width. Each such portion must be tested and must meet the requirements.

(i) One retest must be made for each of the original specimens which fails to meet the requirements. Should the retests fail to meet the requirements, the welds which they represent must be chipped out, rewelded and new test plates provided.

[CGFR 68–82, 33 FR 18872, Dec. 18, 1968, as amended by CGFR 69–127R, 35 FR 9980, June 17, 1970; CGD 74–102, 40 FR 27461, June 30, 1975; CGD 80–004, 45 FR 10796, Feb. 19, 1980; CGD 95–012, 60 FR 48050, Sept. 18, 1995]

§ 57.06–5 Production toughness testing.

(a) In addition to the test specimens required by § 57.06–4(a), production toughness test plates must be prepared for Classes I–L and II–L pressure vessels in accordance with subpart 54.05 of this subchapter.

(b) For nonpressure vessel type cargo tanks and associated secondary barriers as defined in § 38.05–4 of subchapter D of this chapter, production toughness test plates must be prepared in accordance with subpart 54.05 of this subchapter.

[CGD 68–82, 33 FR 18872, Dec. 18, 1968, as amended by CGD 72–206R, 38 FR 17229, June 29, 1973; CGD 95–012, 60 FR 48050, Sept. 18, 1995]

PART 58—MAIN AND AUXILIARY MACHINERY AND RELATED SYSTEMS

Subpart 58.01—General Requirements

Sec.

Subpart 58.03—Incorporation of Standards

Subpart 58.05—Main Propulsion Machinery

Subpart 58.10—Internal Combustion Engine Installations

Subpart 58.16—Liquefied Petroleum Gases for Cooking and Heating

Subpart 58.20—Refrigeration Machinery

Subpart 58.25—Steering Gear

AUTHORITY: 43 U.S.C. 1333; 46 U.S.C. 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 00170.1, Revision No. 01.3.

SOURCE: CGFR 68–82, 33 FR 18878, Dec. 18, 1968, unless otherwise noted.

Subpart 58.01—General Requirements

§ 58.01–1 Scope.

The regulations in this part contain requirements for the design and construction of main and auxiliary machinery installed on vessels.

§ 58.01–5 Applicable standards.

The applicable standards established by the ABS Marine Vessel Rules (incorporated by reference, see § 58.03–1), may be used as the standard for the design, construction, and testing of main and auxiliary machinery except as modified in this subchapter.

[USCG–2020–0634, 89 FR 50171, June 12, 2024]

§ 58.01–10 Fuel oil.

(a) The following limits apply to the use of oil as fuel:

(1) Except as otherwise permitted by this section, no fuel oil with a flashpoint of less than 60 °C (140 °F) may be used.

(2) Except as otherwise permitted by § 58.50–1(b), fuel oil with a flashpoint of not less than 43 °C (110 °F) may be used in emergency generators.

(3) Subject to such further precautions as the Commanding Officer, Marine Safety Center, considers necessary, and provided that the ambient temperature of the space in which such fuel oil is stored or used does not rise to within 18 °F (10 °C) below the flashpoint of the fuel oil, fuel oil having a flashpoint of less than 140 °F (60 °C) but not less than 110 °F (43 °C) may be used.

(4) In a cargo vessel, fuel having a lower flashpoint than otherwise specified in this section—for example, crude oil—may be used provided that such fuel is not stored in any machinery space and that the Commanding Officer, Marine Safety Center, approves the complete installation.

(b) The flashpoint of oil must be determined by the Pensky-Martens Closed Tester, ASTM D93 (incorporated by reference, see § 58.03–1).

[CGD 83–043, 60 FR 24775, May 10, 1995, as amended by USCG–1999–5151, 64 FR 67180, Dec. 1, 1999; USCG–2003–16630, 73 FR 65186, Oct. 31, 2008; USCG–2020–0634, 89 FR 50172, June 12, 2024]

§ 58.01–20 Machinery guards.

Gears, couplings, flywheels, and all rotating machinery capable of injuring personnel must be provided with adequate covers or guards.

[USCG–2020–0634, 89 FR 50172, June 12, 2024]

§ 58.01–25 Means of stopping machinery.

Machinery driving forced-draft and induced-draft fans, fuel-oil transfer pumps, fuel-oil unit and service pumps, and similar fuel-oil pumps must be fitted with remote controls from a readily accessible position outside the space concerned so that the fans or pumps may be stopped in case of fire in

the compartment in which they are located. The controls must be suitably protected against accidental operation and against tampering and must be suitably marked.

[CGD 83–043, 60 FR 24775, May 10, 1995]

§ 58.01–30 Trial-trip observance.

The operation of main and auxiliary engines, boilers, steering gear, and auxiliaries must be observed on the trial trip of each new vessel and all deficiencies which affect the safety of the vessel must be corrected to the satisfaction of the Officer in Charge, Marine Inspection.

[USCG–2020–0634, 89 FR 50172, June 12, 2024]

§ 58.01–35 Main propulsion auxiliary machinery.

Auxiliary machinery vital to the main propulsion system must be provided in duplicate unless the system served is provided in independent duplicate, or otherwise provides continued or restored propulsion capability in the event of a failure or malfunction of any single auxiliary component.

NOTE 1 TO § 58.01–30: Partial reduction of normal propulsion capability as a result of malfunction or failure is acceptable if the reduced capability is not below that necessary for the vessel to run ahead at 7 knots or half speed, whichever is less, and is adequate to maintain control of the ship.

[CGD 81–030, 53 FR 17837, May 18, 1988, as amended by USCG–2020–0634, 89 FR 50172, June 12, 2024]

§ 58.01–40 Machinery, angles of inclination.

(a) Propulsion machinery and all auxiliary machinery essential to the propulsion and safety of the vessel must be designed to operate when the vessel is upright, when the vessel is inclined under static conditions at any angle of list up to and including 15°, and when the vessel is inclined under dynamic conditions (rolling) at any angle of list up to and including 22.5° and, simultaneously, at any angle of trim (pitching) up to and including 7.5° by bow or stern.

(b) Deviations from these angles of inclination may be permitted by the Commanding Officer, Marine Safety Center, considering the type, size, and service of the vessel.

[CGD 83–043, 60 FR 24775, May 10, 1995]

§ 58.01–45 Machinery space, ventilation.

Each machinery space must be ventilated to ensure that, when machinery or boilers are operating at full power in all weather including heavy weather, an adequate supply of air is maintained for the operation of the machinery and for the safety, efficiency, and comfort of the crew.

[CGD 83–043, 60 FR 24775, May 10, 1995]

§ 58.01–50 Machinery space, noise.

Each machinery space must be designed to minimize the exposure of personnel to noise in accordance with IMO Resolution MSC.337(91) (incorporated by reference, see § 58.03–1).

[USCG–2020–0634, 89 FR 50172, June 12, 2024]

§ 58.01–55 Tanks for flammable and combustible oil.

(a) For the purposes of this section, a machinery space of category A is a space that contains any of the following:

(1) Internal-combustion machinery used for main propulsion.

(2) Internal-combustion machinery used for other than main propulsion, whose power output is equal to or greater than 500 HP (375 kw).

(3) Any oil-fired boiler.

(4) Any equipment used to prepare fuel oil for delivery to an oil-fired boiler, or equipment used to prepare heated oil for delivery to an internal-combustion engine, including any oil-pressure pumps, filters, and heaters dealing with oil pressures above 26 psi.

(b) As far as practicable, each fuel-oil tank must be part of the vessel's structure and be located outside a machinery space of category A.

(c) If a fuel-oil tank, other than a double-bottom tank, must be located adjacent to or within a machinery space of category A—

(1) At least one of its vertical sides must be contiguous to the boundary of the machinery space;

(2) The tank must have a common boundary with the double-bottom tanks; and

(3) The area of the tank boundary common with the machinery spaces must be kept as small as practicable.

(d) If a fuel-oil tank must be located within a machinery space of category A, it must not contain fuel oil with a flashpoint of less than 60 °C (140 °F).

(e) In general, no freestanding fuel-oil tank is permitted in any machinery space of Category A on a passenger vessel. A freestanding fuel-oil tank is permitted in other spaces only if authorized by the Commanding Officer, Marine Safety Center. If so authorized, each freestanding fuel-oil tank must—

(1) Comply with subpart 58.50; and

(2) Be placed in an oil-tight spill tray with a drain pipe leading to a spill-oil tank.

(f) No fuel-oil tank may be located where spillage or leakage from it can constitute a hazard by falling on heated surfaces. The design must also prevent any oil that may escape under pressure from any pump, filter, or heater from coming into contact with heated surfaces.

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2020–0634, 89 FR 50172, June 12, 2024]

Subpart 58.03—Incorporation of Standards

§ 58.03–1 Incorporation by reference.

Certain material is incorporated by reference into this part 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 this section, the Coast Guard must publish a document in the FEDERAL REGISTER and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at the U.S. Coast Guard and the National Archives and Records Administration (NARA). Contact U.S. Coast Guard Headquarters at: Commandant (CG–ENG), Attn: Office of Design and Engineering Standards, U.S. Coast Guard Stop 7509, 2703 Martin Luther King Jr. Avenue SE, Washington, DC 20593–7509; phone (202) 372–1375; email *typeapproval@uscg.mil*. For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations* or email *fr.inspection@nara.gov*. The material may be obtained from the following sources:

(a) *American Boat and Yacht Council (ABYC)*, 613 Third Street, Suite 10, Annapolis, MD 21403; (410) 990–4460; *www.abycinc.org*.

(1) ABYC P–1, Installation of Exhaust Systems for Propulsion and Auxiliary Engines, reaffirmed July 2014; IBR approved for § 58.10–5(d).

(2) [Reserved]

(b) *American Bureau of Shipping (ABS)*, 1701 City Plaza Drive, Spring, TX 77389; 281–877–6000; *CSC@eagle.org; ww2.eagle.org*.

(1) ABS Rules for Building and Classing Marine Vessels, Part 4, Vessel Systems and Machinery, January 2020 (''ABS Marine Vessel Rules''); IBR approved for §§ 58.01–5; 58.05–1; 58.10–15(a); 58.20–5(a); 58.25–5(d).

(2) [Reserved]

(c) *American Petroleum Institute (API)*, 200 Massachusetts Avenue NW, Washington, DC 20001–5571; 202–682–8000; *APIPubs@api.org; www.api.org*.

(1) API Recommended Practice 14C, Analysis, Design, Installation and Testing of Safety Systems for Offshore Production Facilities, Eighth Edition, February 2017, including Errata 1 (May 2018) (''API RP 14C''); IBR approved for § 58.60–9.

(2) API Standard 53, Well Control Equipment Systems for Drilling Wells, Fifth Edition, December 2018 (''API STD 53''); IBR approved for § 58.60–7.

