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Vessel Inspection Regulations

**Miscellaneous Amendments and
Editorial Changes**

Title 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

[CGFR 63-34]

VESSEL INSPECTION REGULATIONS

Miscellaneous Amendments and Editorial Changes

Pursuant to the notices of proposed rule making published in the FEDERAL REGISTER on February 2, 1963 (28 F.R. 1052-1058), and February 16, 1963 (28 F.R. 1510, 1511), and the Merchant Marine Council Public Hearing Agenda dated March 25, 1963 (CG-249), the Merchant Marine Council held a public hearing on March 25, 1963, for the purpose of receiving comments, views and data.

This document is the seventh of a series regarding the regulations and actions considered at the March 25, 1963, Public Hearing and Annual Session of the Merchant Marine Council. This document contains the final actions taken with respect to the following proposals:

ITEM IV—TANK VESSELS

- a. Remote shutdown of internal combustion engine driven cargo pumps on tank vessels (CG-249, page 67).
- b. Venting of cofferdams and void spaces of tank vessels (CG-249, page 68).
- c. Firefighting equipment and precautions (CG-249, pages 69-76).

ITEM V—VESSEL OPERATIONS AND INSPECTION

- a. Manning of lifeboats and liferafts (CG-249, pages 128-132).
- b. Manned seagoing barges: Rescue boat requirements (CG-249, page 133).

ITEM VI—MARINE ENGINEERING

- a. Materials and allowable stresses (CG-249, pages 171-188).
- b. Classification of piping systems (CG-249, page 189).
- c. Over pressure protective devices in exhaust lines of machinery (CG-249, page 190).
- d. Bilge piping to watertight compartments (CG-249, page 191).
- e. Arrangement of fuel oil service piping (CG-249, page 192).
- f. Fuel system requirements for diesel machinery located on deck (CG-249, page 193).
- g. Arc welding electrodes (CG-249, page 193).
- h. Hydrostatic tests for boiler feed and blow piping (CG-249, page 194).

ITEM VII—ELECTRICAL ENGINEERING

- a. Definitions, plan submittal, motors, ground detection, general alarm systems, storage batteries, switchboards, controllers, and emergency lighting and power systems (CG-249, pages 195-206).
- b. Motor enclosures, receptacle outlets, emergency lighting and power system, and smoke detector systems (CG-249, pages 207-210).

Those proposals designated as "a," "b," and "c" in Item IV regarding "Tank Vessels," as revised, are approved and set

forth in this document. The principal changes made change the effective date regarding remote shutdown controls on existing tank vessels to "October 1, 1963," from "July 1, 1963," in 46 CFR 32.50-35(b); require the firefighting equipment to be of an approved type when carried to provide special protection where unusual products are carried, in 46 CFR 34.01-10(a); and to limit the use of the distribution piping required in fire extinguishing systems, in 46 CFR 34.25-15(f).

Those proposals designated as "a" and "b" in Item V regarding "Vessel Operations and Inspection," as editorially revised, are approved and set forth in this document.

Those proposals in Item VI regarding "Marine Engineering," as revised, are approved and set forth in this document. Changes were made in 46 CFR 51.67-1, and 51.73-1 regarding aluminum bronze alloy E and oxygen-free copper, respectively; in 54.03-1 (b) and (g) (2) regarding materials (bronze castings and steel plate); and in Table 54.03-10(c) regarding allowable stresses for steam bronze castings and ounce metal. Table 55.04-5 regarding pressure and temperature limitations for piping was modified so that requirements for "molten sulfur" are limited to a maximum temperature of 330° F. In 46 CFR 55.10-25 the bilge and ballast piping to watertight compartments will not be applied to unmanned barges. In 46 CFR 55.10-40(c) the restriction to "short lengths of pipe" was removed and all welded lengths of fuel oil service piping may be located beneath floorplates and behind structures.

Those proposals in Item VII regarding "Electrical Engineering," as revised, are approved and set forth in this document. The provisions of 46 CFR 111.25-5(c) were changed so that "anchor windlass motors" were removed from the nonvital category so that nameplate requirements for "vital category" continue to apply. The value of the potential to which the normal source may drop was changed to "15 to 40 percent" in 46 CFR 112.20-5(a), 112.25-5 and 112.30-5(a). The location for contact maker of the general alarm system on tank ships is required to be in the deck officers' quarters rather than the "officers' quarters in the amidship deckhouse."

Other changes of an editorial nature have been made to bring statutory authorities up to date, correct references in regulations, and to clarify intent of regulations. These changes are in 46 CFR 2.50-25(b), 31.10-20(a) (4), 51.04-1, 51.46-1, 51.49-1, 52.25-1(c) (1), 55.07-1 (i) (3), 55.07-15, 56.05-5(a) (2), and 57.10-15(c) (1). Those changes which were not described in the notices of proposed rule making published in the FEDERAL REGISTER are considered to be editorial changes and it is hereby found that compliance with the Administrative Procedure Act (respecting notice of proposed rule making, public rule-making procedure thereon, and effective date requirements thereof) is unnecessary.

By the authority invested in me as Commandant, United States Coast Guard, by Treasury Department Orders

120 dated July 31, 1950 (15 F.R. 6521), 167-9 dated August 3, 1954 (19 F.R. 5195), 167-14 dated November 26, 1954 (19 F.R. 8026), 167-20 dated June 18, 1956 (21 F.R. 4894), CGFR 56-28 dated July 24, 1956 (21 F.R. 5659), and 167-38 dated October 26, 1959 (24 F.R. 8857), the following actions are ordered:

1. The vessel inspection regulations shall be amended in accordance with the changes in this document.

2. Unless specifically specified otherwise, the regulations in this document shall become effective on and after the 90th day following the date of publication of this document in the FEDERAL REGISTER.

3. Regulations containing specific effective dates shall become effective on and after such dates.

4. The regulations in this document may be compiled with during the interim prior to the effective dates specified in lieu of existing requirements. However, the new or revised requirements in this document shall be met by no later than the effective dates specified herein.

SUBCHAPTER A—PROCEDURES APPLICABLE TO THE PUBLIC

PART 2—VESSEL INSPECTIONS

Subpart 2.50—Assessment, Mitigation or Remission of Penalties

Section 2.50-25(b) is amended by canceling subparagraph (3) and by redesignating subparagraph (4) as subparagraph (3) to read as follows (Joint procedure for investigation of marine casualties under 46 CFR Part 136 and Uniform Code of Military Justice has been discontinued):

§ 2.50-25 Criminal penalties.

* * *

(3) Violations of port security regulations (33 CFR Parts 6, 121 to 126, inclusive).

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 5294, as amended, sec. 26, 23 Stat. 59, as amended; 46 U.S.C. 7, 8. Treasury Department Order 120, July 31, 1950; 15 F.R. 6521)

SUBCHAPTER D—TANK VESSELS

PART 31—INSPECTION AND CERTIFICATION

Subpart 31.10—Inspections

Section 31.10-20(a) (4) is corrected by inserting the phrase "time and the end of 120th month after" between the phrases "but shall be drydocked or hauled out between that" and "date of build," which was inadvertently omitted in the amendment published in the FEDERAL REGISTER April 4, 1963 (28 F.R. 3263), so that this subparagraph reads as follows:

§ 31.10-20 Drydock or hauling out—TB/ALL.

