
STATUTORY INSTRUMENTS

1992 No. 2359

MERCHANT SHIPPING

SAFETY

The Merchant Shipping (Life-Saving Appliances for Passenger Ships of Classes III to VI (A)) Regulations 1992

<i>Made</i>	- - - -	<i>1st October 1992</i>
<i>Laid before Parliament</i>		<i>9th October 1992</i>
<i>Coming into force</i>	- -	<i>31st October 1992</i>

The Secretary of State for Transport after consulting with the persons referred to in section 22(2) of the Merchant Shipping Act 1979(1), in exercise of the powers conferred on him by sections 21(1)(a) and (3) to (6) and by section 22(1) of that Act and of all powers enabling him in that behalf, hereby makes the following Regulations:

PART I

PRELIMINARY

Citation, commencement, and revocation:

1.—(1) These Regulations may be cited as the Merchant Shipping (Life-Saving Appliances for Passenger Ships of Classes III to VI(A)) Regulations 1992 and shall come into force on 31st October 1992: Provided that the said Regulations shall not have effect:

- (a) Subject to (b) below, in relation to a vessel whose keel was laid or which was at a similar stage of construction:
 - (i) before 1st January 1940, until 1st April 1994;
 - (ii) on or after 1st January 1940 but before 31st December 1962, until 1st April 1995;
 - (iii) on or after 1st January 1963 but before 31st December 1974, until 1st April 1996;
 - (iv) on or after 1st January 1975 but before 31st August 1984, until 1st April 1997; and
 - (v) on or after 1st September 1984 but before 31st October 1992, until 1st April 1998.

(1) 1979 c. 39; section 21(6) was amended by section 49 of the Criminal Justice Act 1982 (c. 48).

(b) in the case of the requirements of regulations 7(4), 8 and 9 relating to the carriage of lifejackets, until 31st October 1993 for all ships.

(2) The Merchant Shipping (Life-Saving Appliances) Regulations 1980⁽²⁾ are hereby revoked to the extent that they apply to United Kingdom ships of Class III, IV, V, VI and VI(A).

Interpretation

2.—(1) In these Regulations:

- (a) a reference to a numbered Schedule is, unless otherwise stated, a reference to the Schedule of that number in these Regulations;
- (b) a reference to a numbered regulation is, unless otherwise stated, a reference to the regulation of that number in these Regulations;
- (c) a reference in a regulation to a numbered paragraph is, unless otherwise stated, a reference to the paragraph of that number in that regulation;
- (d) a reference in these Regulations to “the standard of survivability” refers to the standard of survivability given in column 4 of table 1 or table 2, paragraph 12 of Part IV of Schedule 1 of the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984⁽³⁾. A reference to a one compartment standard means a unity factor of subdivision and a reference to a two compartment standard means a 0.5 factor of subdivision. In the case of ships built before 1 September 1984 the ship shall be treated as complying with the standard of survivability appropriate to that ship had it been built after that date but before the 31st October 1992; and
- (e) any reference in these Regulations to a British Standard shall also include a reference to the equivalent CEN Standard that may be published and shall also include a reference to any document amending that publication which is considered by the Secretary of State to be relevant.

(2) Notwithstanding anything in these Regulations, for existing ships life-saving appliances already fitted which comply with the standards laid down in the Schedules to the Merchant Shipping (Life-Saving Appliances) Regulations 1980 will be treated as meeting the requirements of these Regulations, to the extent appropriate.

(3) In these Regulations:

“buoyancy aid” means a device, intended to be worn, complying with the requirements of Part IV of Schedule 10;

“buoyant apparatus” means flotation equipment (other than lifebuoys, lifejackets and buoyancy aids) designed to support persons who are in the water and complying with the requirements of Schedule 13;

“buoyant lifeline” means a line complying with the requirements of Part IV of Schedule 9;

“buoyant smoke signal” means a pyrotechnic signal complying with the requirements of Part III of Schedule 8;

“cargo ship” means any ship which is not a passenger ship, pleasure craft or fishing vessel;

“Category A, B, C and D waters” means the waters specified as such in Merchant Shipping Notice M 1504; and cognate expressions shall be construed accordingly;

“date of expiry” in relation to any product referred to in Schedules 8 and 9 means a date within 3 years from the date of manufacture of that product;

(2) [S.I. 1980/538](#); to which there are amendments not relevant to these Regulations.

(3) [S.I. 1984/1216](#); these tables were inserted by the Merchant Shipping (Passenger Ship Construction and Survey) (Amendment) Regulations 1992 ([S.I. 1992/2358](#)).

“embarkation ladder” means a ladder complying with the requirements of Part V of Schedule 6 provided at embarkation stations to permit safe access to survival craft after launching;

“existing passenger ship” means a passenger ship the keel of which was laid before 31st October 1992 or which was at a similar stage of construction;

“favourable weather” means fine, clear settled weather with a sea state such as to cause only moderate rolling and/or pitching;

“float-free launching” means that method of launching a liferaft whereby the liferaft is automatically released from a sinking ship and is ready for use complying with Part VI of Schedule 4;

“general emergency alarm system” means a system complying with the requirements of Schedule 12;

“inflatable lifejacket” means a lifejacket complying with the requirements of Part II of Schedule 10;

“inflatable Civil Aviation Authority Lifejacket” means a lifejacket which has been approved by the United Kingdom Civil Aviation Authority;

“inflated boat” means a boat complying with the requirements of Schedule 3 and suitable for rescuing persons in distress and to marshal liferafts;

“instructions for on-board maintenance” means the instructions complying with the requirements of Part II of Schedule 11;

“launching appliance” means a provision complying with the requirements of Part I and the relevant requirements of Parts II, III or IV of Schedule 6 for safely transferring a lifeboat and rescue boat, liferaft or inflated boat respectively, from its stowed position to the water and recovery where applicable;

“length” means 96% of the total length on a waterline of a ship at 85% of the least moulded depth measured from the top of the keel, or the length from the fore-side of the stem to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel the waterline on which this is measured shall be parallel to the designed waterline;

“lifeboat” means a lifeboat complying with the requirements of Parts I and II of Schedule 1;

“lifebuoy” means a lifebuoy complying with the requirements of Part I of Schedule 9;

“lifejacket” means a lifejacket complying with the requirements of Parts I or II of Schedule 10;

“liferaft” means a liferaft complying with the requirements of Part I of Schedule 4;

“line throwing appliance” means an appliance complying with the requirements of Part IV of Schedule 8;

“marine escape system” means a system complying with the requirements of Schedule 5;

“Merchant Shipping Notice” means a Notice described as such and issued by the Department of Transport; and any reference to a particular Merchant Shipping Notice includes a reference to any document amending or replacing that Notice which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice;

“mile” means a nautical mile of 1852 metres;

“new passenger ship” means a passenger ship the keel of which is laid, or which is at a similar stage of construction, on or after 31st October 1992. A cargo ship, whenever built, which is converted to a passenger ship shall be treated as a passenger ship, the keel of which is laid or which is at a similar stage of construction, on the date on which such a conversion commences;

“open reversible liferaft” means a liferaft complying with the requirements of Part II of Schedule 4;

“passenger ship” means a ship carrying more than 12 passengers;

“person” means a person over the age of one year;

“rescue boat” means a boat complying with the requirements of Parts I, II or III of Schedule 2 and designed to rescue persons in distress and to marshal liferafts;

“restricted period” means a period falling wholly within the following limits:

- (a) from 1 April to 31st October, both dates inclusive; and
- (b) between one hour before sunrise and one hour after sunset in the case of ships fitted with navigation lights conforming to the collision regulations and between sunrise and sunset in the case of any other ship;

“retro-reflective material” means a material which reflects in the opposite direction a beam of light directed on it and complies with the Merchant Shipping Notice No. M1444;

“rocket parachute flare” means a pyrotechnic signal complying with the requirements of Part I of Schedule 8;

“Satellite EPIRB” means an emergency position-indicating radio beacon, being an earth station in the mobile-satellite service, the emissions of which are intended to facilitate search and rescue operations and is capable of:

- (a) floating free if the ship sinks,
- (b) being automatically activated when afloat,
- (c) being manually activated, and
- (d) being carried by one person;

“sea” does not include any waters of Category A, B, C or D;

“self-activating smoke signal” means a signal complying with the requirements of Part III of Schedule 9;

“self-igniting light” means a light complying with the requirements of Part II of Schedule 9;

“similar stage of construction” means the stage at which construction identifiable with the ship begins and assembly has commenced, comprising at least 50 tonnes or one per cent of the estimated mass of all structural materials, whichever is less;

“survival craft” means a craft capable of sustaining the lives of persons in distress from the time of abandoning the ship;

“training manual” means a manual complying with the requirements of Part I of Schedule 11;

“two-way radiotelephone set” means a portable two way VHF radiotelephone apparatus or a fixed VHF installation in survival craft for communication between survival craft, between survival craft and ship and between ship and rescue boat;

“voyage” includes an excursion;

“waterproofed” means protected as far as is practicable from the ingress of water.

Classification of Ships

3. For the purposes of these Regulations ships shall be arranged in the following classes:

Class III. Passenger ships engaged only on voyages in the course of which they are at no time more than 70 miles by sea from their port of departure and not more than 18 miles from the coast of the United Kingdom, and which are at sea only in favourable weather and during restricted periods.

Class IV. Passenger ships engaged only on voyages in Category A, B, C and D waters.

Class V. Passenger ships engaged only on voyages in Category A, B and C waters.

Class VI. Passengers ships engaged only on voyages with not more than 250 passengers on board, to sea, or in Category A, B, C and D waters, in all cases in favourable weather and during restricted periods, in the course of which the ships are at no time more than 15 miles, exclusive of any Category A, B, C and D waters, from their point of departure nor more than 3 miles from land.

Class VI(A). Passenger ships carrying not more than 50 passengers for a distance of not more than 6 miles on voyages to or from isolated communities on the islands or coasts of the United Kingdom and which do not proceed for a distance of more than 3 miles from land.

Application

4. These Regulations apply to United Kingdom ships when operating as passenger ships of Classes III, IV, V, VI and VI(A).

PART II

Ships of Class III

5.—(1) This regulation applies to ships of Class III.

(2) Every ship to which this regulation applies shall carry the life-saving appliances specified in Column 4 of the capacity specified in column 5 in relation to a ship specified in columns 1 to 3 of the following table:

	(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
i	New Passenger Ship	Up to 250	Table 1, (1) (one compartment standard)	Lifeboats, Liferrafts or Open Reversible Liferrafts	110
ii	New Passenger Ship	More than 250	Table 1, (2), (two compartment standard)	Lifeboats, Liferrafts or Open Reversible Liferrafts	110
iii	Existing passenger ship	Up to 250	Table 2, (1) (one compartment standard)	Lifeboat, Liferrafts or Open Reversible Liferrafts	110

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	(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
iv	Existing Passenger Ship	More than 250	Table 2, (2) (two compartment standard)	Lifeboats, Liferrafts or Open Reversible Liferrafts	110
v	Existing Passenger Ship	More than 250	Table 2, (3) (one compartment standard)	Lifeboats, Liferrafts or Open Reversible Liferrafts	125

(3) At least one rescue boat or inflated boat shall be provided. The number of lifeboats, rescue boats or inflated boats are to be sufficient to ensure that in providing for abandonment by the total number of persons the ship is certified to carry, not more than nine liferafts or open reversible liferafts need to be marshalled by each lifeboat or rescue boat or inflatable boat.

(4) The liferafts shall, as far as practicable, be equally distributed on each side of the ship.

(5) The lifeboats required by paragraph (2) to be carried and the rescue boat or inflated boat required by paragraph (3) to be carried shall be served by their own launching appliances capable of launching and recovery.

(6) Suitable arrangements shall be provided onboard for the recovery of persons from the water. The rescue boat or inflatable boat carried in accordance with paragraph (3) shall be taken as compliance with this requirement.

(7) Every such ship shall carry:

- (a) at least 3 waterproofed two-way radiotelephone sets;
- (b) a float-free satellite EPIRB;
- (c) at least 8 lifebuoys. At least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline. Two lifebuoys shall be provided with self-activating smoke signals and be capable of quick release from the navigating bridge;
- (d) for each person the ship is certified to carry a lifejacket suitable for a person weighing 32 kg or more; and a lifejacket suitable for a person weighing less than 32 kg for each such person on board;
- (e) not less than 12 rocket parachute flares; and
- (f) a line-throwing appliance.

(8) Included in the number of lifejackets required by paragraph (7)(d) to be carried there shall be at least sufficient inflatable lifejackets for the crew of the rescue boat or inflated boat.

(9) Every such ship shall be provided with:

- (a) a general emergency alarm system;

- (b) posters or signs showing operating instructions on or in the vicinity of the lifeboats, rescue boat, inflated boat and liferafts, and their launching arrangements;
- (c) a training manual;
- (d) instructions for on-board maintenance of life-saving appliances or a shipboard planned maintenance programme which includes the maintenance of life-saving appliances; and
- (e) on the bridge, a copy of the table “Life-Saving Signals and Rescue Methods, SOLAS No 1” published by the Department of Transport.

Ship of Class IV

6.—(1) This regulation applies to ships of Class IV.

(2) Every ship to which this regulation applies shall carry the life-saving appliances specified in column 4 of the capacity specified in column 5 in relation to a ship specified in columns 1 to 3 of the following table:

	(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
i	New Passenger Ship	Up to 250	Table 1, (3) (one compartment standard)	Lifeboats, Liferafts or Open Reversible Liferafts and Buoyant Apparatus	100 and 10
ii	New Passenger Ship	More than 250	Table 1, (4) (two compartment standard)	Lifeboats, Liferafts or Open Reversible Liferafts and Buoyant Apparatus	100 and 10
iii	Existing Passenger Ship	Up to 250	Table 2, (4) (one compartment standard)	Lifeboats, Liferafts or Open Reversible Liferafts and	70 and

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	(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
				Buoyant Apparatus	40
iv	Existing Passenger Ship	More than 250	Table 2, (5) (two compartment standard)	Lifeboats, Liferrafts or Open Reversible Liferrafts and Buoyant Apparatus	70 and 40
v	Existing Passenger Ship	More than 250	Table 2, (6) (one compartment standard)	Lifeboats, Liferrafts or Open Reversible Liferrafts and Buoyant Apparatus	100 and 50

(3) At least one rescue boat or inflatable boat shall be provided. The number of lifeboats, rescue boats or inflatable boats are to be sufficient to ensure that in providing for abandonment by the total number of persons the ship is certified to carry, not more than nine liferafts or open reversible liferafts need to be marshalled by each lifeboat or rescue boat or inflatable boat.

(4) The liferafts shall, as far as practicable, be equally distributed on each side of the ship.

(5) The lifeboat required to be carried by paragraph (2) and the rescue boat or inflated boat required to be carried by paragraph (3) shall be served by their own launching appliances, capable of launching and recovery.

(6) Suitable arrangements shall be provided on board for the recovery of persons from the water. The rescue boat or inflatable boat carried in accordance with paragraph (3) is acceptable as complying with this requirement.

(7) Every such ship shall carry:

(a) at least 2 waterproofed two-way radiotelephone sets. When carrying more than five crew then 3 two-way radiotelephone sets are to be provided;

(b) at least the number of lifebuoys determined in accordance with the following table:

(i)

Number of passengers for which the ship is certified to carry	Number of lifebuoys
up to 250	4
250 or more	8; and

(ii) at least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline. Not less than 50 per cent of the total number of lifebuoys shall be provided with self-igniting lights and not less than two of the lifebuoys provided with such lights shall also be provided with self-activating smoke signals and be capable of quick release from the navigating bridge, providing that self-igniting lights need not be provided on ships which only operate between sunrise and sunset;

- (c) for each person the ship is certified to carry a lifejacket suitable for a person weighing 32 kg or more; and a lifejacket suitable for a person weighing less than 32 kg for each such person on board;
- (d) not less than 12 rocket parachute flares; and
- (e) a line throwing appliance provided that in lieu of four projectiles and four lines, two projectiles and two lines may be carried.

(8) Included in the number of lifejackets required by paragraph (7)(c) to be carried there shall be sufficient inflatable lifejackets for the crew of the rescue boat or inflated boat.

(9) Every such ship shall be provided with:

- (a) a general emergency alarm system;
- (b) posters or signs showing operating instructions on or in the vicinity of the liferafts, rescue boat or inflated boats, or their launching arrangements;
- (c) a training manual; and
- (d) instructions for on-board maintenance of life-saving appliances or a shipboard planned maintenance programme which includes the maintenance of life-saving appliances.

Ships of Class V

7.—(1) This regulation applies to ships of Class V.

(2) This paragraph applies to ships of Class V which operate within Category A waters only and which comply with the standard of survivability in accordance with Table 1 (5) or Table 2 (7) (heel test). All such ships shall carry the following equipment:

- (a) In addition to the requirements of paragraph (c) lifebuoys to support 10 per cent of the total number of persons which the ship is certified to carry, each lifebuoy being capable of supporting two persons;
- (b) Suitable arrangements for the recovery of persons from the water;
- (c) (i) at least the number of lifebuoys determined in accordance with the following table:

Number of passengers for which the ship is certified to carry	Number of lifebuoys
up to 250	4
250 or more	8

(ii) at least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline. Not less than 50 per cent of the total lifebuoys shall be provided with self activating

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lights. The self activating lights need not be provided on ships which only operate between sunrise and sunset; and

(d) a general emergency alarm system.

(3) This paragraph applies to ships of Class V which operate within Category A and B waters.

(a) Every ship to which this paragraph applies shall carry the life-saving appliances specified in column 4 of the capacity specified in column 5 in relation to a ship specified in columns 1 to 3 of the following table:

(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
i New Passenger Ship	Up to 50	Table 1,(6) (one compartment standard)	Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	60 OR 60
ii New Passenger Ship	Up to 50	Table 1, (7) (Buoyancy Test)	Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	100 OR 100
iii New Passenger Ship	More than 50 but not more than 250	Table 1, (8) (one compartment standard)	†Lifeboats, Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	60 OR 60
iv New Passenger Ship	More than 250	Table 1, (9) (two compartment standard)	†Lifeboats, Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	60 OR 60
v Existing Passenger Ship	Up to 50	Table 2, (8) (one compartment standard)	Liferafts or Open Reversible Liferafts	60

* The Buoyant Apparatus shown in columns 4 and 5 may be substituted by lifebuoys up to a maximum of 60 per cent of the vessels buoyant apparatus requirement with one lifebuoy being suitable to support two persons.

† Lifeboats, where fitted, shall be served by their own launching appliances, capable of launching and recovery.

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(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
			OR *Buoyant Apparatus	OR 60
vi Existing Passenger Ship	Up to 50	Table 2, (9) (Buoyancy Test)	Liferafts or Open Reversible Liferafts	100
			OR *Buoyant Apparatus	OR 100
vii Existing Passenger Ship	Up to 50	Table 2, (10) (Heel Test)	Liferafts or Open Reversible Liferafts	50
			AND *Buoyant Apparatus	AND 50
vii Existing Passenger Ship	More than 50 but not more than 250	Table 2, (11) (one compartment standard)	†Liferafts, liferafts or Open Reversible Liferafts	60
			OR *Buoyant Apparatus	OR 60
ix Existing Passenger Ship	More than 50 but not more than 250	Table 2,(12) (Buoyancy Test)	†Liferafts, Liferafts or Open Reversible Liferafts	100
			OR *Buoyant Apparatus	OR 100
x Existing Passenger Ship	More than 50 but not more than 250	Table 2, (13) (Heel Test)	†Liferafts, Liferafts or Open Reversible Liferafts	50
			AND *Buoyant Apparatus	AND 50
xi Existing Passenger Ship	More than 250	Table 2, (14) (two compartment standard)	†Liferafts, Liferafts or	60

* The Buoyant Apparatus shown in columns 4 and 5 may be substituted by lifebuoys up to a maximum of 60 per cent of the vessels buoyant apparatus requirement with one lifebuoy being suitable to support two persons.

† Lifeboats, where fitted, shall be served by their own launching appliances, capable of launching and recovery.

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(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
			Open Reversible Liferafts	
			OR *Buoyant Apparatus	OR 60
xii Existing Passenger Ship	More than 250	Table 2, (15) (one compartment standard)	†Lifeboats, Liferafts or Open Reversible Liferafts	100
			OR *Buoyant Apparatus	OR 100
xiii Existing Passenger Ship	More than 250	Table 2, (16) (Buoyancy Test)	†Lifeboats, Liferafts or Open Reversible Liferafts	50
			AND *Buoyant Apparatus	AND 50

* The Buoyant Apparatus shown in columns 4 and 5 may be substituted by lifebuoys up to a maximum of 60 per cent of the vessels buoyant apparatus requirement with one lifebuoy being suitable to support two persons.

† Lifeboats, where fitted, shall be served by their own launching appliances, capable of launching and recovery.

- (b) The liferafts where carried shall, as far as practicable, be equally distributed on each side of the ship.
- (c) Suitable arrangements shall be provided on-board for the recovery of persons from the water.
- (d) Every such ship shall carry:
 - (i) at least 2 waterproofed two-way radiotelephone sets except where buoyant apparatus is only fitted these shall not be required; and
 - (ii) (a) at least the number of lifebuoys determined in accordance with the following table:

Number of passengers for which the ship is certified to carry	Number of lifebuoys
up to 250	4
250 or more	8

- (ii) (b) At least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline. Not less than 50 per cent of the total number of lifebuoys shall be provided with self-igniting lights. Included in this number there shall be

at least two lifebuoys capable of quick release from the navigating bridge, providing that self-igniting lights need not be provided on ships which only operate between sunrise and sunset;

- (e) Every such ship shall be provided with:
- (i) a general emergency alarm system;
 - (ii) posters or signs showing operating instructions on or in the vicinity of the liferafts or their launching arrangements;
 - (iii) a training manual; and
 - (iv) instructions for on-board maintenance of life-saving appliances or a shipboard planned maintenance programme which includes the maintenance of life-saving appliances.
- (4) This paragraph applies to ships of Class V which operate within Category A, B and C waters.
- (a) Every ship to which this paragraph applies shall carry the life-saving appliances specified in column 4 of the capacity specified in column 5 in relation to a ship specified in columns 1 to 3 of the following table:

(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
i New Passenger Ship	Up to 50	Table 1, (10) (one compartment standard)	Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	60 OR 60
ii New Passenger Ship	Up to 50	Table 1, (11) (Buoyancy Test)	Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	100 OR 100
iii New Passenger Ship	More than 50 but not more than 250	Table 1, (12) (one compartment standard)	†Lifeboats, Liferafts or Open Reversible Liferafts AND *Buoyant Apparatus	70 AND 40

* The Buoyant Apparatus shown in columns 4 and 5 may be substituted by lifebuoys up to a maximum of 60 per cent of the vessels buoyant apparatus requirement with one lifebuoy being suitable to support two persons.

† Lifeboats, where fitted, shall be served by their own launching appliances, capable of launching and recovery.

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(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
iv New Passenger Ship	More than 250	Table 1, (13) (two compartment standard)	†Lifeboats, Liferafts or Open Reversible Liferafts AND *Buoyant Apparatus	70 AND 40
v Existing Passenger Ship	Up to 50	Table 2, (17) (one compartment standard)	Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	60 OR 60
vi Existing Passenger Ship	Up to 50	Table 2, (18) (Buoyancy Test)	Liferafts or Open Reversible Liferafts OR *Buoyant Apparatus	100 OR 100
vii Existing Passenger Ship	Up to 50	Table 2, (19) (Heel Test)	Liferafts or Open Reversible Liferafts AND *Buoyant Apparatus	100 AND 10
viii Existing Passenger Ship	More than 50 but not more than 250	Table 2, (20) (one compartment standard)	†Lifeboats, Liferafts or Open Reversible Liferafts AND *Buoyant Apparatus	40 AND 70
ix Existing Passenger Ship	More than 50 but not more than 250	Table 2, (21) (Buoyancy Test)	†Lifeboats, Liferafts or Open Reversible Liferafts AND *Buoyant Apparatus	60 AND 50

* The Buoyant Apparatus shown in columns 4 and 5 may be substituted by lifebuoys up to a maximum of 60 per cent of the vessels buoyant apparatus requirement with one lifebuoy being suitable to support two persons.

† Lifeboats, where fitted, shall be served by their own launching appliances, capable of launching and recovery.

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(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
x Existing Passenger Ship	More than 50 but not more than 250	Table 2, (22) (Heel Test)	†Lifeboats, Liferrafts or Open Reversible Liferrafts AND *Buoyant Apparatus	100 AND 10
xi Existing Passenger Ship	More than 250	Table 2, (23) (two compartment standard)	†Lifeboats, Liferrafts or Open Reversible Liferrafts AND *Buoyant Apparatus	40 AND 70
xii Existing Passenger Ship	More than 250	Table 2, (24) (one compartment standard)	†Lifeboats, Liferrafts or Open Reversible Liferrafts AND *Buoyant Apparatus	60 AND 50
xiii Existing Passenger Ship	More than 250	Table 2, (25) (Buoyancy Test)	†Lifeboats, Liferrafts or Open Reversible Liferrafts AND *Buoyant Apparatus	100 AND 10

* The Buoyant Apparatus shown in columns 4 and 5 may be substituted by lifebuoys up to a maximum of 60 per cent of the vessels buoyant apparatus requirement with one lifebuoy being suitable to support two persons.

† Lifeboats, where fitted, shall be served by their own launching appliances, capable of launching and recovery.

- (b) The liferafts where carried shall, as far as practicable, be equally distributed on each side of the ship.
- (c) Suitable arrangements shall be provided onboard for the recovery of persons from the water.
- (d) Every such ship shall carry:
- (i) at least 2 waterproofed two-way radiotelephone sets except where buoyant apparatus is only fitted these shall not be required.
 - (ii) (a) at least the number of lifebuoys determined in accordance with the following table:

Number of passengers the ship is certified to carry	Number of lifebuoys
up to 250	4
250 or more	8

- (ii) (b) at least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline. Not less than 50 per cent of the total number of lifebuoys shall be provided with self-igniting lights and in the case of ships carrying more than 250 passengers not less than two of the lifebuoys provided with such lights shall also be provided with self-activating smoke signals and be capable of quick release from the navigating bridge, providing that self-igniting lights need not be provided on ships which only operate between sunrise and sunset;
- (iii) for each person onboard either of the following:
- (a) a lifejacket suitable for a person weighing 32 kg or more; and a lifejacket suitable for a person weighing less than 32 kg for each such person on board; or
 - (b) a buoyancy aid suitable for a person weighing 32 kg or more, and a buoyancy aid suitable for a person weighing less than 32 kg complying with Part IV of Schedule 10; or
 - (c) a lifejacket complying with British Standard Specification BS-3595:1981 provided such lifejackets do not depend wholly upon oral inflation. Lifejackets of the partially inherently buoyant type for persons weighing 32 kg or more shall have buoyancy in the uninflated state of not less than 89 newtons; or
 - (d) an inflatable Civil Aviation Authority lifejacket which complies with Part III of Schedule 10.
 - (e) Every such ship shall be provided with:
 - (i) a general emergency alarm system;
 - (ii) posters or signs showing operating instructions on or in the vicinity of the liferafts or their launching arrangements;
 - (iii) a training manual; and
 - (iv) instructions for on-board maintenance of life-saving appliances or a shipboard planned maintenance programme which includes the maintenance of life-saving appliances.

Ships of Class VI

- 8.—**(1) This regulation applies to ships of Class VI.
- (2) This paragraph applies to ships of Class VI as specified in regulation 3 with the exception that for 15 miles and 3 miles there shall be substituted 10 miles and 1 mile respectively.
- (a) Every ship to which this paragraph applies shall carry the life-saving appliances specified in column 4 of the capacity specified in column 5 in relation to a ship specified in columns 1 to 3 of the following table:

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(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
i New Passenger Ship	Up to 100	Table 1, (14) (one compartment standard)	Buoyant Apparatus OR Table 1, (14) (Buoyancy Test)	100
ii New Passenger Ship	More than 100 but not more than 250	Table 1, (15) (one compartment standard)	Liferafts or Open Reversible Liferafts AND Buoyant Apparatus	40 AND 60
iii Existing Passenger Ship	Up to 100	Table 2, (26) (one compartment ship)	Buoyant Apparatus OR Table 2, (26) (Buoyancy Test)	100
iv Existing Passenger Ship	Up to 100	Table 2, (27) (Heel Test)	Liferafts or Open Reversible Liferafts AND Buoyant Apparatus	50 AND 50
v Existing Passenger Ship	More than 100 but not more than 250	Table 2, (28) (one compartment standard) OR Table 2, (28) (Buoyancy Test)	Liferafts or Open Reversible Liferafts AND Buoyant Apparatus	40 AND 60

(b) The liferafts where carried shall, as far as practicable, be equally distributed on each side of the ship.

