Guard District in which the mechanical disengaging apparatus is to be built, shall be notified in writing when fabrication is to commence. An inspector will be assigned to supervise the construction in accordance with the plans and upon completion, conduct the tests required by §160.033–4.

(c) At the time that the tests are successfully completed, the manufacturer shall present to the inspector four corrected copies of the plans noted in paragraph (a) of this section, including any corrections, changes, or additions which may have been found necessary during construction or testing. If the manufacturer desires more than one set of approved plans, additional copies shall be submitted at that time.

(d) Upon receipt of corrected drawings and satisfactory test report, the Commandant will issue a certificate of approval. No change shall be made in the design or construction without first receiving permission of the Commandant via the Commander of the Coast Guard District in which the mechanical disengaging apparatus is built.

[CGFR 49–18, 14 FR 5113, Aug. 17, 1949]

Subpart 160.035—Lifeboats for Merchant Vessels

SOURCE: CGFR 65–9, 30 FR 11467, Sept. 8, 1965, unless otherwise noted.

§160.035–1 Applicable specifications.

(a) *Specifications.* The following specifications, of the issue in effect on the date lifeboats are manufactured form a part of this subpart.

(1) Standards of ASTM:

ASTM A 36/A 36M–97a, Standard Specification for Carbon Structural Steel—160.035–3

ASTM A 653/A 653M–98, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process—160.035–3

(2) Military specifications:

MIL-P-18066—Plywood, Ship and Boat Construction.

MIL-Y-1140—Yarn, Cord, Sleeving, Cloth and Tape—Glass.

MIL-M-15617—Mats, Fibrous Glass, For Reinforcing Plastics.

MIL-R-7575—Resin, Polyester, Low-Pressure Laminating.

MIL-P-40619—Plastic Material, Cellular Polystyrene.

MIL-P-17549—Plastic Laminates, Fibrous Glass Reinforced, Marine Structural.

MIL-P-19644—Plastic Foam, Molded Polystyrene (Expanded Bead Type).

MIL-C-19663—Cloth, Glass, Woven Roving For Plastic Laminate.

MIL-R-21607—Resins, Polyester, Low Pressure Laminating, Fire Retardant.

MIL-P-21929—Plastic Material, Cellular Polyurethane, Rigid, Foam-In-Place, Low Density.

(3) Federal specifications:

TT-P-59—Paint, Ready-Mixed, International Orange.

(4) Federal test method standard:

406—Plastics: Method of Testing.

(5) Federal Communications Commission:

47 CFR part 83, Rules Governing Stations on Shipboard in the Maritime Service.

(6) Coast Guard specifications:

160.033—Mechanical Disengaging Apparatus (For Lifeboats).

160.034—Hand Propelling Gear (For Life boats).

161.006—Searchlights, Motor Lifeboat.

(b) *Copies on file.* Copies of the specifications and rules referred to in this section shall be kept on file by the manufacturer, together with the approved plans and certificate of approval. The Coast Guard Specifications may be obtained upon request from the Commandant. United States Coast Guard Headquarters, Washington, DC 20226. You may purchase the standards of ASTM from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959. The Military Specifications may be obtained from the Commanding Officer, Naval Supply Depot, 5801 Tabor Avenue, Philadelphia, Pa. 19120. The Federal Communications Commission's Rules and Regulations may be obtained from the Federal Communications Commission, Washington, DC 20554. Federal Specifications and Standards may be obtained from the General

Services Administration, Business Service Center, Washington, DC 20407.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 72–133R, 37 FR 17039, Aug. 24, 1972; USCG–1999–5151, 64 FR 67184, Dec. 1, 1999]

§ 160.035–2 General requirements for lifeboats.

(a) The requirements of this subpart apply to all new construction. Lifeboats approved and in use prior to the regulations in this subpart may be continued in service if in satisfactory condition.

(b) All lifeboats must be properly constructed and shall be of such form and proportions that they shall be readily maneuverable, have ample stability in a seaway, and sufficient freeboard when fully loaded with their full complement of persons and equipment. All lifeboats shall be capable of maintaining positive stability when open to the sea and loaded with their full complement of persons and equipment. All lifeboats must be open boats with rigid sides having internal buoyancy only. Lifeboats with a rigid shelter may be approved, provided that it may be readily opened from both inside and outside, and does not impede rapid embarkation and disembarkation or the launching and handling of the lifeboat.

(c) Lifeboats may be constructed of steel, aluminum, fibrous glass reinforced plastic (FRP), or other materials receiving specific approval: *Provided*, That, the weight of the fully equipped and loaded lifeboat shall not exceed 44,800 pounds, and the carrying capacity calculated in accordance with § 160.035–9 of this specification shall not exceed 150 persons.

(1) The thwarts, side benches and footings of lifeboats shall be painted or otherwise colored international orange in accordance with Federal Specification TT-P-59. The area in way of the red mechanical disengaging gear control lever, from the keel to the side bench, shall be painted or otherwise colored white, to provide a contrasting background for the lever. This band of white should be approximately 12 inches wide depending on the internal arrangements of the lifeboat.

(d) For the purpose of calculations and conducting tests, the weight of the persons shall be taken at 165 pounds each.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 95–028, 62 FR 51211, Sept. 30, 1997]

§ 160.035–3 Construction of steel oar-propelled lifeboats.

(a) *Type.* Lifeboats shall have rigid sides and be fitted with internal buoyancy so arranged that the boats will float in the flooded condition when fully loaded with persons and equipment. The capacity of an oar-propelled lifeboat is limited to a maximum of 59 persons. Lifeboats designed to carry 60, but not more than 100, persons shall be either hand-propelled or motor-propelled. Lifeboats designed to carry more than 100 persons shall be motor-propelled, except that a lifeboat designed to carry more than 100 persons may be hand-propelled if it is a replacement for a previously approved hand-propelled lifeboat.

(b) *Materials.* (1) Plating for shell, floors, air tanks, etc., must be in accordance with ASTM A 653, Coating Designation G90 (incorporated by reference, see § 160.035–1). The bend test required by these specifications must be made after the galvanizing or other anticorrosive treatment has been applied.

(2) Rivets and rolled or extruded shapes such as keel, stem, sternpost, gunwales, etc., shall be made by the open-hearth or electric furnace process in accordance with ASTM Standard Specification A 36 (incorporated by reference, see § 160.035–1). Consideration will be given to the use of other steels having equivalent strength where longitudinal cold forming is necessary.

(c) *Riveting.* (1) Riveting of the shell plating to the keel, stem, and sternpost shall be button head rivets, staggered with not less than 12 rivets to the foot. The distance from the edge of the plate to the centers of the rivets in the nearest row shall be not less than ½ inch nor more than ¾ inch. Rivets connecting the shell to the gunwale shall be spaced not more than 3 inches on centers. The size of the rivets for connecting the shell plating to the keel, stem, sternpost, and gunwale shall be

¼-inch diameter for boats 28 feet and under and 5/16-inch diameter for boats over 28 feet.