(d) *American Society of Mechanical Engineers (ASME)*, Two Park Avenue, New York, NY 10016–5990; 800–843–2763; *CustomerCare@asme.org; www.asme.org*.

(1) ASME BPVC.I–2019, 2019 ASME Boiler and Pressure Vessel Code, Section I, Rules for Construction of Power Boilers, 2019 Edition, issued July 1, 2019 (''Section I of the ASME BPVC''); IBR approved for § 58.30–15(b).

(2) ASME BPVC.VIII.1–2019, 2019 ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, Rules for Construction of Pressure Vessels, 2019 Edition, issued July 1, 2019 (''Section VIII of the ASME BPVC''); IBR approved for § 58.30–15(b).

(3) ASME B31.3–2018, Process Piping, ASME Code for Pressure Piping, B31, issued August 30, 2019 (''ASME B31.3''); IBR approved for § 58.60–7.

(4) ASME B31.5–2016, Refrigeration Piping and Heat Transfer Components, issued June 29, 2016 (''ASME B31.5''); IBR approved for §§ 58.20–5(a); 58.20–20(b).

(e) *ASTM International*, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; 610–832–9500; *service@astm.org; www.astm.org*.

(1) ASTM A193/A193M–19, Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service or High Pressure Service and Other Special Purpose Applications, approved November 1, 2019 (''ASTM A193/A193M''); IBR approved for § 58.30–15(c).

(2) ASTM B96/B96M–16, Standard Specification for Copper-Silicon Alloy Plate, Sheet, Strip, and Rolled Bar for General Purposes and Pressure Vessels, approved April 1, 2016 (''ASTM B96''); IBR approved for § 58.50–5(a).

(3) ASTM B122/B122M–16, Standard Specification for Copper-Nickel-Tin Alloy, Copper-Nickel-Zinc Alloy (Nickel Silver), and Copper-Nickel Alloy Plate, Sheet, Strip, and Rolled Bar, approved April 1, 2016 (''ASTM B122''); IBR approved for § 58.50–5(a).

(4) ASTM B127–19, Standard Specification for Nickel-Copper Alloy Plate, Sheet, and Strip, approved November 1, 2019 (''ASTM B127''); IBR approved for §§ 58.50–5(a); 58.50–10(a).

(5) ASTM B152/B152M–19, Standard Specification for Copper Sheet, Strip, Plate, and Rolled Bar, approved October 1, 2019 (''ASTM B152''); IBR approved for § 58.50–5(a).

(6) ASTM B209–14, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate, approved November 1, 2014 (''ASTM B209''); IBR approved for §§ 58.50–5(a); 58.50–10(a).

(7) ASTM D92–18, Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester, approved July 1, 2018 (''ASTM D92''); IBR approved for § 58.30–10(b).

(8) ASTM D93–19, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester, approved November 1, 2019 (''ASTM D93''); IBR approved for § 58.01–10(b).

(9) ASTM D323–15a, Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method), approved June 1, 2015 (''ASTM D323''); IBR approved for § 58.16–5.

(f) *International Maritime Organization (IMO)*, Publications Section, 4 Albert Embankment, London SE1 7SR, United Kingdom; *sales@imo.org; www.imo.org*.

(1) Resolution A.467(XII), Guidelines for Acceptance of Non-Duplicated Rudder Actuators for Tankers, Chemical Tankers and Gas Carriers of 10,000 Tons Gross Tonnage and Above But Less Than 100,000 Tonnes Deadweight, 1981 (''IMO A.467(XII)''); IBR approved for § 58.25–60.

(2) Resolution MSC.337(91), Code on Noise Levels on Board Ships, adopted November 30, 2012 (''IMO Resolution MSC.337(91)''); IBR approved for § 58.01–50.

(3) SOLAS Consolidated Edition 2020, Consolidated text of the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1988: articles, annexes and certificates, Consolidated Edition, January 1, 2020 (SOLAS); IBR approved for § 58.25–10(a).

(g) *National Fire Protection Association (NFPA)*, 1 Batterymarch Park, Quincy, MA 02169–7471; 617–770–3000; *custserv@nfpa.org*; *www.nfpa.org*.

(1) NFPA 302, Fire Protection Standard for Pleasure and Commercial Motor Craft, 2020 Edition, ANSI-approved August 25, 2019 (''NFPA 302''); IBR approved for § 58.10–5(d).

(2) [Reserved]

(h) *SAE International (SAE)*, 400 Commonwealth Drive, Warrendale, PA 15096; 724–776–4841; *customerservice@sae.org*; *www.sae.org*.

(1) SAE J429 MAY2014, Mechanical and Material Requirements for Externally Threaded Fasteners, revised May 2014 (''SAE J429''); IBR approved for § 58.30–15(c).

(2) SAE J1928 JUN2018, Devices Providing Backfire Flame Control for Gasoline Engines in Marine Applications, revised June 2018 (''SAE J1928''); IBR approved for § 58.10–5(b).

[USCG–2020–0634, 89 FR 50172, June 12, 2024]

Subpart 58.05—Main Propulsion Machinery

§ 58.05–1 Material, design, and construction.

(a) The material, design, construction, workmanship, and arrangement

of main propulsion machinery and of each auxiliary, directly connected to the engine and supplied as such, must be at least equivalent to the standards established by the ABS Marine Vessel Rules (incorporated by reference, see § 58.03–1), except as otherwise provided by this subchapter.

(b) When main and auxiliary machinery is to be installed without classification society review, the builder must submit to the cognizant Officer in Charge, Marine Inspection, such drawings and particulars of the installation as are required by the ABS Marine Vessel Rules for similar installations on classed vessels.

[USCG–2020–0634, 89 FR 50172, June 12, 2024]

§ 58.05–5 Astern power.

(a) All vessels must have sufficient power for going astern to secure proper control of the ship in all normal circumstances.

(b) [Reserved]

[USCG–2020–0634, 89 FR 50172, June 12, 2024]

§ 58.05–10 Automatic shut-off.

Main propulsion machinery must be provided with automatic shut-off controls in accordance with part 62 of this subchapter. These controls must shut down main propulsion machinery in case of a failure, such as failure of the lubricating-oil supply, that could lead rapidly to complete breakdown, serious damage, or explosion.

[CGD 83–043, 60 FR 24776, May 10, 1995]

Subpart 58.10—Internal Combustion Engine Installations

SOURCE: USCG–2020–0634, 89 FR 50173, June 12, 2024, unless otherwise noted.

§ 58.10–5 Gasoline engine installations.

(a) *Engine design.* All installations must be of marine type engines suitable for the intended service, designed and constructed in conformance with the requirements of this subchapter.

(b) *Carburetors.* (1) Drip collectors must be fitted under all carburetors, except the down-draft type, to prevent fuel leakage from reaching the bilges and so arranged as to permit ready removal of such fuel leakage. Drip collectors must be covered with flame screens.

NOTE 1 TO PARAGRAPH (b)(1): It is recommended that drip collectors be drained by a device for automatic return of all drip to engine air intakes.

(2) All gasoline engines must be equipped with an acceptable means of backfire flame control. Installations of backfire flame arresters bearing basic Approval Nos. 162.015 or 162.041 or engine air and fuel induction systems bearing basic Approval Nos. 162.015 or 162.042 may be continued in use as long as they are serviceable and in good condition. New installations or replacements must meet the applicable requirements of this section.

(3) The following are acceptable means of backfire flame control for gasoline engines:

(i) A backfire flame arrester complying with SAE J1928 (incorporated by reference; see § 58.03–1) and marked accordingly. The flame arrester must be suitably secured to the air intake with a flametight connection.

(ii) An engine air and fuel induction system which provides adequate protection from propagation of backfire flame to the atmosphere equivalent to that provided by an acceptable backfire flame arrester. A gasoline engine utilizing an air and fuel induction system, and operated without an approved backfire flame arrester, must either include a reed valve assembly or be installed in accordance with SAE J1928.

(iii) An arrangement of the carburetor or engine air induction system that will disperse any flames caused by engine backfire. The flames must be dispersed to the atmosphere outside the vessel in such a manner that the flames will not endanger the vessel, persons, on board, or nearby vessels and structures. Flame dispersion may be achieved by attachments to the carburetor or location of the engine air induction system. All attachments must be of metallic construction with flametight connections and firmly secured to withstand vibration, shock, and engine backfire. Such installations do not require formal approval and labeling but must comply with this subpart.

(c) *Exhaust manifold.* The exhaust manifold must either be water-jacketed and cooled by discharge from a

pump which operates whenever the engine is running, or woodwork within nine inches must be protected by ¼-inch asbestos board covered with not less than No. 22 USSG (U.S. standard gage) galvanized sheet iron or nonferrous metal. A dead air space of ¼-inch must be left between the protecting asbestos and the wood, and a clearance of not less than two inches maintained between the manifold and the surface of such protection.

(d) *Exhaust pipe.* (1) Exhaust pipe installations must conform to the requirements of ABYC P–1 and Chapter 6 of NFPA 302 (both incorporated by reference; see §58.03–1) and the following additional requirements:

(i) All exhaust installations with pressures in excess of 15 psig or employing runs passing through living or working spaces shall meet the material requirements of part 56 of this subchapter.

(ii) Horizontal dry exhaust pipes are permitted only if they do not pass through living or berthing spaces, they terminate above the deepest load waterline and are so arranged as to prevent entry of cold water from rough or boarding seas, and they are constructed of corrosion resisting material ''at the hull penetration.''

(2) [Reserved]

§58.10–10 Diesel engine installations.

(a) The requirements of §58.10–5 (a), (c), and (d) apply to diesel engine installations.

(b) A diesel engine air intake on a mobile offshore drilling unit must not be in a classified location.

(c) A diesel engine exhaust on a mobile offshore drilling unit must not discharge into a classified location.

NOTE 1 TO §58.10–10: Sections 108.171 to 108.175 of this chapter define classified locations for mobile offshore drilling units.

§58.10–15 Gas turbine installations.

(a) *Standards.* The design, construction, workmanship and tests of gas turbines and their associated machinery must be at least equivalent to the standards of the ABS Marine Vessel Rules (incorporated by reference, see §58.03–1).

(b) *Materials.* The materials used for gas turbine installations must have properties suitable for the intended service. When materials not conforming to standard ASTM specifications are employed, data concerning their properties, including high temperature strength data, where applicable, must be furnished.

(c) *Exhausts.* (1) Where piping is used for gas turbine exhaust lines, Class II is required as a minimum. (See subpart 56.04 of this subchapter.) Where the exhaust pressure exceeds 150 psig, such as in closed cycle systems, Class I must be used. Where ducting other than pipe is employed, the drawings and design data must be submitted to substantiate suitability and safety for the intended service.

(2) Where considered necessary, gas turbines and associated exhaust systems must be suitably insulated or cooled, by means of lagging, water spray, or a combination thereof.