(a) * * *

* * *

(4) Tank barges used in fresh water service exclusively need not be drydocked

or hauled out during the first 60-month interval after date of build, but shall be drydocked or hauled out between that time and the end of 120th month after date of build, and at least once in each 60-month interval thereafter.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply R.S. 4488, as amended, sec. 3, 68 Stat. 675, 46 U.S.C. 481, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR 1952 Supp.)

PART 32—SPECIAL EQUIPMENT, MACHINERY, AND HULL REQUIREMENTS

Subpart 32.50—Pumps, Piping and Hose for Cargo Handling

1. Section 32.50-35 is amended to read as follows:

§ 32.50-35 Remote manual shutdown for internal combustion engine driven cargo pump on tank vessels—TB/ALL.

(a) Any tank vessel which is equipped with an internal combustion engine driven cargo pump on the weather deck shall be provided with a minimum of one remote manual shutdown station, conspicuously marked, and located at the midpoint of such vessel, or 100 feet from the engine, whichever is the more practical. The remote quick acting manual shutdown shall be installed on the engine so as to provide a quick and effective means of stopping the engine (such as by cutting off the intake air).

(b) This regulation applies to all installations of this type on tank vessels, but for such installations now on existing tankships at the date of next biennial inspection or October 1, 1963, whichever occurs later.

Subpart 32.55—Ventilation and Venting

2. Section 32.55-1(a) is amended to read as follows:

§ 32.55-1 Ventilation of tank vessels constructed on or after July 1, 1951—TB/ALL.

(a) On all tanks vessels, the construction or conversion of which is started on or after July 1, 1951, all enclosed parts of the vessel, other than cargo, fuel and water tanks, cofferdams and void spaces, shall be provided with efficient means of ventilation.

3. Section 32.55-45 is amended to read as follows:

§ 32.55-45 Venting of cofferdams and void spaces of tank vessels constructed on or after November 10, 1936—TB/ALL.

(a) Except as provided in paragraph (b) of this section, on all tank vessels, the construction or conversion of which was started on or after November 10, 1936, cofferdams and void spaces shall be provided with gooseneck vents fitted with a flame screen or pressure-vacuum relief valves. The diameter of a vent shall be not less than 2½ inches.

(b) On unmanned tank barges not fitted with fixed bilge systems in the cofferdams and void spaces, vents for

cofferdams and void spaces will not be required.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply sec. 3, 68 Stat. 675, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

PART 33—LIFESAVING APPLIANCES

Subpart 33.30—Manning of Lifeboats and Liferafts

1. The heading for Subpart 33.30 is amended to read as set forth above.
2. Section 33.30-3 is amended to read as follows:

§ 33.30-3 Person in charge of each lifeboat or liferaft—T/CLB.

(a) A licensed deck officer, an able seaman, or a certificated lifeboatman shall be placed in charge of each lifeboat or liferaft.

(b) The person in charge shall have a list of its lifeboatmen and other members of its crew, which shall be sufficient for her safe management, and shall see that the men placed under his orders are acquainted with their several duties and stations.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended, 4488, as amended; 46 U.S.C. 375, 391a, 416, 481)

PART 34—FIREFIGHTING EQUIPMENT

Subpart 34.01—Application

1. Subpart 34.01 is amended by adding after § 34.01-5 a new section reading as follows:

§ 34.01-10 Protection for unusual arrangements or special products—TB/ALL.

(a) The provisions of this part contemplate fire protection for tank vessels of conventional design carrying the usual liquid petroleum products in internal tanks. Whenever unusual arrangements exist or special cargoes are carried upon which the vessel's normal firefighting equipment will be ineffective, additional suitable firefighting equipment of approved type shall be carried.

Subpart 34.05—Firefighting Equipment, Where Required

2. Section 34.05-5(a)(3) is amended to read as follows:

§ 34.05-5 Fire-extinguishing systems—T/ALL.

(a) * * *

(3) Lamp and paint lockers and similar spaces. A carbon dioxide or water spray system shall be installed in all lamp and paint lockers, oil rooms, and similar spaces. Vessels contracted for prior to January 1, 1962, shall have a carbon dioxide, water spray, or steam smothering system. Vessels contracted for prior to November 19, 1952, shall have a carbon dioxide water spray, steam smothering, or foam system.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416.

Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR 1952 Supp.)

Subpart 34.25—Water Spray Extinguishing Systems, Details

3. Part 34 is amended by inserting after § 34.20-90 a new Subpart 34.25, entitled "Water Spray Extinguishing Systems, Details," consisting of §§ 34.25-1 to 34.25-90, inclusive, reading as follows:

- Sec.
- 34.25-1 Application—T/ALL.
- 34.25-5 Capacity and arrangement—T/ALL.
- 34.25-10 Controls—T/ALL.
- 34.25-15 Piping—T/ALL.
- 34.25-20 Spray nozzles—T/ALL.
- 34.25-90 Installations contracted for prior to January 1, 1964—T/ALL.

AUTHORITY: §§ 34.25-1 to 34.25-90 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 187-14, Nov. 26, 1954, 19 F.R. 8026; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857.

§ 34.25-1 Application—T/ALL.

(a) Where a water spray extinguishing system is installed, the provisions of this subpart, with the exception of § 34.25-90, shall apply to all installations contracted for on or after January 1, 1964. Installations contracted for prior to January 1, 1964, shall meet the requirements of § 34.25-90.

§ 34.25-5 Capacity and arrangement—T/ALL.

(a) The capacity and arrangement shall be such as to effectively blanket the entire area of the space protected. The rate of discharge and the arrangement of piping and spray nozzles shall be such as to give a uniform distribution over the entire area protected.

(b) The spacing of the spray nozzles shall be on the basis of the spray pattern provided by the lowest pressure at any spray nozzle in the system. In no instance shall a system be designed for any spray nozzle to be operated at a pressure less than that for which it was approved. The maximum permissible height of the spray nozzle above the protected area shall not exceed that specified in its approval. Whenever there are obstructions to coverage by the spray patterns, additional spray nozzles shall be installed to provide full coverage.

(c) The water supply shall be from outside the space protected and shall in no way be dependent upon power from the space protected. The pump supplying water for the system shall either be reserved exclusively for the system or it may be one of the fire pumps, provided the capacity of the fire pump as set forth in Subpart 34.10 is increased by the required capacity of the system, so that this system may be operated simultaneously with the fire main system.

RULES AND REGULATIONS

§ 34.25-10 Controls—T/ALL.

(a) There shall be one control valve for the operation of the system located in an accessible position outside the space protected. The control shall be located as convenient as practicable to one of the main escapes from the space protected, and shall be marked as required by § 35.40-18 of this subchapter. It shall not be necessary to start the pumps from the control space.

(b) Complete, but simple instructions for the operation of the system shall be located in a conspicuous place at or near the controls.

(c) The valve to the space protected shall be marked as required by § 35.40-18 of this subchapter.

§ 34.25-15 Piping—T/ALL.

(a) All piping, valves and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) Distribution piping shall be of materials resistant to corrosion, except that steel or iron pipe may be used if inside corrosion resistant coatings which will not flake off and clog the nozzles are applied. Materials readily rendered ineffective by heat of a fire shall not be used. The piping shall be subject to approval for each installation.

(c) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(d) Drains, strainers, and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(e) Threaded joints shall be metal to metal, with no thread compound used.

(f) Distribution piping shall be used for no other purpose.

(g) All piping shall be thoroughly cleaned and flushed before installation of the water spray nozzles.

§ 34.25-20 Spray nozzles—T/ALL.

