



Maritime and Coastguard Agency

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## **Lifeboat: Fitting of 'Fall Preventer Devices' to reduce the danger of accidental on-load hook release**

**Notice to all Shipowners, Masters, Deck Officers, Manufactures of lifeboats and launching appliances, Training establishments**

*This notice should be read in conjunction with MSNs 1492, 1523, 1655,1734,1735,1803.*

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### **PLEASE NOTE: -**

Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel and you should consider seeking independent legal advice if you are unsure of your own legal position.

### **Summary**

- The IMO is currently considering the design criteria for on-load hooks and the use of 'Fall Preventer Devices' for existing equipment. As the negotiation at the IMO have only recently started, it will be sometime before any new measures are agreed.
- Although on load release systems fitted to lifeboats are safe if operated and maintained properly there have been a number of accidents during drills and servicing.
- This notice provides interim guidance on the design considerations, shipboard operation, testing and potential problems associated with 'Fall Preventer Devices'.
- 'Fall preventer' devices can be either pins or strops fitted to on-load release hook to prevent the lifeboat falling to the water in the event of an equipment failure.
- This notice is only applicable to davit-launched lifeboats.

## **1. Background**

1.1 In 1986, on-load release hooks for lifeboats and rescue boats were made mandatory by SOLAS in response to Norway's worst offshore accident when in March 1980 the Alexander Kielland platform in the North Sea Ekofisk field capsized killing 123 of the 212 persons on board. These new SOLAS requirements were considered an important step forward in lifeboat design.

1.2 Many of the death in this accident were attributed to the fact that the lifeboat falls were not long enough to reach the water and the lifeboat had no means of release when the weight of the lifeboat were on the hook and falls.

1.3 However, since the IMO requirements for all new ships to be fitted with on-load release systems came into place there have been a number of serious accidents during drills and servicing.

1.4 Many of these accidents were attributed to either lack on maintenance, poor design or inadequate training. Failures of equipment often result in the premature opening of the on-load hook mechanism causing the lifeboat to fall from the davits unexpectedly even though there are 3 safety interlocks provided for in the design.

1.5 Most current designs of on-load release hooks can be described as unstable, in that they have a tendency to open under the effect of the lifeboat's own weight and often need to be held closed by the operating mechanism. This means that any defects or faults in the operating mechanism, errors by the crew or incorrect resetting of the hook after being released can result in premature release.

1.6 A fall 'preventer devise' can be used to minimise risk of injury or death in the event of the failure of the on-load hook or its release mechanism as described above.

1.7 The use of 'fall preventer devices' should be considered as an interim measure to allow time for new hook design criteria to be agreed at IMO.

## **2. Operational instructions**

2.1 The follow general points should be considered;

1. The correct fitting of any 'fall preventer devise' should be readily visible before the lifeboat is boarded by, the officer in charge of the lowering operations, the persons inside the lifeboat and where possible the person at the winch controls.
2. Attachment or insertion of a 'fall preventer devise' should be unambiguous to ensuring that only intended components can be connected to each other.
3. 'Fall preventer devices' should make use of standardised colour- coded components.
4. The release of any 'fall preventer devise' should be achieve quickly and easily without posing any risk to the seaman designated to carry out the task.
5. If the release of the 'fall preventer devise' requires opening the lifeboat hatch it should be readily achievable as a single person operation at each devise from within the craft.
6. As the 'fall preventer devise' may not be used in an abandon ship situation crew training must provide adequate instruction in the operation of the hooks without 'fall prevention devices'.

## **3. Design and testing of Fall Prevention Devices**

### **3.1 Approval**

3.1.1 The design and operation of any 'fall preventer devise' fitted to a ship must be accepted by either the MCA or a recognised organisation appointed by them taking into account the guidance provided in this document.

3.1.2 No modification of a lifting appliance or lifeboat must be undertaken unless a notified body authorised to carry out such approvals under the Marine Equipment Directive has agreed the changes. Any unauthorised modifications to either the lifting appliance or lifeboat may invalidate the approval and may lead to the ship being detained. All changes must be fully documented and such documentation must be kept on board the ship for inspection by surveyors and inspectors. For information on the approval of marine equipment and notified bodies appointed by the United Kingdom MSN 1734 and 1734 should be consulted.

