Maritime and Coastguard Agency

MERCHANT SHIPPING NOTICE

MSN 1677 (M)

The Merchant Shipping (Life-Saving Appliances for Ships Other Than Ships of Classes III to VI(A)) Regulations 1999

Notice to Shipowners, Certifying Authorities, Shipbuilders, Shiprepairers, Ship Masters and Surveyors

Summary

This Notice advises all Shipowners, Certifying Authorities, Shipbuilders, Shiprepairers, Ship Masters and Surveyors of the new 1999 Life-Saving Appliances Regulations, as they apply to Part II of these Regulations unless otherwise specified.

Key Points:-

- Schedules in this Notice and regulations referred to in them are an integral part of Part II of the Merchant Shipping (Life-Saving Appliances for Ships Other than Ships of Classes III to VI(A)) Regulations 1999.
- Schedules contained in this Notice are invoked by those Regulations and are therefore a statutory obligation.

List of Schedules

In this Merchant Shipping Notice –

(1) a reference to a numbered paragraph is, unless otherwise stated, a reference to the paragraph of that number in that Part;

(2) a reference to a numbered section is, unless otherwise stated, a reference to the section of that number in that Part;

(3) a reference to a numbered Part is, unless otherwise stated, a reference to the Part of that number in that Schedule;

(4) a reference to a numbered Schedule, is unless otherwise stated, a reference to the Schedule of that number in the Merchant Shipping Notice; and

(5) a reference to the Other Ship Regulations means a reference to the Merchant Shipping (Life-Saving Appliances for Ships Other Than Classes III to VI(A)) Regulations 1999.

SCHEDULE 1

THE MINIMUM NUMBERS OF DAVITS TO BE PROVIDED AND THE MINIMUM CUBIC CAPACITY OF LIFEBOATS IN SHIPS OF CLASSES II AND II(A)

	(A)	(B)	(C)
Registered length of ship in metres	Minimum number of sets of davits	Smaller number of sets of davits authorised exceptionally	Minimum capacity of lifeboats in cubic metres
Under 37	2	2	11
37 and under 43	2	2	18
43 „ „ 49	2	2	26
49 „ „ 53	3	3	33
53 „ „ 58	3	3	38
58 „ „ 63	4	4	44
63 „ „ 67	4	4	50
67 „ „ 70	5	4	52
70 „ „ 75	5	4	61
75 „ „ 78	6	5	68
78 „ „ 82	6	5	76
82 „ „ 87	7	5	85
87 „ „ 91	7	5	94
91 „ „ 96	8	6	102
96 „ „ 101	8	6	110
101 „ „ 107	9	7	122
107 „ „ 113	9	7	135
113 „ „ 119	10	7	146
119 „ „ 125	10	7	157
125 „ „ 133	12	9	171
133 „ „ 140	12	9	185
140 „ „ 149	14	10	202
149 „ „ 159	14	10	221
159 „ „ 168	16	12	238
168 „ „ 177	16	12	-
177 „ „ 186	18	13	-
186 „ „ 195	18	13	-
195 „ „ 204	20	14	-
204 „ „ 213	20	14	-
213 „ „ 222	22	15	-
222 „ „ 232	22	15	-
232 „ „ 241	24	17	-
241 „ „ 250	24	17	-
250 „ „ 261	26	18	-
261 „ „ 271	26	18	-
271 „ „ 282	28	19	-
282 „ „ 293	28	19	-
293 „ „ 303	30	20	-
303 „ „ 314	30	20	-

SCHEDULE 2

LIFEBOATS

PART 1 – GENERAL

Construction

1.1 The lifeboat shall be constructed with rigid sides.

1.2 In any lifeboat fitted with a rigid shelter, the shelter shall be capable of being readily opened from both inside and outside and shall not impede rapid embarkation and disembarkation or the launching and handling of the lifeboat.

1.3 The lifeboat, except wooden lifeboats made of planks, shall have a block co-efficient (with the cubic capacity calculated in accordance with Part 2) of not less than 0.64: provided that any such lifeboat may have a block coefficient of less than 0.64 if there is sufficient metacentric height and freeboard when the lifeboat is loaded with its total complement of persons and equipment.

1.4 The lifeboat shall be of such form and proportion that it will have ample stability in a sea-way, and sufficient freeboard when loaded with its total complement of persons and equipment.

1.5 The lifeboat shall be so constructed that it shall be capable of maintaining positive stability when open to the sea and loaded with its total complement of persons and equipment.

1.6 The lifeboat shall be properly constructed for the purpose for which it is intended and shall be of sufficient strength to permit it to be safely lowered into the water when loaded with its total complement of persons and equipment. It shall be of such strength that it will not suffer residual deflection if subjected to an overload of at least 25 per cent.

1.7 No lifeboat shall be less than 4.9 metres in length except when it is being carried as an alternative to a Class C boat.

1.8 No lifeboat, when laden with its total complement of persons (calculated at 75 kilogrammes per person) and equipment, shall weigh more than 20,300 kilogrammes.

1.9 All thwart and side seats shall be fitted as low as is practicable, and bottom boards shall be fitted.

1.10 The lifeboat shall have a mean sheer at least equal to 4 per cent of its length. The sheer shall be approximately parabolic in form.

1.11 The lifeboat shall be fitted with internal buoyancy appliances consisting either of air cases or buoyant material not adversely affected by oil or oil products or which would otherwise adversely affect the boat.

1.12 In every lifeboat the total volume of the internal buoyancy appliances shall be such that it will be at least equal to the sum of –

1.12(1) that volume required to float the lifeboat and its total equipment when the lifeboat is flooded and open to the sea so that the top of the gunwale amidships is not submerged; and

1.122 10 percent of the cubic capacity of the lifeboat.

1.13 In the case of lifeboats which accommodate 100 or more persons, the volume specified in subparagraph 1.12.2 shall be increased as follows-

1.131 in lifeboats which accommodate from 100 to 130 persons by an amount determined by interpolating between nil at 100 persons and 1.5 per cent of the cubic capacity of the lifeboat at 130 persons; and

1.132 in lifeboats which accommodate over 130 persons by an amount equal to 1.5 per cent of the cubic capacity of the lifeboat.

Markings

2. The dimensions of a lifeboat and the number of persons which it is permitted to accommodate shall be clearly marked on it in permanent characters. The name and port of registry of the ship to which the lifeboat belongs shall be painted on each side of the bow.

Equipment

3. Every lifeboat shall be provided with equipment and rations in accordance with the provisions of Schedule 12.

PART 2 – CARRYING CAPACITY OF LIFEBOATS

Calculation of Cubic Capacity

1.1 Subject to the provisions of paragraph 1.4, the cubic capacity of a lifeboat shall be measured in cubic metres and shall be determined by the following formula –

$$\text{Cubic Capacity} = \frac{L}{12}(4A + 2B + 4C), \text{ where –}$$

L denotes the length of the lifeboat in metres from the inside of the shell at the top of the stem to the corresponding point at the top of the stern post; in the case of a lifeboat with a square stern the length is measured to the inside of the top of the transom;

A, B, C denote respectively the areas of the cross-sections at the quarter length forward, amidships and the quarter length aft which correspond to the three points obtained by dividing L into four equal parts (the areas corresponding to the two ends of the lifeboat shall be considered negligible). They shall be deemed to be given in square metres by the successive application of the following formula to each of the three cross-sections –

$$\text{Area} = \frac{h}{12}(a + 4b + 2c + 4d + e), \text{ where –}$$

h denotes the depth measured in metres inside the shell from the keel to the level of the gunwale, or, as determined in paragraphs 1.2 and 1.3 and a, b, c, d, e denote the horizontal breadths of the lifeboat measured in metres inside the shell at the upper and lower points of the depth and at the three

points obtained by dividing h into four equal parts (a and e being the breadths at the extreme points, and c at the middle point of h).

The capacity of a square-sterned lifeboat shall be calculated as if the lifeboat had a pointed stern.

1.2 If the sheer of the gunwale, measured at the two points situated at a quarter of the length of the lifeboat from the ends, exceeds 1 per cent of the length of the lifeboat the depth employed in calculating the area of the cross-section A or C shall be deemed to be the depth amidships plus 1 per cent of the length of the lifeboat.

1.3 If the depth of the lifeboat amidships exceeds 45 per cent of the breadth, the depth employed in calculating the area of the amidship cross-section B shall be deemed to be equal to 45 per cent of the breadth, and the depth employed in calculating the areas of the quarter length sections A and C is obtained by increasing this last figure by an amount equal to 1 per cent of the length of the lifeboat: provided that in no case shall the depths employed in the calculation exceed the actual depths at these points.

1.4 Unless the cubic capacity of the lifeboat is determined by exact measurement, the cubic capacity of a lifeboat constructed of wooden planks may be assumed to be the product of the length, the breadth and the depth multiplied by 0.6 provided that this formula does not give a greater capacity than that obtained by the formula set out in paragraph 1.1. The dimensions shall be measured in the following manner-

1.4.1 Length – from the intersection of the outside of the planking with the top of the stem to the corresponding point at the stern post, or in the case of a square-sterned lifeboat, to the after side of the top of the transom;

1.4.2 Breadth – from the outside of the planking at the point where the breadth of the lifeboat is greatest; and

1.4.3 Depth – amidships inside the planking from the keel to the level of the top of the gunwale, but the depth used in calculating the cubic capacity may not in any case exceed 45 per cent of the breadth.

