

CHAPTER 10

EQUIPMENT FOR LIFEBOATS, RESCUE BOATS, AND LIFERAFTS

10.1 Lifeboat equipment

10.1.1 General

The statutory requirements concerning the equipment of lifeboats are contained in Schedule 2, Part 2, paragraph 5 and at Schedule 13 of MSN 1676(M).

10.1.2 Stowage of equipment

Loose equipment in boats should not be permitted. In free fall type boats this is especially important; unsecured or poorly secured equipment may be propelled along the boat to inflict serious injuries to those in the boat during a launching operation for this reason oars and boat hooks are not included in the equipment for these boats.

10.1.3 Oars and crutches

10.1.3.1 General

Sufficient buoyant oars to make headway on calm sea must be provided. The boat must have those pins, crutches or equivalent arrangements.

10.1.3.2 Oars

Oars should be free from short grain or other defects. They should be made from home grown, Australian, European or American ash or hickory. Special consideration will be given to the acceptance of oars of laminated construction made with the aforementioned timbers. In the case of Australian ash the oars may be 6.5 mm less in diameter than the sizes shown in the table below.

10.1.3.3 Crutches

Crutches should be of galvanised wrought iron and they should be attached to the boat by a lanyard or chain secured to the neck of each crutch, and so positioned that at least one crutch is available for use at each crutch hole. If a crutch is damaged the complete fitting should be removed and replaced by one of the spares which should be carried in each lifeboat. Surveyors should ensure that a proper tool is carried with the tools in 10.1.29.

10.1.4 Boat hooks

At least two boat hooks must be carried in every boat. Shafts of boat hooks should be of good quality ash or hickory, not less than 2.45 metres in length, and 50 mm in diameter at the mid length. Metal fittings, if of steel or wrought iron, should be galvanised. In large lifeboats boat hooks of larger dimensions may be necessary.

Length of lifeboat	Rowing oars	
	Length	Diameter
	Metres	Millimetres
4.90 metres and under	3.05	64
Over 4.90 metres and under 6.70 metres	3.55	64
Over 6.70 metres and under 7.30 metres	3.65	64
Over 7.30 metres and under 8.50 metres	3.95	67
Over 8.50 metres	4.30	67

Note: The length of the rowing oars in any lifeboat exceeding 8.50 metres in length need not exceed 4.30 metres. The length of the blade should be one-third the length of the oar and the breadth at the extreme end not less than twice the diameter.

10.1.5 Drains

Automatic drain valves should be of a pattern acceptable to the MCA. When an automatic plug is fitted a safety plug or screwed cap attached by a lanyard or chain must also be provided. The bottom boards should be so arranged as to provide easy access to the drain holes.

10.1.6 Buckets and bailer

Two buckets and a buoyant bailer which should be of good quality must be provided. The buckets should each hold about 9 litres (2 gallons). The diameter of the bailer should not be less than 200 mm.

10.1.7 Rudders and tillers

10.1.7.1 Every lifeboat must be provided with a rudder permanently attached to the boat. A tiller must be installed in the rudder stock or attached to it by a lanyard. Rudders may be made of glass-reinforced plastic, steel or other suitable

metal. The adequacy of the rudder should be proved by the manoeuvring trial as detailed in paragraph 4.1.6.2. The ends of metal tillers should be covered with rubber, wood or other suitable material to protect the helmsman's hands in freezing conditions.

10.1.7.2 In boats with remote steering arrangements the tiller may be unshipped and securely stowed adjacent to the rudder stock.

10.1.8 Buoyant lifelines

10.1.8.1 A line must be becketed round the outside of the boat clear of the rudder and the propeller. It should be of 16 mm diameter manila or sisal rope or synthetic ropes, having full loops reaching within 75 mm of the load water line.

10.1.8.2 On fire protected lifeboats the lines should be 4 mm diameter flexible stainless steel wire rope sheathed with PVC and led through hardwood handgrips. The surveyor should ensure that the method of attachment to the hull precludes corrosive action.

