

**Extracts from
The United Kingdom
Merchant Shipping
(Accident Reporting and
Investigation) Regulations
2012 Regulation 5:**

“The sole objective of a safety investigation into an accident under these Regulations shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of such an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.”

Regulation 16(1):

“The Chief Inspector may at any time make recommendations as to how future accidents may be prevented.”

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NOTE

This bulletin is not written with litigation in mind and, pursuant to Regulation 14(14) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, shall be inadmissible in any judicial proceedings whose purpose, or one of whose purposes is to attribute or apportion liability or blame.

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Multiple cruise ship anchor failures during autumn/winter 2020-21



Image courtesy of The Financial Times

Note: This photograph is included to simply illustrate the size and number of cruise ships anchoring off the UK south coast during the recent autumn and winter period.

MAIB SAFETY BULLETIN 1/2021

This document, containing safety lessons, has been produced for marine safety purposes only, on the basis of information available to date.

The *Merchant Shipping (Accident Reporting and Investigation) Regulations 2012* provide for the Chief Inspector of Marine Accidents to make recommendations at any time during the course of an investigation if, in his opinion, it is necessary or desirable to do so.

The MAIB has become concerned at the number of recently reported marine incidents involving cruise ship anchor systems failures and would like to bring this issue to the attention of the cruise industry and to highlight the lessons that can be learned to prevent future incidents.



Captain Andrew Moll
Chief Inspector of Marine Accidents

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BACKGROUND

In early 2020 the COVID-19 pandemic forced the international cruise industry into an unprecedented operational pause, resulting in many cruise ships anchoring off the UK south coast for long periods of time. The MAIB has been made aware of several marine incidents since October 2020 where cruise ship anchors or anchor cables have failed, often while trying to ride out named winter storms. One cruise ship lost both its anchors within a week.

The strength of anchoring equipment is defined by ship Classification Rules and it is intended for temporary mooring of a ship within a harbour or sheltered area. In good holding ground, the anchoring equipment should be able to hold the ship to a maximum wind strength of 48 knots in flat water, but this reduces to a maximum of 21 knots wind strength in seas with a significant wave height of 2m. The International Association of Classification Societies (IACS) advises that the anchoring equipment is not designed to hold a ship off fully exposed coasts in rough weather or to stop a ship that is moving or drifting. In these conditions the loads on the anchoring equipment increase to such a degree that its components may be damaged or fail due to the high energy forces generated, particularly with ships with high windage.

INITIAL FINDINGS

Many cruise ships have been anchoring for extended periods of time and in conditions far worse than they would usually anchor, in areas with significant tidal streams and currents. Such operations are accelerating the wear rate of the anchoring equipment and in adverse conditions are exceeding the design limits of the anchoring systems. Failures have occurred in joining links, anchor chain common links, D-links and across the anchor crown causing the flukes to be lost.

Of the failures reported so far, the most frequent has been failure of the joining links connecting two shackles of cable, often when a significant amount of cable was out, in some cases as much as 11 shackles on deck. Although the additional weight of the cable can prevent the vessel dragging anchor, in adverse conditions it will also increase the forces acting on the cable and anchor.

When combined with the significant yawing caused in high winds, and cable lying unused in a chain locker since the last time it was end for ended, it is unsurprising that several anchor equipment failures have occurred. The issue is further exacerbated when the scope of cable remains constant, causing a single point of loading and wear, for example, where the cable is in contact with the hawse pipe. The indications are that anchor equipment has been failing due to operational issues rather than fabrication defects.

SAFETY LESSONS

- Operational limits for anchoring must be sufficiently cautious to ensure weighing anchor is not left too late, risking overloading anchor equipment. If strong winds are forecast, proactive action should be taken to seek a more sheltered anchorage in good time or proceed to sea and ride out the weather. Do not wait until the anchor drags or until most of the anchor cable has been paid out before weighing anchor.
- Steps should be taken to minimize the wear on the anchoring equipment as far as possible. When the opportunity presents itself, the anchor in use should be rotated and the scope of cable varied on a regular basis to minimize single point loading. An appropriately experienced crew member should also carry out regular checks on the windlass brake condition and areas where the cable is in contact with the ship.
- While at anchor for significant periods, ensure all watchkeepers are confident in the actions to be taken in the event of dragging or losing an anchor and there is a contingency plan ready for implementation in the event of having to proceed to sea or re-anchor. Also, watchkeepers and senior officers must be aware of the reporting requirements to the coastal state in the event of losing an anchor so that mitigation measures can be put in place if required.
- As the restrictions on the cruise industry ease, it must be remembered that this period of prolonged anchoring may have decreased the life span of the anchoring equipment. A full assessment of the future suitability of the anchoring equipment should be undertaken at the earliest opportunity or the next dry-docking period.

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