LIFE SAVING APPLIANCE STANDARD REQUIREMENTS

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SECTION 1 GENERAL —

Regulation 1 - General requirements for life-saving appliances

1. Paragraph 2.7 applies to all ships, with respect to ships constructed before 1 July 1986, paragraph 2.7 shall apply not later than 1 July 1991.

2. Unless expressly provided otherwise or unless, in the opinion of the Administration having regard to the particular voyages on which the ship is constantly engaged, other requirements appropriate, all life-saving appliances prescribed in this part shall:

.1 be constructed with proper workmanship and materials;

.2 not be damaged in stowage throughout the air temperature range - 30 degree C to +65 degree C;

.3 if they are likely to be immersed in seawater during their use, operate throughout the seawater temperature range- 1 degree C to +30 degree C;

.4 where applicable, be rot-proof, corrosion-resistant, and not be unduly affected by seawater, oil or fungal attack;

.5 where exposed to sunlight, be resistant to deterioration;

.6 be of highly visible color on all parts where this will assist detection;

.7 be fitted with retro-reflective material where it will assist in

.8 if they are to be used in a seaway, be capable of satisfactory operation in that environment.

3. The Administration shall determine the period of acceptability of life-saving appliances which are subject to deterioration with age. Such life-saving appliances shall be marked with a means for determining their age or the date by which they must be replaced.

SECTION II PERSONAL LIFE-SAVING APPLIANCES

Regulation 2 - Lifebuoys

1. Lifebuoy specification

Every lifebuoy shall:

.1 have an outer diameter of not more than 800 m and inner diameter of not less than 400mm;

.2 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;

.3 be capable of supporting not less than 14.5 kg. of iron in fresh water for a period of 24th;

.4 have a mass of not less than 2.5 kg.

.5 not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 s;

.6 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 m, whichever is greater, without impairing either its operating capability or that of its attached components;

.7 if it is intended to operate the quick-release arrangement provided for the self-activated smoke signals and self-igniting lights, have a mass sufficient to operate the quick-release arrangements or 4 kg, whichever is greater;

.8 be fitted with a grabline not less than 9.5 mm in diameter and not less than four times the outside diameter of the body of the buoy in length. The grabline shall be secured at four equidistant points around the circumference of the buoy to form four equal loops.

2. Lifebuoy self-igniting lights

Self-igniting lights required by regulation 7.1.3 shall:

.1 be such that be cannot be extinguished by water;

.2 be capable of either burning continuously with luminous intensity of not less than 2 cd 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;

.3 be provided with a source of energy capable of meeting the requirement of paragraph 2.2 for a period of at least 2h;

.4 be capable of withstanding the drop test required by paragraph 1.6

3. Lifebuoy self-activating smoke signals

Self-activating smoke signals shall:

.1 emit smoke of highly visible colour at a uniform rate for a period of at least 15 min when floating in calm water;

.2 not ignite explosively or emit any flame during the entire smoke emission time of the signal;

.3 not be swamped in a seaway;

.4 continue to emit smoke when fully submerged in water for a period of at least 10s,

.5 be capable of withstanding the drop test required by paragraph 1.6

4. Buoyant lifelines

Buoyant lifelines shall:

.1 be non-kinking;

.2 have diameter of not less than 8 mm;

.3 have a breaking strength of not less than 5 kn

Regulation 3 - Lifejackets

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1. General requirements for lifejackets

1.1 A lifejacket shall not sustain burning or continue melting after being totally enveloped in a fire for a period of s.

1.2 A lifejacket shall be so constructed that:

.1 after demonstrated, a person can correctly don it within a period of 1 min without assistance;

.2 it is capable of being worn inside-out or is clearly capable of being worn in only way and, as far as possible, cannot be donned incorrectly;

.3 it is comfortable to wear;

.4 it allows the wearer to jump from height of at least 4.5 m into the water without injury and without dislodging or damaging the lifejacket.

1.3 A lifejacket shall have sufficient buoyancy and stability in calm fresh water to:

.1 lift the mouth of an exhausted or unconscious person not less than 120 mm clear of the water with the body inclined from the vertical position;

.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 s.