1.5 The cubic capacity of a motor lifeboat or a lifeboat fitted with other propelling gear shall be obtained from the gross capacity by deducting a volume equal to that occupied by the motor and its accessories or the gearbox of the other propelling gear, and any equipment with which the lifeboat may be provided.

Number of Persons That Can Be Accommodated

2.1 Subject to the provisions of paragraphs 2.2, 2.3, 2.4 and 2.5, the number of persons which a lifeboat shall be permitted to accommodate shall be equal to the greatest whole number obtained by dividing the capacity in cubic metres calculated in accordance with Part 2 by –

in the case of a lifeboat of 7.3 metres in length or over	0.283
in the case of lifeboats of 3.7 metres in length	0.453
in the case of lifeboats of 3.7 metres in length but under 7.3 metres	a number between 0.453 and 0.283 to be obtained by interpolation.

2.2 The number of persons which a lifeboat shall be permitted to accommodate shall in no case exceed the number of adult persons wearing lifejackets which can be seated without in any way interfering with the use of oars or the operation of other propulsion equipment.

2.3 No lifeboat shall be permitted to accommodate more than 150 persons.

2.4 No lifeboat shall be permitted to accommodate more than 100 persons unless it is a motor lifeboat.

2.5 No lifeboat shall be permitted to accommodate more than 60 persons unless it is a motor lifeboat or a mechanically-propelled lifeboat.

Other Ships Regulations
regs 7, 8, 10, 11 and 12

PART 3 – MACHINERY OF MOTOR LIFEBOATS

General

1.1 The engine shall be capable of being readily started in cold weather and of running reliably under conditions of extremes of temperature.

1.2 The engine shall operate properly under conditions of at least 10 degrees list and 10 degrees trim. Circulating water pumps where fitted shall be self-priming.

1.3 The engine and its accessories, including the fuel tank, pipes and fittings, shall be adequately protected to ensure reliable operation under conditions likely to arise at sea during adverse weather. The engine casing shall additionally be fire-resisting, and in the case of air-cooled diesel engines shall be so designed that the supply of cooling air is not restricted.

Construction

2.1 Means shall be provided to prevent the spread of oil. In a wooden lifeboat a metal tray shall be fitted under the engine.

2.2 The fuel tank shall be substantially constructed, securely fixed in position with a metal tray underneath and fitted with suitable filling, vapour venting and relief arrangements. No part of the tank or its connections nor any part of the fuel piping or fittings shall depend on soft solder for tightness, and tanks made of steel shall be protected externally against corrosion by sea water by metal spraying or similar means. The tank and its connections shall be capable of withstanding hydraulic pressure corresponding to a head of at least 45 kiloPascals. A cock shall be fitted at each end of the fuel pipe.

2.3 The engine and fuel tank spaces shall be efficiently ventilated.

2.4 The shafting and other moving parts shall be fenced where necessary to protect the persons in the lifeboat from injury.

Propulsion

3. Every motor lifeboat shall be –

3.1 fitted with a compression engine which shall be kept ready for use at all times;

3.2 provided with sufficient fuel for 24 hours continuous operation at the speed specified in paragraphs 3.4 and 3.5;

3.3 capable of going astern;

3.4 if it is a lifeboat to be carried in passenger ships, tankers, ships employed as whale factory ships, ships employed as fish processing or canning factory ships and ships engaged in the carriage of persons employed in the whaling, fish processing or canning industries capable of going ahead in smooth water when loaded with its total complement of persons and equipment at a speed of 6 knots; and

3.5 if it is any other lifeboat, capable of going ahead under the conditions specified in the preceding subparagraph at a speed of 4 knots.

PART 4 – MACHINERY OF MECHANICALLY PROPELLED LIFEBOATS

General

1. The propelling gear shall –

1.1 be so arranged that it can be rapidly and easily made ready for service and will not interfere with the rapid embarkation of persons into the lifeboat;

1.2 be capable of being operated by persons untrained in its use and shall be capable of being operated when the lifeboat is flooded; and

1.3 not require adjustment to enable it to be worked by persons of different stature. It shall be effective in propelling the lifeboat partially or fully loaded.

Construction

2. The propelling gear shall be substantially constructed and fitted to the lifeboat in an efficient manner. The metal part of any operating handle shall be suitably sheathed by material other than wood to ensure that the hands of the operators are protected in conditions of extreme cold.

Design

3.1 The propelling gear shall be of sufficient power to enable the lifeboat, when loaded with its equipment and with a distributed weight equal to the total number of persons it is certified to carry, to be propelled at a speed ahead of at least 3.5 knots in smooth water over a distance of a quarter of a mile.

32 The propelling gear shall be capable of propelling the lifeboat ahead or astern and a device shall be fitted by means of which the helmsman can cause the lifeboat to go astern or ahead at any time when the propelling gear is in operation.

Schedule 12

PART 5 – MANUAL PUMPS

1. The capacity of the pump when operated at not more than 60 double strokes per minute at 1.2 metres suction head shall be not less than –

1.1 30 litres per minute in lifeboats of 7 metres in length or over; or

1.2 20 litres per minute in lifeboats of less than 7 metres length.

2. The pump shall be self-priming when operated at a suction head of not less than 1.2 metres.

3. All parts of the pump shall be of material unaffected by the corrosive effects of sea water.

4. The interior of the pump, including valves, shall be readily accessible for emergency cleaning and the cover for access shall be capable of being easily removed without the use of a spanner or other special tool.

5. The pump branches shall be suitable for use with rubber hose connections of at least 30 millimetres bore.

6. The metal part of the operating handle shall be suitably sheathed by material other than wood to ensure that the hands of the operator are protected when the pump is used in extreme cold.

7. The spindle gland shall be of the spring-loaded seal ring type.

Other Ships Regulations
reg 28

PART 6 – DISENGAGING GEARS

1. Lifeboat disengaging gears shall be so arranged as to ensure simultaneous release of both ends of the lifeboat.

2. The means of effecting release shall be placed aft.

3. The gear shall be of a type which will permit the release of the lifeboat only when it is waterborne.

4. The gear shall be of a type which will permit release when there is a towing strain on the link or falls.

5. The hooks shall be suitable for instant unhooking by hand.

6. The point of attachment of the hook to the eye, ring of link or the block shall not be lower than when ordinary fixed hooks are fitted.

7. The gear and mechanism for effecting release shall be so constructed and arranged as to ensure the safety of the lifeboat independently of any safety pins.

8. The means for effecting release shall be by hauling on or letting go a line or by using a lever. If release is effected by a pull upon a line the line shall be properly cased in. Rods or other connections between hooks shall also be cased in whenever this is necessary for the safety or the efficient action of the gear or for the protection of persons from injury. The fairleads shall be properly arranged to prevent the lines from jamming or nipping and shall be strongly attached to permanent parts of the lifeboat. The lines shall be fitted with chains where necessary for efficiency.

9. Those parts of the gear likely to be seized by rust or corrosion shall be made of non-corrodible metal.

10. No part of the gear taking the weight of the lifeboat shall be made of cast metal.

11. The scantlings and proportions of those parts which support the weight of the lifeboat shall have a breaking strength proportionate to a load of at least 2.2 times the weight of the heaviest loaded lifeboat the gear is intended to serve.

SCHEDULE 3

CLASS C BOATS

Construction

11.1 Every Class C boat shall be an open boat constructed with rigid sides.

11.2 The boat shall be of such form and proportion that it will have ample stability in a sea-way and sufficient freeboard when loaded with its equipment and the number of persons specified in column (2) of paragraph 1.3.

11.3 The length of the boat and the number of persons for whom seating is provided in the boat shall be determined in accordance with the following table –

(1) Length of boat in metres	(2) Minimum Seating Capacity of boat
4.8	9
4.5	8
4.2	7
3.9	5
3.6	4

11.4 All thwart and side seats in the boat shall be fitted as low as is practicable and bottom boards shall be fitted.

11.5 The boat shall be square-sterned and shall have a mean sheer at least equal to five per cent of its length.

11.6 The boat shall be fitted with internal buoyancy appliances which shall be so placed as to ensure stability when the boat is fully laden under adverse weather conditions.

11.7 The boat shall be fitted with internal buoyancy appliances consisting of either air cases or buoyant material not adversely affected by oil or oil products, neither of which shall adversely affect the boat.

11.8 The total volume of the internal buoyancy appliances shall be such that it will be at least equal to the sum of –

11.8.1 that volume required to float the boat and its full equipment when the boat is flooded and open to the sea so that the top of the gunwale amidships is not submerged; and

11.8.2 7.5 per cent of the cubic capacity of the boat.

Marking

2. The dimensions of a Class C boat and the number of persons which it is permitted to accommodate shall be clearly marked on it in permanent characters. The name and port of registry of the ship to which the boat belongs shall be painted on each side of the bow.

Equipment

3. Every Class C Boat shall be provided with equipment and rations in accordance with the provisions of Schedule 12.

SCHEDULE 4

INFLATED BOATS

PART 1 – GENERAL

Construction

1.1 The overall length of every inflated boat shall be not less than 3.8 metres and the boat shall be of such form and proportion that it will have ample stability in a seaway when afloat in the empty, laden or swamped condition. The boat shall be suitable for the accommodation of at least six persons.