10.1.9 Means of clinging to upturned lifeboats

All lifeboats built prior to the introduction of the 1999 Regulations which are not self righting must be fitted with means to enable persons to cling to the lifeboat, if upturned, in the form of bilge keels or keel rails, together with not less than three grablines of 16 mm diameter rope secured from gunwale to gunwale under the keel. These lines should be knotted at intervals to form hand grips and have loops positioned on each side of the keel for the support of the arm. The ends of each line should be made fast to cleats, ringbolts or some other suitable place at the side. The property of grip in keel grablines is essential and where it is proposed to provide synthetic rope care should be taken to ensure that suitable rope is used.

10.1.10 Lockers

Lockers should be constructed so as to preserve the small items of equipment from deterioration must be provided. Lockers should be conspicuously marked to indicate the contents.

10.1.11 Hatchets

Two hatchets must be provided, one at each end of the boat. They should be single-edged, have good cutting edges, attached by lanyard to the boat and be readily available.

10.1.12 Lights

Internal and external lights complying with paragraph 7 of Schedule 2, Part 2 of MSN 1676(M) as appropriate must be provided with their own power supply. Only lights of an approved type should be provided.

10.1.13 Compasses

An operational compass must be provided complying with paragraph 5.1.5 of Schedule 2, Part 2 of MSN 1676 (M).

10.1.14 Sea anchors (drogues)

10.1.14.1 The statutory requirements for sea anchors are contained in Part 4 of Schedule 13 of MSN 1676.

10.1.14.2 A fairlead should be fitted on the gunwale at the forward end of the boat for streaming the sea anchor, or for use when the boat is being towed. That portion of the hawser which would lie over the fairlead when riding to the sea anchor should be protected by parcelling. A swivel should be fitted to the sea anchor in order to prevent the hawser unlaying as a result of rotation. The sea anchor hawser should be provided in addition to the boat's painters.

10.1.14.3 The property of grip in sea anchor hawsers and tripping lines is essential, and where it is proposed to provide synthetic rope care should be taken to ensure that suitable rope is used. It is desirable that the sea anchor, together with the hawser and tripping line, should be stowed in a canvas bag for protection; plastic bags are unsuitable for this purpose. See Appendix N for advice on use of sea anchors.

10.1.15 Painters

Two painters of sufficient length must be provided. Regard to the height of the deck above the light water line and the possibility of list will help in determining what is sufficient length. One must be secured to the forward end of the lifeboat with a release mechanism so that it can be released quickly and the other firmly secured to the stem of the lifeboat ready for use. Painters should be of good quality manilla, sisal rope or acceptable synthetic rope. With regard to synthetic rope, the property of stretch should be minimal and the property of grip essential. See Appendix O. The size of painters should be as follows:

Length of Boat	Minimum Size of Cordage Diameter in millimetres	
	Manila or sisal	Synthetic Rope
Under 8 metres	20 mm	24 mm
8 metres and under 9 metres	24 mm	28 mm
9 metres and over	28 mm	32 mm

and suited to freeboard of ship on which they are carried.

Note: For free-fall lifeboats, painters as such are not provided, however lines to assist in the recovery and placement of the boats onto their ramps are required. These lines should be of a size suited to the purpose.

10.1.16 Pyrotechnic distress signals

10.1.16.1 The statutory requirements for parachute distress rocket signals, handheld distress flare signals and buoyant smoke signals are contained in Parts 1, 2, 3 and 4 respectively, of Schedule 7 of MSN 1676(M).

10.1.16.2 All lifeboat pyrotechnic distress signals should be of an accepted type and manufacture. The acceptance and testing of such signals should be carried out in a manner similar to that detailed for ships' distress rocket signals in Chapter 16. Lifeboat pyrotechnic distress signals should be compactly stowed in a suitable watertight container.

