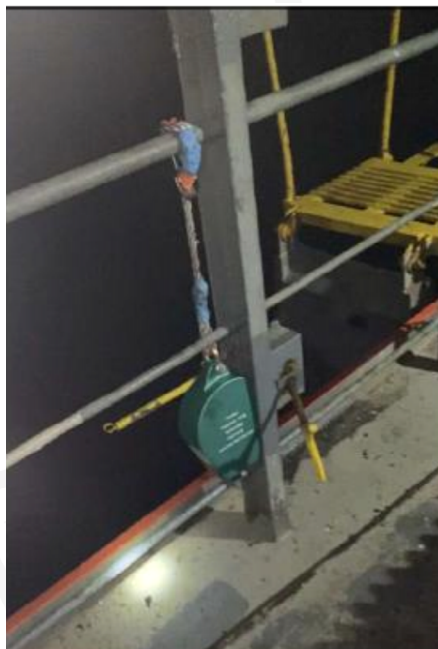

Failure of fall arrest equipment

1. Purpose

- 1.1. This Safety Alert is issued by the Bahamas Maritime Authority (BMA) to share lessons to be learned on the failure of fall arrest equipment that resulted in a man overboard. It is based on the findings of a preliminary investigation.

2. Introduction

- 2.1. After departing port during hours of darkness, crew of a Bahamas flagged general cargo vessel were preparing the pilot transfer arrangement to allow the pilot to disembark. With a freeboard in excess of 9 metres, the first stage of the process was rigging the accommodation ladder.
- 2.2. Working with the bosun, a deck cadet and a trainee deck rating, an ordinary seafarer had donned a climbing harness fitted with a shock absorbing lanyard and secured a fall arrestor to the ship's rails. In order to rig the ladder, he attached his lanyard to the fall arrestor and climbed outboard and on to the ladder. Whilst stood on the ladder its hoisting wire suddenly parted. The ladder dropped to a near vertical orientation and the ordinary seafarer fell. The ordinary seafarer's fall arrestor subsequently failed and he fell into the sea. He was not wearing a lifejacket.



Dropped gangway and failed fall arrestor after casualty

- 2.3. On deck, crew quickly deployed lifebuoys and raised the alarm. On the bridge, the pilot broadcast a mayday on VHF channel 16 and the bridge team initiated actions to recover the man overboard. In the water, the ordinary seafarer removed his harness, helmet, gloves and boots to aid his buoyancy.
- 2.4. Approximately 18 minutes after the fall, the ordinary seafarer was located and rescued by the local pilot boat. Exhausted but otherwise unharmed, he was transferred to hospital ashore. The ordinary seafarer was discharged and repatriated a week later.

3. Safety Factors

- 3.1. The failed hoist wire was subject to electromagnetic inspection to detect damage, metallic area loss, broken wires and corrosion. The wire showed significant degradation. Tests indicated a reduction in breaking load across the entire length of the wire. A loss of up to 87.6% of its residual breaking load was recorded where the electromagnetic inspection showed a metallic area loss of 31.2%.
- 3.2. The wire had been in service for 27 months. Whilst fitted, it was subject to inspection and lubrication as part of the vessel's planned maintenance system. The location at which the wire parted was on the outboard side when the ladder was secured for sea. As well as being exposed to weather and sea spray, this length of the wire was incredibly difficult for the crew to access. The wire's condition and shipboard records of work suggest that the section of wire had not received the required lubrication during service. There was inadequate instruction for lubrication of this wire and the difficulties in effectively completing the task were not recognised.
- 3.3. The failed fall arrester was a self retracting model: a deceleration device containing a drum-wound line that can be slowly extracted from, or retracted back on to, a drum. During normal operation it would remain under tension, allowing movement to complete work. At the onset of a fall, the device automatically locks the drum and arrests the fall.
- 3.4. The ordinary seafarer was not aware that this type of fall arrester should be connected directly to a safety harness and there was no suitable anchoring point above the working area. Securing it on the same plane and the addition of the shock absorbing lanyard meant that he fell approximately 5 meters before load was applied to the fall arrester - creating a significant shock load.
- 3.5. The failed fall arrester had been provided to the vessel three months before the casualty. It was certificated¹ to have been tested to local (Chinese) standards rather than an international standard. Due to the limited number available, the fall arrester was not

¹ The test certificate, issued in August 2024, referenced GB24544-2009 which was superseded in 2023.

subject to testing to determine compliance with either standard. As a precaution, the operator of the vessel has removed *Jiangsu Chaojia Rope & Net & Belt Co. Ltd* equipment from its fleet.



Undamaged sample with the failed fall arrestor

- 3.6. The bosun, ordinary seafarer and two trainees were working without support from an officer (those who were on deck were working to solve a different issue). The work was not subject to a permit to work and therefore controls that might be expected for work over the side were not in place. The ordinary seafarer was not wearing a lifejacket when he went outboard of the ship's rails. Crew reported it was normal to wear one but they were not in their usual location at the time of the casualty.

4. Lessons to be learned

- 4.1. Rigging of the pilot transfer arrangements is work over the side. It requires a permit to work and all of the associated controls to mitigate the substantial risk it poses to those doing the work. The regular nature of rigging pilot transfer arrangements may reduce perceived risk but not the outcome.
- 4.2. Safety starts with design. The ladder's hoist wire was exposed to harsh conditions and was difficult to effectively inspect or maintain. These factors were not effectively considered in the design of the arrangement or material choice, leaving the end users to solve a difficult problem.
- 4.3. Introducing new equipment introduces new hazards. Personnel initiating equipment changes need to assess the risk the change creates and carefully consider how it will be mitigated for end users.
- 4.4. Guidance needs to be clear to the seafarer. The guidance provided by the equipment manufacturer was purely in text form, the translation from its original language to English resulted in ambiguity. Guidance in the Company's safety management system was clear but the crew had not received training and there was no instruction on the equipment itself.

- 4.5. Self retracting fall arresters are most effective when attached to an overhead anchor. Anchor points need to have sufficient strength - railings may not provide this strength.
- 4.6. Seafarers are problem solvers and previous investigations have shown they may put themselves at risk to get the job done. When time is of the essence and there are multiple things to achieve, a missing safety barrier (such as a lack of lifejackets) might be overlooked to enable work to be completed. Helping seafarers see risk is an industry-wide problem.

5. Further reading

- 5.1. The Maritime & Coastguard Agency's Code of Safe Working Practices for Merchant Seafarers Chapter 10.2.13 covers safety for seafarers rigging accommodation and pilot ladders. See: www.gov.uk/government/publications/code-of-safe-working-practices-for-merchant-seafarers-2025-edition
- 5.2. There have been numerous instances of ship's crew falling overboard when working around pilot transfer arrangements. In almost all cases that result in death, the member of crew that entered the water was not wearing a lifejacket.
- 5.3. For further information see:
Fri Sea (2024) Bahamas www.bahamasmaritime.com/wp-content/uploads/2024/10/BMA-Report-Fri-Sea-man-overboard.pdf
Navios Amitie (2020) Malta https://msiu.gov.mt/wp-content/uploads/2022/11/PDF-Accidents_and_Incidents_2020-MV_Navios_Amitie_Final_Safety_Investigation_Report.pdf
Madinah (2015) New Zealand www.taic.org.nz/inquiry/mo-2015-202

6. Validity

- 6.1. This Safety Alert is valid until further notice