

CHAPTER 7

LIFERAFTS

7.1 General

The statutory requirements for inflatable liferafts are contained in Schedule 1 and Parts 1 and 2 of Schedule 4 of MSN 1676(M). The specific requirements for NON-SOLAS Inflatable Liferafts (canopy type) are contained in Part 5 of Schedule 4 of MSN 1676(M) as appropriate. This type of liferaft may be carried on board ships of Classes VIII(A) (in certain coastal inshore operations), IX(A), IX(A)(T) and XII of less than 21.3 metres in length.

7.1.1 Submissions

7.1.1.1 A formal application for consideration of each design of inflatable liferaft should be submitted to MCA or Notified Body for acceptance. This submission should include fully detailed plans and specifications for construction, methods of inflation, fabrics, adhesives and equipment.

7.1.1.2 A formal application for consideration of a specification of a material, accessory or piece of equipment other than as part of a new design of inflatable liferaft should also be submitted to MCA or Notified Body. This application should include fully detailed plans, samples, details of construction and tests together with specifications of all materials.

7.1.1.3 A prototype liferaft should be constructed in accordance with the plans and specifications submitted and should then be tested as required by Chapter 4, Part I, Section 1 and 2 as applicable of Volume 2 - Testing of Life-Saving Appliances and the results of the tests submitted to MCA. On completion two sets of "as fitted" plans should be forwarded to Headquarters or Notified Body for record purposes.

7.1.1.4 Liferafts built subsequently to the same design need not be subjected to prototype testing provided that the materials and workmanship are satisfactory and the production and installation tests listed in Chapter 4, Part I, Sections 3 and 4 of Volume 2 are completed satisfactorily.

7.1.1.5 For small design changes the manufacturers should institute a system of "Design change sheets" (DCS). Before acceptance the DCS's should be submitted to the MCA for approval and records of these are to be retained by the MCA, a Notified Body and the manufacturer.

7.2 Certification

For every liferaft there are three relevant documents:

7.2.1 A Log Book which is normally packed inside the liferaft so that it is always available for recording appropriate facts at Annual Survey, when it should be again packed inside the liferaft. In some cases where ships have been built abroad, the Log Book will not, for customs purposes, be initially packed inside the liferaft. It should be so packed at the first servicing.

7.2.2 The 'Certificate of Manufacture of an Inflatable Liferaft' (copy reproduced at Appendix D), which should be signed by the manufacturer's Chief Inspector, or his approved signatory, to the effect that the liferaft complies fully with the drawings and specifications which have been accepted by the MCA or Notified Body, caters for the manufacturer dispatching assemblies which are complete and operationally packed, complete and non operationally packed or incomplete and non operationally packed. In the two latter cases the raft should be completed, tested and packed at an approved Service Station and a 'Certificate of Re-Inspection' (copy reproduced at Appendix E) should be completed and attached to the original 'Certificate of Manufacture'.

7.2.3 A 'Certificate of Re-Inspection' (copy reproduced at Appendix E) should be completed at each annual servicing and sent with the raft to the ship.

The 'Certificate of Manufacture of an Inflatable Liferaft' and, where appropriate, the 'Certificate of Re-Inspection', should always be kept with the ship's papers for scrutiny by any visiting official and surveyors for inspection.

7.3 Design and construction

7.3.1 Durability

The liferaft assembly should be able to withstand 17 months on board ship in a weather deck stowage with a minimum of protection other than the operational container, without its performance being affected.

7.3.2 Painter

On no account is the painter to be drawn from the container either to tie it off to a strongpoint or shorten it. Shipowners and Shipbuilders should state the length of painter required when ordering liferafts as this is based upon the stowage position of the liferaft above the lightest sea-going waterline and liferaft manufacturers and their agents should draw their customers attention to this. In all cases the length of the painter will be marked on the outside of the container. Whenever the length of the painter is changed the length shown on the outside of the container should also be amended.

7.4 Gas inflation system

7.4.1 General

The requirements are contained, in ISO/CD 15738 and the prototype tests should be carried out as required by Chapter 4, Part IV, Section 1 of Volume 2 - Testing of Life-Saving Appliances.