(c) Suitable arrangements shall be provided on board for the recovery of persons from the water.

(d) Every ship shall carry:

(i) at least 2 waterproofed two-way radiotelephone sets except where buoyant apparatus is only fitted these shall not be required;

(ii) at least 4 lifebuoys, with at least one lifebuoy on each side of the ship being fitted with a buoyant lifeline; the remainder shall be provided with a self activating smoke signals and be capable of quick release from the navigation bridge;

(iii) for each person on board either of the following:

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- (a) a lifejacket suitable for a person weighing 32 kg or more and a lifejacket suitable for a person weighing less than 32 kg for each such person on board; or
- (b) a buoyancy aid suitable for a person weighing 32 kg or more and a buoyancy aid suitable for a person weighing less than 32 kg, complying with Part IV of Schedule 10; or
- (c) a lifejacket complying with British Standard Specification BS-3595:1981 provided such lifejackets do not depend wholly upon oral inflation. Lifejackets of the partially inherently buoyant type for persons weighing 32 kg or more shall have buoyancy in the uninflated state of not less than 89 newtons; or
- (d) an inflatable Civil Aviation Authority lifejacket which complies with Part III of Schedule 10; and
- (iv) not less than 12 parachute distress flares.
- (e) Every such ship shall be provided with:
 - (i) a general emergency alarm system;
 - (ii) posters or signs showing operating instructions on or in the vicinity of the liferafts or their launching arrangements;
 - (iii) a training manual; and
 - (iv) instructions for on-board maintenance of life-saving appliances or a shipboard planned maintenance programme which includes maintenance of life-saving appliances.

(3) This paragraph applies to all other ships of Class VI engaged on voyages with not more than 250 passengers onboard, to sea, or in Category A, B, C and D waters, in all cases in favourable weather and during restricted periods, in the course of which the ships are at no time more than 15 miles, exclusive of any Category A, B, C and D waters, from their point of departure nor more than 3 miles from land.

- (a) Every ship to which this paragraph applies shall carry the lifesaving appliances specified in column 4 of the capacity specified in column 5 in relation to a ship specified in columns 1 to 3 of the following table:

(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
i New Passenger Ship	Up to 250	Table 1, (16) (one compartment standard)	Liferafts or Open Reversible Liferafts AND Buoyant Apparatus	60 AND 40

(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
ii Existing Passenger Ship	Up to 250	Table 2, (29) (one compartment standard) OR Table 2,(29) (Buoyancy Test)	Liferafts or Open Reversible Liferafts AND Buoyant Apparatus	60 AND 40
iii Existing Passenger Ship	Up to 250	Table 2, (30) (Heel Test)	Liferafts or Open Reversible Liferafts	100

- (b) The liferafts where carried shall, as far as practicable, be equally distributed on each side of the ship.
- (c) Suitable arrangements shall be provided on board for the recovery of persons from the water.
- (d) Every such ship shall carry:
- (i) at least 2 waterproofed two-way radiotelephone sets;
 - (ii) at least 4 lifebuoys, with at least one lifebuoy on each side of the ship being fitted with a buoyant lifeline; the remainder shall be provided with a self activating smoke signals and be capable of quick release from the navigating bridge;
 - (iii) for each person on board either of the following:
 - (a) a lifejacket suitable for a person weighing 32 kg or more and a lifejacket suitable for a person weighing less than 32 kg for each such person on board; or
 - (b) a buoyancy aid suitable for a person weighing 32 kg or more and a buoyancy aid suitable for a person weighing less than 32 kg, complying with Part IV of Schedule 10; or
 - (c) a lifejacket complying with British Standard Specification BS-3595:1981 provided such lifejackets do not depend wholly upon oral inflation. Lifejackets of the partially inherently buoyant type for persons weighing 32 kg or more shall have buoyancy in the uninflated state of not less than 89 newtons; or
 - (d) an inflatable Civil Aviation Authority lifejacket which complies with Part III of Schedule 10.
 - (iv) not less than 12 rocket parachute flares.
- (e) Every such ship shall be provided with:
- (i) a general emergency alarm system;
 - (ii) posters or signs showing operating instructions on or in the vicinity of the liferafts or their launching arrangements;
 - (iii) a training manual; and

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- (iv) instructions for on-board maintenance of life-saving appliances or a shipboard planned maintenance programme which includes maintenance of life-saving appliances.

Ships of Class VI (A)

9.—(1) This regulation applies to ships of Class VI(A). (2)

- (a) Every ship to which this regulation applies shall carry the lifesaving appliances specified in column 4 of the capacity specified in column 5 in relation to a ship specified in columns 1 to 3 of the following table:

(1) <i>Type of Ship</i>	(2) <i>Number of Passengers ship is certified to carry</i>	(3) <i>Standard of survivability ship complies with</i>	(4) <i>Life Saving Appliances</i>	(5) <i>Minimum aggregate percentage of LSA for the total number of persons the ship is certified to carry.</i>
i New Passenger Ship	Not more than 50	Table 1, (17) (one compartment standard)	Liferafts or Open Reversible Liferafts	100
ii Existing Passenger Ship	Not more than 50	Table 2, (31) (one compartment standard)	Liferafts or Open Reversible Liferafts	100
iii Existing Passenger Ship	Not more than 50	Table 2 (32) (Buoyancy Test)	Liferafts or Open Reversible Liferafts AND Buoyant Apparatus	100 AND 60

- (b) The liferafts where carried shall, as far as practicable, be equally distributed on each side of the ship.
- (c) Suitable arrangements shall be provided on board for the recovery of persons from the water.
- (d) Every such ship shall carry:
- (i) at least 2 waterproofed two-way radiotelephone sets;
 - (ii) at least 4 lifebuoys, with at least one lifebuoy on each side of the ship being fitted with a lifebuoy lifeline; the remainder shall be provided with self-igniting lights and self-activating smoke signals and be capable of quick release from the navigating bridge providing that self-igniting lights need not be provided on ships which only operate between sunrise and sunset;
 - (iii) for each person onboard either of the following:
 - (a) a lifejacket suitable for a person weighing 32 kg or more; and a lifejacket suitable for a person weighing less than 32 kg for each such person on board;
 - or

- (b) a lifejacket complying with British Standard Specification BS-3595: 1981 provided such lifejackets do not depend wholly upon oral inflation. Lifejackets of the partially inherently buoyant type for persons weighing 32 kg or more shall have buoyancy in the uninflated state of not less than 89 newtons; and
- (iv) not less than 12 rocket parachute flares.
- (e) Every such ship shall be provided with:
 - (i) a general emergency alarm system;
 - (ii) posters or signs showing operating instructions on or in the vicinity of the liferafts or their launching arrangements;
 - (iii) a training manual; and
 - (iv) instructions for on-board maintenance of life-saving appliances or a shipboard planned maintenance programme which includes maintenance of life-saving appliances.

PART III

GENERAL REQUIREMENTS

Approval and replacement of life-saving appliances

10.—(1) Life-saving appliances and arrangements required by these Regulations shall be of a type which has been approved by the Secretary of State.

(2) Any such approval given pursuant to these Regulations shall be given in writing and shall specify the conditions (if any) on which it is given.

(3) Any item of life-saving equipment marked with an expiry date shall be replaced on or before that date.

Operational readiness, maintenance, inspections and servicing

11.—(1) All life-saving appliances shall be in working order and ready for immediate use before any ship to which these Regulations apply commences a voyage and at all times during the voyage.

(2) Maintenance of life-saving appliances shall be carried out in accordance with the instructions for on-board maintenance set out in, or in accordance with, a shipboard planned maintenance programme which includes the requirements of Part II of Schedule 11.

(3) Falls used in launching shall be turned end for end at intervals of not more than 30 months and be renewed when necessary due to deterioration of the falls or at intervals of not more than 5 years, whichever is the earlier. Stainless steel falls shall be turned end for end at intervals of not more than 30 months but need not be renewed provided that on inspection there are no signs of mechanical damage or other possible defects.

(4) The following tests and inspections shall be carried out weekly:

- (a) all survival craft, rescue or inflated boats and launching appliances shall be visually inspected to ensure that they are ready for use;
- (b) the engine in the lifeboat, rescue boat or inflated boat shall be run ahead and astern in accordance with the requirements specified in Part I of Schedule 1; Parts I, II and III of Schedule 2 and Schedule 3; and
- (c) where fitted, the general emergency alarm system shall be tested.

(5) Inspection of the life-saving appliances, including lifeboat equipment, shall be carried out monthly in accordance with the instructions, requirements and check list referred to in Part II of Schedule 11.

(6) Where fitted, liferaft automatic release hooks shall be serviced at intervals not exceeding 30 months and shall be proof tested to 100% safe working load at intervals not exceeding 5 years. Lifeboat and rescue boat release gears shall be overhauled at intervals not exceeding 5 years. At least once every 5 years rescue boats shall be turned out and lowered when loaded with weights to simulate their full safe working load.

(7) Every inflated or rigid inflated rescue boat, liferaft, open reversible liferaft, inflatable lifejacket and hydrostatic release unit shall be serviced at a service station approved by the Secretary of State at intervals not exceeding 12 months, except in the case of hydrostatic release units which have been approved for a service life of 2 years.

Operating instructions for launching lifeboats, liferafts and open reversible liferafts

12. Posters and signs provided on or in the vicinity of lifeboats, liferafts, open reversible liferafts or their launching arrangements where applicable shall illustrate the purpose of the controls and procedures for launching and bousing-in the lifeboats and liferafts.

Liferaft and open reversible liferaft embarkation arrangements

13. Where the distance between the embarkation deck and the top of a liferaft buoyancy tube exceeds 1 metre when the ship is in the lightest seagoing condition a three string embarkation ladder shall be provided at each liferaft boarding station. Where such distance exceeds 4.5 metres at least one launching appliance or a marine escape system chute and boarding platform shall be provided on each side of the ship.

Stowage of liferafts, open reversible liferafts, lifeboats, rescue boats and inflated boats

14.—(1) Each liferaft shall be stowed so that it can be released from one position on the ship or alternatively that all the liferafts on one side of the ship can be released from one position on the respective side. Such position or positions shall be in or adjacent to the position from which the ship is steered. The stowage and release arrangements shall be such that each raft is automatically inflated on reaching the water. The liferafts shall be suitably stowed in order that they will not interfere with the launching of lifeboats, rescue boats or other liferafts including bousing-in arrangements.

(2) Liferafts shall be stowed, as far as practicable, in a secure and sheltered position.

(3) Every liferaft shall be stowed with its painter permanently attached to the ship and with a float-free arrangement so that the liferaft floats free and inflates automatically if the ship sinks. Every liferaft shall also be so stowed that it can be manually released from its securing arrangements. Notwithstanding the performance requirements in paragraph 3.3.3 of Part VI of Schedule 4 the float-free arrangement shall be capable of being activated in the depths of water in which the ship operates. Where the depth of water is restricted alternative arrangements may be fitted for this float-free capability.

(4) Lifeboats, rescue and inflated boats shall be stowed:

- (a) in a state of continuous readiness for launching;
- (b) in a position suitable for launching and recovery; and
- (c) so that neither the lifeboats, rescue boat or inflated boat nor its stowage arrangements will interfere with the operation of any liferaft or open reversible liferaft at any other launching station.

Launching stations

15.—(1) Launching stations shall be in such positions as to ensure safe launching having particular regard to the clearance from the propeller and steeply overhanging portions of the hull with the object of ensuring that, so far as practicable, lifeboats and liferafts can be launched down the straight side of the ship. If positioned forward survival craft shall be stowed abaft the collision bulkhead in a sheltered position.

(2) Handling of lifeboats or liferafts at any one launching station shall not interfere with the handling of lifeboats or liferafts at another launching station.

(3) Means shall be available to prevent any discharge of water on to lifeboats and liferafts during abandonment of the ship.

Rescue and inflated boat embarkation, launching and recovery arrangements

16.—(1) Embarkation and launching arrangements shall be such that the rescue or inflated boat can be boarded and launched in the shortest possible time.

(2) Each rescue and inflated boat shall be provided with an appliance which is capable of launching and recovering the boat.

(3) Means shall be available to prevent any discharge of water on to rescue and inflated boats during abandonment of the ship.

Stowage of lifebuoys

17.—(1) Lifebuoys shall be distributed as to be readily available on both sides of the ship and, as far as practicable, on all open decks extending to the ship's side. At least one lifebuoy shall be placed in the vicinity of the stern.

(2) Lifebuoys shall be so stowed as to be capable of being rapidly cast loose, and not permanently secured in any way.

(3) Except as otherwise provided lifebuoys with lights and those with lights and smoke signals shall be equally distributed on both sides of the ship and shall not be the lifebuoys provided with lifelines.

Stowage of lifejackets

18. Lifejackets shall be so placed as to be readily accessible and their position shall be clearly indicated.

Stowage of portable radio equipment

19. Portable radio equipment for survival craft required to be carried in compliance with regulations 5(7)(a), 6(7)(a), 7(3)(d)(i), 7(4)(d)(i), 8(2)(d)(i), 8(3)(d)(i) and 9(2)(d)(i) shall be stowed in a protected and easily accessible position ready to be moved to any survival craft in an emergency.

Stowage and packing of pyrotechnic distress signals

20.—(1) Pyrotechnic distress signals provided for use on board ship shall be stowed on or near the navigating bridge. In the case of a line-throwing appliance which includes a pistol; the pistol, line and rockets together with the means of ignition shall be stowed in a container which provides protection from the weather.

(2) All pyrotechnic distress signals provided for use on board ships shall be packed in a watertight container. Such signals and signals provided for use in liferafts shall not be packed in plastic envelopes.

Manning of liferafts and rescue boats

21. There shall be at least one crew member trained to supervise the donning of lifejackets and to launch, bouse-in and the boarding of every two liferafts carried. For the launching and recovery of the rescue boat or inflated boat there shall be at least two trained crew members.

Retro-reflective material

22. Life-saving appliances carried on ships of Classes III, IV, V, VI and VI(A) shall be fitted with retro-reflective material where it will assist in detection, and the dimensions and location of the material shall be as specified in accordance with Merchant Shipping Notice No 1444.

Equivalents and Exceptions

23.—(1) Where these Regulations require that a particular fitting, material, appliance or apparatus, or type thereof, shall be fitted or carried in a ship, or that any particular provision shall be made, the Secretary of State may permit any other fitting, material, appliance or apparatus or type thereof to be fitted or carried, or any other provision to be made in that ship if he is satisfied by trial thereof or otherwise that such other fitting, material, appliance or apparatus, or type thereof, or provision is at least as effective as that required by these Regulations.

(2) For the purpose of these Regulations, the results of verifications and tests carried out by the bodies and laboratories of other member States offering suitable and satisfactory guarantees of technical and professional competence and independence shall be accepted.

(3) The Secretary of State may exempt any ship or description of ships from all or any of the provisions of these Regulations (as may be specified in the exemption) if he is satisfied that compliance with such provision is either impracticable or unreasonable in the case of that ship or description of ships on such terms (if any) as he may specify and may, subject to giving reasonable notice, alter or cancel any such exemption.

Penalties

24.—(1) If a ship to which these Regulations apply proceeds on any voyage without complying with the requirements of these Regulations, the owner and master of the ship shall each be guilty of an offence and liable on summary conviction to a fine not exceeding the statutory maximum or on conviction on indictment, to imprisonment for a term not exceeding two years and a fine.

(2) It shall be a good defence to a charge under this regulation to prove that the person charged took all reasonable steps to avoid commission of the offence.

Power to detain

25.—(1) In any case where a ship does not comply with the requirements of these Regulations, the ship shall be liable to be detained and section 692 (1)–(3) of the Merchant Shipping Act 1894(4)(which relates to the detention of a ship) shall have effect in relation to the ship, subject to the modification that for the words “this Act” wherever they appear, there shall be substituted the “Merchant Shipping (Life-Saving Appliances for Passenger Ships of Classes III to VI(A)) Regulations 1992”.

(4) 1894 c. 60.

Signed by authority of the Secretary of State for Transport

1st October 1992\

Caithness
Minister of State,
Department of Transport

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SCHEDULE 1

Regulations 2(3), 5 and 6

LIFEBOATS

PART I

GENERAL (INCLUDING EQUIPMENT)

Definitions

1

1.1. In this Schedule the following definition applies:

(1.1.1) “Length of lifeboat” means 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.

General

2

2.1 All lifeboats prescribed in this Part shall:

- (2.1.1) be constructed with proper workmanship and materials;
- (2.1.2) not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$;
- (2.1.3) be capable of operating throughout a seawater temperature range of -1°C to $+30^{\circ}\text{C}$;
- (2.1.4) be rot-proof, corrosion-resistant, and not be unduly affected by seawater, oil or fungal attack;
- (2.1.5) be resistant to deterioration from exposure to sunlight;
- (2.1.6) be of a highly visible colour on all parts where this will assist detection;
- (2.1.7) be fitted with retro-reflective material where it will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State;
- (2.1.8) be capable of satisfactory operation in a sea environment.

Construction

3

3.1 All lifeboats shall be properly constructed and shall be of such form and proportions that they have ample stability in a seaway and sufficient freeboard when loaded with their full complement of persons and equipment. All lifeboats shall have rigid hulls and shall be capable of maintaining positive stability when in an upright position in calm water and loaded with their full complement of persons and equipment and holed in any one location below the waterline, assuming no loss of buoyancy material and no other damage.

3.2 All lifeboats shall be of sufficient strength to:

- (3.2.1) enable them to be safely lowered into the water when loaded with their full complement of persons and equipment; and
- (3.2.2) be capable of being launched and towed when the ship is making headway at a speed of 5 knots in calm water.

3.3 Hulls and rigid covers shall be fire-retardant or non-combustible.

3.4 Seating shall be provided on thwarts, benches or fixed chairs fitted as low as practicable in the lifeboat and constructed so as to be capable of supporting the number of persons each weighing 100 kg for which spaces are provided in compliance with the requirements of paragraph 3.9.

3.5 Each lifeboat shall be of sufficient strength to withstand a load, without residual deflection on removal of that load:

(3.5.1) in the case of boats with metal hulls, 1.25 times the total mass of the lifeboat when loaded with its full complement of persons and equipment; or

(3.5.2) in the case of other boats, twice the total mass of the lifeboat when loaded with its full complement of persons and equipment.

3.6 Each lifeboat shall be of sufficient strength to withstand, when loaded with its full complement of persons and equipment and with, where applicable, skates or fenders in position, a lateral impact against the ship's side at an impact velocity of at least 3.5 metres per second and also a drop into the water from a height of at least 3 metres.

3.7 The vertical distance between the floor surface and the interior of the enclosure or canopy over 50% of the floor area shall be:

(3.7.1) not less than 1.3 metres for a lifeboat permitted to accommodate 9 persons or less;

(3.7.2) not less than 1.7 metres for a lifeboat permitted to accommodate 24 persons or more;

(3.7.3) not less than the distance as determined by linear interpolation between 1.3 metres and 1.7 metres for a lifeboat permitted to accommodate between 9 and 24 persons.

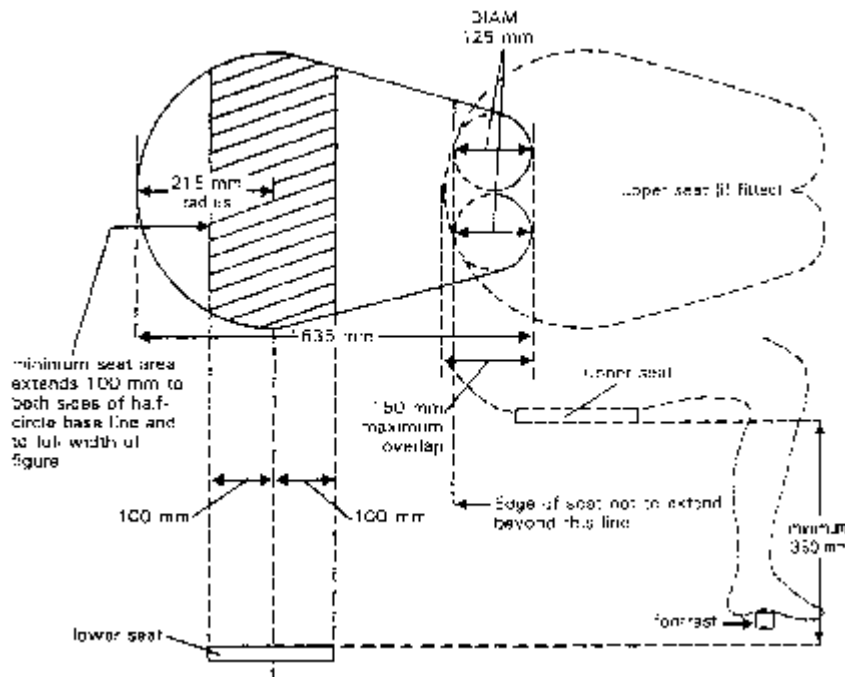
3.8 No lifeboat shall be deemed fit to accommodate more than 150 persons.

3.9. The number of persons which a lifeboat shall be permitted to accommodate shall be equal to the lesser of:

(3.9.1) the number of persons having an average mass of 75 kg., all wearing lifejackets, that can be seated in a normal position without interfering with the means of propulsion or the operation of any of the lifeboat's equipment; or

(3.9.2) the number of spaces that can be provided on the seating arrangements in accordance with Figure 1. The shapes may be overlapped as shown, provided footrests are fitted and there is sufficient room for legs, and the vertical separation between the upper and lower seat is not less than 350 mm.
Figure 1

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3.10 Each seating position shall be clearly indicated in the lifeboat.

3.11 Every lifeboat shall be so arranged that it can be rapidly boarded by its full complement of persons. Rapid disembarkment shall also be possible.

3.12 Lifeboats shall have a boarding ladder that can be used on either side of the lifeboat to enable persons in the water to board the lifeboat. The lowest step of the ladder shall be not less than 0.4 metres below the lifeboat's light waterline, and shall be weighted if of buoyant material.

3.13 The lifeboat shall be so arranged that helpless people can be brought on board either from the sea or on stretchers.

3.14 All surfaces on which persons might walk shall have a non-skid finish.

3.15 All lifeboats shall have inherent buoyancy or shall be fitted with inherently buoyant material which shall not be adversely affected by seawater, oil or oil products, sufficient to float the lifeboat with all its equipment on board when flooded and open to the sea. Additional inherently buoyant material, equal to 280 Newtons of buoyant force per person shall be provided for the number of persons the lifeboat is permitted to accommodate. Buoyant material, unless in addition to that required above, shall not be installed externally to the hull of the lifeboat.

3.16 Every lifeboat, when loaded with 50% of the number of persons the lifeboat is permitted to accommodate seated in their normal positions to one side of the centreline, shall have a freeboard, measured from the waterline to the lowest opening through which the lifeboat may become flooded, of at least 1.5% of the lifeboat's length or 100 mm., whichever is the greater.

Lifeboat Propulsion

4

4.1 Every lifeboat shall be powered by a compression ignition engine. No engine shall be used for any lifeboat if its fuel has a flashpoint of 43°C or less (closed cup test) and the engine shall:

(4.1.1) be provided with either a manual starting system, or a power starting system with two independent rechargeable energy sources. Any necessary starting aids shall also be provided. The

engine starting systems and starting aids shall start the engine at an ambient temperature of -15°C within 2 minutes of commencing the start procedure unless, in the opinion of the Secretary of State having regard to the particular voyages in which the ship carrying the lifeboat is constantly engaged, a different temperature is appropriate. The starting systems shall not be impeded by the engine casing, thwarts or other obstructions;

(4.1.2) be capable of operating for not less than 5 minutes after starting from cold with the lifeboat out of the water;

(4.1.3) be capable of operating when the lifeboat is flooded up to the centreline of the crankshaft;

(4.1.4) be capable of operating when the lifeboat is listed 10° either way or trimmed 10° either way.

4.2 Unless the propeller is arranged so as to avoid its rotation constituting a danger to people in the water adjacent to it, the drive arrangement between the prime mover and the propeller shall be such that the propeller can be brought to rest without stopping the prime mover. Provision shall be made for ahead and astern propulsion of the craft.

4.3 The exhaust pipe shall be so arranged as to prevent water from entering the engine in normal operation, and insulated as necessary.

4.4 All lifeboats shall be designed with due regard to the safety of persons in the water and to that possibility of damage to the propulsion system by floating debris.

4.5 The speed of a lifeboat when proceeding ahead in calm water, when loaded with its full complement of persons and equipment and with all engine-powered auxiliary equipment in operation, shall be at least 6 knots and at least 2 knots when towing a 25-person liferaft loaded with its full complement of persons and equipment or its equivalent. Sufficient fuel, suitable for use throughout the temperature range expected in the area in which the ship operates, shall be provided to run the fully loaded lifeboat at 6 knots for a period of not less than 24 hours.

4.6 The lifeboat engine, transmission and engine accessories shall be enclosed in a fire-retardant casing or other suitable arrangements providing similar protection. Such arrangements shall also protect persons from coming into accidental contact with hot or moving parts and protect the engine from exposure to weather and sea. Adequate means shall be provided to reduce the engine noise. Starter batteries shall be provided with casings which form a watertight enclosure around the bottom and sides of the batteries. The battery casings shall have a tight fitting top which provides for necessary gas venting.

4.7 The lifeboat engine and accessories shall be designed to limit electromagnetic emissions so that engine operation does not interfere with the operation of radio life-saving applications used in the lifeboat.

4.8 Means shall be provided for recharging engine-starting batteries. Means shall be provided for recharging lifeboat batteries from the ship's power supply. The electric power supply connection from the ship to any lifeboat shall be at a voltage of no exceeding 55 volts direct current or 55 volts root mean square alternating current and shall be capable of being disconnected automatically at the lifeboat embarkation station.

4.9 Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls.

Lifeboat Fittings

5

5.1 All lifeboats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open to drain water from the hull when the lifeboat is not waterborne

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and shall automatically close to prevent entry of water when the lifeboat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve, which shall be attached to the lifeboat by a lanyard, a chain, or other suitable means. Drain valves shall be readily accessible from inside the lifeboat and their position shall be clearly indicated.

5.2 All lifeboats shall be provided with a rudder and tiller or other suitable means of steering. When a wheel or other remote steering mechanism is also provided the alternative means shall be capable of steering the boat in the case of failure of the steering mechanism. Any rudder shall be permanently attached to the boat and any tiller shall be permanently installed on or linked to the rudder stock. However, if the boat has a remote steering mechanism the tiller may be removable and securely stowed near the rudder stock. The steering arrangements shall be so arranged so not to be damaged by operation of the release mechanism or the propeller.

5.3 Except in the vicinity of the rudder and propeller, a buoyant lifeline shall be becketed around the outside of the lifeboat.

5.4 Lifeboats which are not self-righting when capsized shall have suitable handholds on the underside of the hull to enable persons to cling to the lifeboat. The handholds shall be fastened to the lifeboat in such a way that, when subjected to an impact sufficient to cause them to break away from the lifeboat, they break away without damaging the lifeboat.

5.5 All lifeboats shall be fitted with sufficient watertight lockers or compartments to provide for the storage of the small items of equipment, water and provisions required by paragraph 7. Means shall be provided for the storage of collected rainwater.

5.6 Every lifeboat to be launched by a fall or falls shall be fitted with a release mechanism complying with Part III of this Schedule, except those that are launched by a single suspension which may have an approved release mechanism which is operable when the lifeboat is waterborne.

5.7 Every lifeboat shall be fitted with a release device to enable the forward painter to be released when under tension.

5.8 Lifeboats intended for launching down the side of a ship shall have skates and fenders as necessary to facilitate launching and prevent damage to the lifeboat.

5.9 A manually controlled lamp complying with the requirements of Part V of this Schedule shall be fitted to the top of the cover or enclosure.

