(2) Procedures for examining serviceability of lifejackets and the frequency of examination.

(3) Pages for logging on board examinations.

(4) Frequency of required servicing at approved servicing facilities.

(5) Instructions, if any, on proper stowage.

(6) Procedures for getting the lifejackets repaired by a servicing facility or the manufacturer.

(7) Procedures for making emergency repairs on board.

(8) Any specific restrictions or special instructions.

§ 160.176–23 Marking.

(a) *General.* Each inflatable lifejacket must be marked with the information required by this section. Each marking must be waterproof, clear, and permanent. Except as provided elsewhere in this subpart, each marking must be readable from a distance of three feet.

(b) *Prominence.* Each marking required in paragraph (d) of this section, except vital care and use instructions, if any, must be less prominent and in smaller print than markings required in paragraph (c) of this section. Each optional marking must be significantly less prominent and smaller than required markings. The marking ''ADULT'' must be in at least 18 mm (¾ inch) high bold capital lettering. If a lifejacket is stored in a package, the package must also have the marking ''ADULT'' or this marking must be easily visible through the package.

(c) *Text.* Each inflatable lifejacket must be marked with the following text in the exact order shown:

ADULT—For a person weighing more than 90 pounds.

Type V PFD—Approved for use on (*see paragraph (e) of this section for exact text to be used here*) in lieu of (*see paragraph (f) of this section for exact text to be used here*).

This lifejacket must be serviced, stowed, and used in accordance with (*insert description of service manual and user's manual*).

When fully inflated this lifejacket provides a minimum buoyant force of (*insert the design buoyancy in lb.*).

(d) *Other Information.* Each lifejacket must also be marked with the following information below the text required by paragraph (c) of this section:

(1) U.S. Coast Guard Approval No. (*insert assigned approval number*).

(2) Manufacturer's or private labeler's name and address.

(3) Lot Number.

(4) Date, or year and calendar quarter, of manufacture.

(5) Necessary vital care or use instructions, if any, such as the following:

(i) Warning against dry cleaning.

(ii) Size and type of inflation medium cartridges required.

(iii) Specific donning instructions.

(e) *Approved applications.* The text to be inserted in paragraph (c) of this section as the approved use will be one or more of the following as identified by the Commandant on the approval certificate issued according to § 159.005–13(a)(2) of this chapter:

(1) The name of the vessel.

(2) The type of vessel.

(3) Specific purpose or limitation approved by the Coast Guard.

(f) *Type equivalence.* The exact text to be inserted in paragraph (c) of this section as the approved performance type will be one of the following as identified by the Commandant on the approval certificate:

(1) Type I PFD.

(2) Type V PFD—(*insert exact text of additional description noted on the approval certificate*).

[CGD 78–1746, 54 FR 50320, Dec. 5, 1989, as amended by CGD 78–174b, 56 FR 29442, June 27, 1991]

PART 161—ELECTRICAL EQUIPMENT

Subpart 161.001 [Reserved]

Subpart 161.002—Fire-Protective Systems

Sec.

Subpart 161.006—Searchlights, Motor Lifeboat, for Merchant Vessels

Subpart 161.008 [Reserved]

Subpart 161.010—Floating Electric Waterlight

Subpart 161.011—Emergency Position Indicating Radiobeacons

Subpart 161.012—Personal Flotation Device Lights

Subpart 161.013—Electric Distress Light for Boats

AUTHORITY: 46 U.S.C. 3306, 3703, 4302; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

Subpart 161.001 [Reserved]

Subpart 161.002—Fire-Protective Systems

SOURCE: 21 FR 9032, Nov. 21, 1956, unless otherwise noted.

§ 161.002–1 Incorporation by reference.

(a) Certain material is incorporated by reference into this subpart with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in paragraph (b) of this section, the Coast Guard must publish notice of change in the FEDERAL REGISTER; and the material must be available to the public. All approved material is available for inspection at the Office of the Federal Register, 800 North Capitol Street NW., suite 700, Washington, DC, and at the U.S. Coast Guard, (G–MSE), 2100 Second Street SW., Washington, DC 20593–0001, and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this subpart and the sections affected are as follows:

AMERICAN BUREAU OF SHIPPING (ABS)

American Bureau of Shipping, Two World Trade Center, 106th Floor, New York, NY 10048.

Rules for Building and Classing Steel Vessels, 1996—161.002–4(b).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959.

ASTM B 117–95, Standard Practice for Operating Salt Spray (Fog) Apparatus, 1996—161.002–4(b).

FACTORY MUTUAL ENGINEERING AND RESEARCH (FMER)

Factory Mutual Engineering and Research, ATTN: Librarian, 1151 Boston-Providence Turnpike, Norwood, MA 02062.

Class Number 3150: Audible Signal Devices, December, 1974—161.002–4(b).

Class Number 3210: Thermostats for Automatic Fire Detection, July, 1978—161.002–4(b).

Class Number 3230–3250: Smoke Actuated Detectors for Automatic Fire Alarm Signaling, February, 1976—161.002–4(b).

Class Number 3260: Flame Radiation Detectors for Automatic Fire Alarm Signaling, September, 1994—161.002–4(b).
Class Number 3820: Electrical Utilization Equipment, September, 1979—161.002–4(b).

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
International Electrotechnical Commission, 1, Rue de Varembe, Geneva, Switzerland.
IEC 533, Electromagnetic Compatibility of Electrical and Electronic Installations in Ships, 1977—161.002–4(b).

INTERNATIONAL MARITIME ORGANIZATION (IMO)
International Maritime Organization, Publications Section 4 Albert Embankment, London SE1 7SR, United Kingdom.
International Convention for the Safety of Life at Sea, 1974 (SOLAS 74) Consolidated Edition (Including 1992 Amendments to SOLAS 74, and 1994 Amendments to SOLAS 74), 1992—161.002–4(b).

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269.
NFPA 72, National Fire Alarm Code, 1993—161.002–4(b).

LLOYD'S REGISTER OF SHIPPING (LR)
Lloyd's Register of Shipping, ATTN: Publications, 17 Battery Place, New York, NY 10004–1195.
LR Type Approval System; Test Specification Number 1, 1990—161.002–4(b).