1.4 A life jacket shall have buoyancy which is not reduced by more than 5% after 24 h submersion in fresh water.

1.5 A lifejacket shall allow the person wearing it to swim a short distance and to board a survival craft.

1.6 Each lifejacket shall be fitted with a waistline firmly secured by a cord.

2. Inflatable lifejackets

A Lifejacket which depends on inflation for buoyancy shall have not less than two separate compartments and comply with the requirements of paragraph 1 and shall:

.1 inflate automatically on immersion, be provided with a device to permit inflation by a single manual motion and be capable of being inflated by mouth;

.2 in the event of loss of buoyancy in any one compartment be capable of complying with requirements of paragraph 1.2, 1.3 and 1.5;

.3 comply with the requirements of paragraph 1.4 after inflation by means of the automatic mechanism.

3. Lifejacket lights

3.1 Each lifejacket light shall;

.1 have luminous intensity of not less than 0.75 cd;

.2 have a source of energy capable of providing a luminous intensity 0.75 cd for a period of at least 8 h;

.3 be visible over as great a segment of the upper hemisphere as is practicable when attached to a lifejacket.

3.2 If the light referred to in paragraph 3.1 is a flashing light it shall, in addition

.1 be provided with a manually operated switch;

.2 not be fitted with a lens or curved reflector to concentrate the beam;

.3 flash at a rate of not less than 50 flashes per minute with an effective luminous intensity of at least 0.75 cd.;

Regulation 4 - Immersion suits

1. General requirements for immersion suits

1.1 The immersion suit shall be constructed with waterproof materials such that:

.1 it can be unpacked and donned without assistance within 2 min, taking into account any associated clothing and a lifejacket if the immersion suit is to be worn in conjunction with a lifejacket;

.2 it will not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 s;

.3 it will cover the whole body with the exception of the face. Hands shall also covered unless permanently attached gloves are provided;

.4 it is provided with arrangements to minimize or reduce free air in the legs of the suit;

.5 following a jump from a height of not less than 4.5 m into the water there is no undue of water into the suit.

1.2 An immersion suit which also complies with the requirements of regulation 3 may be classified as Lifejacket.

1.3 An immersion suit shall permit the person wearing it, and also wearing lifejacket if the immersion suit is to be worn in conjunction with a lifejacket, to:

.1 climb up and down a vertical ladder at least 5 m in length;

.2 perform normal duties during abandonment;

.3 jump from height of not less than 4.5 m into the water without damaging or dislodging the immersion suit, or being injured; and

.4 swim a short distance through the water and board a survival craft.

1.4 An immersion suit which has buoyancy and is designed to be worn without a lifejacket shall be fitted with a light complying with the requirements of regulation 3.3 and the whistle prescribed by regulation 3.1.6

1.5 If the immersion suit is to be worn in conjunction with a lifejacket, the lifejacket shall be worn over the immersion suit. A person wearing such an immersion suit shall be able to don a lifejacket without assistance.

2. Thermal performance requirements for immersion suits

2.1 An immersion suit made of material which has no inherent insulation shall be:

.1 marked with instructions that it must be worn in conjunction with warm clothing;

.2 so constructed that, when worn in conjunction with warm, clothing, and with a lifejacket if the immersion suit is to be worn with a lifejacket, the immersion suit continues to provide sufficient thermal protection following one jump by the wearer into the water from a height of 4.5 m, to ensure that when it is worn for a period of 1 h in calm circulating water at a temperature of 5 degree C, the wearer’s body core temperature does not fall more than 2 degree C.

2.2 An immersion suit made of material with inherent insulation, when worn either on its own or with a lifejacket, if the immersion suit is to be worn in conjunction with a lifejacket, shall provide the wearer with sufficient insulation, following one jump into the water from a height of 4.5 m, to ensure that the wearer’s body core

temperature does not fall more than 2 degree C after a period of 6 h immersion in calm circulating water at temperature at between 0 degree and 2 degree C.

2.3 The immersion suit permits the person wearing it with hands covered to pick up a pencil and write after being immersed in water at 5 degree C for a period of 1 h.

3. Buoyancy requirements

A person in fresh water wearing either immersion suit complying with the requirements of regulation 3, or an immersion suit with a lifejacket shall be able to turn from a face-down to a face-up position in not more than 5s.