(2) The connection of the floors to the shell shall be a single row of rivets not less than 3/16 inch in diameter and spaced not more than 3 inches on centers.

(d) *Welding.* Welding may be substituted for riveting in any location. It shall be performed by welders qualified by the U.S. Coast Guard, American Bureau of Shipping, or U.S. Navy Department, and only approved electrodes shall be used. Details of the joints shall be indicated on the construction drawings submitted for approval.

(e) *Gunwale braces.* (1) The gunwale braces shall be bolted to the thwarts with at least two carriage bolts of a size not less than that noted in table 160.035–3(e)(1) and riveted or welded to the gunwales. Where riveted to the gunwale, at least two rivets of a size not less than that noted in table 160.035–3(e)(1) shall be used.

TABLE 160.035–3(e)(1)

Length of lifeboat	Brace size (inches)	Bolts and rivets diameter (inch)
22 feet and under	3×¼	5/16
Over 22 feet and not over 28.	3×5/16	3/8
Over 28 feet	3×3/8	7/16

(2) Bracket type gunwale braces will be given special consideration.

(f) *Seats.* (1) The thwarts, side benches, and end benches shall be of fir, yellow pine, fibrous glass reinforced plastic (FRP), or approved equivalent.

(2) The edges of all thwarts, side, and end benches shall be well rounded.

(3) Suitable foot rests shall be furnished at a distance of between 17 and 20 inches below the thwarts and side benches. This may be accomplished by raising the footings from the bottom of the boat.

(4) The leading edge of the thwart or end bench shall be located a minimum of 3 inches and a maximum of 6 inches distance from the Rottmer release gear.

(g) *Stretchers.* Stretchers of sufficient size and strength shall be fitted in suitable positions for rowing.

(h) *Disengaging apparatus.* (1) Connections for the disengaging apparatus shall have a minimum factor of safety of six.

(2) For construction and capacity of disengaging apparatus, see subpart 160.033.

(i) *Plugs.* Each lifeboat shall be fitted with an automatic plug so designed and installed as to insure complete drainage at all times when the boat is out of the water. The automatic plug shall be provided with a cap attached to the lifeboat by a suitable chain. The location of drain plug is to be marked on the vertical surface in the vicinity of the plug below the side bench with the word ''plug'' in 3-inch white letters and with an arrow pointing in the direction of the drain plug.

(j) *Protection against corrosion.* (1) All steel or iron entering into the construction of lifeboats shall be galvanized by the hot dipped process. All fabricated pieces or sections are to be galvanized after fabrication. Other methods of corrosion prevention will be given special consideration.

(2) Where welded construction is employed, the material shall be galvanized after welding unless impractical to do so in which case consideration will be given to equivalent protection.

(3) Provisions shall be made to obtain a satisfactory bond between the metal and the paint.

(k) *Rudders.* (1) Each lifeboat shall be fitted with a rudder and tiller. The rudder shall be fitted with a ½-inch diameter manila lanyard of such length as to permit the rudder to be shipped without untying the lanyard.

(2) A suitable hinged or pivoted tiller shall be provided.

(3) Rudder stops shall be provided to limit the rudder angle to approximately 45 degrees each side of the centerline.

(l) *Buoyancy tanks.* (1) All lifeboats shall have inherent buoyancy, or shall be fitted with buoyancy tanks or other equivalent noncorrodible buoyancy units, which shall not be adversely affected by oil or oil products, sufficient to float the boat and its equipment when the boat is flooded and open to the sea. An additional volume of buoyancy, or buoyancy units, equal to at least one-tenth the cubic capacity of the lifeboat shall be provided.

(2) At least 50 percent of the buoyancy shall be located along the sides of the boat and shall be so located that the boat will be on even keel when flooded.

(3) The tops of the buoyancy tanks or buoyancy units shall be protected by the side benches or other suitable means. The construction shall be such that water will not collect on the tops of the tanks.

(4) *Built-in buoyancy tanks.* Each built-in buoyancy tank shall be filled with buoyancy material. The amount of material required shall be determined by the flooding test in accordance with §160.035–11(b)(2). The buoyancy materials used shall meet the requirements set forth for core materials as follows:

Core	Polystyrene	MIL-P-40619
		MIL-P-19644
	Polyurethane	MIL-P-21929

(m) *Equipment stowage.* (1) Provision lockers, water tanks, and special equipment lockers shall be watertight and so designed and located as to fit under the side benches, end benches, or footings without projecting into the accommodation spaces of the lifeboat. In special cases, stowage under the thwarts will be permitted. Standard ¼ inch pipe size testing nipples shall be fitted to all such lockers or tanks.

(2) Water tanks shall be constructed of at least 18 USSG material. An opening with a dogged type cover shall be provided for removal of water cans. This opening shall be at least 7 inches in diameter, but in any case shall be of sufficient size that all water cans can be removed. In addition, built-in water tanks shall have an opening at least 13 inches in diameter with a bolted cover for the purpose of inspection and maintenance. A 2-inch diameter fill cap shall be installed for the purpose of storing rain water. A standard ¼-inch pipe size drainage nipple with hexagonal cap shall be fitted in the bottom of the tank in an accessible location and may be used for air testing the water tank.

(n) *Grab rails.* Grab rails shall be substantially attached to each lifeboat below the turn of the bilge and extend approximately one-half of the length of the lifeboat on each side. The ends of the grab rails shall be faired to prevent fouling and all connections of the rails to the lifeboat shall be made by riveting the palms of the brackets to a small plate and riveting the plate to the shell. To prevent rupture of the shell if the grab rail is carried away, more rivets shall be used in attaching the plate to the shell than in fastening the bracket to the plate. The clearance between the grab rail pipe and the hull shall be at least 1½ inches. The connections of the rails to a fibrous glass reinforced plastic lifeboat hull will be given special consideration.

(o) *Hand rails.* All lifeboats intended for use in ocean and coastwise service shall be fitted with hand rails approximately 18 inches in length, constructed and attached to the lifeboat in the same manner as the grab rails required by paragraph (n) of this section. The clearance between the hand rail pipe and the hull shall be at least 1½ inches. The hand rails shall be located approximately parallel to and at both ends of the grab rails and spaced midway between the grab rail and the gunwale and midway between the grab rail and the keel on both sides of the lifeboat provided that, when the distance from grab rail to gunwale or to the keel exceeds 4 feet, two hand rails shall be fitted so as to provide equal spacing. In no case shall the hand rails project beyond the widest part of the boat. Recessed hand rails or other alternate arrangements will be given consideration.