7.5 Equipment and rations

The requirements to be provided are listed in Schedule 4, Part 6 of MSN 1676(M).

7.5.1 Repair kit

Adhesive type repair kits should be replaced after 3 years of manufacture irrespective of their condition and to facilitate this the date of their manufacture should be stamped on them. Alternative repair methods are approved which do not require this renewal (i.e. RAM[®] Patch).

7.5.2 Daylight signalling mirror

The daylight signalling mirror must be provided and should be of an accepted type. (See paragraph 10.1.19.)

7.5.3 Desalting kits

Where a desalting kit is supplied:

- (i) a loop patch should be fixed to the centre column or arch tube in order that the stowage bag can be fastened to it in an upright position, thus preventing the contents from spilling; and
- (ii) a conspicuous notice should be placed near the loop patch so that occupants of the raft are in no doubt about where to attach the stowage bag. This notice should also warn the occupants that the stowage bag should not be removed from its watertight polythene cover and hung up until the kit is to be used.
- (iii) Desalting kits depending on silver salts are to be replaced every 5 years.

7.5.4 Reverse osmosis equipment

For details see paragraph 11.8.

7.6 Release hook requirements

7.6.1 The requirements for the automatic release hook to be used in conjunction with davit-launched liferafts are contained in Schedule 4, Part 7 of MSN 1676(M).

7.6.2 Arrangements must be such that on becoming waterborne the liferaft will be automatically released from the launching appliance. To cater for malfunction of the automatic release hook provision must be made for the manual release of the liferaft, by a person on board the liferaft after it is waterborne. The manual release mechanism shall be so designed having regard to the risk of premature or unintentional release during the preparation, embarkation and lowering of the liferaft.

7.6.3 Automatic release hooks fitted on new ships shall be serviced at a recognised liferaft service station at regular intervals and shall be proof tested at 110% safe working load at intervals not exceeding 5 years in accordance with regulation 84(10)(a) of the Merchant Shipping (Life-Saving Appliances for Ships Other Than Ships of Classes III to VI(A)) Regulations 1999 and regulation 11(6) of the Merchant Shipping (Life-Saving Appliances for Passenger Ships of Classes III to VI(A)) Regulations 1999. It is recommended that the automatic release hooks fitted on existing ships should be serviced and proof tested at the same intervals.

7.6.4 The prototype, production and operational tests required for liferaft automatic release hooks are contained in Chapter 4, Part VII of Volume 2 - Testing of Life-Saving Appliances.

7.7 Stowage of inflatable liferafts

7.7.1 Capacity of liferafts when more than one is carried

7.7.1.1 When two or more liferafts are carried to provide the required capacity these should, where possible, be of such size that the capacity provided on each side of the ship is equal. In non-passenger ships where the Regulations require liferafts sufficient for:

- (i) the total number of persons on board, or
- (ii) 1.5 times the total persons on board, and such provision is met by two liferafts, these should, preferably, be of the same capacity. However, they may be of different capacities provided the smaller raft is sufficient for half the total number of persons on board in the case of (i), or three-quarters or the total number of persons on board in the case of (ii).

7.7.1.2 Liferafts of the same capacity should, so far as possible, be provided on passenger ships.

7.7.1.3 Liferrafts certified for a number of persons much in excess of the number of persons on board should not be carried. In general a raft should not be carried which is suitable for more than 150% of the ships complement.

7.7.2 Provision of liferafts on existing ships of less than 1600 tons gross (not provided with lifeboats)

7.7.2.1 The requirements of regulation 44(4) in respect of the provision of liferafts on ships not provided with lifeboats differ in detail from those in regulation 10(5).

7.7.2.2 In one respect the requirements of regulation 10(5) are more onerous and can result in the provision of 200% liferaft capacity on each side of the ship, i.e. in the case of a ship where none of the liferafts are readily transferable from one side of the ship to the other.

