

# Lifeboat on-load hooks

## Problem solved – or is it?

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Lifeboat hook failures have caused death and injury to seafarers for too long now and mariners have lost confidence in using lifeboats in training drills. The Industry Lifeboat Group (ILG) in which The Nautical Institute is an active participant, was set up to address the concerns of the maritime industry on the issue of lifeboat safety; to identify features of existing survival craft and associated systems for which remedial measures are required; and to provide clear recommendations to IMO. This we have achieved through papers submitted to the Design and Equipment Sub-committee (DE)

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**M**embers will recall the marine industry's dissatisfaction with the proposed guidelines on the evaluation and replacement of lifeboat release and retrieval systems at IMO last year (*Seaways* Dec). At the Maritime Safety Committee (MSC) meeting in December, the DE sub-committee were asked to look at the guidelines again, take into consideration the views of the industry and also to look at the amendments to the Life Saving Appliances Code (LSA) and Solas regulation III/1.5. These issues were discussed and debated at length at the IMO in March over three days at an intersessional working group and three days at a working group at DE 55. Consensus was finally reached and recommendations for guidelines and amendments were forwarded to the next meeting of the MSC in May for discussion prior to approval and adoption.

### Guidelines

In summary, each type of lifeboat release and retrieval system (of which there are about 80) will undergo a design review to check that it complies with the amended LSA Code. If the system is found to be non-compliant with the code, it must be either modified to comply with the Code or replaced. After a successful completion of the design review, a performance test will be conducted in accordance with the guidelines. Should any part of the lifeboat release and retrieval system fail at any stage, the design will be deemed to be non-compliant and reported as such. All evaluations should be completed and the result of these evaluations submitted to IMO by 1 July 2013. After this, each system on board every vessel of a type found to be compliant will be subject to a one-time overhaul examination. This examination will also verify that the ship's system is of the same type that passed the evaluation and is suitable for the ship. If the examination is successful, the system is 'fit for purpose'. If found non-compliant then it must be replaced or modified not later than the next dry-docking after 1st July 2014 and in any case not later than 1st July 2019. These dates still have to be ratified at MSC.

While we welcome these guidelines as a much improved version of those proposed last October, there are still some issues which were not fully addressed. The ILG paper presented in October was seen as too detailed for the flag state delegates to consider. This time, the ILG paper, which had been couched in more generic terms, was considered not technical enough.

While the ILG considered that the working group should be focused on what the mariner wants a hook to be – that is, it should be stable and remain closed under load, it should open when you want it to open, and remain closed when you want it to be closed – the flag states were more concerned with implementing a robust and accountable test regime for existing hooks.

### Stable hook

Certain flag states (the UK in particular) seemed to have a problem with including

the phrase 'a stable hook' in the guidelines. In the debate, one delegate questioned the stance of the UK on the issue of stable hooks – it was after all the UK who commissioned '*RESEARCH PROJECT 555 Development of Lifeboat Design*' and introduced it in earlier DE meetings. The 555 report concluded that 'some designs of on-load hook can be described as unstable, in that they have a tendency to open under the effect of the lifeboat's own weight and need to be held closed by the operating mechanism. As a result, there is no defence against defects or faults in the operating mechanism, or errors by the crew, or incorrect resetting of the hook after being released. It is entirely inappropriate for a safety critical system (ie an unstable design of on-load hook) to be catastrophically susceptible to single human error. However, research has clearly indicated that a stable hook design is achievable'.

The UK now appear to have performed a 180° turnround, voicing their disapproval at allowing the word 'stable' to be in the guidelines. We find it strange that the UK appears to be ignoring this aspect of the report. In the end the only mention of hook stability is in the amendments to the LSA Code: 'to provide hook stability, the release mechanism shall be designed so that, when it is fully reset in the closed position, the weight of the lifeboat does not cause any force to be transmitted to the operating mechanism.'

### Vibration

The ILG considers that defects and faults in on-load release systems are due to a combination of wear, vibration, misalignment or unintended force within the hook assembly or operating mechanism, control rods or cables of the system. However, the group accepted that testing for these combinations is not possible, and it was agreed to conduct the tests in sequence.

The ILG paper noted that vibration is a significant cause of unexpected hook release. This observation was supported by some members of the working group, including some manufacturers who were

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aware that vibration did have some significance, but were not able to say how much. Certain flag states (in particular the UK, again) were not happy with this – why? They maintain there is no evidence of vibration being a cause of lifeboat accidents, despite one observer producing an accident report involving a rescue boat hook failure where ‘it was found that at all loads the hook would open under the effects of vibration’. After a lengthy debate it was considered that there was not enough vibration expertise in the group and so all reference to vibration was removed. Member governments and international organisations are asked to submit information on this matter for future consideration.

## Fall Preventer Devices (FPD)

The ILG proposed that FPDs should be made a mandatory requirement in the interim, and the working group agreed that there was an immediate need for use of FPDs. However, as making the requirement mandatory would take some time and the need is immediate, it was agreed to include recommendations for the use of FPDs in the guidelines as an interim

solution. Accordingly, they now read: ‘Member Governments are strongly urged to ensure that all ships fitted with on-load release systems for lifeboats, are equipped with fall preventer devices as per these guidelines (and MSC.1/Circ.1327) from the earliest available opportunity.’

The ILG and several flag states proposed that secondary safety devices should be incorporated in the design of new hooks. Lifeboats are one of the few lifting/lowering devices – if not the only one – which do not have a secondary safety system; that is, a back-up in case the device fails. The various safety/locking devices much trumpeted by the manufacturers are a primary system, not a back-up system.

Most lifeboat accidents occur when the boat is being recovered from the water. A pin which can be easily inserted through the hook would confirm that the hook has been properly re-set. If there is difficulty in inserting the pin, the hook is not set correctly, and the boat should not be lifted until it has been set correctly. Similarly, if the pin cannot be easily removed before lowering, then the hook has become unstable and the pin should not be removed until the weight has come off the

falls when the boat is in the water. This secondary safety device would restore confidence in the LSA Code and would improve safety during training drills.

The working group discussed the concept of these secondary safety systems, but the majority felt that it could not be considered at this time and should be considered at a future session.

## Fit for purpose

The outcome on guidelines for evaluation of existing lifeboat release and retrieval systems and the amendments to the LSA Code and SOLAS are probably as good as we are going to get from the deliberations of this sub-committee. They are much improved versions of those put forward last October, but we are still concerned that the effects of vibration could prove to be a significant factor in device failure. It will be interesting to see how many of the existing lifeboat release and retrieval systems are reported to IMO as having failed the design review and performance test. In the meantime we urge you to fit FPDs to your existing on-load lifeboat release and retrieval systems until they have been certified ‘fit for purpose’.

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