1.2 The boat shall be so constructed as to remain, when fully loaded, seaworthy and afloat for 30 days under temperatures between +60°C and –30°C and in weather likely to be encountered at sea anywhere in the world.

1.3 The materials and components used in the construction of the boat and its accessories shall be able to withstand the climatic conditions referred to in paragraph 1.2. The boat and its accessories shall be resistant to the effects of humidity when stowed on board a vessel and all fabrics, cordage, webbing and thread shall be rotproof. The boat shall be so constructed that it is not adversely affected by oil or oil products.

1.4 The performance of the boat should not be affected for at least 24 months if it is stowed on deck with only minimum protection from the weather.

1.5 The main buoyancy chambers forming the boundary of the boat shall on inflation provide at least 0.17 cubic metres of volume for each person the boat is certified to accommodate. The diameter of the main buoyancy chambers of single tube boats shall be at least 0.43 metres.

1.6 The main buoyancy chambers shall be divided so that there are at least two compartments along each side and one compartment in the bow.

1.7 In boats with more than one buoyancy chamber, no chamber shall exceed 60 per cent of the total volume required.

1.8 At least one thwart shall be fitted so that the boat can be rowed satisfactorily.

1.9 The floor of the boat shall be waterproof and provide an efficient working platform.

1.10 A transom, which shall not be inset by more than 20 per cent of the overall length of the boat, shall be provided.

1.11 A bow cover in a highly visible colour extending for at least 15 per cent of the overall length of the boat shall be provided.

1.12 A non-return valve shall be fitted to each buoyancy chamber for manual inflation.

1.13 A relief valve designed to operate at a pressure not exceeding 125 per cent of the designed working pressure of the buoyancy chamber shall be fitted in each buoyancy chamber. Means for deflating each chamber shall be fitted.

1.14 Drainage arrangements shall be provided which are capable of draining the boat, when flooded, within 2 minutes. To the extent that the water levels inside and outside the boat are the same it shall not be possible accidentally to flood the boat through these drainage arrangements.

Marking

2. The transom of an inflated boat shall be marked with the number of persons it is permitted to accommodate, its date of manufacture, makers name and trade mark, serial number and name and port of registry of the ship on which it is carried.

Equipment

3. Every inflated boat shall be provided with equipment and rations in accordance with the provisions of Schedule 12.

PART 2 – LIFTING ARRANGEMENTS

1. Bridle slinging arrangements shall be fitted to all inflated boats to enable the boat to be lowered or raised from the water. The bridle sling shall comprise four legs or more which should be joined at the top in the form of an eye or be connected to a lifting ring or shackle. The arrangement shall be such that the boat is stable when suspended and –

1.1 when the bridle has a four-legged sling, the legs must be of equal length; or

1.2 the bridle is permanently attached; or

1.3 the arrangements are such that it is not possible to connect any of the bridle legs to the wrong position on the boat.

2. The bridle shall be manufactured of a material which will not adversely affect the material of the boat and be sheathed, if necessary, to prevent abrasion of the fabric.

3. The forward lifting attachments shall be securely fastened to the hull, either by bands passing under the hull to the tops of the buoyancy tubes and terminating in D rings, or by eyes to take bridle slings.

4. The after lifting attachments shall be connected to the hull in a similar way as the forward lifting attachments, or they may be made direct to the transom.

5. The bridle slinging arrangements shall be such that their breaking tensile strength is at least 6 times the maximum work in load as defined in paragraph 1 of Schedule 11, excluding the weight of the blocks and falls.

6. The bridle sling lifting arrangements shall be proof tested to not less than 2.5 times their respective working loads. The proof testing can be carried out either –

6.1 individually on each item associated with the lifting arrangements, or

6.2 on the boat completely assembled with its lifting arrangements and bridle sling. In each case fabric, webbings and cordages forming part of the lifting arrangements shall have a breaking strength of not less than six times their respective working loads.

PART 3 – MACHINERY

Propulsion

1. The engine shall be capable of being readily started by manual means in cold weather and of running reliably under conditions of extremes of temperature.

2. The engine and its accessories, including the fuel tank, pipes and fittings shall be protected to ensure reliable operation under conditions likely to arise at sea during adverse weather conditions.

3. The fuel tank shall be substantially constructed, securely fixed in position and fitted with suitable filling vapour venting and relief arrangements. Tanks made of steel shall be protected externally against corrosion by sea water by metal spraying or similar means. The tank and its fittings shall be capable of withstanding a hydraulic pressure of at least 45 kilopascals. A cock shall be fitted at each end of any fixed fuel pipe, and where portable pipes are provided a means for preventing leakage of fuel on disconnection of the pipes shall be fitted.

4. Engines fitted to inflated boats shall have sufficient power for its purpose.

5. Engines shall be permanently attached to the boats they are intended to propel unless they weigh less than 40 kilogrammes and the total weight of the engine, fuel tank and fuel does not exceed 60 kilogrammes.

SCHEDULE 5

LIFERAFTS

PART 1 – INFLATABLE LIFERAFTS

General

1.1 The liferaft shall be capable of being readily righted by one person if it inflates in an inverted position.

1.2 The liferaft shall be inflated by a gas which is not injurious to the occupants and the inflation shall take place automatically either on the pulling of a line or by some other equally simple and efficient method. Means shall be provided whereby a topping-up pump or bellows can be used to maintain pressure.

1.3 The liferaft shall be of suitable material and construction and shall be so constructed as to withstand exposure for 30 days afloat in all sea conditions.

1.4 The liferaft shall be capable of operating in the temperature range +65°C to –30°C.

1.5 The liferaft shall be so stowed as to be readily available in case of emergency. It shall be stowed in such a manner as to permit it to float free from its stowage, inflate and break free from the vessel in the event of sinking.

1.6 If used, lashings shall be fitted with an automatic release system based on hydrostatic principles, or equivalent.

1.7 Notwithstanding paragraph 1.5, liferafts stowed forward or aft additional to normal requirements may be securely fastened.

Construction

2.1 The liferaft shall be so constructed that, when fully inflated and floating with the cover uppermost, it shall be stable in a seaway.

2.2 The liferaft shall be so constructed that if it is dropped into the water from a height of 18 metres neither the liferaft nor its equipment will be damaged. If the raft is to be stowed on the ship at a height above the water of more than 18 metres it shall be of a type which has been satisfactorily drop-tested from a height at least equal to the height at which it is to be stowed.

2.3 The construction of the liferaft shall include a cover which shall automatically be set in place when the liferaft is inflated. This cover shall be capable of protecting the occupants from exposure, and means shall be provided for collecting rain. A lamp which derives its luminosity from a sea-activated cell shall be fitted on top of the cover; and a similar lamp shall also be fitted inside the liferaft. The cover of the liferaft shall be of a highly visible colour.

2.4 The liferaft shall be fitted at each opening with efficient means to enable persons in the water to climb on board.

2.5 The buoyancy of the liferaft shall be provided by an even number of separate compartments, half of which shall be capable of supporting out of the water the number of persons which the liferaft is permitted to accommodate. Other equally efficient designs will be acceptable if they provide a reasonable margin of buoyancy when the raft is damaged or partially fails to inflate.

2.6 The total weight of the liferaft, its valise or other container and its equipment shall not exceed 180 kilogrammes.

2.7 The number of persons which an inflatable liferaft shall be permitted to accommodate shall be equal to –

2.7.1 the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic metres, of the main buoyancy tubes (which for this purpose shall include neither the arches nor the thwart or thwarts if fitted) when inflated; or

2.7.2 the greatest whole number obtained by dividing by 0.372 the area measured in square metres of the floor (which for this purpose may include the thwart or thwarts if fitted) of the liferaft when inflated, whichever number shall be the less.

2.8 The floor of the liferaft shall be waterproof and shall be capable of being sufficiently insulated against cold either –

2.8.1 by means of one or more compartments which the occupants can inflate if they so desire, or which inflate automatically and can be deflated and re-inflated by the occupants; or

2.8.2 by other equally efficient means not dependent on inflation.

2.9 Every liferaft which is designed for use with a launching appliance shall be properly constructed for the purpose for which it is intended and it shall have sufficient strength to permit it to be safely lowered into the water when loaded with its total complement of persons and equipment.

2.10 The liferaft shall have a carrying capacity calculated in accordance with paragraph 2.7 but in no case permitted to accommodate less than six persons or more than twenty-five persons.

2.11 The liferaft shall be fitted with arrangements enabling it to be readily towed.

2.12 In ships of Classes IX(A), IX(A)(T) and in ships of Class XII of less than 21.3 metres in length the requirements of paragraphs 1.4, 2.2, 2.3, 2.8, 2.10 and 2.11 may be modified as follows –

2.12.1 the temperature of –30°C referred to in paragraph 1.4 may be taken to be minus 18°C;

2.12.2 the height of 18 metres referred to in paragraph 2.2 may instead be taken to be the height of the deck on which the liferaft is stowed above the ship's light water line, but in no case less than 6 metres;

2.12.3 means for collecting rain referred to in paragraph 2.3 need not be provided;

2.12.4 the method for insulating the floor of the liferaft against cold referred to in paragraph 2.8 need not be complied with;

2.12.5 the minimum carrying capacity of liferafts required by paragraph 2.10 may be reduced to four persons, provided that liferafts to accommodate less than six persons shall only be carried on ships where the total number of persons on board is less than six; and

2.12.6 the arrangements for towing referred to in paragraph 2.11 need not be provided.