[CGD 95–028, 62 FR 51211, Sept. 30, 1997, as amended by USCG–1998–4442, 63 FR 52191, Sept. 30, 1998; USCG–1999–5151, 64 FR 67184, Dec. 1, 1999; USCG–2000–7790, 65 FR 58463, Sept. 29, 2000]

§ 160.035–5 Construction of steel motor-propelled lifeboats with and without radio cabin.

(a) *General provisions applicable to all motor-propelled lifeboats.* (1) A motor-propelled lifeboat, carried as part of the lifesaving equipment of a vessel, whether required or not, shall comply with all the requirements for an oar-propelled lifeboat, and in addition,

shall have sufficient additional buoyancy to compensate for the weight of the engine and other equipment.

(2) The engine shall be enclosed in a suitable engine box which shall be watertight with the exception of the top which may be weathertight. If the engine box is made of material other than steel or aluminum, such as fibrous glass reinforced plastic, it shall be made of fire retardant material. The top of the engine box shall be fitted with a screwdown mushroom vent. The engine box shall be fitted with a suitable drain. An engine starting instruction plate shall be permanently attached to the engine box. There shall be ample space between the engine and the engine box to permit proper maintenance and removal of engine accessories when necessary. If the internal arrangements of the engine in the engine box do not permit this, then suitable watertight hand-hole plates shall be installed in the vicinity of these accessories. The location of these plates and the accessibility to the accessories shall be to the satisfaction of the marine inspector. The marine inspector may require the removal of any accessory through these hand-hole plates that he may deem necessary to establish that it is of proper size and location.

(3) Fuel tanks must be constructed of steel, fibrous glass reinforced plastic or other approved equivalent. Fuel tanks must be adequately supported and securely fastened inside the lifeboat to prevent any movement. Fuel tanks must have no openings in the bottom, sides or ends. Openings for fill, vent and feed pipes must be on the top surface of the tanks. The vent size for tanks of 50 gallons or less must not be less than ¼-inch O.D. tubing. Vents for larger tanks will be given special consideration. The access openings in the thwarts for the fill tank cap must have a flush cover or the top of the cap must be flush with the top of the thwart. Fuel feed pipes must be provided with a shutoff valve at the tank, where it is readily accessible and its location marked. Tanks must be tested by a static head above the tank top of ten feet of water without showing leakage or permanent deformation. A graduated measure stick or other means must be provided to determine the amount of the fuel in the tank.

(i) Steel diesel oil fuel tanks shall have a thickness of not less than 12 USSG and shall not be galvanized on the inside; however, the outside of such tanks shall be so treated as to obtain a corrosion resistance approximately equivalent to hot-dip galvanizing. Swash plates shall be fitted in tanks over 30 inches in length.

(ii) Fibrous glass reinforced plastic diesel oil fuel tanks shall have a thickness of not less than 0.187 inch. The resins used shall be of a fire retardant type and shall qualify under military specification MIL-R-21607. The mechanical properties of the tank shall not be less than Grade No. 4 of military specification MIL-P-17549. Mat, woven roving and 1000th cloth shall be used. Tank laminates shall not be constructed exclusively with fibrous glass fabrics. An increment of random oriented, chopped fibrous glass reinforcement is deemed necessary to prevent porosity. An ounce and a half per square foot is considered minimum. Inclusion of fabrics in low pressure laminates are recommended to impart satisfactory containment, strength, and rigidity. For maximum strength, tank surfaces should be cambered and curved wherein practical. Fittings shall be made of nonferrous metal and securely bonded to the tank with epoxy resin. A fibrous glass reinforced plate or boss of the same thickness as the tank proper and 1½ times the outside dimensions of the fitting shall be used to strengthen the openings for fuel, fill and vent lines. Tanks shall be constructed of a minimum possible number of sections. Where two parts are joined there shall be a minimum of 2-inch overlap. Tanks exceeding 18 inches in any horizontal dimension shall be fitted with vertical baffle plates at intervals not exceeding 18 inches. Baffle plate flanges shall be integral and shall be of the same strength and stiffness as the tank wall. Flanges shall be bonded in place with mat and fabric. A suitable striking plate shall be installed at the bottom of the fuel measurement and fill pipe line. The laminate may be increased in thickness, in the way of the fill pipe. The cover of the fuel tank

shall be through bolted as well as bonded. All fuel tanks shall bear legible, permanent labels, conveniently located for visual inspection, signifying full compliance with these specifications and including the following:

(*a*) Manufacturer's name and address.

(*b*) Date of construction and the inspector's initials.

(*c*) Wall thickness (in decimals of one inch) and capacity U.S. gallons.

(*d*) Material of construction: Polyester—Glass.

(4) Propeller shafting shall be of bronze or other suitable corrosion resistant materials. Fittings, pipes, connections, etc., shall be of high standard and good workmanship, and installed in accordance with good marine practice. The exhaust manifold shall be suitably insulated.

(5) All engines shall be permanently installed and shall be equipped with an efficient cranking system. This system shall be one that can be operated by hand, such as a hand cranking, hydraulic cranking, or inertia cranking system, acceptable to the Commandant. If an electric cranking system consisting of an electric starter motor, generator and batteries are fitted, it shall be in addition to the required acceptable cranking system, the battery or batteries shall be installed within the watertight engine box. The battery box shall be so constructed as to retain the battery in position when the lifeboat is in a seaway. The battery box shall be 1 inch longer and 1 inch wider than the battery and shall be lined with 4-pound lead flashed up 3 inches on the sides and ends. The battery box may be made of fibrous glass reinforced plastic using a fire-retardant epoxy resin. This type of battery box will not be required to be lead lined.

(i) *Engines.* The engine shall be a reliable, marine, compression-ignition type and shall be capable of propelling the fully equipped and loaded lifeboat at a sustained speed of not less than 6 knots through smooth water over a measured course. Provision shall be made for going astern. Sufficient fuel for 24 hours continuous operation at 6 knots shall be provided. The engine used in approved lifeboats shall be capable of being started without the use of starting aids at a temperature of 20 °F., by the use of an acceptable cranking system. If water cooled, the engine shall be equipped with a closed fresh water cooling system. This system shall be cooled by a secondary medium, such as a water cooled heat exchanger.