(a) Spray nozzles shall be of an approved type.

§ 34.25-90 Installations contracted for prior to January 1, 1964—T/ALL.

(a) Installations contracted for prior to January 1, 1964, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 34.25-5 through 34.25-20 insofar as is reasonable and practicable.

Subpart 34.50—Portable and Semi-portable Extinguishers

4. Section 34.50-10 is amended by revising Table 34.50-10(a) in paragraph (a) and by adding a new paragraph (g), which read as follows:

§ 34.50-10 Location—TB/ALL.

(a) * * *

TABLE 34.50-10(a)—PORTABLE AND SEMI-PORTABLE EXTINGUISHERS

Tank ships		Area	Tank barges	
Quantity and location	Classification (see § 34.50-5)		Classification (see § 34.50-5)	Quantity and location
<i>Safety Areas</i>				
1 required.....	C-II.....	Wheelhouse and chartroom area.	.....	None required.
1 required in vicinity of exit.	C-II ¹	Radio room.....	.....	None required.
<i>Accommodation Areas</i>				
1 required in each main passageway on each deck, conveniently located, and so that no room is more than 75 feet from an extinguisher.	A-II or B-II.....	Staterooms, toilet spaces, public spaces, offices, etc., and associated lockers, storerooms, and pantries.	A-II or B-II.....	1 required in vicinity of exit.
<i>Service Areas</i>				
1 required for each 2,500 square feet or fraction thereof, suitable for hazard involved.	B-II or C-II.....	Galleys.....	B-II or C-II.....	1 required, suitable for hazard involved.
1 required for each 2,500 square feet or fraction thereof, suitable for hazard involved.	A-II or B-II.....	Stores areas, including paint and lamp rooms.	.....	None required.
<i>Machinery Area²</i>				
2 required ³	B-II..... and	Spaces containing oil fired boilers, either main or auxiliary, or any fuel oil units subject to the discharge pressure of the fuel oil service pump.	B-II.....	1 required.
1 required.....	B-V ⁴			
1 required for each 1,000 B.H.P., but not less than 2 nor more than 6. ⁵	B-II..... and	Spaces containing internal combustion or gas turbine propulsion machinery.	.....	None required.
1 required ⁶	B-III.....			
1 required in vicinity of exit. ⁷	B-II.....	Auxiliary spaces containing internal combustion or gas turbine units.	B-II.....	1 required in vicinity of exit. ⁸
1 required in vicinity of exit. ⁹	C-II.....	Auxiliary spaces containing emergency generators.	.....	None required.
<i>Cargo Areas</i>				
1 required in lower pump room.	B-II.....	Pump rooms.....	B-II.....	1 required in vicinity of exit. ¹⁰
None required.....	.....	Cargo tank area.....	B-II..... and B-V.....	2 required. ¹⁰ 1 required. ¹¹

¹ Vessels not on an international voyage may substitute 2 C-I.
² A C-II shall be immediately available to the service generator and main switchboard areas, and further, a C-II shall be conveniently located not more than 50 feet walking distance from any point in all main machinery operating spaces. These extinguishers need not be in addition to other required extinguishers.
³ Vessels of less than 1,000 gross tons require 1.
⁴ Vessels of less than 1,000 gross tons may substitute 1 B-IV.

⁵ Only 1 required for vessels under 65 feet in length.
⁶ If oil burning donkey boiler fitted in space, the B-V previously required for the protection of the boiler may be substituted. Not required where a fixed carbon dioxide system is installed.
⁷ Not required on vessels of less than 300 gross tons if fuel has a flashpoint higher than 110° F.
⁸ Not required on vessels of less than 300 gross tons.
⁹ Not required if fixed system installed.
¹⁰ If no cargo pump on barge, only one B-II required.
¹¹ Manned barges of 100 gross tons and over only.

(g) Hand portable or semi-portable extinguishers which are required on their nameplates to be protected from freezing shall not be located where freezing temperatures may be expected.

5. Section 34.50-90 is amended to read as follows:

§ 34.50-90 Vessels contracted for prior to January 1, 1962—TB/ALL.

(a) Vessels contracted for prior to January 1, 1962, shall meet the following requirements:

(1) The provisions of §§ 34.50-5 through 34.50-15 shall be met with the exception that existing installations may be maintained if in the opinion of the Officer in Charge, Marine Inspection, they are in general agreement with the degree of safety prescribed by Table 34.50-10(a). In such cases, minor modifications may be made to the same standard as the original installation: *Provided*, That in no case will a greater departure from the standards of Table 34.50-10(a) be permitted than presently exists.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR 1952, Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857)

PART 35—OPERATIONS

Subpart 35.40—Marking of Fire and Emergency Equipment

Subpart 35.40 is amended by inserting after § 35.40-17 a new section reading as follows:

§ 35.40-18 Water spray systems—TB/ALL.

(a) Water spray system apparatus shall be marked: "WATER SPRAY SYSTEM," as appropriate, in not less than 2-inch red letters.

(b) The control valve, and its control if located remotely, shall be distinctly marked to indicate the compartment protected.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply R.S. 4488, as amended, sec. 3, 68 Stat. 675, 46 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950; 15 F.R. 6521; 167-14, Nov. 24, 1954, 19 F.R. 8026; 167-38, Oct. 26, 1959, 24 F.R. 8857)

SUBCHAPTER F—MARINE ENGINEERING

PART 51—MATERIALS

1. The authority for Part 51 is amended to read as follows:

AUTHORITY: §§ 51.01-1 to 51.86-1 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426-4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, 4491, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404-409, 411, 412, 435, 481, 489, 366, 395, 363, 367, 526p, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; 167-20, June 18, 1956, 21 F.R. 4894; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857.

Subpart 51.04—Marine Boiler Steel Plate

2. Section 51.04-1(a) is amended by revising Table 51.04-1 to read as follows:

§ 51.04-1 Scope.

(a) * * *

TABLE 51.04-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade	Coast Guard grade
A201-61T	A and B	A201—A and B
A212-61T	A and B	A212—A and B
A204-61	A, B, and C	A204—A, B, and C
A202-66	A	A202—A
A203-61	A, B, D, E	A203—A, B, D, and E
A225-66	A and B	A225—A and B
A299-66	A	A299—A
A302-66	A and B	A302—A and B
A353-68	A and B	A353—A and B
A357-68	A	A357—A
A387-61T	A, B, C, D, E	A387—A, B, C, D, and E

Subpart 51.22—Flange and Firebox Steel Plates

§ 51.22-1 [Amendment]

3. In § 51.22-1 *Scope*, paragraph (a) is amended by changing in column 1 of "Table 51.22-1—Material Specifications," under the heading "A.S.T.M. designation," the last item from "A410-57" to "A410-57T."

Subpart 51.46—Steel Forgings

§ 51.46-1 [Amendment]

4. Section 51.46-1 *Scope* is amended by changing in column 1 of "Table 51.46-1—Material Specifications," under the heading "A.S.T.M. designation," the next to the last item from "A430-61T" to "A403-61T."

Subpart 51.49—Carbon and Alloy-Steel Bolting and Nut Material

§ 51.49-1 [Amendment]

5. Section 51.49-1 *Scope* is amended by changing in column 2 of "Table 51.49-1—Material Specifications," under the heading "A.S.T.M. grade," the next to the last item from "3 (5 Cr-0.50 No-1W)" to "3 (5 Cr-0.50 Mo-0.10 Si)."