UNDERWRITERS LABORATORIES, INC. (UL)
Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709–3995.
UL 38, Standard for Manually Actuated Signaling Boxes for Use with Fire-Protective Signaling Systems, 1994—161.002–4(b).
UL 268, Standard for Smoke Detectors for Fire Protective Signaling Systems, 1989 (including revisions through June 1994)—161.002–4(b).
UL 521, Standard for Heat Detectors for Fire Protective Signaling Systems, 1993 (including revisions through October 1994)—161.002–4(b).
UL 864, Standard for Control Units for Fire-Protective Signaling Systems, 1991 (including revisions through May 1994)—161.002–4(b).

[CGD 94–108, 61 FR 28291, June 4, 1996; 61 FR 36787, July 12, 1996; 62 FR 23910, May 1, 1997; CGD 97–057, 62 FR 51049, Sept. 30, 1997]]

§ 161.002–2 Types of fire-protective systems.

(a) *General.* Fire-protective systems covered by this subpart shall include, but not be limited to, automatic fire and smoke detecting systems, manual fire alarm systems, sample extraction smoke detection systems, watchman's supervisory systems, and combinations of these systems.

(b) *Automatic fire detecting systems.* For the purpose of this subpart, automatic fire and smoke detecting systems will be considered to consist of normal and emergency power supplies, a fire detecting control unit, fire detectors, smoke detectors, and audible and visual alarms distinct in both respects from the alarms of any other system not indicating fire.

(c) *Manual fire alarm systems.* For the purpose of this subpart, manual fire alarm systems will be considered to consist of normal and emergency power supplies, a fire alarm control unit, manual fire alarm boxes, and audible and visual alarms distinct in both respects from the alarms of any other system not indicating fire. Manual fire alarm systems are usually combined with automatic fire detecting systems.

(d) *Sample extraction smoke detection systems.* For the purpose of this subpart, Sample extraction smoke detection systems will be considered to consist of a control unit, a blower box, and a piping system to conduct air samples from the protected spaces to the control unit.

(e) *Watchman's supervisory systems.* For the purpose of this subpart, a watchman's supervisory equipment will be considered to be apparatus, either electrical or mechanical, used to verify the presence of watchmen and the regular performance of their assigned duties.

[CGFR 56–39, 21 FR 9032, Nov. 21, 1956, as amended by CGFR 70–143, 35 FR 19966, Dec. 30, 1970; CGD 94–108, 61 FR 28292, June 4, 1996]

§ 161.002–3 Materials and workmanship.

(a) *Suitability.* All materials used in the construction of fire-protective equipment shall be of the quality best suited for the purpose intended.

(b) *Materials covered by reference specifications.* Where specifications are referred to for a given material, it is intended to require that the quality of material used shall be at least equal to that covered in the reference specifications.

[21 FR 9032, Nov. 21, 1956, as amended by CGD 94–108, 61 FR 28292, June 4, 1996]

§ 161.002–4 General requirements.

(a) *Introduction.* The purpose of fire-protective systems is to give warning of the presence of fire in the protected spaces. To meet this end, the basic requirements of the fire-protective systems are reliability, sturdiness, simplicity of design, ease of servicing, and the ability to withstand shipboard shock and vibration and the adverse effects of sea humidity.

(b) *Standards.* (1) All fire-protective systems must be designed, constructed, tested, marked, and installed according to the applicable standards under § 161.002–1 and subchapter J (Electrical Engineering) of this chapter.

(2) All systems must be listed or certified as meeting these standards by an independent laboratory that is accepted by the Commandant under part 159 of this chapter for the testing and listing or certification of fire detection equipment and systems.

(3) All parts of the system must pass the environmental tests for control and monitoring equipment in either ABS Rules for Building and Classing Steel Vessels Table 4/11.1 or pass the Category ENV3 tests of Lloyd's Register Type Approval System, Test Specification Number 1, as appropriate.

(4) Those parts of the system that are to be installed in locations requiring exceptional degrees of protection must also pass the salt spray (mist) test in either ABS Rules for Building and Classing Steel Vessels Table 4/11.1; Category ENV3 of Lloyd's Register Type Approval System, Test Specification No. 1; or ASTM B–117 with results as described in corrosion-resistant finish in § 110.15–1 of this chapter.

[21 FR 9032, Nov. 21, 1956, as amended by CGD 94–108, 61 FR 28292, June 4, 1996; 62 FR 23910, May 1, 1997]

§ 161.002–8 Automatic fire detecting systems, general requirements.

(a) *General.* An automatic fire detecting system shall consist of a power supply; a control unit on which are located visible and audible fire and trouble signalling devices; and fire detector circuits, as required, originating from the control unit. Power failure alarm devices may be separately housed from the control unit and may be combined with other power failure alarm systems when specifically approved.

(b) [Reserved]

[21 FR 9032, Nov. 21, 1956, as amended by CGD 94–108, 61 FR 28292, June 4, 1996]

§ 161.002–9 Automatic fire detecting system, power supply.

The power supply for an automatic fire detecting system must meet the requirements of § 113.10–9 of subchapter J (Electrical Engineering Regulations) of this chapter.

[CGD 74 FR 125a, 47 FR 15279, Apr. 8, 1982]

§ 161.002–10 Automatic fire detecting system control unit.

(a) *General.* The fire detecting system control unit shall consist of a dripproof enclosed panel containing visible and audible fire alarm signalling devices, visible and audible trouble alarm signalling devices, visible and audible power failure alarm devices, power supply transfer switch, charging equipment when employed, and overcurrent protection for power supplies.

(b) *Fire alarms*—(1) *General.* The operation of a fire detecting and alarm system must cause automatically—

(i) The sounding of a vibrating type fire bell with a gong diameter not smaller than 15 cm (6 inches) or other audible alarm that has an equivalent sound level and that is mounted at the control unit and at the remote annunciator panel, when provided;

(ii) The sounding of a vibrating type fire bell with a gong diameter not smaller than 20 cm (8 inches) or other audible alarm that has an equivalent sound level and that is located in the engine room; and

(iii) an indication of the fire detecting zone from which the signal originated, visible at the control unit and at the remote annunciator panel, when provided;

(2) *Maintaining alarm.* The audible and visible alarms resulting from the operation of a fire detector having self-restoring contacts shall be maintained automatically by the control unit until a resetting device is operated manually.