7.7.2.3 In order to provide more uniform treatment for new and existing ships (i.e. ships whose keels are laid on or after 1 July 1986, or before 1 July 1986, respectively), the requirements of the regulation 44(4) can be accepted as 'the equivalent' of the requirements of regulation 10(5) where it applies provided that:

- (i) on each side of the ship there are one or more liferafts of sufficient aggregate capacity to accommodate the total number of persons on board;
- (ii) if the rafts referred to in sub-paragraph (i) cannot be readily transferred for launching on either side of the ship, the total capacity available on each side shall be sufficient to accommodate 150% of the total number of persons on board (the requirements for transferability are in paragraph 7.8.1.3; and
- (iii) in all cases, the number and arrangements of liferafts are such that in the event of any one liferaft being lost or rendered unserviceable, there still shall be sufficient liferafts available for use on each side of the ship to accommodate the total number of persons on board.
- (iv) On small ships it may be acceptable after inspection to place a single liferaft of 50% capacity on the centre-line with 100% capacity on each side only if transferability is available.

7.7.2.4 It will be noted that regulation 10(5) applies to cargo ships other than tankers of less than 1600 tons (and 500 tons or over) whereas the relevant regulation 44(4)(a), (b), (c) and (d) apply to similar ships of less than 85 metres in length. To cater for this difference, where an owner of an existing ship of more than 1600 tons but less than 85 meters in length wishes to replace the lifeboats with liferafts and a boat, this arrangement can be accepted provided:

- (i) the requirements in respect of liferafts described above are met, and

(ii) the ship carries a rescue boat with launching appliance complying with the relevant requirements of Schedule 3 of MSN 1676(M).

7.7.2.5 Where an arrangement complying with the above is accepted on an existing ship, an exemption from the relevant requirements of regulation 10(5) will be issued.

7.7.3 Additional liferaft forward and/or aft on large ships

7.7.3.1 Regulations 44(5) and 45(8) require that in ships where survival craft are stowed in a position which is more than 100 metres from the stern or stem, an additional liferaft shall be stowed as far forward or aft, or one as far forward and another as far aft, as is reasonable and practicable.

7.7.3.2 When determining whether or not this requirement should be applied to a new ship, the 100 metres referred to in the above Regulations should be measured between the appropriate extreme end of the ship and the nearest end of the closest lifeboat or liferaft.

7.7.3.3 For the exposed positioned liferaft, the equipment required to assist evacuation is given in paragraph 7.7.18.

7.7.4 Stowage positions

7.7.4.1 Liferafts including davit-launched liferafts should be stowed in accordance with the manufacturer's recommendations in positions which will ensure their serviceability when they are needed and from where they may be readily launched or float free. They should not be stowed in positions where there is risk of damage as a result of cargo, stores etc. being handled on deck, where a hydrostatic release is fitted. The stowage position should be such that the liferaft will float free if a ship sinks before the liferaft can be launched. As far as it is practicable to do so rafts should be stowed clear of propellers, side thrust apertures and stabilisers and must not interfere with the operation of a survival craft or rescue boat at any other launching station.

7.7.4.2 In cases where davit launched liferafts are fitted in place of lifeboats, they should be positioned at least 9 metres forward of the ships propellers. Surveyors should bear this in mind at an early stage in discussions with shipbuilders where it is proposed to fit davit launched liferafts, and if for any reason, it is proposed to position the rafts at a lesser distance, MCA should be consulted.

7.7.4.3 Whilst the present practice of stowing liferafts close to the accommodation is generally most suitable, the concentration of these appliances in a small area is undesirable. As ships vary in layout, it is impractical to lay down precise instructions as to where liferafts should be sited. On small ships, however, the liferaft should not be placed adjacent to the boat.

Where a number of liferafts are provided they should be distributed on each side of the ship and so sited fore and aft that an incident (fire or collision) is unlikely to make all liferafts inaccessible or unusable.

7.7.5 Protection of stowed liferafts

Stowage should give the maximum possible protection from fire, smoke, funnel deposits and sparks, oil, heat, explosion, flooding, weather etc. If icing is likely, some liferafts should be stowed in protected positions, e.g. adjacent to casings, so as to ensure that they can still be readily launched in an emergency. Rafts should not be stowed in positions where they may lie in trapped water, nor should they be allowed to come into contact with any materials containing copper or copper compounds.

