

CHAPTER 8

LIFE-SAVING APPLIANCES AND ARRANGEMENTS

EU Directive on Safety Requirements for Persons with Reduced Mobility on Domestic Passenger Ships (2003/24/EC)

Directive 2003/24/EC amends 98/18/EC on safety rules and standards for seagoing domestic passenger ships and requires appropriate measures to be taken for high speed craft used for public transport (see Regulation 7A of S.I. 2004 No. 302 *The Merchant Shipping (High Speed Craft) Regulations 2004*), based, where practicable on the 'Guidelines for Safety Requirements for Passenger Ships and High-Speed Passenger Craft for Persons of Reduced Mobility' which is Annex III to the Directive 98/18/EC (see Article 2 (w)) of the Directive for a definition of persons of reduced mobility'. This Directive applies to all high speed passenger craft in operation on domestic seagoing routes, the keel of which is laid or which are at a similar stage of construction on or after 1 October 2004.

This Directive also applies to existing vessels upon modification, in respect of that modification so far as reasonable and practicable in economic terms. Directive 2003/24/EC applies after 1 October 2004. Refer to *The Merchant Shipping (Passenger Ships on Domestic Voyages) (Amendment) (No. 2) Regulations 2004*, S.I. 2004 No.2883; *Designing and Operating Smaller Passenger Vessels: Guidance on Meeting the Needs of Persons with Reduced Mobility*, MGN 306 (M); and *Directive 2003/24/EC - Safety Requirements For Persons Of Reduced Mobility On Domestic Passenger Ships*, MSN 1789 (M).

Vessels on international voyages are recommended to follow the IMO's MSC/Circ. 735 (see MGN 31) which is elaborated by the Disabled Persons Transport Advisory Committee (DPTAC) publication "The design of large passenger ships and passenger infrastructure: Guidance on meeting the needs of disabled people". This is available online at www.dptac.gov.uk.

High speed craft on voyages in categorized waters should follow MGN 306(M).

Introduction

The layout of this chapter does not facilitate an overall appreciation of the philosophy of life-saving arrangements on high-speed craft. The following notes are intended to assist in this respect.

A primary aspect of the Code is that because of the general requirements contained in 1.2, greater reliance may safely be placed on rapid evacuation and rescue than is so for Convention ships, for which it is a last resort. Category B craft, having superior safety features, are less immediately reliant on evacuation and rescue than category A craft.

Thus evacuation is required to be achieved in a specified time, see 4.8, (which is related to the structural fire protection time), and this is usually achieved using inflatable survival craft, and (on all except the smallest craft where the freeboard is too small to be practicable) some form of marine evacuation system (MES).

Requirements in respect of survival craft capacity, stowage and embarkation are given in sections 8.10, 8.6 and 8.7 of this chapter respectively.

Requirements for the evacuation analysis and demonstration are given in 4.8 of this Code.

Rescue boat(s) are required for all except the smallest high-speed craft, for man-overboard recovery and the marshalling of loaded survival craft (see 8.10.1).

Throughout this chapter, the term "rescue boat" should be construed as including either rescue boat or fast rescue boat.

The term "assembly station" is defined in 1.4.4 of the Code.

8.1 General and definitions

Throughout this section, reference should be made to the International Life Saving Appliance Code and the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors .

8.1.1 Life-saving appliances and arrangements shall enable abandonment of the craft in accordance with the requirements of 4.7 and 4.8.

8.1.2 Except where otherwise provided in this Code, the life-saving appliances and arrangements required by this chapter shall meet the detailed specifications set out in chapter III of the Convention and the LSA Code and be approved by the Administration.

8.1.3 Before giving approval to life-saving appliances and arrangements, the Administration shall ensure that such life-saving appliances and arrangements:

- .1 are tested[#] to confirm that they comply with the requirements of this chapter, in accordance with the recommendations of the Organization*; or
- .2 have successfully undergone, to the satisfaction of the Administration, tests which are substantially equivalent to those specified in those recommendations.

* Refer to the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70)

Note: Resolution MSC.81(70) is amended by MSC.226(82).

Sea trials are only required on the first of a series of craft that are substantially identical. Refer also to guidelines on Annex 12 to be developed by the Organization.

Also refer to MSC/Circ.980 standardized life-saving appliance evaluation and test report forms and the MCA LSA Instructions to Surveyors.

8.1.4 Before giving approval to novel life-saving appliances or arrangements, the Administration shall ensure that such appliances or arrangements:

- .1 provide safety standards at least equivalent to the requirements of this chapter and have been evaluated and tested in accordance with the recommendations of the Organization[†]; or
- .2 have successfully undergone, to the satisfaction of the Administration, evaluation and tests which are substantially equivalent to those recommendations.

[†] Refer to the Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life-Saving Appliances and Arrangements, adopted by the Organization by resolution A.520(13).

8.1.5 Before accepting life-saving appliances and arrangements that have not been previously approved by the Administration, the Administration shall be satisfied that life-saving appliances and arrangements comply with the requirements of this chapter.