(3) Gas turbine exhausts must not be interconnected with boiler uptakes except for gas turbines used for emergency power and lighting or for emergency propulsion. Dampers or other suitable means must be installed to prevent backflow of boiler exhaust gases through the turbine. Interconnected exhausts must be specifically approved by the Commandant.

(4) A gas turbine exhaust on a mobile offshore drilling unit must not discharge in a classified location. (See note 1 to this section.)

(d) *Air inlets.* Air inlets must be designed as follows:

(1) Each air inlet must have means to protect the safety of life and to prevent the entrance of harmful foreign material, including water, into the system.

(2) A gas turbine air inlet must not be in a classified location. (See note 1 to this section.)

(e) *Cooling and ventilation.* Means must be provided for circulating air, either natural or forced, through the engine compartment for cooling and ventilation.

(f) *Automatic shutdown.* (1) The control system must be designed for automatic shutdown of the engine with actuation of audible and visible alarms at shutdown. The visible malfunction indicator must indicate what condition caused the shutdown and remain visible until reset. Automatic shutdown

must occur under the following conditions:

(i) Overspeed.

(ii) Low lubricating oil pressure. Consideration will be given providing alarm only (without shutdown) in those cases where suitable antifriction bearings are fitted.

(2) Audible or visible alarms must also be provided for:

(i) Excessive gas temperature, measured at the turbine inlet, gas generator, interstage turbine or turbine exhaust.

(ii) Excessive lubricating oil temperature.

(iii) Excessive speed.

(iv) Reduced lubricating oil pressure.

(3) A remote, manually operated shutdown device must be provided. Such device may be totally mechanical or may be electrical with a manually actuated switch.

(g) *Drawings and design data.* Drawings and design data of the following components must be submitted to substantiate their suitability and safety for the service intended:

(1) Combustion chamber.

(2) Regenerator or recuperator.

(3) Casing or piping conveying the gas from the combustion device to the gas turbine.

(h) *Fuel systems.* Gas turbine fuel systems must meet the requirements of part 56 of this subchapter.

(i) *Fire extinguishing systems.* A special local fire extinguishing system may be required for gas turbine installations if considered necessary by the Commandant. Such a system would be in addition to any other required in the compartment in which the gas turbine is located.

NOTE 1 TO §58.10–15: Sections 108.171 to 108.175 of this chapter define classified locations for mobile offshore drilling units.

Subpart 58.16—Liquefied Petroleum Gases for Cooking and Heating

SOURCE: USCG–2020–0634, 89 FR 50173, June 12, 2024, unless otherwise noted.

§58.16–1 Scope.

(a) This subpart prescribes standards for the use of liquefied petroleum gas for heating and cooking on inspected vessels, except ferries.

(b) It is the intent of the regulations in this subpart to permit liquefied petroleum gas systems of the vapor withdrawal type only. Cylinders designed to admit liquid gas into any other part of the system are prohibited.

(c) Except as provided by §58.16–7(b), all component parts of the system, except cylinders, appliances, and low-pressure tubing, must be designed to withstand a pressure of 500 pounds per square inch without failure.

§58.16–5 Definition.

For the purpose of this subpart the term ''liquefied petroleum gas'' means any liquefied flammable gas which is composed predominantly of hydrocarbons or mixtures of hydrocarbons, such as propane, propylene, butane, butylene, or butadiene, and which has a Reid vapor pressure exceeding 40 pounds per square inch absolute at 100 °F as determined by ASTM D323 (incorporated by reference, see §58.03–1).

§58.16–7 Use of liquefied petroleum gas.

(a) Cooking equipment using liquefied petroleum gas on vessels of 100 gross tons or more that carry passengers for hire must meet the requirements of this subpart.

(b) Cooking equipment using liquefied petroleum gas on vessels of less than 100 gross tons that carry passengers for hire must meet the requirements of §25.45–2 or part 184, both of this chapter, as applicable.

(c) Systems using liquefied petroleum gas for cooking or heating on any other vessels subject to inspection by the Coast Guard must meet the requirements of this subpart.

§58.16–10 Approvals.

(a) *Gas appliances.* (1) All gas-consuming appliances used for cooking and heating must be tested, listed, and labeled by an acceptable laboratory, such as:

(i) The American Gas Association Testing Laboratories.

(ii) UL Solutions.

(2) Continuous-burning pilot flames are prohibited for use on gas appliances when installed below the weather deck.

(3) Printed instructions for proper installation, operation, and maintenance of each gas-consuming appliance must be furnished by the manufacturer.

(b) *Cylinders.* (1) Cylinders in which liquefied petroleum gas is stored and handled must be constructed, tested, marked, maintained, and retested in accordance with 49 CFR part 178.

(2) All liquefied petroleum gas cylinders in service must bear a test date marking indicating that they have been retested in accordance with the regulations of the Department of Transportation.

(3) Regardless of the date of the previous test, a cylinder must be rejected for further service when it leaks; when it is weakened appreciably by corrosion, denting, bulging or other evidence of rough usage; when it has lost more than 5 percent of its tare weight; or when it has been involved in a fire.

(c) *Safety-relief devices.* All required safety-relief devices must be accepted as to type, size, pressure setting, and location by the Commandant (CG–ENG) as being in accordance with 49 CFR part 178.

(d) *Valves, regulators, and vaporizers.* All component parts of the system, other than cylinders and low-pressure distribution tubing between regulators and appliances, must be tested and approved by and bear the label of UL Solutions or other recognized testing laboratory.

(e) *Plan approval.* Drawings showing the location and installation of all piping, gas-consuming appliances, cylinders, and other component parts of the system must be submitted for approval.

§ 58.16–15 Valves and safety relief devices.

(a) Each cylinder must have a manually operated screw-down shutoff valve fitted with a handwheel installed directly at the cylinder outlet.

(b) All cylinders must be protected by one or more safety relief devices complying with the requirements of § 58.16–10(a). The safety relief device must be a shutoff valve with an integral spring-loaded safety relief valve and supplementary fusible plug, the latter designed to yield when the cylinder has been emptied of liquid gas by the relief valve under conditions of exposure to excessive heat.

(c) Cylinder valves and safety relief devices must have direct communication with the vapor space of the cylinder.

(d) In addition to the cylinder valve, a multiple cylinder system must be provided with a two-way positive shutoff manifold valve of the manually operated type. The manifold valve must be so arranged that the replacement of empty cylinders can be made without shutting down the flow of gas in the system.

(e) A master packless shutoff valve controlling all burners simultaneously must be installed at the manifold of all gas-consuming appliances.

§ 58.16–16 Reducing regulators.

(a) All systems shall be provided with a regulating device so adjusted as to release gas to the distribution tubing at a pressure not in excess of 18 inches water column, or approximately 10.5 ounces per square inch.

(b) The low-pressure side of all regulators must be protected against excessive pressure by means of a suitable relief valve, which must be integral with the regulator. The relief valve must be set to start to discharge at a pressure not less than two times and not more than three times the delivery pressure.

(c) All reducing regulators must be fitted with a pressure gage located on the high-pressure side of the regulator.

§ 58.16–17 Piping and fittings.

(a) The piping between the cylinders and the appliances must be seamless annealed copper tubing or such other seamless tubing as may be approved by the Commandant.

(b) All high-pressure tubing between the cylinders and the regulators must have a minimum wall thickness of 0.049 inch. All low-pressure tubing between the regulator and appliances must have a minimum wall thickness of 0.032 inch.

(c) Tubing connecting fittings must be of the flare type; or connections may be soldered or brazed with material having a melting point in excess of 1,000 °F.

§ 58.16–18 Installation.

(a) *Cylinders, regulating and safety equipment.* (1) Cylinders, regulating and safety equipment must be installed in a substantially constructed and firmly fixed metal enclosure located on or above the weather deck. The cylinder enclosure must have access from the weather deck only. The enclosure must be provided with top and bottom ventilation consisting of a fresh air inlet pipe and an exhaust pipe both entering through the top of the cylinder housing. The enclosure must be constructed so that when the access opening is closed, no gas can escape except through the ventilation system.

(2) Cylinders, regulating and safety devices must be securely fastened and supported within the metal enclosure. The cylinders and high-pressure equipment must be so mounted as to be readily accessible and capable of easy removal for refilling and inspection. The stowage of high-pressure equipment in the housing must be such that the cylinder valves can be readily operated, and the pressure gage dial is easily visible. Where possible cylinders must be mounted in an upright position.

(3) Stowage of unconnected spare cylinders, filled or empty, must comply with the requirements for cylinders.

(4) All valves, manifolds and regulators must be securely mounted in locations readily accessible for inspection, maintenance, and testing, and must be adequately protected.

(5) Discharge of the safety relief valves must be vented away from the cylinder, and insofar as practicable, upward into the open atmosphere, but in all cases so as to prevent impingement of the escaping gas onto a cylinder.

(b) *Piping.* (1) All piping must be installed so as to provide minimum interior runs and adequate flexibility. The piping at the cylinder outlets must be fitted with flexible metallic connections to minimize the effect of cylinder movement on the outlet piping.

(2) Distribution lines must be protected from physical damage and be readily accessible for inspection. Lines must be substantially secured against vibration by means of soft nonferrous metal clips without sharp edges in contact with the tubing. When passing through decks or bulkheads, the lines must be protected by ferrules of nonabrasive material. The distribution lines must be continuous length of tubes from the regulator to the shutoff valve at the appliance manifold.

(c) *Gas-consuming appliances.* All gas-consuming appliances must be permanently and securely fastened in place.

(d) *Electrical.* No electrical connections must be made within the cylinder housing.

§ 58.16–19 Tests.

(a) *Installation.* (1) After installation, the distribution tubing must be tested prior to its connection to the regulator and appliance by an air pressure of not less than 5 psig.

(2) After satisfactory completion of the tests prescribed in paragraph (a)(1) of this section, the distribution tubing must be connected to the regulator and appliance and the entire system subjected to a leak test as required by § 58.16–30(j).

(b) *Periodic.* Leak tests as required by § 58.16–30(j) must be conducted at least once each month and at each regular annual or biennial inspection. The tests required at monthly intervals must be conducted by a credentialed officer of the vessel or qualified personnel acceptable to the Officer in Charge, Marine Inspection. The owner, master, or person in charge of the vessel must keep records of such tests showing the dates when performed and the name(s) of the person(s) and/or company conducting the tests. Such records must be made available to the marine inspector upon request and must be kept for the period of validity of the vessel's current certificate of inspection. Where practicable, these records should be kept in or with the vessel's logbook.

§ 58.16–20 Ventilation of compartments containing gas-consuming appliances.

(a) Compartments containing gas-consuming appliances which are located above the weather deck must be fitted with at least two natural ventilator ducts led from the atmosphere with one extending to the floor level and the other extending to the overhead of the compartment. Powered

ventilation may be used provided the motor is outside the compartment.

