

tubes of the liferaft, at least one inspection of the finished liferaft when fully inflated, and as many other inspections as are necessary to determine that the liferaft—

(1) Is constructed by the methods and with the materials specified in the plans;

(2) Passes the applicable inspections and tests required by §160.151-31; and

(3) Conforms with the manufacturer's plans.

(b) The manufacturer shall submit the independent laboratory's inspection report to the Commandant for review.

(c) If, after review of the inspection report of the independent laboratory, the Commandant notifies the manufacturer that the liferaft is in compliance with the requirements of this subpart, the manufacturer may proceed with the approval tests required under §§160.151-27 and 160.151-29.

(d) The manufacturer shall notify the cognizant OCMI of where the approval tests required under §§160.151-27 and 160.151-29 will take place and arrange with the OCMI a testing schedule that allows for a Coast Guard inspector to travel to the site where the testing is to be performed.

(e) The manufacturer shall admit the Coast Guard inspector to any place where work or testing is performed on inflatable liferafts or their component parts and materials for the purpose of—

(1) Assuring that the quality-assurance program of the manufacturer is satisfactory;

(2) Witnessing tests; and

(3) Taking samples of parts or materials for additional inspections or tests.

(f) The manufacturer shall make available to the Coast Guard inspector the affidavits or invoices from the suppliers of all essential materials used in the production of inflatable liferafts, together with records identifying the lot numbers of the liferafts in which such materials were used.

(g) On conclusion of the approval testing, the manufacturer shall comply with the requirements of §159.005-9(a)(5) of this chapter by submitting the following to the Commandant:

(1) The report of the prototype testing prepared by the manufacturer. The

report must include a signed statement by the Coast Guard inspector who witnessed the testing, indicating that the report accurately describes the testing and its results.

(2) The final plans of the liferaft as built. The plans must include—

(i) The servicing manual described in §160.151-37;

(ii) The instructions for training and maintenance described in §§160.151-59 and 160.151-61, respectively;

(iii) The final version of the plans required under §160.151-11(b), including—

(A) Each correction, change, or addition made during the construction and approval testing of prototypes;

(B) Sufficient detail to determine that each requirement of this subpart is met;

(C) Fabrication details for the inflatable liferaft, including details of the method of making seams and joints; and

(D) Full details of the inflation system.

(3) A description of the quality-control procedures that will apply to the production of the inflatable liferaft. These must include—

(i) The system for checking material certifications received from suppliers;

(ii) The method for controlling the inventory of materials;

(iii) The method for checking quality of seams and joints; and

(iv) The inspection checklists used during various stages of fabrication to assure that the approved liferaft complies with the approved plans and the requirements of this subpart.

[CGD 85-205, 62 FR 25547, May 9, 1997; 62 FR 35392, July 1, 1997]

§ 160.151-15 Design and performance of inflatable liferafts.

To satisfy the requirements of the regulations of SOLAS indicated in §160.151-7, each inflatable liferaft must meet the following requirements of this section:

(a) *Workmanship and materials (Regulation III/30.2.1)*. Each liferaft must be constructed of the following types of materials meeting MIL-C-17415E, or materials accepted by the Commandant as equivalent or superior—

(1) Type 2, Class B, for the canopy;

(2) Type 8 for seam tape;

(3) Type 11 for the inflatable floor; and

(4) Type 16, Class AA, for all other inflatable compartments and structural components.

(b) *Seams (Regulation III/30.2.1)*. Each seam must be at least as strong as the weakest of the materials joined by the seam. Each seam must be covered with tape where necessary to prevent lifting of and damage to fabric edges.

(c) *Protection from cold inflation-gas (Regulation III/30.2.1)*. Each inflatable compartment must be provided with a protective liner or baffling arrangement at the inflation-gas inlet, or other equally effective means to prevent damage from exposure to cold inflation-gas.

(d) *Compatibility of dissimilar materials (Regulation III/30.2.4)*. Where dissimilar materials are combined in the construction of a liferaft, provisions must be made to prevent loosening or tightening due to differences in thermal expansion, freezing, buckling, galvanic corrosion, or other incompatibilities.

(e) *Color (Regulation III/30.2.6)*. The primary color of the exterior of the canopy must be vivid reddish orange (color number 34 of NBS Special Publication 440), or a fluorescent color of a similar hue.

(f) *Retroreflective material (Regulation III/30.2.7)*. Each inflatable liferaft must be marked with Type I retroreflective material approved under part 164, subpart 164.018, of this chapter as complying with SOLAS. The arrangement of the retroreflective material must comply with IMO Resolution A.658(16).

(g) *Towing attachments (Regulation III/38.1.4)*. Each towing attachment must be reinforced strongly enough to withstand the towing strain, and marked to indicate its function.

(h) *Weight (Regulation III/38.2.2)*. The weight of the liferaft including its container and equipment may not exceed 185 kg (407.8 lb), unless the liferaft is intended for launching into the water directly from its stowed position using an inclined or hand-tilted rack, or is served by a launching appliance approved by the Commandant under approval series 160.163.