(3) *Silencing audible alarm.* Manual means shall be provided at the control unit to silence the audible fire alarms,

but operation of the audible fire alarm device shall permit the visible fire alarm to remain until manually reset as described in paragraph (b)(2) of this section.

(4) *Non-interference.* The control unit shall be so arranged as to permit one or any number of fire alarms simultaneously, and an alarm on one circuit shall not interfere with the normal operation of any other circuit, except that the audible fire alarms, when silenced by the means provided by paragraph (b)(3) of this section, need not sound upon receipt of succeeding sensor signals.

(5) *Source of energy.* The source of energy for the alarms referred to in this paragraph shall be the ''normal source''. On a system supplied by duplicate storage batteries, the ''normal source'' shall be construed to mean that part of the supply circuit on the load side of the battery transfer switch and fuses. On a system supplied by a branch circuit the ''normal source'' shall be construed to mean the load side of any transformer or rectifier employed to modify the nature or magnitude of the supply potential.

(c) *Electrical supervision*—(1) *Circuits.* The circuits formed by conductors extending from the control unit to the fire detectors of each zone shall be electrically supervised.

(2) *Normal source.* The normal source of energy to the control unit shall be electrically supervised.

(3) *Audible fire alarms.* The engine room audible fire alarm shall be electrically supervised.

(d) *Power failure alarms*—(1) *Loss of potential.* The loss of potential from a supervised normal source of energy automatically shall be indicated at the control unit by the sounding of an audible power failure alarm. The source of energy for the alarm shall be the emergency power source. The source of energy for the alarm of a system supplied by duplicate storage batteries shall be the storage battery being charged.

(2) *Silencing audible alarm.* Means shall be provided at the control unit to silence the audible power failure alarm by transferring the signal to a visible indicator which shall remain until the silencing means is restored to its normal position.

(e) *Trouble alarms*—(1) *Open Circuit.* An open circuit occurring in either supervised circuit covered by paragraph (c) (1) or (3) of this section shall automatically be indicated at the control unit by the sounding of an audible trouble alarm and by a visual indicator showing the circuit or zone from which the signal originated except that on systems employing closed-circuit series connected detectors, an open circuit in the zone wiring may cause a fire alarm.

(2) *Silencing audible alarm.* Manual means shall be provided at the control unit to silence the audible alarm. Operation of the silencing means shall permit the visible alarm to remain until the trouble has been corrected.

(3) *Non-interference.* The control unit shall be so arranged as to permit one or any number of trouble alarms simultaneously, and an alarm on one circuit shall not interfere with the normal operation of any other circuit, except that the audible trouble alarm, when silenced by the means provided by paragraph (e)(2) of this section, need not sound on receipt of succeeding trouble signals.

(4) *Source of energy.* The source of energy for the trouble alarms required by this paragraph shall be the normal source as defined in paragraph (b)(5) of this section.

(f) *Circuit testing*—(1) *Fire alarm and trouble alarm test.* Means shall be provided at the control unit for individually testing each fire detecting zone circuit. The testing means shall be capable of simulating a fire condition and a trouble condition.

(2) *Ground test.* Means shall be provided at the control unit for manual testing of each individual fire detecting zone circuit for the presence of grounds. Systems whose normal source of supply is derived from a circuit from the ship's alternating-current temporary emergency bus shall be provided with a two-winding transformer in the supply circuit and located in the control unit to isolate electrically the fire detecting system from the ship's electrical system.

(g) *Power supply transfer switch.* An automatic transfer switch with no

''off'' position shall be provided in the control unit for selecting the source of power, except that systems employing duplicate storage batteries may be provided with a manual transfer switch.

(1) *Automatic transfer switch.* Upon reduction of potential from the normal power source of 15 to 20 percent, the automatic fire detection system shall automatically be disconnected from the normal source and connected to the emergency source. Upon restoration of potential from the normal source of 85 to 95 percent of normal valves, the automatic fire detection system shall automatically be transferred back to normal source.

(2) *Manual transfer switch.* Automatic fire detecting systems employing duplicate storage batteries as the power supplies shall be provided with a manual transfer switch with no ''off'' position to select the battery to supply the system and the battery to be charged.

(h) *Automatic fire detecting system, battery charging and control*—(1) *General.* Automatic fire detecting systems employing duplicate storage batteries as the power supply shall be provided with battery charging and control facilities as specified by this paragraph.

(2) *Transfer switch.* A manual transfer switch shall be provided in accordance with paragraph (g)(2) of this section.

(3) *Voltmeter and voltmeter switch.* A voltmeter and a voltmeter switch shall be provided at the control unit and connected to read (i) voltage of battery supplying system and (ii) voltage of battery on charge.

(4) *Ammeter.* An ammeter shall be provided to indicate the charging current to the battery on charge.

(5) *Reverse current protection.* An undervoltage or reverse current relay shall be provided to disconnect the battery on charge from the charging source in the event of loss of potential from the charging source unless reverse current flow is effectively blocked by a rectifier.

(6) *Resistors.* Fixed and variable resistors shall be provided to regulate the charging rate, together with a two-position switch to select between a normal charging rate and a high charging rate.

(7) *Overcurrent protection.* The batteries shall be protected against overcurrent by fuses rated at not less than 150 percent and not more than 200 percent of the maximum normal battery load.

(8) *Location.* The equipment required by this paragraph shall be located in or adjacent to the control unit.

[CGFR 56–39, 21 FR 9035, Nov. 21, 1956, as amended by CGFR 70–143, 35 FR 19666, Dec. 30, 1970; CGD 94–108, 61 FR 49691, Sept. 23, 1996]

§ 161.002–12 Manual fire alarm systems.