Regulation 5 - Thermal Protective Aids

1. A thermal protective aid shall be made of water proof material having a thermal conductivity of not more than 0.25 W (m.K) and shall be so constructed that, when used to enclose a person, it shall both the convective and evaporative heat loss from the wearer's body.

2. The thermal protective aid shall:

.1 cover the whole body of a person wearing a lifejacket with the exception of the face. Hands shall also be covered unless permanently attached gloves are provided;

.2 be capable of being unpacked and easily donned without assistance in a survival craft or rescue boat;

.3 permit the wearer to remove it in the water in not more than 2 min, if it impairs ability to swim.

3. The thermal protective aid shall function properly throughout an air temperature range 30-degree C to 20 degree C.

CLARIFICATION:

1. Thermal protective aids should be of highly visible color, However, other colors may be accepted provided the thermal protective aid is unlikely to be used in the water.

2. Thermal protective aids should capable of being worn by persons regardless of their use.

SECTION III VISUAL SIGNALS

Regulation 6 - Rocket parachute flares

1. The rocket parachute flare shall:

.1 be contained in a water-resistant casing;

.2 have brief instructions or diagrams clearly illustrating the use of the rocket parachute flare printed on its casing;

.3 have integral means of ignition;

.4 be so designed as not to cause discomfort to the persons holding the casing when used in accordance with manufacture's operating instructions.

2. The rocket shall, when fired vertically, reach an altitude of not less than 300 m. At or near the top of its trajectory, the rocket shall eject a parachute flare, which shall:

.1 burn with a bright red colour;

.2 burn uniformly with an average luminous intensity of not less than 30,000 cd;

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.3 have a burning period of not less than 40 s;

.4 have a rate of descent of not more than 5m/s;

.5 not damage its parachute or attachment while burning

Regulation 7 - Hand Flares

1. The hand flare shall:

.1 be contained in a water-resistant casing

.2 have a brief instructions or diagrams clearly illustrating the use of the hand flare printed on its casing;

.3 have a self-contained means of ignition;

.4 be so designed as not to cause discomfort to the person holding the casing and not endanger the survival craft by burning or glowing residues when used in accordance with the manufacturer’s operating instructions.

2. The hand flares shall:

.1 burn with a bright red colour;

.2 burn uniformly with an average intensity of not less than 15,000 cd

.3 have a burning period of not less than 1 min;

.4 continue to burn after having been immersed for a period of 10s under 100 mm of water.

Regulation 8 - Buoyant Smoke Signals

1. The buoyant smoke signal shall:

.1 be contained in a water-resistant casing;

.2 not ignite explosively when used in accordance with the manufacturer’s operating instructions;

.3 have brief instructions or diagrams clearly illustrating the use of the buoyant smoke signal printed on its casing.

2. The buoyant smoke signal shall:

.1 emit smoke of highly visible colour at a uniform rate for a period of not less than 3 min when floating in calm water.

.2 not emit any flame during the entire emission time;

.3 not be swamped in a seaway

.4 continue to emit smoke when submerged in water for a period of 10s under 100 mm of water.

SECTION IV SURVIVAL CRAFT

Regulation 9 - General Requirements for Liferafts

1. Construction of liferafts

1.1 Every liferafts shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all conditions.

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

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

CLARIFICATION: Testing of life-saving appliances, concerning the jump test onto a liferaft should not be interpreted to imply that the canopy support tube and the upper buoyancy tube be separate inflatable chambers.

1.4 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 its sea-anchors streamed.

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

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

.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.

.4 it shall admit sufficient air for the occupants at all times, even with the entrances closed;

.5 it shall be provided with at least one viewing port;

.6 it shall be provided with means for collecting rain water;

.7 it shall have sufficient headroom for sitting occupants under all parts of the canopy.

2. Minimum carrying capacity and mass of liferafts

2.1 No liferaft shall be approved which has carrying capacity of less than six persons calculated in accordance with the requirements of regulation 10.3 or 11.3, as appropriate.

2.2 Unless the liferaft is to be launched by an approved launching appliance complying with the requirements of regulation 48 and is not required to be portable, the total mass of the liferaft, its container and its equipment shall not be more than 185 kg.

3. Liferaft fittings

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 length equal to not less than twice the distance from the stowed position to the waterline in the lightest seagoing condition or 15m whichever is the greater.