5.10 A lamp of source of light complying with the requirements of Part V of this Schedule shall be fitted inside the lifeboat; however, oil lamps shall not be permitted for this purpose.

5.11 Unless expressly provided otherwise, every lifeboat shall be provided with effective means of bailing or be automatically self-bailing.

5.12 Every lifeboat shall be so arranged that an adequate view forward, aft and to both sides is provided from the control steering position for safe launching and manoeuvring.

Lifeboat Markings

6

6.1 The dimensions of the lifeboat, the number of persons which it is permitted to accommodate, the makers serial number, name or trade mark and the date of manufacture shall be marked on the lifeboat in clear permanent characters.

6.2 The name and port of registry of the ship to which the lifeboat belongs shall be marked on each side of the boat's bow in block capitals of the Roman alphabet.

6.3 Means of identifying the ship to which the lifeboat belongs and the number of the boat shall be marked in such a way that they are visible from above.

Lifeboat Equipment

7

7.1 All items of lifeboat equipment, whether required by this paragraph or elsewhere in this Schedule, with the exception of boat-hooks which shall be kept available for fending off purposes, shall be secured within the lifeboat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements or other suitable means. The equipment shall be secured in such a manner as not to interfere with any abandonment procedures. All items of lifeboat equipment shall be as small and of as little mass as possible and shall be packed in a suitable and compact form. Except where otherwise stated, the normal equipment of every lifeboat shall consist of:

(7.1.1) sufficient buoyant oars to make headway in calm seas; thole pins, crutches or equivalent arrangements shall be provided for each oar provided; thole pins or crutches shall be attached to the boat by lanyards or chains;

(7.1.2) two boat-hooks;

(7.1.3) a buoyant bailer and two buckets;

(7.1.4) a sea-anchor complying with the requirements of Part I of Schedule 7;

(7.1.5) two efficient painters of length equal to not less than twice the distance from the stowage position of the lifeboat to the waterline in the lightest seagoing condition or 15 metres whichever is the greater; one painter attached to the release device required by paragraph 5.7 shall be placed at the forward end of the lifeboat and the other shall be stored at or near the bow of the lifeboat ready for use;

(7.1.6) two hatches, one at each end of the lifeboat;

(7.1.7) watertight receptacles complying with the requirements of Part III of Schedule 7 containing a total of 3 litres of fresh water for each person the lifeboat is permitted to accommodate;

(7.1.8) three rustproof graduated drinking vessels, one suitably graduated in millilitres;

(7.1.9) six hand flares;

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

(7.1.11) one whistle or equivalent sound signal;

(7.1.12) a first-aid outfit complying with the requirements of Part II of Schedule 7;

(7.1.13) six doses of anti-seasickness medicine and one seasickness bag for each person;

(7.1.14) a jack-knife to be kept attached to the boat by a lanyard;

(7.1.15) three tin openers;

(7.1.16) two buoyant rescue quoits, attached to not less than 30 metres of buoyant line;

(7.1.17) a manual pump complying with the requirements of Part IV of Schedule 1;

(7.1.18) sufficient tools for minor adjustments to the engine and its accessories;

(7.1.19) two portable fire-extinguishers suitable for extinguishing oil fires; and

(7.1.20) in the case of ships engaged on voyages of class V the equipment specified in paragraphs 7.1.4, 7.1.7 to 7.1.10 inclusive and 7.1.12 to 7.1.17 inclusive need not be carried.

Instructions and Information

8

8.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11

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shall be in the form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

- (8.1.1) general description of the lifeboat and its equipment;
 - (8.1.2) installation arrangements,
 - (8.1.3) operational instructions including use of associated survival equipment;
 - (8.1.4) survival instructions;
 - (8.1.5) emergency repair instructions;
 - (8.1.6) deployment, boarding and launching instructions;
 - (8.1.7) method of launching from within the boat;
 - (8.1.8) release from launching appliance;
 - (8.1.9) on board maintenance requirements;
 - (8.1.10) servicing requirements;
 - (8.1.11) use of engine and accessories; and
 - (8.1.12) recovery of boat including stowage and securing.
- Regulations 2(3), 5 and 6

PART II

PARTIALLY ENCLOSED LIFEBOATS

1. All partially enclosed lifeboats shall comply with the requirements of Part I of this Schedule, and in addition shall comply with the requirements of this Part as follows:

2. Every partially enclosed lifeboat shall be provided with effective means of bailing or be automatically self-bailing.

Enclosure

3

3.1 Permanently attached rigid covers shall be provided extending over not less than 20% of the length of the lifeboat from the stem and not less than 20% of the length of the lifeboat from the aftermost part of the lifeboat.

3.2 The rigid covers shall form two shelters. The interior height of the shelters shall be sufficient to permit persons easy access to their seats in the bow and stern of the lifeboat.

3.3 The rigid covers shall be so arranged that they include windows or translucent panels to admit sufficient daylight to the inside of the lifeboat with the openings or canopies closed so as to make artificial light unnecessary.

3.4 The rigid covers shall have railings to provide a secure handhold for persons moving about the exterior of the lifeboat.

3.5. Open parts of the lifeboat shall be fitted with a permanently attached foldable canopy so arranged that:

(3.5.1) it can be easily erected by not more than two persons;

(3.5.2) it is insulated to protect the occupants against cold by means of not less than two layers of material separated by an air gap or other equally efficient means; means shall be provided to prevent accumulation of water in the air gap.

3.6 The enclosure formed by the rigid covers and canopy shall be so arranged:

(3.6.1) as to allow launching and recovery operations to be performed without any occupant having to leave the enclosure;

(3.6.2) that it has entrances at both ends and on each side, provided with efficient adjusting closing arrangements which can easily and quickly opened and closed from inside or outside so as to permit ventilation but exclude seawater, wind and cold; means shall be provided for holding the entrances securely in the open and in the closed position;

(3.6.3) that with the canopy erected and all entrances closed, sufficient air is admitted for the occupants at all times;

(3.6.4) that it has means for collecting rainwater;

(3.6.5) that the exterior of the rigid covers and canopy and the interior of the part of the lifeboat covered by the canopy is of a highly visible colour. The interior of the shelters shall be of a colour which does not cause discomfort to the occupants;

(3.6.6) that it is possible to row the lifeboat.
Schedule 1, Part 1

PART III

LIFEBOAT DISENGAGING GEARS

1. Except in the case of a single point suspension the lifeboat disengaging gear shall be so arranged that all hooks are released simultaneously on the operation of the control mechanism.

2. The means of effecting release shall be placed near the coxswain's position.

3. The gear shall have two release capabilities:

3.1 a normal release capability which will release the lifeboat only when it is waterborne or when there is no load on the hook(s);

3.2 an on-load release capability which will release the lifeboat with a load on the hook(s). This release shall be so arranged as to release the lifeboat under any condition of loading from no-load with the lifeboat waterborne to a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment. This release shall be adequately protected against accidental or premature use.

4. The means of connection between the hook(s), safety device and the operating lever or release unit shall:

4.1 be arranged and led so as to ensure the efficient operation of the gear,

4.2 wherever necessary be properly cased in for the safety or efficient action of the gear or for the protection of persons from injury; and

4.3 where cased in, means shall be provided for lubricating this equipment.

5. The release control(s) are to be clearly marked in colour that contrasts with its surroundings, and a suitably worded instruction plate indicating the method of safe operation of the gear shall be provided.

6. 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.

7. The mechanism shall be designed with a factor of safety of 6 based on the ultimate strength of the materials used, assessing that the mass of the lifeboat is equally distributed.

Schedule 1, Part 1

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PART IV MANUAL PUMPS

1. Every lifeboat manual pump shall comply with the following requirements:

1.1 the capacity when operated at not more than 60 double strokes per minute at 1.2 metres suction head, shall be not less than:

(1.1.1) 30 litres per minutes in lifeboats of 7 metres in length or over; or

(1.1.2) 20 litres per minute in lifeboats of less than 7 metres length;

1.2 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 1.2 metres;

1.3 all parts of the pump shall be of material unaffected by the effects of sea water;

1.4 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; and

1.5 the pump branches shall be suitable for use with rubber hose connections of at least 30 mm bore. The metal part of the operating handle shall be suitably sheathed by material other than wood to ensure that the hands of the operator are protected when the pump is used in extreme cold. The spindle gland shall be of the spring loaded seal ring type.

Schedule 1, Part 1

PART V LIFEBOAT LIGHTS

1. General

1.1 Internal and External Lights

(1.1.1) The lights shall be provided with a manually operated switch.

(1.1.2) Each light shall be connected independently to its own power source unless it is operated from the lifeboat's battery system.

Construction

2. Internal and External Lights

(2.1.1) The complete light unit shall be constructed with proper workmanship and materials.

(2.1.2) It shall be capable of withstanding the drop test for a lifeboat.

(2.1.3) It shall be capable of withstanding a drop of 2 metres onto a rigidly mounted steel plate or concrete surface.

(2.1.4) it shall be rot proof, corrosion resistant, and not be unduly affected by sea-water, oil or fungal growth.

(2.1.5) It shall not deteriorate due to damp or humidity when stowed in or on a lifeboat.

(2.1.6) The power source shall be proofed against leakage of any chemicals which could damage or cause deterioration of the lifeboat.

(2.1.7) The connection between light and power shall be suitably protected.

(2.1.8) The lamp, lamp holder and lens shall be so constructed to prevent the ingress of water.

(2.1.9) .If the external light is a flashing light, it shall not be fitted with a lens or curved reflector to concentrate the beam.

Performance

3

3.1 Internal and External Lights

(3.1.1) The lights shall have an operational endurance of not less than 12 hours.

(3.1.2) They shall not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$.

(3.1.3) They shall operate in a satisfactory manner throughout a seawater temperature of -1°C to $+30^{\circ}\text{C}$.

3.2 Internal Light

(3.2.1) The light shall be of sufficient luminous intensity to enable survival and equipment instructions to be read.

3.3 External Light

(3.3.1) The light shall be visible on a dark night with a clear atmosphere at a distance of at least 2 miles.

(3.3.2) It shall be visible through 360 degrees in a horizontal direction and over as great a segment of the upper hemisphere as is practical when attached to a lifeboat.

(3.3.3) In the case of a flashing light it shall flash at a rate of not less than 50 flashes per minute for the first 2 hours of operation.

Markings

4. Internal and External Lights

4.1 The power source if independent of the lifeboat's battery system shall be marked externally with:

(4.1.1) the manufacturer's name or trade mark;

(4.1.2) the type and batch number;

(4.1.3) date of manufacture and expiry;

(4.1.4) the words "DOT (UK) APPROVED".

4.2 If the power source is a chemical pressurised cell it shall be clearly marked with a suitable warning notice.

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SCHEDULE 2

Regulations 2(3), 5 and 6

RESCUE BOATS

PART I

RIGID RESCUE BOATS

General

1

1.1 A rigid rescue boat may be accepted as a lifeboat provided it also complies with the relevant requirements of Schedule 1.

1.2 All rigid rescue boats prescribed in this Part shall:

- (1.2.1) be constructed with proper workmanship and materials;
- (1.2.2) not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$;
- (1.2.3) be capable of operating throughout the seawater temperature range -1°C to $+30^{\circ}\text{C}$;
- (1.2.4) be rot-proof, corrosion-resistant, and not be unduly affected by seawater, oil or fungal attack;
- (1.2.5) be resistant to deterioration from exposure to sunlight;
- (1.2.6) be of highly visible colour on all parts where this will assist detection;
- (1.2.7) be fitted with retro-reflective material where this will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State;
- (1.2.8) be capable of satisfactory operation in a sea environment.

Construction

2

2.1 All boats shall be properly constructed and shall be of such form and proportions that they have ample stability in a seaway and sufficient freeboard when loaded with their full complement of persons and equipment. All boats shall have rigid hulls and shall be capable of maintaining positive stability when in an upright position in calm water and loaded with their full complement of persons and equipment and holed in any one location below the waterline, assuming no loss of buoyancy material and no other damage.

2.2 All boats shall be of sufficient strength to:

- (2.2.1) enable them to be safely lowered into the water when loaded with their full complement of persons and equipment; and
- (2.2.2) be capable of being launched and towed when the ship is making headway at a speed of 5 knots in calm water.

2.3 Seating shall be provided on thwarts, benches or fixed chairs fitted as low as practicable in the boat and constructed so as to be capable of supporting the number of persons each weighing 100 kg for which spaces are provided in compliance with the requirements of paragraph 2.5.2.

2.4 Each boat shall be of sufficient strength to withstand, when loaded with its full complement of persons and equipment and with, where applicable, skates or fenders in position, a lateral impact against the ship's side at an impact velocity of at least 3.5 metres per second and also a drop into the water from a height of at least 3 metres.

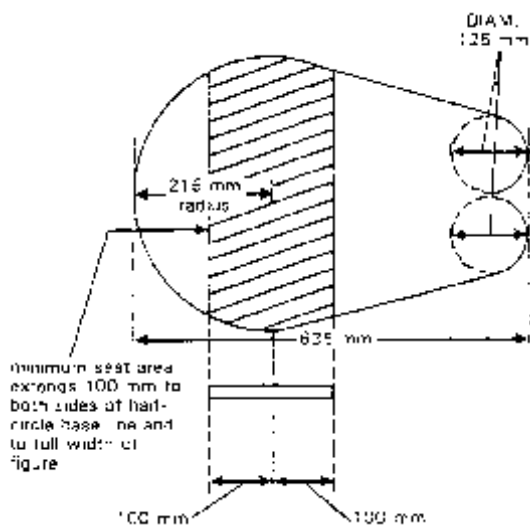
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2.5 The number of persons which a boat shall be permitted to accommodate shall be equal to the lesser of:

(2.5.1) the number of persons having an average mass of 75 kg, all wearing lifejackets, that can be seated in a normal position plus one person lying down without interfering with the means of propulsion or the operation of any of the boat's equipment; or

(2.5.2) the number of spaces that can be provided on the seating arrangements in accordance with Figure 2, plus one person lying down.

Figure 2



2.6 Each seating position shall be clearly indicated in the boat.

2.7 All boats shall have a boarding ladder that can be used on either side of the boat to enable persons in the water to board the boat. The lowest step of the ladder shall be weighted if of buoyant material and shall float at a level not less than 0.4 metres below the boat's light waterline.

2.8 The boat shall be so arranged that helpless people can be brought on board either from the sea or on stretchers.

2.9 All surfaces on which persons might walk shall have a non-skid finish.

2.10 All boats shall have inherent buoyancy or shall be fitted with inherently buoyant material which shall not be adversely affected by seawater, oil or oil products. Such buoyancy shall be sufficient to float the boat with all its equipment on board when flooded and open to the sea. Additional inherently buoyant material, equal to 280 Newtons of buoyant force per person shall be provided for the number of persons the boat is permitted to accommodate. Buoyant material, unless in addition to that required above, shall not be installed external to the hull of the boat.

2.11 Every boat, when loaded with 50% of the number of persons the boat is permitted to accommodate seated in their normal positions to one side of the centreline, shall have a freeboard, measured from the waterline to the lowest opening through which the boat may become flooded, of at least 1.5% of the boat's length or 100 mm., whichever is the greater.

2.12 All boats shall:

(2.12.1) be not less than 3.8 metres and not more than 8.5 metres in length;

(2.12.2) be capable of carrying at least five seated persons and a person lying down.

2.13 Unless the boat has adequate sheer, it shall be provided with a bow cover extending for not less than 15% of its length.

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2.14 All boats shall be capable of manoeuvring at speeds of at least 6 knots and maintaining a speed of 6 knots for a period of at least 4 hours.

2.15 All boats shall have sufficient mobility and manoeuvrability in a seaway to enable persons to be retrieved from the water, marshal liferafts and tow the largest liferaft carried on the ship when loaded with its full complement of persons and equipment or its equivalent at a speed of at least 2 knots.

2.16 The boat shall be fitted with an inboard or outboard engine complying with the relevant parts of paragraph 3.

2.17 Arrangements for towing shall be permanently fitted in rescue boats and shall be sufficiently strong to marshal or tow liferafts as required by paragraph 2.15.

2.18 All boats shall be fitted with weathertight stowage for small items of equipment.

2.19 Hulls and rigid covers if fitted shall be fire-retardant or non-combustible.

2.20 Each boat shall be of sufficient strength to withstand a load, without residual deflection on removal of that load;

(2.20.1) in the case of boats with metal hulls, 1.25 times the total mass of the boat when loaded with its full complement of persons and equipment; or

(2.20.2) in the case of other boats, twice the total mass of the boat when loaded with its full complement of persons and equipment.

2.21 All boats shall be fitted with a protective stowage cover and shall be kept covered at all times when the boat is not in use. The cover shall be arranged for quick removal in an emergency.

Rigid Rescue Boat Propulsion

3

3.1 Inboard engine

(3.1.1) Where a boat is powered by an inboard engine it shall be of the compression ignition type. No engine shall be used for any boat if its fuel has a flashpoint of 43°C or less (Closed Cup Test) and the engine shall:

(3.1.1.1) be provided with either a manual starting system, or a power starting system with two independent rechargeable energy sources. Any necessary starting aids shall also be provided; the engine starting systems and starting aids shall start the engine at an ambient temperature of -15°C within 2 minutes of commencing the start procedure unless, in the opinion of the Secretary of State having regard to the particular voyages in which the ship carrying the boat is constantly engaged, a different temperature is appropriate; the starting systems shall not be impeded by the engine casing, thwarts or other obstructions;

(3.1.1.2) be capable of operating for not less than 5 minutes after starting from cold with the boat out of the water; and

(3.1.1.3) be capable of operating when the boat is flooded up to the centreline of the crank shaft.

3.2 Outboard engine

(3.2.1) A petrol-driven outboard engine with an approved fuel system may be fitted to a boat provided the tank is specially protected against fire and explosion.

(3.2.2) A petrol engine shall be provided with either a manual starting system, or a power starting system. Any necessary starting aids shall also be provided. The engine starting systems and starting aids shall start the engine at an ambient temperature of -15°C within 2 minutes of commencing the start procedure unless in the opinion of the Secretary of State having regard to the particular voyages

in which the ship carrying the boat is constantly engaged, a different temperature is appropriate. The starting systems shall not be impeded by the engine casing, thwarts or other obstructions.

3.3 Unless the propeller is so arranged so as to avoid its rotation constituting a danger to people in the water adjacent to it the drive arrangement between the prime mover and the propeller shall be such that the propeller can be brought to rest without stopping the prime mover. Provision shall be made for ahead and astern propulsion of the craft.

3.4 The exhaust pipe shall be so arranged as to prevent water from entering the engine in normal operation.

3.5 All boats shall be designed with due regard to the safety of persons in the water and to the possibility of damage to the propulsion system by floating debris.

3.6 The boat engine, transmission and engine accessories shall be enclosed in a fire-retardent casing or other suitable arrangements providing similar protection. Such arrangements shall also protect persons from coming into accidental contact with hot or moving parts and protect the engine from exposure to weather and sea. Adequate means shall be provided to reduce the engine noise. Starter batteries shall be provided with casings which form a watertight enclosure around the bottom and sides of the batteries. The battery casings shall have a tight fitting top which provides for necessary gas venting.

3.7 The boat engine and accessories shall be designed to limit electromagnetic emissions so that engine operation does not interfere with the operation of radio life saving appliances used in the boat.

3.8 Means shall be provided for recharging all engine-starting, searchlight and, when fitted, radio batteries. Radio batteries shall not be used to provide power for engine starting. The electric power supply from the ship to any rigid rescue boat shall be at a voltage of not exceeding 55 volts direct current or 55 volts root mean square alternating current and shall be capable of being disconnected automatically at the rigid rescue boat embarkation station.

3.9 Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls.

Boat Fittings

4

4.1 All boats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open to drain water from the hull when the boat is not waterborne and shall automatically close to prevent entry of water when the boat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve, which shall be attached to the boat by a lanyard, chain, or other suitable means. Drain valves shall be readily accessible and capable of being closed from inside the boat and their position shall be clearly indicated.

4.2 All boats shall be provided with a rudder and tiller or other suitable means of steering. When a wheel or other remote steering mechanism is also provided the alternative means shall be capable of steering the boat in the case of failure of the steering mechanism. Except where the rudder and tiller forms part of the outboard engine the rudder shall be permanently attached to the boat and the tiller shall be permanently installed on or linked to the rudder stock. However, if the boat has a remote steering mechanism the tiller may be removable and securely stowed near the rudder stock. The steering arrangements shall be so arranged as not to be damaged by operation of the release mechanism or the propeller.

4.3 Except in the vicinity of the rudder; propeller or outboard engine, a buoyant lifeline shall be becketed around the outside of the boat.

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4.4 Boats which are not self-righting when capsized shall have suitable handholds on the underside of the hull to enable persons to cling to the boat. The handholds shall be fastened to the boat in such a way that, when subjected to an impact sufficient to cause them to break away from the boat, they break away without damaging the boat.

4.5 Every boat to be launched by a fall or falls shall be fitted with a release mechanism complying with Part IV of this Schedule, except those which are launched by a single suspension which may have an approved release mechanism which is operable when the boat is water borne.

4.6 Every boat shall be fitted with a release device to enable the forward painter to be released when under tension.

4.7 Boats intended for launching down the side of the ship shall have skates and fenders as necessary to facilitate launching and prevent damage to the boat.

4.8 Unless expressly provided otherwise, every boat shall be provided with effective means of bailing or be automatically self-bailing.

Markings

5

5.1 The dimensions of the boat, the number of persons which it is permitted to accommodate, the maker's serial number, name or trade mark and the date of manufacture shall be marked on the boat in clear permanent characters.

5.2 The name and port of registry of the ship to which the boat belongs shall be marked on each side of the boat's bow in block capitals of the Roman alphabet.

5.3 Means of identifying the ship to which the boat belongs and the number of the boat shall be marked in such a way that they are visible from above.

Boat Equipment

6

6.1 All items of rescue boat equipment, with the exception of the boat-hook which shall be kept available for fending off purposes, shall be secured within the boat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements, or other suitable means. The equipment shall be secured in such a manner as not to interfere with any launching or recovery procedures. All items of boat equipment shall be as small and of as little mass as possible and shall be packed in suitable compact form.

6.2 The equipment of every boat shall consist of:

(6.2.1) sufficient buoyant oars or paddles to make headway in calm seas; thole pins, crutches or equivalent arrangements shall be provided for each oar; thole pins or crutches shall be attached to the boat by lanyards or chains;

(6.2.2) a buoyant bailer;

(6.2.3) a sea-anchor complying with the requirements of Part I of Schedule 7;

(6.2.4) a painter of sufficient length and strength, attached to the release device complying with the requirements of paragraph 4.6 and placed at the forward end of the boat;

(6.2.5) one buoyant line, not less than 50 metres in length, of sufficient strength to tow a liferaft as required by paragraph 2.15;

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

- (6.2.7) one whistle or equivalent sound signal;
- (6.2.8) a first-aid outfit complying with the requirements of Part II of Schedule 7 in a waterproof case capable of being closed tightly after use;
- (6.2.9) two buoyant rescue quoits, attached to not less than 30 metres of buoyant line with a breaking strain of at least 1.0 kN;
- (6.2.10) a boat hook;
- (6.2.11) a bucket;
- (6.2.12) a knife or hatchet; and
- (6.2.13) a portable fire extinguisher.

Instructions and Information

6

7.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

- (7.1.1) general description of the boat and its equipment;
- (7.1.2) installation arrangements;
- (7.1.3) operational instructions including use of associated survival equipment;
- (7.1.4) survival instructions;
- (7.1.5) emergency repair instructions;
- (7.1.6) deployment, boarding and launching instructions;
- (7.1.7) method of launching from within the boat;
- (7.1.8) release from launching appliance;
- (7.1.9) on board maintenance requirements;
- (7.1.10) on servicing requirements;
- (7.1.11) use of engine and accessories; and
- (7.1.12) recovery of boat including stowage and securing

Access into boats

8

8.1 Every rigid rescue boat shall be so arranged that it can be rapidly boarded by its rescue complement of persons. Rapid disembarkation shall also be possible.
Regulations 2(3), 5 and 6

PART II

RIGID INFLATED RESCUE BOATS

1. General

1.1 A rigid inflated rescue boat is a composite craft combining a rigid lower hull and inflated tubes fitted at the edge of the lower hull forming a watertight boundary.

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1.2 All rigid inflated rescue boats shall comply with all the requirements of Part I of this Schedule with the exception of paragraphs 1.1 and 2.10.

Construction

2

2.1 The buoyancy of the boat shall be a combination of inherent and inflated buoyancy.

2.2 The inflated buoyancy tube shall be a single tube sub-divided into at least five separate compartments of approximately equal volume.

2.3 All boats shall have adequate inherent buoyancy or inherently buoyant material together with the inflatable compartments on one side (excluding the forward compartment) when inflated, sufficient to float the boat with all its equipment on board when flooded and open to the sea.

2.4 Additional inherent buoyancy equal to 140 Newtons of buoyancy force per person shall be provided for the number of persons the boat is permitted to accommodate. This additional buoyancy shall not be installed externally to the rigid hull of the boat.

2.5 Inherently buoyant material shall not be adversely affected by seawater, oil or oil products.

2.6 The inflated buoyancy tubes shall comply with the requirements of paragraphs 2.20, 2.21 and 2.22 of Part III of this Schedule.

2.7 The inflated buoyancy tubes shall be maintained at all times in a fully inflated condition.

Markings

3

3.1 If any of the markings required by paragraph 5 of Part I of this Schedule are marked on the buoyancy tubes, the materials used to mark them shall be of a type which is compatible with the boats' coated fabric and approved by the boat manufacturer.

Equipment

4. In addition to the equipment required by paragraph 6.2 of Part I of this Schedule the following items are required:

4.1 an efficient manually operated bellows or pump; and

4.2 a repair kit in a suitable container for repairing punctures to the coated fabric of the buoyancy tubes.

Regulations 2(3), 5 and 6

PART III

INFLATED RESCUE BOATS

General

1

1.1 An inflated rescue boat is a craft combining a flexible lower hull and inflated tubes fitted at the edge of the lower hull together forming a watertight boundary and which relies solely on the buoyancy of the inflated tubes as the inherent buoyancy of the craft.

1.2 All inflated rescue boats prescribed in this Part shall:

- (1.2.1) be constructed with proper workmanship and materials;
- (1.2.2) not be damaged in stowage throughout the air temperature range—30°C to +65°C;
- (1.2.3) be capable of operating throughout a seawater temperature range of –1°C to +30°C;
- (1.2.4) be rot-proof, corrosion-resistance, and not be unduly affected by seawater, oil or fungal attack;
- (1.2.5) be resistant to deterioration from exposure to sunlight;
- (1.2.6) be of a highly visible colour on all parts where this will assist detection;
- (1.2.7) be fitted with retro-reflective material where it will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State;
- (1.2.8) be capable of satisfactory operation in a sea environment.

Construction

2

2.1 All boats shall be properly constructed and shall be of such form and proportion that they have ample stability in a seaway and sufficient freeboard when loaded with their full complement of persons and equipment. All boats shall be capable of maintaining positive stability in an upright position in calm water when loaded with their full complement of persons and equipment and fully swamped.

2.2 All boats shall be of sufficient strength to:

- (2.2.1) enable them to be safely lowered into the water when loaded with their full complement of persons and equipment; and
- (2.2.2) be capable of being launched and towed when the ship is making headway at a speed of 5 knots in calm water.

2.3 Seating shall be provided on thwarts, benches or fixed chairs fitted as low as practicable in the boat and constructed so as to be capable of supporting the number of persons each weighing 100 kg. for which spaces are provided in compliance with the requirements of paragraph 2.5.2.

2.4 Each boat shall be of sufficient strength to withstand, when loaded with its full complement of persons and equipment and with, where applicable, skates or fenders in position, a lateral impact against the ship's side at an impact velocity of at least 3.5 metres per second and also a drop into the water from a height of at least 3 metres.

2.5 The number of persons which a boat shall be permitted to accommodate shall be equal to the lesser of:

(2.5.1) The number of persons having an average mass of 75 kg., all wearing lifejackets, that can be seated in a normal position plus one person lying down without interfering with the means of propulsion or the operation of any of the boat's equipment; or

(2.5.2) the number of spaces that can be provided on the seating arrangements in accordance with Figure 2 in Part I of Schedule 2 plus one person lying down.