(a) *General.* A manual fire alarm system shall consist of a power supply, a control unit on which are located visible and audible fire and trouble alarms, and fire alarm circuits as required originating from the control unit and terminating at manual fire alarm boxes. Power failure alarm devices may be separately housed from the control unit and may be combined with other power failure alarm systems when specifically approved.

(b) *Types.* Manual fire alarm systems shall be one of the following types, or a combination of several types:

(1) Manual fire alarm stations superimposed on and connected as an integral part of the fire detector circuit wiring of an automatic fire detection system.

(2) Electrical system using manually operated fire alarm boxes.

(3) Other types as may be developed.

(c) *Power supply.* The power supply shall be as specified for automatic fire detecting system by § 161.002–9.

(d) *Manual fire alarm system control unit.* The manual fire alarm system control unit shall be as specified for automatic fire detecting systems by § 161.002–10.

[21 FR 9032, Nov. 21, 1956, as amended by CGD 94–108, 61 FR 28292, June 4, 1996]

§ 161.002–14 Watchman's supervisory systems.

(a) *General.* The watchman's supervisory system shall consist of apparatus to verify the presence of watchmen and the regular performance of their assigned duties.

(b) *Types.* The watchman's supervisory systems shall be one of the following types, or a combination of several types:

(1) A mechanical system consisting of portable spring-motor-driven recording clocks in conjunction with key stations located along the prescribed routes of the watchmen to operate the clock recording mechanism.

(2) An electrical system employing a recorder located at a central station in conjunction with key stations along the prescribed route of the watchmen.

(3) Other types that may be developed.

(c) *Portable spring-motor-driven recording clocks.* (1) Each clock shall run for at least one week without rewinding and shall be substantially mounted and strongly encased. It shall be made so that the recordings cannot be seen without opening the case and so that the case cannot be opened without indicating, by a distinctive recording, the time of opening and closing.

(2) The records of the recording watch clock shall be legible and permanent.

(d) *Key stations for use with portable recording watch clocks.* (1) The key station shall be of substantial construction and provided with a hinged cover. The key shall be attached to the station by means of a strong link chain. The key stations shall be mounted in such a manner that they cannot be removed without giving evidence of removal.

(2) Keys shall be made so that they are difficult to duplicate, and shall be of a pattern susceptible of variations tending to reduce the probability that a set of keys for one clock will operate other clocks.

[21 FR 9032, Nov. 21, 1956, as amended by CGFR 59–7, 24 FR 3241, Apr. 25, 1959]

§ 161.002–15 Sample extraction smoke detection systems.

The smoke detecting system must consist of a means for continuously exhausting an air sample from the protected spaces and testing the air for contamination with smoke, together with visual and audible alarms for indicating the presence of smoke.

[CGD 94–108, 61 FR 28292, June 4, 1996]

§ 161.002–17 Equivalents.

The Commandant may approve any arrangement, fitting, appliance, apparatus, equipment, calculation, information, or test that provides a level of safety equivalent to that established by specific provisions of this subpart. Requests for approval must be submitted to Commandant (G–MSE). If necessary, the Commandant may require engineering evaluations and tests to demonstrate the equivalence of the substitute.

[CGD 94–108, 61 FR 28292, June 4, 1996]

§ 161.002–18 Method of application for type approval.

(a) The manufacturer must submit the following material to Commandant (G–MSE), U.S. Coast Guard Headquarters, 2100 Second Street SW., Washington, DC 20593–0001:

(1) A formal written request that the system be reviewed for approval.

(2) Three copies of the system's instruction manual, including information concerning installation, programming, operation, and troubleshooting.

(3) One copy of the complete test report generated by an independent laboratory accepted by the Commandant under part 159 of this chapter for the testing and listing or certification of fire-protective systems. A current list of these facilities may be obtained from the address in this section.

(4) Three copies of a list prepared by the manufacturer that contains the name, model number, and function of each major component and accessory, such as the main control cabinet, remote annunicator cabinet, detector, zone card, isolator, central processing unit, zener barrier, special purpose module, or power supply. This list must be identified by the following information assigned by the manufacturer:

(i) A document number.

(ii) A revision number (the original submission being revision number 0).

(iii) The date that the manufacturer created or revised the list.

(b) The Coast Guard distributes a copy of the approved instruction manual to the manufacturer and to the Coast Guard Marine Safety Center (MSC).

(c) The manufacturer shall maintain an account of the equipment offered for approval. The list identification information in paragraphs (a)(4)(i) through

(a)(4)(iii) of this section appears on the Certificate of Approval and indicates the official compilation of components for the approved system. If the manufacturer seeks to apply subsequently for the approval of a revision (because of, for example, additional accessories becoming available, replacements to obsolete components, or a change in materials or standards of safety), changes to the approved list must be submitted for review and approval.

(d) To apply for a revision, the manufacturer must submit—

(1) A written request under paragraph (a) of this section;

(2) An updated list under paragraph (b) of this section; and

(3) A report by an independent laboratory accepted by the Commandant under part 159 of this chapter for the testing and listing or certification of fire-protective systems indicating compliance with the standards and compatibility with the system.

(e) If the Coast Guard approves the system or a revision to a system, it issues a certificate, normally valid for a 5-year term, containing the information in paragraphs (a)(4)(i) through (a)(4)(iii) of this section.

[CGD 94–108, 61 FR 28292, June 4, 1996]

Subpart 161.006—Searchlights, Motor Lifeboat, for Merchant Vessels

SOURCE: CGFR 49–43, 15 FR 127, Jan. 11, 1950, unless otherwise noted.

§ 161.006–1 Applicable specifications.

(a) The following specifications, of the issue in effect on the date motor lifeboat searchlights are manufactured, form a part of this subpart:

(1) Navy Department specifications:

42S5—Screws, machine, cap and set, and nuts.

43B11—Bolts, nuts, studs, and tap-rivets (and materials for same).

(2) Federal specification:

QQ–B–611—Brass, Commercial; bars, plates, rods, shapes, sheets, and strip.

(3) A.S.T.M. standards:

B117–44T—Method of salt spray (fog), testing (tentative).