10.1.16.3 The components, composition and ingredients of parachute distress rocket signals and hand-held distress flare signals are such that they should, under good average storage conditions, remain stable for a period of three years from the date of manufacture. Such signals should be renewed at the expiry of this period, or earlier if their condition is in doubt. Buoyant smoke signals may be retained for an indefinite period provided that they remain in good condition. The disposal of out-of-date lifeboat pyrotechnic distress signals should be in accordance with the method described in Chapter 16.

10.1.17 First aid outfit

The statutory requirements for the first aid outfit are contained in Part 1 of Schedule 13 of MSN 1676(M).

10.1.18 Electric torch

An electric torch of an accepted type, suitable for morse signalling, must be provided together with a waterproof container containing one spare set of batteries and one spare bulb. Sample torches submitted for acceptance should be capable of

being dropped at any angle on to a hard surface from a height of 1.20 metres without damage affecting the efficient use of the torch, other than failure of the bulb; it should also withstand immersion under 300 mm of water for a period of six hours without such leakage, discharge of the batteries or other defect, as would affect the efficient use of the torch.

10.1.19 Daylight signalling mirror

A daylight signalling mirror must be provided. It should be of an accepted type.

10.1.20 Jack-knife

A jack-knife fitted with a tin opener must be provided and kept attached to the lifeboat by a lanyard.

10.1.21 Buoyant rescue quoits

Two buoyant rescue quoits attached to not less than 30 metres of buoyant line must be provided. They should be capable of floating in sea water after six hours immersion and be pliable when wet or dry. To preserve the buoyant qualities and to prevent deterioration the lines should be stowed in as dry a position as possible in the lifeboat. Lines should be of cotton or other suitably pliant material. Alternative approved equipment may be accepted.

10.1.22 Manual pumps

10.1.22.1 The statutory requirements for manual pumps are contained in paragraph 6, Part 2 of Schedule 2 of MSN 1676(M).

10.1.22.2 Hoses should be of rubber or other equivalent material. Suction hoses should be provided with a suitable strainer, and both suction and discharge hoses should be of adequate length. The arrangements should enable all parts of the boat to be kept clear of water.

10.1.23 Whistles

A whistle, which should be of good quality and operate efficiently after immersion in water for 24 hours, must be provided. It should be fitted with a lanyard. The whistle may be substituted by any other efficient sound signalling device.

10.1.24 Fishing lines and hooks

Each lifeboat should be provided with a rot-proofed fishing line of about 12 metres in length together with two traces each having three mackerel size hooks spaced 300 mm to 460 mm apart and with coloured lures or spinners and a 910 grm cigar-shaped lead.

10.1.25 Thermal protective aids

The stowage of thermal protective aids should be such that they will be maintained in good condition without risk of suffering damage.

10.1.26 Rescue signal tables

Surveyors should ensure that rescue signal tables provided in lifeboats are of the approved type, sealed in clear plastic material to prevent damage by water.

10.1.27 Lifeboat boarding ladders

A rope or wire rope ladder will meet this requirement but any equivalent means may be accepted. Wire rope ladders should be fitted with a gunwale clamp, but other equivalent means of lashing may be adopted for rope ladders. Ladders should be of sufficient length to reach from the gunwale at the bow or stern to at least 0.4 metres below the water surface when the boat is in light condition, and should be constructed so that the rungs will give a clear foothold width of not less than 250 mm. To ensure that the ladder will hang vertically the lowest rung should be made of iron or otherwise weighted. Iron or steel parts should be galvanised.

10.1.28 Means of extinguishing fire in motor lifeboats

Lifeboats must be provided with fire extinguishing appliances in accordance with Regulations. Where it is decided to fit fire extinguishers of the foam type these should be of the dual seal (positive closure) type.

10.1.29 Tools

The tool kit should be sufficient to enable minor adjustments to be made to the engine and its accessories. (See paragraphs 4.6.12.1 and 5.2.2.7).