(ii) The hydraulic cranking system shall be a self-contained system which will provide the required cranking forces and engine r.p.m. as recommended by the engine manufacturer. The capacity of the hydraulic cranking system shall provide not less than six cranking cycles. Each cranking cycle shall provide the necessary number of revolutions at the required r.p.m. to the engine to meet the requirements of carrying its full rated load within twenty seconds after cranking is initiated with intake air and hydraulic cranking system at 20 °F. Capacity of the hydraulic cranking system sufficient for three cranking cycles under the above conditions, shall be held in reserve and arranged so that the operation of a single control by one person will isolate the discharged or initially used part of the system and permit the reserve capacity to be employed. The installation of an engine-driven pump is recommended but is not required. The hydraulic cranking shall meet the requirements prescribed in 46 CFR 58.30 and 46 CFR 61.10–5 of Subchapter F, Marine Engineering Regulations. The hydraulic system when used in lifeboats as engine cranking systems shall be leak-tested at its operating pressure after installation.

(6) The following tools to perform emergency repairs and ordinary servicing shall be provided:

One 12-ounce ball peen hammer.
One screwdriver with 6-inch blade.
One pair of 8-inch slip-joint pliers.
One 8-inch adjustable end wrench.
One 12-inch adjustable end wrench.
One Phillips or cross-head screwdriver with a 6-inch blade.

(b) *Steel motor-propelled lifeboats without radio cabin or searchlight (Class 1).* (1) The engine shall be a reliable marine type and shall be in accordance with paragraph (a)(5)(i) of this section. If a starting battery is supplied, the engine shall be fitted with a marine type

generator or alternator insulated as required by AIEE rules for marine service capable of charging the starting batteries. The battery box shall be in accordance with paragraph (a)(5) of this section.

(c) *Steel motor-propelled lifeboats without radio cabin but with searchlight (Class 2).* (1) The engine shall be of a reliable marine type and shall be in accordance with paragraph (a)(5)(i) of this section. The lifeboat shall be equipped with a searchlight constructed in accordance with subpart 161.006 of this subchapter Q (Specifications). The engine shall be fitted with a marine type generator or alternator insulated as required by AIEE rules for marine service capable of charging the batteries used for the searchlight as well as the starting batteries, if fitted. The battery box shall be in accordance with paragraph (a)(5) of this section.

(d) *Steel motor-propelled lifeboats with radio cabin and searchlight (Class 3).* (1) The engine shall be a reliable, marine type and shall be in accordance with paragraph (a)(5)(i) of this section. The engine shall be fitted with a marine type generator or alternator insulated as required by AIEE rules for marine service, capable of charging the batteries used for the radio and searchlight as well as the starting battery, if fitted.

(2) The radio and source of power for the radio and the searchlight shall be housed and protected from the elements by a suitable radio cabin. The entire installation shall comply with the requirements of the Federal Communications Commission, Rules Governing Stations on Shipboard in the Maritime Services. The radio cabin shall be of a size to contain the radio and source of power for the radio and searchlight, and the operator of the equipment. The top and sides of the radio cabin shall be watertight with the exception of the door which need not be watertight but shall be at least weathertight. The installation of the radio cabin shall take into consideration the concentration of weight in this area.

(3) The searchlight shall be of an approved type constructed in accordance with specification Subpart 161.006 of this subchapter and shall be securely mounted on top of the radio cabin.

(4) The batteries shall be installed in a box securely fastened inside the radio cabin. The battery box shall be in accordance with paragraph (a)(5) of this section.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 72–133R, 37 FR 17039, Aug. 24, 1972; CGD 73–116R, 39 FR 12747, Apr. 8, 1974]

§ 160.035–6 Construction of aluminum oar-, hand-, and motor-propelled lifeboats.

(a) *General.* Aluminum lifeboats shall comply with the general requirements for the construction and arrangement of steel lifeboats unless otherwise specified.

TABLE 160.035–6—ALUMINUM LIFEBOATS

Length of boat not over (feet)	Bar keel, stem and sternpost (inches)	Gunwales [1]		Shell plating (Brown and Sharpe gage) [2]											
				Independent air tanks				Built-in-air tanks							
				5052–H32		6061–T6		5052–H32				6061–T6			
	5086–H112/6061–T6	Angle bar (inches) 5086–H112/6061–T6	Flanged flat bar (inches) 5086–H112/6061–T6	Side	Bottom	Side	Bottom	Side	Bottom	Inner shell	Bulk-heads	Side	Bottom	Inner shell	Bulk-heads
12.0	2¾x¾	2¼x2x5/16	4x5/16	14	14	14	14	14	14	14	14	14	14	15	15
14.0	2¾x¾	2¼x2x5/16	4x5/16	14	14	14	14	14	14	14	14	14	14	15	15
16.0	2¾x¾	2½x2¼x5/16	4½x5/16	14	14	14	14	14	14	14	14	14	14	15	15
18.0	3x¾	2½x2¼x5/16	4½x5/16	14	14	14	14	14	14	14	14	14	14	15	15
20.0	3x1	2¾x2½x5/16	5x5/16	13	13	13	13	13	13	14	14	13	13	14	14
22.0	3x1	2¾x2½x5/16	5x5/16	12	12	12	12	13	12	14	14	13	13	14	14
24.0	3¼x1	2¾x2½x⅜	5x⅜	11	11	11	11	11	11	13	13	12	12	14	14
26.0	3½x1	2¾x2½x⅜	5x⅜	10	9	11	10	11	10	12	12	11	11	13	13
28.0	3¾x1	2¾x2½x⅜	5x⅜	9	8	10	9	10	9	12	12	11	10	13	13
30.0	4x1	3x2¾x⅜	5½x⅜	9	8	9	8	9	8	11	11	10	9	12	12
32.0	4x1	3x2¾x⅜	5½x⅜	8	7	9	8	9	8	11	11	10	9	12	12
34.0	4x1	3x2¾x⅜	5½x⅜	8	7	8	7	8	7	10	10	9	8	11	11
36.0	4x1	3x2¾x⅜	5½x⅜	7	6	8	7	8	7	10	10	9	8	11	11

[1] Extruded shapes having substantially the scantlings of the angle bar gunwale are permitted. Where extruded shapes are used, a nosing as per § 160.035–3(j) is not required provided the extruded shape has at its heel a generously rounded curve.

[2] Brown and Sharpe gage decimal values: 15 gage equals 0.05707, 14 gage equals 0.06408; 13 gage equals 0.07196; 12 gage equals 0.08081; 11 gage equals 0.09074, 10 gage equals 0.1019; 9 gage equals 0.1144; 8 gage equals 0.1285; 7 gage equals 0.1443, and 6 gage equals 0.1620.

(b) *Materials.* (1) Plating for shell, air tanks, etc., shall be as shown in Table 160.035–6.