(b) Compartments in which gas-consuming appliances are located entirely below the weather deck must be provided with powered ventilation of sufficient capacity to effect a change of air at least once every 6 minutes. The motor for the powered ventilation must be located outside the compartment.

§ 58.16–25 Odorization.

(a) All liquefied petroleum gases must be effectively odorized by an agent of such character as to indicate positively by a distinctive odor, the presence of gas down to concentration in air of not over one-fifth the lower limit of combustibility.

(b) [Reserved]

§ 58.16–30 Operating instructions.

(a) Before opening a cylinder valve, the outlet of the cylinder must be connected tightly to system; and in the case where only a single cylinder is used in the system, all appliance valves and pilots must be shut off before the cylinder valve is opened.

(b) Before opening cylinder valve after connecting it to system, the cylinder must be securely fastened in place.

(c) When cylinders are not in use their outlet valves must be kept closed.

(d) Cylinders when exhausted must have their outlet valves closed.

(e) Nothing must be stored in the metal enclosure except liquefied petroleum gas cylinders and permanently fastened parts of the system.

(f) Valve protecting caps, if provided, must be firmly fixed in place on all cylinders not attached to the system. Caps for cylinders in use may remain in the cylinder enclosure if rigidly fastened thereto.

(g) The opening to the cylinder enclosure must be closed at all times except when access is required to change cylinders or maintain equipment.

(h) Close master valve whenever gas-consuming appliance is not in use.

(i) No smoking is permitted in the vicinity of the cylinder enclosure when access to enclosure is open.

(j) Test system for leakage in accordance with the following procedure: With appliance valve closed, the master shutoff valve on the appliance open, and with one cylinder valve open, note pressure in the gage. Close cylinder valve. The pressure should remain constant for at least 10 minutes. If the pressure drops, locate leakage by application of liquid detergent or soapy water solution at all connections. Never use flame to check for leaks. Repeat test for each cylinder in a multi-cylinder system.

(k) Report any presence of gas odor.

§ 58.16–35 Markings.

(a) The outside of the cylinder enclosure housing liquefied petroleum gas cylinders, valves and regulators must be marked as follows:

Liquefied Petroleum Gas
Keep Open Fires Away.

(b) A durable and permanently legible instruction sign covering safe operation and maintenance of the gas-consuming appliance shall be installed adjacent to the appliance.

(c) ''Operating Instructions'' as listed in § 58.16–30 shall be framed under glass, or other equivalent, clear, transparent material, in plainly visible locations on the outside of the metal enclosure and near the most frequently used gas-consuming appliance, so they may be easily read.

Subpart 58.20—Refrigeration Machinery

SOURCE: USCG–2020–0634, 89 FR 50173, June 12, 2024, unless otherwise noted.

§ 58.20–1 Scope.

(a) The regulations in this subpart apply to fixed refrigeration systems for air conditioning, refrigerated spaces, cargo spaces, and reliquefaction of low temperature cargo installed on vessels.

(b) The regulations in this subpart do not apply to small self-contained units.

§ 58.20–5 Design.

(a) Refrigeration machinery may be accepted for installation provided the design, material, and fabrication comply with the applicable requirements of the ABS Marine Vessel Rules (incorporated by reference, see § 58.03–1). The minimum pressures for design of all

components must be those listed for piping in Table 501.2.4 of ASME B31.5 (incorporated by reference; see § 58.03–1). In no case may pressure components be designed for a pressure less than that for which the safety devices of the system are set. Pressure vessels must be designed in accordance with part 54 of this subchapter.

(b) For refrigeration systems other than those for reliquefaction of cargo, only those refrigerants under § 147.90 of this chapter are allowed.

§ 58.20–10 Pressure relieving devices.

(a) Each pressure vessel containing refrigerants, which may be isolated, must be protected by a relief valve set to relieve at a pressure not exceeding the maximum allowable working pressure of the vessel. When a pressure vessel forms an integral part of a system having a relief valve, such vessel need not have an individual relief valve.

(b) Relief valves fitted on the high-pressure side may discharge to the low-pressure side before relieving to atmosphere. When relieving to atmosphere, a relief valve must be fitted in the atmospheric discharge connection from the receivers and condensers. The relief valve from the receivers may relieve to the condenser, which in turn may relieve either to the low side or to atmosphere. It must be set to relieve at a pressure not greater than the maximum allowable working pressure. A rupture disk may be fitted in series with the relief valve, provided the bursting pressure of the rupture disk is not in excess of the relief valve set pressure. Where a rupture disk is fitted on the downstream side of the relief valve, the relief valve must be of the type not affected by back pressure.

§ 58.20–15 Installation of refrigerating machinery.

(a) Where refrigerating machines are installed in which anhydrous ammonia is used as a refrigerant, such machines must be located in a well-ventilated, isolated compartment, preferably on the deck, but in no case is it permissible to install such machines in the engine room space unless the arrangement is such as to eliminate any hazard from gas escaping to the engine room. Absorption machines using a solution of aqua ammonia and machines using carbon dioxide are exempt from this requirement, provided the maximum charges that might be released in the event of breakage do not exceed 300 pounds.

(b) Machinery compartments containing equipment for ammonia must be fitted with a sprinkler system providing an effective water spray and having a remote-control device located outside the compartment.

(c) All refrigeration compressor spaces must be effectively ventilated and drained and must be separated from the insulated spaces by a watertight bulkhead, unless otherwise approved.

§ 58.20–20 Refrigeration piping.

(a) All piping materials must be suitable for handling the primary refrigerant, brine, or fluid used, and must be of such chemical and physical properties as to remain ductile at the lowest operating temperature.

(b) Piping systems must be designed in accordance with ASME B31.5 (incorporated by reference; see § 58.03–1). Piping used for cargo reliquefaction systems must also comply with the applicable requirements found in low temperature piping, § 56.50–105 of this subchapter.

(c) A relief valve must be fitted on or near the compressor on the gas discharge side between the compressor and the first stop valve with the discharge therefrom led to the suction side. A check valve must be fitted in the atmospheric discharge line if it is led through the side of the vessel below the freeboard deck, or a shutoff valve may be employed if it is locked in the open position.

§ 58.20–25 Tests.

(a) All pressure vessels, compressors, piping, and direct expansion cooling coils must be leak tested after installation to their design pressures, hydrostatically or pneumatically.

(b) No pneumatic tests in refrigeration systems aboard ships must be made at pressures exceeding the design pressure of the part of the system being tested. Pneumatic tests may be

made with the refrigerant in the system. If the refrigerant has been removed, oil-pumped dry nitrogen or bone-dry carbon dioxide with a detectable amount of the refrigerant added should be used as a testing medium. (Carbon dioxide should not be used to leak test an ammonia system.) In no case should air, oxygen, any flammable gas or any flammable mixture of gases be used for testing.

Subpart 58.25—Steering Gear

SOURCE: CGD 83–043, 60 FR 24776, May 10, 1995, unless otherwise noted.

§ 58.25–1 Applicability.

(a) Except as specified otherwise, this subpart applies to—

(1) Each vessel or installation of steering gear contracted for on or after June 9, 1995; and

(2) Each vessel on an international voyage with an installation of steering gear contracted for on or after September 1, 1984.

(b) Each vessel not on an international voyage with an installation of steering gear contracted for before June 9, 1995, and each vessel on an international voyage with such an installation contracted for before September 1, 1984, may meet either the requirements of this subpart or those in effect on the date of the installation.

§ 58.25–5 General.

(a) The following definitions apply to this subpart:

Ancillary steering equipment means steering equipment, other than the required control systems and power actuating systems, that either is not required, such as automatic pilot or nonfollowup control from the pilothouse, or is necessary to perform a specific required function, such as the automatic detection and isolation of a defective section of a tanker's hydraulic steering gear.

Auxiliary steering gear means the equipment, other than any part of the main steering gear, necessary to steer the vessel in case of failure of the main steering gear, not including a tiller, quadrant, or other component serving the same purpose.

Control system means the equipment by which orders for rudder movement are transmitted from the pilothouse to the steering-gear power units. A control system for steering gear includes, but is not limited to, one or more—

(i) Transmitters;

(ii) Receivers;

(iii) Feedback devices;

(iv) Hydraulic servo-control pumps, with associated motors and motor controllers;

(v) Differential units, hunting gear, and similar devices;

(vi) All gearing, piping, shafting, cables, circuitry, and ancillary devices for controlling the output of power units; and

(vii) Means of bringing steering-gear power units into operation.

Fast-acting valve, as used in this subpart, means a ball, plug, spool, or similar valve with a handle connected for quick manual operation.

Followup control means closed-loop (feedback) control that relates the position of the helm to a specific rudder angle by transmitting the helm-angle order to the power actuating system and, by means of feedback, automatically stopping the rudder when the angle selected by the helm is reached.

Main steering gear means the machinery, including power actuating systems, and the means of applying torque to the rudder stock, such as a tiller or quadrant, necessary for moving the rudder to steer the vessel in normal service.

Maximum ahead service speed means the greatest speed that a vessel is designed to maintain in service at sea at the deepest loadline draft.

Maximum astern speed means the speed that it is estimated the vessel can attain at the maximum designed power astern at the deepest loadline draft.

Power actuating system means the hydraulic equipment for applying torque to the rudder stock. It includes, but is not limited to—

(i) Rudder actuators;

(ii) Steering-gear power units; and

(iii) Pipes, valves, fittings, linkages, and cables for transmitting power from the power unit or units to the rudder actuator or actuators.

Speedily regained, as used in this subpart, refers to the time it takes one qualified crewmember, after arriving in the steering-gear compartment, and without the use of tools, to respond to a failure of the steering gear and take the necessary corrective action.

Steering capability means steering equivalent to that required of auxiliary steering gear by §58.25–10(c)(2).

Steering gear means the machinery, including power actuating systems, control systems, and ancillary equipment, necessary for moving the rudder to steer the vessel.

Steering-gear power unit means:

(i) In the case of electric steering gear, an electric motor and its associated electrical equipment, including motor controller, disconnect switch, and feeder circuit.

(ii) In the case of an electro-hydraulic steering gear, an electric motor, connected pump, and associated electrical equipment such as the motor controller, disconnect switch, and feeder circuit.

(iii) In the case of hydraulic steering gear, the pump and its prime mover.

Tank vessel, as used in this subpart, means a self-propelled vessel, including a chemical tanker or a gas carrier, defined either as a tanker by 46 U.S.C. 2101(38) or as a tank vessel by 46 U.S.C. 2101(39).

(b) Unless it otherwise complies with this subpart, each self-propelled vessel must be provided with a main steering gear and an auxiliary steering gear. These gear must be arranged so that—

(1) The failure of one will not render the other inoperative; and

(2) Transfer from the main to the auxiliary can be effected quickly.

(c) Each substantial replacement of steering-gear components or reconfiguration of steering-gear arrangements on an existing vessel must comply with the requirements of this subpart for new installations to the satisfaction of the cognizant Officer in Charge, Marine Inspection.