4. Davit-launched liferafts

4.1 In addition to the above requirements, a liferaft for use with an approved launching appliance shall:

.1 when the liferaft is loaded with its full complement of persons and equipment be capable of withstanding a

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lateral impact against the ship's side at an impact velocity of not less than 3.5m/s and also a drop into the water from a height of not less than 3 m without damage that will affect its function;

.2 be provided with means for bringing the liferaft alongside the embarkation deck and holding it securely during embarkation.

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

4.3 Every cargo ship davit-launched liferaft shall be so arranged that it can be boarded by its full complement of persons in not more than 3 min from the time instruction to board is given.

5. Equipment

5.1 The normal equipment of every liferaft shall consist of :

.1 one buoyant rescue quoit, attached to not less than 30m of buoyant line;

.2 one knife of the non-folding type having a buoyant handle and landyard attached and stowed in a pocket on the exterior of the canopy near the point at which the pointer is attached to the liferaft. In addition, a liferaft which is permitted to accommodate 13 persons or more shall be provided with a second knife which need not be of the non-folding type;

.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;

.4 two sponges;

.5 two sea-anchors each with a shock-resistant hawser and tripping line, one being spare and the other permanently attached to the liferaft in such a way that when the liferaft inflates or is waterborne it will cause the liferaft to lie oriented to the wind in the most stable manner. The strength of sea-anchor and its hawser and tripping line shall be adequate for all sea conditions. The sea-anchors shall be fitted with a swivel at each end of the line and shall be of a type of which is unlikely to turn inside-out between its shroud lines;

.6 two buoyant paddles;

.7 three tin-openers (safety knives containing special tin-opener blades are satisfactorily for this requirement);

.8 one first-aid outfit in a waterproof case capable of being closed tightly after use;

.9 one whistle or equivalent sound signal;

.10 four rocket parachute flares complying with the requirements of regulation 35;

.11 six hand flares complying with the requirements of regulation 36;

.12 two buoyant smoke signals complying with the requirements of regulation 37;

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

.14 an efficient radar reflector, unless a survival craft radar transponder is stowed in the liferaft;

.15 one daylight signalling mirror with instructions on its use for signalling to ships and aircraft;

.16 one copy of the life-saving signals referred to in regulation V/16 on a waterproof card or in a waterproof

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container;

.17 one set of fishing tackle;

.18 a food ration totalling not less than 10,000 kj each person the liferaft is permitted to accommodate; these rations shall be kept in airtight packaging and be stowed in a watertight container;

CLARIFICATION: A satisfactory emergency food ration would consist of the following components:

Ration unit : 500-500 g
Energy : Minimum 10,000 kg
Packing : Hermetically sealed (can) or vacuum packed (flexible package)

Composition:

1 Moisture Maximum 3-7%

2 Salt Maximum 0.2%

3 Carbohydrates 60-70% weight = 50 - 60% energy

4 Fat 18-23% weight = 33 -43 % energy

5 Protein 6-10% weight = 5-8 % energy

Rations should be palatable, edible throughout the recommended shelf life and packed in a manner which can be readily divided and easily opened.

.19 watertight receptacle containing a total of 1.5 L of fresh water for each person the liferacket is permitted to accommodate, of which 0.5 L per person maybe be replaced by a de-salting apparatus capable of producing an equal amount of fresh water in 2 days;

20. one rustproof graduated drinking vessel;

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

.22 instructions on how to survive, *

.23 instructions for immediate action;

.24 thermal protective aids complying with the requirements of regulation 34 sufficient for 10% of the number of persons the liferaft is permitted to accommodate or two whichever is greater.

5.2 The marking required by regulation 10.7.3.5 and 11.7.7 on the liferafts equipped in accordance with paragraph 5.1 shall be SOLAS A PACK in block capital of the Roman alphabet.

5.3 In the case of passenger ships engaged on short international voyages of such nature and duration that, in the opinion of the Administration, not all the items specified in paragraph 5.1 are necessary the Administration may allow the liferaft carried on any such ships to be provided with the equipment specified in paragraph 5.1.1 to 5.1.6 inclusive, 5.1.8, 5.1.9, 5.1.13 to 5.1.21 to 5.1.24 inclusive and one half of the equipment specified in paragraphs 5.1.12 inclusive. The marking required by regulations 10.7.3.5 and 11.7.7 on such liferafts shall be SOLAS B PACK in block capitals of the Roman alphabet.