2.6 Each seating position shall be clearly indicated in the boat.

2.7 All boats shall have a boarding ladder that can be used on either side of the boat to enable persons in the water to board the boat. The lowest step of the ladder shall be weighted and float at a level not less than 0.4 metres below the boat's light waterline.

2.8 The boat shall be so arranged that helpless people can be brought on board either from the sea or on stretchers.

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2.9 All surfaces on which persons might walk shall have a non-skid finish.

2.10 All boats, when loaded with 50% of the number of persons the boat is permitted to accommodate seated in their normal positions to one side of the centreline, shall have a freeboard measured from the waterline to the lowest opening through which the boat may become flooded, of at least 1.5% of the boat's length or 100 mm, whichever is the greater.

2.11 All boats shall:

(2.11.1) be not less than 3.8 metres and not more than 8.5 metres in length;

(2.11.2) be capable of carrying at least five seated persons and a person lying down.

2.12 Unless the boat has adequate sheer, it shall be provided with a bow cover of highly visible colour extending for not less than 15% of its length, and shall be angled upwards to deflect water and spray.

2.13 Boats shall be capable of manoeuvring at speeds of at least 6 knots and maintaining a speed of 6 knots for a period of at least 4 hours.

2.14 Boats shall have sufficient mobility and manoeuvrability in a seaway to enable persons to be retrieved from the water, marshal liferafts and tow the largest liferaft carried on the ship, when loaded with its full complement of persons and equipment, or its equivalent, at a speed of at least 2 knots.

2.15 The boat shall be fitted with an inboard or outboard engine complying with the relevant parts of paragraph 3.

2.16 Arrangements for towing shall be permanently fitted in boats and shall be sufficiently strong to marshal or tow liferafts as required by paragraph 2.14.

2.17 All boats shall be fitted with weathertight stowage for small items of equipment.

2.18 An inflated rescue boat shall be constructed in such a way that, when suspended by its bridle or lifting hook:

(2.18.1) it is of sufficient strength and rigidity to enable it to be lowered and recovered with its full complement of persons and equipment;

(2.18.2) it is of sufficient strength to withstand a load of 1.1 times the mass of its full complement of persons and equipment at an ambient temperature of -30°C with all relief valves operative;

(2.18.3) it is of sufficient strength to withstand a load of 4 times the mass of its full complement of persons and equipment at an ambient temperature of $20 \pm 3^{\circ}\text{C}$ with all relief valves inoperative.

2.19 Inflated rescue boats shall be so constructed as to be capable of withstanding exposure:

(2.19.1) when stowed on an open deck on a ship at sea;

(2.19.2) for 30 days afloat in all sea conditions.

2.20 The buoyancy of an inflated rescue boat shall be provided by either a single tube subdivided into at least five separate compartments of approximately equal volume or two separate tubes neither exceeding 60% of the total volume. The buoyancy tubes shall be so arranged that, in the event of any one of the compartments being damaged, the intact compartments shall be able to support, with positive freeboard over the boat's entire periphery, the number of persons which the boat is permitted to accommodate, each having a mass of 75 kg., and seated in their normal positions.

2.21 The buoyancy tubes forming the boundary of the inflated rescue boat shall on inflation provide a volume of not less than 0.17m³ for each person the rescue boat is permitted to accommodate and the diameter of the main buoyancy chamber must be at least 0.43 metres.

2.22 Each buoyancy compartment shall be fitted with a non-return valve for manual inflation and means for deflation. A safety relief valve shall also be fitted to each buoyancy compartment.

2.23 When inverted in the water a boat shall be capable of being righted by not more than 2 persons.

2.24 Rubbing strips shall be provided underneath the bottom and on vulnerable places on the outside of the inflated rescue boat.

2.25 Where a transom is fitted it shall not be inset by more than 20% of the overall length of the inflated rescue boat.

2.26 Suitable patches shall be provided for securing painters forward and aft and becketed lifelines inside and outside the boat.

2.27 The inflated rescue boat shall be maintained at all times in a fully inflated condition.

2.28 All boats shall be fitted with a protective stowage cover and shall be kept covered at all times when the boat is not in use. The cover shall be arranged for quick removal in an emergency.

Inflated rescue boat propulsion

3

3.1 Inboard engine

(3.1.1) Where a boat is powered by an inboard engine it shall be of the compression ignition type. No engine shall be used for any boat if its fuel has a flashpoint of 43°C or less (Closed Cup Test), and the engine shall;

(3.1.1.1) be provided with either a manual starting system, or a power starting system with two independent rechargeable energy sources. Any necessary starting aids shall also be provided; the engine starting systems and starting aids shall start the engine at an ambient temperature of -15°C within 2 minutes of commencing the start procedure unless, in the opinion of the Secretary of State having regard to the particular voyages in which the ship carrying the boat is constantly engaged, a different temperature is appropriate; the starting systems shall not be impeded by the engine casing, thwarts or other obstructions;

(3.1.1.2) be capable of operating for not less than 5 minutes after starting from cold with the boat out of the water;

(3.1.1.3) be capable of operating when the boat is flooded up to the centreline of the crank shaft.

3.2 Outboard engine

(3.2.1) Petrol-driven outboard engines with an approved fuel system may be fitted to boats provided the tanks are specially protected against fire and explosion.

(3.2.2) A petrol engine shall be provided with either a manual starting system, or a power starting system. Any necessary starting aids shall also be provided. The engine starting systems and starting aids shall start the engine at an ambient temperature of -15°C within 2 minutes of commencing the start procedure unless, in the opinion of the Secretary of State having regard to the particular voyages in which the ship carrying the boat is constantly engaged, a different temperature is appropriate. The starting system shall not be impeded by the engine casing, thwarts or other obstructions.

3.3 Unless the propeller is so arranged so as to avoid its rotation constituting a danger to people in the water adjacent to it the drive arrangement between the prime mover and the propeller shall be such that the propeller can be brought to rest without stopping the prime mover. Provision shall be made for ahead and astern propulsion of the craft.

3.4 The exhaust pipe shall be so arranged as to prevent water from entering the engine in normal position.

3.5 All boats shall be designed with due regard to the safety of persons in the water and to the possibility of damage to the propulsion system by floating debris.

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3.6 The boat engine, transmission and engine accessories shall be enclosed in a fire-retardant casing or other suitable arrangements providing similar protection. Such arrangements shall also protect persons from coming into accidental contact with hot or moving parts and protect the engine from exposure to weather and sea. Adequate means shall be provided to reduce the engine noise. Starter batteries shall be provided with casings which form a watertight enclosure around the bottom and sides of the batteries. The battery casings shall have a tight fitting top which provides for necessary gas venting.

3.7 The boat engine and accessories shall be designed to limit electromagnetic emissions so that engine operation does not interfere with the operation of radio life-saving appliances used in the boat.

3.8 Means shall be provided for recharging all engine-starting, searchlight and, when fitted, radio batteries. Radio batteries shall not be used to provide power for engine starting. Means shall be provided for recharging rescue boat batteries from the ship's power supply. The electric power supply connection from the ship to any inflated rescue boat shall be at a voltage of not exceeding 55 volts direct current or 55 volts root mean square alternating current and shall be capable of being disconnected automatically at the inflated rescue boat embarkation station.

3.9 Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls.

Boat Fittings

4

4.1 All boats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open to drain water from the hull when the boat is not waterborne and shall automatically close to prevent entry of water when the boat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve, which shall be readily attached to the boat by a lanyard, chain, or other suitable means. Drain valves shall be accessible and capable of being closed from inside the boat and their position shall be clearly indicated.

4.2 All boats shall be provided with a rudder and tiller or other suitable means of steering. When a wheel or other remote steering mechanism is also provided the alternative means shall be capable of steering the boat in the case of failure of the steering mechanism. Except where the rudder forms part of an outboard engine a rudder shall be permanently attached to the boat and a tiller shall be permanently installed on or linked to the rudder stock. However, if the boat has a remote steering mechanism the tiller may be removable and securely stowed near the rudder stock. The steering arrangements shall be so arranged so not to be damaged by operation of the release mechanism or the propeller.

4.3 Except in the vicinity of the rudder and propeller, a buoyant lifeline shall be becketed around the inside and outside of the boat.

4.4 Boats which are not self-righting when capsized shall have suitable handholds on the underside of the hull to enable persons to cling to the boat. The handholds shall be fastened to the boat in such a way that, when subjected to an impact sufficient to cause them to break away from the boat, they break away without damaging the boat.

4.5 Every boat to be launched by a fall or falls shall be fitted with a release mechanism complying with Part IV of this Schedule, except those which are launched by a single suspension which may have an approved release mechanism which is operable when the boat is waterborne.

4.6 Every boat shall be fitted with a release device to enable the forward painter to be released when under tension.

4.7 Boats intended for launching down the side of a ship shall have skates and fenders as necessary to facilitate launching and prevent damage to the boat.

4.8 Unless expressly provided otherwise, every boat shall be provided with effective means of bailing or be automatically self-bailing.

Markings

5

5.1 The dimensions of the boat, the number of persons which it is permitted to accommodate, the makers serial number, name or trade mark and the date of manufacture shall be marked on the boat in clear permanent characters.

5.2 The name and port of registry of the ship to which the boat belongs shall be marked on each side of the boat's bow in block capitals of the Roman alphabet.

5.3 Means of identifying the ship to which the boat belongs and the number of the boat shall be marked in such a way that they are visible from above.

5.4 All materials used to mark an inflated rescue boat shall be of a type which is compatible with the boat's coated fabric and approved by the boat manufacturer.

Boat Equipment

6

6.1 All items of boat equipment, with the exception of the boat-hook which shall be kept available for fending off purposes, shall be secured within the boat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements, or other suitable means. The equipment shall be secured in such a manner as not to interfere with any launching or recovery procedures. All items of boat equipment shall be as small and of as little mass as possible and shall be packed in suitable and compact form.

6.2 The equipment of every boat shall consist of:

(6.2.1) sufficient buoyant oars or paddles to make headway in calm seas; thole pins, crutches or equivalent arrangements shall be provided for each oar; thole pins or crutches shall be attached to the boat by lanyards or chains;

(6.2.2) a buoyant bailer;

(6.2.3) a sea-anchor complying with the requirements of Part I of Schedule 7;

(6.2.4) a painter of sufficient length and strength, attached to the release device complying with the requirements of paragraph 4.6 and replaced at the forward end of the boat;

(6.2.5) one buoyant line, not less than 50 metres in length, of sufficient strength to tow a liferaft as required by paragraph 2.14;

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

(6.2.7) one whistle or equivalent sound signal;

(6.2.8) a first-aid outfit complying with the requirements of Part II of Schedule 7 in a waterproof case capable of being closed tightly after use;

(6.2.9) two buoyant rescue quoits, attached to not less than 30 metres of buoyant line with a breaking strain of at least 1.0kN;

(6.2.10) a buoyant safety knife;

(6.2.11) two sponges;

(6.2.12) an efficiently manually operated bellows or pump;

(6.2.13) a repair kit in a suitable container for repairing punctures;

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- (6.2.14) a safety boat hook; and
- (6.2.15) a portable fire extinguisher.

Instructions and Information

7

7.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

- (7.1.1) general description of the boat and its equipment;
- (7.1.2) installation arrangements;
- (7.1.3) operational instructions including use of associated survival equipment;
- (7.1.4) survival instructions;
- (7.1.5) emergency repair instructions;
- (7.1.6) deployment, boarding and launching instructions;
- (7.1.7) method of launching from within the boat;
- (7.1.8) release from launching appliance;
- (7.1.9) on board maintenance requirements;
- (7.1.10) servicing requirements;
- (7.1.11) use of engine and accessories; and
- (7.1.12) recovery of boat including stowage and securing.

Access into boats

8

8.1 Every inflated rescue boat shall be so arranged that it can be rapidly boarded by its rescue complement of persons. Rapid disembarkation shall also be possible.
Schedule 2 Parts I, II and III

PART IV

RESCUE BOAT DISENGAGING GEARS

1. Except in the case of single point suspension the rescue boat disengaging gear shall be so arranged that all hooks are released simultaneously on the operation of the control mechanism.

2. The means of effecting release shall be placed near the coxwain's position.

3. The gear shall have two release capabilities:

3.1 a normal release capability which will release the rescue boat only when it is waterborne or when there is no load on the hook(s); and

3.2 an on-load release capability which will release the rescue boat with a load on the hook(s). This release shall be so arranged as to release the rescue boat under any condition of loading from no-load with the rescue boat waterborne to a load of 1.1 times the total mass of the rescue boat when

loaded with its full certified complement of persons and equipment. This release shall be adequately protected against accidental or premature use.

4. The means of connection between the hook(s), safety device and the operating lever or release unit shall:

4.1 be arranged and led so as to ensure the efficient operation of the gear;

4.2 wherever necessary be properly cased in for the safety or efficient action of the gear or for the protection of persons from injury; and

4.3 where cased in, means shall be provided for lubricating this equipment.

5. The release control(s) are to be clearly marked in a colour that contrasts with its surroundings, and a suitably worded instruction plate indicating the method of safe operation of the gear shall be provided.

6. 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.

7. The mechanism shall be designed with a factor of safety of 6 based on the ultimate strength of the materials used, assuming that the mass of the rescue boat is equally distributed.

SCHEDULE 3

Regulations 2(3), 5 and 6

INFLATED BOATS

General

1

1.1 An inflated boat is a composite craft combining a flexible lower hull and an inflated tube fitted at the edge of the lower hull together forming a watertight boundary and which relies solely on the buoyancy of the inflated tube as the inherent buoyancy of the craft.

1.2 All inflated boats prescribed in this Schedule shall:

(1.2.1) be constructed with proper workmanship and materials;

(1.2.2) not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$;

(1.2.3) be capable of operating throughout a seawater temperature range of -1°C to $+30^{\circ}\text{C}$;

(1.2.4) be rot-proof, corrosion-resistant, and not be unduly affected by seawater, oil or fungal attack;

(1.2.5) be resistant to deterioration from exposure to sunlight;

(1.2.6) be of a highly visible colour on all parts where this will assist detection;

(1.2.7) be fitted with retro-reflective material where this will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State; and

(1.2.8) be capable of satisfactory operation in a sea environment.

Construction

2

2.1 All boats shall be properly constructed and shall be of such form and proportion that they have ample stability in a seaway and sufficient freeboard when loaded with their full complement

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of persons and equipment. All boats shall be capable of maintaining positive stability in an upright position in calm water when loaded with their full complement of persons and equipment and fully swamped.

2.2 All boats shall be of sufficient strength to enable them to be safely lowered into the water when loaded with all their equipment and a crew of 2 persons.

2.3 At least one portable thwart shall be fitted to enable the boat to be rowed satisfactorily.

2.4 Each boat shall be of sufficient strength to withstand, when loaded with its full complement of persons and equipment and with, where applicable, skates or fenders in position, a lateral impact against the ship's side at an impact velocity of at least 3.5 metres per second and also a drop into the water from a height of at least 3 metres.

2.5 The number of persons which a boat shall be permitted to accommodate shall be equal to the lesser of:

(2.5.1) the number of persons having an average mass of 75 kg., all wearing lifejackets, that can be seated in a normal position plus one person lying down; all persons must be seated inboard of the buoyancy tubes and shall not interfere with the means of propulsion or the operation of any of the boat's equipment; or

(2.5.2) the number of spaces that can be provided on the seating arrangements in accordance with Figure 2 in Part I of Schedule 2 plus one person lying down.

2.6 Each seating position shall be clearly indicated in the boat.

2.7 All boats shall have a boarding ladder that can be used on either side of the boat to enable persons in the water to board the boat. The lowest step of the ladder shall be weighted and float at a level not less than 0.4 m below the boat's light waterline.

2.8 The boat shall be so arranged that helpless people can be brought on board either from the sea or on stretchers.

2.9 All surfaces on which persons might walk shall have a non-skid finish.

2.10 All inflated boats, when loaded with 50% of the number of persons the boat is permitted to accommodate seated in their normal positions to one side of the centreline, shall have a freeboard, measured from the waterline to the lowest opening through which the boat may become flooded, of at least 1.5% of the boat's length or 100 mm, whichever is the greater.

2.11 An inflated boat shall:

(2.11.1) be not less than 3.8 m and not more than 8.5 m in length; and

(2.11.2) be capable of carrying at least three persons and a person lying down.

2.12 Unless the boat has adequate sheer, it shall be provided with a bow cover of highly visible colour extending for not less than 15% of its length, and shall be angled upwards to deflect water and spray.

2.13 Boats shall be capable of manoeuvring at speeds of at least 6 knots in calm water with 2 persons on board, and maintaining a speed of 6 knots for a period of at least 2 hours.

2.14 Boats shall have sufficient mobility and manoeuvrability in a seaway to enable persons to be retrieved from the water, marshal liferafts, and tow the largest liferaft carried on the ship when loaded with its full complement of persons and equipment, or its equivalent, at a speed of at least 2 knots.

2.15 The boat shall be fitted with an outboard engine having a maximum power of 10 HP complying with the requirements of paragraph 3.

2.16 Arrangements for towing shall be permanently fitted in boats and shall be sufficiently strong to marshal or tow liferafts as required by paragraph 2.14.

2.17 Boats shall be fitted with weathertight stowage for small items of equipment.

2.18 A boat shall be constructed in such a way that, when suspended by its bridle or lifting hook:

(2.18.1) it is of sufficient strength and rigidity to enable it to be lowered and recovered with all its equipment and a crew of two persons;

(2.18.2) it is of sufficient strength to withstand a load of 1.1 times the mass of its equipment and a crew of two persons at an ambient temperature of -30°C with relief valves operative; and

(2.18.3) it is of sufficient strength to withstand a load of 4 times the mass of its equipment and a crew of two persons at an ambient temperature of $20 \pm 3^{\circ}\text{C}$ with all relief valves inoperative.

2.19 Inflated boats shall be constructed so as to be capable of withstanding exposure:

(2.19.1) when stowed on an open deck on a ship at sea; and

(2.19.2) for 30 days afloat in all sea conditions.

2.20 The buoyancy of an inflated boat shall be provided by either a single tube subdivided into at least five separate compartments of approximately equal volume or two separate tubes neither exceeding 60% of the total volume. The buoyancy tubes shall be so arranged that, in the event of any one of the compartments being damaged, the intact compartments shall be able to support, with positive freeboard over the boat's entire periphery, the number of persons which the inflated boat is permitted to accommodate, each having a mass of 75 kg., and seated in their normal positions.

2.21 The buoyancy tubes forming the boundary of the inflated boat shall on inflation provide a volume of not less than 0.17 m³ for each person the boat is permitted to accommodate, and the diameter of the main buoyancy chamber must be at least 0.43 metres.

2.22 Each buoyancy compartment shall be fitted with a non-return valve for manual inflation and means of deflation. A safety valve designed to operate at a pressure not exceeding 125% of the designed working pressure of the buoyancy chamber shall also be fitted to each buoyancy compartment.

2.23 When inverted in the water an inflated boat shall be capable of being righted by not more than two persons.

2.24 Rubbing strips shall be provided underneath the bottom and on vulnerable places on the outside of the boat.

2.25 Where a transom is fitted it shall not be inset by more than 20% of the overall length of the inflated boat.

2.26 Suitable patches shall be provided for securing painters forward and aft and becketed lifelines inside and outside the boat.

2.27 The boat shall be maintained at all times in a fully inflated condition.

2.28 All inflated boats shall be fitted with a protective stowage cover and shall be kept covered at all times when the boat is not in use. The cover should be arranged for quick removal in an emergency.

Boat Propulsion

3

3.1 A petrol-driven outboard engine with an approved fuel system may be fitted to an inflated boat provided the tank is specially protected against fire and explosion.

3.2 A petrol engine shall be provided with a manual starting system. The engine starting system shall start the engine at an ambient temperature of -15°C within 2 minutes of commencing the start procedure. The starting system shall not be impeded by the engine casing, thwarts or other obstructions.

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3.3 Unless the propeller is so arranged so as to avoid its rotation constituting a danger to people in the water adjacent to it, the drive arrangement between the prime mover and the propeller shall be such that the propeller can be brought to rest without stopping the prime mover. Provision shall be made for ahead and astern propulsion of the boat.

3.4 The exhaust pipe shall be so arranged as to prevent water from entering the engine in normal operation.

3.5 The boat engine and accessories shall be designed to limit electromagnetic emissions so that engine operation does not interfere with the operation of radio life-saving appliances used in the boat.

3.6 Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls.

Boat Fittings

4

4.1 All boats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open to drain water from the hull when the boat is not waterborne and shall automatically close to prevent entry of water when the boat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve, which shall be attached to the boat by a lanyard, a chain, or other suitable means. Drain valves shall be readily accessible and capable of being closed from inside the boat and their position shall be clearly indicated.

4.2 Except in the vicinity of the outboard engine, a buoyant lifeline shall be becketed around the inside and outside of the boat.

4.3 Boats which are not self-righting when capsized shall have suitable handholds on the underside of the hull to enable persons to cling to the boat. The handholds shall be fastened to the boat in such a way that, when subjected to an impact sufficient to cause them to break away from the boat, they break away without damaging the boat.

4.4 A boat shall be capable of being launched by means of a launching appliance complying with the requirements of Part IV of Schedule 6.

4.5 Unless expressly provided otherwise, every boat shall be provided with effective means of bailing or be automatically self-bailing.

Lifting Arrangements

5

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

(5.1.1) the length of the legs are of equal length; or

(5.1.2) the bridle is permanently attached; or

(5.1.3) it is not possible to connect any of the bridle legs to the wrong position in the boat.

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

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

5.4 The after lifting attachments shall be similar to the forward attachments or may be made directly to the transom.

5.5 The bridle slinging arrangements used for lowering and recovering the boat shall be such that the breaking tensile strength is at least 6 times the sum of the mass of the boat, its full equipment and a crew of 2 persons each having a mass of 75 kg.

5.6 The bridle sling lifting arrangements shall be proof tested to not less than 4 times their respective working loads. The proof testing can be carried out either:

(5.6.1) individually on each item associated with the lifting arrangements; or

(5.6.2) on the assembly of a structurally completed boat with its lifting arrangements and particular bridle sling. In each case fabric webbings and cordages forming part of the lifting arrangements shall have a breaking strength of not less than six times their respective working loads.

Markings

6

6.1 The dimensions of the boat, the number of persons which it is permitted to accommodate, the makers serial number, name or trade mark and the date of manufacture shall be marked on the boat in clear permanent characters;

6.2 The name and port of registry of the ship to which the boat belongs shall be marked on each side of the boat's bow in block capitals of the Roman alphabet;

6.3 Means of identifying the ship to which the boat belongs and the number of the boat shall be marked in such a way that they are visible from above;

6.4 All material used to mark an inflated boat shall be of a type which is compatible with the boat's coated fabric and approved by the boat manufacturer.

Boat Equipment

7

7.1 All items of boat equipment, with the exception of the boat hook which shall be kept available for fending off purposes, shall be secured within the boat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements, or other suitable means. The equipment shall be secured in such a manner as not to interfere with any launching or recovery procedures. All items of boat equipment shall be as small and of as little mass as possible and shall be packed in suitable and compact form.

7.2 The equipment of every boat shall consist of:

(7.2.1) at least two buoyant oars or paddles to make headway in calm seas; crutches or equivalent arrangements shall be provided for each oar, and shall be permanently attached to the boat;

(7.2.2) a buoyant bailer;

(7.2.3) a sea-anchor complying with the requirements of Part I of Schedule 7;

(7.2.4) one buoyant line, not less than 50 metres in length, of sufficient strength to tow a liferaft as required by paragraph 2.14.

(7.2.5) a painter 20 metres in length;

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

(7.2.7) one whistle or equivalent sound signal;

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(7.2.8) a first-aid outfit in a waterproof case capable of being closed tightly after use, and complying with the requirements of Part II of Schedule 7;

(7.2.9) two buoyant rescue quoits, attached to not less than 30 metres of buoyant line with a breaking strain of at least 1.0 kN;

(7.2.10) a buoyant safety knife;

(7.2.11) two sponges;

(7.2.12) an efficient manually operated bellows or pump;

(7.2.13) a repair kit in a suitable container for repairing punctures;

(7.2.14) a safety boat hook; and

(7.2.15) a portable fire extinguisher.

Instructions and Information

8

8.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

(8.1.1) general description of the boat and its equipment;

(8.1.2) installation arrangements;

(8.1.3) operational instructions including use of equipment;

(8.1.4) emergency repair instructions;

(8.1.5) deployment, boarding and launching instructions;

(8.1.6) release from launching appliance;

(8.1.7) on board maintenance requirements;

(8.1.8) servicing requirements;

(8.1.9) use of engine; and

(8.1.10) recovery of boat including stowage and securing.

SCHEDULE 4

Regulations 2(3), 5, 6, 7(3), 7(4), 8 and 9

LIFERAFTS

PART I

INFLATABLE LIFERAFTS

(SOLAS)

General

1

1.1 All inflatable liferafts prescribed in this Part shall:

- (1.1.1) be constructed with proper workmanship and materials;
- (1.1.2) not be damaged in stowing throughout the air temperature range of -30°C to $+65^{\circ}\text{C}$;
- (1.1.3) be capable of operating throughout an air temperature range of -30°C to $+65^{\circ}\text{C}$, and a sea water temperature range of -1°C to $+30^{\circ}\text{C}$;
- (1.1.4) be rot-proof, corrosion-resistant, and not be unduly affected by sea-water, oil or fungal attack;
- (1.1.5) be resistant to deterioration from exposure to sunlight;
- (1.1.6) have a canopy of a highly visible colour;
- (1.1.7) be fitted with retro-reflective material where this will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State; and
- (1.1.8) when fully inflated and floating with the canopy uppermost be stable in a seaway.

Construction

2

2.1 Every liferaft shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all sea conditions without such deterioration as would involve any loss of seaworthiness.

2.2 The liferaft shall be so constructed that when it is dropped into the water in its container from a height of 18 metres, the liferaft and its equipment will operate satisfactorily. If the liferaft is to be stowed at a height of more than 18 metres above the waterline in the lightest seagoing condition, it shall be of a type which has been satisfactorily drop-tested from at least that height.

2.3 The floating liferaft shall be capable of withstanding repeated jumps on to it from a height of at least 4.5 metres above its floor both with and without the canopy erected.

2.4 The liferaft and its fittings shall be so constructed as to enable it to be towed at a speed of 3 knots in calm water when loaded with its full complement of persons and equipment and with one of its sea-anchors streamed.

2.5 The liferaft shall have a canopy to protect the occupants from exposure which is automatically set in place when the liferaft is launched and waterborne. The canopy shall comply with the following:

(2.5.1) it shall provide insulation against heat and cold by means of either two layers of material separated by an air gap or other equally efficient means; means shall be provided to prevent accumulation of water in the air gap;

(2.5.2) its interior shall be of a colour that does not cause discomfort to the occupants;

(2.5.3) each entrance shall be clearly indicated and be provided with efficient adjustable closing arrangements which can be easily and quickly opened from inside and outside the liferaft so as to permit ventilation but exclude seawater, wind and cold; liferafts accommodating more than eight persons shall have at least two diametrically opposite entrances;

(2.5.4) it shall admit sufficient air for the occupants at all times, even with the entrances closed;

(2.5.5) it shall be provided with at least one viewing port in liferafts accommodating up to 25 persons and at least two diametrically opposite viewing ports in liferafts accommodating more than 25 persons;

(2.5.6) it shall be provided with means of collecting rain water;

(2.5.7) it shall have sufficient headroom for seated occupants under all parts of the canopy.

2.6 The main buoyancy chamber shall be divided into:

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(2.6.1) not less than two separate compartments, each inflated through a non-return inflation valve on each compartment;

(2.6.2) the buoyancy chambers shall be so arranged that in the event of one of the compartments being damaged or failing to inflate, the intact compartment shall be able to support, with positive freeboard over the liferaft's entire periphery, the number of persons which the liferaft is permitted to accommodate, each having a mass of 75 kg., and seated in their normal positions.

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

(2.7.1) by means of one or more compartments that the occupants can inflate, or which inflate automatically and can be deflated and reinflated by the occupants; or

(2.7.2) by other equally efficient means not dependent on inflation.