B141–45—Specification for electrodeposited coatings of nickel and chromium on copper, and copper-base alloys.

(4) Underwriters' Laboratories, Inc.:

Standard for flexible cord and fixture wire, third edition, October, 1935.

(b) Copies of the above specifications shall be kept on file by the manufacturer, together with the approved plans and certificate of approval.

§ 161.006–2 Type.

(a) The motor lifeboat searchlight shall be of the incandescent type equipped with a lamp of approximately 90 watts of proper voltage for use with the electric power installation of the lifeboat, usually a 12-volt radio storage battery.

(b) [Reserved]

§ 161.006–3 Materials and workmanship.

(a) *Materials.* The materials shall be of best quality and suitable in every respect for the purpose intended. All materials shall be corrosion resistant. The use of acid flux in making joints shall not be permitted.

(b) *Workmanship.* The workmanship shall be first class in every respect.

§ 161.006–4 Requirements.

(a) *Corrosion-resisting materials.* Silver, corrosion-resisting steel, copper, brass, bronze and copper-nickel alloys are considered satisfactory corrosion-resistant materials within the intent of this subpart.

(b) *Searchlight parts.* The motor lifeboat searchlight shall, in general consist of the following parts:

Yoke and pedestal.
Housing.
Front door.
Reflector.
Lamp socket.
Supply cable.

(c) *Weight and dimensions.* The height of the motor lifeboat searchlight shall not exceed 19 inches and the weight shall not exceed 16 pounds, unless otherwise approved.

(d) *Wiring.* The motor lifeboat searchlight shall be wired with a five-foot length of rubber-jacketed hard service flexible cord, Underwriters' Laboratories, Inc., Type S, or equivalent, of a size not less than No. 16 AWG. At the

point where the cable enters the searchlight, a waterproof entrance bushing with packing gland and cord grip shall be provided.

(e) *Lamp and socket.* The motor lifeboat searchlight shall be provided with a lamp of not less than 80 watts nor more than 100 watts, and a suitable lamp socket. Means shall be provided for adjusting and securing the lamp socket at any position between the focal point and a point not less than ¼ inch away from the focal point in either direction in the axis of the beam.

(f) *Housing.* The housing shall be constructed of brass, Federal Specification QQ–B–611, Composition E, copper alloy, or other suitable corrosion-resistant material as approved, of a thickness not less than No. 20 AWG. The housing shall be capable of free movement of at least 60 degrees above and 20 degrees below the horizontal, and of a free movement of 360 degrees in a horizontal plane. It shall be possible to lock the barrel in any desired position, vertically or horizontally, without the use of tools. A sturdy metal hand grip shall be provided at the back of the housing for housing-adjusting purposes.

(g) *Front door.* A front door shall be attached to the housing in such a manner that it can be readily opened or removed, without the use of tools, for the purpose of relamping. The door, when closed, shall be waterproof. Clear front door glass shall be used.

(h) *Reflector.* The reflector shall be paraboloidal. It shall be constructed of brass, Federal Specification QQ–B–611 Composition E, finished and with electroplated coatings of nickel and chromium in accordance with A.S.T.M. Specification B141–45, Type K. C., or as otherwise approved. The reflector shall furnish a minimum average illumination of 100 foot candles, when measured as specified in § 161.006–5 (b) (2).

(i) *Yoke and pedestal.* The yoke and pedestal shall be of rugged construction. The pedestal shall be suitable for bolting to a flat surface with not less than four ⅜-inch diameter bolts.

(j) *Beam spread.* The beam shall be at least 60 feet in diameter at 200 yards. The edge of the beam shall be defined as a point at which the intensity of the light is 10 percent of the maximum intensity.

(k) *Bolts, nuts, and screws.* Bolts and nuts shall conform to the requirements of Navy Department Specification 43B11. Screws shall conform to the requirements of Navy Department Specification 42S5.

(l) *Name plate.* The motor lifeboat searchlight shall be provided with a permanent metallic name plate giving the name of manufacturer, type designation, and drawing number.

§ 161.006–5 Sampling, inspections and tests.

(a) *General.* Motor lifeboat searchlights specified by this subpart are not inspected at regularly scheduled factory inspections of production lots, but the Commander of the Coast Guard District may detail an inspector at any time to visit any place where such searchlights are manufactured to check materials and construction methods and to conduct such tests and examinations as may be required to satisfy himself that the searchlights are being manufactured in compliance with the requirements of this specification and with the manufacturer's plans and specifications approved by the Commandant.

(b) *Methods of test*—(1) *Waterproof test.* The searchlight shall be subjected for 5 minutes to a stream of water under a head of approximately 35 feet from a hose not less than 1 inch in diameter from a distance of approximately 10 feet. The hose nozzle shall be adjusted to give a solid stream at the enclosure. No leakage shall occur in this test.

(2) *Beam candlepower.* All light except that produced from the searchlight under test shall be excluded from the room in which measurements are made. The searchlight shall be operated at rated voltage with a seasoned lamp as specified in § 161.006–4(e). Measurements of beam candlepower shall be made at the corners of a 6-inch square located in the center of the beam at a distance of 32 feet immediately in front of the searchlight.

(3) *Corrosion resistance.* The searchlight shall be subjected to a 200-hour salt spray test in accordance with A. S. T. M. Standard B117–44T. There shall be no evidence of corrosion that will be

detrimental to the operation of the searchlight.

(4) *Heat run.* The searchlight, completely assembled, shall be operated continuously for 2 hours at rated voltage following which the waterproof test shall be conducted. This cycle shall be repeated 3 times. The ambient temperature shall be approximately 25 °C. The water stream shall be from an ordinary cold water tap.

§161.006–6 Procedure for approval.

(a) *General.* Motor lifeboat searchlights are approved only by the Commandant, United States Coast Guard, Washington, DC, 20226. Correspondence relating to the subject matter of this specification shall be addressed to the Commander of the Coast Guard District in which the factory is located.

