doubt, slow down.

MARS 201846

Lifeboat self-launches

➔ The port life boat was to be lowered to deck level as a test, with the vessel underway at about five knots. As soon as the lashings were removed, the lifeboat started to lower itself to the sea of its own accord. Crew attempted to stop the descent by pulling down the brake arm to stop the lifeboat, but without effect. The lifeboat continued its course downward to the sea.

The bridge was informed and the vessel was stopped and turned to make a lee on the port side to protect the lifeboat. The company investigation found that the lowering arm, which had been dismantled for maintenance and then reassembled, had been improperly installed.

Lessons learned

- Lifeboat launching apparatus is essential equipment. Maintenance should be undertaken or supervised only by competent personnel.
- Always slow the vessel to a near stop or wait until at anchor to test lifeboat lowering. If berthed, test the outboard lifeboat only.

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