8.1.6 Except where otherwise provided in this Code, life-saving appliances required by this chapter for which detailed specifications are not included in the LSA Code shall be to the satisfaction of the Administration.

8.1.7 The Administration shall require life-saving appliances to be subjected to such production tests as are necessary to ensure that the life-saving appliances are manufactured to the same standard as the approved prototype.

8.1.8 Procedures adopted by the Administration for approval shall also include the conditions whereby approval would continue or would be withdrawn.

8.1.9 The Administration shall determine the period of acceptability of life-saving appliances which are subject to deterioration with age. Such life-saving appliances shall be marked with a means for determining their age or the date by which they shall be replaced.

Reference should be made to MSN 1676 (M) and 1677 (M) as follows:

- *Schedule 4 – Liferafts*
- *Schedule 5 – Marine escape systems*
- *Schedule 7 – Pyrotechnic signals and line-throwing apparatus*
- *Schedule 8 – Lifebuoys and attachments*
- *Schedule 9 – Lifejackets and attachments*
- *Schedule 10 – Immersion suits, anti-exposure suits, thermal protective aids*
- *Schedule 13 – Survival craft equipment and rations (food, water; first aid kits)*

Servicing of inflatable liferafts, inflatable lifejackets, marine evacuation systems and inflated rescue boats is addressed in 8.9.7.

8.1.10 For the purposes of this chapter, unless expressly provided otherwise:

“Anti-exposure suit” is a protective suit designed for use by rescue boat crews and marine evacuation system parties per Resolution MSC.81(70) as amended by MSC.226(82).

- .1 "Detection" is the determination of the location of survivors or survival craft.

Detection devices should be tested in accordance with IMO Resolution A.520(13) Code of practice for the evaluation, testing and acceptance of prototype novel life-saving appliances and arrangements, IMO Resolution A.689(17) Recommendation on testing of Life-saving Appliances as amended by MSC.54(66), MSC.81(70) as amended by MSC.226(82); MSC/Circ.'s 596, 615 and 809, and MCA LSA Instructions to Surveyors.

Refer to Servicing of Inflatable Liferafts, Inflatable Boats, Rescue Boats, Fast Rescue Boats, Inflatable Lifejackets and Hydrostatic Release Units (MGN 362(M+F)) or subsequent updating notice.

- .2 "Embarkation ladder" is the ladder provided at survival craft embarkation stations to permit safe access to survival craft after launching.
- .3 "Embarkation station" is the place from which a survival craft is boarded. An embarkation station may also serve as an assembly station, provided there is sufficient room, and the assembly station activities can safely take place there.
- .4 "Float-free launching" is that method of launching a survival craft whereby the craft is automatically released from a sinking craft and is ready for use.

Refer to MGN 343 Hydrostatic Release Units (HRU) - Stowage and Float Free Arrangements for Inflatable Liferafts.

- .5 "Free-fall launching" is that method of launching a survival craft whereby the craft with its complement of persons and equipment on board is released and allowed to fall into the sea without any restraining apparatus.
- .6 "Immersion suit" is a protective suit which reduces the body heat-loss of a person wearing it in cold water.
- .7 "Inflatable appliance" is an appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is normally kept uninflated until ready for use.
- .8 "Inflated appliance" is an appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is normally kept inflated and ready for use at all times.
- .9 "Launching appliance or arrangement" is a means of transferring a survival craft or rescue boat from its stowed position safely to the water.
- .10 "Marine evacuation system (MES)" is an appliance designed to rapidly transfer a large number of persons from an embarkation station by means of a passage to a floating platform for subsequent embarkation into associated survival craft or directly into associated survival craft*.

* This definition does not include an appliance or device fitted to the craft (e.g. mini-slide fitted as an alternative to survival craft embarkation arrangements accepted under 8.7.5) the deployment of which is not taken into account in determining the evacuation time in accordance with 4.8.

Mini-slides should be subject to the requirements for MES's unless they are used as an alternative means of embarkation to survival craft arrangements that are both covered by 8.7.5 and have been demonstrated to meet the required evacuation time. The definition of

MES does not therefore include a device fitted to the craft (eg. mini slide) which need not be deployed in order to meet the requirements of 4.8. (MSC/Circ.1102)

- .11 "Novel life-saving appliance or arrangement" is a life-saving appliance or arrangement which embodies new features not fully covered by the provisions of this chapter but which provides an equal or higher standard of safety.
- .12 "Rescue boat" is a boat designed to assist and rescue persons in distress and to marshal survival craft.

Most HSC are required to have a rescue boat, however a fast rescue boat can be fitted in place of the rescue boat.

Rescue boat shall not be less than 3.8m and not more than 8.5m in length. Refer to MSN 1676 (M), schedule 2, parts 7 & 8.

Fast rescue boats shall be not less than 6 metres in length and not more than 8.5 metres shall be capable of manoeuvring, for at least 4 hours, at a speed of at least 20 knots in calm water with a suitably qualified crew of 3 persons and at least 8 knots with a full complement of persons and equipment. Refer to MSN 1676 (M), schedule 2, part 10.