Subpart 51.61—Iron Castings

6. Section 51.61-1 is amended by revising Table 51.61-1 to read as follows:

§ 51.61-1 Scope.

TABLE 51.61-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade	Coast Guard grade
Nodular iron:		
A395-61	60-45-15	60-45-15.
Malleable iron:		
A47-61	32510	A1.
A47-61	35018	A2.
A197-47	Cupola	B.
Cast iron:		
A126-61T	Class A (regular)	C.
A126-61T	Class B (higher strength)	D.
A126-61T	Class O (high test)	E.
A278-61T	Class No. 20	No. 20.
A278-61T	Class No. 25	No. 25.
A278-61T	Class No. 30	No. 30.
A278-61T	Class No. 35	No. 35.
A278-61T	Class No. 40	No. 40.
A278-61T	Class No. 50	No. 50.
A278-61T	Class No. 60	No. 60.

Subpart 51.67—Copper and Copper-Alloy Plate

7. Section 51.67-1 is amended by revising Table 51.67-1 to read as follows:

§ 51.67-1 Scope.

(a) * * *

TABLE 51.67-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade	Coast Guard grade
Copper:		
B11-61	Type ETP (tough pitch copper nonarsenical).	B11-1.
B11-61	Type DHP (phosphorized copper nonarsenical).	B11-2.
B11-61	Type ATP (tough pitch arsenical copper).	B11-3.
B11-61	Type DPA (phosphorized arsenical copper).	B11-4.
Copper-alloy:		
B96-61	Copper silicon alloy A or C.	B96-A or C.
B169-55	Aluminum bronze alloy D.	B169-D.
B171-58	Naval brass	B171-A.
B171-58	Admiralty metal	B171-B.
B171-58	Copper-nickel alloy 70-30.	B171-C.
B171-58	Copper-nickel alloy 90-10.	B171-D.
B171-58	Aluminum bronze alloy D.	B171-E.
B171-58	Aluminum bronze alloy E.	B171-F.

Subpart 51.73—Seamless Copper and Copper-Alloy Tubes

8. Section 51.73-1 is amended by revising Table 51.73-1 to read as follows:

§ 51.73-1 Scope.

(a) * * *

TABLE 51.73-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade	Coast Guard grade
B88-61	Copper Type K	B88-K.
B88-61	Copper Type L	B88-L.
B88-61	Copper Type M	B88-M.
B75-61	Oxygen-free copper	B75-D.
B75-61	Phosphorized copper Type DLP.	B75-A.
B75-61	Phosphorized copper Type DHP.	B75-B.
B75-61	Phosphorized arsenical copper Type DPA.	B75-C.
B111-60	Copper	B111-A.
B111-60	Arsenical copper	B111-B.
B111-60	Red brass	B111-C.
B111-60	Admiralty metal grades A, B, C, and D.	B111-D.
B111-60	Aluminum brass grade B.	B111-E.
B111-60	Aluminum bronze	B111-F.
B111-60	Copper-nickel 70-30.	B111-G.
B111-60	Copper-nickel 80-20.	B111-H.
B111-60	Copper-nickel 90-10.	B111-I.

Subpart 51.76—Copper-Alloy Castings

9. Section 51.76-1 is amended by revising Table 51.76-1 to read as follows:

§ 51.76-1 Scope.

TABLE 51.76-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade		Coast Guard grade
	Alloy	Temper	
B61-60.....	Steam or valve bronze.		2A.
B62-60.....	Composition bronze or ounce metal.		4A.
B143-61.....	Tin bronze, 1A.....		1A.
B143-61.....	Tin bronze, 1B.....		1B.

Subpart 51.79—Aluminum-Alloy Plates and Sheets

9a. The heading for Subpart 51.79 is amended to read as set forth above.

10. Section 51.79-1, including Table 51.79-1, is amended to read as follows:
§ 51.79-1 Scope.

(a) The material specifications covering aluminum-alloy plate and sheet of Class B, certified material, suitable for use as shells and tube sheets of unfired pressure vessels and heat exchangers, shall comply with the following standard specifications issued by the American Society for Testing Materials.

TABLE 51.79-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade		Coast Guard grade
	Alloy	Temper	
B209-61.....	1060.....	0.....	1060-0.
B209-61.....	1100.....	0.....	1100-0.
B209-61.....	3003.....	0.....	3003-0.
B209-61.....	3004.....	0.....	3004-0.
B209-61.....	5050.....	0.....	5050-0.
B209-61.....	5052.....	0.....	5052-0.
B209-61.....	5083.....	0.....	5083-0.
B209-61.....	5086.....	0.....	5086-0.
B209-61.....	5154.....	0.....	5154-0.
B209-61.....	5456.....	0.....	5456-0.
B209-61.....	6061.....	T6.....	6061-T6.

Subpart 51.80—Aluminum-Alloy Pipe and Tubes

11. Part 51 is amended by adding after § 51.79-1 a new Subpart 51.80, entitled "Aluminum-Alloy Pipe and Tubes," consisting of § 51.80-1 reading as follows:

§ 51.80-1 Scope.

(a) The material specifications covering aluminum-alloy pipe and tubes of Class B, certified materials shall comply with the following standard specifications issued by the American Society for Testing Materials.

TABLE 51.80-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade		Coast Guard grade
	Alloy	Temper	
B210-61.....	1060.....	0.....	1060-0.
B210-61.....	3003.....	0.....	3003-0.
B210-61.....	5154.....	0.....	5154-0.
B210-61.....	6061.....	T6.....	6061-T6.
B210-61.....	6063.....	T6.....	6063-T6.
B234-61.....	6061.....	T6.....	6061-T6.
B235-61.....	1060.....	0.....	1060-0.
B235-61.....	3003.....	0.....	3003-0.
B235-61.....	5154.....	0.....	5154-0.
B235-61.....	5456.....	0.....	5456-0.
B235-61.....	6061.....	T6.....	6061-T6.
B235-61.....	6063.....	T6.....	6063-T6.
B241-61.....	5456.....	0.....	5456-0.
B241-61.....	6061.....	T6.....	6061-T6.
B241-61.....	6063.....	T6.....	6063-T6.

Subpart 51.81—Aluminum-Alloy Forgings

12. Part 51 is amended by adding after § 51.80-1 a new Subpart 51.81, entitled "Aluminum-Alloy Forgings," consisting of § 51.81-1 reading as follows:

§ 51.81-1 Scope.

(a) The material specifications covering aluminum-alloy forgings of Class B, certified materials, shall comply with the following standard specifications issued by the American Society for Testing Materials.

TABLE 51.81-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade		Coast Guard grade
	Alloy	Temper	
B247-61.....	3003.....	F.....	3003-F.
B247-61.....	6061.....	T6.....	6061-T6.
B247-61.....	6063.....	T6.....	6063-T6.

Subpart 51.82—Aluminum-Alloy Bars, Rods, and Shapes

13. Part 51 is amended by adding after § 51.81-1 a new Subpart 51.82, entitled "Aluminum-Alloy Bars, Rods, and Shapes," consisting of § 51.82-1 reading as follows:

§ 51.82-1 Scope.

(a) The material specifications covering aluminum-alloy bars, rods, and shapes of Class B, certified materials, shall comply with the following standard specifications issued by the American Society for Testing Materials.