(b) *Manufacturer's plans and specifications.* In order to obtain approval of motor lifeboat searchlights, submit detailed plans and specifications, including a complete bill of material, assembly drawings, and parts drawings descriptive of the arrangement and construction of the device, to the Commander of the Coast Guard District in which the factory is located. Each drawing shall have an identifying drawing number, date, and an identification of the device; and the general arrangement for assembly drawing shall include a list of all drawings applicable, together with drawing numbers and alteration numbers. The manufacturer will be advised whether or not the drawings and specifications appear satisfactory or what corrections appear necessary and then he may proceed with the construction of the pre-approval sample in accordance therewith. The pre-approval sample, together with four copies of the plans and specifications corrected as may be required, shall be forwarded to the Commandant via the Commander of the Coast Guard District in which the factory is located for inspection and tests. The cost of the tests is to be borne by the manufacturer.

Subpart 161.008 [Reserved]

Subpart 161.010—Floating Electric Waterlight

SOURCE: CGD 85–208, 54 FR 27020, June 27, 1989, unless otherwise noted.

§161.010–1 Incorporation by reference.

(a) Certain materials are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other than the one listed in paragraph (b) of this section, notice of change must be published in the FEDERAL REGISTER and the material made available to the public. All approved material is on file at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC, and at the U.S. Coast Guard, Office of Design and Engineering Standards (G–MSE), 2100 Second Street SW., Washington, DC 20593–0001, and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this part, and the sections affected are:

UNDERWRITERS LABORATORIES, INC.
12 Laboratory Drive, Research Triangle Park, NC 27709–3995
ANSI/UL 1196, Standard for Floating Waterlights, Second Edition March 23, 1987. 161.010–2; 161.010–4

[CGD 85–208, 54 FR 27020, June 27, 1989, as amended by CGD 95–072, 60 FR 50467, Sept. 29, 1995; CGD 96–041, 61 FR 50733, Sept. 27, 1996; CGD 97ndash;057, 62 FR 51049, Sept. 30, 1997]]

§161.010–2 Design, Construction, and Test Requirements.

Each floating electric waterlight shall meet the requirements of ANSI/UL 1196.

§161.010–3 Inspections and methods of test.

(a) Each inspection and test report required by this subpart shall comply with §159.005–11 of this chapter.

(b) The U.S. Coast Guard reserves the right to make any inspection or test it

deems necessary to determine the conformance of the materials and equipment to this subpart.

(c) The facilities, materials, and labor for all tests shall be furnished at no cost to the U.S. Coast Guard.

§ 161.010–4 Procedure for approval.

(a) A request for approval of an automatic floating electric waterlight must be submitted to the Commandant (G–MSE), U.S. Coast Guard, 2100 Second Street SW., Washington, DC 20593–0001.

(b) All inspections and tests must be performed by an independent laboratory which meets the requirements of § 159.010–3 of this chapter. A list of independent laboratories accepted by the Coast Guard as meeting § 159.010–3 of this chapter may be obtained by contacting the Commandant (G–MSE).

(c) Each request for approval must contain;

(1) The name and address of the applicant,

(2) One copy of all plans and specifications that meet the requirements of § 159.005–12 of this chapter,

(3) A pre-approval sample of the waterlight,

(4) An inspection and test report verifying compliance with the construction and test requirements of ANSI/UL 1196, and

(5) A statement by the manufacturer certifying that the waterlight complies with the requirements of this subpart.

[CGD 85–208, 54 FR 27020, June 27, 1989, as amended by CGD 95–072, 60 FR 50467, Sept. 29, 1995; CGD 96–041, 61 FR 50734, Sept. 27, 1996]

Subpart 161.011—Emergency Position Indicating Radiobeacons

§ 161.011–1 Purpose.

This subpart prescribes approval requirements for emergency position indicating radiobeacons (EPIRB).

[39 FR 10139, Mar. 18, 1974]

§ 161.011–5 Classes.

EPIRB's are classed as follows:

(a) Class A—an EPIRB that has been type approved or type accepted by the FCC as a Class A EPIRB. These EPIRB's are capable of floating free of a vessel and activating automatically if the vessel sinks.

(b) Class C—An EPIRB that has been type approved or type accepted by the FCC as a Class C EPIRB. These EPIRB's are manually activated and are not required to be Coast Guard approved.

[39 FR 10139, Mar. 18, 1974, as amended by CGD 80–024, 49 FR 40409, Oct. 16, 1984]

§ 161.011–10 EPIRB approval.

(a) The Coast Guard approves the class of EPIRB's listed in § 161.011–5(a) of this subpart.

(b) An application for type approval or type acceptance of an EPIRB should be submitted to the FCC in accordance with Title 47 of the Code of Federal Regulations, Part 2. When requested by the FCC, the Coast Guard reviews the test results in the application that concern installation and automatic operation (if required) of the EPIRB. The Coast Guard provides the results of the review to the manufacturer, and to the FCC for its use in acting upon the application.

(c) Upon notification of the FCC type acceptance or type approval, the Commandant (G–MSE) issues a certificate of approval for the EPIRB.

[CGD 80–024, 49 FR 40409, Oct. 16, 1984, as amended by CGD 95–072, 60 FR 50467, Sept. 29, 1995; CGD 96–041, 61 FR 50734, Sept. 27, 1996]

Subpart 161.012—Personal Flotation Device Lights

SOURCE: CGD 76–028, 44 FR 38785, July 2, 1979, unless otherwise noted.

§ 161.012–1 Scope.

(a) This subpart prescribes construction and performance requirements, approval and production tests, and procedures for approving personal flotation device lights fitted on Coast Guard approved life preservers, bouyant vests, and other personal flotation devices.

(b) [Reserved]

§ 161.012–3 Definitions.

(a) As used in this subpart, *PFD* means Coast Guard approved personal flotation device.

(b) For the purpose of § 161.012–7, *storage life* means the amount of time after the date of manufacture of the power source of a light that the power source

can be stored under typical marine environmental conditions on a vessel and still have sufficient power for the light to meet the requirements of §161.012–9.

§161.012–5 Approval procedures.

(a) An application for approval of a PFD light under this subpart must be sent to the Commandant (G–MSE), U.S. Coast Guard, Washington, DC 20593–0001.