(c) *Welding.* (1) Welding may be substituted for riveting in the following locations: Hoist plate to keel, disengaging gear grace plate to stem and sternpost, rudder attachment fitting to the sternpost, and the propeller shaft stern tube to the sternpost. When using 6061–T6 aluminum, the welded area is to be heat-treated and checked by X-ray to assure a satisfactory weld. When using 5086–H 112 aluminum, the welded area is to be checked by a nondestructive test method such as X-ray, ultrasonic waves or fluorescent materials, to assure a satisfactory weld. Other methods of checking aluminum welds will be given separate consideration. The welding shall be performed by a welder qualified by the U.S. Coast Guard, American Bureau of Shipping, or U.S. Navy Department, and only suitable electrodes shall be used. Details of the joints shall be indicated on the construction drawings submitted for approval.

(d) *Dissimilar metals.* (1) Where in the construction of aluminum lifeboats the use of dissimilar metals are employed such as, the installation of the mechanical disengaging gear, hand propelling gear, or engine, suitable insulation between the aluminum and these metals shall be used. Porous or absorbent materials shall not be used as insulating materials. Only non-porous materials such as plastics, rubber or neoprene base compounds, or micarta shall be used. Other suitable material will be given separate consideration. Fasteners used in joining dissimilar metals together shall be of the type that will minimize corrosion.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 95–028, 62 FR 51213, Sept. 30, 1997]

§ 160.035–8 Construction of fibrous glass reinforced plastic (F.R.P.), oar-, hand-, and motor-propelled lifeboats.

(a) *General requirements.* (1) Plastic lifeboats shall comply with the general requirements for the construction and arrangement of steel lifeboats, except that unless otherwise specified, materials, scantlings, methods of construction, fastenings, methods of attachment of component parts, and other specific construction details may be varied by the builder in order to produce a structurally sound boat meeting in every respect recognized standards of first class construction and one which will satisfactorily meet the performance requirements set forth in this subpart.

(2) Fibrous glass reinforced plastic lifeboats may be of the following categories of hull construction:

A—Single piece, outer hull construction.
B—Two piece, outer hull construction.
C—Single piece, inner hull construction.
D—Two piece, inner hull construction.
E—Multi-piece, inner hull construction.

(b) *Specific requirements*—(1) *Resin.* The resin used shall be of the fire retardant, nonair inhibited-type conforming to Class A of Military Specification MIL-R-21607 and Grade A, Class O of Military Specification MIL-R-7575, including tests after 1 year's weathering. In addition, the test panels shall be tested for continued conformance with Military Specification MIL-R-21607. All tests, including weathering of samples, shall be accomplished by an independent laboratory. Complete certification by the independent laboratory with test data shall be submitted to Coast Guard (CG-521) for acceptance. Class A resin shall be fire retardant without additives. Class B resins will be given consideration upon request. Class B resin shall be fire retardant with additives and shall meet the same test requirements as that for Class A resins. When Class B resin is used for the prototype lifeboat, additives for fire retardancy shall not be used in order to obtain a translucent laminate for inspection purposes. This prototype test lifeboat will not be stamped approved, nor will it be acceptable for merchant vessels. Whichever class of resin the manufacturer decides to use for his prototype lifeboat, shall be used in his production lifeboats. A note to this effect shall be included in his specifications and drawings for this particular size and type lifeboat.

(2) *Glass reinforcement.* The glass reinforcement used shall have good laminated wet strength retention and shall meet the appropriate military specification stated in this paragraph. Glass

cloth shall meet Military Specification MIL-Y-1140, Class C, form 4, No. 1000–150. Woven roving shall conform to Military Specification MIL-C-19663, Style 605–308 or Style 605–604. Other glass materials equivalent in strength, design, wet out, and efficiency will be given consideration upon request.

(3) *Laminate.* All exposed surfaces of the finished laminate shall present a smooth finish, and there shall be no protruding surface fibers, open voids, pits, cracks, bubbles or blisters. The laminate shall be essentially free from resin-starved or overimpregnated areas, and no foreign matter shall remain in the finished laminate. The entire laminate shall be fully cured and free of tackiness, and shall show no tendency to delaminate, peel, or craze in any overlay. The laminate shall not be released from the mold until a Barcol hardness reading of not less than 40–55 is obtained from at least 10 places on the nongel coated surface, including all interior inner and outer hull surfaces and built-in lockers. The mechanical properties of the laminate shall meet the requirements for a Grade 3 laminate as specified in Table I of Military Specification MIL-P-17549. Other grades will be given consideration on specific request. For the prototype boat of each design made by each manufacturer, the layup shall be made of unpigmented clear resins so that all details of construction will be visible for inspection and test panels representative of each prototype layup shall be tested in accordance with MIL-P-17549.

(4) *Weights of F.R.P. lifeboats.* (i) The variations in weight between the fibrous glass reinforced plastic in the prototype F.R.P. lifeboat and the fibrous glass reinforced plastic in the production F.R.P. lifeboat shall be within 5 percent. This weight shall be for the F.R.P. sections only and shall not include the weight of any hardware or equipment.

(ii) When assembling two similar sections as indicated by categories B and D of paragraph (a)(2) of this section, the weights of the matching F.R.P. pieces shall be within 5 percent of each other.

(iii) The recorded weights of the items indicated in paragraphs (b)(4) (i) and (ii) of this section shall be kept by the manufacturer, with each boat listed by size, type, and serial number.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 72–133R, 37 FR 17039, Aug. 24, 1972; CGD 82–063b, 48 FR 4782, Feb. 3, 1983; CGD 95–072, 60 FR 50467, Sept. 29, 1995; CGD 96–041, 61 FR 50733, Sept. 27, 1996; USCG–2009–0702, 74 FR 49237, Sept. 25, 2009]

§ 160.035–9 Cubic capacity of lifeboats.

(a) *Definitions.* The following definitions apply to the measurement of a lifeboat to determine its cubic capacity.

(1) *Length* (*L*). The length is the distance in feet from the inside of the plating or planking at the stem to the corresponding position at the stern. In the case of a boat with a square stern, the after terminus is the inside of the transom.

(2) *Breadth* (*B*). The breadth is the distance in feet over the plating or planking at the point where the breadth of the boat is greatest.

(3) *Depth* (*D*). The depth is the distance in feet amidships inside the plating from the top of the keel to the level of the gunwale. The depth used for calculating purposes shall not exceed 45 percent of the breadth.

(4) *Sheer.* Lifeboats shall have a sheer at each end at least equal to 4 percent of the length, and a sheer at the quarter points of at least 1 percent of the length. If less sheer is provided, the depth used to determine the cubic capacity shall be assumed to be reduced so as to achieve this minimum sheer.

(b) *Formula.* The cubic capacity shall be determined by the following formula:

$$L \times B \times D \times 0.64$$

In the case of lifeboats with unusual proportions, the Commandant may require that the cubic capacity be calculated by exact measurements from which the exact seating capacity may be determined.

