

recommendation on testing of live-saving appliances, pages 79-254 ("IMO Revised recommendation on testing"), IBR approved for §§ 160.115-7, 160.115-13, and 160.115-15.

(4) MSC/Circular 980, Standardized Life-saving Appliance Evaluation and Test Report Forms, (February 13, 2001), IBR approved for § 160.115-13 ("IMO MSC Circ. 980").

(5) MSC.1/Circular 1205, Guidelines for Developing Operation and Maintenance Manuals for Lifeboat Systems, (May 26, 2006), IBR approved for § 160.115-21 ("IMO MSC.1 Circ. 1205").

**§ 160.115-7 Design, construction, and performance of winches.**

(a) To seek Coast Guard approval of a winch, a manufacturer must comply with, and each winch must meet, the requirements of the following—

(1) IMO LSA Code, chapter I/1.2.2 and chapter VI/6.1. (incorporated by reference, see § 160.115-5 of this subpart) applicable to the design and intended service of the winch;

(2) IMO Revised recommendation on testing, Part 1/8.1 (incorporated by reference, see § 160.115-5 of this subpart) applicable to the winch;

(3) 46 CFR part 159; and

(4) This subpart.

(b) Each winch must meet each of the following requirements:

(1) *Materials.* (i) All gears must be machine cut and made of steel, bronze, or other suitable materials properly keyed to shafts. The use of cast iron is not permitted for these parts.

(ii) Metals in contact with each other must be either galvanically compatible or insulated with suitable non-porous materials. Provisions must also be made to prevent loosening or tightening resulting from differences of thermal expansion, freezing, buckling of parts, galvanic corrosion, or other incompatibilities.

(iii) Screws, nuts, bolts, pins, keys, and other similar hardware, securing moving parts must be fitted with suitable lock washers, cotter pins, or locks to prevent them from coming adrift.

(2) *Bearings and gears.* (i) Positive means of lubrication must be provided for all bearings.

(ii) When worm gears are used, the worm wheel must operate in an oil

bath. Means to easily check the oil level in the gear case must be provided.

(iii) The manufacturer must furnish a lubrication chart and a plate attached to the winch indicating the lubricant recommended for extremes in temperature.

(3) *Guards.* All moving parts must have suitable guards.

(4) *Welding.* Welding must be performed by welders certified by the Commandant, a classification society recognized by the Commandant in accordance with 46 CFR 8.220, the U.S. Navy, or the national body where the winch is constructed or the national body's designated recognized organization. Only electrodes intended for use with the material being welded may be used. All welds must be checked using appropriate non-destructive tests.

(5) *Winch drums.* (i) A winch must have grooved drums unless otherwise approved by the Commandant.

(ii) The diameter of the drums must be at least 16 times the diameter of the falls.

(iii) Drums must be so arranged as to keep the falls separate, and to pay out the falls at the same rate. Clutches between drums are not permitted unless bolted locking devices are used.

(6) *Winch motors.* For a winch powered by electric or hydraulic motors, or portable power units such as air or electric drills—

(i) Positive means must be provided for controlling the power to the winch, arranged so that the operator must hold the master switch or controller in the "on" or "hoist" position for hoisting, and when released, will immediately shut off the power;

(ii) A clutch must be fitted to disengage the power installation during the lowering operation;

(iii) A means must be provided to disconnect power to the winch before a hand crank can be engaged with the winch operating shaft, and this interruption of power must be maintained while the hand crank is so engaged;

(iv) The air or electric power outlet for a portable power unit must be located adjacent to the winch where the unit is to be coupled, and the outlet must be interconnected with, and protected by, the same system of safety

devices as required for a winch with built-in-motors;

(v) A main line emergency disconnect switch, the opening of which disconnects all electrical potential to the winch, must be provided. This switch must be located in a position accessible to the person in charge of the boat stowage and must be in a position from which the movement of both davit arms can be observed as they approach the final stowed position;

(vi) Limit switches, one for each davit arm, must be provided to limit the travel of the davit arms as they approach the final stowed position. These switches must—

(A) Be so arranged that the opening of either switch will disconnect all electrical potential of the circuit in which the switches are connected;

(B) Be arranged to stop the travel of the davit arms not less than 0.3m (12 in) from their final stowed position; and

(C) Remain open until the davit arms move outboard beyond the tripping position of the switches;

(vii) Motor clutches, when used, must be of either frictional or positive engaging type. When one motor is used for two winches, the clutch must be so arranged that only one winch may be engaged at any one time. The clutch operating lever must be capable of remaining in any position when subject to vibration and must be so arranged that when in neutral position both lifeboats may be lowered simultaneously;

(viii) Motors, switches, controls, and cables must be waterproof if installed on an open deck. Controls may be of the drip-proof type if installed in a deck house or under deck;

(ix) Hydraulic systems must be in accordance with 46 CFR part 58, subpart 58.30; and

(x) Electrical installations must comply with 46 CFR 111.01-9, 111.01-11, 111.01-19, 111.25, 111.55, 111.70, and 111.95.

(7) *Quick return.* For a winch used to launch an inflatable liferaft means must be provided for rapidly retrieving the falls by hand power.

(c) Determinations of equivalence of design, construction, and materials will be made by the Commandant only.

#### § 160.115-9 Preapproval review.

(a) Except as provided in paragraph (c) of this section, the Commandant must conduct the preapproval review required by this section, in accordance with 46 CFR 159.005-5.

(b) *Manufacturer requirements.* To seek Coast Guard approval of a winch, the manufacturer must submit an application to the Commandant meeting the requirements of 46 CFR 159.005-5 for preapproval review. To meet the requirements of 46 CFR 159.005-5(a)(2), the manufacturer must submit in triplicate—

(1) A list of drawings, specifications, manuals, and any other documentation submitted, with each document identified by number, title, revision number, and issue date;

(2) General arrangement and assembly drawings, including principal dimensions;

(3) Stress calculations for all load carrying parts;

(4) An operation, maintenance, and training manual as described in §§160.115-19 and 160.115-21 of this subpart;

(5) A description of the quality control procedures and recordkeeping that will apply to the production of the winch, which must include, but is not limited to—

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

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

(iii) The method for checking quality of fabrication and joints, including welding inspection procedures; and

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

(6) Any other drawing(s) necessary to show that the winch complies with the requirements of this subpart;

(7) The location or address of all manufacturing sites, including the name and address of any subcontractors, where the winch will be constructed; and

(8) The name of the independent laboratory that will perform the duties prescribed in §160.115-15 of this subpart.