Refer to MGN 78(M+F) Launching Crews for Lifeboats, Rescue Boats, Class C Boats, Inflatable Boats and Other Boats.

- .13 "Retrieval" is the safe recovery of survivors.
- .14 "Retro-reflective material" is a material which reflects in the opposite direction a beam of light directed on it.

Such material should be approved in accordance with the Marine Equipment Directive to IMO Resolution A.658(16) Use and fitting of retro-reflective materials on life-saving appliances. Refer also to MGN 105 (M+F) Use and Fitting of Retro-Reflective Material on Life-Saving Appliances for positioning.

- .15 "Survival craft" is a craft capable of sustaining the lives of persons in distress from the time of abandoning the craft.
- .16 "Thermal protective aid" is a bag or suit of waterproof material with low thermal conductance.

8.2 Communications

8.2.1 Craft shall be provided with the following radio life-saving appliances:

- .1 at least three two-way VHF radiotelephone apparatus shall be provided on every passenger high-speed craft and on every cargo high-speed craft of 500 gross tonnage and upwards. Such apparatus shall conform to performance standards not inferior to those adopted by the Organization*;

* Refer to the Recommendation on performance standards for survival craft portable two-way VHF radiotelephone apparatus, adopted by the Organization by resolution A.809(19)

Note: Res A.809(19) Annex 1 was revised by MSC.149(77). Refer also to A.694(17) and A.762(18).

- .2 at least one radar transponder shall be carried on each side of every passenger high-speed craft and of every cargo high-speed craft of 500 gross tonnage and upwards. Such radar transponders shall conform to performance standards not inferior to those adopted by the Organization[†]. The radar transponders shall be stowed in such locations that they can be rapidly placed in any one of the liferafts. Alternatively, one radar transponder shall be stowed in each survival craft.

[†] Refer to the Recommendation on performance standards for survival craft radar transponders for use in search and rescue operations, adopted by the Organization by resolution A.802(19)

Note: Res. A.802(19) is amended by MSC.247(83) effective from 1 January 2010.

The following new text for 8.2.1.2 and footnote is expected to enter into force on 1 January 2010:

- .2 *at least one search and rescue locating device shall be carried on each side of every passenger high-speed craft and every cargo high-speed craft of 500 gross tonnage and upwards. Such search and rescue locating device shall conform to the applicable performance standards not inferior to those adopted by the Organization*. The search and rescue locating device shall be stowed in such locations that they can be rapidly placed in any one of the liferafts. Alternatively, one search and rescue locating device shall be stowed in each survival craft.*

** Refer to the Recommendation on performance standards for survival craft radar transponders for use in search and rescue operations, adopted by the Organization by resolution MSC.247(83) (A.802(19), as amended) and the Recommendation on performance standards for survival craft AIS Search and Rescue transmitter (AIS SART), adopted by the Organization by resolution MSC.246(83).*

(Res MSC.260(84))

This amendment will not apply to existing craft until a radar transponder is replaced, at which time it may either be replaced with a new radar transponder or an AIS SART. New craft may be fitted with either type of device.

8.2.2 Craft shall be provided with the following on-board communications and alarm systems:

- .1 an emergency means comprising either fixed or portable equipment or both for two-way communications between emergency control stations, assembly and embarkation stations and strategic positions on board;
- .2 a general emergency alarm system complying with the requirements of paragraph 7.2.1 of the LSA Code to be used for summoning passengers and crew to assembly stations and to initiate the actions included in the muster list. The system shall be supplemented by a public address system complying with the requirements of paragraph 7.2.2 of the LSA Code, or by other suitable means of communication. The systems shall be operable from the operating compartment.

8.2.3 Signalling equipment

8.2.3.1 All craft shall be provided with a portable daylight signalling lamp which is available for use in the operating compartment at all times and which is not dependent on the craft's main source of electrical power.

8.2.3.2 Craft shall be provided with not less than 12 rocket parachute flares, complying with the requirements of paragraph 3.1 of the LSA Code, stowed in or near the operating compartment.

Refer to the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors .

8.3 Personal life-saving appliances

8.3.1 Where passengers or crew have access to exposed decks under normal operating conditions, at least one lifebuoy on each side of the craft capable of quick release from the control compartment and from a position at or near where it is stowed, shall be provided with a self-igniting light and a self-activating smoke signal. The positioning and securing arrangements of the self-activating smoke signal shall be such that it cannot be released or activated solely by the accelerations produced by collisions or groundings.

With reference to 2.1.1.7 of the LSA Code, it is recommended that the lifebuoy should not weigh less than 4.5 kg to ensure that it will release the smoke signal when released remotely.

8.3.2 At least one lifebuoy shall be provided adjacent to each normal exit from the craft and on each open deck to which passengers and crew have access, subject to a minimum of two being installed.

8.3.3 Lifebuoys fitted adjacent to each normal exit from the craft shall be fitted with buoyant lines of at least 30 m in length.