(b) Each application for approval must contain—(1) The name and address of the applicant;

(2) Two copies of plans showing the construction details of the light;

(3) A detailed description of the applicant's production testing program; and

(4) A laboratory test report containing the observations and results of approval testing.

(c) The Commandant advises the applicant whether the light is approved. If the light is approved, an approval certificate is sent to the applicant.

[CGD 76–028, 44 FR 38785, July 2, 1979, as amended by CGD 88–070, 53 FR 34536, Sept. 7, 1988; CGD 95–072, 60 FR 50467, Sept. 29, 1995; CGD 96–041, 61 FR 50734, Sept. 27, 1996]

§161.012–7 Construction.

(a) Each light must be designed to be attached to a PFD without damaging the PFD or interfering with its performance.

(b) Each light and its power source must be designed to be removed and replaced without causing damage to the PFD.

(c) The storage life of the power source of a light must be twice as long as the period between the date of manufacture and the expiration date of the power source.

(d) Each light, prior to activation, must be capable of preventing leakage from its container of any chemicals it contains or produces.

(e) Each component of a light must be designed to remain serviceable in a marine environment for at least as long as the storage life of the light's power source.

(f) No light may have a water pressure switch.

(g) Each light must be designed so that when attached to a PFD, its light beam, at a minimum, is visible in an arc of 180 degrees above or in front of the wearer.

(h) Each light, including its power source, must fit into a cylindrical space that is 150 mm (6 in.) long and 75 mm (3 in.) in diameter.

(i) Each light, including its power source, must not weigh more than 225g (8 oz.).

(j) Each light that is designed to operate while detached from a PFD must have a lanyard that can be used to connect it to the PFD. The lanyard must be at least 750 mm (30 in.) long.

(k) Each light designed to operate while detached from a PFD must be capable of floating in water with its light source at or above the surface of the water.

§161.012–9 Performance.

(a) If a light is a flashing light, its flash rate when first activated, or within five minutes thereafter, must be between 50 and 70 flashes per minute.

(b) Each light must—(1) Begin to shine within 2 minutes after activation; and

(2) Within 5 minutes after activation be capable of being seen from a distance of at least one nautical mile on a dark clear night.

(c) Each light must be designed to operate underwater continuously for at least 8 hours at a water temperature of 15°±5 °C (59°±9 °F). However, if the light needs air to operate, underwater operation is required only for 50 or more seconds during each minute of the eight hour period.

(d) Each light must be designed to operate both in sea water and in fresh water.

(e) A light that concentrates its light beam by means of a lens or curved reflector must not be a flashing light.

(f) Each light must be designed to operate in accordance with this section after storage for 24 hours at a temperature of 65°±2 °C (149°±44 °F), and after storage for 24 hours at −30°±2 °C (−22°±4 °F).

§161.012–11 Approval tests.

(a) The approval tests described in this section must be conducted for each light submitted for Coast Guard approval. The tests must be conducted by a laboratory that has the equipment,

personnel, and procedures necessary to conduct the approval tests required by this subpart, and that is free of influence and control of the applicant and other manufacturers, suppliers, and vendors of PFD lights.

(b) A sample light must be activated at night under clear atmospheric conditions. However, two lights must be used if the power source is water activated, and one light must be activated in fresh water and the other in salt water having the approximate salinity of sea water. The light, or lights, must begin to shine within 2 minutes after activation and, within 5 minutes after activation, must be seen from a distance of at least one nautical mile against a dark background.

(c) At least ten sample lights must be selected at random from a group of at least 25. Each sample light must be kept at a constant temperature of 65°±2 °C (149°±4 °F) for 24 hours. Each sample light must then be kept at a constant temperature of minus 30°±2 °C (minus 22°±4 °F) for 24 hours. Five samples must then be submerged in salt water having the approximate salinity of sea water and the five other samples must be submerged in fresh water. The temperature of the water must be 15°±5 °C (59°±9 °F). The lights must then be activated and left submerged for eight hours. However, if their power sources need a supply of air to operate, the lights may be brought to their normal operating positions at the surface of the water for up to 10 seconds per minute during the eight hour period. At least nine of the ten lights must operate continuously over the eight hour period. If the lights are flashing lights, at least nine of ten must have a flash rate of between 50 and 70 flashes per minute when first activated or within five minutes thereafter.

(d) Individual tests must be conducted on a sample light to determine whether the light meets the requirements of §161.012–7, except that technical data showing compliance with §160.012–7(c) may be submitted with the application for approval in lieu of performing an individual test.

§161.012–13 Production tests and inspections.

(a) The manufacturer of approved lights must randomly select a sample of ten lights from each lot of lights produced. Each lot must not exceed 1,000 lights. At least nine of the ten lights, when tested in accordance with the test described in §161.012–11(c), must meet the test criteria prescribed by that section. If less than nine lights meet the test criteria, another random sample of ten lights must be taken and tested. If less than nine of these lights meet the test criteria, none of the lights in the lot may be sold as Coast Guard approved equipment.

(b) The Coast Guard does not inspect lights approved under this subpart on a regular schedule. However, the Commandant may select samples and conduct tests and examinations whenever necessary to determine whether the lights are being manufactured in compliance with the requirements in this subpart.

§161.012–15 Markings.

(a) Each light manufactured under Coast Guard approval must be permanently and legibly marked with:

(1) The manufacturer's name or trade mark that clearly identifies the model designation;

(2) The Coast Guard approval number asssigned to light; and

(3) Instructions on how to activate the light.

(b) The power source of each light must be permanently and legibly marked with its date of manufacture and expiration date. Each date must include the month and year.

§161.012–17 Instructions.

(a) Each light must have instructions on how to attach it to a PFD in a manner that complies with §161.012–7(a). However, in the case of lights that are to be attached by a PFD manufacturer, only one set of instructions need be provided for each shipment of lights.

(b) If a light is designed to be attached to a finished PFD, any attachment materials that are not supplied with the light must be clearly identified in the instructions. If a light is to

be attached to a finished PFD by a PFD purchaser, any attachment materials not supplied with the light must be generally available for purchase.