3.1.2 Where changes involve modifications to individual components of the system such as the davit, the on-load release hook or the lifeboat the notified body should, where possible, contact the original manufacturer of the equipment to verify that any changes are acceptable. It should be noted that under both SOLAS and the Marine Equipment Directive the lifeboat, release gear and davit are type approved separately and each part of the system should have its own type approval certificate before it is installed onboard. The whole system must be verified by an initial survey for a new ship or equivalent survey for an existing ship.

3.1.3 Any fixed structural connections must be designed with a calculated factor of safety of 6 based on the ultimate strength of the materials used; assuming the mass of the lifeboat is equally distributed between the falls.

3.1.4 The re-testing of an on-load release hook where modified to incorporate a pin should include a static proof load test of at least 2.2 times the maximum working load to the satisfaction of the MCA or recognised organisation appointed by them.

3.1.5 If any modifications are made to the davit or on-load release hooks as detail above all system components should also be tested by conducting the 5 yearly lifeboat test contained in SOLAS chapter III Regulation 20.11.

3.1.6 There are designs of on-load release mechanisms fitted with pins that act as a 'fall preventer device' that are already type approved under the Marine Equipment Directive (MED). Such equipment will not require re-testing. However, any operational procedures should be agreed by the MCA or a recognised organisation appointed by them and included in the ship's ISM documentation.

## **3.2 Locking pins**

3.2.1 The following points should be considered when utilising locking pins as 'fall preventer devices';

- i Existing on-load release hooks fitted to ships must not be modified by drilling to provide a locking pin insertion point as this could reduce the strength and will invalidate the type approval of the equipment. Any modifications must be approved as detailed in section 3.1 above.
- ii Locking pins should have clear instructions on their operation in close proximity to the locking pin and insertion point of the locking pin.
- iii The locking pins should be colour coded so that it is clear to persons in the lifeboat where the pins are inserted.
- iv The locking pin should be designed so that they cannot be inadvertently inserted in the wrong place.
- v Locking pins should be fitted immediately prior to a drill and removed immediately after the lifeboat has been stowed.

### **3.3 Fall preventer strops**

3.3.1 The following points should be considered when synthetic strops are used as 'fall preventer devices';

- .1 Where fall preventer devices are synthetic strops and no modifications are required to either the lifeboat, the on-load release hook or launching equipment a functional test should be carried out to demonstrate to either the MCA or recognised organisation appointed by them that the equipment performs without interfering in the operation of the lifeboat or launching equipment.
- .2 The strops should be tested to at least 6 times the expected working load at a recognised testing establishment and issued with an appropriate certificate. The strops should be either retested or replaced every 5 years.
- .3 The following should be taken into account;
  - (i) The strops must be easily detached once the lifeboat has reached the water.
  - (ii) Once detached the strops must not interfere with the operation of the on-load release gear.
  - (iii) After any drill is completed and the on-load release hooks are connected to the lifeboat for recovery the strops must be reattached to the lifeboat and not interfere with either the lifting or re-stowing of the lifeboat into the davits.
  - (iv) The attachment point of the strop to the on-load release hook and the davit falls block must be clearly marked and designed so that any connection device such as shackles cannot, as far as possible, be connected to either the wrong part of the block or the wrong part of the on-load release hook.
  - (v) Any strop should have sufficient elasticity to prevent excessive shock loads being applied to either the lifeboat or its launching appliance.
  - (vi) Fall preventer strops must not be used for any other purpose and stowed so that they are readily accessible.

### **3.4 On-load release gear not fitted with fall prevention devices**

3.4.1 The following should be considered when it is impracticable to fit fall prevention devices.

- .1 Where the lifeboat is lowered without persons on board for drills and/or inspections the lifeboat should not be boarded by the ship-side embarkation ladder unless adequate measures have been taken to ensure that persons boarding the lifeboat cannot fall from the ladder.
- .2 If there is any doubt as to the safety of boarding by ship-side ladder and the lifeboat can not be boarded as described below the drill or inspection should continue as far as

practical so that the davit sheaves, winches and brakes can be examined to verify that the equipment is operating correctly.