2.8 The liferaft shall be inflated with a non-toxic gas by an inflation system complying with the requirements of Part VIII of Schedule 4. Inflation shall be completed within a period of 1 minute at an ambient temperature of between 18°C and 20°C and within a period of 3 minutes at an ambient temperature of -30°C. After inflation the liferaft shall maintain its form when loaded with its full complement of persons and equipment.

2.9 Each inflatable compartment shall be capable of withstanding a pressure equal to at least 3 times the working pressure and shall be prevented from reaching a pressure exceeding twice the working pressure either by means of relief valves or by a limited gas supply. Means shall be provided for fitting the topping-up pump or bellows required by Part IV of Schedule 4 so that the working pressure can be maintained.

2.10 The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of:

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

(2.10.2) the greatest whole number obtained by dividing by 0.372 the inner horizontal cross-sectional area of the liferaft measured in square metres (which for this purpose may include the thwart or thwarts, if fitted) measured to the innermost edge of the buoyancy tubes; or

(2.10.3) the number of persons having an average mass of 75 kg., all wearing lifejackets, that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

2.11 No liferaft shall be approved which has a carrying capacity of less than six persons calculated in accordance with the requirements of paragraph 2.10.

2.12 Unless the liferaft is to be launched by an approved launching appliance complying with the requirements of Part III of Schedule 6 and not required to be portable, the total mass of the liferaft, its container and its equipment shall not be more than 185 kg.

Liferaft Fittings

3

3.1 Liferafts shall be securely becketed around the inside and outside of the liferaft.

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

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3.3 The liferaft shall be fitted with an efficient painter of length equal to not less than twice the distance from the stowed position to the waterline in the lightest seagoing condition or 15 metres whichever is the greater.

3.4 The breaking strength of the painter system including its means of attachment to the liferaft except the weak link required by Part VI of Schedule 4 shall be:

(3.4.1) 7.5 kilonewtons for liferafts accommodating up to 8 persons;

(3.4.2) 10.0 kilonewtons for liferafts accommodating 9 to 25 persons;

(3.4.3) 15.0 kilonewtons for liferafts accommodating more than 25 persons or have a factor of safety of 3 in association with the requirement of paragraph 2.4 above whichever is the greater.

3.5 At least one entrance shall be fitted with a semi-rigid boarding ramp to enable persons to board the liferaft from the sea so arranged as to prevent significant deflation of the liferaft if the ramp is damaged. Liferafts accommodating more than 25 persons shall have at least two diametrically opposite entrances fitted with semi-rigid boarding ramps. In the case of davit-launched liferafts a boarding ramp shall not be fitted at the entrance where bowsing lines and embarkation facilities are fitted.

3.6 Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be weighted and float at a level not less than 0.4 metres below the liferaft's light waterline.

3.7 There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

3.8 The stability of liferafts capable of carrying 25 persons or less when in the inverted position shall be such that they can be righted in a seaway and in calm water by one person. Liferafts in excess of 25 persons capacity shall have righting facilities acceptable to the Department of Transport. The righting position of the liferaft shall be suitably marked and have a non-skid surface.

3.9 The stability of the liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speeds of up to 3 knots in calm water.

(3.10.1) The liferaft shall be fitted with water pockets complying with the following requirements:

(3.10.1.1) The cross-sectional area of the pockets shall be in the shape of an isosceles triangle with the base of the triangle attached to the underside of the liferaft;

(3.10.1.2) The design shall be such that the pockets fill to approximately 60% of capacity within 15–25 seconds of deployment;

(3.10.1.3) The pockets shall normally have an aggregate capacity of between 225 litres and 250 litres for inflatable liferafts up to and including the 10 person size;

(3.10.1.4) The pockets to be fitted on liferafts certified to carry more than 10 persons shall have an aggregate capacity of $(20 \times N)$ litres, where N = Number of persons carried.

(3.10.1.5) The pockets shall be attached on all of their sides to the underside of the liferaft.

(3.10.1.6) The pockets shall be distributed symmetrically round the circumference of the liferaft either side of the CO₂ bottle with sufficient separation between each pocket to enable air to escape readily. The minimum number of pockets shall normally be in the order of:

RAFT CAPACITY	NO OF POCKETS
6–8 inclusive	5
9–16 inclusive	7
17–25 inclusive	11

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3.11 At least one manually controlled lamp complying with the requirements of Part VII of Schedule 4 shall be fitted to the top outside of the liferaft canopy.

3.12 A manually controlled lamp complying with the requirements of Part VII of Schedule 4 shall be fitted inside the liferaft.

3.13 Each inflatable liferaft shall be fitted with equipment complying with the relevant requirements of Part IV of this Schedule.

Containers for inflatable liferafts

4

4.1 The liferaft shall be packed in a container that is:

- (4.1.1) so constructed as to withstand conditions encountered at sea;
- (4.1.2) of sufficient inherent buoyancy, when packed with the liferaft and its equipment, to pull the painter from within and to operate the inflation mechanism should the ship sink;
- (4.1.3) as far as practicable watertight, except for drain holes in the container bottom.

4.2 The liferaft shall be packed in its container in such a way as to ensure, as far as possible, that the waterborne liferaft inflates in an upright position on breaking free from its container.

4.3 The container shall be marked with:

- (4.3.1) maker's name or trade mark;
- (4.3.2) serial number;
- (4.3.3) DOT(UK) APPROVED, and the number of persons it is permitted to carry;
- (4.3.4) SOLAS 86;
- (4.3.5) type of emergency pack enclosed;
- (4.3.6) date when last serviced;
- (4.3.7) length of painter;
- (4.3.8) maximum permitted height of stowage above waterline (depending on drop-test height and length of painter); and
- (4.3.9) launching instructions.

Markings on inflatable liferafts

5. The liferaft shall be marked with:

- 5.1** maker's name or trade mark;
- 5.2** serial number;
- 5.3** date of manufacture (month and year);
- 5.4** DOT(UK) APPROVED;
- 5.5** name and place of servicing station where it was last serviced; and
- 5.6** number of persons it is permitted to accommodate over each entrance in characters not less than 100 mm, in height of a colour contrasting with that of the liferaft canopy.

David-launched inflatable liferafts

6

6.1 In addition to the above requirements, a liferaft for use with an approved launching appliance complying with Part III of Schedule 6 shall:

(6.1.1) when the liferaft is loaded with its full complement of persons and equipment, be capable of withstanding a lateral impact against the ship's side at an impact velocity of not less than 3.5 metres per second and also a drop into the water from a height of not less than 3 metres without damage that will affect its function;

(6.1.2) be provided with means for bringing the liferaft alongside the embarkation deck and holding it securely during embarkation. The distance between the liferaft and the bowsing line securing point shall be kept to a minimum to restrict movement of the liferaft during boarding;

(6.1.3) when suspended from its lifting hook or bridle withstand a load of:

(6.1.3.1) 4 times the mass of its full complement of persons and equipment, at an ambient temperature and a stabilised liferaft temperature of $20 \pm 3^{\circ}\text{C}$ with all relief valves inoperative; and

(6.1.3.2) 1.1 times the mass of its full complement of persons and equipment at an ambient temperature and a stabilised liferaft temperature of -30°C with all relief valves operative.

6.2 Rigid containers for liferafts to be launched by a launching appliance shall be so secured that the container or parts of it are prevented from falling into the sea during inflation and launching of the liferaft.

6.3 Every davit-launched liferaft shall be so arranged that it can be rapidly boarded by its full complement of persons.

Instructions and Information

7

7.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11, and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include as appropriate the following:

- (7.1.1) general description of the liferaft and its equipment;
- (7.1.2) installation arrangements;
- (7.1.3) operational instructions including use of associated survival equipment;
- (7.1.4) survival instructions;
- (7.1.5) emergency repair instructions;
- (7.1.6) deployment, boarding and launching instructions;
- (7.1.7) method of launching from within the raft;
- (7.1.8) release from launching appliance;
- (7.1.9) on board maintenance requirements; and
- (7.1.10) servicing requirements.

Regulations 2(3), 5, 6, 7(3), 7(4), 8 and 9

PART II

OPEN REVERSIBLE LIFERAFTS

General

1

1.1 All liferafts shall:

- (1.1.1) be constructed with proper workmanship and materials;
- (1.1.2) not be damaged in stowage throughout the air temperature range of -18°C to $+65^{\circ}\text{C}$;
- (1.1.3) be capable of operating throughout an air temperature range of -18°C to $+65^{\circ}\text{C}$, and a sea water temperature range of -1°C to $+30^{\circ}\text{C}$;
- (1.1.4) be rot-proof, corrosion-resistant, and not be unduly affected by sea-water, oil or fungal attack; and
- (1.1.5) be stable and maintain their shape when inflated and fully laden.

Construction

2

2.1 The liferaft shall be so constructed that when it is dropped into the water in its container from a height of 10 metres, the liferaft and its equipment will operate satisfactorily. If the liferaft is to be stowed at a height of more than 10 metres above the waterline in the lightest seagoing condition, it shall be of a type which has been satisfactorily drop-tested from at least that height.

2.2 The floating liferaft shall be capable of withstanding repeated jumps on to it from a height of at least 4.5 metres.

2.3 The liferaft and its fittings shall be so constructed as to enable it to be towed at a speed of 3 knots in calm water when loaded with its full complement of persons and equipment, with the sea anchor deployed.

2.4 The liferaft when fully inflated shall be capable of being boarded from the water whichever way up it inflates.

2.5 The main buoyancy chamber shall be divided into:

(2.5.1) not less than two separate compartments, each inflated through a non-return inflation valve on each compartment; and

(2.5.2) the buoyancy chambers shall be so arranged that in the event of one of the compartments, being damaged or failing to inflate, the intact compartment, shall be able to support, with positive freeboard over the liferaft's entire periphery, the number of persons which the liferaft is permitted to accommodate, each having a mass of 75 kg, and seated in their normal positions.

2.6 The floor of the liferaft shall be waterproof.

2.7 The liferaft shall be inflated with a non-toxic gas by an inflation system complying with the requirements of Part VIII of Schedule 4. Inflation shall be completed within the period of 1 minute at an ambient temperature of between 18°C and 20°C and within a period of 3 minutes at an ambient temperature of -18°C . After inflation the liferaft shall maintain its form when loaded with its full complement of persons and equipment.

2.8 Each inflatable compartment shall be capable of withstanding a pressure equal to at least 3 times the working pressure and shall be prevented from reaching a pressure exceeding twice the

working pressure either by means of relief valves or by a limited gas supply. Means shall be provided for fitting the topping-up pump or bellows.

2.9 The buoyancy tubes are to be of a highly visible colour or at least 25 percent of these tubes to be of a highly visible colour. In respect of the latter it will be acceptable for the water pockets required by paragraph 3.5 to be manufactured in a highly visible colour.

2.10 The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of:

(2.10.1) the greatest whole number obtained by dividing by 0.075 the volume, measured in cubic metres of the main buoyancy tubes (which for this purpose shall not include the thwarts if fitted) when inflated; or

(2.10.2) the greatest whole number obtained by dividing by 0.304 the inner horizontal cross-sectional area of the liferaft measured in square metres (which for this purpose may include the thwart or thwarts, if fitted) measured to the innermost edge of the buoyancy tubes; or

(2.10.3) the number of persons having an average mass of 75 kg, all wearing lifejackets, that can be seated inboard of the buoyancy tubes without interfering with the operation of any of the liferaft's equipment.

2.11 No liferaft shall be approved with a carrying capacity of less than 4 or greater than 65 persons calculated or determined in accordance with the requirements of paragraph 2.10.

Liferaft Fittings

3

3.1 Lifelines shall be securely becketed around the inside and outside of the liferaft.

3.2 The liferaft shall be fitted with an efficient painter of a length suitable for automatic inflation on reaching the water. For liferafts accommodating more than 30 persons an additional bowsing-in line is to be fitted.

3.3 The breaking strength of the painter system including its means of attachment to the liferaft except the weak link required by Part VI of Schedule 4 shall be:

(3.3.1) 7.5 kilonewtons for liferafts accommodating up to 8 persons,

(3.3.2) 10.0 kilonewtons for liferafts accommodating 9 to 30 persons, and

(3.3.3) 15.0 kilonewtons for liferafts accommodating more than 30 persons.

3.4 The liferaft shall be fitted with at least the following number of inflated ramps to assist boarding from the sea whichever way up the raft inflates:

(3.4.1) one boarding ramp for liferafts accommodating up to 30 persons; or

(3.4.2) two boarding ramps for liferafts accommodating more than 30 persons.

3.5 The liferaft shall be fitted with water pockets complying with the following requirements:

(3.5.1) The cross-sectional area of the pockets shall be in the shape of an isosceles triangle with the base of the triangle attached to the underside of the liferaft;

(3.5.2) The design shall be such that the pockets fill to approximately 60% of capacity within 15–25 seconds of deployment;

(3.5.3) The pockets shall normally have aggregate capacity of between 125 litres and 150 litres for inflatable liferafts up to and including the 10 person size;

(3.5.4) The pockets to be fitted on liferafts certified to carry more than 10 persons shall have as far as practicable an aggregate capacity of $(12 \times N)$ litres, where N = Number of persons carried;

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(3.5.5) The pockets shall be attached on all their sides to each of the upper and lower surfaces of the buoyancy tubes; and

(3.5.6) The pockets shall be distributed symmetrically round the circumference of the liferaft with sufficient separation between each pocket to enable air to escape readily.

3.6 At least one manually controlled lamp complying with the requirements of Part VII of Schedule 4 shall be fitted on the upper and lower surfaces of the buoyancy tubes.

3.7 Suitable automatic drain arrangements are to be provided on each side of the floor of the liferaft in the following manner:

- (i) one for liferafts accommodating up to 30 persons; or
- (ii) two for liferafts accommodating more than 30 persons.

3.8 The equipment of every liferaft shall consist of:

(3.8.1) one buoyant rescue quoit, attached to not less than 30 metres of buoyant line with a breaking strain of at least 1.0 kN;

(3.8.2) two safety knives of the non-folding type having a buoyant handle and stowed in a pocket on the upper buoyancy tube adjacent to the painter and secured to the liferaft by a light line of sufficient length to enable the painter to be readily cut;

(3.8.3) one buoyant bailer;

(3.8.4) two sponges;

(3.8.5) one sea-anchor complying with the requirements of Part I of Schedule 7, and permanently attached to the liferaft in such a way as to be readily deployable when the liferaft inflates;

(3.8.6) two buoyant paddles;

(3.8.7) one first-aid outfit complying with the requirements of Part II of Schedule 7, in a waterproof case capable of being closed tightly after use;

(3.8.8) one whistle or equivalent sound signal;

(3.8.9) two hand flares;

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

(3.8.11) one repair outfit for repairing punctures in buoyancy compartments; and

(3.8.12) one topping-up pump or bellows.

3.9 Liferafts equipped in accordance with paragraph 3.8 be marked in block capitals “DOT (UK)E PACK”.

3.10 Where appropriate the equipment shall be stowed in a container which, if it is not an integral part of, or permanently attached to the liferaft, shall be stowed and secured to the liferaft and be capable of floating in water for at least 30 minutes without damage to its contents. The line which secures the equipment container to the liferaft shall have a breaking strain of 2 kN or a breaking strain of 3:1 based on the mass of the complete equipment pack, whichever is the greater.

Containers for open reversible inflatable liferafts

4

4.1 The liferaft shall be packed in a container that is:

(4.1.1) so constructed as to withstand conditions encountered at sea;

(4.1.2) of sufficient inherent buoyancy, when packed with the liferaft and its equipment, to pull the painter from within and to operate the inflation mechanism should the ship sink; and

(4.1.3) as far as practicable watertight, except for drain holes in the container bottom.

4.2 The container shall be marked with:

(4.2.1) maker's name or trade mark;

(4.2.2) serial number;

(4.2.3) DOT(UK) APPROVED, and the number of persons it is permitted to carry;

(4.2.4) Non-SOLAS REVERSIBLE;

(4.2.5) type of emergency pack enclosed;

(4.2.6) date when last serviced;

(4.2.7) length of painter;

(4.2.8) maximum permitted height of stowage above waterline (depending on drop-test height);
and

(4.2.9) launching instructions.

Markings on open reversible inflatable liferafts

5

5.1 The liferaft shall be marked with:

(5.1.1) maker's name or trade mark;

(5.1.2) serial number;

(5.1.3) date of manufacture (month and year);

(5.1.4) .DOT(UK) APPROVED;

(5.1.5) name and place of service station where it was last serviced; and

(5.1.6) number of persons it is permitted to accommodate on the top of each buoyancy tube in characters not less than 100 mm in height and of a colour contrasting with that of the tube.

Instructions and Information

6

6.1 Instructions and information required for inclusion in the training manual specified in paragraph 7 of Part I of Schedule 4; and in the instructions for onboard maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for onboard maintenance. Instructions and information shall be in English in a clear and concise form and shall include as appropriate the following:

(6.1.1) general description of the liferaft and its equipment;

(6.1.2) installation arrangements;

(6.1.3) operational instructions including use of associated survival equipment;

(6.1.4) launching, deployment and boarding instructions; and

(6.1.5) servicing requirements.

Regulation 2(3)

PART III

RIGID LIFERAFTS

General

1

1.1 All rigid liferafts prescribed in this Part shall:

- (1.1.1) be constructed with proper workmanship and materials;
- (1.1.2) not be damaged in stowage throughout the air temperature range of -30°C to 65°C ;
- (1.1.3) be capable of operating throughout an air temperature range of -30°C to $+65^{\circ}\text{C}$, and a sea water temperature range of -1°C to $+30^{\circ}\text{C}$;
- (1.1.4) be rot-proof, corrosion-resistant, and not be unduly affected by sea-water, oil or fungal attack;
- (1.1.5) be resistant to deterioration from exposure to sunlight;
- (1.1.6) have a canopy of a highly visible colour;
- (1.1.7) be fitted with retro-reflective material where this will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State; and
- (1.1.8) when floating with the canopy uppermost be stable in a seaway.

Construction

2

2.1 Every liferaft shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all sea conditions without such deterioration as would involve any loss of seaworthiness.

2.2 The liferaft shall be so constructed that when it is dropped into the water from a height of at least 18 metres, the liferaft and its equipment will operate satisfactorily. If the liferaft is to be stowed at a height of more than 18 metres above the waterline in the lightest seagoing condition, it shall be of a type which has been satisfactorily drop-tested from at least that height.

2.3 The floating liferaft shall be capable of withstanding repeated jumps on to it from a height of at least 4.5 metres above its floor both with and without the canopy erected.

2.4 The liferaft and its fittings shall be so constructed as to enable it to be towed at a speed of 3 knots in calm water when loaded with its full complement of persons and equipment and with one of its sea-anchors streamed.

2.5 The liferaft shall have a canopy to protect the occupants from exposure which is automatically set in place when the liferaft is launched and waterborne. The canopy shall comply with the following:

(2.5.1) it shall provide insulation against heat and cold by means of either two layers of material separated by an air gap or other equally efficient means; means shall be provided to prevent accumulation of water in the air gap;

(2.5.2) its interior shall be of a colour that does not cause discomfort to the occupants;

(2.5.3) each entrance shall be clearly indicated and be provided with efficient adjustable closing arrangements which can be easily and quickly opened from inside and outside the liferaft so as to permit ventilation but exclude seawater, wind and cold; liferafts accommodating more than eight persons shall have at least two diametrically opposite entrances;

(2.5.4) it shall admit sufficient air for the occupants at all times, even with the entrances closed;

(2.5.5) it shall be provided with at least one viewing port;

(2.5.6) it shall be provided with means for collecting rain water; and

(2.5.7) it shall have sufficient headroom for seated occupants under all parts of the canopy.

2.6 The buoyancy of the liferaft shall be provided by approved inherently buoyant material placed as near as possible to the periphery of the liferaft. The buoyant material shall be fire-retardant or be protected by a fire-retardant covering.

2.7 The floor of the liferaft shall prevent the ingress of water and shall effectively support the occupants out of the water and insulate them from cold.

2.8 The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of:

(2.8.1) the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic metres of the buoyancy material multiplied by a factor of 1 minus the specific gravity of that material; or

(2.8.2) the greatest whole number obtained by dividing by 0.372 the horizontal cross-sectional area of the floor of the liferaft measured in square metres; or

(2.8.3) the number of persons having an average mass of 75 kg, all wearing lifejackets, that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

2.9 No liferaft shall be approved which has a carrying capacity of less than six persons calculated in accordance with the requirements of paragraph 2.8.

2.10 Unless the liferaft is to be launched by an approved launching appliance complying with the requirements of Part III of Schedule 6 and is not required to be portable, the total mass of the liferaft, its container, and equipment shall not be more than 185 kg.

Liferaft Fittings

3

3.1 Lifelines shall be securely becketed around the inside and outside of the liferaft.

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

3.3 The liferaft shall be fitted with an efficient painter of length equal to not less than twice the distance from the stowed position to the waterline in the lightest seagoing condition or 15 metres whichever is the greater.

3.4 The breaking strength of the painter system including its means of attachment to the liferaft except the weak link required by Part VI of Schedule 4 shall be:

(3.4.1) 7.5 kilonewtons for liferafts accommodating up to 8 persons;

(3.4.2) 10.0 kilonewtons for liferafts accommodating 9 to 25 persons;

(3.4.3) 15.0 kilonewtons for liferafts accommodating more than 25 persons or have a factor of safety of 3 in association with the requirement of paragraph 2.4 above whichever is the greater.

3.5 At least one entrance shall be fitted with a rigid boarding ramp to enable persons to board the liferaft from the sea. In the case of a davit-launched liferaft having more than one entrance, the boarding ramp shall not be fitted at the entrance where bowing lines and embarkation facilities are fitted.

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3.6 Entrances not provided with a boarding ramp shall have a boarding ladder. The lowest step of which shall be weighted and float at a level not less than 0.4 metres below the liferaft's light waterline.

3.7 There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

3.8 Unless the liferaft is capable of operating safely whichever way up it is floating, its strength and stability shall be such that it is either self-righting or can be readily righted in a seaway and in calm water by one person.

3.9 The stability of a liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speeds of up to 3 knots in calm water.

3.10 At least one manually controlled lamp complying with the requirements of Part VII of Schedule 4 shall be fitted to the top outside of the liferaft canopy.

3.11 A manually controlled lamp complying with the requirements of Part VII of Schedule 4 shall be fitted inside the liferaft.

3.12 Each rigid liferaft shall be fitted with equipment complying with the relevant requirements of Part IV of this Schedule.

Markings on rigid liferafts

4

4.1 The liferafts shall be marked with:

- (4.1.1) name and port of registry of the ship to which it belongs;
- (4.1.2) maker's name or trade mark;
- (4.1.3) serial number;
- (4.1.4) DOT(UK) APPROVED;
- (4.1.5) number of persons it is permitted to accommodate over each entrance in characters not less than 100mm. in height of a colour contrasting with that of the liferaft;
- (4.1.6) SOLAS 86;
- (4.1.7) type of emergency pack enclosed;
- (4.1.8) length of painter;
- (4.1.9) date of manufacture (month and year);
- (4.1.10) maximum permitted height of stowage above waterline (depending on drop-test height and length of painter); and
- (4.1.11) launching instructions.

Davit-launched rigid liferafts

5

5.1 In addition to the above requirements, a rigid liferaft for use with an approved launching appliance complying with Part III of Schedule 6 shall:

- (5.1.1) when suspended from its lifting hook or bridle, withstand a load of 4 times the mass of its full complement of persons and equipment;
- (5.1.2) when the liferaft is loaded with its full complement of persons and equipment, be capable of withstanding a lateral impact against the ship's side at an impact velocity of not less than 3.5

metres per second and also a drop into the water from a height of not less than 3 metres without damage that will affect its function;

(5.1.3) be provided with means for bringing the liferaft alongside the embarkation deck and holding it securely during embarkation; the distance between the liferaft and the bowing line securing point shall be kept to a minimum to restrict movement of the liferaft during boarding.

5.2 Every davit-launched liferaft shall be so arranged that it can be rapidly boarded by its full complement of persons.

6. Instructions and Information

6.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11, and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

- (6.1.1) general description of the liferaft and its equipment;
- (6.1.2) installation arrangements;
- (6.1.3) operational instructions including use of associated survival equipment;
- (6.1.4) survival instructions;
- (6.1.5) emergency repair instructions;
- (6.1.6) deployment, boarding and launching instructions;
- (6.1.7) method of launching from within the raft;
- (6.1.8) release from launching appliance;
- (6.1.9) on board maintenance requirements; and
- (6.1.10) servicing requirements.

Schedule 4, Parts I and III

PART IV

LIFERAFT EQUIPMENT

(SOLAS)

1.1 Subject to the provisions of paragraph 1.3 of this Part, the equipment of every liferaft shall consist of:

(1.1.1) one buoyant rescue quoit, attached to not less than 30 metres of buoyant line with a breaking strain of at least 1.0 kN;

(1.1.2) one safety knife of the non-folding type having a buoyant handle and stowed in a pocket on the upper buoyancy tube near that entrance of the raft which is adjacent to the painter and must be secured to the liferaft by a light line of sufficient length to enable the painter to be readily cut; in addition, a liferaft which is permitted to accommodate 13 persons or more shall be provided with a second safety knife which need not be of the non folding type; the stowage position of the knives shall be highlighted;

(1.1.3) for a liferaft which is permitted to accommodate not more than 12 persons, one buoyant bailer; for a liferaft which is permitted to accommodate 13 persons or more, two buoyant bailers;

(1.1.4) two sponges;

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(1.1.5) two sea-anchors each complying with the requirements of Part I of Schedule 7, one being spare, and the other permanently attached to the liferaft in such a way as to be readily deployable when the liferaft inflates to enable the liferaft to lie oriented to the wind in the most stable manner;

(1.1.6) two buoyant paddles;

(1.1.7) one first-aid outfit complying with the requirements of Part II of Schedule 7, in a waterproof case capable of being closed tightly after use;

(1.1.8) one whistle or equivalent sound signal;

(1.1.9) two rocket parachute flares;

(1.1.10) three hand flares;

(1.1.11) one buoyant smoke signal;

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

(1.1.13) an efficient radar reflector;

(1.1.14) one daylight signalling mirror with instructions on its use for signalling to ships and aircraft;

(1.1.15) one copy of the Department of Transport Rescue Signal Table published by Her Majesty's Stationery Office;

(1.1.16) six doses of anti-seasickness medicine and one seasickness bag for each person the liferaft is permitted to accommodate;

(1.1.17) instructions printed in English on how to survive;

(1.1.18) instructions for immediate action;

(1.1.19) thermal protective aids sufficient for 10% of the number of persons the liferaft is permitted to accommodate or two, whichever is the greater;

(1.1.20) one repair outfit for repairing punctures in buoyancy compartments; and

(1.1.21) one topping-up pump or bellows

1.2 Liferafts equipped in accordance with paragraph 1.1 shall be marked in block capitals of the Roman alphabet, "SOLAS B PACK".

1.3 Liferafts carried onboard ships of Classes III, IV, V, VI and VI(A) may be provided with equipment specified in paragraph 3.8 of Part II of this Schedule.

1.4. Liferafts equipped in accordance with 1.3 shall be marked in block capitals of the Roman alphabet, "DOT (UK) E PACK".

1.5 Where appropriate the equipment shall be stowed in a container which, if it is not an integral part of, or permanently attached to, the liferaft, shall be stowed and secured inside the liferaft and be capable of floating in water for at least 30 minutes without damage to its contents. The line which secures the equipment container to the liferaft shall have a breaking strain of 2 kN or a breaking strain of 3 : 1 based on the mass of the complete equipment pack, whichever is the greater.

Schedule 6, Part IV

PART V

AUTOMATIC RELEASE HOOKS

Definitions

1

1.1 In this Part the following definitions apply:

(1.1.1) “actuating force” means the force required to set the actuating mechanism;

(1.1.2) “actuating mechanism” means the mechanism which, when operated, allows the liferaft to be released automatically;

(1.1.3) “automatic release mechanism” means the mechanism which opens the hook automatically to release the liferaft;

(1.1.4) “hook” means a hook to be used for the launching of liferafts which can be activated to automatically release the liferaft when it is waterborne.