(c) Each set of instructions must—(1) Clearly identify the kind of PFD construction (for example fabric covered or vinyl dipped) to which the light can be attached; and

(2) Not require penetration of the bouyant material of the PFD.

Subpart 161.013—Electric Distress Light for Boats

SOURCE: CGD 76–183a, 44 FR 73054, Dec. 17, 1979, unless otherwise noted.

§ 161.013–1 Applicability.

(a) This subpart establishes standards for electric distress lights for boats.

(b) [Reserved]

§ 161.013–3 General performance requirements.

(a) Each electric light must:

(1) Emit a white light which meets the intensity requirements of § 161.013–5;

(2) Be capable of automatic signaling in a manner which meets the requirements of § 161.013–7;

(3) Contain an independent power source which meets the requirements of § 161.013–9;

(4) Float in fresh water with the lens surface at or above the surface of the water;

(5) Be equipped with a waterproof switch; and

(6) Meet the requirement of paragraphs (a) (1) through (4) of this section after floating for at least 72 hours followed by submersion in 5% by weight sodium chloride solution for at least 2 hours.

(b) The electric light may not be equipped with a switch mechanism which permits continuous display of a beam of light except that the light may be equipped with a switch which returns to the off position when pressure is released.

§ 161.013–5 Intensity requirements.

(a) If an electric light emits light over an arc of the horizon of 360 degrees, the light must:

(1) When level, have a peak intensity within 0.1 degrees of the horizontal plane;

(2) Have a peak Equivalent Fixed Intensity of at least 75 cd; and,

(3) Have a minimum Equivalent Fixed Intensity within a vertical divergence of ±3 degrees of at least 15 cd.

(b) If an electric light emits a directional beam of light, the light must:

(1) Have an Equivalent Fixed Intensity of no less than 25 cd within ±4 degrees vertical and ±4 degrees horizontal divergence centered about the peak intensity; and,

(2) Have a minimum peak Equivalent Fixed Intensity of 2,500 cd.

(c) The Equivalent Fixed Intensity (EFI) is the intensity of the light corrected for the length of the flash and is determined by the formula:

$$EFI = I \times (t_c - t_i) / 0.2 + (t_c - t_i)$$

Where:

I is the measured intensity of the fixed beam,

t_c is the contact closure time in seconds, (0.33 for this S-O-S signal), and

t_i is the incandescence time of the lamp in seconds.

(d) An electric light which meets the requirements of either paragraph (a) or (b) of this section need not, if capable of operating in both manners, meet the requirements of the other paragraph.

§ 161.013–7 Signal requirements.

(a) An electric light must have a flash characteristic of the International Morse Code for S-O-S and, under design conditions,

(1) Each short flash must have a duration of ⅓ second;

(2) Each long flash must have a duration of 1 second;

(3) The dark period between each short flash must have a duration of ⅓ second;

(4) The dark period between each long flash must have a duration of ⅓ second;

(5) The dark period between each letter must have a duration of 2 seconds;

(6) The dark period between each

S-O-S signal must have a duration of 3 seconds.

(b) The flash characteristics described in paragraph (a) must be produced automatically when the signal is activated.

§ 161.013–9 Independent power source.

(a) Each independent power source must be capable of powering the light so that it meets the requirements of § 161.013–3(a)(1) and emits a recognizable flash characteristic of the International Morse Code for S-O-S at a rate of between 3 and 5 times per minute after six hours of continuous display of the signal.

(b) If the independent power source is rechargeable, it must have a waterproof recharger designed for marine use.

(c) If the independent power source requires external water to form an electrolyte, it must operate in sea water and fresh water.

§ 161.013–11 Prototype test.

(a) Each manufacturer must test a prototype light identical to the lights to be certified prior to the labeling required by § 161.013–13.

(b) If the prototype light fails to meet any of the general performance requirements of § 161.013–3 the lights must not be certified under this subpart.

(c) Each manufacturer must:

(1) Forward the test results within 30 days to the Commandant (G–MSE), U. S. Coast Guard, Washington, DC 20593–0001; and

(2) Retain records of the test results for at least 5 years, or as long as the light is manufactured and certified, whichever is longer.

[CGD 76–183a, 44 FR 73054, Dec. 17, 1979, as amended by CGD 88–070, 53 FR 34536, Sept. 7, 1988; CGD 95–072, 60 FR 50467, Sept. 29, 1995; CGD 96–041, 61 FR 50734, Sept. 27, 1996]

§ 161.013–13 Manufacturer certification and labeling.

(a) Each electric light intended as a Night Visual Distress Signal required by 33 CFR part 175 must be certified by the manufacturer as complying with the requirements of this subpart.

(b) Each electric light must be legibly and indelibly marked with:

(1) Manufacturer's name;

(2) Replacement battery type;

(3) Lamp size; and

(4) The following words—

''Night Visual Distress Signal for Boats Complies with U. S. Coast Guard Requirements in 46 CFR 161.013. For Emergency Use Only.''

(c) If an electric light is designed for use with dry cell batteries the label must advise the consumer on the battery replacement schedule which under normal conditions would maintain performance requirements of § 161.013–3.

§ 161.013–17 Manufacturer notification.

Each manufacturer certifying lights in accordance with the specifications of this subpart must send written notice to the Commandant (G–MSE), U. S. Coast Guard, Washington, DC 20593–0001 within 30 days after first certifying them, and send a new notice every five years thereafter as long as it certifies lights.

[CGD 76–183a, 44 FR 73054, Dec. 17, 1979, as amended by CGD 88–070, 53 FR 34536, Sept. 7, 1988; CGD 95–072, 60 FR 50467, Sept. 29, 1995; CGD 96–041, 61 FR 50733, Sept. 27, 1996]

PART 162—ENGINEERING EQUIPMENT

Subpart 162.017—Valves, Pressure-Vacuum Relief, for Tank Vessels

Sec.

Subpart 162.018—Safety Relief Valves, Liquefied Compressed Gas

Subpart 172.027—Combination Solid Stream and Water Spray Firehose Nozzles