

SCHEDULE 1

Rule 126

FORM OF UNITED KINGDOM FISHING VESSEL CERTIFICATE

SCHEDULE 2

Rule 125(2)

FORM OF RECORD OF PARTICULARS OF A UNITED KINGDOM FISHING VESSEL

SCHEDULE 3

Rules 16 and 74

INFORMATION AS TO STABILITY OF FISHING VESSELS

The book to be kept on board the vessel pursuant to Rule 74 of these Rules shall contain the following information:

1. A statement of the vessel's name, port of registry, official number, registration letters, principal dimensions, gross and register tonnages, displacement and minimum freeboard in the deepest foreseeable operating condition shall be included in such information.

2. A profile plan of the vessel drawn to scale showing with their names all compartments, tanks, storerooms, crew accommodation spaces and the position of the mid-point of the length between perpendiculars shall be provided.

3. A tabular statement of the capacity and position of the centre of gravity, longitudinally and vertically of every compartment available for the carriage of cargo, fuel, stores, feed water, domestic water, water ballast, and crew and effects shall be included in such information. The free surface function defined in paragraph 9 below shall also be included for each tank designed to carry liquid. Details of the volumetric-centre of the total internal volume of the fish-hold shall be included in such information. The calculation may take into account the effect of assuming a void space between the top of the catch and the underside of the deckhead provided that under normal operating conditions provision has been made for the effective control of the loading in order to ensure that the actual void space will always be equal to or greater than that assumed in such a calculation.

4. Where deck cargo is carried by a vessel the estimated weight and disposition of deck cargo the vessel may be expected to carry while satisfying the stability criteria set out in Rule 16 of these Rules shall be included in such information.

5. A diagram or tabular statement shall be provided showing for a suitable range of mean draughts and at the trim stated, the following hydrostatic particulars of the vessel:—

- (i) the heights of the transverse metacentres;
- (ii) moments to change trim one centimetre;
- (iii) tonnes per centimetre immersion;
- (iv) longitudinal position of the centre of flotation;
- (v) vertical and longitudinal positions of the centre of buoyancy;
- (vi) displacement in tonnes.

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Where vessels have raked keels the same datum shall be used for the hydrostatics as was employed in determining the requirements of paragraph 3 above. In such cases full information shall be included in respect of the rake and dimensions of the keel and may be given in the form of a diagram.

6. A diagram shall be provided showing cross curves of stability indicating the assumed position of the axis from which the righting levers are measured and the trim which has been assumed. Where vessels have raked keels any datum other than a line through the top of the keel amidships shall be clearly defined.

7. The information provided under paragraphs 5 and 6 above shall be at such a nominal trim that represents accurately the vessel in all normal operating trims. Where calculations show that there are significant numerical variations in these operating trims the information provided under paragraphs 5 and 6 above shall be repeated over such a range of trims to allow an accurate interpolation of such information at any normal operating trim.

8. Superstructure deckhouses, companionways located on the freeboard deck, including hatchway structures may be taken into account in deriving such cross-curves of stability provided that their location, integrity and means of closure will effectively contribute to the buoyancy.

9. An example shall be included in such information to show the corrections applied to the transverse metacentric height and righting levers (GZ) for the effects of the free surfaces of liquids in tanks and shall be calculated and taken into account as follows:—

- (i) the metacentric height in metres shall be reduced by an amount equal to the total of the free surface functions for each tank divided by the vessel's displacement in tonnes. For each tank the free surface function is given by:—

$$1.025 \times \pi i$$

p = specific gravity of the liquid;

i = transverse moment of inertia of the surface

(i.e. LB312

L = length and B = breadth of the surface of metres);

i.e. correction = $\frac{\sigma \pi i}{\text{Displacement}}$

- (ii) the righting lever (GZ) curves shall be corrected by either:—

- (a) adding the free surface correction calculated under (i) above to the value in metres of the calculated height of centre of gravity of the vessel above the datum; or
- (b) making direct calculations of the heeling moment due to the liquid surface being inclined at the selected angle of heel where such calculations take proper account of the position of liquid surface in relation to the geometric configuration of the tank. The correction to the righting lever (GZ) at any selected angle of heel shall then be the summation of the individual heeling moments of the tanks considered, divided by the vessel's displacement.

10. A stability statement and diagram shall be provided for the usual condition of the vessel:—

- (a) in the lightship condition:

the vessel shall be assumed to be empty except for water in boilers and liquid in pipe systems including header tanks. The weight and position of the centre of gravity of any permanent ballast or fishing gear shall be indicated where this is known;

- (b) in each of the following circumstances so far as they may be applicable to the vessel in its foreseeable operating conditions:—

- (i) on departure from port:

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the vessel shall be assumed to be loaded with the necessary equipment, materials and supplies including ice, fuel, stores and water;

- (ii) on arrival at fishing grounds:
 - as sub-paragraph (i) above but account taken of the consumption of fuel and stores:
- (iii) on arrival at fishing grounds:
 - as sub-paragraph (ii) above but the appropriate icing-up allowance as set out in paragraph 14 below shall be taken into account;
- (iv) on departure from fishing grounds:
 - the vessel shall be assumed to be loaded with its maximum catch but account taken of the consumption of fuel and stores;
- (v) on departure from fishing grounds:
 - as sub-paragraph (iv) above but the appropriate icing-up allowance as set out in paragraph 14 below shall be taken into account;
- (vi) on departure from fishing grounds:
 - the vessel shall be assumed to be loaded with 20% of its maximum catch but account taken of the consumption of fuel and stores;
- (vii) on departure from fishing grounds:
 - as sub-paragraph (vi) above, but the appropriate icing-up allowance as set out in paragraph 14 below shall be taken into account;
- (viii) on arrival at port with maximum catch:
 - account shall be taken of the consumption of fuel and stores;
- (ix) on arrival at port with 20% maximum catch:
 - account shall be taken of the consumption of fuel and stores;
- (x) if any part of the catch normally remains on deck, further statements and diagrams appertaining to that condition in all the appropriate circumstances set out in sub-paragraphs (iv) to (ix) inclusive shall be provided.

The total free surface correction for the effect of liquid in tanks shall be applied to each loading condition set out in the foregoing provisions of this paragraph. The free surface correction shall take into account the amounts of fuel, lubricating oil, feed and fresh water in the vessel in each such loading condition.

The working instructions placed on board pursuant to Rule 75 shall generally be based upon the conditions specified in this paragraph and shall form part of this stability statement.

11. Where provision is made in a particular area of the vessel for the washing and cleaning of the catch which could lead to an accumulation of loose water a further statement and diagram shall be provided appropriate to that condition which takes into account the adverse effects of such loose water, it being assumed that:—

- (i) the amount of loose water on deck is determined by the size and disposition of the retaining devices; and
- (ii) in all other respects the vessel is loaded in accordance with (iv) or (vi) of paragraph 10 above, whichever is the less favourable with regard to the vessel's stability.

12. Each stability statement shall consist of:—

- (i) a profile drawn to a suitable scale showing the disposition of the deadweight components;

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- (ii) a tabular statement of all the components of the displacement including weights, positions of centres of gravity, transverse metacentric height corrected for free surface effects, trim and draughts;
- (iii) a diagram showing a curve of righting levers (GZ), corrected for free surfaces effects and derived from the cross-curves of stability, showing, if appropriate, the angle at which the lower edges of any opening which cannot be closed watertight will be immersed. The diagram shall also show the corresponding numerical values of the stability parameters defined in Rule 16 of these Rules.

13. The information provided under sub-paragraph (iii) of paragraph 12 above may be supplemented by a graph or tabular statement showing the maximum permissible deadweight moment over a range of draughts which shall cover foreseeable operating conditions. At any given draught this maximum permissible deadweight moment value is the total vertical moment, about a convenient base line, of all the component weights of the total deadweight which, at that draught, will ensure minimum compliance with the stability criteria requirements of Rule 16 of these Rules. If an allowance for the weight due to icing-up is required this shall be taken into account by a suitable reduction in the permissible moment. Where the stability information is supplied in accordance with the requirements of this paragraph the tabular statement required in accordance with sub-paragraph 12(ii) above shall include the deadweight moment appropriate to each condition and an example shall be added to the stability information to demonstrate the assessment of the stability.

14. The icing-up allowances which represent the added weight due to ice accretion on the exposed surfaces of the hull, superstructure, deck, deckhouses and companionways shall be calculated as follows:—

- (i) full icing allowance:

all exposed horizontal surfaces (decks, house tops, etc.) shall be assumed to carry an ice weight of 30 kilogrammes per square metre.

The projected lateral area of the vessel above the waterline (a silhouette) shall be assumed to carry an ice weight of 15 kilogrammes per square metre.

The height of the centre of gravity shall be calculated according to the heights of the respective areas and in the case of the projected lateral area the effect of sundry booms, rails, wires, etc., which will not have been included in the area calculated shall be taken into account by increasing by 5% the weight due to the lateral area and the moment of this weight by 10%. This allowance shall apply in winter (1st November to 30th April inclusive in the northern hemisphere) to vessels which operate in the following areas:—

- (a) the area north of latitude 66°30'N. between longitude 10°W. and the Norwegian Coast;
- (b) the area north of latitude 63°N. between longitude 28°W. and 10°W.;
- (c) the area north of latitude 45°N. between the North American continent and longitude 28°W.;
- (d) all sea areas north of the European, Asian and North American continents east and west of the areas defined in (a), (b) and (c) above;
- (e) Bering and Okhotsk seas and Tatar Strait;
- (f) South of latitude 60°S.