7.7.6 Stowage of liferafts adjacent to ships' compasses

In deciding on the stowage position of the liferafts, particularly in small ships, consideration should be given to the possible effect on the ship's compass of any ferrous metal in the liferaft or its stowage arrangements. Under these conditions liferafts and their stowage should, if necessary, be regarded as fixed magnetic material for the purpose of paragraph 6.2 of the Survey of Merchant Shipping Navigational Equipment Installations, Instructions for the Guidance of Surveyors.

7.7.7 Stowage of liferafts near the centreline

If a liferaft is sited near the centre line it should be capable of being readily transferred to either side of the ship at all times, see also paragraphs 7.7.2.3.(iv) and 7.8.1.

7.7.8 Deck illumination in way of stowages

All ships must be provided with a safety lighting system for illuminating the decks on which the liferafts are stowed. The lights should be arranged to illuminate sufficiently the stowage positions so that the raft may be readily prepared for launching, except in the case of the 6 man liferaft stowed forward on certain ships where the emergency illumination may be provided by a safety lamp or a gas-tight torch. A hand safety lamp is preferable as it can usually be hung or clipped at some convenient position to illuminate the liferaft stowage.

7.7.9 Securing of painters

In general the end of the painter of every liferaft should be secured to a suitable strong point so that on being launched the raft is held to the ship. The securing arrangement for the painter will normally include a float free arrangement such as a hydrostatic release unit (see paragraph 7.7.19). It should be impressed upon all members of the crew that if, for any reason, a liferaft painter has to be unfastened before a liferaft is launched, then it should be made fast again to some other suitable

strong point before launching takes place. Lives can easily be lost through failure to take this elementary precaution.

7.7.10 Height of stowage above the waterline

In all cases care must be taken to ensure that liferafts are of a type which are certified by the MCA as having been satisfactorily drop tested from at least the height at which they are to be stowed.

7.7.11 Removal of transport fastenings on delivery to the ship

Any additional lashing for transport purposes should be removed in accordance with the manufacturer's instructions before the liferaft is stowed aboard the ship.

7.7.12 Shipping and unshipping liferafts

Liferafts should be handled carefully whenever they are placed on or removed from their stowage positions. They must not be rolled or dropped.

7.7.13 Stowage of rafts in soft valises (MES packs)

With the introduction of a requirement to fit float free arrangements, the number of liferafts contained in soft valises has reduced considerably. However, where liferafts are still contained and accepted in soft valises they are to be stowed on raised gratings, platforms, or in boxes. Such platforms and boxes should have drainage holes provided, and construction should, as far as possible, be rat-proof. Under no circumstances should any other item of equipment be stowed in or on the box.

7.7.14 Stowage of rafts in rigid containers

Liferafts are now generally packed in rigid containers without any other protection. The container should be stowed the right way up with the drain holes in the bottom kept clear of obstructions e.g. deck cradle structural members. Each cradle should be of the correct dimension for the particular type of container fitted. It should be positioned horizontally with its longitudinal axis in a fore and aft direction, and secured firmly to a solid part of the ship's structure.

7.7.15 Securing of stowed rafts

7.7.15.1 It is of the utmost importance that liferafts can be released easily for launching over the ship's side or direct from their cradles or for floating free; consequently the holding down arrangements should never include bottle screws or other fittings which could prevent or delay rapid release of the raft.

7.7.15.2 Any lashing should be light and easy to cut quickly in an emergency. A slip-link or other release device which can be operated by a single swift action and will remain efficient after exposure to weather should also be incorporated. In certain stowage positions a knife should be provided adjacent

to this stowage and clearly marked. It is of the utmost importance that the liferaft may be released easily for putting over the ship's side or direct from their cradles or floating free. A two-part webbing bridle leading to a single slip and lashing is considered suitable.

7.7.15.3 It is possible to achieve rapid release from remote positions by electrical or hydraulic means and bottle screws may be incorporated in these arrangements.

7.7.16 Hosing down

Care should be taken when hosing down decks to avoid any unnecessary wetting of a liferaft. On no account should a hose be played directly onto a raft container.