TABLE 51.82-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade		Coast Guard grade
	Alloy	Temper	
B211-61.....	6061.....	0.....	6061-T6.
B221-61.....	5083.....	0.....	5083-0.
B221-61.....	5154.....	0.....	5154-0.
B221-61.....	5456.....	0.....	5456-0.
B221-61.....	6061.....	T6.....	6061-T6.

Subpart 51.85—Nickel-Alloy Plates and Sheets

14. Part 51 is amended by adding after § 51.82-1 a new Subpart 51.85, entitled "Nickel-Alloy Plates and Sheets," consisting of § 51.85-1 reading as follows:

§ 51.85-1 Scope.

(a) The material specifications covering nickel-alloy plates and sheets of Class B, certified materials, shall comply with the following standard specification issued by the American Society for Testing Materials.

TABLE 51.85-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade		Coast Guard grade
	Alloy	Temper	
B127-61.....	Hot or cold rolled.....		B127.

Subpart 51.86—Nickel-Alloy Pipe and Tubes

15. Part 51 is amended by adding after § 51.85-1 a new Subpart 51.86-1, entitled

"Nickel-Alloy Pipe and Tubes," consisting of § 51.86-1 reading as follows:

§ 51.86-1 Scope.

(a) The material specifications covering nickel-alloy pipe and tubes of Class B, certified material, shall comply with the following standard specification issued by the American Society for Testing Materials.

TABLE 51.86-1—MATERIAL SPECIFICATIONS

A.S.T.M. designation	A.S.T.M. grade	Coast Guard grade
B163-61.....	Nickel copper alloy.....	B163.
B165-61.....		B165.

PART 52—CONSTRUCTION

1. The authority for Part 52 is amended to read as follows:

AUTHORITY: §§ 52.01-1 to 52.70-55 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426-4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, 4491, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404-409, 411, 412, 435, 481, 489, 366, 395, 363, 367, 526p, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; 167-20, June 18, 1956, 21 F.R. 4894; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857.

Subpart 52.05—Cylindrical Shells

§ 52.05-10 [Amendment]

2. In § 52.05-10 Computations, paragraph (a) is amended by deleting from Table 52.05-10(a) the heading in brackets entitled "[Boilers, Unfired Pressure Vessels, Boiler Tubes, and Bolting]" because the maximum allowable stresses for pipe and tubes (formerly in Table 55.07-5(a) in § 55.07-5) are now to be obtained from this table.

Subpart 52.25—Openings and Reinforcements

§ 52.25-1 [Amendment]

3. In § 52.25-1 Scope, paragraph (c) (1) is amended by changing the phrase from "2-inch size in shells" to "2-inch pipe size in shells."

PART 54—UNFIRED PRESSURE VESSELS

1. The authority for Part 54 is amended to read as follows:

AUTHORITY: §§ 54.01-1 to 54.07-25 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426-4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, 4491, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amend-

ed, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404-409, 411, 412, 435, 481, 489, 366, 395, 363, 367, 526p, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; 167-20, June 18, 1956, 21 F.R. 4894; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857.

Subpart 54.03—Design and Construction

2. Section 54.03-1 is amended by revising paragraphs (b) and (g) to read as follows:

§ 54.03-1 Materials.

(b) Steel plate used for pressure parts of unfired pressure vessels may be of

Class B material complying with the requirements of Subpart 51.04, 51.22 or 51.23 in Part 51 of this subchapter, except that in the case of unfired pressure vessels designed for pressures exceeding 700 pounds per square inch or temperatures exceeding 650° F. steel plate shall be of Class A material meeting the requirements of Subpart 51.04 in Part 51 of this subchapter.

(g) Nonferrous materials may be used in the construction of unfired pressure vessels subject to the following conditions:

(1) The grade of materials shall be as specified in Part 51 of this subchapter, and as given in Table 54.03-10(c).

(2) The pressure and temperature limitations for bronze castings shall be as given in § 55.07-1(d) of this subchapter.

(3) Welding may be employed for aluminum alloy grades 6061-T6 and 6063-T6, provided welding procedure qualification tests are conducted in accordance with § 56.01-15 of this subchapter.

3. Section 54.03-10 is amended by cancelling the authority note following paragraph (b) and by revising Table 54.03-10(c) in paragraph (c) to read as follows:

§ 54.03-10 Cylindrical shells and heads.