- (ii) Half of the full icing allowance:

this shall be taken as one half of that calculated under sub-paragraph (i) of this paragraph and shall apply in winter to vessels which operate in all areas north of latitude 61°N. between longitude 28°W. and the Norwegian coast and south of

the areas defined as the lower limit for the full icing allowance between longitude 28°W. and the Norwegian coast.

15. Information shall be provided in respect of the assumptions made in calculating the condition of the vessel in each of the circumstances set out in paragraph 10 above for the following:—

- (i) duration of the voyage in terms of days spent in reaching the fishing grounds, on the grounds and returning to port;
- (ii) the weight and disposition of the ice in the hold at departure from port including the heights of stowage;
- (iii) consumption rates during the voyage for fuel, water, stores and other consumables;
- (iv) ratio by weight of the ice packed with the catch in the fish hold;
- (v) melting rates for each part of the voyage of the ice packed with the catch and the ice remaining unused in the hold.

16. A copy of a report of an inclining test of the vessel and the derivation therefrom of the lightship particulars shall be provided.

17. A statement shall be given by or on behalf of the owner of the vessel that the statements and diagrams supplied with respect to the operating conditions set out in paragraph 10 above are based on the worst foreseeable service conditions in respect of the weights and disposition of fish carried in the hold or on deck, ice in the hold, fuel, water and other consumables.

SCHEDULE 4

Rule 82(1)

GENERAL REQUIREMENTS FOR LIFEBOATS

- 1.** Every lifeboat shall be constructed with rigid sides.
- 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. Such a shelter where fitted may be accepted as complying with the requirements of sub-paragraph (x) of Rule 90(1).
- 3.** Every lifeboat except wooden lifeboats made of planks shall have a block co-efficient of the cubic capacity as determined in accordance with Schedule 5 to these Rules of not less than 0.64.
- 4.** Every lifeboat shall be of such form and proportions that it shall have ample stability in a seaway and sufficient freeboard when loaded with its full complement of persons and equipment.
- 5.** Every lifeboat shall be so constructed that it shall be capable of maintaining positive stability when open to the sea and loaded with its full complement of persons and equipment.
- 6.** Every lifeboat shall be properly constructed for the purpose for which it is intended and shall be of sufficient strength to permit its being safely lowered into the water when loaded with its full 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.
- 7.** No lifeboat shall be less than 4.9 metres in length except that where these Rules permit a lifeboat to be carried as an alternative to a Class C boat, the length of such lifeboat shall not be less than that of the Class C boat as determined in accordance with paragraph 1 of Schedule 8 to these Rules.
- 8.** No lifeboat when laden with its full complement of persons (calculated at 75 kilogrammes per person) and equipment shall weigh more than 20 tonnes.

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9. In every lifeboat all thwart and side seats shall be fitted as low in the lifeboat as practicable and bottom boards shall be fitted.

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

11. Every lifeboat shall be fitted with internal buoyancy appliances which shall consist either of air cases or buoyant material which shall not be adversely affected by oil or oil products and which shall not adversely affect the boat.

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 the volumes of:

- (a) that required to float the lifeboat and its full equipment when the lifeboat is flooded and open to the sea so that the top of the gunwale amidships is not submerged; and
- (b) that equal to 10 per cent of the cubic capacity of the lifeboat.

SCHEDULE 5

Rule 82(2)

CALCULATION OF CUBIC CAPACITY OF LIFEBOATS

1. Subject to the provisions of paragraph 4 below, the cubic capacity of a lifeboat for the purposes of these Rules shall be measured in cubic metres and shall be determined by Stirling's (Simpson's) Rule, which may be considered as given by the following formula:—

$$\text{Cubic Capacity} = L \frac{1}{6} (4A + 2B + 4C),$$

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; and

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).

The areas A, B, C shall be deemed to be given in square metres by the successive application of the following formula to each of the three cross-sections:—

$$\text{Area} = h \frac{1}{6} (a + 4b + 2c + 4d + e),$$

h denotes the depth measured in metres inside the shell from the keel to the level of the gunwale, or, in certain cases, to a lower level as determined hereafter; 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.

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.

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 calculations exceed the actual depths at these points.

4. Unless the owner of the lifeboat requires the cubic capacity to be determined by exact measurements, 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 if this formula does not give a greater capacity than that obtained by the formula set out in paragraph 1 above. The dimensions shall be measured in the following manner:—

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;

Breadth—from the outside of the planking at the point where the breadth of the lifeboat is greatest;

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.

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.

SCHEDULE 6

Rule 82(5)(a)

REQUIREMENTS FOR MACHINERY OF MOTOR LIFEBOATS

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

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.

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.

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

5. 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 tanks and its connections shall be capable of withstanding hydraulic pressure corresponding to a head of at least 4.5 metres. A cock shall be fitted at each end of the fuel pipe.

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

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

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SCHEDULE 7

Rule 83

REQUIREMENTS FOR CLASS C BOATS

1. Every Class C boat shall be an open boat constructed with rigid sides.
2. The boat shall be of such form and proportions that it shall have ample stability in a seaway and sufficient freeboard when loaded with its equipment and the number of persons specified in column (3) of paragraph 3 below.
3. The length of the boat and the number of persons for whom seating shall be provided in the boat shall be determined in accordance with the following table:—

<i>(1)</i> <i>Number of Persons on board the vessel</i>	<i>(2)</i> <i>Minimum length of boat in metres</i>	<i>(3)</i> <i>Minimum Seating Capacity of boat (persons)</i>
More than 8	4.8	9
8	4.5	8
6 or 7	4.2	7
5	3.9	5
4 or less	3.6	4

4. All thwart and side seats in the boat shall be fitted as low in the boat as practicable and bottom boards shall be fitted.
5. The boat shall be square-sterned and shall have a mean shear at least equal to five per cent of its length.
6. The boat shall be fitted with internal buoyancy appliances which shall be so placed as to secure stability when the boat is fully laden under adverse weather conditions.
7. Every boat shall be fitted with internal buoyancy appliances which shall consist either of air cases or buoyant material which shall not be adversely affected by oil or oil products and which shall not adversely affect the boat.
8. The total volume of the internal buoyancy appliances shall be such that it will be at least equal to the sum of the volumes of:
 - (a) that 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
 - (b) that equal to 7.5 per cent of the cubic capacity of the boat which shall be determined in the same manner as that prescribed for lifeboats in Schedule 5 to these Rules.

SCHEDULE 8

Rule 91

REQUIREMENTS FOR INFLATABLE BOATS

Every inflatable boat shall comply with the following requirements:—

1. The overall length of the boat shall be not less than 3.8 metres and the boat shall be of such form and proportions as to 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.

2. The boat shall be of sufficiently robust construction to survive when fully loaded, without such deterioration as would involve any loss of seaworthiness, for 30 days afloat under extremes of temperatures (60°C to minus 30°C) and in weather likely to be encountered at sea anywhere in the world.

3. All materials and components used in the construction of the boat and its accessories shall be able to withstand the worldwide seagoing climatic conditions referred to in paragraph 2 above. 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.

4. The boat shall possess a sufficient margin of durability to ensure that its performance will not be affected after 24 months' stowage on board a vessel in a weather deck stowage with a minimum of additional protection.

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.

6. The main buoyancy chambers shall be divided into at least two compartments along each side and one compartment in the bow, making a minimum total of five compartments.

7. In boats of more than one tube the volume of either tube shall not exceed 60 per cent of the total volume.

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

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

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

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

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

13. A safety 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 shall be fitted in each chamber.

14. The boat shall be provided with the following equipment:

- (a) a painter of adequate length and size;
- (b) a grab line secured round the outside of the boat and a grab line fitted round the inside of the boat;
- (c) a drain plug;
- (d) a crutch or steering grommet in the transom;
- (e) hand-holes or straps for the purpose of righting the boat from the inverted position;
- (f) a sea anchor attached to the boat by a line of adequate strength at least 9 metres in length;
- (g) an efficient manually operated bellows or pump;
- (h) two buoyant rescue quoits each attached to 18 metres of light buoyant line;
- (i) at least two buoyant oars and two buoyant paddles;
- (j) a safety knife;
- (k) bridle slinging arrangements to enable the boat to be lowered into or raised from the water;
- (l) a bailer and two sponges;

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- (m) a repair kit in a suitable container for repairing punctures in buoyancy compartments;
- (n) one waterproof electric torch suitable for morse signalling together with one spare set of batteries and one spare bulb in a waterproof container.