(c) *Motor-propelled lifeboat.* The cubic capacity of a motor-propelled lifeboat shall be determined in the same manner as an oar-propelled lifeboat and then deducting from the gross volume, a volume equal to the engine box and accessories, and when carried, the

radio cabin, searchlight, and their accessories. The volume of such equipment extending above the sheer line need not be deducted.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 95–028, 62 FR 51213, Sept. 30, 1997]

§ 160.035–10 Number of persons allowed in lifeboats.

(a) The maximum number of persons for which the lifeboat may be rated is determined as noted in paragraphs (a)(1), (2), and (3) of this section. The smallest number obtained is the number to be used.

(1) The number of persons which a lifeboat shall be permitted to accommodate shall be equal to the greatest whole number obtained by dividing the capacity in cubic feet by the factor shown in Table 160.035–10(a). The net cubic capacity shall be determined by § 160.035–9(b).

TABLE 160.035–10(a)

Length in feet—		Factor
Of—	But less than—	
	18	14
18	20	13
20	22	12
22	24	11
24	Or over	10

(2) The number of persons permitted in the lifeboat shall not exceed the number for which seating space is provided as determined by drawing figures to scale of a size as noted in Figure 160.035–10(a)(2) on an arrangement plan of the lifeboat.

(3) The number of persons permitted in the lifeboat shall not exceed the number of persons wearing life preservers which can be seated in the lifeboat without interfering with the use of the oars or the operation of other propulsion equipment.

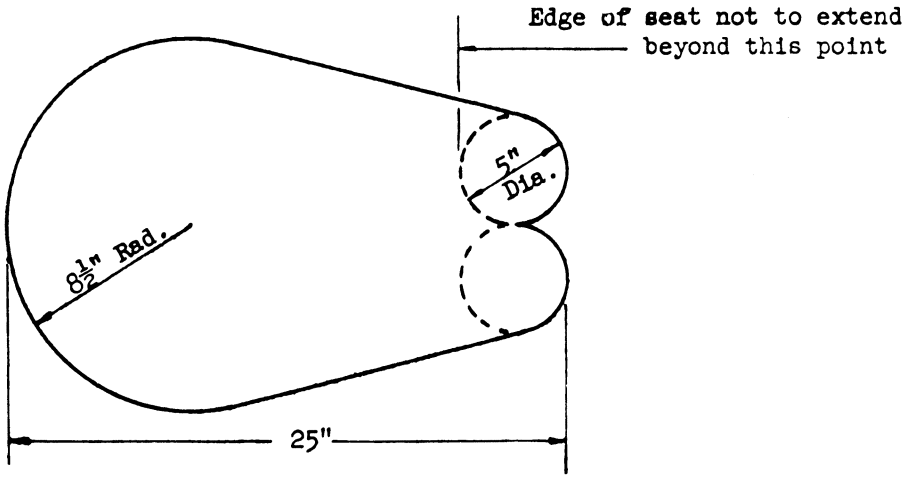

FIGURE 160.035–10(A)(2)

(b) [Reserved]

§ 160.035–11 Inspection and testing of lifeboats.

(a) *General.* Coast Guard marine inspectors shall be admitted to any place in the builder's factory where work is done on these lifeboats or component materials or parts. Lifeboats shall be inspected during the course of construction to determine that the arrangements and materials entering into the construction are in accordance with approved plans, and to insure that the workmanship is of good quality. Samples of materials entering into

construction may be taken by the marine inspectors for such tests as may be deemed necessary at any time there is any question as to suitability or adequacy of any material or arrangement.

(b) *Preapproval tests.* Before approval is granted to any design of lifeboat, the following tests shall be made by a marine inspector:

(1) *Strength test.* The light lifeboat shall be suspended by shackles at the bow and stern, or by means of the releasing gear, and the length, beam, and depth shall be measured. Weights shall then be added to equal the weight of the equipment, food, water, etc., and persons for which the boat is to be approved, and the length, beam, and depth measured. Additional weight shall then be added so that the suspended load is 25 percent greater than the weight of the fully equipped and loaded lifeboat and the measurements repeated. All weights shall then be removed and the measurements rechecked. There shall be no appreciable set as a result of this test.

(2) *Flooding test.* Lifeboats shall be flooded while open to the sea to determine the amount of buoyancy necessary to float the complete boat including releasing gear but with no equipment, provision lockers, water tanks, or fuel tanks aboard. If provision lockers, water tanks, and fuel tanks cannot be removed, they should be flooded or filled to the final waterline. Lifeboats fitted with watertight stowage compartments to accommodate individual drinking water containers shall have these individual containers aboard and placed in the stowage compartments which shall be sealed watertight during the flooding test. Ballast of equivalent weight and density should be substituted for the motor, shaft, propeller, radio battery, searchlight, etc., if they are to be installed.

(i) *Boats with independent buoyancy tanks or buoyancy units.* The estimated amount of buoyancy to just float the boat in this condition should be fitted symmetrically aboard the lifeboat, and then the boat flooded. If the tops of the gunwales at their lowest point do not clear the surface of the water, the buoyancy shall be increased as necessary. An additional volume of buoyancy, or buoyancy units, equal to at least one-tenth the cubic capacity of the lifeboat shall be provided.

(ii) *Boats with built-in buoyancy compartments.* When flood testing lifeboats with built-in buoyancy compartments weights shall be placed in the bottom of the lifeboat to counteract the buoyancy provided for the persons to be carried. The amount of weight required per person carried shall be as follows:

Materials	Weight per person (pounds)
Iron or steel	72
Lead	69
Concrete	110

Other impervious material may be used if more convenient. The weight per person required is determined from the formula

$$W = 63d \div d - 63$$

where d is the density of material in pounds per cubic foot (Sandbags should not be used for this purpose inasmuch as their weight under water is not readily predictable.) If the lifeboat weighted as above does not float with the gunwale at the lowest point just clear of the surface of the water, unit air tanks should be slipped beneath the thwarts until the gunwales do clear the surface of the water. The additional air tankage required shall be incorporated in the design of the lifeboat.

(3) *Seating capacity test.* The lifeboat shall be fully loaded with equipment, and in this condition the number of persons for which the lifeboat is to be approved shall be seated, in accordance with the seating plan required in § 160.035–14(a). All persons shall wear an approved life preserver and it shall be demonstrated by actual test that there is sufficient room to row the boat without interference.

(4) *Freeboard test.* Freeboards shall be measured to the low point of the sheer with the lifeboat in light condition with neither equipment nor persons aboard, and in the loaded condition with full equipment and persons aboard.

(5) *Stability test.* Upon the conclusion of the seating test, all persons on one side of the centerline shall disembark. The remaining people should sit upright and not move from their original positions. (Not less than one-half in

total number of persons should remain in the lifeboat.) Freeboard to the low point of sheer shall then be measured. This freeboard should, in general, be not less than 10 percent of the depth of the lifeboat.