(d) Each non-pressure-containing steering-gear component and each rudder stock must be of sound and reliable construction, meet the minimum material requirements of §58.25–75, and be designed to standards at least equal to those established by the ABS Marine Vessel Rules (incorporated by reference, see §58.03–1).

(e) The suitability of any essential steering-gear component not duplicated must be specifically approved by the Commanding Officer, Marine Safety Center. Where a steering-gear component is shared by—

(1) A control system (e.g., a control-system transfer switch located in the steering-gear compartment);

(2) The main and auxiliary steering gear (e.g., an isolation valve); or

(3) A power actuating system and its control system (e.g., a directional control valve)—the requirements for both systems apply, to provide the safest and most reliable arrangement.

(f) Steering gear must be separate and independent of all other shipboard systems, except—

(1) Electrical switchboards from which they are powered;

(2) Automatic pilots and similar navigational equipment; and

(3) Propulsion machinery for an integrated system of propulsion and steering.

(g) Except on a vessel with an integrated system of propulsion and steering, no thruster may count as part of a vessel's required steering capability.

(h) Except for a tank vessel subject to §58.25–85(e), each oceangoing vessel required to have power-operated steering gear must be provided with arrangements for steadying the rudder both in an emergency and during a shift from one steering gear to another. On hydraulic steering gear, a suitable arrangement of stop valves in the main piping is an acceptable means of steadying the rudder.

(i) General arrangement plans for the main and auxiliary steering gear and their piping must be submitted for approval in accordance with subpart 50.20 of this subchapter.

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2003–16630, 73 FR 65187, Oct. 31, 2008; USCG–2020–0634, 89 FR 50173, June 12, 2024]

§58.25–10 Main and auxiliary steering gear.

(a) Vessels accepted by a recognized classification society as meeting class Rules for steering gear, and SOLAS

Chapter II–1, Regulations 29 and 30 (incorporated by reference; see § 58.03–1) are considered to meet the requirements of this subpart.

(b) Power-operated main and auxiliary steering gear must be separate and independent systems. Other arrangements of steering gear will be acceptable if the Commanding Officer, Marine Safety Center determines that they are equivalent to the requirements of this subpart.

(c) The main steering gear and rudder stock must be—

(1) Of adequate strength for and capable of steering the vessel at maximum ahead service speed, which must be demonstrated to the satisfaction of the cognizant Officer in Charge, Marine Inspection;

(2) Capable of moving the rudder from 35° on either side to 35° on the other with the vessel at its deepest loadline draft and running at maximum ahead service speed, and from 35° on either side to 30° on the other in not more than 28 seconds under the same conditions;

(3) Operated by power when necessary to comply with paragraph (c)(2) of this section or when the diameter of the rudder stock is over 12 centimeters (4.7 inches) in way of the tiller, excluding strengthening for navigation in ice; and

(4) Designed so that they will not be damaged when operating at maximum astern speed; however, this requirement need not be proved by trials at maximum astern speed and maximum rudder angle.

(d) The auxiliary steering gear must be—

(1) Of adequate strength for and capable of steering the vessel at navigable speed and of being brought speedily into action in an emergency;

(2) Capable of moving the rudder from 15° on either side to 15° on the other in not more than 60 seconds with the vessel at its deepest loadline draft and running at one-half maximum ahead service speed or 7 knots, whichever is greater; and

(3) Operated by power when necessary to comply with paragraph (d)(2) of this section or when the diameter of the rudder stock is over 23 centimeters (9 inches) in way of the tiller, excluding strengthening for navigation in ice.

(e) No auxiliary means of steering is required on a double-ended ferryboat with independent main steering gear fitted at each end of the vessel.

(f) When the main steering gear includes two or more identical power units, no auxiliary steering gear need be fitted, if—

(1) In a passenger vessel, the main steering gear is capable of moving the rudder as required by paragraph (c)(2) of this section while any one of the power units is not operating;

(2) In a cargo vessel, the main steering gear is capable of moving the rudder as required by paragraph (c)(2) of this section while all the power units are operating;

(3) In a vessel with an installation completed on or after September 1, 1984, and on an international voyage, and in any other vessel with an installation completed after June 9, 1995, the main steering gear is arranged so that, after a single failure in its piping system (if hydraulic), or in one of the power units, the defect can be isolated so that steering capability can be maintained or speedily regained in less than ten minutes; or

(4) In a vessel with an installation completed before September 1, 1986, and on an international voyage, with steering gear not complying with paragraph (f)(3) of this section, the installed steering gear has a proved record of reliability and is in good repair.

NOTE 1 TO PARAGRAPH (f)(4): The place where isolation valves join the piping system, as by a flange, constitutes a single-failure point. The valve itself need not constitute a single-failure point if it has a double seal to prevent substantial loss of fluid under pressure. Means to purge air that enters the system as a result of the piping failure must be provided, if necessary, so that steering capability can be maintained or speedily regained in less than ten minutes.

(g) In each vessel of 70,000 gross tons or over, the main steering gear must have two or more identical power units complying with paragraph (f) of this section.

[USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–15 Voice communications.

Each vessel must be provided with a sound-powered telephone system, complying with subpart 113.30 of this chapter, to communicate between the pilothouse and the steering-gear compartment, unless an alternative means of communication between them has been approved by the Commanding Officer, Marine Safety Center.

§ 58.25–20 Piping for steering gear.

(a) Pressure piping must comply with subpart 58.30.

(b) Relief valves must be fitted in any part of a hydraulic system that can be isolated and in which pressure can be generated from the power units or from external forces such as wave action. The valves must be of adequate size, and must be set to limit the maximum pressure to which the system may be exposed.

(c) Each hydraulic system must be provided with—

(1) Arrangements to maintain the cleanliness of the hydraulic fluid, appropriate to the type and design of the hydraulic system; and

(2) For a vessel on an ocean, coastwise, or Great Lakes voyage, a fixed storage tank having sufficient capacity to recharge at least one power actuating system including the reservoir. The storage tank must be permanently connected by piping so that the hydraulic system can be readily recharged from within the steering-gear compartment and must be fitted with a device to indicate liquid level.

(d) Neither a split flange nor a flareless fitting of the grip or bite type, addressed by § 56.30–25 of this subchapter, may be used in hydraulic piping for steering gear.

[USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–25 Indicating and alarm systems.

(a) Indication of the rudder angle must be provided both at the main steering station in the pilothouse and in the steering-gear compartment. The rudder-angle indicator must be independent of control systems for steering gear.

(b) Each electric-type rudder-angle indicator must comply with § 113.40–10 of this chapter and, in accordance with § 112.15–5(h) of this chapter, draw its power from the source of emergency power.

(c) On each vessel of 1,600 gross tons or over, a steering-failure alarm must be provided in the pilothouse in accordance with §§ 113.43–3 and 113.43–5 of this chapter.

(d) An audible and a visible alarm must activate in the pilothouse upon—

(1) Failure of the electric power to the control system of any steering gear;

(2) Failure of that power to the power unit of any steering gear; or

(3) Occurrence of a low oil level in any oil reservoir of a hydraulic, power-operated steering-gear system.

(e) An audible and a visible alarm must activate in the machinery space upon—

(1) Failure of any phase of a three-phase power supply;

(2) Overload of any motor described by § 58.25–55(c); or

(3) Occurrence of a low oil level in any oil reservoir of a hydraulic, power-operated steering-gear system.

(f) Each power motor for the main and auxiliary steering gear must have a ''motor running'' indicator light in the pilothouse, and in the machinery space, that activates when the motor is energized.

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–30 Automatic restart.

Each control system for main and auxiliary steering gear and each power actuating system must restart automatically when electrical power is restored after it has failed.

§ 58.25–35 Helm arrangements.

(a) The arrangement of each steering station, other than in the steering-gear compartment, must be such that the helmsman is abaft the wheel. The rim of the wheel must be plainly marked with arrows and lettering for right and left rudder, or a suitable notice indicating these directions must be posted directly in the helmsman's line of sight.

(b) Each steering wheel must turn clockwise for ''right rudder'' and counterclockwise for ''left rudder.'' When the vessel is running ahead, after clockwise movement of the wheel the vessel's heading must change to the right.

(c) If a lever-type control is provided, it must be installed and marked so that its movement clearly indicates both the direction of the rudder's movement and, if followup control is also provided, the amount of the rudder's movement.

(d) Markings in the pilothouse must not interfere with the helmsman's vision, but must be clearly visible at night.

NOTE 1 TO § 58.25–35: See § 113.40–10 of this chapter for the arrangement of rudder-angle indicators at steering stations.

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–40 Arrangement of the steering-gear compartment.

(a) The steering-gear compartment must—

(1) Be readily accessible and, as far as practicable, separated from any machinery space;

(2) Ensure working access to machinery and controls in the compartment; and

(3) Include handrails and either gratings or other non-slip surfaces to ensure a safe working environment if hydraulic fluid leaks.

(b) [Reserved]

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–45 Buffers.

For each vessel on an ocean, coastwise, or Great Lakes voyage, steering gear other than hydraulic must be designed with suitable buffering arrangements to relieve the gear from shocks to the rudder.

§ 58.25–50 Rudder stops.

(a) Power-operated steering gear must have arrangements for cutting off power to the gear before the rudder reaches the stops. These arrangements must be synchronized with the rudder stock or with the gear itself rather than be within the control system for the steering gear, and must work by limit switches that interrupt output of the control system or by other means acceptable to the Commanding Officer, Marine Safety Center.

(b) Strong and effective structural rudder stops must be fitted; except that, where adequate positive stops are provided within the steering gear, such structural stops need not be fitted.

§ 58.25–55 Overcurrent protection for steering-gear systems.

(a) Each feeder circuit for steering must be protected by a circuit breaker on the switchboard that supplies it and must have an instantaneous trip set at a current of at least—

(1) 300% and not more than 375% of the rated full-load current of one steering-gear motor for a direct-current motor; or

(2) 175% and not more than 200% of the locked-rotor current of one steering-gear motor for an alternating-current motor.

(b) No feeder circuit for steering may have any overcurrent protection, except that required by paragraph (a) of this section.

(c) Neither a main or an auxiliary steering-gear motor, nor a motor for a steering-gear control system, may be protected by an overload protective device. The motor must have a device that activates an audible and a visible alarm at the main machinery-control station if there is an overload that would cause overheating of the motor.

(d) No control circuit of a motor controller, steering-gear control system, or indicating or alarm system may have overcurrent protection except short-circuit protection that is instantaneous and rated at 400% to 500% of—

(1) The current-carrying capacity of the conductor; or

(2) The normal load of the system.

(e) The short-circuit protective device for each steering-gear control system must be in the steering-gear compartment and in the control circuit immediately following the disconnect switch for the system.