8.3.4 Not less than half the total number of lifebuoys shall be fitted with self-igniting lights. However, the lifebuoys provided with self-igniting lights shall not include those provided with lines in accordance with 8.3.3.

8.3.5 A lifejacket complying with the requirements of paragraph 2.2.1 or 2.2.2 of the LSA Code be provided for every person on board the craft and, in addition:

- .1 a number of lifejackets suitable for children equal to at least 10% of the number of passengers on board shall be provided or such greater number as may be required to provide a lifejacket for each child;
- .2 every passenger craft shall carry lifejackets for not less than 5% of the total number of persons on board. These lifejackets shall be stowed in conspicuous places on deck or at assembly stations;
- .3 a sufficient number of lifejackets shall be carried for persons on watch and for use at remotely located survival craft and rescue boat stations; and
- .4 all lifejackets shall be fitted with a light, which complies with the requirements of paragraph 2.2.3 of the LSA Code.

Lifejackets should be approved by the MCA or one of its Notified Bodies. Refer to the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors .

Amendments to the International Life-Saving Appliance (LSA) Code, that will become mandatory on the 1 January 2010 can be found in the Annex to MGN 329 Lifejackets " Infant and Oversized Passengers" which provides guidance on the best practice for dealing with these two extremes of the size scale. Until this date, and for vessels not on international voyages, it is a matter of good safety management that appropriate personal life saving appliances are provided for all persons on board.

8.3.6 Lifejackets shall be so placed as to be readily accessible and their positions shall be clearly indicated.

Refer to Symbols related to life-saving appliances and arrangements, adopted by the Organization by resolution A.760(18), as amended by resolution MSC.82(70).

The symbols given in MSN 1676 (M) schedule 16 may be used.

8.3.7 An immersion suit*, of an appropriate size, complying with the requirements of paragraph 2.3 of the LSA Code shall be provided for every person assigned to crew the rescue boat.

** An anti-exposure suit is also acceptable.*

Refer to the revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors .

8.3.8 An immersion suit or anti-exposure suit shall be provided for each member of the crew assigned, in the muster list, to duties in an MES party for embarking passengers into survival craft. These immersion suits or anti-exposure suits need not be required if the craft is constantly engaged on voyages in warm climates where, in the opinion of the Administration, such suits are unnecessary.

Immersion suits and anti-exposure suits need not be carried on a craft which is constantly engaged on voyages between the parallels of latitude of 20° North and South.

(regulations 8(17) and 10(17) of S.I. 1999 No. 2721)

Immersion suits and anti-exposure suits required to be carried may be of the insulated or uninsulated type: provided that immersion suits of the insulated type shall be carried on craft which make voyages

(a) north of latitude 65°N in the Atlantic Ocean;

(b) north of latitude 55°N in the Pacific Ocean;

(c) south of latitude 50°S; or

(d) east of longitude 10°E in the Kattegat and Baltic Sea between 1st December and 30th April, both dates inclusive.

(regulation 39 of S.I. 1999 No. 2721)

Surveyors should pay particular attention to the "fit" of the immersion suits that are provided for MES operators. In particular, care should be taken that the full and free movement is available, that fixed gloves do not prevent operators from handling controls, and that suits sufficient to provide for the various sizes of crew members are available.

8.4 Muster list, emergency instructions and manuals

Refer to the The Merchant Shipping (Musters, Training and Decision Support Systems) Regulations 1999, S.I. 1999 No 2722, as amended, and associated MGN 71 (M) Musters, drills, on-board training and instructions, and Decision Support Systems and MSN 1579 Minimum training requirements for personnel nominated to assist passengers in emergency situations.

8.4.1 Clear instructions to be followed in the event of an emergency shall be provided for each person on board*.

* Refer to the Guidelines for passenger safety instructions on ro-ro passenger ships. (MSC/Circ.681)

Refer also to MGN 71 (M) Musters, drills, on-board training and instructions, and Decision Support Systems.

8.4.2 Muster lists complying with the requirements of regulation III/37 of the Convention shall be exhibited in conspicuous places throughout the craft including the control compartment, engine-room and crew accommodation spaces*.

* Refer to the Guidelines for passenger safety instructions on ro-ro passenger ships. (MSC/Circ.681)

Refer also to MGN 71 (M) Musters, drills, on-board training and instructions, and Decision Support Systems.

8.4.3 Illustrations and instructions in appropriate languages shall be posted in public spaces and be conspicuously displayed at assembly stations, at other passenger spaces and near each seat to inform passengers of:

- .1 their assembly station;

Refer to Symbols related to life-saving appliances and arrangements, adopted by the Organization by resolution A.760(18), as amended by resolution MSC.82(70).

Refer also to the symbols given in MSN 1676 (M) schedule 16.

- .2 the essential actions they must take in an emergency; and
- .3 the method of donning lifejackets.

8.4.4 Every passenger craft shall have passenger assembly stations:

- .1 in the vicinity of, and which provide ready access for all the passengers to, the embarkation stations unless in the same location; and
- .2 which have ample room for the marshalling and instruction of passengers.

