

Failure of lifeboat release hook mechanism

Safety Flash Published on 17 July 2014 Generated on 28 January 2026 IMCA SF 13/14

A Member has reported a recent high potential incident involving the failure of a lifeboat release hook mechanism.

What happened?

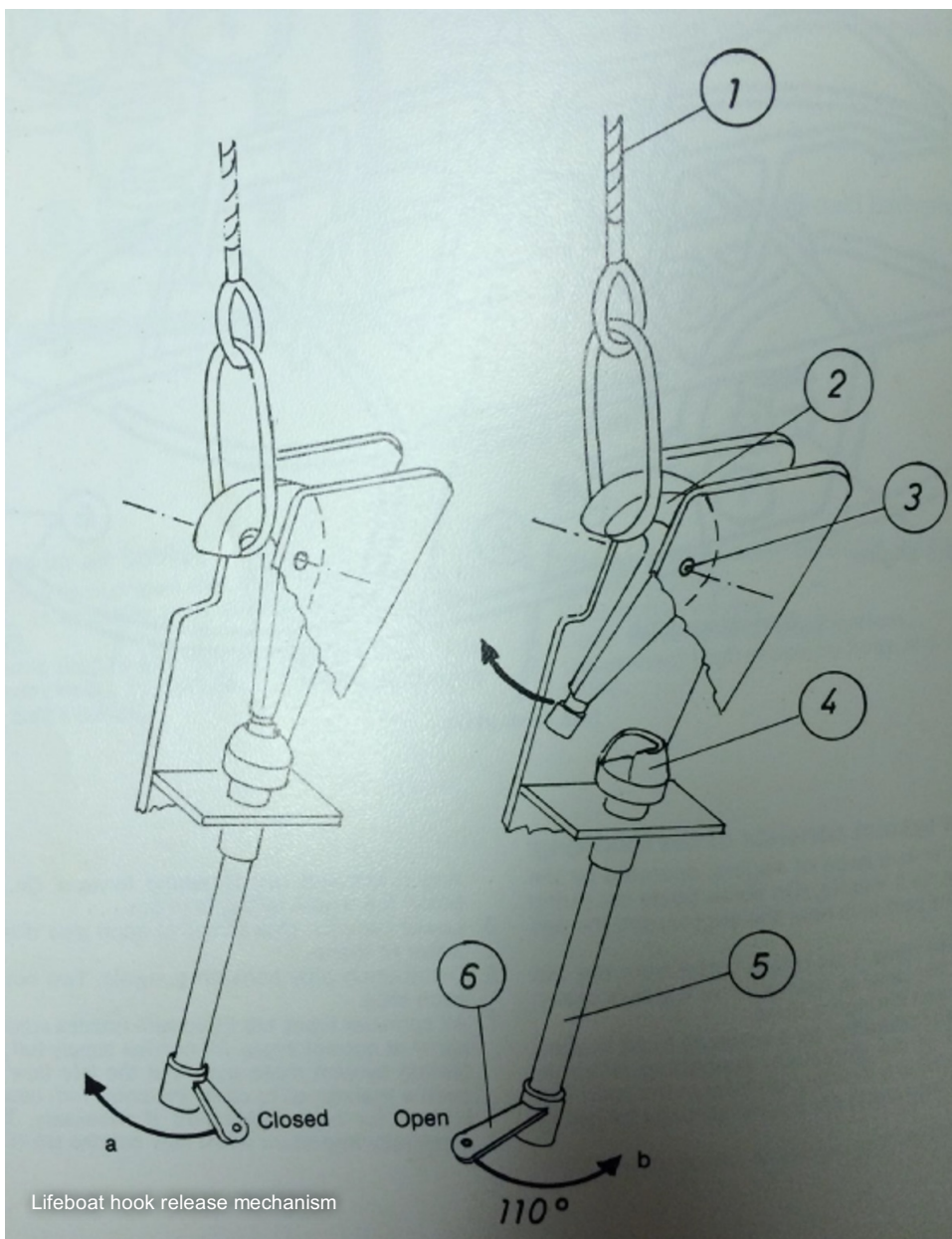
The incident took place during the quarterly mandatory lifeboat lowering operations. The forward release hook mechanism opened resulting in the lifeboat dropping into a vertical position, but remaining suspended from the aft hook. Four persons were onboard the lifeboat at the time, but were uninjured.

The release hook system in place onboard the vessel is of the Schat-Harding H-80, 'on-load' release type. The basic overview of the system is shown in the figure on the left, with the components noted below.

The mechanism is operated from the aft release point, with both hooks disconnected and engaged simultaneously through operation of the aft release mechanism. A linkage rod connects the aft mechanism to the forward mechanism to enable this single instantaneous operation.

The locking lever (component 6) is twisted 110 degrees at the aft release point and this command is replicated at the forward hook release and the main hook lever (locking cup)(component 4) latches or unlatches the release hook.

The current design of the system does not give the operator direct indication that the forward hook is correctly locked. A single indicator serves both the Master (aft) and Slave (forward) locking systems, but only the position of the aft hook is positively indicated.



Item Component

1	Davit fall
2	Aft hook
3	Hook pivot point
4	Main hook lever
5	Locking shaft
6	Locking lever

Our member's preliminary investigation noted that:

- The hook release mechanism linkage was found to have failed (sheared) – see Figure 2 – at the forward end of the lifeboat. This is likely (pending final report) to have been caused by misalignment of the hook during re-attachment and/or fragile design of the hook release mechanism linkage.

- Further inspection onboard found that the forward release mechanism linkage was severely bent (see Figure 3) in one of the other three lifeboats.
- As a result of the above noted damage, a total of two of four lifeboats were found to have release hooks that were not fully engaged.
- Immediate inspection of all lifeboat release hook mechanisms, irrespective of design with the following pointers.

The company has recommended the following actions:

- Check for integrity and potential damage.
- Ensure that the latching mechanism is fully engaged.
- Ensure that there are 'routine' checks that all hooks are engaged prior to launch, on completion of recovery and during 'routine' lifeboat inspections.



Sheared hook release mechanism from the lifeboat that dropped

This photograph shows the linkage rod that sheared on the forward release hook mechanism on the failed lifeboat. With the linkage sheared, the lifeboat release hook was not fully engaged, resulting in the hook releasing.



This photograph shows the release hook mechanism linkage at the forward locking mechanism. The arrow indicates the area of severe deformation of the linkage rod, caused by the misalignment of the hook and/or fragile design. The blue line represents the correct alignment of the linkage rod. In this condition, the lifeboat hooks are not fully engaged.

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