(f) When, in a vessel of less than 1,600 gross tons, an auxiliary steering gear, which § 58.25–10(c)(3) requires to be operated by power, is not operated by

electric power or is operated by an electric motor primarily intended for other service, the main steering gear may be fed by one circuit from the main switchboard. When such an electric motor is arranged to operate an auxiliary steering gear, neither § 58.25–25(e) nor paragraphs (a) through (c) of this section need be complied with if both the overcurrent protection and compliance with §§ 58.25–25(d), 58.25–30, and 58.25–70 (j) and (k) satisfy the Commanding Officer, Marine Safety Center.

§ 58.25–60 Non-duplicated hydraulic rudder actuators.

Non-duplicated hydraulic rudder actuators may be installed in the steering gear control systems on vessels of less than 100,000 deadweight tons. These actuators must meet IMO A.467(XII) (incorporated by reference, see § 58.03–1) and be acceptable to the Commanding Officer, Marine Safety Center.

[USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–65 Feeder circuits.

(a) Each vessel with one or more electric-driven steering-gear power units must have at least two feeder circuits, which must be separated as widely as practicable. One or more of these circuits must be supplied from the vessel's main service switchboard. On a vessel where the rudder stock is over 23 centimeters (9 inches) in diameter in way of the tiller, excluding strengthening for navigation in ice, and where a final source of emergency power is required by § 112.05–5(a) of this chapter, one or more of these circuits must be supplied from the emergency switchboard, or from an alternative source of power that—

(1) Is available automatically within 45 seconds of loss of power from the vessel's service switchboard;

(2) Comes from an independent source of power in the steering-gear compartment;

(3) Is used for no other purpose; and

(4) Has a capacity for one half-hour of continuous operation, to move the rudder from 15° on either side to 15° on the other in not more than 60 seconds with the vessel at its deepest loadline draft and running at one-half maximum ahead service speed or 7 knots, whichever is greater.

(b) Each vessel that has a steering gear with multiple electric-driven power units must be arranged so that each power unit is supplied by a separate feeder.

(c) Each feeder circuit must have a disconnect switch in the steering-gear compartment.

(d) Each feeder circuit must have a current-carrying capacity of—

(1) 125% of the rated full-load current rating of the electric steering-gear motor or power unit; and

(2) 100% of the normal current of one steering-gear control system including all associated motors.

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–70 Steering-gear control systems.

(a) Each power-driven steering-gear system must be provided with at least one steering-gear control system.

(b) The main steering gear must be operable from the pilothouse by mechanical, hydraulic, electrical, or other means acceptable to the Commanding Officer, Marine Safety Center. This gear and its components must give full followup control of the rudder. Supplementary steering-gear control not giving full followup may also be provided from the pilothouse.

(c) Each steering-gear control system must have in the pilothouse a switch arranged so that one operation of the switch's lever automatically supplies power to a complete system and its associated power unit or units. This switch must be—

(1) Operated by one lever;

(2) Arranged so that not more than one control system and its associated power unit or units can be energized from the pilothouse at any one time;

(3) Arranged so that the lever passes through ''off'' during transfer of control from one control system to another; and

(4) Arranged so that the switches for each control system are in separate enclosures or are separated by fire-resistant barriers.

(d) Each steering-gear control system must receive its power from—

(1) The feeder circuit supplying power to its steering-gear power unit or units in the steering-gear compartment; or

(2) A direct connection to the busbars supplying the circuit for its steering-gear power unit or units from a point on the switchboard adjacent to that supply.

(e) Each steering-gear control system must have a switch that—

(1) Is in the steering-gear compartment; and

(2) Disconnects the system from its power source and from the steering gear that the system serves.

(f) Each motor controller for a steering gear must be in the steering-gear compartment.

(g) A means of starting and stopping each motor for a steering gear must be in the steering-gear compartment.

(h) When the main steering gear is arranged in accordance with § 58.25–10(e), two separate and independent systems for full followup control must be provided in the pilothouse; except that—

(1) The steering wheel or lever need not be duplicated.

(2) If the system consists of a hydraulic telemotor, no second separate and independent system need be provided other than on each tank vessel subject to § 58.25–85.

(i) When only the main steering gear is power-driven, two separate and independent systems for full followup control must be provided in the pilothouse; except that the steering wheel or lever need not be duplicated.

(j) When the auxiliary steering gear is power-driven, a control system for the auxiliary steering gear must be provided in the pilothouse that is separate and independent from the control system for the main steering gear; except that the steering wheel or lever need not be duplicated.

(k) On a vessel of 500 gross tons or above, each main steering gear and auxiliary steering gear must be arranged so that its power unit or units are operable by controls from the steering-gear compartment. These controls must not be rendered inoperable by failure of the controls in the pilothouse.

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2020–0634, 89 FR 50178, June 12, 2024]

§ 58.25–75 Materials.

Materials used for the mechanical or hydraulic transmission of power to the rudder stock must have an elongation of at least 15% in 5 centimeters (2 inches).

[USCG–2020–0634, 89 FR 50179, June 12, 2024]

§ 58.25–80 Automatic pilots and ancillary steering gear.

(a) Automatic pilots and ancillary steering gear, and steering-gear control systems, must be arranged to allow immediate resumption of manual operation of the steering-gear control system required in the pilothouse. A switch must be provided, at the primary steering position in the pilothouse, to completely disconnect the automatic equipment from the steering-gear controls.

(b) Automatic pilots and ancillary steering gear must be arranged so that no single failure affects proper operation and independence of the main or auxiliary steering gear, required controls, rudder-angle indicators, or steering-failure alarm.

§ 58.25–85 Special requirements for tank vessels.

(a) Each tank vessel must meet the applicable requirements of §§ 58.25–1 through 58.25–80.

(b) On each tank vessel of 10,000 gross tons or over, the main steering gear must comprise two or more identical power units that comply with § 58.25–10(e)(2).

(c) Each tank vessel of 10,000 gross tons or over constructed on or after September 1, 1984, must comply with the following:

(1) The main steering gear must be arranged so that, in case of loss of steering capability due to a single failure in any part of the power actuating system of the main steering gear, excluding seizure of a rudder actuator or failure of the tiller, quadrant, or components serving the same purpose, steering capability can be regained

after the loss of one power actuating system.

(2) The main steering gear must include either—

(i) Two separate and independent power actuating systems, complying with § 58.25–10(b)(2); or

(ii) At least two identical hydraulic-power actuating systems, which, acting simultaneously in normal operation, must comply with § 58.25–10(b)(2).

(3) Steering gear other than hydraulic must meet equivalent standards to the satisfaction of the Commanding Officer, Marine Safety Center.

(d) On each tank vessel of 10,000 gross tons or over, but less than 100,000 deadweight tons, the main steering gear need not comply with paragraph (c) of this section if the rudder actuator or actuators installed are non-duplicated hydraulic and if—

(1) The actuators comply with § 58.25–60; and

(2) In case of loss of steering capability due to a single failure either of any part of the piping systems or in one of the power units, steering capability can be regained.

(e) On each tank vessel of less than 70,000 deadweight tons, constructed before, and with a steering-gear installation before, September 1, 1986, and on an international voyage, the steering gear not complying with paragraph (c)(1), (2), or (3) of this section, as applicable, may continue in service if the steering gear has a proved record of reliability and is in good repair.

(f) Each tank vessel of 10,000 gross tons or over, constructed before, and with a steering-gear installation before, September 1, 1984, must—

(1) Meet the applicable requirements in §§ 58.25–15, 58.25–20(c), 58.25–25 (a), (d), and (e), and 58.25–70 (e), (h), (i), and (j);

(2) Ensure working access to machinery and controls in the steering-gear compartment (which must include handrails and either gratings or other non-slip surfaces to ensure a safe working environment in case hydraulic fluid leaks);

(3) Have two separate and independent steering-gear control systems, each of which can be operated from the pilothouse; except that it need not have separate steering wheels or steering levers;

(4) Arrange each system required by paragraph (f)(3) of this section so that, if the one in operation fails, the other can be operated from the pilothouse immediately; and

(5) Supply each system required by paragraph (f)(3) of this section, if electric, with power by a circuit that is—

(i) Used for no other purpose; and either—

(ii) Connected in the steering-gear compartment to the circuit supplying power to the power unit or units operated by that system; or

(iii) Connected directly to the busbars supplying the circuit for its steering-gear power unit or units at a point on the switchboard adjacent to that supply.

[CGD 83–043, 60 FR 24776, May 10, 1995, as amended by USCG–2020–0634, 89 FR 50178, June 12, 2024]

Subpart 58.30—Fluid Power and Control Systems

SOURCE: USCG–2020–0634, 89 FR 50179, June 12, 2024, unless otherwise noted.

§ 58.30–1 Scope.

(a) This subpart contains requirements for fluid power transmission and control systems and appurtenances. Except as otherwise provided for in this section, these requirements are applicable to fluid power and control systems where installed for the following equipment:

(1) Steering apparatus, main and auxiliary, including bow thruster systems.

(2) Cargo hatch operating systems unless fitted with an alternate mechanical means of operation and approved by the Commandant as hydraulically or pneumatically fail-safe. A system is considered to be fail-safe if a component failure will result in a slow and controlled release of the loading so as not to endanger personnel.

(3) Watertight door operating system.

(4) Automatic propulsion boiler control systems.

(5) Starting systems for internal combustion engines used for main propulsion, auxiliary power, as the prime mover for any required emergency apparatus, or as the source of propulsion

power in ship maneuvering thruster systems.

(6) Centralized control system of main propulsion and auxiliary machinery.

(7) Lifeboat handling equipment.

(8) Controllable pitch propeller system.

(9) Installations used to remotely control components of piping systems listed in § 56.01–10(c)(1) of this subchapter.

(10) All systems containing a pneumatic or hydropneumatic accumulator.

(11) Materials and/or personnel handling equipment systems, *i.e.*, cranes, hydraulic elevators, etc., not approved by the Commandant as fail-safe as defined in paragraph (a)(2) of this section.

(12) Any fluid power or control system installed in the cargo area of pump rooms on a tank vessel, or in spaces in which cargo is handled on a liquefied flammable gas carrier.

(13) All pneumatic power and control systems having a maximum allowable working pressure in excess of 150 psig.

(14) Any other hydraulic or pneumatic system on board that, in the judgment of the Commandant, constitutes a hazard to the seaworthiness of the ship or the safety of personnel either in normal operation or in case of failure.

(b) Other fluid power and control systems do not have to comply with the detailed requirements of this subpart but must meet the requirements of § 58.30–50.

§ 58.30–5 Design requirements.

(a) The requirements of part 56 of this subchapter are also applicable to piping and fittings in fluid power and control systems listed in § 58.30–1, except as modified herein. The designer should consider the additional pressure due to hydraulic shock.

(b) The system must be so designed that proper functioning of any unit must not be affected by the back pressure in the system. The design must be such that malfunctioning of any unit in the system will not render any other connected or emergency system inoperative because of back pressure.