8.4.5 A training manual complying with the requirements of 18.2.3 shall be provided in each crew messroom and recreation room.

8.5 Operating instructions

Poster or signs shall be provided on or in the vicinity of survival craft and their launching controls and shall:

- .1 illustrate the purpose of controls and the procedures for operating the appliance and give relevant instructions and warnings:
- .2 be easily seen under emergency lighting conditions; and
- .3 use symbols in accordance with the recommendations of the Organization[†].

[†] Refer to Symbols related to life-saving appliances and arrangements, adopted by the Organization by resolution A.760(18), as amended by resolution MSC.82(70).

Refer also to the symbols given in MSN 1676 (M) schedule 16.

8.6 Survival craft stowage

8.6.1 Survival craft shall be securely stowed outside and as close as possible to the passenger accommodation and embarkation stations. The stowage shall be such that each survival craft can be safely launched in a simple manner and remain secured to the craft during and subsequent to the launching procedure. The length of the securing lines and the arrangements of the bowsing lines shall be such as to maintain the survival craft suitably positioned for embarkation. The Administration may permit the use of adjustable securing and/or bowsing lines at exits where more than one survival craft is used. The securing arrangements for all securing and bowsing lines shall be of sufficient strength to hold the survival craft in position during the evacuation process.

8.6.2 Survival craft shall be so stowed as to permit release from their securing arrangements at or near to their stowage position on the craft and from a position at or near to the operating compartment.

8.6.3 So far as is practicable, survival craft shall be distributed in such a manner that there is an equal capacity on both sides of the craft.

8.6.4 The launching procedure for inflatable liferafts shall, where practicable, initiate inflation. Where it is not practicable to provide automatic inflation of liferafts (for example, when the liferafts are associated with an MES), the arrangement shall be such that the craft can be evacuated within the time specified in 4.8.1.

8.6.5 Survival craft shall be capable of being launched and then boarded from the designated embarkation stations in all operational conditions* and also in all conditions of flooding after receiving damage to the extent prescribed in chapter 2.

** Refer to guidelines on "Factors to be Considered in Determining Craft Operating Limitations" to be developed by the Organization.*

The intended interpretation of "all operational conditions" does not include all environmental conditions up to and including Worst Intended Conditions. If all operational conditions is interpreted as including all environmental conditions up to and including Worst Intended Conditions, 8.1.3.1 could infer that the Worst Intended Conditions should be restricted to the sea conditions in which the LSA has been trialled. "All operational conditions" refers only to the operational conditions laid down in the intact stability and damage stability booklets. MCA Headquarters should be consulted where the environmental operational conditions exceed those to which the LSA is tested.

In respect of damaged conditions, the extreme damage case prescribed in 2.13.2 need not be considered.

8.6.6 Survival craft launching stations shall be in such positions as to ensure safe launching having particular regard to clearance from the propeller or waterjet and steeply overhanging portions of the hull.

8.6.7 During preparation and launching, the survival craft and the area of water into which it is to be launched shall be adequately illuminated by the lighting supplied from the main and emergency sources of electrical power required by chapter 12.

8.6.8 Means shall be available to prevent any discharge of water on to survival craft when launched.

8.6.9 Each survival craft shall be stowed:

- .1 so that neither the survival craft nor its stowage arrangements will interfere with the operation of any other survival craft or rescue boat at any other launching station;
- .2 in a state of continuous readiness;
- .3 fully equipped; and
- .4 as far as practicable, in a secure and sheltered position and protected from damage by fire and explosion.

8.6.10 Every liferaft shall be stowed with its painter permanently attached to the craft and with a float free arrangement complying with the requirements of paragraph 4.1.6 of the LSA Code so that, as far as practicable, the liferaft floats free and, if inflatable, inflates automatically should the high speed craft sink.

Refer to the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors .

For information on hydrostatic release units including multiple liferaft securing on a single hydrostatic release unit see MGN 343 (M +F) Hydrostatic Release Units (HRU) - Stowage and Float Free Arrangements for Inflatable Liferafts.

8.6.11 Rescue boats shall be stowed:

As noted under 8.1.10.12, the term "rescue boat" includes fast rescue boats.

- .1 in a state of continuous readiness for launching in not more than 5 min;
- .2 in a position suitable for launching and recovery; and
- .3 so that neither the rescue boat nor its stowage arrangements will interfere with the operation of survival craft at any other launching station.

8.6.12 Rescue boats and survival craft shall be secured and fastened to the deck so that they at least withstand the loads likely to arise due to a defined horizontal collision load for the actual craft and the vertical design load at the stowage position.

Refer to 4.3 of the Code. Consideration should also be given to the design accelerations in the transverse and vertical directions, as well as longitudinal.

8.7 Survival craft and rescue boat embarkation and recovery arrangements

8.7.1 Embarkation stations shall be readily accessible from accommodation and work areas. If the designated assembly stations are other than the passenger spaces, the assembly stations shall be readily accessible from the passenger spaces, and the embarkation stations shall be readily accessible from the assembly stations.

