SOLAS - Evaluation of Lifeboat Release and Retrieval Systems and the use of Fall Preventer Devices
1st August 2011

In response to accidents resulting from the incorrect use or failure of on-load release systems on lifeboats, the International Maritime Organisation (IMO) has recently adopted changes to SOLAS and the Life Saving Appliance (LSA) Code in an effort to prevent such incidents.

New SOLAS Regulation III/1.5 and the amendments to Chapter IV of the LSA Code concern on-load release mechanisms fitted to new and existing cargo and passenger vessels. They are expected to enter into force on 1 January 2013.

SOLAS Regulation III/1.5 also specifies other important dates:

1. “For ships constructed on or after 1 July 2014, on-load release and retrieval systems shall comply with the LSA Code, as amended by Resolution MSC.320(89); and
2. Member Governments are encouraged to ensure that ships constructed on or after 20 May 2011 but before 1 July 2014, on-load release and retrieval systems shall comply with the LSA Code, as amended by Resolution MSC.320(89).”

For vessels constructed prior to 20 May 2011, any on-load release systems that do not comply with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the revised LSA Code must be replaced at the first scheduled drydocking after 1 July 2014, but no later than 1 July 2019.

Although the required changes for existing vessels do not come into force for a number of years, IMO has published MSC.1/Circ.1393 “Early Application of new SOLAS Regulation III/1.5” and MSC.1/Circ.1392 “Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval Systems”. The Guidelines state that “Member Governments, shipowners and manufacturers of lifeboat release and retrieval systems are also strongly urged, pending the entry into force of SOLAS regulation III/1.5, to use the annexed Guidelines to evaluate existing lifeboat release and retrieval systems at the earliest available opportunity”.

Members are therefore advised to evaluate the lifeboat release and retrieval systems fitted to their vessels at the earliest opportunity, and take action as may be necessary to ensure that they comply with the new regulations.

The Guidelines define a Release and Retrieval System (RRS) as being “the means by which the lifeboat is connected to, and released from, the lifeboat falls for lowering, launch and retrieval. It comprises the hook assembly and operating mechanism” and include the following advice:

Review and test of existing equipment
Detailed documentation, drawings, calculations and instructions for each type of RRS should be submitted by the manufacturer to the Administration or its appointed Recognised Organisation (RO). A design review will then be undertaken and the system checked for compliance with the new LSA Code requirements. A non-compliant RRS will need to be modified or replaced with a compliant system.
Following a successful design review the manufacturer will arrange a performance test to ensure compliance with the new Code requirements, witnessed by the Administration or its appointed RO. Any part of the system which fails during the test will be deemed not to comply with the new requirements.

Administrations are required to report to IMO the results of design reviews and performance tests. Each existing RRS will be deemed to be compliant, or compliant after modification, and both may remain in service. In the event that a system is found to be non-compliant it will need to be replaced or modified so that it complies.

Modifications to existing equipment
Where a RRS has been identified as not complying with the Guidelines, it may be modified to comply with the revised LSA Code and the existing applicable Code. The modified system will then need to be re-evaluated in accordance with the Guidelines.

Follow-up overhaul examination
In addition to the Administration or its appointed RO testing, witnessing and approving each RSS, there is a requirement for a one-off follow-up overhaul examination of existing systems that have been found to be compliant. This examination must be conducted no later than the first scheduled dry-docking after 1 July 2014 by the manufacturer or their representative in accordance with Annex 1 of MSC.1/Circ.1206/Rev.1 “Measures to Prevent Accidents with Lifeboats”. The system will also be checked to ensure that it is the same as the one which passed the earlier evaluation and that it is suitable for the ship.

In addition, the overhaul examination will include a detailed assessment of the condition of RRS components focussing on wear, corrosion and other types of material degradation. Once the overhaul examination has been completed satisfactorily, a factual statement confirming this will be issued for retention on board.

Replacement of non-compliant RRS
If an RRS is found to not comply and is replaced, the new system must afford a higher level of safety than the previous installation. Such replacement systems must be acceptable to the lifeboat manufacturer. If a lifeboat manufacturer is unable to offer an appropriate replacement RRS, a suitable alternative may be selected with the agreement of the lifeboat manufacturer, if possible. All replacement equipment must be approved by the Administration or its RO.

Before a replacement RRS can be fitted, documentation including type approval certification and a detailed engineering analysis including drawings and manuals must be submitted to the Administration or its RO for review and approval.

The replacement work should be carried out by the manufacturer or their representative and should also be witnessed by the Administration or its RO. Engineering drawings approved by the Administration or its RO are to be used during the installation and testing and retained on board. Updated safety and operating instructions are to be posted by the lifeboat and by the RRS.

Following installation, tests should be carried out by the manufacturer or their representative in accordance with Resolution MSC.81(70) “Revised Recommendation on Testing of Life Saving Appliances”, as amended by Resolution MSC.226(82) “Adoption of Amendments to the Revised Recommendation on Testing of Life Saving Appliances, as amended”, as follows:

- A 1.1 x load and simultaneous release test
- A further load test where fixed structural connections of the release arrangements have been modified
- If a lifeboat is also to be used as a rescue boat and/or is installed on a cargo vessel of 20,000 GT of above, a 5 knot launch test is also to be conducted
The tests are to be witnessed by the Administration or its RO who will verify that the installation complies with the approved documentation submitted by the manufacturer. Once installation and testing have been completed satisfactorily, a Statement of Acceptance will be issued by the Administration or its RO for retention by the vessel.