(c) Motor-propelled lifeboats must pass the tests as required for an oar-propelled lifeboat in §160.035–3. In addition, speed tests over a measured course and fuel consumption tests on a time basis shall be made to determine that the fully loaded motor-propelled lifeboats can maintain a speed of 6 knots for all classes of motor-propelled lifeboats, and that for each class of motor-propelled lifeboat its fuel tanks carry sufficient fuel for at least 24 hours at 6 knots. A 4-hour endurance trial shall be conducted with the fully loaded lifeboat at the RPM attained in the speed test in order to insure that there is no overheating, undue vibration, or other condition which would warrant the belief that the lifeboat could not maintain its proper speed for 24 hours. The time consumed in conducting the speed and fuel consumption tests may be counted toward the 4-hour endurance test. It shall be demonstrated that all engines installed in motor lifeboats can be started by the acceptable cranking system installed with no previous warming up period.

(d) Hand-propelled lifeboats shall be subjected to the same tests as required for an oar-propelled lifeboat. In addition, a test shall be made to assure that the lifeboat can be satisfactorily maneuvered with the hand-propelling gear. A speed of at least three knots shall be achieved in both light and load condition over a measured course of not less than 1,000 feet.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 72–133R, 37 FR 17040, Aug. 24, 1972]

§160.035–12 Additional preapproval tests required for F.R.P. lifeboats.

(a) *General.* These tests are required in addition to the preapproval tests required for steel lifeboats in §160.035–11. The prototype boat of each size or design submitted will be required to perform satisfactorily in the following tests which will be made in the presence of a marine inspector.

(b) *Strength test.* The following tests described in this paragraph are in lieu of the strength test in §160.035–11(b)(1):

(1) *Suspension tests.* The light lifeboat shall be suspended freely from the releasing gear and the length, beam, and depth measured. Weights shall then be added to equal the weight of the equipment, food, water, and persons to be carried (see §160.035–11(b)(2)(ii)), and the length, beam, and depth measured. Additional weights shall then be added so that the suspended load is 25, 50, 75, and 100 percent greater than the weight of the fully equipped and loaded lifeboat and the measurements taken at each 25 percent increments. (Water may be used for all or any portion of the weight if desired.) All weights shall then be removed and final measurements taken. There shall be no fractures or other signs of excessive stress and no appreciable set as a result of this test.

(2) *Chock test.* The light lifeboat shall be placed on blocks located under the keel at the quarter points and measurements of length, beam, and depth taken. The boat shall be flooded with water equal to the weight of all equipment, food, water, and persons to be carried and measurements of length, beam, and depth taken again. Additional measurements of 25, 50, 75, and 100 percent of the weight of the fully equipped and loaded lifeboat shall be added and the measurements taken at 25 percent increments. If the boat becomes full of water before 100 percent overload is reached, no additional weight need be added, and the last deflection measurements with the boat under load shall be taken at this point. The boat shall be drained and final measurements taken. There shall be no fractures or other signs of excessive stress and no appreciable set as a result of this test.

(3) *Swing test.* The boat shall be loaded with weights equal to the weight of all equipment, food, water and persons to be carried. It shall then be suspended by the releasing gear with falls 20 feet in length so arranged that when hanging freely the gunwale on one side of the boat is approximately 2 inches from a stationary concrete or steel wall or other structure of similar construction and rigidity. The boat shall

then be hauled outboard a horizontal distance of 8 feet from its original position. From this point, the boat shall be allowed to freely swing inboard and strike the wall along one side. There shall be no damage which would render the boat unserviceable.

(4) *Drop test.* The boat shall be loaded with weights equal to the full weight of all equipment, food, water and persons to be carried. The boat shall then be suspended freely from the releasing gear and shall be dropped in a free fall into the water from a height of 10 feet. There shall be no damage which would render the boat unserviceable.

(5) *Thwart test.* A 200-pound sand bag shall be dropped from a height of 6 feet on the center of each thwart span. The thwarts shall not fracture or otherwise be rendered unserviceable.

(6) *Towing test.* With a towline rigged around the forward thwart in the same manner as the sea painter is normally rigged, the fully loaded lifeboat shall be towed at least 1,000 yards at a speed of not less than 5 knots. The boat shall exhibit satisfactory towing characteristics and there shall be no appreciable damage to the thwart.

(7) *Tanks and lockers.* Equipment tanks and watertight lockers shall be tested with not less than 1.0 p.s.i. of air pressure both before and after the tests described in paragraphs (b)(1) through (6) of this section.

§ 160.035–13 Testing and inspection after approval.

(a) *General.* After the design of a lifeboat has been approved, subsequent lifeboats of the same design shall be individually inspected and tested as noted in §160.035–11(a) for metal lifeboats and paragraph (b) of this section for FRP. lifeboats. In addition, motors and band-propelling gear when installed shall be operated in the ''ahead'', ''neutral'', and ''astern'' positions. If mechanical disengaging apparatus is fitted, it shall be tested by suspending the lifeboat loaded with deadweight equivalent to the number of persons allowed in the lifeboat (165 pounds per person) together with the weight of the equipment, plus 10 percent of the total load, including the weight of the lifeboat. The release lever shall then be thrown over with this load suspended until the lifeboat is released. The apparatus shall be capable of being operated freely by one man, without the use of aids or undue force to the satisfaction of the marine inspector. (This test may be conducted ashore by suspending the lifeboat just clear of the ground.)

(b) *Additional production inspection and tests for FRP. lifeboats*—(1) *Inspection requirements.* Each production model fibrous glass reinforced plastic lifeboat shall as a condition to its being accepted as Coast Guard approved equipment, be examined by a marine inspector at the following stages in its manufacture:

(i) When the major, individual components of the shell and inner hull or buoyancy casing are completed but before they are assembled together. At this stage the marine inspector shall satisfy himself that these components comply with the approved plans and specifications by visual inspection, thickness measurements and comparison of the weights of the components with the weights recorded for the same components in the prototype.

(ii) At the time the internal buoyancy is installed. If block plastic foam is used, it shall be inspected after it has been cut to size and shaped but before it is inserted and covered. The installation shall be completed in the presence of the marine inspector and he shall verify that the required amount is used by weighing the material. If foamed-in-place plastic foam is used, the marine inspector shall be present during the foaming operation. A sample of the foam shall be retained outside the boat and when it sets it shall be used to make a density determination of the material.

(iii) When the boat is completed. At this stage the marine inspector shall check the scantlings of the minor components and the overall compliance with the plans. The manufacturer shall certify that the materials used are in accordance with the approved bill of materials.