Functional criteria

2

2.1 The hook shall be reliable and easily handled by one person during the preparation, embarkation, launching and release of the liferaft.

2.2 The hook and its accessories shall be made of materials suitable for use in the marine environment.

2.3 A minimum factor of safety of six based on the ultimate strength of the materials used shall be applied to the design of all parts of the hook.

2.4 The lever for manual release and the actuating mechanism may be separate.

2.5 There shall be a clear and durable indicator to show if the actuating mechanism has been operated. The automatic release mechanism shall be such that positions between “safe” and “cocked” are not possible.

2.6 With the hook in the automatic release position the liferaft shall be released as soon as it is waterborne. The release of the liferaft shall be immediate and complete. Means shall be provided to ensure that the hook does not open when the liferaft swings, bumps into the ship’s side or is otherwise influenced by the wind during the lowering operation.

2.7 It shall be possible to release the hook manually after launching. The manual release mechanism shall be designed having regard to the risk of unintentional release during the preparation, embarkation and lowering of the liferaft.

Compatibility

3

3.1 The compatibility of automatic release hooks and inflatable liferafts shall be established by operational tests with each type, size and manufacture of liferaft to be carried, before a particular combination of release hook and liferaft is accepted by the Secretary of State.

Instructions and Information

4. Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the operation and maintenance of the automatic release hook.

Regulation 2(3) and 14

PART VI

FLOAT FREE ARRANGEMENTS

General

1. Float free arrangements shall provide for a liferaft to be released automatically in the event of a ship sinking.

Painter System

2. The liferaft painter system shall provide a connection between the ship and the liferaft and shall be so arranged as to ensure that the liferaft when released and in the case of an inflatable liferaft when inflated, is not dragged under by the sinking ship.

Hydrostatic Release Unit

3

Construction

3.1 A hydrostatic release unit used in the float-free arrangements shall be so constructed that:

(3.1.1) the materials used are compatible so as to prevent malfunction of the unit; galvanising or other forms of metallic coating on parts of the release unit will not be accepted;

(3.1.2) it has drains to prevent the accumulation of water in the hydrostatic chamber when the unit is in its normal position;

(3.1.3) each part connected to the painter system has a strength not less than that required by the painter;

(3.1.4) it can readily be removed for replacement or annual servicing.

Materials and Components

3.2 Materials and components shall be corrosion-resistant and not affected by seawater, oil or detergents.

Performance

3.3 A hydrostatic release unit shall:

(3.3.1) function properly throughout an air temperature range of -30°C to $+65^{\circ}\text{C}$;

(3.3.2) function properly throughout a seawater temperature range of -1°C to $+30^{\circ}\text{C}$;

(3.3.3) automatically release the liferaft at a depth of not more than 4 metres;

(3.3.4) not release prematurely when seas wash over the unit;

(3.3.5) be capable of releasing a liferaft when the stowage is:

(3.3.5.1) horizontal;

(3.3.5.2) tilted 45° and 100° with the hydrostatic release unit at the upper side;

(3.3.5.3) tilted 45° and 100° with the hydrostatic release unit at the lower side;

(3.3.5.4) vertical.

Marking

3.4. A hydrostatic release unit shall be marked permanently on its exterior with a means of identifying its type, serial number, depth at which it will release, and in addition if a type which;

(3.4.1) requires servicing with its date of manufacture and a small plate permanently attached to the unit for recording the date of servicing;

(3.4.2) is disposable, with the date at which it must be replaced.

Instructions and Information

3.5 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance.

Instructions and information shall be in English in a clear and concise form and shall include the following:

(3.5.1) general description of the unit;

(3.5.2) installation instructions;

(3.5.3) any on board maintenance requirements;

(3.5.4) servicing requirements.

4. Weak Link

Construction and Materials

4.1 A weak link used in the float-free arrangements shall:

(4.1.1) be made from the material which is corrosion resistant and not affected by seawater, oil or detergent;

(4.1.2) when made of cordage have the ends either whipped or heat treated;

(4.1.3) when made from a flexible wire have each end looped around a thimble and secured with a locking ferrule.

Performance

4.2 A weak link shall be of sufficient strength to:

(4.2.1) pull the painter out of the liferaft container;

(4.2.2) operate the liferaft inflation system;

(4.2.3) break under a tensile force of between 1.8 and 2.6 kNs.

Schedule 4, Parts I, II and III

PART VII

LIFERAFT LIGHTS

General

1

1.1 Internal and External Lights

Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

(1.1.1) The lights shall be arranged with manual control and shall operate automatically when the liferaft inflates in the case of an inflatable liferaft and when the canopy is set in place in the case of a rigid liferaft.

(1.1.2) Each light shall be connected independently to its own power source.

(1.1.3) The external light may be of a flashing type.

Construction

2. Internal and External Lights

2.1 The complete light unit shall be constructed with proper workmanship and materials.

2.2 It shall be capable of withstanding the drop-test on a liferaft without damage to the light or the liferaft.

2.3 It shall be capable of withstanding a drop of 2 metres on to a rigidly mounted steel plate or concrete surface.

2.4 It shall be rot-proof, corrosion-resistant, and not be unduly affected by seawater, oil or fungal growth.

2.5 It shall not deteriorate due to damp or humidity when stowed with a liferaft in its container.

2.6 The power source shall be a sea activated or dry chemical cell battery.

2.7 The power source shall be proofed against leakage of any chemicals which could damage or cause deterioration of any fabrics used in the construction of the liferaft.

2.8 The connection between light and power source shall be suitably protected.

2.9 The power source in the inactive condition with the terminals covered shall be capable of being immersed for 30 days in salt water without deterioration or loss of power.

2.10 The lamp holder, and lens shall be so constructed to prevent the ingress of water.

2.11 A flashing light shall not be fitted with a lens or curved reflector to concentrate the beam.

Performance

3

3.1 Internal and External Lights

(3.1.1) The lights shall have an operational endurance of not less than 12 hours.

(3.1.2) They shall not be damaged in storage and shall operate in a satisfactory manner throughout the air temperature range -30°C to $+65^{\circ}\text{C}$.

(3.1.3) They shall operate in a satisfactory manner throughout a seawater temperature of -1°C to $+30^{\circ}\text{C}$.

(3.1.4) They shall have a shelf life of not less than 3 years.

3.2 Internal Light

(3.2.1) The light shall be of sufficient luminous intensity to enable survival and equipment instructions to be read.

3.3 External Light

(3.3.1) The light shall be visible on a dark night with a clear atmosphere at a distance of at least 2 miles.

(3.3.2) It shall be visible through 360 degrees in a horizontal direction and over as great a segment of the upper hemisphere as is practical, when attached to a liferaft.

(3.3.3) In the case of a flashing light it shall flash at a rate of not less than 50 flashes per minute for the first 2 hours of operation.

(3.3.4) Markings

Internal and External Lights

4.1. The power source shall be marked externally with:

(4.1.1) the manufacturer's name or trade mark;

(4.1.2) the type and batch number;

(4.1.3) date of manufacture and expiry;

(4.1.4) The words "DOT (UK) APPROVED".

4.2 If the power source is a chemical pressurised cell it shall be clearly marked with a suitable warning notice.

Schedule 4, Part 1

PART VIII

GAS INFLATION SYSTEM

General

1

1.1 The component parts of the gas inflation system shall be constructed with proper workmanship and materials.

1.2 The capacity of the gas charge shall be sufficient to achieve full working pressure in a liferaft within 1 minute at an ambient temperature of 18–20°C, and within 3 minutes at a temperature of –30°C.

1.3 The inflation system shall be fitted with a pressure relief arrangement capable at a temperature of +65°C of exhausting sufficient capacity of gas to prevent damage to a liferaft through overpressure.

1.4 The inflation system shall provide sufficient pressure to enable a liferaft to maintain its form when loaded with a full complement of persons and equipment.

1.5 Activation of the inflation system shall be capable of being carried out by one person with a single action.

1.6 The gas cylinder, valve, and operating head shall be fitted on the outside of a liferaft.

1.7 The inflation system shall not be damaged in stowage and shall operate in a satisfactory manner throughout the air temperature range –30°C to +65°C.

1.8 The inflation system shall operate in a satisfactory manner throughout a seawater temperature of –1°C to +30°C.

1.9 The gas cylinder, cylinder valve, and operating head shall be constructed with compatible materials, which are suitable for use in a marine environment.

1.10 Gas cylinders, cylinder valves, and operating heads of aluminium alloy shall not be accepted unless they have been tested in salt water to the satisfaction of the Department of Transport.

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Gas

2

- 2.1** The gas used in the inflation system shall be non-toxic.
- 2.2** It shall provide a high rate of inflation, and shall be sufficiently free from icing at the outlet during expansion to prevent damage or malfunction of the inflation equipment.
- 2.3** If the gas used is carbon dioxide its dryness shall comply with TYPE 1, SECTION 1 of British Standard 4105.
- 2.4** The filling ratio (weight of gas to the weight of water required to fill a cylinder at 15°C) shall comply with the requirements of British Standard BS 5355.
- 2.5** The excess gas from the relief valves must not be discharged into the liferaft.

Gas Cylinders

3

- 3.1** The gas cylinder shall be acceptable to the Department of Transport and must be constructed to the standard laid down in the relevant part of British Standard 5045: Specification for Transportable Gas Containers.
- 3.2** The gas cylinder shall be periodically inspected, tested, and maintained in accordance with the relevant part of British Standard 5430.
- 3.3** Recharging of the gas cylinder shall be carried out at a filling station acceptable to the Department of Transport.
- 3.4** The neck of the gas cylinder shall be suitably threaded to take an approved type of cylinder valve.
- 3.5** If the gas used is carbon dioxide the gas passages to give maximum rate of flow must not permit expansion, and a siphoning tube shall be led from the cylinder valve into the cylinder so that the open end is immersed in liquid when the cylinder is in its operational position.
- 3.6** To allow for variation in the accuracy of scales a tolerance in the gross mass of ± 14 grams is permissible when a gas cylinder is check weighed.
- 3.7** Charged gas cylinders with a gas capacity of 1.1 kg or greater when check weighed shall not be deficient in gas by more than 56 grams. Charged cylinders with a gas content of less than 1.1 kg shall not be deficient in gas by more than 28 grams.
- 3.8** The gas cylinder shall be permanently marked with:
 - (3.8.1) date of manufacture, serial number, and name or mark of the manufacturer;
 - (3.8.2) standard or specification to which it is manufactured;
 - (3.8.3) date of testing and test pressure;
 - (3.8.4) tare mass of cylinder, and valve; and
 - (3.8.5) minimum designed water capacity in litres.
- 3.9** The gas cylinder after charging shall be clearly stencilled with:
 - (3.9.1) tare mass;
 - (3.9.2) details of gas charge; and
 - (3.9.3) total mass of cylinder, valve and contents.

Gas Cylinder Valve

4

4.1 The cylinder valve shall be fitted with a safety relief device which will operate between 18 MPa and the test pressure of the cylinder.

4.2 Threads on the cylinder valve for attachment of the high pressure hoses and operating head shall be fitted with protective caps to provide protection during storage and transit.

4.3 A cylinder valve constructed from aluminium alloy shall be anodised.

4.4 The cylinder valve when attached to an approved gas cylinder and operationally charged shall be capable of being stowed for a period of 17 months without damage, metal fatigue, or leakage making due allowance for changes in temperature.

4.5 The cylinder valve shall be constructed of materials which will not be damaged by inflation of the liferaft, transit in a liferaft container, or routine servicing in a service station.

Gas Cylinder Operating Head

5

5.1 The connection between the operating head and the liferaft painter shall be so arranged that the load is wholly taken by the operating mechanism until the valve has operated. When the valve has fully opened the load on the painter shall be transferred to the liferaft towing patch or bridle.

5.2 The operating head at a cylinder pressure of 8.6 MPa shall fully open with a force not exceeding 150 newtons and a travel of not more than 200 mm at an ambient temperature of 18–20°C.

5.3 The operating head shall be fitted with a positive means of retaining the valve in the open position and include an indicator which will clearly show whether or not the valve has been operated.

5.4 Attachment of the operating head to the gas cylinder shall be arranged so that there will be no tendency during fitting to slacken the cylinder valve.

5.5 The operating head shall be made from non-corrodible materials.

5.6 An operating head constructed from aluminium alloy shall be anodised.

5.7 If a pulley arrangement is used in the operating mechanism the cable shall be protected with a flexible conduit to prevent kinking of the cable, and abrasive damage to the liferaft fabric.

5.8 The operating head shall be sealed against the ingress of water.

High Pressure Hose Assembly

6

6.1 A high pressure hose shall be used to connect the gas bottle to the liferaft inlet manifold on the buoyancy chambers.

6.2 It shall be constructed of natural or synthetic rubber or other suitable material having a smooth bore and some form of reinforcement.

6.3 It shall be fitted with end connectors of sufficient strength to withstand a degree of over tightening acceptable to the Department of Transport.

6.4 Where nipples are inserted into the ends of the hose they shall be suitably shaped to prevent damage or abrasion to the inner lining, and provide a smooth gas flow.

6.5 The outer casing of the hose shall be suitably protected against damage or abrasion.

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6.6 The hose shall have a minimum bursting pressure of 21 MPa at an ambient temperature 18–20°C and 4.2 MPa at a temperature of –45°C.

6.7 The hose shall operate in a satisfactory manner throughout an air temperature range of –45°C to +65°C.

6.8 The hose shall be capable of being bent through 180 degrees over a former of 50 mm radius at a temperature of –45°C without cracking or damage.

6.9 The hose shall not distort or be damaged when subjected to a hydraulic pressure of 12.5 MPa.

6.10 Every hose shall be carefully inspected and marked by the manufacturer’s quality inspector.

6.11 The hose shall be marked externally with:

(6.11.1) name of manufacturer;

(6.11.2) part or serial number;

(6.11.3) test date; and

(6.11.4) mark of inspector.

Valves

7

7.1 Non-return valves shall be provided at each position where gas from the inflation system enters an inflatable chamber either from the cylinder or another chamber.

7.2 A safety relief valve of sufficient flow capacity that it will not be possible to achieve twice the working pressure in the chamber shall be fitted to each chamber inflated directly from the gas cylinder.

7.3 A relief valve shall re-seat at a pressure sufficient to maintain rigidity in the buoyancy tubes.

7.4 An inlet valve shall be fitted to each chamber inflated directly from the gas cylinder to provide a means of topping up the pressure when necessary using the bellows provided in the equipment pack.

7.5 Deflation valves or plugs shall be fitted of sufficient number to enable the inflated chambers of the liferaft to be deflated for re-packing.

7.6 Non-return valves or other equivalent arrangements shall be fitted to prevent loss of pressure in the canopy support if either of the buoyancy tubes become damaged.

7.7 An inlet valve for topping up the pressure when necessary using the bellows provided in the liferaft equipment pack shall be fitted in the inflated arch support for the canopy.

7.8 An inlet valve shall be fitted to the floor so that it can be inflated using the bellows provided in the equipment pack.

7.9 A deflation valve or plug shall be fitted to the floor so that it can be deflated for re-packing.

7.10 A non return valve or other equivalent arrangement shall be fitted to maintain pressure in the buoyancy tube in the event of damage to the boarding ramp.

7.11 Air aspirators if fitted in the inflation system shall be of a type acceptable to the Department of Transport. They shall be suitably protected against damage and the ingress of water.

SCHEDULE 5

Regulation 2(3)

MARINE ESCAPE SYSTEMS

PART I

CONSTRUCTION AND PERFORMANCE

General

1

1.1 A marine escape system shall provide a complete evacuation system for survivors, and shall consist of an inflatable escape chute, an inflatable floating boarding platform and an agreed number of inflatable liferafts.

1.2 The system shall:

- (1.2.1) be constructed with proper workmanship and materials;
- (1.2.2) not be damaged in stowage throughout a temperature range of -30°C to $+65^{\circ}\text{C}$;
- (1.2.3) be capable of operating throughout an air temperature range of -30°C to $+65^{\circ}\text{C}$, and a seawater temperature range of -1°C to $+30^{\circ}\text{C}$;
- (1.2.4) where applicable be rot-proof, corrosion-resistant and not be unduly affected by seawater, oil or fungal attack;
- (1.2.5) be resistant to deterioration from exposure to sunlight;
- (1.2.6) be of highly visible colour on all parts that will assist detection;
- (1.2.7) be fitted with retro-reflective material where it will assist detection;
- (1.2.8) be sited clear of propellers and stabilisers;
- (1.2.9) be capable of removal for annual servicing;
- (1.2.10) be fitted with float free facilities complying with the requirements of Part VI of Schedule 4 on those parts of the system intended for use as inflatable survival equipment;
- (1.2.11) be provided with a gas inflation arrangement complying with the requirements of Part VIII of Schedule 4 which will by a single action rapidly deploy and inflate the system;
- (1.2.12) be provided with an additional gas supply of capacity at least 50% of that required to inflate the system so that any loss of pressure sustained during a deployment can rapidly be replenished;
- (1.2.13) if the inflation system includes air aspiration be provided with a means of protecting the aspirator from the danger of damage and the ingress of water; and
- (1.2.14) be capable of satisfactory operation in a seaway.

Construction

2

2.1 The container housing the escape chute and boarding platform shall:

- (2.1.1) be strong enough to withstand the forces which would be imposed upon it in severe weather conditions when the chute and platform is fully deployed and the maximum agreed number of fully loaded inflatable liferafts are attached to the platform; if the system is deployed using a support boom, then both the boom and the container shall be strong enough to safely withstand a

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load which is 200% in excess of that imposed upon it in the above condition without causing damage or distortion to either the boom or the container;

(2.1.2) be suitably constructed on the outboard side to resist damage and to prevent the ingress of water;

(2.1.3) be suitably protected on the inboard side to prevent damage or accidental deployment by unauthorised personnel;

(2.1.4) be prominently labelled on the inboard side with clear deployment instructions;

(2.1.5) be large enough to house the gas inflation system;

(2.1.6) be provided with a secure, but single action quick release of the outer door;

(2.1.7) be constructed so that deployment of the system over the side will also activate the inflation arrangements;

(2.1.8) be provided with a safe access to the top of the chute for evacuees;

(2.1.9) be provided with a secure, manual release arrangement for the chute so that it can be jettisoned for use if required as additional buoyant support;

(2.1.10) be fitted on board with portable securing arrangements so that it can be removed for annual servicing; and

(2.1.11) be provided with adequate drainage arrangements. 2.2. The escape chute shall:

(2.2.1) consist of a single or double track slide with each track of sufficient width to prevent unrestricted evacuation by persons wearing an approved type of lifejacket;

(2.2.2) be of sufficient strength in its fully inflated condition to safely support a load of 300 kg (150 kg for a single track slide) at mid length without bending or distorting;

(2.2.3) be sub-divided such that the loss of gas in any one compartment will not restrict its operational use as a means of evacuation;

(2.2.4) be provided with a slide path which will drain quickly and be safe to operate in wet conditions;

(2.2.5) be provided with vertically inflated panels on each side of the slide path of sufficient depth to permit safe evacuation in severe weather conditions; and

(2.2.6) be effectively connected to the chute container by arrangements which are capable of withstanding a load which is at least 200% greater than the load imposed in the maximum loaded condition.

2.3 The boarding platform shall:

(2.3.1) be stable in a seaway and provide a safe working area for the system operators;

(2.3.2) be self draining;

(2.3.3) be sub-divided in such a way that the loss of gas from any one compartment will not restrict its operational use as a means of evacuation;

(2.3.4) be capable of supporting twice the number of persons carried in the largest inflatable liferaft associated with the system;

(2.3.5) be constructed in accordance with the buoyancy and floor area parameters stated in Part I of Schedule 4;

(2.3.6) be fitted with stabilising waterpockets designed in accordance with the standards stated in Part I of Schedule 4;

(2.3.7) be restrained by a bousing line which is designed to deploy automatically as the system inflates, to prevent it drifting to a position where it would be deployed at an angle of more than 45° to the ship's side;

(2.3.8) be provided with mooring and bowing line patches of sufficient strength to tie off the largest inflatable liferaft associated with the system; and

(2.3.9) be provided with a means of quick release from the chute, and if intended for use as an inflatable liferaft, comply with the appropriate requirements of Part I of Schedule 4.

Performance of the System

3. A marine escape system shall:

3.1 be capable of deployment by one person at the embarkation position;

3.2 not interfere with the deployment of any other life-saving equipment fitted in the ship;

3.3 be capable of evacuating 200% of its designed capacity without significant deterioration of the slide paths;

3.4 be capable of satisfactory operation in a seaway;

3.5 enable the total number of persons for which it is designed to be transferred from the ship into the inflated liferafts within a period of 30 minutes in the case of a passenger ship;

3.6 being capable of being deployed from a passenger ship with a trim and list 50% in excess of the limits in the final stage of flooding set by the requirements in paragraph 2 of Schedule 3 to the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984; and

3.7 be evaluated by means of timed evacuation deployments conducted both in harbour and at sea.

Associated Inflatable Liferafts

4. An inflatable liferaft used in conjunction with the marine escape system shall:

4.1 conform with the requirements of Part I of Schedule 4 and Part II of Schedule 4 where applicable;

4.2 be sited close to the system container but be capable of dropping clear of the deployed chute and boarding platform;

4.3 be capable of release from its stowage rack with arrangements which will enable it to be moored and inflated alongside the boarding platform;

4.4 be capable of release from its stowage rack as an independent item of life-saving equipment; and

4.5 be provided with float free arrangements complying with the requirements of Part VI of Schedule 4.

Instructions and Information

5. Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

5.1 general description of the system;

5.2 installation arrangements;

5.3 operational instructions for the system, and associated survival craft;

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- 5.4 on-board maintenance requirements; and
 - 5.5 servicing requirements.
- Regulation 2(3)

PART II TRAINING

- 1. Facilities for crew training in the use of marine escape systems shall include:
 - 1.1 the provision on board of an operational manual for the system and its associated inflatable liferafts;
 - 1.2 the provision of on-board training aids; and
 - 1.3 the provision ashore of a training course including as far as is possible practical exercises with full size equipment.

SCHEDULE 6

Regulations 2(3), 5 and 6

LAUNCHING APPLIANCES AND EMBARKATION LADDERS

PART I GENERAL

Launching Appliances – General Requirements

1

1.1 Each survival craft and rescue boat launching appliance, together with all its launching and recovery gear, shall be so arranged that the fully equipped survival craft or rescue boat it serves can be safely lowered at a list of up to 20° either way and against a trim of up to 10°.

1.2 Davits, winches, falls, blocks and all other launching gear provided in accordance with these Regulations shall comply with the requirements of Parts II, III or IV this Schedule:

(1.2.1) after being boarded by its full complement of persons at the stowed position or from an embarkation deck, as appropriate;

(1.2.2) without persons in the survival craft or rescue boat.

Launching appliances using falls and a winch

2

2.1 An efficient hand gear shall be provided for recovery of each survival craft and rescue boat.

2.2. Where davit arms are recovered by power, safety devices shall be fitted which will automatically cut off the power before the davit arms reach the stops in order to avoid overstressing the falls or davits, unless the motor is designed to prevent such overstressing.

2.3 A lifeboat launching appliance shall be capable of recovering and stowing the lifeboat with its launching crew.

2.4 Every rescue boat launching appliance shall be fitted with a powered winch motor of such capacity that the rescue boat, or lifeboat if it has been accepted as a rescue boat, can be raised from the water with its full rescue boat complement of persons and equipment to a position where the persons can be safely disembarked.

2.5 Every rescue boat launching appliance shall be capable of hoisting the rescue boat, or lifeboat in rescue boat mode, when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 metre per second.

2.6 Except in the case where a rescue boat is fitted with a single point suspension, every rescue boat carried in compliance with these Regulations shall be provided with means for facilitating the attachment of the lower fall blocks to the lifting arrangements of the boat when the boat is recovered from the sea in adverse weather conditions. For this purpose a recovery strop of adequate strength and suitable length shall be provided for each davit, and one end of the strop shall be attached to the lower fall block and the other end to the lifting arrangement on the boat. In addition means shall be provided for hanging off the boat after hoisting to enable the lower fall block to be attached directly to the lifting hook.

2.7 Every survival craft and rescue boat launching appliance shall be fitted with brakes, or equivalent devices, capable of stopping the descent of the survival craft or rescue boat and holding it securely when loaded with its full complement of persons and equipment; brake pads shall, where necessary, be protected from water and oil.

2.8 Manual brakes shall be so arranged that the brake is always applied unless the operator, or a mechanism actuated by the operator, holds the brake control in the “OFF” position.

Float-free launching

3

3.1 Where a survival craft requires a launching appliance and is also designed to float free, the float-free release of the survival craft from its stowed position shall be automatic.

Evacuation-slide launching and embarkation

4

4.1 Every evacuation-slide launching appliance shall, in addition to complying with the applicable requirements of paragraph 1 also comply with the requirements of Schedule 5.

Instructions and Information

5

5.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

(5.1.1) description of launching appliance and winch, were provided;

(5.1.2) operation for launching and recovery; and

(5.1.3) maintenance.

Regulations 2(3), 5 and 6

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PART II

LIFEBOAT AND RESUE BOAT LAUNCHING APPLIANCES

General

Definition of “Working Load”

1

1.1 In this Part the expression “Working Load” means:

(1.1.1) in relation to davits to which paragraphs 2.1 and 2.2 apply, 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 kg.;

(1.1.2) 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.

Construction

General

2

2.1 Every set of davits for a lifeboat or rescue boat shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship’s crew shall be readily accessible and easily maintained.

2.2 A set of davits for a lifeboat and rescue boat shall not depend on any means other than gravity or stored mechanical power which is independent of the ship’s power supplies to launch the lifeboat or rescue boat it serves in the fully loaded and equipped condition and also in the light condition. If the rescue boat is dedicated rescue boat the mechanical power need not be independent of the ship’s power supplies.

2.3 The arrangements of the davits shall be such as to enable safe boarding of the lifeboat in accordance with the requirements of paragraph 3.11 of Part I of Schedule 1.

2.4 If partially enclosed lifeboats are carried, a davit span shall be provided, fitted with not less than two lifelines of sufficient length to reach the water with the ship in its lightest seagoing condition, under unfavourable conditions of trim and with the ship listed not less than 20° either way.

Strength

3

3.1 Every davit serving a lifeboat which is required to be boarded and launched from the stowed position and put into the water when loaded with its full complement of persons shall, together with its winch, falls, blocks and all other associated launching equipment, be of such strength that the lifeboat with its full equipment can be turned out and then safely lowered into the water from the stowed position with its full complement of persons, when the ship has a list of up to 20° either way and a trim up to 10°.

3.2 Every davit serving a lifeboat which is required to be boarded and launched from an embarkation position and put into 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 ship has a list of up to 20° either way and a trim of up to 10°.

3.3 Every set of davits, davit or other means of launching to which a lifeboat is attached, together with its winch and associated gear shall be of such strength that the lifeboat can be hoisted with launching crew of at least two persons and its full equipment at a rate of not less than 0.05 metre per second when a powered winch is fitted. When an unpowered winch is fitted the hoisting rate shall be not less than 0.01 metre per second.

3.4 Every set of davits, davit or other means of launching to which a rescue boat is attached shall be fitted with a powered winch and shall, together with its associated gear, be of such strength that the boat to which it is attached can be hoisted when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 metre per second. When a lifeboat is designated as a rescue boat, the davits, davit or other means of launching shall be capable of hoisting the boat to a disembarkation position at a rate of not less than 0.3 metre per second when loaded with its full rescue boat complement, or 6 persons whichever is the greater, and its full lifeboat equipment.

Gravity davits

4

4.1 All gravity davits shall be so designed that there is a positive turning out moment during the whole of the davit travel from the inboard to the outboard position when the vessel is upright and also when the vessel is listed at any angle up to and including 30° either way from upright, or 10° more than the angle required by paragraph 1.2 of Part I of this Schedule. 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 35° to the horizontal when the vessel is upright.

Luffing davits

5

5.1 The operating gear of all luffing type davits shall be of sufficient power to ensure that the lifeboats or rescue boats fully equipped and carrying:

(5.1.1) the total number of persons they are certified to carry; or

(5.1.2) a launching crew of not less than two persons when boarded at an embarkation deck can be turned out against a list of at least 20°.