7.7.17 Ramp stowage

On passenger ships, especially in Class II and II(A), fitted with a large number of inflatable liferafts, the liferafts must be stowed clear of the lifeboats positions along the ship's side and may be mounted on specially constructed inclined ramps. If such an arrangement is adopted then it is essential to ensure that each liferaft can be released individually and satisfy float free requirements.

7.7.18 Liferafts stowed near the bow or stern of large ships

In ships which are required to carry a small single liferaft right forward or aft, means of embarking should be provided. A suitably knotted lifeline of sufficiently large size and adequate length is considered satisfactory for this purpose, however alternative arrangements will be considered by the MCA. The lifeline may be securely fastened but should be provided with a means of manual release. Such liferafts may be securely fastened to their stowage arrangements but must have provision for manual release.

7.7.19 Float free arrangements

7.7.19.1 Float free launching means a method of launching a liferaft whereby it is automatically released from a sinking ship inflates and is ready for use. The arrangement must comply with the relevant LSA Regulations.

7.7.19.2 A weak link should be incorporated in any hydrostatic release system used to ensure that a liferaft which has been released hydrostatically by the hydrostatic release unit (H.R.U.) is not dragged under by the sinking ship. The weak link system should be of sufficient strength to pull the painter from the raft container and activate its inflation system; it should, however, break at a force of between 1.8 and 2.6kN.

7.7.19.3 The arrangement of painter attachment should be such that if the liferaft has to be released manually for jettisoning overboard it is attached to the ship by the full strength of the painter system.

7.7.19.4 A senhouse slip lashed to the holding down strops should be provided between the hydrostatic release and the strops to enable manual release for the liferafts.

7.7.19.5 Hydrostatic releases should be installed strictly in accordance with the manufacturer's instructions, and if of a type which requires servicing, should be serviced annually by an approved servicing station which will record the date of servicing on the small tally plate attached to the unit. The servicing date should also be recorded on the Liferaft Service Certificate. To enable this arrangement to be carried out the releases should not be permanently secured to the deck. Hydrostatic releases of a disposable type are to be clearly marked with a date of expiry and must be replaced by that date as they have an operational life of two years without an intermediate servicing being required. In this case, when the operational life of these particular hydrostatic release units has expired, they are to be returned to an authorised service station where a function test is to be carried out. The results of these tests are to be reported to the MCA on the Liferaft Servicing Questionnaire (copy reproduced at Appendix I) by the authorised service station, in order to verify that this equipment remains satisfactory in service. Only hydrostatic release units which are of a type accepted by the MCA, and to which a Certificate of Inspection and Test has been issued, should be fitted. The MCA's Marine Offices can provide information about such units.

7.7.19.6 A typical liferaft securing arrangement incorporating a painter, senhouse slip, H.R.U., and weak link is illustrated in Appendix G.

7.7.20 SOLAS type liferafts fitted on Passenger Ships of Classes III, to VI(A)

7.7.20.1 The 1999 Regulations permit these ships to carry either SOLAS (canopy type) liferafts or 'open reversible liferafts'. In some cases the Class III ship is also certificated to operate as a Class II(A) ship, where only SOLAS type liferafts may be fitted.

7.7.20.2 Based upon the limited operation of the Class III to VI(A) ships, the MCA is prepared to increase the carrying capacity of the SOLAS type liferafts where these are fitted. This increase will be limited to a 20% uplift in the SOLAS certificated capacity e.g.:-

- (i) 25 person liferaft may be increased to 30 persons, and
- (ii) 50 person liferaft may be increased to 60 persons.

7.7.20.3 In order to avoid confusion, the existing SOLAS marking should be retained on the liferaft and its container and a letter of acceptance can be issued by the Regional Marine Office for each ship where the operator specifically requests an increase in the carrying capacity of these liferafts for any

of the above classes of operation. This will then still maintain the required compliance for ships having dual Class II(A) and III certification.

7.8 Liferaft launching arrangements

7.8.1 Hand launching arrangements

7.8.1.1 Where the Regulations require that the liferafts carried shall be readily transferable for launching on either side of the ship, and if this is not practical, a liferaft or liferafts of sufficient aggregate capacity must be stowed on each side of the ship.

7.8.1.2 To avoid the necessity of lifting liferafts over guard-rails or bulwarks portable rails or hinged openings may be necessary. In such cases suitable protection should be provided to prevent the possibility of persons falling over the side.