5.4 Where appropriate the equipment shall be stowed in 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 min without damage to its contents.

6 Float -free arrangement for liferafts

6.1 Painter System

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

6.2 Weak Link

If a weak link is used in the float-free arrangement, it shall:

.1 not be broken by the force required to pull the painter from the liferaft container;

.2 if applicable, be of sufficient strength to permit the inflation of the liferaft;

.3 break under a strain of 2.2+ 0.4 kn

6.3 Hydrostatic release units

If a hyrdrostatic release unit is used in the float-free arrangements, it shall:

.1 be constructed of compatible materials so as to prevent malfunction of the unit Galvanizing forms of metallic coating on parts of the hydrostatic release unit shall not be accepted;

.2 automaticaly release the liferaft at depth of not more than 4 m;

.3 have drains to prevent the accumulation of water in the hydrostatic chamber when the unit is in its normal position;

.4 be so constructed as to prevent release when seas wash over the unit;

.5 be permanently marked on its exterior with its type and serial number;

.6 be provided with a document or identification plate stating the date of manufacture, type and serial number;

.7 be such that each part connected to the painter system has a strength of not less than that required for the painter.

Regulation 10

Inflatable liferafts

1. Inflatable liferafts shall comply with the requirements of regulation 9 and in addition, shall comply with the requirements of this regulation.

2. Construction of inflatable liferafts

2.1 The main buoyancy chamber shall be divided into not less than two separate compartments, each inflated through a nonreturn inflation valve on each compartment. The buoyancy chambers shall be so arranged that, in the event of any 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.

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2.2 The floor of the liferaft shall be waterproof and shall be capable of being sufficiently insulated against cold weather;

.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 by other equally efficient means not dependent on inflation.

2.3 The liferaft shall be inflated with a non-toxic gas. Inflation shall be completed within a period of 1 min at an ambient temperature of between 18 degree C and 20 degree C and within a period of 3 min at an ambient temperature of -30 degree C. After inflation the liferaft shall maintain its form when loaded with its full complement of persons and equipment.

2.4 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 belows required by paragraph 10.1.2 so that the working pressure can be maintained.

3. Carrying capacity of inflatable liferafts

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

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

.2 the greatest whole number obtained by dividing by 0.372 the inner horizontal cross-sectional area of the liferaft measured in square meters (which for this purpose may include the thwart or thwarts, if fitted); or

.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 interesting with the operation of any of the liferaft’s equipment.

4. Access into inflatable liferafts

4.1 At least one entrance shall be fitted a semi-rigid boarding ramp to enable persons to board from the sea so arranged as to prevent significant deflation of the liferaft if the ramp is damaged. In the case of davit-launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite the bowsing lines and embarkation facilities.

4.2 entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which be situated not less than 0.4 m below the liferaft’s light waterline.

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

5. Stability of inflatable liferafts

5.1 Every inflatable liferaft shall be so constructed that, when fully inflated and floating with the canopy uppermost, it is stable in a seaway.

5.2 The stability of the liferaft when in the inverted position shall be such that it can be righted in a seaway and in calm water by one person.

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

6. Inflatable liferaft fittings

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6.1 The breaking strength of the painter system including its means of attachment to the liferaft, except the weak link required by regulation 38.6, shall not be less than 10.0 kn for a liferaft permitted to accommodate nine persons or more, and not less than 7.5 kn for any other liferaft. The liferaft shall be capable of being inflated by one person.

6.2 A manually controlled lamp visible on a dark night a clear atmosphere at distance of at least 2 miles for a period of not less than 12h shall be fitted to the top of the liferaft canopy. If the light is a flashing light it shall flash at rate of not less than 50 flashes per minute for the first 2 h of operation of the 12h operating period. The lamp shall be powered by sea-activated cell or a dry chemical cell and shall light automatically when the liferaft inflates. The cell shall be of a type that does not deteriorate due to dump or humidity in the sowed liferaft.

6.3 A manually controlled lamp shall be fitted inside the liferaft capable of continuous operating for a period of at least 12h. it shall light automatically when the liferaft inflates and be of sufficient intensity to enable reading of survival and equipment instructions.