(c) Pneumatic systems with a maximum allowable working pressure in excess of 150 psi must be designed with a surge tank or other acceptable means of pulsation dampening.

(d) Each pneumatic system must minimize the entry of oil into the system and must drain the system of liquids.

§ 58.30–10 Hydraulic fluid.

(a) The requirements of this section are applicable to all fluid power transmission and control systems installed on vessels subject to inspection.

(b) The fluid used in hydraulic power transmission systems must have a flashpoint of not less than 200 °F for pressures below 150 psig and 315 °F for pressures 150 psig and above, as determined by ASTM D92 (incorporated by reference, see § 58.03–1), Cleveland ''Open Cup'' test method.

(c) The chemical and physical properties of the hydraulic fluid must be suitable for use with any materials in the system or components thereof.

(d) The hydraulic fluid must be suitable for operation of the hydraulic system through the entire temperature range to which it may be subjected in service.

(e) The recommendations of the system component manufacturers must be considered in the selection and use of hydraulic fluid.

§ 58.30–15 Pipe, tubing, valves, fittings, pumps, and motors.

(a) The requirements of this section are applicable to those hydraulic and pneumatic systems listed in § 58.30–1.

(b) Materials used in the manufacture of tubing, pipes, valves, flanges, and fittings must be selected from those specifications that appear in table 1 to § 56.60–1 or table 1 to § 56.60–2; or they may be selected from the material specifications of Section I or Section VIII of the ASME BPVC (both incorporated by reference; see § 58.03–1). Materials designated by other specifications must be evaluated on the basis of physical and chemical properties. To assure these properties, the specifications must specify and require such physical and chemical testing as considered necessary by the Commandant. All tubing and pipe materials must be suitable for handling the hydraulic fluid used and must be of such chemical and physical properties as to

remain ductile at the lowest operating temperature.

(c) Bolting must meet the requirements of § 56.25–20 of this subchapter except that regular hexagon bolts conforming to SAE J429, grades 2 through 8 (incorporated by reference, see § 58.03–1), or ASTM A193 (incorporated by reference, see § 58.03–1) may be used in sizes not exceeding 1.5 inches.

(d) The maximum allowable working pressure and minimum thickness must be calculated as required by § 56.07–10(e) of this subchapter.

(e) All flared, flareless and compression type joints must be in accordance with § 56.30–25 of this subchapter.

(f) Fluid power motors and pumps installed on vessels subject to inspection must be certified by the manufacturer as suitable for the intended use. Such suitability must be demonstrated by operational tests conducted aboard the vessel which must be witnessed by a marine inspector.

§ 58.30–20 Fluid power hose and fittings.

(a) The requirements of this section are applicable to those hydraulic and pneumatic systems listed in § 58.30–1.

(b) Hose and fittings must meet the requirements of subpart 56.60 of this subchapter.

(c) Hose assemblies may be installed between two points of relative motion but must not be subjected to torsional deflection (twisting) under any conditions of operation and must be limited, in general, to reasonable lengths required for flexibility. Special consideration may be given to the use of longer lengths of flexible hose where required for proper operation of machinery and components in the hydraulic system.

(d) Sharp bends in hoses must be avoided.

§ 58.30–25 Accumulators.

(a) An accumulator is an unfired pressure vessel in which energy is stored under high pressure in the form of a gas or a gas and hydraulic fluid. Accumulators must meet the applicable requirements in part 54 of this subchapter.

(b) If the accumulator is of the gas and fluid type, suitable separators must be provided between the two media, if their mixture would be dangerous, or would result in contamination of the hydraulic fluid and loss of gas through absorption.

(c) Each accumulator which may be isolated, must be protected on the gas and fluid sides by relief valves set to relieve at pressures not exceeding the maximum allowable working pressures. When an accumulator forms an integral part of systems having relief valves, the accumulator need not have individual relief valves.

§ 58.30–30 Fluid power cylinders.

(a) The requirements of this section are applicable to those hydraulic and pneumatic systems listed in § 58.30–1 and to all pneumatic power transmission systems.

(b) Fluid power cylinders consisting of a container and a movable piston rod extending through the containment vessel, not storing energy but converting a pressure to work, are not considered to be pressure vessels and need not be constructed under the provisions of part 54 of this subchapter.

(c) Cylinders must be designed for a bursting pressure of not less than 4 times the maximum allowable working pressure. Drawings and calculations or a certified burst test report must be submitted to show compliance with this requirement.

(d) Piston rods, except steering gear rams, must be either of corrosion resistant material or of steel protected by a plating system acceptable to the Commandant.

(e) Materials selection must be in accordance with the requirements of § 58.30–15(b).

§ 58.30–35 Testing.

(a) All fluid power and control systems and components thereof must be tested as required by this section.

(b) Accumulators constructed as pressure vessels under the provisions of part 54 of this subchapter must be tested and retested as required by parts 54 and 61 of this subchapter.

(c) Fluid power and control systems and piping assemblies must be given an installation test as follows:

(1) Fluid power and control systems and piping assemblies and associated

equipment components, including hydraulic steering gear, in lieu of being tested at the time of installation, may be shop tested by the manufacturer to 1.5 times the maximum allowable pressure of the system. The required test pressure must be maintained for a sufficient amount of time to check all components for strength and porosity and to permit an inspection to be made of all connections.

(2) Fluid power and control systems and associated hydraulic equipment components which have been tested in conformance with paragraph (c)(1) of this section and so certified by the manufacturer, may be tested after installation as a complete assembly by stalling the driven unit in a safe and satisfactory manner and by blowing the relief valves. Otherwise, these systems must be hydrostatically tested in the presence of a marine inspector at a pressure of 1.5 times the maximum allowable pressure.

(3) Fluid power and control systems incorporating hydropneumatic accumulators containing rupture discs may be tested at the maximum allowable working pressure of the system in lieu of 1.5 times this value as prescribed in paragraphs (c)(1) and (2) of this section provided the accumulators have been previously tested in accordance with paragraph (b) of this section and welded or brazed piping joints are not employed in the system. If welded or brazed joints are employed, the system must be tested in accordance with the requirements of paragraphs (c)(1) and (2) of this section except that the accumulators may be isolated from the remainder of the system.

(d) Fluid power and control systems must be purged with an inert gas or with the working fluid and all trapped air bled from the system prior to any shipboard testing.

(e) Fluid control systems, such as boiler combustion controls, containing components with internal parts, such as bellows or other sensing elements, which would be damaged by the test pressure prescribed in paragraphs (c)(1) and (2) of this section may be tested at the maximum allowable working pressure of the system. In addition, all fluid control systems may be tested using the system working fluid.

§ 58.30–40 Plans.

(a) Diagrammatic plans and lists of materials must be submitted for each of the fluid power and control systems listed in § 58.30–1(a) that is installed on the vessel. Plan submission must be in accordance with subpart 50.20 of this subchapter and must include the following:

(1) The purpose of the system.

(2) Its location on the vessel.

(3) The maximum allowable working pressure.

(4) The fluid used in the system.

(5) Details of the system components in accordance with § 56.01–10(d) of this subchapter.

(b) [Reserved]

§ 58.30–50 Requirements for miscellaneous fluid power and control systems.

(a) All fluid power and control systems installed on a vessel, except those listed in § 58.30–1(a), must meet the following requirements:

(1) Diagrams of the system providing the information required by § 58.30–40(a)(1) through (4) must be submitted. These are not approved but are needed for records and for evaluation of the system in accordance with § 58.30–1(a)(14).

(2) The hydraulic fluid used in the system must comply with § 58.30–10.

(3) The installed system must be tested in accordance with § 58.30–35(c)(2).

(4) All pneumatic cylinders must comply with § 58.30–30.

(5) Additional plans may be required for ''fail-safe'' equipment and for cargo hatch systems with alternate means of operation.

(b) [Reserved]

Subpart 58.50—Independent Fuel Tanks

SOURCE: USCG–2020–0634, 89 FR 50179, June 12, 2024, unless otherwise noted.

§ 58.50–1 General requirements.

(a) The regulations in this subpart contain requirements for independent fuel tanks.

(b) Passenger vessels exceeding 100 gross tons constructed on or after July 1, 1935, and emergency systems for all

ships, must use fuel that has a flashpoint exceeding 110 °F for internal combustion engine units. Such vessels must carry a sufficient quantity of fuel to supply the emergency electrical system. Refer to § 112.05–5 of subchapter J, of this chapter.

(c) An outage of 2 percent must be provided on all fuel tanks containing petroleum products.

§ 58.50–5 Gasoline fuel tanks.

(a) *Construction*—(1) *Shape.* Tanks may be of either cylindrical or rectangular form, except that tanks for emergency electrical systems must be of cylindrical form.

(2) *Materials and construction.* The material used and the minimum thickness allowed must be as indicated in table 1 to § 58.50–5(a)(2) except that consideration will be given to other materials which provide equivalent safety as indicated in § 58.50–15.

TABLE 1 TO § 58.50–5(a)(2)

Material	ASTM specification (all incorporated by reference; see § 58.03–1)	Thickness in inches and gage numbers [1] vs. tank capacities for—		
		1- through 80-gallon tanks	More than 80- and not more than 150-gallon tanks	Over 150-gallon tanks [2]
Aluminum [5]	B209, Alloy 5086 [6]	0.250 (USSG 3)	0.250 (USSG 3)	0.250 (USSG 3).
Nickel-copper	B127, Hot rolled sheet or plate.	0.037 (USSG 20) [3]	0.050 (USSG 18)	0.107 (USSG 12).
Copper-nickel	B122, Alloy No. 5	0.045 (AWG 17)	0.057 (AWG 15)	0.128 (AWG 8).
Copper	B152, Type ETP	0.057 (AWG 15)	0.080 (AWG 12)	0.182 (AWG 5).
Copper-silicon	B96, alloys C65100 and C65500.	0.050 (AWG 16)	0.064 (AWG 14)	0.144 (AWG 7).
Steel or iron [4]		0.0747 (MfgStd 14)	0.1046 (MfgStd 12)	0.179 (MfgStd 7).

[1] Gauges used are U.S. standard "USSG" for aluminum and nickel-copper; "AWG" for copper, copper-nickel, and copper-silicon; and "MfgStd" for steel.
[2] Tanks over 400 gallons will be designed with a factor of safety of four on the ultimate strength of the material used with a design head of not less than 4 feet of liquid above the top of the tank.
[3] Nickel-copper not less than 0.031 inch (USSG 22) may be used for tanks up to a 30-gallon capacity.
[4] Fuel tanks constructed of iron or steel, which is less than 3/16-inch thick must be galvanized inside and outside by the hot dip process.
[5] Anodic to most common metals. Avoid dissimilar metal contact with tank body.
[6] And other alloys acceptable to the Commandant.