7.8.1.3 It is the MCA's view that side-to-side transfer must be accomplished in less than 5 minutes as follows:-

- (i) Liferafts of six person to 15 person capacity when carried by two persons.
- (ii) Liferafts of more than 15 person capacity when carried by four persons.

7.8.1.4 Where doubt exists as to whether the stowage position of a SOLAS liferaft (which can weigh up to 185 kg) does allow easy side-to-side transfer at a single open deck level, it is recommended that a practical demonstration be carried out. If the demonstration shows this not to be practical then additional liferafts need to be provided as set out in the Regulations. See Merchant Shipping Notice No. M1400.

7.8.2 Davit launched liferafts

7.8.2.1 With the ship upright and the liferaft hanging freely from its launching appliance in its operating position, the inboard side of the raft should be no more than 150 mm from the edge of the embarkation deck or platform. Where embarkation platforms are necessary to satisfy this they may be fixed or hinged. They should be long enough to accommodate the bowing-in eyeplates and should be fitted with a curtain plate at their outboard side.

7.8.2.2 This curtain plate should be deep enough for the raft to be bowed-in against it. Where fixed platforms are provided, the height of the curtain plate may be reduced provided that fending bars are fitted from the underside of the platform to the ships side. Eyeplates or cleats should be provided at the embarkation position to accommodate the bowing lines.

7.8.2.3 Davit launched liferafts on new ships should be provided in such a position that the liferaft at the embarkation position is not less than 2 metres above the waterline with the ship in the fully loaded condition under unfavourable conditions of trim and listed up to 20° either way, or to the angle at which the ship's weather deck becomes submerged, whichever is less.

7.8.2.4 In general, davit launched liferafts should be in a state of continuous readiness so that two crew members can carry out preparations for embarkation and launching in less than 5 minutes. They should be stowed within reach of the lifting hooks unless some means of transfer is provided which is not rendered inoperable by ship motion, power failure, or the limits of trim and list described in the preceding paragraph, i.e. carousel arrangement.

7.9 Open reversible liferafts (ORL)

7.9.1 General

The statutory requirements are contained in Schedule 4, Part 4 of MSN 1676(M). These ORLs are accepted for use on the above passenger ships and also on certain restricted operation high speed craft.

7.9.2 Submissions

The submissions for designs and testing of ORLs are generally in accordance with paragraphs 7.1.1, 7.2, 7.3 and 7.4 where applicable.

7.9.3 Equipment

The reduced emergency equipment to be provided for these ORLs i.e. DOT (UK) E pack, is listed in Schedule 4, Part 6 of MSN 1676(M). For these ORLs although the water pockets and controlled lights are fitted on each side of the liferaft, it will be acceptable for only one emergency pack to be provided. If this arrangement is adopted this pack is to be fitted and secured between the outside of the buoyancy tubes and accessible for whichever way up the liferaft inflates.

7.9.4 Painter and automatic inflation

The stowage and release arrangements for ORLs are to be such that the liferaft will automatically inflate on reaching the water in a controlled evacuation procedure. A special painter arrangement is to be incorporated into the gas inflation system for this purpose.

7.9.5 Minimum number of ORLs to be fitted

7.9.5.1 With regard to the requirements of the Merchant Shipping (Life-Saving Appliances for Passenger Ships of Classes III to VI(A)) regulations 7(3)(b), 7(4)(b), 8(2)(b) and 9(2)(b) i.e. "where liferafts are carried shall, as far as

practical, be evenly distributed on each side of the ship". Surveyors may be guided by the following arrangements for smaller passenger ships:

- (i) Existing ships, built prior to 1 October 1992 may carry only one liferaft up to a maximum size of 65 persons stowed at the stern or on one side of the vessel.
- (ii) New ships, built on or after 1 October 1992 may carry only one liferaft up to a maximum size of 130 (ORL) persons stowed at the stern or on one side of the vessel.