- .3 If the drill cannot be completed the ship's master should make an appropriate entry in the official logbook.
- .4 Where fall prevention devices are not fitted consideration should be given to the use of shore-side facilities such as a hired boat to board the lifeboat safely once it is afloat.

#### **4. Drills, inspections, survey and maintenance of lifeboats and launching appliances.**

4.1 The following points should be considered when conducting drills, inspections, and maintenance of lifeboats and launching appliances;

- .1 No lifeboat should be lowered to or lifted from the water during drills, inspections or maintenance with persons onboard unless a 'fall prevention device' is fitted unless the hook is designed to fail safe in the closed position or the launching appliance has an off load hook system.
- .2 Before removing securing devices the on-load release systems should be inspected to ensure that the hooks are properly locked.
- .3 The 'fall prevention device' must be fitted before either the grips and harbour pins are removed and any attempt is made to lower the lifeboat from the davits.
- .4 SOLAS Chapter III Regulation 20.6.3 requires, at sea, that lifeboats, except freefall lifeboats, on cargo ships shall be moved from their stowed position, without any persons onboard, to the extent necessary to demonstrate satisfactory operation of the launching appliances, if weather and sea conditions allow.
- .5 In order to simulate emergency use fall preventers should only be disconnected when the lifeboat is less than a metre above the water. The drill should then continue by lowering the lifeboat to the water and activating the on-load release mechanism in the normal manner.
- .6 The boat should be lowered to the water to test the hydro-interlock and then raise only just clear of the water if a test of the on-load system is to be conducted. This will prevent possible injury to persons inside the lifeboat in the event of an equipment failure.
- .7 On recovery the lifeboat should be re-connected to the falls and the fall preventer re-connected. The lifeboat should then be lifted just clear of the water and the on-load release mechanism checked paying particular attention to ensure that the interlock has reset and the hooks are properly locked.

#### **5. Operational procedures for 'Fall Preventer Device' (ISM)**

- 5.1 Operational procedures for 'fall preventer devices' fitted to the ship's lifeboats must be included in the ship's ISM documentation.

- 5.2 The ship's master or the officer in charge of any lifeboat lowering or lifting operations should ensure that the lifeboat 'fall preventer devices' or maintenance strops, as applicable, are fitted during any drills, testing or maintenance.
- 5.3 The ships crew must be fully trained in the operation of the lifeboat fall prevention device and details should be contained in the ships training manual. Where a different procedure is followed during routine drills to an abandon ship situation this should be clearly described in the training manual.

## 6. Shore based Lifeboat training

6.1 Shore based training that include a practical abandon ship exercise and the participation of students to demonstrate the use and operation on-load release systems should not use 'fall preventer devices' for such training exercises. In comparison with the industry, shore based training establishments have a very good record of minimal accident statistics when launching and recovering survival craft, due to enhanced training, maintenance and procedural control. However, as there is now a clear recognition that 'fall preventer devices' are routinely used at sea, then it is important that they are included during shore based survival craft instruction.

6.2 Shore based practical training should, as is currently the case, simulate an abandon ship scenario as closely as possible. Historically, training establishments have delivered training that followed equipment manufacturer's guidelines and replicated the simple procedure required to effectively and safely abandon ship using on-load survival craft release mechanisms. In reflection of growing accident statistics, the industry now recognises inherent issues with some on load release systems. Therefore in the interest of best practice, and to accommodate a higher level of safety, it is considered beneficial that 'fall preventer devices' are included in the training and assessment process for all lifeboats.

6.3 Training establishments should provide training of the principles of 'fall preventer device' detailed in this guidance.

6.4 As all survival craft on-load release systems used in training establishments will be operated more frequently than their intended use, the maintenance and testing regime of the training establishment for this equipment should be designed to take account of frequent use to ensure an enhanced level of safety.

## More Information

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