(c) * * *

TABLE 54.03-10(c)—MAXIMUM ALLOWABLE STRESSES¹ FOR NONFERROUS MATERIALS

Specification	A.S.T.M. designation	Grade		Minimum tensile strength p.s.i.	Minimum yield strength p.s.i.	Notes	For metal temperatures not exceeding ° F.											
		A.S.T.M.	C.G.				100	150	200	250	300	350	400 ²	450	500	550	600	650/700
<i>Aluminum-alloy plates and sheets</i>																		
51.79	B-209	1060	1060-0	9,500	2,500	(7)	1,650	1,650	1,600	1,450	1,250	1,200	1,050					
51.79	B-209	1100	1100-0	11,000	3,500	(7)	2,350	2,350	2,300	2,100	1,850	1,600	1,300					
51.79	B-209	3003	3003-0	14,000	5,000	(7)	3,350	3,150	2,900	2,700	2,400	2,100	1,800					
51.79	B-209	3004	3004-0	22,000	8,500	(7)	5,500	5,500	5,500	5,200	4,550	3,600	2,950					
51.79	B-209	5050	5050-0	18,000	6,000	(7)	4,000	4,000	4,000	4,000	4,000	3,350	2,100					
51.79	B-209	5052	5052-0	25,000	9,500	(7)	6,250	6,250	6,200	6,000	5,400	4,650	3,500					
51.79	B-209	5053	5053-0	40,000	18,000	(7)	10,000	10,000										
51.79	B-209	5056	5056-0	35,000	14,000		8,700	8,700										
51.79	B-209	5154	5154-0	30,000	11,000	(7)	7,350	7,350	7,350	7,000	6,400							
51.79	B-209	5456	5456-0	42,000	19,000		10,500	10,400										
51.79	B-209	6061-T6W	6061-T6W	24,000			6,000	5,900	5,700	5,400	5,000	4,200	3,200					
<i>Copper and copper-alloy plates</i>																		
51.67	B-11	Copper	B11-1, -2, -3, -4	30,000	10,000	(7)	6,700	6,700	6,500	6,300	5,000	3,800	2,500					
51.67	B-96	Copper-silicon	B96-A or -C	50,000	18,000	(7)	12,000	12,000	11,900	11,700								
51.67	B-171	Naval brass	B171-A	50,000	20,000	(7)	12,500	12,500	12,000	11,200	10,500	7,500	2,000					
51.67	B-171	Admiralty metal	B171-B	45,000	15,000	(7)	10,000	10,000	10,000	10,000	10,000	8,000	5,000	3,000				
51.67	B-171	Copper-nickel 70-30	B171-C	50,000	20,000	(7)	12,500	12,200	11,900	11,600	11,300	11,000	10,800	10,600	10,400	10,200	10,000	9,800/9,700
51.67	B-171	Copper-nickel 90-10	B171-D	40,000	15,000	(7)	10,000	10,000	9,800	9,500	9,300	9,000	8,700	8,300	8,000	7,000	6,000	
51.67	B-169	Aluminum bronze alloy D	B169-D	70,000	30,000	(7)	17,500	17,500	16,800	16,000	15,500	15,000	14,500	12,000	10,000			
51.67	B-171	Aluminum bronze alloy D	B171-E	70,000	30,000	(7)	17,500	17,500	16,800	16,000	15,500	15,000	14,500	12,000	10,000			
51.67	B-171	Aluminum bronze alloy E	B171-E, -F	90,000	36,000	(7)	22,500	22,500	21,000	19,500	18,000	16,500	15,000	13,500	12,000	10,500	9,000	7,500/6,000
<i>Seamless pipe or tubes</i>																		
51.80	B-210	1060	1060-0	9,500	2,500	(7)	1,650	1,650	1,600	1,450	1,250	1,200	1,050					
51.80	B-235																	
51.80	B-210	3003	3003-0	14,000	5,000	(7)	3,500	3,150	2,900	2,700	2,400	2,100	1,800					
51.80	B-235																	
51.80	B-210	5154	5154-0	30,000	11,000	(7)	7,350	7,350	7,350	7,000	6,400							
51.80	B-235																	
51.80	B-235	5456	5456-0	42,000	19,000		10,500	10,400										
51.80	B-241																	
51.80	B-210	6063-T6W	6063-T6W	17,000			4,250	4,200	4,000	3,800	3,600	2,750	1,900					
51.80	B-235																	
51.80	B-241	6061-T6W	6061-T6W	24,000			6,000	5,900	5,700	5,400	5,000	4,200	3,200					
51.80	B-210																	
51.80	B-234																	
51.80	B-235																	
51.80	B-241																	
51.70	B-42	Copper pipe	B42	30,000	9,000	(8)(9)	6,000	6,000	5,900	5,800	5,000	3,800	2,500					
51.70	B-42	Copper pipe (2.00' and under)	B42	45,000	40,000	(8)(9)(11)	11,300	11,300	11,000	10,500	8,000	5,000	2,500					
51.70	B-42	Copper pipe (above 2.00')	B42	36,000	30,000	(8)(9)(11)	9,000	9,000	8,700	8,300	8,000	5,000	2,500					
51.70	B-43	Red brass pipe	B43	40,000	12,000	(8)(9)	8,000	8,000	8,000	8,000	8,000	6,000	3,000	2,000				
51.73	B-75	Copper tubes	B75-A or -B	30,000	9,000	(8)(9)	6,000	6,000	5,900	5,800	5,000	3,800	2,500					
51.73	B-75	Copper tubes	B75-A or -B	36,000	30,000	(8)(11)	9,000	9,000	8,700	8,300	8,000	5,000	2,500					
51.73	B-88	Copper tubes	B88-K, -L or -M	30,000	10,000	(7)	6,700	6,700	6,500	6,300	5,000	3,800	2,500					
51.73	B-88	Copper tubes	B88-K, -L or -M	36,000	30,000	(8)(11)	9,000	9,000	8,700	8,300	8,000	5,000	2,500					
51.73	B-111	Copper tubes	B111-A or -B	30,000	10,000	(8)(9)	6,700	6,700	6,500	6,300	5,000	3,800	2,500					
51.73	B-111	Copper tubes	B111-A or -B	36,000	30,000	(8)(9)(11)	9,000	9,000	8,700	8,300	8,000	5,000	2,500					
51.73	B-111	Red brass tubes	B111-C	40,000	12,000	(8)(9)	8,000	8,000	8,000	8,000	8,000	6,000	3,000	2,000				
51.73	B-111	Admiralty metal	B111-D	45,000	15,000	(8)(9)	10,000	10,000	10,000	10,000	10,000	8,000	5,000	3,000				

See footnotes at end of table.

TABLE 54.03-10(c)—MAXIMUM ALLOWABLE STRESSES¹ FOR NONFERROUS MATERIALS—Continued

Specification	A.S.T.M. designation	Grade		Minimum tensile strength p.s.i.	Minimum yield strength p.s.i.	Notes	For metal temperatures not exceeding ° F.											
		A.S.T.M.	O.G.				100	150	200	250	300	350	400 ²	450	500	550	600	650/700
<i>Seamless pipe or tubes</i>																		
51.73	B-111	Aluminum brass tubes.	B111-E	50,000	18,000	(³)	12,000	12,000	12,000	12,000	12,000	7,500	3,000	2,000				
51.73	B-111	Copper nickel tubes 70-30.	B111-G	52,000	18,000	(³)	12,000	11,600	11,300	11,000	10,800	10,600	10,300	10,100	9,900	9,800	9,600	9,500/9,400
51.73	B-111	Copper nickel tubes 80-20.	B111-H	45,000	16,000	(³)	10,700	10,600	10,500	10,400	10,300	10,100	9,900	9,600	9,300	8,900	8,400	7,700/7,000
51.73	B-111	Copper nickel tubes 90-10.	B111-I	40,000	15,000	(³)	10,000	10,000	9,800	9,500	9,300	9,000	8,700	8,300	7,500	6,700	6,000	
51.73	B-111	Aluminum bronze tubes.	B111-F	50,000	19,000	(³)	12,500	12,400	12,200	11,900	11,600	10,000	6,000	4,000	2,000			
<i>Brazed pipe</i>																		
		Copper					3,000	3,000	3,000	3,000	12,600							
<i>Bars, rods, shapes and forgings</i>																		
51.81	B-247	3003F	3003F	14,000	5,000		3,350	3,150	2,900	2,700	2,400	2,100	1,800					
51.82	B-221	5083	5083	38,000	16,000		9,500	9,500										
51.82	B-221	5154	5154	30,000	11,000	(⁵)	7,350	7,350	7,350	7,000	6,400							
51.82	B-221	5456	5456	42,000	19,000		10,500	10,400										
51.82	B-211	6061-T6	6061-T6	38,000	35,000	(¹⁸)	9,500	9,200	9,000	8,500	7,200	5,600	4,000					
51.82	B-221	6061-T6W	6061-T6W	24,000			6,000	5,900	5,700	5,400	5,000	4,200	3,200					
51.82	B-211	6061-T6	6061-T6	38,000	35,000	(¹⁸)	9,500	9,200	9,000	8,500	7,200	5,600	4,000					
51.81	B-247	6061-T6W	6061-T6W	24,000			6,000	5,900	5,700	5,400	5,000	4,200	3,200					
51.81	B-247	6063-T6	6063-T6	36,000	30,000	(¹⁸)	9,000	8,400	7,900	7,300	6,100	4,700	3,200					
<i>Castings</i>																		
51.76 ⁴	B-61	Steam bronze	2A	34,000	16,000	(¹⁴)	8,500	8,400	8,300	8,200	8,100	7,900	7,600	7,200				
51.76	B-62	Ounce metal	4A	30,000	14,000	(¹⁴)	7,500	7,300	7,100	6,900	6,800	6,600	6,500					
51.76	B-143	Tin bronze 1A	1A	40,000	18,000	(¹⁴)	8,000	8,000	7,000	6,000	5,500	5,000						
51.76	B-143	Tin bronze 1B	1B	40,000	18,000	(¹⁴)	8,000	8,000	7,000	6,000	5,500	5,000						
<i>Nickel-copper plates and sheets</i>																		
51.85	B-127	Hot or cold rolled.	B127	70,000	28,000		17,500	16,500	15,500	14,800	14,700	14,700	14,700	14,500	8,000			
51.85	B-127	Hot rolled (as rolled).	B127	75,000	40,000		18,750	17,500	17,000	17,000	17,000	17,000	16,500	14,500	4,000			
<i>Nickel-copper pipe or tubes</i>																		
51.86	B-163	Nickel copper tubes (3" and under).	B163	70,000	28,000		17,500	16,500	15,500	14,800	14,700	14,700	14,700	14,500	8,000			
51.86	B-163	Nickel copper tubes (1/2" to 3/4").	B163	90,000	55,000	(¹⁶)	22,500	21,200	20,700	20,500	20,500	20,500	19,500	15,000				
51.86	B-163	Nickel copper tubes (other sizes).	B163	85,000	55,000	(¹⁶)	21,200	20,200	19,500	19,200	19,200	19,200	18,500	15,000				
51.86	B-165	Nickel copper pipe or tubes.	B165	70,000	28,000		17,500	16,500	15,500	14,800	14,700	14,700	14,700	14,500	8,000			
51.86	B-165	Nickel copper pipe or tubes.	B165	85,000	55,000	(¹⁶ 17)	21,200	20,200	19,500	19,200	19,200							