2.13 In ships of Classes VIII(A), VIII(A)(T) and XI, in ships of Class IX not being ships of 500 tons or over engaged on an international voyage and in ships of Class XII of 21.3 metres in length or over the requirements of paragraph 2.10 may be modified in accordance with subparagraph 2.12.5.

Fittings

3.1 The liferaft shall be fitted with a painter and shall have a lifeline becketed round the outside. A lifeline shall also be fitted round the inside of the liferaft.

3.2 The liferaft shall be contained in a valise or other container so constructed as to be capable of withstanding hard wear under conditions met with at sea. The liferaft in its valise or other container shall be inherently buoyant.

3.3 The liferaft shall be provided with arrangements for adequately siting and securing in the operating position the antenna provided with the portable radio apparatus where this is carried.

Markings

4. The number of persons which an inflatable liferaft is permitted to accommodate shall be clearly marked in permanent characters on the outside of the liferaft canopy and on the valise or other container in which the liferaft is stowed. Every such liferaft shall also bear a serial number and the manufacturer's name. The name and port of registry of the ship on which the raft is for the time being carried, or a serial number to enable that ship to be identified, shall be also be marked on the liferaft and its valise or other container.

Equipment

5. Every liferaft shall be provided with equipment and rations in accordance with the provisions of Schedule 12.

Other Ships Regulations
regs 7, 8, 10, 11, 17, 18, 20 and 21

PART 2 – RIGID LIFERAFTS

General

1.1 The liferaft shall be fitted with a cover or some other equivalent arrangement which is of a highly visible colour, and is capable of protecting the occupants from exposure whichever way up the liferaft is floating.

1.2 The liferaft shall at all times be effective and stable when floating either way up.

1.3 Liferafts shall be so stowed as to float free in the event of the ship sinking.

Construction

2.1 The liferaft shall be so constructed that, if it is dropped into the water from its stowed position, neither the liferaft nor its equipment will be damaged.

2.2 Any liferaft which is designed for use with a launching appliance shall be properly constructed for the purpose for which it is intended and shall be of sufficient strength to permit it to be safely lowered into the water when loaded with its total complement of persons and equipment.

2.3 The liferaft shall be so constructed that its air cases or buoyant material are placed as near as possible to its sides.

2.4 The deck area of the liferaft shall be situated within that part of the liferaft which affords protection to its occupants. The nature of the deck shall be such as to prevent, so far as practicable, the ingress of water and it shall effectively support the occupants out of the water.

25 The total weight of any liferaft and its equipment carried in a passenger ship shall not exceed 180 kilogrammes. Liferafts carried in cargo ships may exceed 180 kilogrammes in weight if they are capable of being launched from both sides of the ship or if mechanical means are provided for lowering them into the water.

26 The number of persons which the liferaft shall be permitted to accommodate shall be equal to –

26.1 the greatest whole number obtained by dividing by 96 the volume, in cubic decimetres, of the air cases or buoyant material; or

26.2 the greatest whole number obtained by dividing by 0.3720 the deck area of the liferaft measured in square metres, whichever number shall be the less.

27 The liferaft shall be fitted at each opening with efficient means to enable persons in the water to climb on board.

28 The liferaft shall be so constructed as not to be affected by oil or oil products.

29 The liferaft shall be fitted with arrangements enabling it to be readily towed.

Equipment

3.1 The equipment of the liferaft shall be so stowed as to be readily available whichever way up the liferaft is floating.

3.2 The liferaft shall have a painter attached and a lifeline securely becketed round the outside. A lifeline shall also be fitted round the inside of the liferaft.

3.3 A buoyant light of the electric battery type shall be attached to the liferaft by a lanyard.

3.4 The liferaft shall be provided with arrangements for adequately siting and securing in the operating position the antenna provided with the portable radio apparatus where this is carried.

Markings

4. Every rigid liferaft shall be marked with the name and port of registry of the ship in which is carried, and with the number of persons which it is permitted to accommodate.

PART 3 – LIFERAFT LAUNCHING APPLIANCES

General

1. In this Part the expression "working load" means the sum of the weight of the liferaft and its equipment, all other associated gear that is supported by the launching appliance during the launching operation and the maximum number of persons which the liferaft is permitted to accommodate the weight of each person being taken to be 75 kilogrammes.

Strength

2. Every liferaft launching appliance and all associated gear which, during the launching operation, is subjected to the working load or to a load imposed due to the working load, shall be of such strength that the liferaft when loaded with its total complement of persons and equipment can be safely lowered when the ship has a trim of up to 10 degrees and is listed up to 15 degrees either way.

Construction

3. The design of each part of the appliance shall be such that when operating under the working load and unfavourable conditions of list and trim it shall have an adequate factor of safety. Except for lead sheaves and block sheaves, all parts of the appliance and its associated gear which are subjected to the working load, or on which the safety of the appliance or the liferaft while in the process of launching depends, shall be constructed of ductile material; and no part, other than lead sheaves and block sheaves, shall be constructed of cast metal unless its use has been properly assessed.

Static Load Test

4. Every liferaft launching appliance shall be capable of withstanding a static load test of not less than 2.2 times the working load.

Operation

5.1 Every liferaft launching appliance shall be so designed that the liferaft when loaded with its total complement of persons and equipment can be safely lowered into the water.

5.2 The speed of lowering of the liferaft shall be automatically controlled between 0.3 metres per second and 0.6 metres per second. The descent of the liferaft shall be at all times under the manual control of the operator.

5.3 The use of a launching appliance shall not depend on any one method of operation unless that method is manual effort or gravity. The arrangements shall be such that the liferaft can always be lowered by gravity.

5.4 On becoming waterborne the liferaft shall be automatically released from the launching appliance. In addition there shall be provision for the manual release of the liferaft by a person on board the liferaft.

5.5 When liferaft launching appliances incorporate winches, the winches shall be constructed in accordance with paragraph 10 of Part 2 of Schedule 10.

Lowering Tests

6. Every liferaft launching appliance shall be tested by lowering, from the embarkation position into the water, the largest liferaft it is intended to serve, loaded with its full equipment, a distributed weight equal to the total number of persons it is permitted to accommodate plus 10 per cent of the working load.

Operational Tests

7. Every launching appliance shall be tested to ensure that any liferaft it serves, when loaded only with its full equipment, can be lowered by gravity into the water. If more than one liferaft is served by an appliance, each shall be tested.

Other Ships Regulations
regs 17 and 18

SCHEDULE 6

BUOYANT APPARATUS

Construction

1.1 A buoyant apparatus shall be of such construction that it retains its shape and properties when exposed to the weather on board ship and when in the water. It shall be constructed so as

not to require adjustment prior to use.

1.2 It shall be capable of withstanding a drop test, the height of which shall be the distance between the deck on which it is stowed and the waterline corresponding to the ship's lightest sailing condition but in no case less than the following –

apparatus carried in ships of Class I . . . . . .18 metres
apparatus carried in ships of Class III . . . . . 6 metres

1.3 Buoyant apparatus shall be effective and stable when floating either way up. They shall be capable of supporting a weight of iron, suspended in fresh water from the grab lines referred to in paragraph 1.5, of 22.5 kilogrammes per metre of length along any edge (subject to a minimum of 29 kilogrammes) without immersing any part of their upper surfaces.

1.4 The air cases or other equivalent provision for buoyancy shall be placed as near as possible to the sides of the apparatus. Buoyancy is not to be dependent upon inflation and any material providing buoyancy shall not be adversely affected by oil or oil products.

1.5 Grab lines shall be fitted all round the apparatus so as to provide an equal number of loops corresponding to the total number of persons the apparatus is capable of supporting. Each loop shall have a cork or light wood float and the depth of the loop when wet shall not be less than 150 millimetres or more than 200 millimetres. On apparatus exceeding 305 millimetres in overall depth two rows of grab lines shall be fitted, one having its points of attachment below the top of the air cases and the other above the bottom of the air cases and as close to the sides of the air cases as is practicable. On apparatus of 305 millimetres or less in overall depth one row of grab lines may be attached along the line at mid-depth. The grab lines shall be of rope of not less than 14 millimetres in diameter. The ropes may be passed through holes in the framing, interlaced to prevent movement; or attached by means of wrought iron or steel fastenings. Whichever method is adopted the attachment shall be strong enough to permit the apparatus being lifted by the grab lines.

1.6 Every buoyant apparatus shall be fitted with a painter.

1.7 A buoyant apparatus shall not exceed 180 kilogrammes in weight unless suitable means are provided to enable it to be launched without lifting by hand. If the weight of the apparatus exceeds 136 kilogrammes suitable handles or rungs shall be fitted for this purpose.

1.8 Buoyant apparatus carried in ships of Class 1 shall not be less than 1070 millimetres in breadth.

1.9 The number of persons which a buoyant apparatus shall be considered capable of supporting shall be equal to the lesser of –

1.9.1 the greatest whole number obtained by dividing by 14.5 the number of kilogrammes of iron which the apparatus is capable of supporting from its grab lines in fresh water; or

1.9.2 the greatest whole number obtained by dividing the perimeter in metres by 0.3.