8.7.2 Evacuation routes, exits and embarkation points shall comply with the requirements of 4.7.

8.7.3 Alleyways, stairways and exits giving access to the assembly and embarkation stations shall be adequately illuminated by lighting supplied from the main and emergency source of electrical power required by chapter 12.

8.7.4 Where davit-launched survival craft are not fitted, MES or equivalent means of evacuation* shall be provided in order to avoid persons entering the water to board survival craft. Such MES or equivalent means of evacuation shall be so designed as to enable persons to board survival craft in all operational conditions[#] and also in all conditions of flooding after receiving damage[#] to the extent prescribed in chapter 2.

** Equivalent means of evacuation may include mini-slides on smaller high-speed craft.*

[#] Refer also to guidance under 8.6.5.

Surveyors should ensure that sufficient consideration has been given to the means of communication between crew on MES floating platforms (or in rafts) and crew members responsible for directing persons on to the MES sides (or chutes) particularly at night. Where surveyors consider the emergency lighting conditions may be insufficient to provide ample illumination to inaccessible components of MES units they should recommend the stowage of hand torches at the MES stations. Surveyors should satisfy themselves that MES operators have sufficient strength and reach to operate emergency controls on MES units.

Refer also to MGN 273(M) Operational Issues relating to Marine Evacuation Systems for information on compatible lifejackets and training issues.

8.7.5 Subject to survival craft and rescue boat embarkation arrangements being effective within the environmental conditions in which the craft is permitted to operate and in all undamaged and prescribed damage conditions of trim and heel, where the freeboard between the intended embarkation position and the waterline is not more than 1.5 m, the Administration may accept a system where persons board liferafts directly.

It should be noted that survival craft and rescue boat embarkation arrangements must continue to be effective in the damaged conditions prescribed in chapter 2. In this regard, the damage prescribed in 2.13.2 need not be considered.

For wide beam craft (such as multihulls) this requirement often results in a substantial variation in freeboard at the embarkation stations according to the damage condition.

In cases where an MES is not suitable, for example on smaller craft, mini escape slides may be required.

8.7.6 Where an MES is provided for embarkation into survival craft on a category B craft, an alternative means of evacuating passengers and crew into survival craft on the same side of the craft in conditions up to and including the worst intended conditions is to be provided for use if the MES is lost or rendered unserviceable in the event of damage of longitudinal extent specified in 2.6.7.1.

8.7.7 Rescue boat embarkation arrangements shall be such that the rescue boat can be boarded and launched directly from the stowed position and recovered rapidly when loaded with its full complement of persons and equipment.

But see also 8.7.10 below.

8.7.8 Launching systems for rescue boats on category B craft may be based on power supply from the craft's power supply under the following conditions:

- .1 the davit or crane shall be supplied with power from 2 sources in each independent engine room;
- .2 the davit or crane shall comply with the required launching, lowering and hoisting speeds when using only one power source; and
- .3 the davit or crane is not required to be activated from a position within the rescue boat.

8.7.9 On multihull craft with a small HL₁ angle of heel and trim, the design angles in paragraph 6.1 of the LSA Code may be changed from 20°/10° to the maximum angles calculated in accordance with annex 7, including heeling lever HL₂, HTL, HL₃ or HL₄.

8.7.10 Rescue boat davits or cranes may be designed for launching and recovering the boat with 3 persons only on the condition that an additional boarding arrangement is available on each side complying with 8.7.5.

8.7.11 A safety knife shall be provided at each MES embarkation station.

8.8 Line-throwing appliance

A line-throwing appliance complying with the requirements of paragraph 7.1 of the LSA Code shall be provided.

Refer to the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors.

8.9 Operational readiness, maintenance and inspections

8.9.1 Operational readiness

Before the craft leaves port and at all times during the voyage, all life-saving appliances shall be in working order and ready for immediate use.

8.9.2 Maintenance

8.9.2.1 Instructions for on-board maintenance of life-saving appliances complying with the requirements of regulation III/36 of the Convention shall be provided and maintenance shall be carried out accordingly.

Refer to the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors.

8.9.2.2 The Administration may accept, in lieu of the instructions required by 8.9.2.1, a shipboard planned maintenance programme which includes the requirements of regulation III/36 of the Convention.

8.9.3 Maintenance of falls

According to the latest SOLAS Chapter III regulation 21.11.1 amendments (MSC/78/826/Add .1) the requirements below should be followed (updated to account for the HSC Code):

Periodic servicing of launching appliances and on load release gear.