SCHEDULE 9

REQUIREMENTS FOR LIFERAFTS

Rule 85

PART I

INFLATABLE LIFERAFTS

Every inflatable liferaft shall comply with the following requirements:—

- (a) the liferaft shall be so constructed that, when fully inflated and floating with the cover uppermost, it shall be stable in a seaway;
- (b) 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;
- (c) the construction of the liferaft shall include a cover of a highly visible colour which shall automatically be set in place when the liferaft is inflated. This cover shall be capable of protecting the occupants against injury from exposure, and means shall be provided for collecting rain. The top of the cover shall be fitted with a lamp which derives its luminosity from a sea-activated cell and a similar lamp shall also be fitted inside the liferaft;
- (d) 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;
- (e) the liferaft shall be capable of being readily righted by one person if it inflates in an inverted position;
- (f) the liferaft shall be fitted at each opening with efficient means to enable persons in the water to climb on board;
- (g) the liferaft shall be contained in a valise or other container so constructed as to be capable of withstanding hard wear under conditions encountered at sea. The liferaft in its valise or other container shall be inherently buoyant;
- (h) the buoyancy of the liferaft shall be so arranged as to ensure by a division into 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 fit to accommodate, or by some other equally efficient means, that there is a reasonable margin of buoyancy if the raft is damaged or partially fails to inflate;
- (i) the total weight of the liferaft, its valise or other container and its equipment shall not exceed 180 kilogrammes;
- (j) the number of persons which a liferaft shall be deemed fit to accommodate shall be equal to—
 - (i) the greatest whole number obtained by dividing by $\cdot 096$ 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

- (ii) the greatest whole number obtained by dividing by 3720 the area measured in square centimetres 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;
- (k) the floor of the liferaft shall be waterproof and shall be capable of being sufficiently insulated against cold, either—
 - (i) 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
 - (ii) by other equally efficient means not dependent on inflation;
- (l) 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 may be used to maintain pressure;
- (m) the liferaft shall be of suitable material and construction, and shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all sea conditions;
- (n) every 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 full complement of persons and equipment;
- (o) the liferaft shall have a carrying capacity calculated in accordance with subparagraph (j) above of not less than six persons or more than 25 persons; provided that in vessels in which the total number of persons on board is less than six the minimum carrying capacity of the liferaft shall be four persons;
- (p) the liferaft shall be capable of operating throughout a temperature range of 66°C to minus 30°C;
- (q) the liferaft shall be fitted with arrangements enabling it to be readily towed;
- (r) every liferaft carried on a vessel which is provided with portable radio equipment which complies with the specification set forth in Part I of Schedule 13 to these Rules shall be provided with arrangements for accommodating properly in the operating position the aerial referred to in the specification set out in the said Schedule to these Rules.

Rule 85

PART II

RIGID LIFERAFTS

Every rigid liferaft shall comply with the following requirements:—

- (a) 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;
- (b) 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 full complement of persons and equipment;
- (c) the liferaft shall be so constructed that its air cases or buoyant material are placed as near as possible to its sides;

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- (d) 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;
- (e) the liferaft shall be fitted with a cover or equivalent arrangement of a highly visible colour, which shall be capable of protecting the occupants against injury whichever way up the liferaft is floating;
- (f) the equipment of the liferaft shall be so stowed as to be readily available whichever way up the liferaft is floating;
- (g) the total weight of any liferaft and its equipment shall not exceed 180 kilogrammes except that such total weight may be exceeded where the liferaft is capable of being launched from both sides of the vessel or if means are provided for putting it into the water mechanically on either side of the vessel;
- (h) the liferaft shall at all times be effective and stable when floating either way up;
- (i) the number of persons which the liferaft shall be deemed fit to accommodate shall be equal to—
 - (i) the greatest whole number obtained by dividing by .096 the volume measured in cubic metres of the air cases or buoyant material; or
 - (ii) the greatest whole number obtained by dividing by 3720 the deck area of the liferaft measured in square centimetres;whichever number shall be the less;
- (j) 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;
- (k) the liferaft shall be fitted at each opening with efficient means to enable persons in the water to climb on board;
- (l) the liferaft shall be so constructed as not to be affected by oil or oil products;
- (m) a buoyant light of the electric battery type shall be attached to the liferaft by a lanyard;
- (n) the liferaft shall be fitted with arrangements enabling it to be readily towed;
- (o) liferafts shall be so stowed as to float free in the event of the vessel sinking;
- (p) every liferaft carried on a vessel which is provided with portable radio equipment which complies with the specification set forth in Part I of Schedule 13 to these Rules shall be provided with arrangements for accommodating properly in the operating position the aerial referred to in the specification set out in the said Schedule.

SCHEDULE 10

REQUIREMENTS FOR LIFEBOOYS

Rule 87

PART I

1. Every liferaft 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.

2. 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 variation of temperature or climatic changes prevailing in open sea voyages.

3. 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 air compartments which require to be inflated.

4. 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.

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

6. Every lifebuoy shall be marked in block letters with both the name and the port of registry or the fishing number of the vessel 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.

7. Every lifebuoy shall be fitted 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.

8. The weight of a lifebuoy shall not exceed 6·15 kilogrammes when newly constructed.

Rule 87

PART II

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. 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 variation of temperature or climatic changes prevailing in open sea voyages.

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

4. 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.

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

SCHEDULE 11

Rules 76(3)(b) 77(5)(b) 78(3)(b) 79(c)
80(b)

REQUIREMENTS FOR LIFEJACKETS

PART I

1. Subject to the provisions of paragraph 7 of this Part of this Schedule, every life-jacket for use by a person weighing 32 kilogrammes or more shall provide a minimum of 15.8 kilogrammes buoyancy in fresh water for 24 hours.

2. Every such lifejacket shall be marked indelibly on both sides in letters not less than 12 millimetres in size 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 also comply with the following requirements:—

- (a) it shall be so constructed as to eliminate as far as possible all risk of its being put on incorrectly and it shall be capable of being worn inside out;
- (b) it shall turn the wearer on entering still water to a safe floating position within 5 seconds with the body inclined backwards from its vertical floating position and shall support the head of the conscious or unconscious wearer so that the mouth shall not be less than 150 millimetres above the water;
- (c) it shall not be adversely affected by oil or oil products;
- (d) it shall be of a highly visible colour;
- (e) it shall be fitted with a ring or loop or similar device of adequate strength to facilitate rescue;
- (f) it shall be made of materials of low flammability and the fabric with which it is covered and its tapes shall be rotproof;
- (g) it shall be fitted with an approved whistle firmly attached by a lanyard;
- (h) it shall have fastening tapes securely attached to the lifejacket cover and capable of taking a load of 140 kilogrammes. The method of fastening the tapes shall be such as to be easily understood and capable of being readily carried out. Metal fastening when used shall be of a size and strength consistent with the fastening tapes and of corrosion resistant material; and
- (i) it shall allow the wearer to jump a vertical distance of 6 metres into the water without injury and without dislodgment of the lifejacket.

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

5. Every such kapok lifejacket shall, in addition to complying with the requirements of paragraph 1 to 4 of this Part of this Schedule, comply with the following requirements:—

- (a) it shall contain not less than 1 kilogramme of kapok;
- (b) the kapok shall be of good flotation quality, well teased, evenly packed and free from seeds and other foreign matter;
- (c) the kapok shall be protected from the effects of oil or oil products so that the loss of buoyancy in the lifejacket, 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 and for the purpose of this test the lifejacket shall be loaded with weights equal to half its initial buoyancy; and

- (d) the covering shall be of pre-shrunk cotton material or a suitable synthetic material the weight of which in loom state per linear yard shall be not less than 170 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 inch in loomstate shall be warp 44 two-fold threads and weft 34 two-fold threads. The sewing shall be carried out with linen thread of not less quality than 25a fine cord Whittmore Cord.
6. Every such lifejacket using a buoyant material other than kapok shall, in addition to complying with the requirements of paragraphs 1 to 4 and 5(d) of this Part of this Schedule, comply with the following requirements:—
- (a) the material shall not weigh more than 190 kilogrammes per cubic metre, and shall be 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
 - (b) the material shall be chemically stable.
7. Every lifejacket the buoyancy of which depends on inflation, which may be carried for use by members of the crew shall comply with the requirements of paragraph 3 of this Part of this Schedule and in addition shall comply with the following requirements:—
- (a) it shall have two separate buoyancy compartments in either of the following forms:—
 - (i) one compartment of inherent buoyancy equal to at least 9 kilogrammes and one air compartment of at least 6 kilogrammes; or
 - (ii) two separate air compartments each of at least 9 kilogrammes buoyancy;
 - (b) it shall be marked indelibly on both sides in letters not less than 25 millimetres in size the words “CREW ONLY” and on one side only with the maker's name or other identification mark in smaller letters; and
 - (c) it shall be capable of being inflated both mechanically and by mouth.
- Rules 76(3)(b) 77(5)(b) 78(3)(b) 79(c) 80(b)

PART II

1. Every lifejacket for use by a person weighing less than 32 kilogrammes shall provide a minimum buoyancy of 6·8 kilogrammes in fresh water for 24 hours.
2. Every such lifejacket shall be marked indelibly on both sides in letters not less than 12 millimetres in size with the words “FOR PERSON UNDER 32 KILOGRAMMES” and on one side only with the maker's name or other identification mark.
3. Every such lifejacket shall comply with the requirements of paragraphs 3 and 4 of Part I of this Schedule.
4. Every such kapok lifejacket shall contain not less than 425 grammes of kapok and shall in addition to complying with the requirements of paragraphs 1 to 3 of this Part of this Schedule comply with the requirements of sub-paragraphs (b), (c) and (d) of paragraph 5 of Part I of this Schedule.
5. Every such lifejacket using a buoyant material other than kapok shall, in addition to complying with the requirements of paragraphs 1 to 3 of this Part of this Schedule comply with sub-paragraph (d) of paragraph 5 and sub-paragraphs (a) and (b) of paragraph 6 of Part I of this Schedule.

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SCHEDULE 12

Rule 89

REQUIREMENTS FOR LINE-THROWING APPLIANCES

1. Every line-throwing appliance shall include 4 rockets and 4 lines, each line being 12 millimetres in circumference and of suitable length, and having a breaking strain of not less than 115 kilogrammes.

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

3. The lines and the rockets, with the means of igniting them, shall be kept in a watertight case.

4. Every line-throwing appliance carried in a vessel of 21 metres in length or over, shall be capable of throwing a line 12 millimetres in circumference a minimum distance of 230 metres in calm weather.