Marking

2. The number of persons which a buoyant apparatus is permitted to accommodate shall be clearly marked on it in permanent characters

SCHEDULE 7

LIFEBUOYS

PART 1 – GENERAL

1. Every lifebuoy made of plastic or other synthetic compounds shall be capable of retaining its buoyant properties and durability in contact with sea water or oil products, or under any world-wide variation of temperature or climatic changes.

2. A lifebuoy shall not be filled with rushes, cork shavings, granulated cork or any other loose granulated material, and its buoyancy shall not depend upon compartments which require to be inflated.

3. Every lifebuoy shall be of a highly visible colour.

4. Every lifebuoy shall be marked in block letters with the name and, except in the case of ships of Class XII, the port of registry of the ship in which it is carried. Lifebuoys constructed of materials other than cork shall be permanently marked with the manufacturer's trade name for that product.

5. Lifebuoys shall always be capable of being rapidly cast loose and shall not be permanently secured in any way.

6. Lifebuoys shall weigh not less than 4 kilogrammes where the release of a self-igniting light depends upon the weight of the lifebuoy.

PART 2 – LIFEBUOYS (SOLAS)

1. Lifebuoys shall comply with the requirements of Part I and, in addition, with the requirements of this Part.

2. Every lifebuoy shall be constructed of cork, evenly formed and securely plugged, or of other equally efficient buoyant material which shall not be adversely affected by oil or oil products, and shall be capable of floating in fresh water for at least 24 hours with 14.5 kilogrammes of iron suspended from it.

3. The inside diameter of a lifebuoy shall be 455 millimetres and the outside diameter 760 millimetres. The major axis of the section shall be 150 millimetres. The minor axis of the section shall be 100 millimetres.

4. Every lifebuoy shall be fitted with beckets securely seized and with grab lines which shall be of good quality unkinkable line and well secured at four equidistant points providing four loops of line each not less than 700 millimetres long.

5. The weight of a lifebuoy shall not exceed 6.15 kilogrammes when newly constructed.

PART 3 – LIFEBUOYS (610 millimetres)

1. Every lifebuoy shall be constructed of cork, evenly formed and securely plugged, or of other equally efficient buoyant material which shall not be adversely affected by oil or oil products, and shall be

capable of floating in fresh water for at least 24 hours with 10.45 kilogrammes of iron suspended from it.

2. The inside diameter of the lifebuoy shall be 355 millimetres and the outside diameter 610 millimetres. The major axis of the section shall be 125 millimetres and the minor axis from 89 to 100 millimetres.

3. Every lifebuoy shall be fitted with beckets securely seized, and with grablines of good quality unkinkable line and well secured at four equidistant points providing four loops of line each not less than 510 millimetres long.

4. The weight of a lifebuoy shall not exceed 3.40 kilogrammes when newly constructed.

Other Ships Regulations
reg 24

PART 4 – LIFEBUOYS LIGHTS

1. Self-igniting lights attached to lifebuoys shall be such that they cannot be extinguished in water. They shall be capable of burning for not less than 45 minutes and shall have a luminous intensity of not less than 2 candelas in all directions of the upper hemisphere and comply with the following minimum ranges of light visibilities in the given atmospheric conditions –

Atmospheric transmissivity factor	Meteorological range of visibility (miles)	Range of visibility of the light (miles)
0.3	2.4	0.96
0.4	3.3	1.05
0.5	4.3	1.15
0.6	5.8	1.24
0.7	8.4	1.34
0.8	13.4	1.45
0.9	28.9	1.57

2. Self-igniting lights attached to lifebuoys carried in tankers shall be of an electric battery type.

SCHEDULE 8

LIFEJACKETS

PART 1 – LIFEJACKETS (FOR PERSONS OF 32 KILOGRAMMES AND MORE)

1. Every life jacket for use by a person weighing 32 kilogrammes or more shall provide a minimum of 155 Newtons buoyancy in fresh water for 24 hours, after which time the performance requirements detailed in paragraph 3 shall not be reduced by more than 5 per cent.

2. Every such lifejacket shall be marked indelibly on both sides in letters not less than 12 millimetres in height, with the words "PERSON OF 32 KILOGRAMMES OR MORE" and, on one side only, with the maker's name or other identification mark.

3. Every such lifejacket shall –

3.1 be so constructed as to eliminate, as far as possible, all risk of it being put on incorrectly, and it shall be capable of being worn inside out;

3.2 turn the wearer in still water, within 5 seconds, from any position to a safe floating position, with the body inclined backwards from its vertical floating position and supporting the mouth of the conscious or unconscious wearer 150 millimetres above the water;

3.3 not be adversely affected by oil or oil products;

3.4 be of a highly visible colour;

3.5 be fitted with a ring or loop or similar device of adequate strength to facilitate rescue;

3.6 be made of materials of low flammability and the fabric with which it is covered and its tapes shall be rotproof;

3.7 be fitted with an approved whistle firmly attached by a lanyard;

3.8 have fastening tapes securely attached to the lifejacket cover which comply with British Standards Specification No. BS 5F 49: 1991 and are capable of taking a load of 140 kilogrammes. The method of fastening the tapes shall be easily understood and capable of being readily put into practice. Metal fastenings when used shall be of a size and strength consistent with the fastening tapes and of corrosion resistant material; and

3.9 allow the wearer to jump a vertical distance of 6 metres into the water without injury and without dislodgement of the lifejacket.

4. The buoyancy of every such lifejacket shall be provided by kapok or other equally effective buoyant material.

5. Every kapok lifejacket, in addition to complying with the requirements of paragraphs 1 to 4, shall –

5.1 contain not less than 1 kilogramme of kapok;

5.2 contain kapok of good flotation quality, well teased, evenly packed and free from seeds and other foreign matter;

5.3 be such that the kapok is protected from the effects of oil or oil products to the extent that

the loss of buoyancy in the lifejackets, after floating in disturbed water containing a layer of not less than 3 millimetres in depth of a mixture of gas oil for a period of 48 hours, shall not exceed 2 per cent of the initial buoyancy. For the purpose of this test the lifejacket shall be loaded with weights equal to half its initial buoyancy; and

5.4 be covered with pre-shrunk cotton material or a suitable synthetic material the weight of which in loom state per linear metre shall be not less than 186 grammes for a width of 685 millimetres, and in proportion for other widths. The fabric shall be free from admixture of sizing or other foreign matter. The threads per 10 centimetres in loomstate shall be warp 173 two-fold threads and weft 133 two-fold threads. The sewing shall be carried out with thread of undyed linen yarn having a count of 25 lea, 3 cord reverse twist (resultant Tex count 66), satin finish and complying with the specifications in Clauses 2, 3 and 4 (except subparagraph 4(a)) of British Standards Specification No. BS 5F 49 : 1991 for thread of that count.

6. Every lifejacket using a buoyant material other than kapok, in addition to complying with the requirements of paragraphs 1 to 4 and 5.4, shall be constructed with material –

6.1 weighing not more than 190 kilogrammes per cubic metre, and of good quality and clean. If the material is in pieces, the size of each piece shall be not less than 165 cubic centimetres, unless such pieces are in layer form and are fastened together with an approved adhesive; and

6.2 that is chemically stable.

PART 2 – LIFEJACKETS (FOR PERSONS LESS THAN 32 KILOGRAMMES)

1. Every lifejacket for use by a person weighing less than 32 kilogrammes shall provide a minimum buoyancy of 66.7 Newtons in fresh water for 24 hours, after which time the performance requirements detailed in paragraph 3 of Part 1 shall not be reduced by more than 5 per cent.

2. Every such lifejacket shall be marked indelibly on both sides, in letters not less than 12 millimetres in height, with the words "FOR PERSON UNDER 32 KILOGRAMMES" and on one side only with the maker's name and other identification mark.

3. Every such lifejacket shall comply with the requirements of paragraphs 3 and 4 of Part 1.

4. Every such kapok lifejacket shall contain not less than 425 grammes of kapok and comply with the requirements of paragraphs 5.2, 5.3 and 5.4 of Part 1.

5. Every such lifejacket using a buoyant material other than kapok shall comply with paragraphs 5.4, 6.1 and 6.2 of Part 1.

SCHEDULE 9

LINE-THROWING APPLIANCES

General

1.1 The lines and the rockets, together with the means of igniting them, shall be kept in cases suitable for providing protection from the weather.

1.2 All components, compositions and ingredients of the rockets and the means of igniting them shall be of such character and quality as to enable them to maintain their serviceability under good average storage conditions in the marine environment for a period of at least three years.

1.3 The date of manufacture and the date of expiry shall be marked indelibly on the rockets and these date markings shall be similarly stamped on the cartridges.

1.4 Clear and concise directions for use in English, supported by illustrations, shall be marked on the appliance.

Construction

21 Every line-throwing appliance shall consist of a rocket pistol and four individual rockets with four lines, or four separate self-contained units each of which contains a rocket and line ready for use.

22 The appliance shall be so constructed that the end from which the rocket is ejected can be positively identified by day or night.

23 The lines shall have a breaking load of not less than 2,000 Newtons.

24 Every appliance shall be capable of throwing a line of no less than 4 millimetres in diameter for a distance of 230 metres in calm weather.