Launching appliances shall be:

- .1 maintained in accordance with instructions for on-board maintenance as required by 8.9.2.1 (ISM item);*
- .2 subject to a thorough examination at the annual surveys required by 1.5, as applicable; and*
- .3 upon completion of the examination referred to in .2 subjected to a dynamic test of the winch brake at maximum lowering speed. The load to be applied shall be the mass of the survival craft without persons on board, except that, at intervals not exceeding five years, the test shall be carried out with a proof load of 1.1 times the maximum working load of the winch.*

Refer to the Guidelines for periodic servicing and maintenance of lifeboats, launching appliances and on-load release gear (MSC/Circ.1093)

8.9.3.1 Falls used in launching shall be turned end for end at intervals of not more than 30 months and be renewed when necessary due to deterioration of the falls or at intervals of not more than five years, whichever is the earlier.

8.9.3.2 The Administration may accept in lieu of "end for ending" required in 8.9.3.1, periodic inspection of the falls and their renewal whenever necessary due to deterioration or at intervals of not more than four years, whichever is the earlier.

8.9.4 Spares and repair equipment

Spares and repair equipment shall be provided for life-saving appliances and their components which are subject to excessive wear or consumption and need to be replaced regularly.

8.9.5 Weekly inspection

The following tests and inspections shall be carried out weekly:

- .1 all survival craft, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use;
- .2 all engines in rescue boats shall be run ahead and astern for a total period of not less than 3 min provided the ambient temperature is above the minimum temperature required for starting and running the engine. During this period of time, it should be demonstrated that the gearbox and gearbox train are engaging satisfactorily. If the special characteristics of an outboard motor fitted to a rescue boat would not allow it to be run other than with its propeller submerged for a period of 3 min, it should be run for such period as prescribed in the manufacturer's handbook; and
- .3 the general emergency alarm system shall be tested.

8.9.6 Monthly inspections

Inspection of the life-saving appliances, including survival craft equipment shall be carried out monthly using the checklist required by regulation III/36.1 of the Convention to ensure that they are complete and in good order. A report of the inspection shall be entered in the log-book.

8.9.7 Servicing of inflatable liferafts, inflatable lifejackets, marine evacuation systems and inflated rescue boats

Every inflatable liferaft, inflatable lifejacket and MES shall be serviced:

- .1 at intervals not exceeding 12 months, provided where in any case this is impracticable, the Administration may extend this period by one month;

Application to be made to MCA Headquarters (SOLAS extension for conventional vessels can be up to 5 months).

For information on the exceptions to this requirement for open reversible liferaft see Servicing of Inflatable Liferafts, Inflatable Boats, Rescue Boats, Fast Rescue Boats, Inflatable Lifejackets and Hydrostatic Release Units, MGN 362 (M+F) or subsequent updating notice. This is not applicable to HSC, including HSC on domestic seagoing or categorized waters voyages.

- .2 at an approved servicing station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel*.

* Refer to Recommendation on conditions for the approval of servicing stations for inflatable liferafts, adopted by the Organization by resolution A.761(18), as amended by resolution MSC.55(66).

All service stations in the UK are approved by the MCA and listed in Servicing of Inflatable Liferafts, Inflatable Boats, Rescue Boats, Fast Rescue Boats, Inflatable Lifejackets and Hydrostatic Release Units MGN 362 (M+F) or subsequent updating notice.

8.9.8 Rotational deployment of marine evacuation systems

In addition to, or in conjunction with, the servicing intervals of marine evacuation systems required by 8.9.7, each marine evacuation system shall be deployed from the craft on a rotational basis at intervals to be agreed by the Administration provided that each system is to be deployed at least once every six years.

8.9.9 An Administration which approves new and novel inflatable liferaft arrangements pursuant to 8.1 may allow for extended service intervals under the following conditions:

- .1 The new and novel liferaft arrangement shall maintain the same standard, as required by testing procedure, throughout the extended service intervals.
- .2 The liferaft system shall be checked on board by certified personnel according to paragraph 8.9.7.
- .3 Service at intervals not exceeding five years shall be carried out in accordance with recommendations of the Organization*.

** Refer to Recommendation on conditions for the approval of servicing stations for inflatable liferafts, adopted by the Organization by resolution A.761(18), as amended by resolution MSC.55(66).*

Refer to The Merchant Shipping (Marine Equipment) Regulations 1999, S.I. 1999 No 1957, Regulation 7 on exception for technical innovation.

All service stations are approved by the MCA and listed in Servicing of Inflatable Liferafts, Inflatable Boats, Rescue Boats, Fast Rescue Boats, Inflatable Lifejackets and Hydrostatic Release Units MGN 362 (M+F) or subsequent updating notice.

8.9.10 All repairs and maintenance of inflated rescue boats shall be carried out in accordance with the manufacturer's instructions. Emergency repairs may be carried out on board the craft, however, permanent repairs shall be effected at an approved servicing station.

All service stations are approved by the MCA and listed in Servicing of Inflatable Liferafts, Inflatable Boats, Rescue Boats, Fast Rescue Boats, Inflatable Lifejackets and Hydrostatic Release Units MGN 362 (M+F) or subsequent updating notice.

8.9.11 An Administration which permits extension of liferaft service intervals in accordance with 8.9.9 shall notify the Organization of such action in accordance with regulation I/5(b) of the Convention.

