



Standard Specification for Searchlights on Motor Lifeboats¹

This standard is issued under the fixed designation F1003; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

^{ε1} NOTE—Reapproved with editorial changes in October 2012.

1. Scope

1.1 This specification covers searchlights for motor lifeboats. This specification is incorporated in U.S. Coast Guard Regulation 46 CFR 199.175 for survival craft and rescue equipment.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 The following precautionary caveat pertains only to the test method portion, Section 7, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

B117 Practice for Operating Salt Spray (Fog) Apparatus

2.2 ~~Military Standard~~ *ANSI Standards:*³

~~MIL-STD-105D~~ **ANSI/ASQ Z1.4 Sampling Procedures and Tables for Inspection by Attributes**

2.3 *Code of Federal Regulations (CFR):*⁴

46 CFR 199 Title 46 CFR, Shipping, Part 199, Lifesaving Appliances and Arrangements

3. Descriptions of Terms Specific to This Standard

3.1 ~~lot~~—a manufacturer's production run for a specific type of searchlight.

3.2 ~~order batch~~—size of a specific contract or purchase order taken from the lot.

3.3 ~~production testing~~—testing performed during a lot run of specific searchlights.

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

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¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.10 on Electrical.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from ~~DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094~~, <http://quicksearch.dla.mil>. American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

4. Materials and Manufacture

4.1 Material:

4.1.1 All materials used in the construction of these searchlights shall be of a quality suitable for the purpose intended and shall conform to the requirements of this specification.

4.1.2 The searchlight shall be constructed of brass, copper-alloy, an equivalent corrosion-resistant material, or a material that when tested in accordance with Practice B117 for 200 h, does not show signs of pitting, cracking, or deterioration.

4.1.3 Plastic, when used, shall be of a suitable thermoplastic or thermosetting material so molded as to produce a dense solid structure, uniform in texture, finish, and mechanical properties.

5. Requirements

5.1 The height of the searchlight from the base to the top of the light shall not exceed 19 in. (483 mm).

5.2 The housing of the searchlight shall be capable of free movement of at least 60° above and 45° below the horizontal, and be able to rotate 360° in the horizontal plane. There shall be a means provided to lock the searchlight in any desired position without the use of tools (vertically and horizontally).

5.3 The searchlight shall be capable of illuminating a light colored object at night at 55 ft (16.8 m). The searchlight shall project a beam of light of not less than 5.5 ft (1.68 m) in diameter at a distance of 55 ft from the light source. The edge of the beam shall be a point where the intensity of the light is 10 % of the maximum intensity. The light source shall have a candlepower rating of no less than ~~350,000~~ 350 000 cd.

5.4 The searchlight shall be capable of being operated for not less than 3 h of continuous use and 6 h of intermittent use.

5.5 The lamp used in the searchlight shall be of the incandescent, quartz, or other type which would allow for instant start. The lamps shall be rated for 12 V.

5.6 Each searchlight shall be watertight. The searchlight shall show no leakage of water following the test method prescribed in 7.1.

5.7 Each searchlight shall be wired with a 6-ft (2-m) length of rubber jacketed hard service flexible cord, unless otherwise specified in 8.3. The conductor size shall be no less than 16 AWG. The cable entry into the searchlight shall be sealed with a watertight bushing and packing gland. A suitable clamping device shall be installed in the area where the cables enter the gland to prevent any force being exerted on the gland or connections. The free end of this cord shall be dead-ended unless otherwise specified in 8.3.

5.8 Each searchlight shall be provided with a handle or handgrip to allow for ease of maneuvering the light into various positions.

5.9 Each searchlight shall be operated by a contact switch which allows the searchlight to be off, steady on, or in flashing mode (if provided).

6. Workmanship, Finish, and Appearance

6.1 Searchlights shall be of sturdy construction, and free from mechanical, electrical, or other imperfections or defects which materially affect appearance or which may affect quality, reliability, or serviceability.

6.2 The finished searchlight shall not contain rough edges, burrs, or other disfigurements and shall be clean, free from rust, tool marks, and other injurious defects.

7. Test Methods

7.1 *Watertightness*—The searchlight shall be submerged in a 60°F (16°C) saltwater solution (1.04 sp gr) to a depth of 3 ft (0.9 m) for 2 h. The light will then be subjected to the tests of 7.2.1 and be in perfect working order.

7.2 Environmental:

7.2.1 *Operational Test*—The searchlight shall be operated continuously for 3 h at rated voltage in an ambient temperature of 77°F (25°C) and be operational after being subjected to the watertightness test of 7.1. The searchlight shall then be operated intermittently. The intermittent time periods shall be 15 min “ON” and 5 min “OFF” for a total 6-h period. These tests shall be repeated three times. The searchlight may be allowed to cool between each test period (that is, 3 h continuous followed by 6 h intermittent). Bulbs or batteries, or both, may only be replaced between test periods.

7.2.2 *Impact Test Conditions*—The searchlight shall be placed in a cold chamber at $-40 \pm 5^\circ\text{F}$ ($-40 \pm 3^\circ\text{C}$) for 2 h. With the searchlight stabilized at this temperature, it shall be immediately subjected to the low- and high-impact tests specified in 7.2.2.1 and 7.2.2.2. The point of impact shall be applied to the outside of the case at a point midway between the ends of the case at 4 points 90° apart and the back plate.

7.2.2.1 *Low Impact*—The searchlight shall be subjected to a 12 in.·lbf (1.3 J) impact using a 1-lb (0.5-kg) steel ball at each of the points of impact specified in 7.2.2. The searchlight shall then be subjected to the watertightness test (see 7.1). There shall be no evidence of breakage from impact and no evidence of moisture shall be found in the case.