¹ All stresses refer to the annealed condition of the material, unless otherwise specified. For wrought material, the allowable "S" values are based upon one-fourth of the minimum tensile strength or two-thirds of the minimum yield strength for temperatures of 150° F. and below, whichever is lower; and upon creep stress or stress-rupture at the higher temperatures. For cast material, the allowable "S" values are based upon one-fifth of the minimum tensile strength for temperatures of 150° F. and below; and upon creep stress or stress-rupture at the higher temperatures.

² The same stress may be employed for a temperature of 406° F.

³ The minimum yield strength employed not included in the specification.

⁴ For nominal thickness not greater than 2.00-inch.

⁵ Strength of reduced tensile specimen to qualify welding procedures, see § 54.03-1(g) (3).

⁶ This material limited to a maximum allowable temperature of 212° F.

⁷ This material approved for tube plates only.

⁸ For nominal thickness not greater than 2.50-inch.

⁹ For nominal thickness not less than 0.25-inch.

¹⁰ The minimum tensile strength employed not included in the specification.

¹¹ These stresses refer to the light drawn condition.

¹² The same stress may be employed for 320° F.

¹³ The stress values given for this material are not applicable when either welding or thermal cutting is employed.

¹⁴ To these stresses a casting quality factor of 0.80 shall be used. This is not intended to apply to valves and fittings complying with A.S.A. standards.

¹⁵ This stress is not permitted for temperatures exceeding 366° F.

¹⁶ The stresses refer to the stress relieved condition.

¹⁷ The maximum operating temperature is (arbitrarily) set at 500° F., because harder temper adversely affects design stress in the creep rupture temperature range.

PART 55—PIPING SYSTEMS AND APPURTENANCES

1. The authority for Part 55 is amended to read as follows:

AUTHORITY: §§ 55.01-1 to 55.17-40 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426-4431, as amended, 4433, as

amended, 4434, as amended, 4453, as amended, 4488, as amended, 4491, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404-409, 411, 412, 435, 481, 489, 366, 395, 363, 367, 526p, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; 167-20, June 18, 1956, 21 F.R. 4894; CGFR

56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857.

Subpart 55.04—Piping Classification

2. Section 55.04-5, including Table 55.04-5, is amended to read as follows:

§ 55.04-5 Class I piping.

(a) Class I piping includes the various systems conveying mediums exceeding either pressures or temperatures as set forth in Table 55.04-5.

TABLE 55.04-5—PRESSURE AND TEMPERATURE LIMITATIONS

Service	Pressure, pounds per square inch	Temperature ° F.
Lethal gases and liquids.....	Any	Any
Gases and vapors.....	150	650
Water.....	225	350
Fuel oil.....	150	150
Lubricating oil.....	225	400
Liquefied compressed gases.....	150	-----
Cargo oil, Grades A through D.....	225	150
Cargo oil, Grade E.....	225	400
Cargo oil, asphalt.....	225	400
Heat transfer oils.....	225	400
Molten sulfur.....	225	330

Subpart 55.07—Detail Requirements

§ 55.07-1 [Amendment]

3. In § 55.07-1 *Material*, paragraph (i) (3), first sentence, is amended by changing the phrase from "in pneumatic systems" to "in pneumatic and hydraulic systems."

§ 55.07-5 [Amendment]

4. Section 55.07-5 *Design pressures and thickness of pipes* is amended in the following respects:

A. In paragraph (a) the "Table 55.07-5(a)—Maximum Allowable Stresses for Piping" is canceled because the maximum allowable stresses for pipe and tubes are now to be obtained from Table 52.05-10(a) in § 52.05-10 of this subchapter.

B. In paragraph (a) the identification for a table is changed from "Table 55.07-1(a1)—Multiplier 'M' Values" to "Table 55.07-1(a)—Multiplier 'M' Values."

C. In paragraph (a) (1) for formulas (1) and (2) the descriptions of "S" and "M" are amended to read as follows:

S=Allowable fiber stress, p.s.i. When ferrous material is employed, the allowable fiber stress shall be 80 percent of the stresses as given in Table 52.05-10(a). When nonferrous material is employed, the allowable fiber stress shall be as given in Table 54.03-10(c).
M=Multiplier as given in Table 55.07-5(a).

§ 55.07-6 [Amendment]

5. In paragraph (f) (3) for formula (2) in § 55.07-6 *Expansion and flexibility* the descriptions of "S_c" and "S_h" are amended to read as follows:

S_c=Allowable stress in cold condition, in p.s.i. (80 percent of S value given in Table 52.05-10(a) for piping material at 650° F.)
S_h=Allowable stress in hot condition, in p.s.i. (80 percent of S value given in Table 52.05-10(a) for piping materials at design temperatures.)

6. Section 55.07-8(b) is amended to read as follows:

§ 55.07-8 Variations in pressures and temperatures.

(b) Occasional increases in pressure and/or temperature are unavoidable and may be permitted without changing the normal design provided the corresponding stress in the pipe wall calculated by Formulas (1) and (2) of § 55.07-5 does not exceed 80 percent of the maximum allowable stress value given in Table 52.05-10(a) in § 52.05-10 of this subchap-

ter for the actual expected temperature by more than the following allowance for the periods of duration indicated:

(1) Up to 15 percent increase above the S value during 10 percent of the operating period.

(2) Up to 20 percent increase above the S value during 1 percent of the operating period.

§ 55.07-15 [Amendment]

7. In § 55.07-15 *Joints and flange connections*, paragraph (e) (1) is amended by changing in column 3 of "Table 55.07-15(e1)—Standards for Flanged, Butt-Welding, and Socket-Welding Valves, Fittings, and Pipe Flanges," under the heading "Standard," the second item from "ASA B16b-1960" to "ASA B16.2-1960."

Subpart 55.10—Pumping Arrangements and Piping Systems

8. Section 55.10-1(g) (2) is amended to read as follows:

§ 55.10-1 Steam and exhaust piping.

(g) (1) * * *

(2) A sentinel relief valve or other warning device fitted on the engine or turbine exhaust together with a back pressure trip device which will close the inlet valve when the exhaust side of the system is subjected to pressures exceeding the design pressure, may be substituted for the required relief valve.

9. Section 55.10-25(a) (1) is amended to read as follows:

§ 55.10-25 Bilge and ballast piping.

(a) (1) All vessels except unmanned barges shall be provided with a satisfactory bilge pumping plant capable of pumping from and draining any watertight compartment except for ballast, oil and water tanks which have acceptable means for filling and emptying, independent of the bilge system. The bilge pumping system shall be capable of operation under all practicable conditions after a casualty whether the ship is upright or listed. For this purpose wing suction will generally be necessary except in narrow compartments at the ends of the vessel, where one suction may be sufficient. In compartments of unusual form, additional suction may be required.