Stresses

6

6.1 Structural members and all block falls, padeyes, links, fastenings and all other fittings used in connection with launching equipment shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all davit and winch structural members, and bousing tackle and tricing pendants where required and a minimum factor of safety of 6 shall be applied to falls, suspension chains, links and blocks.

Static load test

7

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7.1 Each davit, and its attachments, shall, with its arm in any position which gives a maximum stress concentration be capable of withstanding a static test load, in a direction simulating a 20° list or such greater angle as required by paragraph 2.1 of Part I of this Schedule and 10° trim, of not less than 2.2 times that part of the working load supported by the arm, or attachment.

Attachments at the davit head

8

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

Blocks

9

9.1 Lower blocks, when fitted, shall be non-toppling and in the case of rescue boats provision shall be made to prevent the falls from cabling. The size of blocks shall be commensurate with the size of the falls.

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

Wire ropes

10

10.1 Falls shall be of rotation-resistant and corrosion-resistant steel wire rope.

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

10.3 Wire ropes shall be securely attached to the drum of the winch, and the end attachments of the wires and other parts from which the lifeboat or rescue boat is to be suspended shall be capable of withstanding a proof load of not less than 2.2 times the load on such attachments and other parts.

10.4 Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than 2.2 times the load imposed on them in service.

10.5 Lifeboats and rescue boats attached to davits shall have the falls ready for service, and the falls shall be at least long enough to reach the water with the ship at her lightest sea-going draught under unfavourable conditions of trim and listed to 20° either way. Disengaging gear complying with the requirements of Part III of Schedule 1 or Part IV of Schedule 2, shall be provided for detaching the lifeboat or rescue boat from the falls.

Winches

11

11.1 In the case of a multiple drum winch, unless an efficient compensatory device is fitted, the falls shall be so arranged as to wind off the drums at the same rate when lowering, and to wind on to the drums evenly at the same angle when hoisting and the 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.

11.2 Winch breaks 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 mass of the brake lever shall be sufficient to operate the brake effectively without additional pressure. The winch brakes shall be of sufficient strength to withstand:

(11.2.1) a static test with a proof load of not less than 1.5 times the maximum working load; and

(11.2.2) a dynamic test with a proof load of not less than 1.1 times the maximum working load at maximum lowering speed.

11.3 The speed at which the fully laden lifeboat or rescue boat with its equipment and launching crew is lowered into the water shall be not less than that obtained from the formula:

$$S = 0.4 + (0.02 \times H)$$

where

S= speed of lowering in metres per second and

H= height in metres from davit head, at the outboard position, to the waterline at the lightest seagoing condition.

In the case of a ship where “H” exceeds 30 metres the lowering speeds need not exceed 1 metre per second. The lowering speed of the light craft shall be within 70% of the speed required above.

11.4 Notwithstanding the requirements of paragraph 11.3 the speed of lowering shall not exceed 1.3 metres per second.

11.5 The brake gear of the winch shall include means for automatically controlling the speed of lowering to within the limits specified in paragraphs 11.3 and 11.4. A ratchet gear shall be incorporated in these winches.

11.6 Hand gear handles shall not be rotated by moving parts of the winch when the lifeboat or rescue boat is being lowered or when it is being hoisted by power. Provision shall be made to allow the falls to be manually unwound.

11.7 The launching mechanism shall be so arranged that it may be actuated by one person from a position on the ship’s deck. The launching and recovery arrangements shall be such that the winch operator on the ship’s deck is able to observe the craft at all times during launching and recovery. Regulations 2(3), 5 and 6

PART III

LIFERAFT LAUNCHING APPLIANCES

General

Definition of “Working Load”

1

1.1 In this Part the expression “working load” means:

(1.1.1) the sum of the mass of the liferaft and its equipment, all other associated gear that is supported by the launching appliance during the lowering operation and the maximum number of persons which the liferaft is deemed fit to carry, the mass of each person being taken to be 75 kg.

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Construction

General

2

2.1 Each liferaft launching appliance shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship's crew shall be readily accessible and easily maintained.

2.2 A liferaft launching appliance shall not be solely dependent on the use of means other than manual effort, gravity or stored mechanical power which is independent of the ship's power supplies to launch the liferaft. The arrangements shall be such that the liferaft can be lowered in the fully loaded and equipped condition by gravity.

2.3 The arrangements of the launching appliance shall be such as to enable safe boarding of the liferaft in accordance with the requirements of paragraph 6.3 of Part I of Schedule 4.

Strength

3

3.1 Every launching appliance serving a liferaft which is required by these Regulations 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 launching equipment, be of such strength that the liferaft with its full equipment can be safely lowered into the water from the embarkation position with its full complement of persons, when the ship has a list of up to 20° either way and a trim of up to 10°.

Stresses

4

4.1 Structural members and all blocks, falls, padeyes, links, fastenings and all other fittings used in connection with a launching appliance shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all davit and winch structural members, and a minimum factor of safety of 6 shall be applied to falls, links and blocks.

Static load test

5

5.1 Every launching appliance and its attachments other than the winch brakes shall be capable of withstanding a static test load, in a direction simulating a 20° list and 10° trim of not less than 2.2 times the maximum working load.

Wire ropes

6

6.1 Falls shall be of rotation-resistant and corrosion-resistant steel wire rope.

6.2 The braking tensile load of each wire rope used for lowering shall be not less than six times the maximum load on the wire rope when lowering, hoisting or stowing.

6.3 Wire ropes shall be securely attached to the drum of the winch, and the end attachments of the wires and other parts from which the liferaft is to be suspended shall be capable of withstanding a proof load of not less than 2.2 times the load on such attachments and other parts.

6.4 Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than 2.2 times the load imposed on them in service.

6.5 The falls of a liferaft launching appliance shall be at least long enough to reach the water with the ship at her lightest sea-going draught under unfavourable conditions of trim and listed to 20° either way.

Winches

7

7.1 Winch brakes shall be of robust construction and afford complete control and limitation of speed in the operation and 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 mass of the brake lever shall be sufficient to operate the brake effectively without additional pressure. The winch brakes of a launching appliance shall be of sufficient strength to withstand:

(7.1.1) a static load test with a proof load of not less than 1.5 times the maximum work load; and

(7.1.2) a dynamic test with a proof load of not less than 1.1 times the maximum working load at the maximum lowering speed.

7.2 The speed at which the fully laden liferaft is lowered into the water shall be not less than that obtained from the formula:

$$S = 0.4 + (0.02 \times H)$$

where

S= speed of lowering in meters per second and

H= height in metres from davit head, at the outboard position, to the waterline at the lightest seagoing condition.

In the case of a ship where “H” exceeds 15 metres the lowering speeds need not exceed 0.7 metre per second.

7.3 Notwithstanding the requirements of paragraph 7.2 the speed of lowering shall not exceed 1 metre per second.

7.4 The brake gear of the winch shall include means for automatically controlling the speed of lowering to within the limits specified in paragraphs 7.2 and 7.3. A ratchet gear shall be incorporated in these winches.

7.5 Hand gear handles shall not be rotated by moving parts of the winch when the liferaft is being lowered or hoisted by power.

7.6 The launching mechanism shall be so arranged that it may be actuated by one person from a position on the ship’s deck. It shall also be operable by one person from within the liferaft. The launching arrangements shall be such that the winch operator on the ship’s deck is able to observe the liferaft at all times during the lowering.

7.7 If the lowering of the liferaft is actuated from within the raft by means of a control wire paid off from an auxiliary drum on the winch:

(7.7.1) the mass of the control wire shall be sufficient to overcome the friction of the various pulleys on the control wire;

(7.7.2) the winch brake shall be operable from within the liferaft;

(7.7.3) the winch brake shall not be affected by the mass of the fully extended control wire nor the wind effects on it; and

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(7.7.4) there shall be sufficient length of control wire available at the liferaft during all stages of lowering.

Release of the liferaft

8

8.1 The launching appliance shall be so arranged as to prevent premature release during the lowering of the liferaft but shall be such that on becoming waterborne the raft shall be automatically released from the release hook which shall comply with requirements of Part V of Schedule 4. Regulations 2(3), 5 and 6

PART IV

INFLATED BOAT LAUNCHING APPLIANCES

General

Definitions

1

1.1 In this Part the expression “working load” means the sum of the masses of:

- (1.1.1) the inflated boat and its full equipment;
- (1.1.2) the blocks and falls;
- (1.1.3) a launching crew of 2 persons each of mass 75 kg.; and
- (1.1.4) a mass of 60 kg. or the mass of the engine together with its fuel tank and sufficient fuel for two hours operation, whichever is the greater.

1.2 In this Part the expression “inflated boat” means any inflated boat or rigid inflated boat other than a dedicated rescue boat.

Construction

General

2

2.1 Every inflated boat launching appliance shall be so constructed to be:

- (2.1.1) capable of recovering the inflated boat and bringing it on board the ship;
- (2.1.2) readily available and not stowed or used for any purpose other than the launching of the inflated boat whilst the ship is at sea; and
- (2.1.3) provided with a suitable means for manual operation.

2.2 Each launching appliance shall be so constructed that the minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship’s crew shall be readily accessible and easily maintained.

2.3 A launching appliance shall be dependent only on manual effort, gravity or stored mechanical power which, if the boat is part of the ship’s statutory life saving appliances, is independent of the ship’s power supplies when used to launch the inflated boat. The arrangement shall be such that the

inflated boat can be lowered by gravity when loaded in accordance with paragraph 1.1.3 and 1.1.4 and with its full equipment.

Strength

3

3.1 Every launching appliance serving an inflated boat shall, together with its winch if fitted, falls, blocks and other associated lowering gear be of such strength that the inflated boat with its full equipment can be safely lowered into the water from the embarkation position with a complement of 2 persons, when the ship has a list of up to 20 degrees either way and a trim of up to 10 degrees.

Stresses

4

4.1 Structural members and all blocks, falls, padeyes, links, fastenings and all other fittings used in connection with a launching appliance shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all structural members and a minimum factor of safety of 6 shall be applied to the falls, links and blocks.

Static load test

5

5.1 Every launching appliance and its attachments other than the winch brakes shall be capable of withstanding a static test load, in a direction simulating a 20° list and 10° trim of not less than 2.2 times the maximum working load.

Winches

6

6.1 Every such launching appliance shall be provided with a winch when the inflated boat is situated more than 4.5 metres above the lightest sea going waterline.

6.2 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 mass of the brake lever shall be sufficient to operate the brake effectively without additional pressure. The winch brakes of a launching appliance shall be of sufficient strength to withstand:

(6.2.1) a static load test with a proof load of not less than 1.5 times the maximum working load; and

(6.2.2) a dynamic test with a proof load of not less than 1.1 times the maximum working load at the maximum lowering speed.

6.3 The speed at which the inflated boat is lowered into the water shall be not less than that obtained from the formula:

$$S = 0.4 + (0.02 \times H)$$

where

S= speed of lowering in metres per second and

H= height in metres from davit head, at the outboard position, to the waterline at the lightest seagoing condition

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In the case of a ship where “H” exceeds 30 metres the lowering speeds need not exceed 1 metre per second.

6.4 Notwithstanding the requirements of paragraph 6.3 the speed of lowering shall not exceed 1.3 metres per second.

6.5 The brake gear of the winch shall include means for automatically controlling the speed of lowering to within the limits specified in paragraphs 6.3 and 6.4. A ratchet gear shall be incorporated in the winch.

6.6 Hand gear handles shall not be rotated by moving parts of the winch when the inflated boat is being lowered or hoisted by power.

6.7 The launching mechanism shall be so arranged that it may be actuated by one person from a position on the ship’s deck. The launching arrangements shall be such that the winch operator on the ship’s deck is able to observe the boat at all times during the lowering.

Wire rope falls

7

7.1 Wire rope falls shall be of rotation-resistant and corrosion-resistant steel wire rope.

7.2 The breaking tensile load of each wire rope used for lowering shall be not less than six times the maximum load on the wire rope when lowering, hoisting or stowing.

7.3 Wire ropes shall be securely attached to the drum of the winch, and the end attachments of the wires and other parts from which the inflated boat is to be suspended shall be capable of withstanding a proof load of not less than 2.2 times the load on such attachments and other parts.

7.4 Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than 2.2 times the load imposed on them in service.

7.5 The falls of the inflated boat launching appliance shall be at least long enough to reach the water with the ship at her lightest sea-going condition under unfavourable conditions of trim and listed to 20° either way.

Cordage rope falls

8

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

8.2 Such falls shall be at least long enough to reach the water with the ship at her lightest sea-going condition and listed to 20° either way.

Bollards

9

9.1 Suitable bollards or other equally effective appliances for lowering any inflated 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 inflated boat served by them can be safely lowered, the 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.

Regulations 2(3) and 13

PART V EMBARKATION LADDERS

Construction

1

1.1 The steps of the embarkation ladder shall be:

(1.1.1) made of hardwood, free from knots or other irregularities, smoothly machined and free from sharp edges and splinters, or of suitable material of equivalent properties;

(1.1.2) provided with an efficient non-slip surface either by longitudinal grooving or by the application of an approved non-slip coating;

(1.1.3) not less than 480 mm long, 115 mm wide and 25 mm in depth, excluding any non-slip surface or coating; and

(1.1.4) equally spaced not less than 300 mm or more than 380 mm apart and secured in such a manner that they will remain horizontal.

1.2 The side ropes of the embarkation ladder shall consist of two uncovered manila ropes not less than 65 mm in circumference on each side. Each rope shall be continuous with no joints below the top set. Other materials may be used provided the dimensions, breaking strain, weathering, stretching and gripping properties are at least equivalent to those of manila rope. All ends shall be seized or secured to prevent unravelling.

SCHEDULE 7

Schedule 1, Part I, Schedule 2, Parts I, II
and III, Schedule 3, and Schedule 4, Part II
and IV

SURVIVAL CRAFT AND RESCUE BOAT EQUIPMENT

PART I SEA ANCHORS

1. A sea anchor shall be conical in shape and have the following dimensions:

<i>CRAFT</i>	<i>SEA ANCHOR</i>		
	<i>Minimum Mouth Diameter (mm)</i>	<i>Minimum Sloping Length (mm)</i>	<i>Minimum Sloping Length of Shroud Lines (mm)</i>
Liferafts up to 10 person capacity	400	600	600
Liferafts 11 person capacity up to 25 person capacity and inflated boats	500	670	670

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<i>CRAFT</i>	<i>SEA ANCHOR</i>		
	<i>Minimum Mouth Diameter (mm)</i>	<i>Minimum Sloping Length (mm)</i>	<i>Minimum Sloping Length of Shroud Lines (mm)</i>
Liferafts over 25 person capacity, lifeboats and rescue boats up to 6 m in length	600	780	780
Lifeboats and rescue boats over 6 m in length and up to 9 m in length	700	920	920
Lifeboats over 9 m in length	800	1050	1050

2. The sea anchor material shall be porous, slightly stiff and shall allow a water penetration of between 10 and 12 cubic centimetres per second per square centimetre at a pressure of 550Pa (roughly equivalent to a speed through water of 2 knots).

3. The painter line used to secure the sea anchor to a liferaft or boat shall:

3.1 be inherently rot proof and of braided construction.

3.2 be 30 metres long, not less than 8 mm in diameter and have a breaking load including attachments and knots of not less than:

(3.2.1) 7.5 kN for liferafts up to 10 person capacity;

(3.2.2) 10.0 kN for liferafts of 11 person to 25 person capacity; and

(3.2.3) 10.0 kN for all other sea anchors or have a factor of safety of 3:1 based on a tow test at 6 knots whichever is the greater.

4. The shroud lines shall be designed to restrict the sea anchor from tumbling through itself.

5. The sea anchor shall be stable when towed through the water at speeds up to 6 knots.

6. The sea anchor mouth shall open immediately on deployment.

Schedule 1, Part 1, Schedule 2, Part I, II and III, Schedule 3, Schedule 4, Part II and IV

PART II

FIRST AID OUTFIT

1. The first aid outfit provided in every lifeboat, rescue boat, inflated boat or liferaft carried by the vessel shall comply with the following requirements:

1.1 It shall be packed in a durable, damp-proof and effectively sealed container capable of being closed tightly after use;

1.2 The container shall be protected, until opened for use, with an outer waterproof seal;

1.3 The container shall bear on its outside an itemised list of its contents, and their date of expiry;

1.4 It shall include the following items, each of which must comply with any standard or requirements specified in relation to it in the current issue of the British Pharmacopoeia, the British Pharmaceutical Codex or the National Formulary:

ARTICLE	QUANTITY
(1.4.1) Triangular Bandage Calico Sterile BPC (not less than 90 cm sides, 127 cm base)	4
(1.4.2) Standard Dressing BPC Sterile Unmedicated Extra Large 28 cm × 17.5 cm	2
(1.4.3) Standard Dressing BPC Sterile Unmedicated Large 20 cm × 15 cm	2
(1.4.4) Standard Dressing BPC Sterile Unmedicated 15 cm × 10 cm	2
(1.4.5) Open Weave Bandage BPC 7.5 cm × 3.5 m	6
(1.4.6) Waterproof Plasters I/W Sterile BPC	
3.8 cm × 3.7 cm	10
7.5 cm × 2.5 cm	10
(1.4.7) Paraffin Gauze Dressings I/W Sterile for Burns	
40 cm × 10 cm	4
10 cm × 10 cm	6
(1.4.8) Polythene Bags (to cover burns on limbs) 38.5 cm × 22.5 cm with adhesive tie	2
(1.4.9) Cetrimide Cream 0.5% W/W 50 gm tube	2
(1.4.10) Analgesic Tablets: Paracetamol 500 milligrams in Container clearly labelled with name and directions for use	50
(1.4.11) Scissors, rustless and stainless steel, blunt points 10 cm	1
(1.4.12) Safety pins, assorted rustless (minimum size 5 cms)	6
(1.4.13) First Aid Instructions in English printed on waterproof material	

Schedule 1, Part I

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PART III

FRESH WATER

General

1

1.1 The water shall comply with the UK Laboratory of the Government Chemist test requirements to confirm that the water is microbiologically and chemically suitable for drinking and conforms to World Health Organisation Standards.

1.2 Processing packaging and sterilisation arrangements shall be carried out under hygienic conditions and quality assurance inspection acceptable to the Department of Transport.

1.3 The water shall remain palatable in its stowage in the survival craft throughout a temperature range of -30°C to $+65^{\circ}\text{C}$.

Water Containers

2

2.1 Sachets

(2.1.1) The water shall be packed in efficiently sealed sachets which are impermeable moisture proof and have an effective vapour barrier.

(2.1.2) The sachets shall have a cut above the top seal to facilitate easy opening with wet or cold hands.

(2.1.3) Individual sachets shall contain not less than 50 and not more than 150 millilitres of water.

(2.1.4) Water filled sachets shall be capable of withstanding a compressive load test of 5 kilonewtons without bursting.

(2.1.5) Except as provided in para 2.1.6 water sachets packed in a liferaft emergency pack shall not be affected by any of the prototype tests carried out on a liferaft.

(2.1.6) When included in the emergency pack of an operationally packed liferaft there shall be no more than 2% of the water sachets damaged after the appropriate drop test.

(2.1.7) The recommended shelf life of the water sachets shall be at least 3 years.

(2.1.8) The outer packaging shall be marked with the following information:

(2.1.8.1) manufacturers' name or trade mark;

(2.1.8.2) contents capacity;

(2.1.8.3) lot number;

(2.1.8.4) date of manufacture;

(2.1.8.5) a recommended daily consumption per person; and

(2.1.8.6) DOT (UK) APPROVED.

2.2 Cans

(2.2.1) A can in which drinking water is supplied shall be hermetically sealed and have a vacuum of not less than 510 mm of mercury.

(2.2.2) It shall be constructed of tinsplate of minimum thickness 0.30 mm and with a tin content which will conform with the relevant part of British Standard 113 Section 10.

(2.2.3) It shall be constructed with a double seam and properly balanced interlocking hooks.

(2.2.4) It shall be plain internally, but externally it shall be coated with a machine applied golden lacquer and then stoved.

(2.2.5) After filling the seams shall be inspected, and any exposed areas shall be suitably lacquered.

(2.2.6) A click test to confirm the vacuum shall be carried out on each can 7 days after filling.

(2.2.7) The can shall be free from dents or any signs of corrosion.

(2.2.8) The capacity of the can shall not be greater than 500 millilitres.

(2.2.9) The can shall not be affected by any of the prototype tests carried out on a liferaft.

(2.2.10) The can shall be clearly marked on the outside with:

(2.2.10.1) manufacturer's name or trade mark;

(2.2.10.2) drinking water and capacity in millilitres;

(2.2.10.3) lot or batch number;

(2.2.10.4) date of manufacture;

(2.2.10.5) a recommended daily consumption per person; and

(2.2.10.6) DOT (UK) APPROVED.

2.3 Bottles

(2.3.1) A bottle in which drinking water is supplied shall be manufactured from a material which will not contaminate or affect the taste of the water.

(2.3.2) It shall not be affected by any other prototype tests carried out on a liferaft.

(2.3.3) The material from which the bottle is made shall be opaque.

(2.3.4) The capacity of the bottle shall not be greater than 500 millilitres.

(2.3.5) The bottle shall be capable of being opened by a survivor with cold hands.

(2.3.6) The minimum recommended shelf life of the water bottle and its contents shall be at least 3 years.

(2.3.7) The bottle filling cap shall be fitted with a watertight seal, and have positive locking arrangements which will not be loosened by vibration.

(2.3.8) After the bottle has been filled, and the cap fitted, it shall be provided with an outer continuous seal which must not be broken until the water is used, or has become time expired.

(2.3.9) The bottle shall be marked on the outside with:

(2.3.9.1) manufacturer's name or trade mark;

(2.3.9.2) date of filling;

(2.3.9.3) date of expiry;

(2.3.9.4) drinking water and capacity in millilitres;

(2.3.9.5) recommended daily consumption per person;

(2.3.9.6) lot or batch number; and

(2.3.9.7) DOT (UK) APPROVED.

Water tanks

3

3.1 Tanks fitted for fresh water in a survival craft may be of metal or a plastic material acceptable to the Department of Transport.

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- 3.2 Each tank is to be filled and emptied to ensure cleanliness and to check for watertightness.
- 3.3 The tank shall be strong enough to withstand a head of water of at least 1.5 metres.
- 3.4 Where necessary the inside of the tank shall be suitably coated to prevent contamination or unpleasant taste.
- 3.5 Tanks which are not portable shall be fitted with drain plugs constructed of non-corrosive material.
- 3.6 Filling plugs and aperture covers shall be of non-ferrous materials, neatly fitted and made properly watertight to prevent the entry of contaminants.
- 3.7 Tanks shall be sited well clear of any propelling machinery.
- 3.8 At least one rustproof dipper with a lanyard shall be provided for each tank.
- 3.9 The inside of tanks constructed with glass reinforced plastic must be smooth and sealed with a gel coat.
- 3.10 Tanks made out of glass reinforced plastic shall be opaque.
- 3.11 The tank shall be clearly marked on the outside with the contents and its capacity in litres.

SCHEDULE 8

Regulations 2(3), 5, 6, 8 and 9

PYROTECHNIC SIGNALS AND LINE-THROWING APPLIANCES

PART I

ROCKET PARACHUTE FLARES

Construction

1

1.1 A rocket parachute flare shall:

- (1.1.1) be constructed with proper workmanship and materials;
- (1.1.2) be contained in a water-resistant casing;
- (1.1.3) have integral means of ignition which can be readily operated with wet, cold or gloved hands in adverse conditions and require the minimum of preparation;
- (1.1.4) be so designed that it shall not cause discomfort to the person holding the casing when used in accordance with the manufacturer's operating instructions;
- (1.1.5) be so constructed that any sealing shall not depend on adhesive tapes, or plastic envelopes;
- (1.1.6) be so constructed that the end from which the rocket is ejected can be positively identified by day or night;
- (1.1.7) be so constructed that all components, compositions and ingredients of the signal and the means of igniting it shall be of such character and quality to enable the signal to maintain its serviceability under good average storage conditions in the marine environment for a period of at least 3 years; and

(1.1.8) be so constructed that if it is intended to be stowed in a liferaft it can function effectively after being subjected to a drop test appropriate to the height at which the liferaft is to be stowed, when the signal is packed in the equipment container.

Performance

2

2.1 A rocket parachute flare shall not be damaged in stowage throughout the air temperature range of -30°C to $+65^{\circ}\text{C}$.

2.2 A rocket shall, when fired vertically, reach an altitude of not less than 300 metres. At or near the top of its trajectory, the rocket shall eject a parachute flare, which shall:

(2.2.1) burn with a bright red colour;

(2.2.2) burn uniformly with an average luminous intensity of not less than 30,000 candela;

(2.2.3) have a burning period not less than 40 seconds;

(2.2.4) have a rate of descent of not more than 5 metres/second; and

(2.2.5) not damage its parachute or attachments while burning.

2.3 The rocket shall in addition be capable of functioning when the rocket is fired at an angle of 45° to the horizontal.

Marking

3

3.1 A rocket parachute flare shall have brief instructions or diagrams clearly illustrating the use of the rocket parachute flare printed on its casing.

3.2 The date of manufacture and the date of expiry shall be marked indelibly on the casing.

3.3 The words "DOT (UK) APPROVED" shall be marked indelibly on the casing. Regulations 2(3) and 20 Schedule 1, Part I and Schedule 4, Part II and IV

PART II

HAND FLARES

Construction

1

1.1 A hand flare shall:

(1.1.1) be constructed with proper workmanship and materials;

(1.1.2) be contained in a water-resistant casing;

(1.1.3) have a self-contained means of ignition which can be readily operated with wet, cold or gloved hands in adverse conditions and require the minimum preparation;

(1.1.4) be so designed as not to cause discomfort to the person holding the casing with an uncovered hand and not endanger a lifeboat or liferaft by burning or glowing residues when used in accordance with the manufacturer's operating instructions;

(1.1.5) be so constructed that any sealing shall not depend on adhesive tapes or plastic envelopes;

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(1.1.6) be so constructed that the end from which the light is emitted can be positively identified by day and night;

(1.1.7) be so constructed that all components, compositions and ingredients of the flare and the means of igniting it shall be of such character and quality to enable the flare to maintain its serviceability under good average storage conditions in the marine environment for a period of at least 3 years; and

(1.1.8) be so constructed that if it is intended to be stowed in a liferaft it can function effectively after being subjected to a drop test appropriate to the height at which the liferaft is to be stowed, when the signal is packed in the equipment container.

Performance

2

2.1 A hand flare shall not be damaged in stowage throughout the air temperature range of -30°C to $+65^{\circ}\text{C}$.

2.2 A hand flare shall:

(2.2.1) burn with a bright red colour;

(2.2.2) burn uniformly with an average luminous intensity of not less than 15,000 candela;

(2.2.3) have a burning period of not less than 1 minute; and

(2.2.4) after ignition continue to burn after having been immersed for a period of 10 seconds under 100 mm of water.

Marking

3

3.1 A hand flare shall have brief instructions or diagrams clearly illustrating the use of the hand flare printed on its casing.

3.2 The date of manufacture and the date of expiry shall be marked indelibly on the casing.

3.3 The words "DOT (UK) APPROVED" shall be marked indelibly on the casing.
Regulations 2(3) and 20, Schedule 4, Part IV

PART III

BUOYANT SMOKE SIGNALS

Construction

1

1.1 A buoyant smoke signal shall:

(1.1.1) be constructed with proper workmanship and materials;

(1.1.2) be contained in a water-resistant casing;

(1.1.3) have an integral means of ignition which can be readily operated with wet, cold or gloved hands in adverse conditions;

(1.1.4) be so designed to enable the signal to be released from a survival craft without harm to the occupants;

(1.1.5) be so designed that it shall not ignite explosively when used in accordance with the manufacturer's operating instructions;

(1.1.6) be so constructed that all components, compositions and ingredients of the signal and the means of igniting it shall be of such character and quality to enable the signal to maintain its serviceability under good average conditions in the marine environment for a period of at least 3 years;

(1.1.7) be so constructed that any sealing shall not depend on adhesive tapes or plastic envelopes; and

(1.1.8) be so constructed that if it is intended to be stowed in a liferaft it can function effectively after being subjected to a drop test appropriate to the height at which the liferaft is to be stowed, when the signal is packed in the equipment container.