25 Every appliance shall be capable of throwing the line in such a manner that the lateral deflection on either side of the direction of firing does not exceed 10 per cent of the length of flight of the rocket in calm weather.

26 The rocket (in the case of a pistol-fired rocket) or the assembly (in the case of an integral rocket and line) shall function after immersion for 1 minute under 10 centimetres of water.

SCHEDULE 10

DAVITS AND LIFEBOAT LAUNCHING GEAR

PART 1 – GENERAL

General

1. In this Schedule the expression "working load" means –

1.1 in relation to davits to which paragraph 1.1 of Part 2 applies, the total weight of the lifeboat, its full equipment, the blocks and falls, and the maximum number of persons which the lifeboat is permitted to carry, the weight of each person being taken to be 75 kilogrammes;

1.2 in relation to davits and other means of launching to which paragraph 1.2 or 1.3 of Part 2 applies, the sum of the weight of the lifeboat, Class C boat or other boat, its full equipment, the blocks and falls, and a launching crew consisting of two persons, the weight of each person being taken to be 75 kilogrammes;

1.3 in relation to winches, the maximum pull exerted by the fall or falls at the winch drum during lowering, hoisting or stowing which in any case is to be taken as not less than the working load on the davit or davits divided by the velocity ratio at the lowering tackle.

PART 2 – CONSTRUCTION

Strength

1.1 Every davit serving a lifeboat which is required to be put into the water when loaded with its total complement of persons shall, together with its winch, falls, blocks and all other associated lowering gear, be of such strength that the lifeboat with its full equipment and manned by a launching crew of not less than two persons can be turned out and then safely lowered into the water from the embarkation position with its total complement of persons, when the ship has a trim of up to 10 degrees and is listed up to 15 degrees either way.

1.2 Every mechanically controlled single-arm davit shall, together with its winch, falls, blocks and all other associated lowering gear, be of such strength and the operating gear shall be of such power that the lifeboat when fully equipped and manned with a launching crew of two members can be turned out and then safely lowered into the water with the ship listed to 25 degrees.

1.3 Every set of davits, davit or other means of launching to which a lifeboat, Class C boat or other boat is attached, other than a davit the strength of which is specified in paragraph 1.1 or 1.2, shall, together with its winch, falls, blocks and all other associated lowering gear, be of such strength that the lifeboat, Class C boat or other boat with its full equipment and manned by a launching crew of two members, can be turned out and then safely lowered into the water when the ship has a trim of 10 degrees and is listed up to 15 degrees either way.

1.4 Every set of davits, davit or other means of launching to which a lifeboat, Class C boat or other boat is attached, together with its winch and associated hoisting gear shall be of such strength that the boat can be safely hoisted and stowed when loaded with its full equipment and at least two persons. In the case of an emergency lifeboat, it shall be safely hoisted from the water to the embarkation deck at a speed of not less than 0.3 metres per second when loaded with its full equipment and distributed load of 1000 kilogrammes.

Gravity davits

2.1 All gravity davits shall be so designed that there is a positive turning-out moment during the whole of the davit travel from the inboard to the outboard position when the vessel is upright and also when the vessel is listed at any angle up to and including 25 degrees either way from upright.

2.2 In the case of gravity davits comprising arms mounted on rollers which engage with and travel down fixed inclined trackways, the trackways shall be inclined at an angle of not less than 30 degrees to the horizontal when the vessel is upright.

Luffing davits

3. The operating gear of luffing davits shall be of sufficient power to ensure that lifeboats, Class C boats or other boats fully equipped and manned with their launching crew, can be turned out against a list of at least 15 degrees.

Mechanically controlled single-arm davits

4. The working load of any mechanically controlled single-arm davit shall not exceed 1525 kilogrammes.

Stresses

5.1 In the case of davits other than mechanically-controlled single-arm davits the designed stress on the davit arms when operating under maximum load and conditions of trim and list, shall include an adequate factor of safety having regard to the quality of the material used, the method of construction and the live nature of the load to which the davits are subjected.

5.2 In the case of mechanically-controlled single-arm davits the designed stress on the davit when operating under maximum load and conditions of favourable list shall include an adequate factor of safety having regard to the quality of the material used, the method of construction and the live nature of the load to which the davit is subjected.

Static load test

6. Each davit with its arm at full outreach shall be capable of withstanding a static load test of not less than 2.2 times that part of the working load supported by the arm.

Attachments at the davit head

7. The attachments at the davit head from which the blocks are suspended shall be capable of withstanding a proof load test of not less than 2.2 times the maximum load on the attachments.

Blocks

8.1 All blocks used in the operation of hoisting and lowering of lifeboats, Class C boats or other boats shall be of a design that includes an adequate factor of safety. Lower blocks, when fitted, shall be non-toppling and, in the case of emergency lifeboats, the design shall prevent the falls from cabling. The size of blocks shall be commensurate with the size of the falls.

8.2 A metal block shall be capable of withstanding a proof load test of not less than 2.2 times the maximum load it is intended to carry in service. The clearance between the sheaves and the block cheeks of metal blocks in which wire rope is used shall be kept to a practical minimum which will prevent the rope from overriding the rim of the sheave of any block or lead sheave. Component parts of blocks other than their sheaves shall be of ductile material.

8.3 A wood block shall be capable of withstanding a proof load of not less than 2.2 times the load on the block. The width between the cheeks shall be 12 millimetres greater than the diameter of new cordage ropes when those ropes are 30 millimetres diameter; and this width is to be reduced in proportion to the diameter of the ropes when they are less than 30 millimetres in diameter.

Wire ropes

9.1 The breaking tensile load of each wire rope used for lowering lifeboats, Class C boats or other boats shall not be less than six times the maximum load on the wire rope when lowering, hoisting or stowing.

9.2 Wire ropes shall be securely attached to the drum of the winch, and the end attachments. The wires and other parts from which the lifeboat, Class C boat or other boat are to be suspended shall be capable of withstanding a proof load of not less than 2.2 times the maximum load to be imposed upon them in service.

9.3 Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than 2.2 times the load imposed on them in service: except that this test is not required if samples representing each size of wire show a factor of safety of at least 5 when tested to destruction.

Winches

10.1 In the case of davits, other than mechanically-controlled single-arm davits, winch drums shall be arranged to keep the two falls separate and to enable them to pay out at the same rate. The leads of the wire ropes shall be such that they will wind evenly on the drums and lead blocks shall be arranged to give a fleet angle or angle of lead of not more than five degrees for grooved drums and three degrees for ungrooved drums. In the case of mechanically-controlled single-arm davits, the lead of the wire rope fall shall be such that the fall winds evenly on the drum.

10.2 Winch brakes shall be of robust construction and provide complete control of speed in the operation of lowering. The hand brake shall be so arranged that it is normally in the "ON" position and returns to the "ON" position when the control handle is not being operated. The weight on the brake lever shall be sufficient to operate the brake effectively without additional pressure. The brake gear shall automatically control the speed of lowering to ensure that the lifeboat, Class C boat or other boat is lowered expeditiously but consistent with safety. For this purpose, the automatic brake shall be set to give a speed of lowering of between 0.3 and 0.6 metres per second. Ratchet gear shall be incorporated in the hand brake mechanism of lifeboat winches. Where practicable the brake gear shall be so situated as to enable the operator to observe the lifeboat, Class C boat or other boat during the whole process of it being launched into the water, provided that winches serving emergency lifeboats shall in any case be so placed.

10.3 Each winch shall be capable of lowering and holding a test load of 1.5 times the working load as defined in subparagraph 1.1.4 of Part 1.

10.4 Winches shall be so constructed that the crank handle or handles are not rotated by moving parts of the winch when the lifeboat Class C boat or other boat is being lowered or when it is being hoisted by power and provision shall be made to allow the falls to be manually unwound.

Cordage ropefalls

11. Cordage ropefalls shall be of manila or some other suitable material and shall be durable, unkinkable, firm laid and pliable. They shall be able to pass freely under any conditions through a hole 10 millimetres larger than the nominal diameter of the rope. The breaking load of each rope used for lowering lifeboats, Class C boats or other boats shall be not less than 6 times the maximum load on the rope when lowering or hoisting. Rope of less then 20 millimetres in diameter shall not be used for lifeboat falls. Winding reels or flaking boxes for the manila rope falls shall be provided.

Bollards

12. Suitable bollards or other equally effective appliances for lowering any lifeboat, Class C boat or other boat shall be provided in all cases where cordage rope falls are used. Such bollards or other appliances shall be sited so as to ensure that the lifeboat, Class C boat or other boat served by them can be safely lowered, and fairleads or lead sheaves shall be fitted so as to ensure that it shall not be lifted during the process of turning out or swinging out.

PART 3 – TESTS AFTER INSTALLATION ON BOARD

General

1. Tests shall ensure that all lifeboats, Class C boats or other boats attached to davits and loaded with the required equipment can be re-stowed safely from the embarkation position. And, when so loaded, the life boat, Class C boat or other boat can be lowered by gravity into the water against the frictional resistance of the winch, falls, blocks and other associated gear.

Lowering tests

2.1 Each pair of davits to which paragraph 1.1 of Part 2 applies and their associated lifeboat winches and brakes shall be capable of lowering the lifeboat from the embarkation deck into the water with its equipment and a distributed weight equal to the total number of persons which it is permitted to accommodate plus 10 per cent of the working load. Winch brakes exposed to the weather shall be capable of withstanding this test with the braking surface wetted.