(2) *Test requirements.* After the inspections listed in paragraph (b)(1) of this section are completed, the following tests are to be carried out to the satisfaction of the marine inspector:

(i) The boat shall be suspended freely from the releasing gear and the length, breadth and depth measured. The boat shall then be flooded with water equal to 1½ times the weight of the boat, persons, equipment, and provisions and fuel (if motor driven) less the weight of the boat. This is represented by the following formula:

$$\text{Water added} = 1.5 \times (\text{empty boat} + \text{equipment} + \text{provisions} + \text{fuel} + \text{people}) - \text{empty boat}$$

The length, breadth and depth shall be measured in this loaded condition and, again, after the load has been removed. The loaded deflections and the permanent deformations shall not significantly exceed those recorded for the prototype in the pre-approval tests. Also, while flooded, the exterior of the hull shall be examined for leaks or other defects. After the boat is drained, the attachment of the release gear shall be carefully examined.

(ii) All provision tanks shall be tested by a static head above the tank top of 2 feet of water without showing leakage or permanent deformation.

(iii) The plastic fuel tanks shall be tested by a static head above the tank top of 10 feet of water without showing leakage or permanent deformation.

(c) *Marking.* (1) A corrosion resistant nameplate shall be affixed at the bow of each lifeboat on which is stamped the name of the manufacturer, serial number, approval number, dimensions of the lifeboat, cubic capacity, buoyancy capacity, net weight of the boat in Condition A and Condition B, the number of persons for which the lifeboat is approved, together with the Marine Inspection Office identification letters, the date, and the letters U.S.C.G. *Condition A* includes buoyancy and water tanks and provision stowage compartments but no equipment, provisions, water or persons. *Condition B* includes full required provisions and equipment, persons allowed at 10 cubic feet or by seating test whichever is less at 165 pounds and 3 quarts of water (6.25 pounds)—per person.

[CGFR 65–9, 30 FR 11467, Sept. 8, 1965, as amended by CGD 72–133R, 37 FR 17040, Aug. 24, 1972; CGD 75–186, 41 FR 10437, Mar. 11, 1976]

§ 160.035–14 Procedure for approval of lifeboats.

(a) Before action is taken on any design of lifeboat, plans covering fully the arrangement and construction of the lifeboat, material specifications, together with a lines drawing, stowage arrangement, seating arrangement, and other details shall be submitted to the Commandant through the Commander of the Coast Guard District in which the lifeboat is built. The plans for approval must be detailed to a degree that the lifeboat can be constructed from the plans submitted.

(b) If the drawings required in paragraph (a) of this section are satisfactory, the manufacturer shall notify the Commander of the Coast Guard District in which the lifeboat is built in writing when fabrication is to commence. A marine inspector will be assigned to witness the construction procedure in accordance with the plans, verify the tests required by §160.035–11 for metal lifeboats and §160.035–12 for additional tests required for F.R.P. lifeboats. Also, the manufacturer shall provide the necessary tools and facilities required to conduct the tests. The Coast Guard shall have the right to require such other additional tests as reasonably may be deemed necessary, either with the completed boat or component parts, depending upon the particular construction methods and materials used by the builder, or any unusual conditions or circumstances which may arise during the construction or testing.

(c) At the time that the tests are successfully completed, the manufacturer shall present to the marine inspector four corrected copies of the plans noted in paragraph (a) of this section, including any corrections, changes, or additions which may have been found necessary during construction or testing. If the manufacturer desires more than one set of approved plans, additional copies shall be submitted at that time.

(d) Upon receipt of corrected drawings and satisfactory test reports, the Commandant will issue a certificate of approval. No change shall be made in the design or construction without first receiving permission of the Commandant via the Commander of the

Coast Guard District in which the lifeboat is built.

Subpart 160.036—Hand-Held Rocket-Propelled Parachute Red Flare Distress Signals

SOURCE: CGD 76–048a and 76–048b, 44 FR 73081, Dec. 17, 1979, unless otherwise noted.

§ 160.036–1 Incorporation by reference.

(a) The following is incorporated by reference into this subpart:

(1) ''The Universal Color Language'' and ''The Color Names Dictionary'' in *Color: Universal Language and Dictionary of Names*, National Bureau of Standards Special Publication 440, December 1976.

(b) NBS Special Publication 440 may be obtained by ordering from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (Order by SD Catalog No. C13.10:440).

(c) Approval to incorporate by reference the material listed in this section was obtained from the Director of the Federal Register on November 1, 1979. The material is on file in the Federal Register library.

§ 160.036–2 Type.

(a) Handheld rocket-propelled parachute red flare distress signals specified by this subpart shall be of one type which shall consist essentially of a completely self-contained device which can be fired from the hand to provide a rocket-propelled parachute red flare distress signal.

(b) [Reserved]

§ 160.036–3 Materials, workmanship, construction and performance requirements.

(a) *Materials.* The materials used in handheld rocket-propelled parachute red flare distress signals shall conform strictly to the specifications and drawings submitted by the manufacturer and approved by the Commandant. In general, all exposed parts shall be corrosion-resistant or properly protected against corrosion.

(b) *Workmanship.* Handheld rocket-propelled parachute red flare distress signals shall be of first class workmanship and shall be free from imperfections of manufacture affecting their appearance or that may affect their serviceability.

(c) *Construction.* The exterior case of the cartridge shall be made of a suitable metal and shall protect against the entrance of moisture. The construction shall be such that the parachute and pyrotechnic candle will be expelled at approximately the maximum altitude reached.

(d) *Performance.* Signals shall meet all of the inspection and test requirements contained in § 160.036–4.

§ 160.036–4 Approval and production tests.

(a) *Approval tests.* The manufacturer must produce a lot of at least 100 signals from which samples must be taken for testing for approval under § 160.036–7. The approval tests are the operational tests and technical tests in paragraphs (c) and (d) of this section. The approval tests must be conducted by an independent laboratory accepted by the Commandant under § 159.010 of this chapter.

(b) *Production inspections and tests.* Production inspections and tests of each lot of signals produced must be conducted under the procedures in § 159.007 of this chapter. Signals from a rejected lot must not be represented as meeting this Subpart or as being approved by the Coast Guard. If the manufacturer identifies the cause of the rejection of a lot of signals, the signals in the lot may be reworked by the manufacturer to correct the problem. Samples from the rejected lot must be retested in order to be accepted. Records shall be kept of the reasons for rejection, the reworking performed on the rejected lot, and the results of the second test.

(1) *Lot size.* For the purposes of sampling the production of signals, a lot must consist of not more than 30,000 signals. Lots must be numbered serially by the manufacturer. A new lot must be started with:

(i) Any change in construction details,

(ii) Any changes in sources of raw materials, or

(iii) The start of production on a new production line or on a previously discontinued production line.