5. Every line-throwing appliance carried in a vessel of less than 21 metres in length, but not less than 12 metres in length, shall be capable of throwing a line 12 millimetres in circumference a minimum distance of 180 metres in calm weather.

6. All components, compositions and ingredients of the rockets and the means of igniting them shall be of such a character and of such quality as to enable them to maintain their serviceability under good average storage conditions for a period of at least three years. The date on which the rocket is filled shall be stamped indelibly on the rocket and its container and the date of packing shall be similarly stamped on the cartridge containers.

SCHEDULE 13

Rules 76(3)(a) 78(3)(a) 77(5)(a) 79(b)

REQUIREMENTS FOR PORTABLE RADIO EQUIPMENT
FOR USE IN LIFEBOATS AND LIFERAFTS

Every portable radio equipment for survival craft shall comply with one of the following performance specifications:—

Part I. *Man powered equipment*

- (a) a Man-Powered Portable Radio Equipment for Survival Craft, 1964, issued by the Postmaster General, as reprinted in 1967
- (b) a Man-Powered Portable Radio Equipment for Survival Craft, MPT 1207 issued by the Secretary of State.

Part II. *Battery powered equipment*

- (c) a Compulsory Radiotelephone Distress Equipment suitable for use in Fishing Boats' Survival Craft, 1965, issued by the Postmaster General, as reprinted in 1968.
- (d) a Radiotelephone Equipment operating on the Frequency 2182 MHz for use on Fishing Boat Survival Craft, MPT 1205, issued by the Secretary of State.

SCHEDULE 14

SPECIFICATIONS OF EQUIPMENT FOR LIFEBOATS, BOATS AND LIFERAFTS
Rule 90(1)(j)

PART I

COMPASSES FOR LIFEBOATS

1. Every compass shall be of the liquid type. The liquid used shall be a mixture of industrial methylated spirit and water, specific gravity 0·93 at 15°C. It shall be clear and free from sediment, cloudiness, and dirt defects. The compass shall function efficiently over a temperature range of 50°C to minus 20°C.

2. The magnet shall have ample directive force. In the United Kingdom a period of 18 to 22 seconds after a deflection of 40 degrees at a temperature of about 15°C shall be deemed to comply with this requirement. For the purposes of this paragraph a “period” is the time taken by a complete oscillation of the card after a deflection of 40 degrees, a swing past the position of rest, and back again to the completion of its swing on the side to which it was originally deflected.

3. Over a range of 50°C to minus 20°C, the card system when immersed in the compass liquid shall rest on the pivot with a weight between 4 and 10 grammes.

4. The card shall be not less than 100 millimetres in diameter and shall have a clearance from the bowl of at least 6 millimetres. It shall be marked to half points, the eight principal points being distinctively marked. The card shall be luminised or fitted with a suitable means of illumination.

5. The centre of the card shall be of sapphire or equally hard jewel and shall be removable from the float.

6. The pivot of the card shall be of iridium or equally suitable hard material.

7. The arrangements made to allow for the expansion and contraction of the liquid shall enable the compass to withstand a temperature range of 50°C to minus 20°C without leakage, formation of bubbles or other defects.

8. The bowl shall be adequately weighted and properly poised in the gimbals which shall give a fore and aft and thwartship action. The gimbaling shall be in the same horizontal plane as the point of suspension of the card and the outer gimbal pins shall be placed fore and aft. The bowl shall be placed in a binnacle or box of non-magnetic material and the lubber line or point shall be luminised or fitted with suitable means of illumination. The card system shall remain free when the bowl is tilted by 10 degrees.

9. The direction of the lubber line or point from the centre of the card shall lie in the same vertical plane as the outer gimbal axis or other fore and aft datum line. The cumulative effect of card, pivot, directional and other similar errors, and of inaccurate positioning of the lubber's point shall be such that in the undisturbed earth's field the direction as read on the card against the lubber's point shall not differ by more than 3 degrees from the magnetic direction of the outer gimbal axis or other fore and aft datum line for any direction of the latter.

10. The minimum thickness of the metal used in the construction of the compass shall be as follows:—

Compass bowl	4·0 millimetres
Binnacle	3·85 millimetres
Lamp	3·85 millimetres

The compass bowl shall be efficiently stiffened to take gimbal pins. The binnacle shell shall be swaged or spun into the base ring and soldered all round.

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The gimbal ring shall be of naval brass or other rigid non-magnetic metal 15 millimetres by 3 millimetres. Gimbal pins shall be of naval brass or other hard non-magnetic material of 6 millimetres diameter: both they and the bearings in which they engage shall be perfectly smooth.

11. The paint inside the bowl shall show no sign of blistering.

12. The materials and workmanship shall be good throughout and the compass shall be such as will remain efficient under sea-going conditions.

13. The bowl of the compass shall be engraved or stamped with the maker's name or other identification mark.

Rule 90(1)(k)

PART II

SEA ANCHORS FOR LIFEBOATS AND BOATS OTHER THAN CLASS BOATS

1. Every sea anchor shall comply with the following requirements:—

- (a) it shall be constructed of No. 1 best flax canvas, or other suitable material;
- (b) the canvas part shall be strongly sewn together and be roped at the seams with 45 millimetres in circumference bolt rope; the ropes then being formed into a bridle with a thimble seized in the connecting end, and the ropes extended and seized into a parcelled loop to form the attachment for the tripping line;
- (c) a hawser shall be attached to the sea anchor by means of a shackle of suitable size to take the thimble;
- (d) the length of the hawser shall be three times the length of the lifeboat or boat;
- (e) a tripping line 3·5 metres longer than the hawser shall be provided.

2. A circular sea anchor shall be fitted at the mouth with a galvanised iron hoop. Any other type of sea anchor shall be fitted with galvanised iron spreaders across the mouth and with an ash spreader at the upper edge.

3. The size of sea anchors shall be as follows:—

- (a) for lifeboats over 9 metres in length—

Non-circular folding sea anchors—Mouth	760 millimetres upper edge
	685 millimetres lower edge
	685 millimetres each side
Area of mouth	4968 square centimetres

Length of canvas bag—1·35 metres.

Hawser—75 millimetres in circumference.

Tripping line—50 millimetres in circumference.

- (b) for lifeboats over 6 metres in length but not over 9 metres in length—

Circular sea anchors—Mouth 685 millimetres diameter.

Non-circular folding sea anchors—Mouth 610 millimetres each side.

Length of canvas bag—1·25 metres.

Hawser—75 millimetres in circumference.

Tripping line—50 millimetres in circumference.

(c) for lifeboats not over 6 metres in length and other boats (other than Class C boats)—

Circular sea anchors—Mouth 610 millimetres diameter.

Non-Circular folding sea anchors—Mouth 545 millimetres each side.

Length of canvas bag—1·10 metres.

Hawser—65 millimetres in circumference.

Tripping line—35 millimetres in circumference.

Rules 90(1)(n) 94(m)

PART III

PARACHUTE DISTRESS ROCKET SIGNALS FOR LIFEBOATS AND LIFERAFTS

1. Every parachute distress rocket signal shall consist of a single bright red star which is projected to the required height by means of a rocket and which burns while falling, its rate of fall being controlled by means of a small parachute to an average rate of 4·5 metres per second. It shall be fitted with a self-contained means of ignition, so designed as to operate from the hand-held position without external aid, and as to enable the rocket to be discharged from a lifeboat, boat or liferaft without harm to the occupants.

2. When the rocket is fired approximately vertically the star and parachute shall be ejected at or before the top of the trajectory at a minimum height of 180 metres. The rocket shall also be capable of functioning when fired at an angle of 45 degrees to the horizontal.

3. The star shall burn with a minimum luminosity of 15,000 candelas for not less than 30 seconds. It shall burn out at a height of not less than 45 metres from the sea level.

4. The parachute shall be of such a size as to provide the required control of the rate of fall of the burning star. It shall be attached to the star by means of a flexible fireproof harness.

5. The rocket shall be waterproofed and capable of satisfactory functioning after immersion in water for one minute.

6. All components, compositions and ingredients shall be of such a character and of such a quality as to enable the rocket to maintain its serviceability under good average storage conditions for a period of at least three years.

7. The rocket shall be packed in a container which shall be effectively sealed. If made of metal, the container shall be well tinned and lacquered or otherwise adequately protected against corrosion.

8. The date on which the rocket is filled shall be stamped indelibly on the rocket and on the container.

9. Clear and concise directions for use in the English language shall be printed indelibly on the rocket.

Rules 90(1)(n) 94(n)

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PART IV

HAND-HELD DISTRESS FLARE SIGNALS FOR LIFEBOATS AND LIFERAFTS

1. Every hand-held distress flare signal shall be fitted with a self-contained means of ignition so designed as to operate from a hand-held position without external aid and as to enable the flare to be displayed from a lifeboat, boat or liferaft without harm to the occupants.
2. Where the flare is carried in a liferaft it shall be so constructed that, when the flare is fired, no burning composition will fall from the flare which might cause damage to the liferaft.
3. The flare shall be capable of emitting a red light of a minimum luminosity of 15,000 candelas for not less than 55 seconds.
4. The flare shall be waterproofed and capable of satisfactory functioning after immersion in water for one minute.
5. All components, composition and ingredients shall be of such a character and of such a quality as to burn evenly and as to enable the flare to maintain its service-ability under good average storage conditions for a period of at least three years.
6. The flare shall be stamped indelibly with the date on which it is filled.
7. Clear and concise directions for use in the English language shall be printed indelibly on the flare.