(i) *Lifelines (Regulation III/38.3.1)*. Each lifeline must be made of nylon tubular webbing with a minimum diame-

ter of 14 mm (9/16-inch), rope with a minimum diameter of 10 mm (3/8-inch), or equivalent. Each lifeline-attachment patch must have a minimum breaking strength of 1.5 kN (350 lb) pull exerted perpendicular to the base of the patch. Each bight of an exterior lifeline must be long enough to allow the lifeline to reach to the waterline of the liferaft when it is afloat.

(j) *Painter length (Regulation III/38.3.2)*. The length of the liferaft painter shall be not less than 10 meters (33 feet) plus the liferaft's maximum stowage height, or 15 meters (49 feet), whichever is greater.

(k) *Painter system (Regulation III/38.6.1)*. The painter protruding from the liferaft container must be inherently resistant, or treated to be resistant, to deterioration from sunlight and salt spray, and resistant to absorption and wicking of water.

(l) *Inflation cylinders (Regulation III/39.2.3)*. Each compressed-gas inflation cylinder within the liferaft must meet the requirements of §147.60 of this chapter, and be installed so that—

(1) Slings and reinforcements of sufficient strength retain the inflation cylinders in place when the liferaft is dropped into the water from its stowage height and during inflation; and

(2) The painter and the inflation cylinders of the liferaft are linked to start inflation when the painter is pulled by one person exerting a force not exceeding 150 N (34 lb).

(m) *Boarding ladders (Regulation III/39.4.2)*. The steps of each boarding ladder must provide a suitable foothold.

(n) *Canopy lamps (Regulation III/39.6.2)*. The exterior liferaft canopy lamp must be approved by the Commandant under approval series 161.101.

(o) *Containers (Regulation III/39.7.1)*. Each container for packing liferafts—

(1) Must include a telltale made with a seal-and-wire, or equivalent, method for indicating whether the liferaft has been tampered with or used since packing;

(2) Must be designed so that the liferaft breaks free of the container when inflation is initiated, without the need to manually open or remove any closing arrangement;

(3) Must have an interior surface smooth and free from splinters, barbs, or rough projections;

(4) Must be of rigid construction where the liferaft is intended for float-free launching or for exposed stowage on deck;

(5) If rigid, must be designed to facilitate securing the inflatable liferaft to a vessel to permit quick release for manual launching;

(6) If constructed of fibrous-glass-reinforced plastic, must be provided with a means to prevent abrasion of the liferaft fabric, such as by using a gel-coated interior finish of the container, enclosing the liferaft in an envelope of plastic film, or equivalent means; and

(7) Except as provided in paragraph (o)(4) of this section, may be of fabric construction. Each container of fabric construction must be made of coated cloth, include carrying handles and drain holes, and be adaptable to stowage and expeditious removal from lockers and deck-mounted enclosures adjacent to liferaft-launching stations. The weight of a liferaft in a fabric container including its container and equipment may not exceed 100 kg (220 lb).

[CGD 85-205, 62 FR 25547, May 9, 1997, as amended by USCG-1998-4442, 63 FR 52192, Sept. 30, 1998]

§ 160.151-17 Additional requirements for design and performance of SOLAS A and SOLAS B inflatable liferafts.

To satisfy the requirements of the indicated regulations of SOLAS, each SOLAS A and SOLAS B inflatable liferaft must be manufactured in accordance with §§ 160.151-7 and 160.151-15, and must comply with the following additional requirements:

(a) *Stability (Regulation III/39.5.1)*. (1) Each liferaft with a capacity of more than 8 persons must have a waterplane of circular or elliptical shape. A hexagonal, octagonal, or similar outline approximating a circular or elliptical shape is acceptable.

(2) Each liferaft manufactured under this subpart must have water-containing stability appendages on its underside to resist capsizing from wind and waves. These appendages must meet the following requirements:

(i) The total volume of the appendages must not be less than 220 liters (7.77 ft³) for liferafts approved to accommodate up to 10 persons. The volume of an appendage is calculated using the bottom of the lowest opening in an appendage as the height of the appendage, and by deducting the volume of any objects inside the appendage. No opening designed to close as water is forced out of an appendage is an opening for the purpose of this calculation.

(ii) The total volume of the appendages for liferafts approved to accommodate more than 10 persons must be not less than $20 \times N$ liters ($0.706 \times N$ ft³), where N = the number of persons for which the liferaft is approved.

(iii) The appendages must be securely attached and evenly distributed around the periphery of the exterior bottom of the liferaft. They may be omitted at the locations of inflation cylinders.

(iv) The appendages must consist of at least two separate parts so that damage to one part will permit at least half of the required total volume to remain intact.

(v) Openings in or between the appendages must be provided to limit the formation of air pockets under the inflatable liferaft.

(vi) The appendages must be designed to deploy underwater when the liferaft inflates, and to fill to at least 60 percent of their capacity within 25 seconds of deployment. If weights are used for this purpose, they must be of corrosion-resistant material.

(vii) The primary color of the appendages must be vivid reddish orange (color number 34 of NBS Special Publication 440), or a fluorescent color of a similar hue.

(b) *Boarding ramp (Regulation III/39.4.1)*. The boarding ramp must have sufficient size and buoyancy to support one person weighing 100 kg (220 lb), sitting or kneeling and not holding onto any other part of the liferaft.

(c) *Marking (Regulation III/39.8)*. Means must be provided for identifying the liferaft with the name and port of registry of the ship to which it is to be fitted, so that the identification can be