



## **FINDINGS OF CONCERN**

### **Marine Inspection Detachment Singapore**

August 11, 2022  
Singapore

Findings of Concern 009-22

## **AUTHORIZED MAINTENANCE OF LIFESAVING SYSTEMS**

Purpose. The U.S. Coast Guard issues Findings of Concern to disseminate information related to unsafe conditions that were identified as causal factors in a casualty and could contribute to future incidents. Findings of Concern are intended to educate the public, state, or local agencies about the conditions discovered so they may address the findings with appropriate voluntary action.

The Incident. Following a routine rescue boat drill on a U.S. flag cargo ship, the falls (wire rope) separated from the rescue boat's release gear. This resulted in an uncontrolled descent (~30 ft) of the rescue boat to the water with one crewmember still aboard. The impact caused severe bodily injury and necessitated medical evacuation to a trauma hospital.

Causal Factors and Analysis. The primary cause of this casualty was improper release gear configuration (see figure 1 for basic nomenclature). Specific causal factors were determined to be an improper securing screw replacement, thread wear on the shaft pin, and the addition of two shackles between the spliced cable eye and the release gear (see figures 2 and 3).

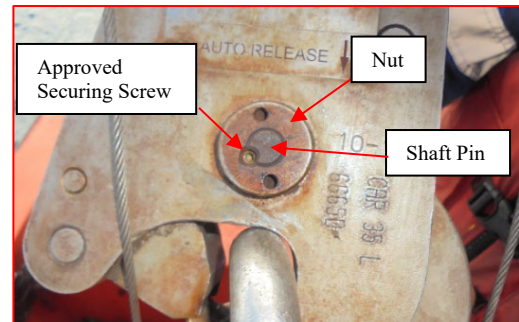


Figure 1



Figure 2

The torsional stresses created during the rescue boat recovery combined with the two shackle configuration created sufficient outward force on the release gear side plates to cause mechanical failure of the nut that secures the shaft pin to the release gear. Subsequently, the dynamic forces in play during the rescue boat recovery caused the shaft pin to back out of one of the release gear side plates. This created an uneven loading condition causing the side plate to deflect outward and the rescue boat to hang from the release gear at an unconventional angle. As the angle continued to open (i.e., the shaft pin becomes parallel with the wire rope) and the side plate continued to

deflect, a sufficient gap was created to allow the cable and bushing to slip free of its connection point on the release gear. (see figure 4). Throughout the incident, the release gear hook never disengaged and remained firmly secured to the lifting stanchion of the rescue boat (see figure 5).



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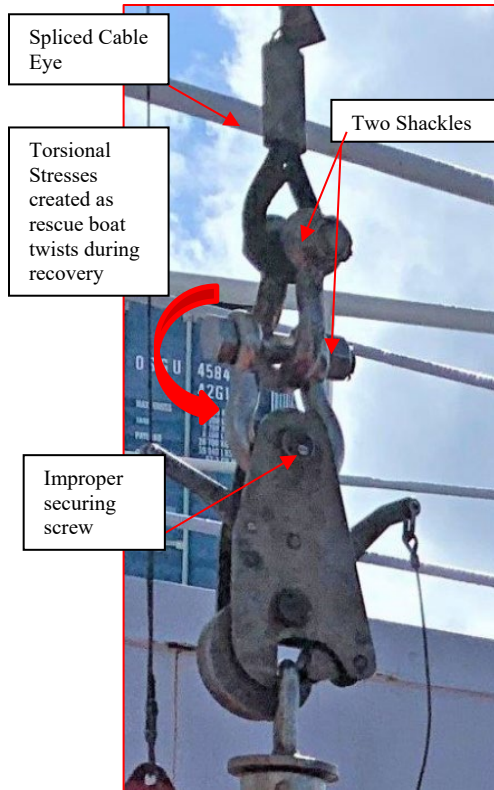


Figure 3

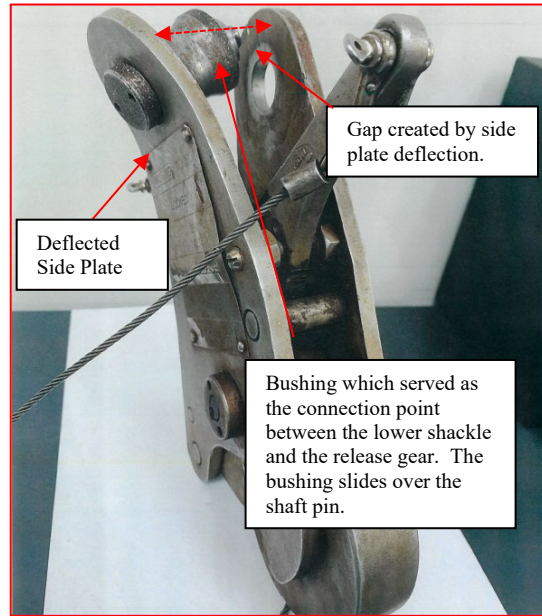


Figure 4

Contributing Factors. The following were determined to be contributing factors to this casualty:

- Objective evidence indicates that the securing set screw was a generic aftermarket machine screw and not approved by the Original Equipment Manufacturer (OEM).
- The most recent release gear servicing was not completed by an authorized service provider<sup>1</sup>.
- Objective evidence indicates that two shackles were added at some point between the spliced cable eye and the release gear shaft pin. According to the OEM, the release gear was designed to be directly connected to the shaft pin with the spliced cable eye without the use of shackles.

<sup>1</sup> See International Maritime Organization (IMO) Resolution MSC.402(96) Requirements for maintenance, through examination, operational testing, overhauls and repair of lifeboats and rescue boats, launching appliances and release gear; MSC.404(96) Amendments to the International Convention for the Safety of Life at Sea, 1974, as amended (related to amendments of SOLAS III/3 and III/20); and Navigation and Vessel Inspection Circular 03-19.



**UNITED STATES COAST GUARD**  
U.S. Department of Homeland Security

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Recommendations. Coast Guard investigators have identified the following measures to mitigate the risks associated with the above identified causal and contributing factors:

- The Company should ensure that servicing of lifesaving appliances is completed by an authorized service provider for the specified lifesaving appliance.
- There should be no modifications to lifesaving appliances without consulting the OEM or an authorized service provider (e.g., components, configuration, complex repairs, etc).
- The Company's Safety Management System (SMS) should contain provisions for thorough risk assessments and equipment inspections prior to use of lifesaving appliances, particularly after servicing is performed.

These findings of concern are provided for informational purpose only and do not relieve any domestic or international safety, operational, or material requirements. For any questions or comments, please contact the Activities Far East Investigations Department at [FEACTInvestigations@uscg.mil](mailto:FEACTInvestigations@uscg.mil)

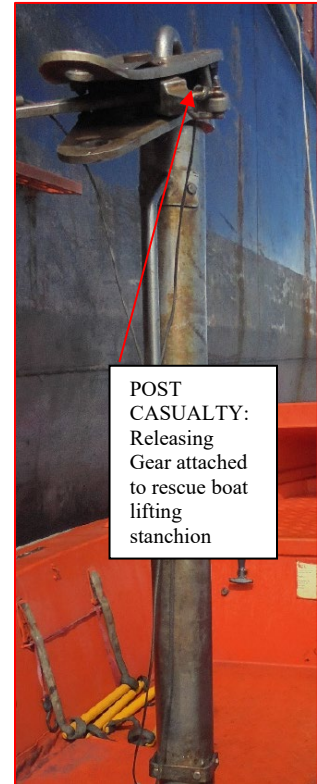


Figure 5