Rule 90(1)(o)

PART V

BUOYANT SMOKE SIGNALS FOR LIFEBOATS

1. Every buoyant smoke signal shall be fitted with a self-contained means of ignition.
2. The signals shall be capable, while floating on the water, of emitting a dense volume of orange-coloured smoke for a period of not less than two minutes and not more than four minutes.
3. The signal shall be waterproofed and capable of satisfactory functioning after immersion in water for one minute.
4. All components, composition and ingredients shall be of such a character and of such a quality as to burn evenly and as to enable the signal to maintain its service-ability under good average storage conditions for a period of at least three years.
5. The signal shall be stamped indelibly with the date on which it is filled.
6. Clear and concise directions for use in the English language shall be printed indelibly on the signal.

Rule 90(1)(p)

PART VI

FIRST AID OUTFITS FOR LIFEBOATS AND LIFERAFTS

The first aid outfit provided in every lifeboat or liferaft carried by the vessel shall comply with the following requirements:—

1. It shall be packed in a durable, damp-proof and effectively sealed container, which shall bear on its outside an itemised list of its contents.

2. It shall include the following items, each of which shall comply with any standards or requirements specified in relation to it in the current issue of the British Pharmacopoeia, the British Pharmaceutical Index or the National Formulary:—

<i>ARTICLE</i>	<i>QUANTITY</i>
(a) Standard Dressing No. 14, Medium BPC (15cm × 10cm)	4
(b) Standard Dressing No. 15, Large BPC (15cm × 20cm)	4
(c) Bandages, Triangular, not less than 90cm sides, 130cm base	6
(d) Open Wove Bandage, BPC 75cm × 3·5 metres	10
(e) Self Adhesive Waterproof Wound Dressings, assorted sizes	1 packet
(f) Paraffin Gauze Dressing for Burns, individual (10cm × 10cm approx) 10 dressings per carton	1 carton
(g) Antiseptic Burn or Wound Cream, Cetrimide BP 0·5% w/w 50 gm tube	2
(h) Analgesic Tablets, in containers clearly labelled with the name of the analgesic, e.g. Aspirin Compound tablets, Paracetamol tablets, and directions for use	50
(i) Scissors 10cm, 1 sharp, 1 blunt point, of rustless and stainless steel	1
(j) Six Morphine Ampoule Syringes containing a solution of either morphine salt equivalent to Anhydrous Morphine 15 mg in 1 cc or Papaveretum BPC (30 mg in 1 cc) in screw capped metal drum with directions for use	1 drum
(k) Safety pins	4
(l) First Aid instructions in the English language printed on linen or waterproof paper.	

Rule 90(1)(u)

PART VII

MANUAL PUMPS FOR LIFEBOATS

Every lifeboat manual pump shall comply with the following requirements:—

1. The capacity when operated at not more than 60 double strokes per minute at 1·25 metres suction head, shall be not less than:

- (a) 30 litres per minute in lifeboats of 7 metres in length or over; or
- (b) 20 litres per minute in lifeboats of less than 7 metres length.

2. In its normal dry state (excluding internal grease or other assistance) the pump shall be readily self-priming when operated at a suction head of not less than 1·25 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. The metal part of the operating handle shall be suitably sheathed by material other

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than wood to ensure that the hands of the operator are protected when the pump is used in extreme cold. The spindle gland shall be of the spring loaded seal ring type.

SCHEDULE 15

DAVITS AND LIFEBOAT LAUNCHING GEAR

Rule 96(9)

PART I

GENERAL

Definition of “working load”. In this Schedule the expression “working load” means—

- (a) in relation to davits to which sub-paragraph (a) of paragraph 1 of Part II of this Schedule applies, the sum of the weight of the lifeboat, its full equipment, the blocks and falls, and the maximum number of persons which the lifeboat is deemed fit to carry, the weight of each person being taken to be 75 kilogrammes;
- (b) in relation to davits and other means of launching to which sub-paragraph (b) or (c) of paragraph 1 of Part II of this Schedule 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;
- (c) 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 of the lowering tackle.

PART II

CONSTRUCTION

1. Strength.

- (a) Every davit serving a lifeboat which is required by Rule 96(1) of these Rules to be put into the water when loaded with its full 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 full complement of persons, when the vessel has a trim of up to 10 degrees and is listed up to 15 degrees either way.
- (b) 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 vessel listed to 25 degrees.
- (c) 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 sub-paragraph (a) or (b) above, 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 vessel has a trim of 10 degrees and is listed up to 15 degrees either way.

- (d) 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 all 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, and in addition, in the case of an emergency lifeboat, that it can be safely hoisted from the water to the embarkation deck at a speed of not less than 18 metres per minute when loaded with its full equipment and a distributed load of 1 tonne.

2. Gravity davits. 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.

In the case of gravity type 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:

3. Luffing davits. The operating gear of all luffing type davits shall be of sufficient power to ensure that the lifeboats, Class C boats or other boats fully equipped and manned with the launching crew, but not loaded with other persons, can be turned out against a list of at least 15 degrees.

4. Mechanically controlled single-arm davits. The working load of any mechanically controlled single-arm davit shall not exceed 1.5 tonnes.

5. Stresses.

- (a) 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 of list, shall afford 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.
- (b) 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 afford 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.

6. Static load test. Each davit with its arm at full out-reach 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.

7. Attachments at the davit head. 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 2½ times the maximum load on the attachments.

8. Blocks.

- (a) All blocks used in the operation of hoisting and lowering of lifeboats, Class C boats or other boats shall be of a design that affords an adequate factor of safety. Lower blocks, when fitted, shall be non-toppling and in the case of emergency lifeboats, provision shall be made to prevent the falls from cabling. The size of blocks shall be commensurate with the size of the falls.
- (b) A metal block shall be capable of withstanding a proof load test of not less than 2½ 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 that will prevent the rope from overriding the rim of the sheave of any block

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or lead sheave. Component parts of blocks other than their sheaves shall be of ductile material.

- (c) A wood block shall be capable of withstanding a proof load of not less than $2\frac{1}{2}$ times the load on the block. The width between the cheeks shall be 10 millimetres greater than the diameter of new cordage ropes when those ropes are 95 millimetres in circumference, and less in proportion to the circumference of the ropes when they are smaller.

9. Wire ropes.

- (a) The breaking tensile load of each wire rope used for lowering lifeboats, Class C boats or other boats shall be not less than six times the maximum load on the wire rope when lowering, hoisting or stowing.
- (b) Wire ropes shall be securely attached to the drum of the winch, and the end attachment of the wires and other parts from which the lifeboat, Class C boat or other boat is to be suspended shall be capable of withstanding a proof load of not less than $2\frac{1}{2}$ times the load on such attachments and other parts.
- (c) Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than $2\frac{1}{2}$ times the load imposed on them in service unless samples representing each size of wire on which they are used show a factor of safety of at least 5 when tested to destruction.

10. Winches.

- (a) 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.
- (b) Winch brakes shall be of robust construction and afford complete control and limitation 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 include means for automatically controlling the speed of lowering to ensure that the lifeboat, Class C boat or other boat is lowered expeditiously without exceeding a rate of lowering consistent with safety. For this purpose, the automatic brake shall be set to give a speed of lowering of the lifeboat of between 18 and 36 metres per minute. 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 man operating the winch to have the lifeboat, Class C boat or other boat under observation during the whole process of its being launched into the water, provided that winches serving emergency lifeboats shall in any case be so placed.
- (c) Each winch shall be capable of lowering and holding a test load of 1.5 times the working load as defined in paragraph (c) of Part I of this Schedule.
- (d) 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.

11. Cordage rope falls, Cordage rope falls shall be of manilla 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 life-boats, 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 than 65 millimetres in circumference shall not be used for lifeboat falls. Winding reels or flaking boxes for the manilla rope falls shall be provided.

12. Bollards. 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 III

TESTS AFTER INSTALLATION ON BOARD

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

2. Lowering tests.

(a) Each pair of davits to which sub-paragraph (a) of paragraph 1 of Part II of this Schedule applies and any associated lifeboat winches and their brakes shall be capable of withstanding the following test:—

the lifeboat at each set of davits shall be lowered from the embarkation deck into the water, loaded with the equipment required by these Rules and a distributed weight equal to the full number of persons which it is deemed fit to accommodate plus 10 per cent of the working load. Winch brakes exposed to the weather shall be capable of withstanding the foregoing test with the braking surface wetted.

(b) In the case of davits to which sub-paragraph (b) or (c) of paragraph 1 of Part II of this Schedule applies, the lifeboats, Class C boats or other boat shall be lowered into the water with the equipment required by these Rules and a distributed weight equal to the weight of a launching crew of two persons plus 10 per cent of the working load.

(c) For the purpose of the test required under sub-paragraphs (a) and (b) above the weight of a person shall be taken to be 75 kilogrammes.

3. Hoisting tests for emergency lifeboats. Emergency lifeboats which are required by these Rules to be served by winches for recovery shall, in addition to the tests required by paragraphs 1 and 2 of this Part of this Schedule, be tested by hoisting the emergency lifeboat with the equipment required by these Rules and a distributed load of 1 tonne 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 16

Rule 96(16)

LIFEBOAT 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.

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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 should there be 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 or link of 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. Such parts of the gear as would otherwise be likely to be set fast 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 all parts which support the weight of the lifeboat shall be designed to provide breaking strength proportionate to a load of at least 2½ times the weight of the heaviest loaded lifeboat in which the gear is intended to be fitted.