7. Container for inflatable liferafts

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

.1 so constructed as to withstand hard wear under conditions encountered at sea;

.2 of sufficient 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;

.3 as far as practicable watertight, except for drain holes in the container bottom.

7.2 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.

7.3 The container shall be marked with:

.1 maker’s name or trade mark;

.2 serial number;

.3 name of approving authority and the number of persons it is permitted to carry;

.4 SOLAS

.5 type of emergency pack enclosed;

.6 date when last serviced;

.7 length of painter;

.8 maximum permitted height of stowage above waterline (depending on drop-test height and length of painter)

.9 launching instructions.

8. Marking on inflatable liferafts

The liferafts shall be marked with:

.1 maker’s name or trademark;

.2 serial number;

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.3 date of manufacture (month and year)

.4 name of approving authority;

.5 name and place of servicing station where it was last serviced;

.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.

9. Davit-launched inflatable liferafts

9.1 In addition to complying with the above requirements, a liferaft for use with an approved launching appliance shall, when suspended from its lifting hook or bridle, withstand a load of:

.1 4 times the mass of its full complement of person and equipment, at an ambient temperature and a stabilized liferaft temperature of 20 + 3 degree C with all relief valves inoperative; and

.2 1.1 times the mass of its full complement of person and equipment at an ambient temperature and a stabilized liferaft temperature of -30 degree C with all relief valves operative.

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

10. Additional equipment for inflatable liferafts

10.1 In addition to the equipment required by regulation 9.5, every inflatable liferaft shall be provided with:

.1 one repair outfit for repairing punctures in buoyancy compartments;

.2 one topping-up pump or bellows.

10.2 The knives required by regulation 9.5.1.2 shall be safety knives.

Regulation 11 - Rigid liferafts

1 Rigid liferafts shall comply with the requirements of regulation 38 and, in addition, shall comply with requirements of this regulation.

2 Construction of rigid liferafts

2.1 The buoyancy of the liferaft shall be provided by approved inherently buoyant material placed to the periphery of the liferaft. The buoyant material shall be fire-retardant or be protected by fire-retardant covering.

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

3. Carrying capacity of rigid liferafts

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

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 the greatest whole number obtained by dividing 0.372 the horizontal cross-sectional area of the liferaft, measured in square meters; or

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 equipment.

4. Access into rigid liferafts

4.1 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 davit-launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite to the bowsing lines and embarkation facilities.

4.2 Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be situated not less than 0.4 m below the liferaft's light waterline.

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

5. Stability of rigid liferafts

5.1 Unless the liferaft is capable of operating safety 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.

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

6. Rigid liferaft

6.1 The liferaft shall be fitted with an efficient painter. The breaking strength of the painter system. Including its means of attachment to the liferaft, except the weak link required by regulation 9.6, shall be not less than 10.0 k N for liferafts permitted to accommodate nine persons or more, and not less than 7.5 kn for any other liferaft.

6.2 A manually controlled lamp visible on a dark night with a clear atmosphere at a distance at least 2 miles for a period of not less than 12h shall be fitted to the top of the liferaft canopy. If the light is a flashing light it shall flash at rate of not less than 50 flashes per minute for the first 2 h of operation of the 12h operating period. The lamp shall be powered by a sea-activated cell or a dry chemical cell and shall light automatically when the liferaft canopy is set in place. The cell shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft.

6.3 A manually controlled lamp shall be fitted inside the liferaft, capable of continuous operation for a period of at least 12 h. It shall light automatically when the canopy is set in place and be of sufficient intensity to enable reading of survival and equipment instructions.

7. Markings on rigid liferafts

The liferafts shall be marked with:

.1 name and port of registry of the ship to which to belongs;

.2 maker's name or trade mark;

.3 serial number;

.4 name of approving authority;

.5 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;

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.6 SOLAS;

.7 type of emergency pack enclosed;

.8 length of painter;

.9 maximum permitted height of stowage above waterline (drop-test height);

.10 launching instructions

8. Davit-launched rigid liferafts

In addition to the above requirements, a rigid liferaft for use with an approved launching appliance shall, when suspended from its lifting hook or bridle, withstand a load of four times the mass of its full complement of persons and equipment.

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