10.1.30 Radar reflector

This should be efficient and be of an approved type. Surveyors should ensure that suitable fittings are provided for attaching the radar reflector to the lifeboat/rescue boat.

10.1.31 Search light

The performance of the search light must fulfil the requirements of the Regulations.

10.1.32 Relaxation in requirements

Ships operating solely in the Limited European Area are not required to carry food rations or fishing tackle.

10.1.33 Survival manual

A waterproof survival manual should be included in the lifeboat equipment. See paragraph 21.2.4.3.

10.2 **Rescue boat equipment**

10.2.1 General

The statutory requirements concerning the equipment of rescue boats are contained in Parts 7 and 8 of Schedule 2 of MSN 1676(M) and Parts 1, 2 and 3 of Schedule 3 of MSN 1676(M).

10.2.2 Equipment

The equipment to be carried in rescue boats is similar to that for lifeboats with the following exceptions:-

- Paddles may be used instead of oars.
- One boat hook, bucket, hatchet, fire extinguisher is to be carried instead of two items as in lifeboats.
- Only one painter of sufficient length is required attached to a quick release device placed at the forward end of the rescue boat.
- Additionally, these boats are required to be provided with a buoyant line of not less than 50 metres in length of sufficient strength to enable towing of a fully laden liferaft.
- In the case of rigid inflated rescue boats, an efficient manually operated bellows or pump is required and also a repair kit in a suitable container for repairing punctures to the coated fabric of the buoyancy tubes.
- Additionally, in the case of inflated rescue boats and inflated boats a buoyancy safety knife and two sponges are required.

10.3 **Liferaft equipment**

10.3.1 General

The statutory requirements concerning the equipment of liferafts are contained in Part 6 of Schedule 4 of MSN 1676(M); the fittings required in liferafts are specified at Parts 1 and 2 of Schedule 4 of MSN 1676(M).

10.3.2 Equipment

10.3.2.1 The Regulations list the equipment to be carried in equipment containers to be included within rafts. The most comprehensive list of equipment is for those rafts carried on ships engaged on international voyages. Items of equipment may be omitted from the list for ships engaged on other than international voyages.

10.3.2.2 "SOLAS A PACK" is used to mark equipment containers filled with the full list of equipment suited to the liferaft equipment requirements for all ships on international voyages.

10.3.2.3 "SOLAS B PACK" is used to mark equipment containers from which specified items on the full comprehensive list have been omitted. This equipment pack is suited to the liferaft equipment requirements for passenger ships on short international voyages.

10.3.2.4 "DOT (UK) C PACK" is used to mark equipment containers from which specified items on the full comprehensive list have been omitted. This equipment pack is suited to fulfil the liferaft equipment requirements for ships of Classes IX(A) and IX(A)(T).

10.3.2.5 "DOT (UK) D PACK" is used to mark equipment containers containing specified items. The equipment is suited to fulfil the liferaft equipment requirements for ships of Class XII of less than 21.3 metres in length.

10.3.2.6 "DOT (UK) E PACK" is used to mark equipment containers containing specified items. The equipment is suited to fulfil the equipment requirements for open reversible liferafts carried on passenger ships of Classes III to VI(A).

10.3.2.7 For details of the equipment in each of the above PACKS see Appendix L.

10.3.3 Knives

Knives should be positioned close to canopy openings and be attached to the raft by a lanyard. Knives should have a safety blade to remove the risk of accidental stabbing of the buoyancy chambers of the raft.

10.3.4 Drop tests

10.3.4.1 Fully packed equipment containers must be subjected to drop tests as prescribed for liferafts. After such drop tests it must be determined that the containers have not damaged the liferaft in which they are stowed, and the container and its contents have not suffered any damage.

10.3.5 Sea anchors

The statutory requirements for sea anchors are contained in Part 4 of Schedule 13 of MSN 1676 (see also Part 2 of Appendix J).