SCHEDULE 17

Rule 98(2)

LIFERAFT LAUNCHING APPLIANCES

1. Definition of “working load”. In this Schedule 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 deemed fit to carry, the weight of each person being taken to be 75 kilogrammes.

2. Strength. 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 full complement of persons and equipment can be safely lowered when the vessel has a trim of up to 10 degrees and is listed up to 15 degrees either way.

3. Construction. Each part of every liferaft launching appliance shall be such that when the appliance is operating under the working load and unfavourable conditions of list and trim it shall have an adequate factor of safety having regard to the material used, the method of construction and the nature of its duty. 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.

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

5. Operation.

- (a) Every liferaft launching appliance shall be so designed that the liferaft when loaded with its full complement of persons and equipment can be safely lowered into the water.
- (b) The speed of lowering of the liferaft shall be automatically controlled at not less than 18 metres per minute nor more than 36 metres per minute and the descent of the liferaft shall be at all times under the manual control of the operator.
- (c) Operation of the launching appliance shall not be solely dependent on the use of means other than manual effort or gravity. The arrangements shall be such that the liferaft can be lowered by gravity.
- (d) Arrangements shall be such that on becoming waterborne the liferaft shall be automatically released from the launching appliance, and there shall be provision for the manual release of the liferaft by a person on board the liferaft.
- (e) When liferaft launching appliances incorporate winches, the winches shall be constructed in accordance with paragraph 10 of Part II of Schedule 15 to these Rules.

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

7. Operational Tests. Tests shall be made to ensure that any liferaft served by any launching appliance when loaded with only its full equipment can be lowered by gravity into the water. If more than one liferaft is served by any launching appliance effective successive launching shall be demonstrated.

SCHEDULE 18

Rules 76(3)(e) 77(5)(e) 78(3)(e) 79(f)
80(e)

SHIP'S PARACHUTE DISTRESS ROCKET SIGNALS

1. Every ship's parachute distress rocket signal shall consist of a single bright red star which is projected to the required height by means of a rocket, and which burns while falling, its rate of fall being controlled by means of a parachute to an average rate of 4.5 metres per second.

2. When the rocket is fired approximately vertically, the star and parachute shall be ejected at or before the top of the trajectory, at a minimum height of 230 metres. The rocket shall in addition be capable of functioning when fired at an angle of 45 degrees to the horizontal.

3. The star shall burn with a minimum luminosity of 30,000 candelas for not less than 40 seconds. It shall burn out at a height of not less than 45 metres from the sea level.

4. The parachute shall be of such size as to provide the required control of the rate of fall of the burning star. It shall be attached to the star by means of a flexible fireproof harness.

5. The rocket may be ignited by any suitable method. If external ignition by means of a safety fuse is employed, the outer end of the safety fuse shall be covered with a metal ferrule primed with match composition and a separate striker shall be suitably attached to each rocket.

6. The match composition, the striker composition, the ferrule, and the whole of the external surface of the rocket shall be water-proofed.

7. The rocket shall be capable of functioning properly after immersion in water for one minute and removal of the adhering water by shaking.

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8. All components, compositions and ingredients shall be of such a character and of such a quality as to enable the rocket to maintain its serviceability under good average storage conditions for a period of at least three years.

9. The rocket shall be packed in a container which shall be durable, damp-proof and effectively sealed. If made of metal, the container shall be well tinned and lacquered, or otherwise adequately protected against corrosion.

10. The date on which the rocket is filled shall be stamped indelibly on the rocket and on the container.

11. Clear and concise directions for use in the English language shall be printed indelibly on the rocket.

SCHEDULE 19

Rules 101(13) 102(12)

INTERNATIONAL SHORE CONNECTION

The international shore connection, as hereinafter illustrated, which is required by these Rules to be carried in the vessel shall be in accordance with the following specification:—

Outside diameter: 178 millimetres

Inner diameter: 64 millimetres

Bolt circle diameter: 132 millimetres

Holes: 4 holes of 19 millimetres diameter equidistantly placed, slotted to the flange periphery.

Flange thickness: 14.5 millimetres minimum.

Bolts: 4, each 16 millimetres in diameter, 50 millimetres in length with eight washers.

Flange surface: flat face.

Material: any suited to 10 kilogrammes force per square centimetre service.

Gasket: any suited to 10 kilogrammes force per square centimetre service.

The connection shall be constructed of material suitable for 10 kilogrammes force per square centimetre service. The flange shall have a flat face on one side, and to the other there shall be permanently attached a coupling which will fit the vessel's hydrants and hose. The connection shall be kept aboard the vessel together with its gasket, bolts and washers.

SCHEDULE 20

Rule 110(1)

NON-PORTABLE FOAM FIRE EXTINGUISHERS

1. Every foam fire extinguisher, other than a portable fire extinguisher, provided in compliance with these Rules shall be so designed and constructed that the interior of the extinguisher can be examined.

2. The body of the extinguisher shall be cylindrical with ends which shall be dished outwards, without reverse flanging, to a radius not exceeding the diameter of the body. The body and ends shall be made of sheet steel which shall be tinned or lead-coated internally or they shall be provided with equivalent protection against corrosion internally. Each other part of the extinguisher shall, where necessary, be protected against corrosion.

3. The body of the extinguisher shall be welded or riveted. All riveted joints shall be soldered.
4. The body shall be provided with an opening for the introduction of an inner container. The opening shall be fitted with a cap of gunmetal or other suitable material, screwed with a continuous thread, through the side of which safety holes or slots shall be provided so that when the cap is being removed any pressure of gas remaining in the container may be released gradually should the discharge opening be choked. The cap joint shall be made with acid-resisting rubber, greased leather or other suitable material.
5. If the extinguisher is provided with an inner container, such container shall be adequately supported.
6. A reinforced discharge hose shall be provided, together with a nozzle, the area of which shall be such that, when the extinguisher is operated, the foam is projected a distance of 14 metres for a period of not less than 100 seconds in the case of an extinguisher of 136 litres capacity or over, and a distance of 11 metres for a period of not less than 90 seconds in the case of an extinguisher of under 136 litres.
7. The charge and the air space above the level of the solution in the body shall be so regulated that the maximum pressure in the extinguisher when put into action, with all outlets closed, does not exceed 19 kilogrammes force per square centimetre with the solution at a temperature of 38°C.
8. The extinguisher shall be capable of withstanding for a period of 5 minutes an internal pressure of 1 1/2 times the pressure in the extinguisher when put into action with all outlets closed, and in no event of less than 24 kilogrammes force per square centimetre
9. The outside of the extinguisher shall be clearly and permanently marked with:—
 - (a) the name of the maker or vendor of the extinguisher;
 - (b) the capacity of the extinguisher;
 - (c) the level of the solution, when the extinguisher is filled to its working capacity;
 - (d) the pressure under which the extinguisher was tested;
 - (e) instructions for operating the extinguisher;
 - (f) the year in which the extinguisher was manufactured.

SCHEDULE 21

Rule 110(1)

NON-PORTABLE CARBON DIOXIDE FIRE EXTINGUISHERS

1. Every carbon dioxide fire extinguisher, other than a portable fire extinguisher, provided in compliance with these Rules shall be provided with cylinders constructed in accordance with any of the following specifications of the British Standards Institution:—

Numbers B.S. 401: 1931. B.S. 1287: 1946. B.S. 1288: 1946.

2. Each cylinder shall be provided with an internal discharge tube and a valve to release the gas.
3. The extinguisher shall be provided with a discharge hose which shall be reinforced so as to withstand a pressure of at least 122.5 kilogrammes force per square centimetre when the necessary couplings are fitted. The bore of the discharge hose shall not be less than the sizes respectively set forth in the following table:—

<i>Capacity of extinguisher</i>	<i>Minimum bore of discharge hose</i>
16 kilogrammes	9.5 millimetres

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<i>Capacity of extinguisher</i>	<i>Minimum bore of discharge hose</i>
45 kilogrammes	12 millimetres

The discharge hose shall be provided with a horn which shall be of electrically nonconducting material and of a design which will reduce the velocity of the gas discharged. The metal part of the operating handle shall be suitably sheathed to protect the hands of the operator from extreme cold.

4. At any temperature between 15°C and 18°C inclusive, the extinguisher shall discharge gas at such a rate that carbon dioxide equal in weight to 3/4 of the capacity of the container will be discharged in the periods respectively set for them in the following table:—

<i>Capacity of extinguisher</i>	<i>Period</i>
16 kilogrammes	30 to 45 seconds
45 kilogrammes	60 to 90 seconds

5. The outside of the extinguisher shall be clearly and permanently marked in accordance with Section Four of the specification of the British Standards Institution Number B.S. 3326: 1960.

SCHEDULE 22

Rule 110(4)

PORTABLE FIRE EXTINGUISHERS

Portable fire extinguishers provided in compliance with these Rules shall, subject to the limitations of paragraphs (2) and (3) of Rule 110 of these Rules, be constructed in accordance with the following specifications of the British Standards Institution:

<i>Type of Extinguisher:</i>	<i>Specification Numbers</i>
Water Type (Soda-acid)	B.S. 138: 1948
Water Type (Gas-pressure)	B.S. 1382:1948
Foam types (Chemical)	B.S. 740: Part 1: 1948
Foam type (Gas-pressure)	B.S. 740: Part 2: 1952
Carbon dioxide	B.S. 3326: 1960
Dry powder	B.S. 3465: 1962
Halogenated hydrocarbon	B.S. 1721: 1968

SCHEDULE 23

Rule 115(1)(a)

BREATHING APPARATUS

1. Every breathing apparatus provided in compliance with these Rules may be either—
 - (a) a smoke helmet or a smoke mask, each of which shall be provided with an air pump or bellows and an air hose; or
 - (b) a self-contained breathing apparatus.