Performance

2

2.1 A buoyant smoke signal shall not be damaged in stowage throughout the air temperature range of -30°C to $+65^{\circ}\text{C}$.

2.2 It shall be capable of satisfactory operation in a seaway.

2.3 A buoyant smoke signal shall:

(2.3.1) emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 minutes when floating in calm water;

(2.3.2) not emit any flame during the entire smoke emission time;

(2.3.3) not be swamped in a seaway; and

(2.3.4) continue to emit smoke when submerged in water for a period of 10 seconds under 100 mm of water.

2.4 It shall be safe to operate in water covered by a low flash point liquid.

Marking

3

3.1 A buoyant smoke signal shall have brief instructions or diagrams clearly illustrating the use of smoke signal printed on its casing.

3.2 The date of manufacture and the date of expiry shall be marked indelibly on the casing.

3.3 The words "DOT (UK) APPROVED" shall be marked indelibly on the casing.
Regulations 2(3), 5, 6 and 20

PART IV

LINE-THROWING APPLIANCES

Construction

1

1.1 A line-throwing appliance shall:

(1.1.1) be constructed with proper workmanship and materials;

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(1.1.2) in the case of an integral rocket and line, be contained in a water-resistant casing; in the case of a pistol fired rocket, the rocket shall be contained in a water-resistant casing;

(1.1.3) include not less than four projectiles;

(1.1.4) include not less than four lines each having a breaking strength of not less than 2 kilonewtons;

(1.1.5) be so designed that the end from which the rocket is ejected can be positively identified by day or night.

1.2 Rockets, cartridges and igniters shall be so constructed that all components, compositions and ingredients shall be of such character and quality to maintain serviceability under good average storage conditions in the marine environment for a period of at least 3 years.

1.3 Rockets, cartridges and igniters shall be so constructed that any sealing shall not depend on adhesive tapes or plastic envelopes.

Performance

2

2.1 A line-throwing appliance shall not be damaged in stowage throughout the air temperature range of -30°C to 65°C .

2.2 A line-throwing appliance shall be capable of throwing a line minimum of 4 mm in diameter a distance of at least 230 metres in calm weather.

2.3 A line-throwing appliance shall be capable of throwing a line in such a manner that the lateral deflection on either side of the direction of firing does not exceed 10% of the length of flight of the rocket in calm weather.

Marking

3

3.1 A line-throwing appliance shall be marked with brief instructions or diagrams clearly illustrating the use of the appliance.

3.2 The date of manufacture and the date of expiry shall be marked indelibly on the rockets, cartridges and igniters.

3.3 The words "DOT (UK) APPROVED" shall be marked indelibly on the casing. Schedule 11, Part I

PART V

INSTRUCTIONS, INFORMATION AND STOWAGE

1. Instructions and information for the pyrotechnic signals specified in Parts I to III and for the line-throwing appliance specified in Part IV of this Schedule and required for inclusion in the training manual specified in Part I of Schedule 11 shall be in a form suitable for inclusion in such a training manual. Instructions and information shall be in English in a clear and concise form and shall include the following:

1.1 description of item;

1.2 method of use including any precautions or warnings;

1.3 stowage;

1.4 guidance on when to use; and

1.5 instructions for replacing rockets, cartridges or strikers (integral line-throwing appliance).

SCHEDULE 9

Regulations 2(3), 5, 6, 7(2), 7(3), 7(4), 8, 9
and 17

LIFEBUOYS AND ATTACHMENTS

PART I

LIFEBUOYS (SOLAS)

Construction

1

1.1 A lifebuoy shall be constructed with proper workmanship and materials.

1.2 As applicable the materials of a lifebuoy shall be rot-proof, corrosion resistant, and not be unduly affected by sea-water, oil or fungal attack.

1.3 A lifebuoy shall be of a highly visible colour.

1.4 It shall be fitted with retro-reflective material where it will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State.

1.5 A lifebuoy shall have an outer diameter of not more than 800 mm and an inner diameter of not less than 400 mm.

1.6 A lifebuoy shall be constructed of inherently buoyant material. It shall not depend upon rushes, cork shavings or granulated cork, any other loose granulated material or any air compartment which depends on inflation for buoyancy.

1.7 It shall have a mass of not less than 2.5 kg provided that if intended to operate a quick release arrangement for a self-activating smoke signal and self-igniting light it shall have a mass sufficient to operate the quick release arrangement or 4 kg, whichever is the greater.

1.8 It shall be constructed to withstand a drop into water from the height at which it is stowed above the waterline in the lightest seagoing conditions or 30 metres, whichever is the greater, without impairing either its operating capability or that of its attached components.

1.9 It shall be fitted with a grabline not less than 9.5 mm in diameter and of length not less than 4 times the outside diameter of the lifebuoy. The grabline shall be secured at four equidistant points around the circumference of the lifebuoy to form four equal loops.

Performance

2

2.1 A lifebuoy shall not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$.

2.2 It shall operate throughout a sea-water temperature range of -1°C to $+30^{\circ}\text{C}$.

2.3 A lifebuoy shall be resistant to deterioration from exposure to sunlight.

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2.4 It shall be capable of satisfactory operation in a seaway.

2.5 A lifebuoy shall be capable of supporting not less than 14.5 kg of iron in fresh water for period of 24 hours.

2.6 It shall not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds.

Marking

3

3.1 A lifebuoy shall be marked in block capitals of the Roman alphabet with the name and the port of registry of the ship on which it is carried.

3.2 A lifebuoy constructed of synthetic materials shall be permanently marked with the manufacturer's trade mark or trade name of the lifebuoy and the words "DOT (UK) APPROVED".

3.3 A lifebuoy shall be permanently marked with the maximum height above the waterline at which it can be stowed if this exceeds 30 metres.
Regulations 2(3), 6, 7(2), 7(3), 7(4), 9 and 17

PART II

LIFEBUOY SELF-IGNITING LIGHTS

Construction

1

1.1 A lifebuoy self-igniting light shall be constructed with proper workmanship and materials.

1.2 As applicable the materials of a lifebuoy self-igniting light shall be rot-proof, corrosion resistant, and not be unduly affected by sea-water, oil or fungal attack.

1.3 It shall be constructed to withstand a drop into the water from the height at which it is stowed above the waterline in the lightest seagoing condition or 30 metres, whichever is the greater, without impairing either its operating capability or that of the lifebuoy to which it is attached.

1.4 It shall be provided with means for being efficiently attached to a lifebuoy.

1.5 Components of electronic circuits shall comply with the quality control requirements of BS 9000 or an equivalent standard. Where components cannot be obtained under one of the above standards these components shall be covered by a Certificate of Conformance from the manufacturer of the components.

Performance

2

2.1 A lifebuoy self-igniting light shall not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$.

2.2 It shall operate throughout a sea-water temperature range of -1°C to $+30^{\circ}\text{C}$.

2.3 It shall be resistant to deterioration from exposure to sunlight.

2.4 It shall be capable of satisfactory operation in a seaway.

2.5 A lifebuoy self-igniting light shall be such that it cannot be extinguished by water.

2.6 It shall be capable of either burning continuously with a luminous intensity of not less than 2 candela in all directions of the upper hemisphere or flashing (discharge flashing) at a rate of not less than 50 flashes per minute with at least the corresponding effective luminous intensity and be provided with a source of energy which will give this performance for a period of at least 2 hours.

Marking

- 3.** A lifebuoy self-igniting light shall be marked indelibly with:
- 3.1** the manufacturer's name or trade mark;
 - 3.2** the words "DOT (UK) APPROVED";
 - 3.3** clear and concise directions for use in English supported where necessary by illustrations;
 - 3.4** type of energy source;
 - 3.5** date of manufacture and expiry in the case of a light with a non-replaceable energy source; and
 - 3.6** maximum height above waterline at which it can be stowed.

Instructions and Information

4

4.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and, if appropriate, in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such a training manual or instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

- (4.1.1) the stowage of the light and attachment to lifebuoy;
 - (4.1.2) type of energy source and if replaceable, method and frequency of replacement;
 - (4.1.3) type of light source and whether replaceable;
 - (4.1.4) any maintenance requirements including the method and recommended frequency of checks of energy source, if energy source capable of checking; and
 - (4.1.5) operation of light and duration.
- Regulations 2(3), 5, 6, 7(4), 8, 9 and 17

PART III

LIFEBUOY SELF-ACTIVATING SMOKE SIGNALS

Construction

1

1.1 A lifebuoy self-activating smoke signal shall be constructed with proper workmanship and materials.

1.2 As applicable the materials of a lifebuoy self-activating smoke signal shall be rot-proof, corrosion resistant, and not be unduly affected by sea-water, oil or fungal attack.

1.3 It shall be constructed to withstand a drop into the water from the height at which it is stowed above the waterline in the lightest seagoing condition or 30 metres, whichever is the greater, without impairing either its operating capability or that of the lifebuoy to which it is attached.

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1.4 It shall be provided with means for being efficiently attached to a lifebuoy.

1.5 A lifebuoy self-activating smoke signal may also be provided with a self-igniting light which shall comply with the requirements of Part II of this Schedule.

Performance

2

2.1 A lifebuoy self-activating smoke signal shall not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$.

2.2 It shall operate throughout a sea-water temperature range of -1°C to $+30^{\circ}\text{C}$.

2.3 It shall be resistant to deterioration from exposure to sunlight.

2.4 It shall be capable of satisfactory operation in a seaway.

2.5 A lifebuoy self-activating smoke signal shall emit smoke of a highly visible colour at a uniform rate for a period of at least 15 minutes when floating in calm water.

2.6 It shall not ignite explosively or emit any flame during the entire smoke emission time of the signal.

2.7 It shall not be swamped in a seaway. 2.8 It shall continue to emit smoke when fully submerged for a period of at least 10 seconds.

2.9 It shall be capable of quick release from its stowed position.

2.10 It shall be safe to operate in waters covered by a low flashpoint liquid.

2.11 All components, composition and ingredients of the lifebuoy self-activating smoke signal, and the energy source of the self-igniting light if provided shall be of such character and quality as to enable them to maintain their serviceability under good average stowage conditions in the marine environment for a period of at least three years, unless in the case of a self-igniting light energy source it is possible to readily renew the energy source.

Marking

3. A lifebuoy self-activating smoke signal shall be marked indelibly with:

3.1 the manufacturer's name or trade mark;

3.2 the lot number or other means of identifying the signal;

3.3 the words "DOT (UK) APPROVED";

3.4 clear and concise directions for use in English supported where necessary by illustrations;

3.5 the date of manufacture and date of expiry;

3.6 type of energy source in the case of a signal provided with a self-activating light; and

3.7 maximum height above the waterline at which it can be stowed.

Instructions and Information

4

4.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and, if appropriate, in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such a training manual or instructions

for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

- (4.1.1) the stowage of signal and attachment to lifebuoy;
 - (4.1.2) type of energy source of self-igniting light if provided and if replaceable, method and frequency of replacement;
 - (4.1.3) type of light source of self-igniting light if provided and whether replaceable;
 - (4.1.4) any maintenance requirements including the method, and recommended frequency of checks of energy source of self-igniting light, if provided; and
 - (4.1.5) operation of signal and duration.
- Regulations 2(3), 5, 6, 7(2), 7(3), 7(4), 8, 9 and 17

PART IV

LIFEBUOY BUOYANT LIFELINES

Construction

1

- 1.1** A lifebuoy buoyant lifeline shall be non-kinking.
- 1.2** It shall have a diameter of not less than 8 mm.
- 1.3** It shall have a breaking strength of not less than 5 kilonewtons.
- 1.4** It shall be resistant to deterioration from exposure to sunlight.
- 1.5** It shall have a length not less than twice the height at which it is stowed above the waterline in the lightest seagoing condition, or 30 metres, whichever is the greater. On ships of less than 12 metres in length the lifeline shall be at least 18 metres in length.

SCHEDULE 10

Regulations 2(3), 5, 6, 7(4), 8, 9 and 18

LIFEJACKETS AND ATTACHMENTS

PART I

INHERENTLY BUOYANT LIFEJACKETS

Inherently buoyant lifejackets for persons weighing 32 kg or over shall comply with the following requirements:

Construction

1

- 1.1** An inherently buoyant lifejacket shall be constructed with proper workmanship and materials.
- 1.2** An inherently buoyant lifejacket shall be so constructed that:
 - (1.2.1) after demonstration, a person can correctly don it within a period of 1 minute without assistance;

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(1.2.2) it is capable of being worn inside out or is clearly capable of being worn in only one way and, as far as is possible, cannot be donned incorrectly;

(1.2.3) it is comfortable to wear; and

(1.2.4) it allows the wearer to jump from a height of at least 4.5 metres into the water without injury and without dislodging or damaging the lifejacket.

1.3 It shall be so constructed that the buoyancy is not reduced by more than 5% after 24 hours submersion in fresh water.

1.4 It shall be fitted with a whistle firmly secured by a cord of suitable length. The whistle shall be non-metallic and not be adversely affected by water or humidity.

1.5 It shall be fitted with retro-reflective material where it will assist in detection, and the dimensions and location of the material shall be to the satisfaction of the Secretary of State.

1.6 It shall be fitted with a ring or loop or similar device of adequate strength to facilitate rescue.

Materials

2

2.1 As applicable, the materials of a lifejacket shall be rot-proof, corrosion resistant, not be unduly affected by sea-water, oil or fungal attack, and shall be resistant to deterioration due to exposure to sunlight.

2.2 Buoyancy material shall be of good quality synthetic material, or kapok.

2.3 Cover material where used shall be of good quality synthetic material, or pre-shrunk cotton material free of admixture of sizing or other foreign matter.

2.4 Cover material shall be of a highly visible colour such as traffic yellow (BS 381, Ref 368) international orange (BS 381, Ref 592) or a colour of equivalent conspicuity.

2.5 Where a synthetic cover material is used and the seams are stitched, the thread shall be of synthetic material. Where cotton cover material is used the thread shall be of natural fibre or a combination of synthetic and natural fibre.

2.6 Fastening tapes shall be not less than 32 mm wide and have a breaking strength of not less than 1.4 kilonewtons. Tapes of a synthetic material shall be capable of providing an equivalent degree of security when tied as that provided by cotton tapes.

Performance

3

3.1 An inherently buoyant lifejacket shall not be damaged in stowage throughout an air temperature range of -30°C to $+65^{\circ}\text{C}$.

3.2 It shall operate throughout a sea-water temperature range of -1°C to $+30^{\circ}\text{C}$.

3.3 It shall be capable of satisfactory operation in a sea-way.

3.4 It shall have sufficient buoyancy and stability in calm fresh water to:

(3.4.1) lift the mouth of an exhausted or unconscious person not less than 120 mm clear of the water with the body inclined backwards at an angle of not less than 20° and not more than 50° from the vertical position; and

(3.4.2) turn the body of an unconscious person in the water from any position to one where the mouth is clear of the water in not more than 5 seconds.

3.5 An inherently buoyant lifejacket shall allow the person wearing it to swim a short distance and to board a survival craft.

3.6 It shall not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds.

Marking

4

4.1 An inherently buoyant lifejacket shall be marked indelibly with:

(4.1.1) the manufacturer's name or trade mark and name of lifejacket, if any;

(4.1.2) the words "PERSON OF 32 KG. OR MORE" on both sides of the lifejacket in letters not less than 12 mm in size in the case of lifejackets which can be worn inside out. In the case of lifejackets which can only be worn one way the marking shall be on the outside of the lifejacket;

(4.1.3) the words "DOT (UK) APPROVED" in letters not less than 12 mm in size;

(4.1.4) the year of manufacture; and

(4.1.5) the word "FRONT" on both sides of the front part of the lifejacket in letters not less than 12 mm in size in the case of lifejackets which can be worn inside out. In the case of lifejackets which can only be worn one way the markings shall be on the outside of the front part of the lifejacket.

5. Inherently buoyant lifejackets for persons weighing less than 32 kg shall comply with the requirements of paras 1.1 to 6.1 except that in para 4.1.2 they shall be marked with the word "CHILD". Such lifejackets shall provide a minimum buoyancy of 66.7 newtons in fresh water. The buoyancy shall not be reduced by more than 5% after 24 hours submersion in fresh water.

Instructions and Information

6

6.1 Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 shall be in a form suitable for inclusion in such a training manual. Instructions and information shall be in English in a clear and concise form and shall include the donning and securing of the lifejacket.

Regulations 2(3), 5, 6 and 18

PART II

INFLATABLE LIFEJACKETS

Inflatable lifejackets for person weighing 32 kg or over shall comply with the following requirements:

Construction

1

1.1 An inflatable lifejacket shall be constructed with proper workmanship and materials.

1.2 An inflatable lifejacket shall be so constructed that:

(1.2.1) after demonstration, a person can correctly don it within a period of 1 minute without assistance;

(1.2.2) it is capable of being worn inside out or is clearly capable of being worn in only one way and, as far as is possible, cannot be donned incorrectly;

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(1.2.3) it is comfortable to wear; and

(1.2.4) it allows the wearer to jump from a height of at least 4.5 metres into the water without injury and without dislodging or damaging the lifejacket.

1.3 It shall be so constructed that the buoyancy is not reduced by more than 5% after 24 hours submersion in fresh water.

1.4 It shall be fitted with a whistle firmly secured by a cord of suitable length. The whistle shall be non-metallic and not be adversely affected by water or humidity.

1.5 It shall be fitted with retro-reflective material where it will assist in detection and the dimensions and location of the material shall be to the satisfaction of the Secretary of State.

1.6 An inflatable lifejacket shall be constructed with not less than two separate compartments, and not less than two compartments shall inflate automatically on immersion and be provided with a device to permit inflation by a single manual motion. All compartments shall be capable of being inflated by mouth. The automatic inflation system shall be so designed and protected that the risk of inadvertent inflation is reduced to a minimum.

1.7 In the event of loss of buoyancy in any one compartment the lifejacket shall be capable of complying with the requirements of paragraphs 1.2, 3.4 and 3.5.

1.8 The inflatable compartments shall be so located that when inflated they do not channel water into the wearer's face when in a seaway.

1.9 An inflatable lifejacket shall comply with the requirements of paragraph 1.3 after inflation by means of the automatic mechanism.

1.10 It shall be fitted with a ring or loop or similar device of adequate strength to facilitate rescue.

Materials and Components

2

2.1 Materials and components shall as applicable be rot-proof, corrosion resistant, and not be unduly affected by seawater, oil or fungal attack, shall be resistant to deterioration due to exposure to sunlight, and shall comply with the requirements of Clause 5 of BS 3595: 1981.

2.2 Materials used on the exterior of the buoyancy chambers shall be of a highly visible colour such as traffic yellow (BS 381, Ref 368), international orange (BS 381, Ref 592) or a colour of equivalent conspicuity.

Performance

3

3.1 An inflatable lifejacket shall not be damaged in stowage throughout an air temperature range of -30°C to $+65^{\circ}\text{C}$.

3.2 It shall operate throughout a seawater temperature range of -1°C to $+30^{\circ}\text{C}$.

3.3 It shall be capable of satisfactory operation in a sea-way.

3.4 It shall have sufficient buoyancy and stability in calm fresh water to:

(3.4.1) lift the mouth of an exhausted or unconscious person not less than 120 mm clear of the water with the body inclined backwards at an angle of not less than 20° and not more than 50° from the vertical position; and

(3.4.2) turn the body of an unconscious person in the water from any position to one where the mouth is clear of the water in not more than 5 seconds.

3.5 An inflatable lifejacket shall allow the person wearing it to swim a short distance and to board a survival craft.

3.6 It shall not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds.

Marking

4

4.1 An inflatable lifejacket shall be marked indelibly with:

(4.1.1) the manufacturer's name or trade mark and name of lifejacket, if any;

(4.1.2) means of identification of the date of manufacture;

(4.1.3) the words "PERSON OF 32 KG OR MORE" on the front in letters not less than 12 mm in size;

(4.1.4) the words "DOT (UK) APPROVED" in letters not less than 12 mm in size; and

(4.1.5) the word "FRONT" on both sides of the front part of the lifejacket in letters not less than 12 mm in size in the case of lifejackets which can be worn inside-out. In the case of lifejackets which can only be worn one way the marking shall be on the outside of the front part of the lifejacket.

Instructions and Information

5. Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and, if appropriate, in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

5.1 description of lifejacket and attachments;

5.2 donning;

5.3 operation;

5.4 packing;

5.5 any maintenance requirements;

5.6 servicing requirements;

5.7 type and charged weight of gas bottles; and

5.8 replacement of gas bottles.

Regulations 2(3) 7(4), 8 and 18

PART III

INFLATABLE CIVIL AVIATION AUTHORITY LIFEJACKET

Inflatable lifejackets which are suitable for persons weighing 32 kg or more or less than 32 kg which have been approved by the United Kingdom Civil Aviation Authority comply with this Schedule if they have been fitted with a ring or loop or similar device, having a minimum breaking strain of 1.8 kN to facilitate rescue: provided that an approved light is not required.

Regulations 2(3), 7(4), 8 and 18

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PART IV

BUOYANCY AIDS

Inherent buoyant lifejackets for persons weighing 32 kg or over, or under 32 kg shall comply with requirements of CEN Standard 100 and in addition shall be fitted with a ring or loop or similar device, having a minimum breaking strain of at least 1.8 kN to facilitate rescue.

SCHEDULE 11

Regulations 2(3), 5, 6, 7(3), 7(4), 8, 9 and

12

TRAINING MANUALS AND INSTRUCTIONS FOR ON-BOARD MAINTENANCE

PART I

TRAINING MANUALS

1. A training manual shall contain instructions and information on the life-saving appliances provided in the ship. It shall also contain information on the best methods of survival. The material in the manual shall be in easily understood terms and illustrated where appropriate.

2. A training manual may comprise one or more volumes and any part of the instructions and information may be provided in the form of audio-visual aids as an alternative to printed material.

3. As appropriate, the following shall be explained in detail:

3.1 donning of lifejackets;

3.2 muster at the assigned stations;

3.3 boarding, launching, and clearing the survival craft, rescue and inflated boats;

3.4 method of launching from within the survival craft;

3.5 release from launching appliances;

3.6 methods and use of devices for protection in launching areas;

3.7 illumination in launching areas;

3.8 use of all survival equipment;

3.9 use of all detection equipment;

3.10 with the assistance of illustrations, the use of radio life-saving appliances;

3.11 use of sea anchors;

3.12 use of engine and accessories;

3.13 recovery of survival craft, rescue and inflated boats including stowage and securing;

3.14 hazards of exposure and the need for warm clothing;

3.15 best use of the survival craft facilities in order to survive;

3.16 methods of retrieval, including the use of helicopter rescue gear (slings, baskets, stretchers), breeches-buoy and shore life-saving apparatus and ship's line-throwing apparatus;

3.17 all other functions contained in the muster list and emergency instructions; and

3.18 instructions for emergency repair of the life-saving appliances.
Regulations 2(3), 5, 6, 7(3), 7(4), 8, 9 and 11

PART II

INSTRUCTIONS FOR ON-BOARD MAINTENANCE

1. Instructions for on-board maintenance of life-saving appliances shall be in easily understood terms and illustrated wherever possible.
2. As appropriate the instructions shall include the following for each appliance:
 - 2.1 a checklist for use when carrying out the inspections required by regulation 11;
 - 2.2 maintenance and repair instructions;
 - 2.3 schedule of periodic maintenance;
 - 2.4 diagram of lubrication points with the recommended lubricants;
 - 2.5 list of replaceable parts;
 - 2.6 list of sources of spare parts; and
 - 2.7 log for records of inspections and maintenance.

SCHEDULE 12

Regulations 2(3), 5, 6, 7(2), 7(3), 7(4), 8
and 9

GENERAL EMERGENCY ALARM SYSTEMS

1. The general emergency alarm system shall be capable of sounding the general emergency alarm signal consisting of seven or more short blasts followed by one long blast on the ship's whistle or siren
2. The system shall be capable of operation from the navigating bridge and, except for the ship's whistle, also from other strategic points. The system shall be audible throughout all the accommodation and normal crew working spaces.

SCHEDULE 13

Regulations 2(3), 5, 6, 7(3), 7(4), 8 and 9

BUOYANT APPARATUS

General

1

1.1 All buoyant apparatus shall:

- (1.1.1) be constructed with proper workmanship and materials;
- (1.1.2) be of such construction that it retains its shape and properties when exposed to the weather on board ship and when in the water. It shall be constructed so as not to require adjustment prior to use; and
- (1.1.3) be corrosion-resistant and not affected by sea water, oil or oil products.

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Construction

2

2.1 The buoyant apparatus shall be so constructed to withstand a minimum drop into the water from a height of 10 metres. If the buoyant apparatus is to be stowed at a height of more than 10 metres above the waterline in the lightest seagoing condition, it shall be of a type which has satisfactorily drop-tested from at least that height.

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

2.3 The air cases or equivalent buoyancy shall be placed as near as possible to the sides of the apparatus, this buoyancy is not to be dependant upon inflation. The buoyant material shall not be adversely affected by oil or oil products.

2.4 Buoyant apparatus shall not exceed 185 kilogrammes in weight unless suitable means are provided to enable it to be launched without lifting by hand. If the weight of the apparatus exceeds 135 kilogrammes suitable handles or rungs are to be fitted for this purpose.

2.5 The number of persons which the buoyant apparatus shall be permitted to support shall be equal to the lesser of:

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

(2.5.2) the greatest whole number obtained by dividing the perimeter in metres by 0.3.

Buoyant Apparatus Fittings

3

3.1 Grab Lines

(3.1.1) Buoyant grablines shall be securely fitted all around the apparatus so as to provide an equal number of loops corresponding to the number of persons the apparatus is fit to support.

(3.1.2) Each loop shall have a depth of not less than 150 millimetres and not more than 200 millimetres. On apparatus exceeding 300 millimetres in overall depth two rows of grablines shall be fitted, one having its points of attachment below the top of the air cases and the other above the bottom of the air cases and as close to the sides of the air cases as practical. On apparatus of 300 millimetres or less in overall depth, one row of grab lines are to be attached along the line of the mid depth.

(3.1.3) Grab lines shall be of buoyant rope of not less than 14 millimetres in diameter. They may be attached to the apparatus by being passed through holes in the framing and being interlaced to prevent movement, or attached by means of wrought iron or steel fastenings. Whichever method is adopted the attachment is to be of sufficient strength to permit the apparatus to be lifted by the grab lines.

3.2 The buoyant apparatus shall be fitted with an efficient painter of length at least equal to the height from its stowed position to the lightest sea going condition plus 5 metres.

3.3 Retro-reflective material required in accordance with regulation 22 is to be fitted on all surfaces of the buoyant apparatus.

Marking of Buoyant Apparatus

4

- 4.1** Each apparatus should be marked as follows;
- (4.1.1) maker's name or trademark;
 - (4.1.2) serial number; 4.1.3 "DOT (UK) APPROVED" and the number of persons it is permitted to support; and
 - (4.1.4) maximum permitted height of stowage above waterline.

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations apply from 31st October 1992 to a new United Kingdom passenger ships of Classes III, IV, V, VI and VI(A) constructed after that date and to existing United Kingdom passenger ships of these Classes as indicated in regulation 1(1) and they revise the carriage requirements for life-saving appliances of these passenger ships. They revoke the Merchant Shipping (Life-Saving Appliances) Regulations 1980 to the extent that they apply to new United Kingdom Class III, IV, V, VI and VI(A) passenger ships. This revocation will also apply to "existing" ships of the above Classes that is ships built or constructed before the 31st October 1992.

These Regulations harmonize the requirements for life-saving appliances for passenger ships of Classes III, IV, V, VI and VI(A) with those for passenger ships of the Classes included in the Merchant Shipping (Life-Saving Appliances) Regulations 1986 while taking into account the restricted service in which these Classes of passenger ships are engaged. In particular for new ships they introduce the provision of out of water support for all persons on board in the form of open reversible liferafts except for certain Class V and VI ships where buoyant apparatus is generally provided. For existing ships generally a combination of liferafts and buoyant apparatus is provided the percentage of which is dependent upon the ships standard of survivability. The provision of personal buoyancy equipment in the form of various types of lifejackets or buoyancy aids except in the case of certain ships of Class V operating solely within Category "A" and "B" waters are required.