(3) *Prohibited types.* Tanks with flanged-up top edges that may trap and hold moisture must not be used.

(4) *Openings.* Openings for fill, vent and fuel pipes, and openings for fuel level gages where used, must be on the topmost surface of tanks. Tanks must have no openings in bottoms, sides, or ends, except that an opening fitted with threaded plug or cap may be used for tank cleaning purposes.

(5) *Joints.* All metallic tank joints must be welded or brazed.

(6) *Fittings.* Nozzles, flanges, or other fittings for pipe connections must be welded or brazed to the tank. The tank openings in way of pipe connections must be properly reinforced where necessary. Where fuel level gages are used, the flange to which gage fittings are attached must be welded or brazed to the tank. Tubular gage glasses or try cocks must not be fitted to the tanks.

(7) *Baffle plates.* All tanks exceeding 30 inches in any horizontal dimension must be fitted with vertical baffle plates where necessary for strength or for control of excessive surge. In general, baffle plates installed at intervals not exceeding 30 inches will be considered as meeting this requirement.

(8) *Baffle plate details.* Baffle plates, where required, must be of the same material and not less than the minimum thickness required in the tank walls and must be connected to the tank walls by welding or brazing. Limber holes at the bottom and air holes at the top of all baffles must be provided.

(b) *Installation.* (1) Gasoline fuel tanks used for propulsion must be located in water-tight compartments separate from, but adjacent to the engine room or machinery space. Fuel tanks for auxiliaries must be located on or above the weather deck outside

of the engine housing or compartment and as close to the engine as practicable. All tanks must be so installed as to provide a free circulation of air around the tanks.

(2) Cylindrical tanks with longitudinal seams must be arranged horizontally where practicable so that such seams are located as near the top as possible.

(3) Fuel tanks must be so installed as to permit examination, testing, or removal for cleaning.

(4) Fuel tanks must be adequately supported and braced to prevent movement. Portable fuel tanks are not permitted.

(5) All fuel tanks must be electrically bonded to the common ground.

(c) *Testing.* (1) Prior to installation, tanks vented to atmosphere must be tested to, and must withstand, a pressure of 5 psig or 1.5 times the maximum head to which they may be subjected in service, whichever is greater. A standpipe of 11.5 feet in height attached to the tank may be filled with water to accomplish the 5-psig test. Permanent deformation of the tank will not be cause for rejection unless accompanied by leakage.

(2) After installation of the fuel tank on a vessel the complete installation must be tested in the presence of a marine inspector to a head not less than that to which the tank may be subjected in service. Fuel may be used as a testing medium.

(3) All tanks not vented to atmosphere must be constructed and tested in accordance with part 54 of this subchapter.

§ 58.50–10 Diesel fuel tanks.

(a) *Construction.* (1) Tanks may be of either cylindrical or rectangular form.

(2) The materials used, and the minimum thickness allowed in the construction of independent fuel tanks must be as indicated in table 1 to § 58.50–10(a)(2), except that consideration will be given to other materials which provide equivalent safety as indicated in § 58.50–15.

TABLE 1 TO § 58.50–10(a)(2)

Material	ASTM specification (all incorporated by reference; see § 58.03–1)	Thickness in inches and gage numbers[1] vs. tank capacities for—		
		1- through 80-gallon tanks	More than 80- and not more than 150-gallon tanks	Over 150-gallon tanks[2]
Aluminum[5]	B209, Alloy 5086[6]	0.250 (USSG 3)	0.250 (USSG 3)	0.250 (USSG 3).
Nickel-copper	B127, Hot rolled sheet or plate.	0.037 (USSG 20)[3]	0.050 (USSG 18)	0.107 (USSG 12).
Steel or iron[4]		0.0747 (MfgStd 14)	0.1046 (MfgStd 12)	0.179 (MfgStd 7).

[1] Gauges used are U.S. standard "USSG" for aluminum and nickel-copper and "MfgStd" for steel or iron.
[2] Tanks over 400 gallons must be designed with a factor of safety of four on the ultimate strength of the material used with a design head of not less than 4 feet of liquid above the top of the tank.
[3] Nickel-copper not less than 0.031 inch (USSG 22) may be used for tanks up to a 30-gallon capacity.
[4] For diesel tanks the steel or iron must not be galvanized on the interior.
[5] Anodic to most common metals. Avoid dissimilar metal contact with tank body.
[6] And other alloys acceptable to the Commandant.

(3) Tanks with flanged-up top edges, that may trap and hold moisture, must not be used.

(4) Openings for fill and vent pipes must be on the topmost surface of a tank. There must be no openings in the bottom, sides, or ends of a tank except as follows:

(i) The opening for the fuel supply piping is not restricted to the top of the tank.

(ii) An opening fitted with threaded plug or cap may be used on the bottom of the tank for tank cleaning purposes.

(iii) Liquid level gages must penetrate at a point that is more than 2 inches from the bottom of the tank.

(5) All tank joints must be welded.

(6) Nozzles, flanges, or other fittings for pipe connections must be welded or brazed to the tank. The tank opening in way of pipe connections must be properly reinforced where necessary. Where liquid level indicating devices are attached to the tank, they must be of heat resistant materials adequately protected from mechanical damage and provided at the tank connections with devices which will automatically close

in the event of rupture of the gage or gage lines.

(7) All tanks exceeding 30 inches in any horizontal dimension must be fitted with vertical baffle plates where necessary for strength or for control of excessive surge. In general, baffle plates installed at intervals not exceeding 30 inches will be considered as meeting this requirement.

(8) Baffle plates, where required, must be of the same material and not less than the minimum thickness required in the tank walls and must be connected to the tank walls by welding or brazing. Limber holes at the bottom and air holes at the top of all baffle plates must be provided.

(9) Iron or steel tanks must not be galvanized on the interior. Galvanizing paint or other suitable coating must be used to protect the outside of iron and steel tanks.

(b) *Installation.* (1) Tanks containing fuel for emergency lighting units must be located on an open deck or in an adequately ventilated metal compartment. No tank must be located in a compartment where the temperature may exceed 150 °F.

(2) When cylindrical tanks are installed, longitudinal seams must be located as near the top of the tank as possible. Fuel tanks must be located in, or as close as practicable, to the machinery space which is served.

(3) Fuel tanks must be so installed as to permit examination, testing, or removal for cleaning.

(4) Fuel tanks must be adequately supported and braced to prevent movement. Portable tanks are not permitted.

(5) All fuel tanks must be electrically bonded to the common ground.

(c) *Tests.* (1) Prior to installation, tanks vented to the atmosphere must be tested to and must withstand a pressure of 5 pounds per square inch or 1.5 times the maximum head to which they may be subjected in service, whichever is greater. A standpipe of 11.5 feet in height attached to the tank may be filled with water to accomplish the 5-psig test. Permanent deformation of the tank will not be cause for rejection unless accompanied by leakage.

(2) After installation of the fuel tank on a vessel the complete installation must be tested in the presence of a marine inspector to a head not less than that to which the tank may be subjected in service. Fuel may be used as a testing medium.

(3) All tanks not vented to atmosphere must be constructed and tested in accordance with part 54 of this subchapter.

§ 58.50–15 Alternate material for construction of independent fuel tanks.

Materials other than those specifically listed in table 1 to § 58.50–5(a)(2) and in table 1 to § 58.50–10(a)(2) may be used for fuel tank construction only if the tank design meets material and testing requirements approved by the Commandant (CG–ENG). Approved testing may be accomplished by any acceptable laboratory, or may be done by the fabricator if witnessed by a marine inspector.

Subpart 58.60—Industrial Systems and Components on Mobile Offshore Drilling Units (MODU)

SOURCE: CGD 73–251, 43 FR 56801, Dec. 4, 1978, unless otherwise noted.

§ 58.60–1 Applicability.

This subpart applies to the following industrial systems on board a mobile offshore drilling unit (MODU):

(a) Cementing systems.

(b) Circulation systems, including—

(1) Pipes and pumps for mud;

(2) Shale shakers;

(3) Desanders; and

(4) Degassers.

(c) Blow out preventor control systems.

(d) Riser and guideline tensioning systems.

(e) Motion compensation systems.

(f) Bulk material storage and handling systems.

(g) Other pressurized systems designed for the MODU's industrial operations.

§ 58.60–2 Alternatives and substitutions.

(a) The Coast Guard may accept substitutes for fittings, material, apparatus, equipment, arrangements, calculations, and tests required in this

subpart if the substitute provides an equivalent level of safety.

(b) In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, apparatus, arrangement, or test is unreasonable or impracticable, the Commandant may permit the use of alternate equipment, apparatus, arrangement, or test to such an extent and upon such condition as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subpart.

§ 58.60–3 Pressure vessel.

A pressure vessel that is a component in an industrial system under this subpart must meet the applicable requirements in § 54.01–5 of this subchapter.

[CGD 73–251, 43 FR 58601, Dec. 4, 1978, as amended by CGD 77–147, 47 FR 21811, May 20, 1982; USCG–2020–0634, 89 FR 50183, June 12, 2024]

§ 58.60–5 Industrial systems: Locations.

An industrial system under this subpart must not be in a space that is—

(a) Concealed; or

(b) Inaccessible to industrial personnel.

§ 58.60–7 Industrial systems: Piping.

The piping for industrial systems under this subpart must meet ASME B31.3 (incorporated by reference, see § 58.03–1), except that blow out preventor control systems must also meet API STD 53 (incorporated by reference, see § 58.03–1).57.

[USCG–2020–0634, 89 FR 50183, June 12, 2024]

§ 58.60–9 Industrial systems: Design.

Each system under this subpart must be designed and analyzed in accordance with the principles of API RP 14C (incorporated by reference, see § 58.03–1).

[USCG–2020–0634, 89 FR 50183, June 12, 2024]

§ 58.60–11 Analyses, plans, diagrams and specifications: Submission.

(a) Each industrial system must be analyzed by a registered professional engineer to certify that the system has been designed in accordance with applicable standards.

(b) The certification must—

(1) Appear on all diagrams and analyses; and

(2) Be submitted under § 50.20–5 of this chapter.

(c) Standards or specifications for non-pressurized, mechanical or structural systems, and components such as derricks, drawworks, and rotary tables which comply with standards or specifications not referenced in this subchapter must be referenced on the plans or in the specifications of the unit.

§ 58.60–13 Inspection.

An industrial system is accepted by the Coast Guard if the inspector finds—

(a) The system meets this subpart;

(b) There are guards, shields, insulation or similar devices for protection of personnel; and

(c) The system is not manifestly unsafe.

PART 59—REPAIRS TO BOILERS, PRESSURE VESSELS, AND APPURTENANCES

Subpart 59.01—General Requirements

Sec.

Subpart 59.10—Welding Repairs to Boilers and Pressure Vessels in Service

Subpart 59.15—Miscellaneous Boiler Repairs

Subpart 59.20—Welding Repairs to Castings