Smoke helmet and smoke mask

2. Every smoke helmet or smoke mask provided in compliance with these Rules shall be provided with a hose for the supply of air from the outside atmosphere. An air pump or bellows shall be provided which shall be suitable for pumping air through the hose. The hose shall be of the non-collapsing type and shall be sufficient in length to enable the air pump or bellows to be on the open deck in clean air well clear of any hatch or doorway while the wearer of the helmet or mask is in any part of the accommodation, service, hold or machinery spaces. Efficient couplings shall be provided if two or more lengths of hose are to be joined in order to reach the aforesaid spaces. The air inlet to the pump or bellows shall be so protected as to ensure that the supply of air cannot be obstructed.

Self-contained breathing apparatus

- (a) (a) Every self-contained breathing apparatus provided in compliance with these Rules shall be of the open circuit compressed air type.
- (b) The storage capacity of the compressed air cylinder or cylinders attached to the apparatus and carried by the wearer shall be at least 1,200 litres of free air. The storage cylinders shall be constructed of suitable material and shall be of efficient design and of sufficient strength to withstand with an adequate factor of safety the internal air pressure to which they may be subjected, and each cylinder shall be capable of withstanding a test by hydraulic pressure suitably in excess of the maximum working pressure.
- (c) Means shall be provided for the automatic regulation of the air supply to the wearer of the apparatus in accordance with his breathing requirements when he is breathing any volume of free air of up to 85 litres per minute at any time when the pressure in the supply cylinder or cylinders is above 10 kilogrammes force per square centimetre. Means shall be provided for overriding the automatic air supply valve.
- (d) A pressure gauge with an anti-bursting orifice shall be incorporated in the high-pressure air supply system to enable the wearer to read directly and easily the pressure of air in the supply cylinder or cylinders.
- (e) Means shall be provided for warning the wearer audibly when 80 per cent of the usable capacity of the apparatus has been consumed.
- (f) The maximum weight of any such apparatus shall not exceed 16 kilogrammes excluding any lifeline and, if they do not form an integral part of the apparatus, any safety belt or harness.
- (g) Every self-contained breathing apparatus shall be provided with fully charged spare cylinders having a spare storage capacity of at least 2,400 litres of free air except that:—
 - (i) if the vessel is carrying five sets or more of such apparatus the total spare storage capacity of free air shall not be required to exceed 9,600 litres; or
 - (ii) if the vessel is equipped with means for re-charging the air cylinders to full pressure with air free from contamination, the spare storage capacity of the fully charged spare cylinders of each such apparatus shall be of at least 1,200 litres of free air, and the total spare storage capacity of free air provided in the vessel shall not be required to exceed 4,800 litres.
- (h) A servicing and instruction manual shall be kept with each such apparatus.

General

- (a) (a) Every breathing apparatus shall be constructed of materials having adequate mechanical strength, durability and resistance to deterioration by heat or by contact with water and such materials shall be resistant to fire and shall not allow the breathing circuit to be penetrated by smoke or chemical fumes likely to be encountered in service. The fabric

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used in the construction of any harness provided with such apparatus shall be resistant to shrinkage. Exposed metal parts of the apparatus, harness and fittings shall be of materials so far as practicable resistant to frictional sparking.

- (b) The following equipment shall be provided for use with each set of breathing apparatus:—
 - (i) a fire-proof life-and-signalling-line at least 3 metres longer than is required to reach from the open deck in clean air well clear of any hatch or doorway to any part of the accommodation, service, hold or machinery spaces. The line shall be made of copper or galvanised steel wire rope having a breaking strength of at least 510 kilogrammes and shall be overlaid up to at least 32 millimetres in circumference by hemp or other covering to provide a surface which can be firmly gripped when wet;
 - (ii) an adjustable safety belt or harness to which such line shall be capable of being securely attached and detached by the wearer by means of a snap-hook;
 - (iii) means for protecting the eyes and face of the wearer against smoke;
 - (iv) plates of suitable non-flammable material bearing a clearly legible code of signals to be used between the wearer and his attendant, one of which shall be attached to the safety belt or harness and another attached to the free end of the life-line;
 - (v) (for every apparatus other than a smoke helmet) a lightweight safety helmet with lining and adjustable head-band.
- (c) Every breathing apparatus shall be clearly marked with the name of the maker or vendor and the year of manufacture. Operating instructions in clear and permanent lettering shall be affixed to such apparatus.

SCHEDULE 24

Rule 1(5)

LIMITS OF SMOOTH WATER AND PARTIALLY SMOOTH WATER AREAS

<i>DISTRICT</i>	<i>Smooth Water Areas</i>	<i>Partially Smooth Water Areas(1)(2)</i>
Shetland Isles:		
—		
Blue Mull Sound	—	Between Gutcher and Belmont.
Yell Sound	—	Between Tofts Voe and Ulsta.
Lerwick	—	In winter in the area bounded by a line from Point of Scotland to Heogan to the northward, and from Holm of Mel to the light-house situated some 3 cables to the eastward of the Nabb to the southward. In summer in the area bounded by a line from Easter Rova Head to Score Head to the northward, and from the south end of Ness of Sound to Kirkabisterness to the southward.

(1) The outer limits of the smooth water areas specified in the second column of this Schedule shall be taken to be the corresponding inner limits of the partially smooth water areas specified in the third column of this Schedule.
 (2) Unless otherwise indicated these limits apply at all times of the year. In this Schedule “summer” means the months of April to October, inclusive, and “winter” means the months of November to March, inclusive.

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<i>DISTRICT</i>	<i>Smooth Water Areas</i>	<i>Partially Smooth Water Areas(1)(2)</i>
Orkney Isles: —		
Kirkwall	—	Between Kirkwall and Rousay not east of a line between Point of the Grand (Egilsay) and Galt Ness (Shapinsay) or between Work Head (Mainland) through Helliar Holm light to the shore of Shapinsay; not north west of the south east tip of Eynhallow Island, or north of the southern tip of Holm of Scockness.
Stromness	—	To Scapa but not outside Scapa Flow.
Scotland E. Coast		
Cromarty	In Cromarty Firth within a line between North Sutor and South Sutor.	Within a line from North Sutor to Nairn Breakwater.
Inverness	Within a line from Fort George to Chanonry Point to Fort William.	Within a line from North Sutor to Nairn Breakwater.
Aberdeen	Within a line from South Jetty to Abercromby Jetty.	No partially smooth waters.
Dundee	Within a line from Fish Dock, Dundee to Craig Head, East Newport.	Within a line from Broughty Castle to Tayport.
Queensferry	Within the Firth of Forth but not east of the Forth railway bridge.	Within a line from Kirkcaldy to Portobello.
Leith	Within the Breakwaters.	Within a line from Kirkcaldy to Portobello.
England E. Coast	Within a line from Spittal Point to the inner end of Breakwaters.	No partially smooth waters.
Berwick-on-Tweed		
Amble	Within the Breakwaters.	No partially smooth waters.
Blyth	Within the Pier Heads.	No partially smooth waters.
Newcastle, North and South Shields.	Within the Tyne Pier Heads.	No partially smooth waters.
Sunderland	Within the Sunderland Pier Heads.	No partially smooth waters.
Hartlepool, East	Within the Breakwaters.	No partially smooth waters.

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<i>DISTRICT</i>	<i>Smooth Water Areas</i>	<i>Partially Smooth Water Areas(1)(2)</i>
Stockton, Middlesbrough	Not eastward of No. 8 Beacon.	No partially smooth waters.
Whitby	Within Whitby Pier Heads	No partially smooth waters.
Hull	—	In winter within a line from New Holland to Paull. In summer within a line from Cleethorpes Pier to Patrington Church.
Goole	Within a line from North Ferriby to South Ferriby.	In winter within a line from New Holland to Paull. In summer within a line from Cleethorpes Pier to Patrington Church.
Grimsby	—	In winter no partially smooth waters. In summer within a line from Cleethorpes Pier to Patrington Church.
Boston	Inside the New Cut.	No partially smooth waters.
Wisbech	Inside Wisbech Cut.	No partially smooth waters.
King's Lynn	Inside Lynn Cut.	No partially smooth waters.
Yarmouth and Lowestoft	On all inland navigation within the Harbour Entrances at Yarmouth or Lowestoft.	No partially smooth waters.
Woodbridge	On the River Deben to the Mouth	No partially smooth waters.
Harwich, Ipswich or Felixstowe Railway Pier	On the River Orwell or on the River Stour, and within a line from Dovercourt Breakwater to Landguard Point.	No partially smooth waters.
Maldon	On the River Blackwater within a line from West Mersea Point to Sales Point.	In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable.
Burnham-on-Crouch	On the River Crouch within a line from Hollywell Point to Foulness Point.	In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable.