8.9.12 Periodic servicing of hydrostatic release units

Hydrostatic release units shall be serviced:

- .1 at intervals not exceeding 12 months, provided where in any case this is impracticable, the Administration may extend this period by one month;

Application to be made to MCA Headquarters (SOLAS extension for conventional vessels can be up to 5 months).

- .2 at a servicing station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel.

All service stations are approved by the MCA and listed in Servicing of Inflatable Liferafts, Inflatable Boats, Rescue Boats, Fast Rescue Boats, Inflatable Lifejackets and Hydrostatic Release Units MGN 362 (M+F) or subsequent updating notice.

8.9.13 Marking of stowage locations

Containers, brackets, racks and other similar stowage locations for life-saving equipment, shall be marked with symbols in accordance with the recommendations of the Organization*, indicating the devices stowed in that location for that purpose. If more than one device is stowed in that location, the number of devices shall also be indicated.

Refer to Symbols related to life-saving appliances and arrangements, adopted by the Organization by resolution A.760(18), as amended by resolution MSC.82(70).

These symbols are given in MSN 1676 (M) schedule 16.

8.9.14 Periodic servicing of launching appliances

Launching appliances:

- .1 shall be serviced at recommended intervals in accordance with instructions for on-board maintenance as required by regulation III/36 of the Convention;
- .2 shall be subject to a thorough examination at the annual surveys required by paragraph 1.5.1.3; and
- .3 shall upon completion of the examination in .2 be subjected to a dynamic test of the winch brake at maximum lowering speed. The load to be applied shall be the mass of the survival craft or rescue boat without persons on board, except that, at intervals not exceeding five years, the test shall be carried out with a proof load equal to 1.1 times the weight of the survival craft or rescue boat and its full complement of persons and equipment.

For information on whom is able to undertake the servicing see SOLAS 74 amendments to Chapter III/20.6 that came into force 1 July 2006. For information on how to undertake the servicing see Annex to MSC/Circ.1206 .

Refer also to the sections of MSN 1803 (M) Lifeboats - Measures for Preventing Accidents relevant to launching appliances.

8.10 Survival craft and rescue boats

8.10.1 All craft shall carry:

Rescue boats and fast rescue boats are not considered to be survival craft for this purpose as they are used for marshalling the liferafts and for man-overboard recovery.

- .1 survival craft with sufficient capacity as will accommodate not less than 100% of the total number of persons the craft is certified to carry, subject to a minimum of two such survival craft being carried;
- .2 in addition, survival craft with sufficient aggregate capacity to accommodate not less than 10% of the total number of persons the craft is certified to carry;

Where possible, survival craft should be evenly distributed on each side of the craft.

- .3 sufficient survival craft to accommodate the total number of persons the craft is certified to carry, even in the event that all the survival craft to one side of

the craft centreline and within the longitudinal extent of damage defined in 2.6.7.1 are considered lost or rendered unserviceable;

This requirement is intended to ensure sufficient LSA in the event of damage at one location.

In the case of failure of an MES where two or more survival craft are connected, the failure of this MES must be allowed for when calculating the appropriate number of survival craft to be fitted.

- .4 at least one rescue boat for retrieving persons from the water, but not less than one such boat on each side when the craft is certified to carry more than 450 passengers;
- .5 craft of less than 30 m in length may be exempted from carrying a rescue boat, provided the craft meets all of the following requirements:
 - .5.1 the craft is arranged to allow a helpless person to be recovered from the water;
 - .5.2 recovery of the helpless person can be observed from the navigation bridge; and
 - .5.3 the craft is sufficiently manoeuvrable to close in and recover persons in the worst intended conditions.
- .6 notwithstanding the provisions of .4 and .5 above, craft shall carry sufficient rescue boats to ensure that, in providing for abandonment by the total number of persons the craft is certified to carry:
 - .6.1 not more than nine of the liferafts provided in accordance with 8.10.1.1 are marshalled by each rescue boat; or
 - .6.2 if the Administration is satisfied that the rescue boats are capable of towing a pair of such liferafts simultaneously, not more than 12 of the liferafts provided in accordance with 8.10.1.1 are marshalled by each rescue boat; and
 - .6.3 the craft can be evacuated within the time specified in 4.8.

8.10.2 Where the Administration considers it appropriate, in view of the sheltered nature of the voyages and the suitable climatic conditions of the intended area of operations, the Administration may permit the use of open reversible inflatable liferafts complying with annex 11 on category A craft as an alternative to liferafts complying with paragraph 4.2 or 4.3 of the LSA Code.

Refer to the Revised recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70) as amended by MSC.226(82), and the MCA LSA Instructions to Surveyors .

8.11 Helicopter pick-up areas

Craft operating on voyages having a duration of 2 h or more between each port of call shall be provided with a helicopter pick-up area approved by the Administration having regard to the recommendations adopted by the Organization*.

* Refer to the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR), adopted by the Organization by resolution A.894(21), as amended.

MGN 325 Helicopter Assistance at Sea covers some operational aspects.