2.2 In the case of davits to which paragraph 1.2 or 1.3 of Part 2 applies, the lifeboat, Class C boat or other boat shall be lowered into the water with its equipment and a distributed weight equal to the weight of a launching crew of two persons plus 10 per cent of the working load.

2.3 For the purpose of the tests required under paragraphs 2.1 and 2.2, the weight of a person shall be taken to be 75 kilogrammes.

Hoisting tests for emergency lifeboats

3. Emergency lifeboats which are required to be served by winches for recovery shall, in addition to the tests required in paragraphs 2.1 and 2.2, be tested by hoisting the emergency lifeboat with its equipment and a distributed load of 1000 kilogrammes plus 10 per cent of the total hoisting load, including blocks and falls, from the water to the embarkation deck at the maximum hoisting speed.

SCHEDULE 11

LAUNCHING DEVICES FOR INFLATED BOATS

1. In this Schedule the expression "working load" means the total weight of the inflated boat, its full equipment, the blocks and falls, a launching crew of 2 persons each weighing 75 kilogrammes and a weight of 60 kilogrammes or the weight of the engine together with its fuel tank and sufficient fuel for three hours operation, whichever is the greater.

2. Every device shall be designed so that when loaded with the working load as defined in paragraph 1 there will be an adequate factor of safety both when the ship is upright and when the ship has a trim of 10 degrees towards the side on which the device is fitted and is listed 15 degrees.

3. Every such appliance shall be tested to a static load of 2.2 times the working load.

4. Blocks provided with every such device shall be proof-tested to 2.2 times the working load, and the falls shall have a factor of safety of at least 6.

5. Every such device shall be –

5.1 capable of recovering the inflated boat and bringing it on board the ship;

5.2 readily available and not stowed or used for any other purpose other than the launching of liferafts whilst the ship is at sea;

5.3 provided with suitable means for manual operation; and

5.4 satisfactorily tested after installation.

6. Every such device shall be provided with a winch when the inflated boat is situated more than 4.5 metres above the lightest sea-going waterline. The winch shall be adequate for the lowering operation and shall be tested to 1.5 times the working load. The brake gear of the winch shall include means for automatically maintaining the lowering speed between 0.3 metres per second and 0.6 metres per second.

SCHEDULE 12

PART 1 – PROVISION OF EQUIPMENT AND RATIONS IN LIFEBOATS, BOATS AND LIFERAFTS

General

1.1 No motor lifeboat or mechanically-propelled lifeboat shall be required to carry a mast or sails nor more than half the complement of oars. Every such lifeboat shall carry two boat hooks.

1.2 Every motor lifeboat shall carry at least two portable fire extinguishers capable of discharging foam or other substance suitable for extinguishing oil fires, a receptacle containing a sufficient quantity of sand and a scoop for distributing the sand. The portable fire extinguishers shall be of a type complying with the requirements of regulation 69 of the Merchant Shipping (Fire Protection: Large Ship) Regulations 1998**(a)** except that the capacity of each extinguisher shall not be required to exceed 4.5 litres of fluid or its equivalent.

1.3 The equipment provided in a lifeboat, Class C boat, inflated boat or other boat, with the exception of the boat hook, which shall be kept free for fending off purposes, shall be suitably secured within the lifeboat or boat. Any lashing shall ensure the security of the equipment and not interfere with the lifting hooks or prevent ready embarkation. All items of equipment shall be as small and as light in weight as possible and shall be packed in suitable and compact form.

1.4 All the rations provided in a lifeboat shall be stowed in watertight tanks, which shall be firmly secured to the lifeboat.

1.5 The tanks for the food and water rations shall be conspicuously marked "food" or "water" whichever is appropriate.

Ships of Classes I, VII, VII(A) and VII(T)

2.1 The equipment of every lifeboat carried in ships of Classes I, VII, VII(A) and VII(T) shall be as follows –

2.1.1 a single-banked complement of buoyant oars, two spare buoyant oars and a buoyant steering oar; one set-and-a-half of crutches attached to the lifeboat by lanyard or chain; a boat hook;

2.1.2 two plugs for each plug hole (except where automatic valves are fitted) attached to the lifeboat by lanyards or chains; a bailer and two buckets;

2.1.3 a rudder attached to the lifeboat and a tiller;

2.1.4 a lifeline becketed round the outside of the lifeboat, means to enable persons to cling to the lifeboat if upturned in the form of bilge keels or keel rails, together with grab lines secured from gunwale to gunwale under the keel;

2.1.5 a locker conspicuously marked as such, suitable for the stowage of small items of equipment;

2.1.6 two hatchets, one at each end of the lifeboat;

2.1.7 a lamp with oil sufficient for 12 hours;

(a) S.I. 1998/1012.

2.1.8 a watertight box containing two boxes of matches not readily extinguished by wind;

2.1.9 a mast or masts, with galvanised wire stays together with orange-coloured sails which shall be marked for identification purposes with the first and last letter of the name of the ship to which the lifeboat belongs;

2.1.10 a compass in a binnacle;

2.1.11 a sea anchor;

2.1.12 two painters of sufficient length and size. One shall be secured to the forward end of the lifeboat with strop and toggle so that it can be released and the other shall be firmly secured to the stem of the lifeboat and be ready for use;

2.1.13 a container with 4.5 litres of vegetable, fish or animal oil. Means shall be provided to enable the oil to be easily distributed on the water and so arranged that it can be attached to the sea anchor;

2.1.14 four rocket parachute flares and six hand flares complying with the requirements of Parts 2 and 3 of Schedule 7 in Merchant Shipping Notice MSN 1676 (M) and packed in a watertight container;

2.1.15 two buoyant smoke signals complying with Part 4 of Schedule 7 in Merchant Shipping Notice MSN 1676 (M) packed in a watertight container;

2.1.16

2.1.16.1 a first aid outfit complying with Part 1 of Schedule 13 in Merchant Shipping Notice MSN 1676 (M); and

2.1.16.2 six anti-seasickness tablets for each person which the boat is permitted to accommodate;

2.1.17 a waterproof electric torch suitable for Morse signalling together with a spare set of batteries and a spare bulb in a waterproof container;

2.1.18 a daylight-signalling mirror;

2.1.19 a jack-knife fitted with a tin opener to be kept attached to the lifeboat with a lanyard;

2.1.20 two light, buoyant heaving lines;

2.1.21 a manual pump complying with the requirements of Part 5 of Schedule 1;

2.1.22 a whistle;

2.1.23 a fishing line and six hooks;

2.1.24 a cover of a highly visible colour capable of protecting the occupants from exposure;

2.1.25 a copy of the Department of Transport's Rescue Signal Table published by Her Majesty's Stationery Office;

2.1.26 means to enable persons in the water to climb into the lifeboat; and

2.1.27 except for lifeboats in ships of Class I, thermal protective aids sufficient for 10 per cent of the number of persons the lifeboat is permitted to accommodate, or for two persons, whichever is the greater number.

Ships of Classes II, II(A), VIII(T), VIII(A), VIII(A)(T) and IX and ships of Class XI which do not proceed outside the Limited European Trading Area.

3. The equipment of every lifeboat carried in ships of these Classes shall be in accordance with the requirements of paragraph 2.1, except that such lifeboats shall not be required to carry the equipment specified in subparagraphs 2.1.9, 2.1.18, 2.1.23 and 2.1.27. Lifeboats in ships of Classes II and II(A) shall not be required to carry equipment specified in subparagraph 2.1.17.

("Limited European Trading Area" means "an area bounded by a line from a point on the Norwegian coast in latitude 62° North to a point 62° North 02° West; thence to a point 58° North 10° West; thence to a point 54° North 14° West; thence to a point 51° North 14° West; thence to a point 38° 40′ North 10° West; thence to Cape St Vincent; but excluding all waters which lie to the northward and eastward of a line between Kalmar on the East coast of Sweden and a point on the West coast of Oland in latitude 56° 40′ North and from the southern tip of Oland to Gdansk, except between the dates of 1st May and 30th November when the remaining waters of the Baltic Sea are included.)

Ships of Classes IX(A) and IX(A)(T)

4.1 The equipment of every boat carried in ships of Classes IX(A) and IX(A)(T) shall be as follows –

4.1.1 a single banked complement of buoyant oars and a buoyant steering oar; one set of crutches attached to the boat by lanyard or chain; a boat hook;

4.1.2 two plugs for each plug hole;

4.1.3 a bailer;

4.1.4 a rudder attached to the boat, and a tiller;

4.1.5 a lifeline becketed round the outside of the boat; and

4.1.6 a painter of sufficient length and size.

Ships of Class XI

5.1 The equipment of every boat carried in a ship of this Class shall be as follows –

5.1.1 a single-banked complement of buoyant oars and a buoyant steering oar; one set of crutches attached to the boat by lanyard or chain; a boat hook;

5.1.2 two plugs for each plug hole;

5.1.3 a bailer;

5.1.4 a rudder attached to the boat and a tiller;

5.1.5 a lifeline becketed round the outside of the boat;

5.1.6 a painter of sufficient length and size;

5.1.7 a sea anchor; and

5.1.8 a hatchet.