- (1) The outer limits of the smooth water areas specified in the second column of this Schedule shall be taken to be the corresponding inner limits of the partially smooth water areas specified in the third column of this Schedule.
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<i>DISTRICT</i>	<i>Smooth Water Areas</i>	<i>Partially Smooth Water Areas(1)(2)</i>
London	River Thames, westward of a N/S line through P.H.A. Isolation Hospital, Gravesend.	In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable.
Rochester	Sheerness and Whitstable inside Sheppey.	In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable.
England S. Coast Dover	Within a line drawn across the East and West entrances to the Harbour.	No partially smooth waters.
Rye	On the River Rother above Coastguard Cottages.	No partially smooth waters.
Littlehampton	On the River Arun above Littlehampton Pier.	No partially smooth waters.
Chichester	Within a line drawn between Eastoke Point and West Wittering (Tower).	No partially smooth waters.
Langston Harbour	Within a line drawn between Eastney Point and Gunner Point.	Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge to the eastward, and the Needles and Hurst Point to the westward.
Portsmouth	Within Portsmouth Harbour.	Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge to the eastward, and the Needles and Hurst Point to the westward.
Bembridge, Isle of Wight	Within Brading Harbour.	Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge to the eastward, and the Needles and Hurst Point to the westward.
Cowes, Isle of Wight	The River Medina within a line joining East and West Cowes.	Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge to the eastward, and the Needles and Hurst Point to the westward.
Southampton	Within a line from Calshot Castle to Hook Beacon.	Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge to the eastward, and the Needles and Hurst Point to the westward.
Beaulieu	Within Beaulieu River not eastward of a NS line through Needs Oar Point.	Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and

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<i>DISTRICT</i>	<i>Smooth Water Areas</i>	<i>Partially Smooth Water Areas(1)(2)</i>
		Trinity Church, Bembridge to the eastward, and the Needles and Hurst Point to the westward.
Christchurch	Within Christchurch Harbour excluding the Run.	No partially smooth waters.
Poole	Inside the Harbour not seaward of the line of the Chain Ferry between Sandbanks and S. Haven Point.	No partially smooth waters.
Weymouth	—	Within Portland Harbour and between River Wey and Portland Harbour.
Exeter	Within a line from Warren Point to the Coastguard Flag Staff at Exmouth.	No partially smooth waters.
Teignmouth	Within the Harbour.	No partially smooth waters.
Dartmouth	River Dart within a line from Kettle Point to Battery Point.	No partially smooth waters.
Salcombe and Kingsbridge.	River Salcombe not seaward of a line Splat Point to Lambury Point.	No partially smooth waters.
Plymouth	Within a line from Mount Batten Pier to Ravenness Point through Drake's Island. The River Yealm within a line from Warren Point to Misery Point.	Within a line from Cawsand to the Breakwater to Staddon Pier.
Fowey	Inside the Harbour.	No partially smooth waters.
Falmouth	Within a line from St. Anthony Head to Pendennis Point.	In winter within a line from St. Anthony Head to Rosemullion Point. In summer within a line from St. Anthony Head to Nare Point.
England and Wales W. Padstow	Coast Padstow Harbour within a line from Gun Point to Brae Hill.	Within a line from Stepper Point to Trebetherick Point.
Barnstaple	Within the Bar.	No partially smooth waters.
Bridgwater	Inside Stert Point.	Within the Bar.
Bristol	Within a line from Avonmouth Pier to Wharf Point.	In winter within a line from Blacknore Point to Caldicot Pill, Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down.

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Gloucester	River Severn or Avon to Sharpness Point via Gloucester Canal.	In winter within a line from Blacknore Point to Caldicot Pill, Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down.
Chepstow	River Wye, above Chepstow.	In winter within a line from Blacknore Point to Caldicot Pill, Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down.
Cardiff	Within a line from Low Water Pier Head to Penarth Head.	In winter within a line from Blacknore Point to Caldicot Pill, Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down.
Barry Dock	Inside the Docks.	In winter within a line from Blacknore Point to Caldicot Pill, Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down.
Neath	In the River Neath.	No partially smooth waters.
Swansea	Inside the Dock.	No partially smooth waters.
Llanelly and Burry Port	Within an area bounded by a line drawn from Burry Port Western Pier to Whiteford Point on the west and Loughor Railway Bridge on the east.	No partially smooth waters.
Milford	Within a line from South Hook Point to Thorn Point.	No partially smooth waters.
Fishguard	In the Harbour within a line joining the North and East Breakwater Heads.	No partially smooth waters.
Cardigan	Inside the Bar.	No partially smooth waters.
Aberdovey	Within a line from Aberdovey Station to Trwyn Bach.	No partially smooth waters.
Barmouth	Within a line from Barmouth to Penrhyn Point.	No partially smooth waters.
Portmadoc	Within a line from Harlech Point to GraigDdu.	No partially smooth waters.
Holyhead	Within an area bounded by the main breakwater and a line drawn from the head of the	No partially smooth waters.

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	breakwater to Brynglas Point Towyn Bay.	
Caernarvon, Bangor	Within the Menai Straits between Aber Menai Point and Beaumaris.	Within the Menai Straits from Caernarvon Bar to Puffin Island.
Conway	Within a line from Mussel Hill to Tremlyd Point.	No partially smooth waters.
Chester	River Dee not below Connah's Quay.	In winter within a line from Hilbre Point to Point of Air. In summer within a line from Formby Point to Point of Air.
Liverpool	Above the Rock Light House.	In winter no partially smooth waters. In summer within a line from Formby Point to Point of Air.
Preston	Within a line from Lytham to Southport.	Within a line from Southport to Blackpool inside the banks.
Fleetwood	Within a line from Low Light to Knott End pier.	In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head.
Lancaster	Within a line from Sunderland Point to Chapel Hill.	In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head.
Heysham	—	In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head.
Morecambe	—	In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head.
Barrow	Between Walney Island and the mainland.	No partially smooth waters.
Douglas, Isle of Man	From Battery Pier to Victoria Pier.	No partially smooth waters.
Carlisle	Above Port Carlisle.	Within a line from Southernness Point to Silloth.
Scotland W. Coast Dumfries	Within a line from Airds Point to Scar Point.	Within a line from Southernness Point to Silloth.

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Stranraer	Within a line from Cairn Ryan to Kirkcolm Point.	Loch Ryan within a line from Finnart's Point to Milleur Point.
Ayr	Inside the Bar.	No partially smooth waters.
Glasgow	Above partially smooth waters.	<i>Outer limit:</i> a line from Skipness to a position one mile south of Garroch Head thence to Farland Head. <i>Inner limit in winter:</i> a line from Cloch Lighthouse to Dunoon Pier.
<p><i>Inner limit in summer:</i> a line from Bogany Point, Isle of Bute to Skelmorlie Castle, and a line drawn from Ardlamont Point to the southern extremity of Etterick Bay, inside the Kyles of Bute.</p> <p>Note: The above inner summer limit is extended between 5th June and 5th September (both dates inclusive) by a line drawn from a point two miles off the Ayrshire Coast at Skelmorlie Castle to Tormont End, Cumbrae, and a line drawn from Portachur</p>		

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Point, Cumbrae to Green Point, Ayrshire.		
Colintraive	Between Colintraive and Rhudhabodach.	No partially smooth waters.
Campbeltown	Inside the harbour within a line from Macringan's Point to Ottercharach Point.	No partially smooth waters.
Oban	—	Within an area bounded on the north by a line from Dunollie Point Light to Ard na Chruidh and to the south by a line from Rudha Seanach to Ard na Cuile.
Ballachulish	Within Loch Leven and not outside Peter Straits.	No partially smooth waters.
Fort William	In Loch Linnhe north of Corran Point Light, and including Loch Eil and the Canal to Inverness.	No partially smooth waters.
Kyle of Lochalsh	Within Kyle Akin not westward of Eilean Ban light or eastward of Eileanan Dubha.	Through Loch Alsh to the Head of Loch Duich.
Strome	Between Stromemore and Strome Ferry.	No partially smooth waters.
Ullapool	In Loch Broom within a line drawn between Ullapool Point light and Aultnaharrie.	No partially smooth waters.
Kylesku	Across Loch Cairnbawn in the area between the eastern-most point of Garbh Eilean and the western-most point of Eilean na Rainich.	No partially smooth waters.
Northern Ireland Carlingford Lough	Within a line from Greenore to Greencastle Point.	No partially smooth waters.
Strangford Lough	Within Strangford Lough but not seaward of Rue Point.	No partially smooth waters.
Larne	Within a line from Larne pier to the ferry pier on Island Magee.	No partially smooth waters.

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Belfast	Within a line from Holywood to Macedon Point.	In winter no partially smooth waters. In summer within a line from Carrickfergus to Bangor.
Lough Erne	Upper or Lower Lough Erne.	No partially smooth waters.
Lough Neagh	Within two miles of the shore.	At a greater distance than two miles from the shore.
Londonderry	Within a line from Magilligan Point to Greencastle.	No partially smooth waters.

SCHEDULE 25

Rule 70

PUBLICATIONS, DIRECTIONS AND INFORMATION

<i>Column 1 Publication</i>	<i>Column 2 Publisher</i>
(a) International Code of Signals	Her Majesty's Stationery Office
(b) Merchant Shipping Notices	Department of Trade
(c) Mariners Handbook	Hydrographer of the Navy
(d) Notices to Mariners	Hydrographer of the Navy
(e) Nautical Almanac	—
(f) Navigational Tables	—
(g) Lists of Radio Signals	Hydrographer of the Navy
(h) Lists of Lights	Hydrographer of the Navy
(i) Sailing Directions	Hydrographer of the Navy
(j) Tide Tables	—
(k) Tidal Stream Atlases	—
(l) Operating and Maintenance instructions for navigational aids carried by the vessel.	—

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