Guidelines for the Fitting and Use of Fall Preventer Devices (FPDs)

IMO’s “Guidelines for Evaluation and Replacement of Lifeboat Release and Retrieval Systems” advise that Fall Preventer Devices (FPDs) are to be used with each existing RRS, in accordance with MSC.1/Circ.1327 “Guidelines for the Fitting and Use of Fall Preventer Devices (FPDs)” until the RRS is either found to be “compliant with the (revised) LSA Code, or modified and found compliant with the (revised) LSA Code, or found compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the (revised) LSA Code and paragraphs 16 and 17 (overhaul examination) of these Guidelines; or modified and found compliant with paragraphs 4.4.7.6.4 to 4.4.7.6.6 of the (revised) LSA Code and paragraphs 16 and 17 (overhaul examination) of these Guidelines; or replaced by a new RRS.”

The FPD Guidelines also state that “A Fall Preventer Device (FPD) can be used to minimise the risk of injury or death by providing a secondary alternate load path in the event of failure of the on-load hook or its release mechanism or of accidental release of the on-load hook. However, FPDs should not be regarded as a substitute for a safe on-load release mechanism.”

Members who have not done so already are therefore advised to follow the Guidelines on the use of FPDs until such time as the RRSs fitted to the lifeboats of their vessels have been evaluated and either found to be compliant, or are modified to be compliant, or are replaced with a new RRS.

The MSC.1/Circ.1327 Guidelines regarding the design and operation of FPDs are summarised below:

Locking Pins

Existing hooks should not be drilled to provide a slot for a locking pin unless approved by the Administration. The drilling of the hook arrangement may significantly reduce its strength.

Locking pin handles should be coloured red or a suitable contrasting colour. They should not be used for any other purpose and should be left permanently attached to the lifeboat at all times. They should be designed so that the locking pin cannot be placed in the wrong hole inadvertently.

Clear operational instructions should be posted near the pin insertion point. The pins should be colour coded to make it clear where they are to be used. Before the boat is moved from its stowed position, checks should be made to verify that the pins are in place, and that they remain in place during lowering.

There should be strict procedures, including a warning notice, to ensure that the pin is removed prior to the release mechanism being activated.

Pins should be designed so that they may be removed easily, quickly and safely by the lifeboat crew. This should be achievable from within the lifeboat rather than climbing out via a lifeboat hatch.

When a lifeboat is being recovered, the locking pins should be inserted once the on-load hooks have been connected, but prior to lifting the boat clear of the water. The pins should be designed so that they do not interfere with either the lifting or re-stowing of the lifeboat.

Strops or Slings

Wires and chains should not be used as FPDs as they do not absorb shock loads. Synthetic strops or slings should be used, taking the following points into consideration:

The fibre strops or slings should be of resilient construction, rot-proof, corrosion-resistant, unaffected by seawater, oil or fungal attack, and resistant to degradation by ultraviolet light. The strops or slings should be provided with test certification confirming tensile strength and provide a factor of safety of at least six, based on
the total lifeboat weight when loaded with a full complement of persons and equipment. The strops or slings should be permanently marked with their date of entry into service. The strops and slings should not be used for any other purpose and should be ready for use at all times. They should undergo a thorough visual inspection before use and be examined by the ship’s crew every six months.

If the lifeboat, the on-load release hooks or launching equipment do not need to be modified, a functional test should be carried out to demonstrate to the satisfaction of the Administration that the equipment performs without interfering with the operation of the lifeboat or the launching equipment.

Strict procedures should be in place, including a warning notice at the release handle, to ensure that the strops or slings are removed prior to the on-load release mechanism being activated.

The connection points for the FPD on both the fall block and lifeboat on-load release hook should be clearly marked and designed so that any component part of the FPD, such as shackles, cannot be connected to the wrong part of the block or hook.

Strops and slings should be designed so that they can be removed easily, quickly and safely by the lifeboat crew. This should be achievable from within the lifeboat rather than climbing out via a lifeboat hatch. The released strops or slings should not interfere with the operation of the on-load release gear or the propeller.

When a lifeboat is being recovered, the strops or slings should be fitted once the on-load hooks have been connected, but prior to lifting the boat clear of the water. The strops or slings should be designed so that they do not interfere with either the lifting or re-stowing of the lifeboat.

The size of strops or slings should be such that, in the event of an unintentional release of the on-load release gear, the drop of the boat is kept to a minimum. If a strop or sling is subject to an unintentional dynamic shock loading, it should be replaced and its attachment points examined. In such an event the Administration should be informed as soon as possible and the Master should provide a full report of the circumstances of the incident.

Drills, testing, inspections and maintenance of lifeboats and launching appliances

If a drill, test, inspection or maintenance is to be carried out with personnel in the lifeboat, the Master or the officer in charge of the operation should ensure that, where FPDs are provided, these are properly fitted in place prior to commencement of the operation.

Procedures regarding the use of FPDs should be included in the vessel’s Safety Management System (SMS) and all personnel involved in the operation of the lifeboats should be familiar with their application.

Oil, gas and chemical tankers may not be able to use FPDs in certain abandon ship situations if the FPDs cannot be released from inside the lifeboat. In such cases the SMS and the vessel’s training manual should include measures to be followed during drills in order to prepare for such an eventuality. Such a scenario should also be taken into account by the Master when considering the requirement for FPD locking pins and strops or slings to be fitted to the lifeboats at all times.

Modification of existing approved on-load hooks to incorporate FPDs

Should an original equipment manufacturer or a shipowner plan to modify existing hooks, lifeboats or davits to accommodate the use of FPD’s (eg so that they may be released from within the lifeboats of a tanker), approval must be obtained from the Administration. Any re-testing of equipment should be agreed and witnessed by the Administration or its RO.

This article provides an overview of the forthcoming IMO requirements. Detailed information may be found in the relevant IMO Resolutions and Guidelines.

Members requiring further guidance should contact the Loss Prevention department.