Ships of Classes XI and XII and Class C Boats

6.1 The equipment of every lifeboat or Class C boat carried in ships of these Classes or on all Class C boats shall be equipped as follows –

6.1.1 A single-banked complement of buoyant oars and one spare buoyant oar: provided that there shall never be less than three oars; one set of crutches attached to the boat by lanyard or chain; a boat hook;

6.1.2 two plugs for each plug hole (except where automatic valves are fitted) attached to the boat by lanyards or chains; a bailer and a bucket;

6.1.3 a rudder attached to the boat, and a tiller;

6.1.4 a lifeline becketed round the outside of the boat;

6.1.5 a locker, conspicuously marked as such, suitable for the stowage of small items of equipment;

6.1.6 a painter of sufficient length and size secured to the forward end of the boat with strop and toggle so that it can be released;

6.1.7 means to enable persons to cling to the boat if upturned, in the form of bilge keels or keel rails;

6.1.8 a waterproof electric torch suitable for Morse signalling, together with a spare set of batteries and a spare bulb in a waterproof container;

6.1.9 two light, buoyant heaving lines;

6.1.10 a hatchet;

6.1.11 6 distress flares complying with Part 3 of Schedule 7 in Merchant Shipping Notice MSN 1676 (M);

6.1.12 2 buoyant smoke signals complying with Part 4 of Schedule 7 in Merchant Shipping Notice MSN 1676 (M); and

6.1.13 thermal protective aids sufficient for 10 per cent of the number of persons the lifeboat is permitted to accommodate, or for two persons, whichever is the greater number.

Schedule 4

PART 2 – EQUIPMENT FOR INFLATED BOATS

Ships of Classes IX(A) and IX(A)(T)

1.1 The equipment for every inflated boat carried in a ship of these Classes shall be as follows –

1.1.1 at least two buoyant oars and two buoyant paddles;

1.1.2 a bailer and two sponges;

1.1.3 a crutch or steering grommet on the transom;

1.1.4 a grab line secured round the outside of the boat and a grab line fitted round the inside of the boat;

1.1.5 a painter of adequate size and length;

1.1.6 hand holds or straps for the purpose of righting the boat from the inverted position;

1.1.7 an efficient manually-operated bellows or pump;

1.1.8 bridle-slinging arrangements to allow the boat to be lowered into or raised from the water complying with the requirements of Part 2 of Schedule 4; and

1.1.9 a repair kit in a suitable container for repairing punctures in the buoyancy compartments.

Inflated Boats

2.1 Every inflated boat shall be equipped as follows –

2.1.1 at least two buoyant oars and two buoyant paddles;

2.1.2 a bailer and two sponges;

2.1.3 a crutch or steering grommet on the transom;

2.1.4 a grab line secured round the outside of the boat and a grab line fitted round the inside of the boat;

2.1.5 a painter of adequate size and length;

2.1.6 hand holds or straps for the purpose of righting the boat from the inverted position;

2.1.7 an efficient manually-operated bellows or pump;

2.1.8 bridle-slinging arrangements to allow the boat to be lowered into or raised from the water complying with the requirements of Part 2 of Schedule 4;

2.1.9 a repair kit in a suitable container for repairing punctures in the buoyancy compartments;

2.1.10 a sea anchor capable of preventing the loaded boat drifting at more than one knot in a wind of force 5 or 6, attached to the boat by a line of adequate strength at least 9.0 metres in length;

2.1.11 a safety knife;

2.1.12 two buoyant rescue quoits attached to 18.0 metres of light, buoyant line;

2.1.13 a waterproof electric torch suitable for Morse signalling together with spare set of batteries and a spare bulb in a waterproof container; and

2.1.14 a container or pocket for loose equipment.

PART 3 – RATIONS FOR LIFEBOATS

Food

1. Every lifeboat carried in a ship of Classes I, VII, VII(A), VII(T) and Class XI shall be provided with a food ration totalling not less than 10,000 kiloJoules for each person it is permitted to accommodate. Such ration shall not be required on ships which do not make voyages outside the Limited European Area.

Freshwater

2.1 Every lifeboat carried in a ship of Class I, II, II(A), VII, VII(A),VII(T), VIII, VIII(T), VIII(A), VIII(A)(T), IX and XI shall be provided with at least 3 litres of fresh water for each person whom it is permitted to accommodate, or at least 2 litres of fresh water for each such person, together with a de-salting apparatus capable of providing at least 1 litre of drinking water for each such person and in either case the total quantity of water shall be increased as far as is practicable: provided that this paragraph shall not apply to any lifeboat which is carried as an alternative to a Class C boat in a ship of Class VII, VII(T), VII(A), VIII, VIII(T), VIII(A), VIII(A)(T), IX or XI.

2.2 The water shall be kept in the lifeboat in suitable containers and there shall be provided at least one rust-proof dipper, which shall be attached to the containers by a lanyard, and three rust-proof drinking vessels (one graduated in 10, 20 and 50 cubic centimetres), provided that a container of less than 2 litre capacity shall not be required to be provided with a dipper. The water shall be frequently changed so as to ensure that it is always clean and fit for drinking.

Other Ships Regulations
reg 7(6), 8(5), and 11(6)

PART 4 – SPECIAL EQUIPMENT FOR CERTAIN MOTOR LIFEBOATS

Searchlights

1. In every ship of Classes I, II and VII(A) the motor lifeboats shall be provided with a searchlight which shall include a lamp of at least 80 watts, an efficient reflector and a source of power which will give effective illumination of a light-coloured object having a width of about 18 metres at a distance of 180 metres for a total period of six hours. The search light shall be capable of working for at least three hours continuously.

Schedule 5

PART 5 – EQUIPMENT AND RATIONS FOR LIFERAFTS

1. The equipment and rations provided in every liferaft shall be as follows –

1.1 one buoyant rescue quoit, attached to at least 30 metres of buoyant line;

1.2 for liferafts which are permitted to accommodate not more than 12 persons, one safety knife and one bailer; for liferafts which are permitted to accommodate 13 persons or more, two safety knives and two bailers;

1.3 two sponges;

1.4 two sea anchors, one permanently attached to the liferaft and one spare with line;

1.5 two paddles;

1.6 one repair outfit capable of repairing punctures in buoyancy compartments unless the liferaft complies with the requirements of Part 2 of Schedule 5;

1.7 one topping-up pump or bellows, unless the liferaft complies with Part 2 of Schedule 5;

1.8 three safety tin openers;

1.9 a first aid outfit complying with the requirements of Part 1 of Schedule 13 in Merchant Shipping Notice MSN 1676 (M);

1.10 one rust-proof drinking vessel, graduated in 10, 20 and 50 cubic centimetres;

1.11 one waterproof electric torch suitable for Morse signalling together with a spare set of batteries and a spare bulb in a waterproof container;

1.12 one daylight-signalling mirror and one signalling whistle;

1.13 two rocket parachute flares complying with the requirements of Part 2 of Schedule 7 in Merchant Shipping Notice MSN 1676 (M);

1.14 six hand flares complying with the requirements of Part 3 of Schedule 7 in Merchant Shipping Notice MSN 1676 (M);

1.15 one fishing line and six hooks;

1.16 a food ration complying with the requirements of Part 2 of Schedule 13 in Merchant Shipping Notice MSN 1676 (M), totalling not less than 10,000 kiloJoules for each person the liferaft is permitted to accommodate; these rations shall be in airtight packaging and be stowed in a watertight container.

1.17 watertight receptacles containing 1.5 litres of fresh water for each person the liferaft is permitted to accommodate, of which 1 litre per person may be replaced by a suitable de-salting apparatus capable of producing an equal amount of fresh water;

1.18 six anti-seasickness tablets for each person which the liferaft is permitted to accommodate;

1.19 instructions printed in English on how to survive in the liferaft;

1.20 one copy of the Department of Transport's Rescue Signal Table published by Her Majesty's Stationery Office; and

1.21 thermal protective aids sufficient for 10 per cent of the number of persons the liferaft is permitted to accommodate or for two persons, whichever is the greater number.

2. In ships of Class I such liferafts shall not be required to carry the equipment specified in paragraph 1.20 above.

3. In ships of Classes II and II(A), one or more liferafts, not being less than one-sixth of the number of liferafts carried in any such ship, shall be provided with the equipment specified in paragraphs 1.1 to 1.7 inclusive, 1.11, 1.19 and 1.20, and with one-half of the equipment specified in paragraphs 1.13 and 1.14. The remainder of the liferafts carried shall be provided with the equipment specified in paragraphs 1.1 to 1.7 inclusive, 1.19 and 1.20 of the said paragraph.

4. In ships of Classes IX(A) and IX(A)(T) liferafts shall be provided with the equipment specified in paragraphs 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.19 and 1.20 together with one sea anchor which shall be permanently attached to the liferaft.

5. In ships of Class XII of less than 21.3 metres in length liferafts shall be provided with the equipment specified in paragraphs 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.11, 1.13, 1.18, 1.19 and 1.20 together with the following equipment –

5.1 one sea anchor which shall be permanently attached to the liferaft;

5.2 two safety tin-openers;

5.3 three hand flares complying with the requirements of Part 3 of Schedule 7 in Merchant Shipping Notice MSN 1676 (M); and

5.4 watertight receptacles containing half a litre of fresh water for each person which the liferaft is permitted to accommodate.

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