7.9.5.2 In considering the required complement of the single liferaft to be fitted for either 7.9.5.1 or 7.9.5.2 consideration has to be taken of the particular percentage applicable to the class of vessel, passenger numbers and survivability standard required. For guidance to surveyors the primary survivability and LSA requirements i.e. lifeboats, liferafts, open reversible liferafts, rescue boats and lifejackets are indicated in the "At a Glance Tables" for new and existing ships at Appendix H and H(i).

7.9.5.3 Equivalence to the requirements for the carriage of liferafts/ORL's and buoyant apparatus; particularly to Class V and VI ships.

- (i) For Class V(c) where an owner opts to fit 100% ORL's instead of 40% - 60%, this will be acceptable providing a minimum of 10% buoyant apparatus is carried in addition. Various other permutations will be accepted for, increasing regulation percentage for ORL's, providing the difference is made up with buoyant apparatus to the required overall specified capacity.
- (ii) For Class VI ships, it will also be acceptable to carry 100% ORL'S, providing 10% buoyant apparatus is fitted additionally. For other permutations of % ORL's. This can be in excess of statutory requirements with difference made up by buoyant apparatus.

7.10 Embarkation ladders for liferafts

Sufficient ladders should be provided to facilitate embarkation into liferafts. In passenger ships with throwover liferafts stowed on ramps a three-string ladder or accepted alternatives should be provided at each embarkation position extending to the light waterline. Ladders should be placed in positions which are readily accessible, and which will not interfere with the evacuation arrangements. The surveyor should be satisfied with the access to and means of mounting these ladders. For details on the construction of three-string ladders see paragraph 18.4.8.2.

7.11 Shipside clearance when lowering liferafts by launching appliances

7.11.1 With the ship upright, any liferaft whilst being lowered by a launching appliance should clear any projection, e.g. belting, by at least 150 mm. Nevertheless, fairings should be fitted above and below the beltings in way of the launching positions.

7.11.2 Where it is necessary to lower the liferafts past openings between bulwarks or rails and the deck above, or past overhanging decks, satisfactory arrangements should be made by the provision of fending bars, or other equally effective means, to prevent the liferafts from lodging on the rail or being damaged or the passengers from being injured owing to the liferaft swinging under the overhang when the ship is listing.

7.12 Display of illustrated instruction posters

Waterproof posters and signs illustrating launching and boarding of liferafts and any necessary precautions needed should be displayed adjacent to embarkation positions of liferafts which are launched by means of a launching appliance, and adjacent to the stowage position of other liferafts. Symbols used should be in accordance with those illustrated in Schedule 16 of MSN 1676(M) - Symbols relating to Life-Saving Appliances and arrangements.

7.13 Marking

7.13.1 General

The markings of liferafts and containers as required by Schedule 4, Part 1, paragraph 4.2 of MSN 1676(M) should be clear and indelible in the English language. The marking material should not contain ingredients harmful to adjacent material. Details of the markings should be submitted to MCA for agreement.

7.13.2 Marking of liferaft

In addition to the statutory markings the position and use of items of equipment which are stowed outside the emergency pack or packs, e.g.: valves, deflate plugs, knives and aerial fittings should be clearly marked.

7.14 Servicing of inflatable liferafts and HRUs

7.14.1 Shipowners and masters should be reminded of the need to have inflatable liferafts and HRUs where applicable regularly serviced at an approved service station. See Marine Guidance Note MGN 62 (M+ F).

7.14.2 It is a requirement that United Kingdom authorised service stations provide the MCA with a report of the work undertaken after the liferafts have been serviced. Service stations will provide details of the work carried out to the manufacturers of the liferaft by filling out the 'Liferaft Servicing Questionnaire'. The manufacturers will be required to provide a service report of all defects reported by the service stations to the MCA periodically.

7.14.3 Shipowners and masters are further reminded that it is an offence to carry an inflatable liferaft or hydrostatic release unit which is known to be defective, or which has not been serviced at the intervals prescribed by the Regulations.

7.15 Rigid liferafts

7.15.1 The statutory requirements for rigid liferafts are contained in Schedule 4, Part 3 of MSN 1676(M) and Schedule 5, Part 2 of MSN 1677(M).

7.15.2 Any inquiry or proposal to manufacture rigid liferafts should be referred to the Nominated or Notified Body.