10. Section 55.10-40(c) is amended to read as follows:

§ 55.10-40 Fuel oil service systems.

(c) Piping between service pumps and burners shall be located so as to be readily observable, except that, where necessary, all welded lengths may be located beneath floorplates and behind structures. The relief valve located at the pump and the relief valves fitted to the fuel-oil heaters may discharge back into the settling tank or the suction side of the pump. The return line from the burners shall be so arranged that the suction piping cannot be subjected to discharge pressure.

11. Section 55.10-50(a) is amended to read as follows:

§ 55.10-50 Diesel fuel system.

(a) *Scope*. The regulations in this section apply to motorboats and motor vessels of less than 100 gross tons and tank barges. For all other vessels, the diesel fuel system shall comply with §§ 55.10-35, 55.10-60 and 55.10-65.

Subpart 55.17—Hydraulic Systems

§ 55.17-20 [Amendment]

12. Section 55.17-20 *Tubing and pipes* is amended by changing in paragraph (a) the reference from "Tables 52.01-10 (a), 55.07-1(b) and 55.07-5(a)" to "Tables 52.05-10(a) and 55.07-1(b)."

PART 56—ARC WELDING, GAS WELDING, AND BRAZING

1. The authority for Part 56 is amended to read as follows:

AUTHORITY: §§ 56.01-1 to 56.10-30 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426-4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, 4491, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404-409, 411, 412, 435, 481, 489, 366, 395, 363, 367, 526p, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; 167-20, June 18, 1956, 21 F.R. 4894; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857.

Subpart 56.01—Arc Welding and Gas Welding

2. Section 56.01-20(b) is amended to read as follows:

§ 56.01-20 Arc welding electrodes.

(b) Type E6012, E6013, E6014, E6024, E7014, or E7024 electrodes shall not be used in the fabrication of any item listed in paragraph (a) of this section.

Subpart 56.05—Tests and Inspection

§ 56.05-5 [Amendment]

3. In § 56.05-5 *Nondestructive tests*, paragraph (a) (2) is amended by changing the reference at end thereof from "Table 56.01-25" to "Table 56.01-30(a)."

4. The authority note at end of section is canceled because it is included in the statutes under which this part is issued.

PART 57—MAIN AND AUXILIARY MACHINERY

1. The authority for Part 57 is amended to read as follows:

AUTHORITY: §§ 57.01-1 to 57.30-35 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. §§ 57.30-1 to 57.30-35 also issued under sec. 2, 23 Stat. 118, as amended, sec. 2, 633, 63 Stat. 496, 545; 46 U.S.C. 2, 14 U.S.C. 2, 633. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amend-

ed, 4418, as amended, 4421, as amended, 4426-4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4472, as amended, 4488, as amended, 4491, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404-409, 411, 412, 435, 170, 481, 489, 366, 395, 363, 367, 526p, 1333, 390b, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department, Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; 167-20, June 18, 1956, 21 F.R. 4894; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857.

Subpart 57.10—Internal Combustion Engine Installations

§ 57.10-15 [Amendment]

2. In § 57.10-15 *Gas turbine installations*, paragraph (c) (1) is amended by changing a reference from "§ 55.01-10 of this subchapter" to "§ 55.01-1 of this subchapter."

PART 61—INSTALLATIONS, TESTS, INSPECTIONS, MARKINGS, AND OFFICIAL FORMS

Subpart 61.30—Tests and Inspection of Piping, Valves, and Fittings

1. Section 61.30-10(a) (1) is amended to read as follows:

§ 61.30-10 Installation test.

(a) * * *

(1) Class I steam, feed-water and blow-off piping. Where piping is attached to boilers by welding without practical means of blanking off for testing, the piping shall be subjected to the same hydrostatic pressure to which the boilers are tested. The maximum allowable pressures of boiler feed-water and blow-off piping shall be the design pressures specified in §§ 55.10-10(a) (3) and 55.10-15(b) in Part 55 of this subchapter.

Subpart 61.35—Proof Hydrostatic Tests

§ 61.35-5 [Amendment]

2. In § 61.35-5 *Proportional limit method*, paragraph (d) (1) for formula (1) the description of the value "S" is amended by canceling the reference to Table 55.07-5(a) so that it reads as follows:

S=Maximum allowable stress, 80 percent of the values, as given in Table 52.05-10 (a).

(R.S. 4405, as amended, 4462, as amended, 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426-4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, 4491, as amended, sec. 14, 29 Stat. 690, as amended, 41 Stat. 305, as amended, 49 Stat. 1544, as amended, secs. 3, 17, 54 Stat. 347, as amended, 166, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404-409, 411, 412, 435, 481, 489, 366, 363, 367, 526p, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.)

SUBCHAPTER H—PASSENGER VESSELS

PART 78—OPERATIONS

Subpart 78.13—Station Bills

1. Section 78.13-20 *Manning of lifeboats and liferafts* is canceled in its entirety. (The revised text of this section has been designated as a Subpart 78.14, consisting of §§ 78.14-1 to 78.14-20, inclusive.)

2. Section 78.13-25 is redesignated as § 78.13-20 and amended to read as follows:

§ 78.13-20 Master to instruct crew.

(a) The master shall conduct such drills and give such instructions as are necessary to insure that all hands are familiar with their duties as specified in the station bill.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4453, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 435, 395, 363, 367, 1333, 390b, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; 167-20, June 18, 1956, 21 F.R. 4894; CGFR 56-28, July 24, 1956, 21 F.R. 5659)

3. Part 78 is amended by inserting after § 78.13-20 a new Subpart 78.14, entitled "Manning of lifeboats and liferafts," which consists of §§ 78.14-1 to 78.14-20, inclusive, which read as follows:

Subpart 78.14—Manning of Lifeboats and Liferafts

- Sec. 78.14-1 Application.
- 78.14-5 Person in command of lifeboat or liferaft.
- 78.14-10 Certificated lifeboatmen.
- 78.14-15 Motor-propelled lifeboat.
- 78.14-20 Lifeboat carrying a wireless or searchlight.

AUTHORITY: §§ 78.14-1 to 78.14-20 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167-38, Oct. 26, 1959, 24 F.R. 8857.

§ 78.14-1 Application.

(a) The provisions of this section shall apply to all vessels.

§ 78.14-5 Person in command of lifeboat or liferaft.

(a) For vessels in ocean service, the master shall appoint a first and second in command of each lifeboat and each liferaft who shall be either a licensed deck officer, an able seaman, or a certificated lifeboatman.

(b) For vessels in services, other than ocean service, the master shall appoint a person in command of each lifeboat and each liferaft. Except for vessels in river service, this person shall be either a licensed deck officer, an able seaman or a certificated lifeboatman.

(c) The person in charge of each lifeboat or liferaft shall have a list of its crew, and shall see that the persons under his orders are acquainted with their several duties.

§ 78.14-10 Certificated lifeboatmen.

(a) Except for vessels in river service, there shall be for each lifeboat and each liferaft a number of certificated lifeboatmen equal to that specified in Table 78.14-10(a).

TABLE 78.14-10(a)

Prescribed complement of lifeboat or liferaft		Minimum number of lifeboatmen	
Over	Not over	Ocean service	All services other than ocean ¹
.....	25	2	1
25.....	40	2	2
40.....	60	3	3
60.....	85	4	4
75.....	110	5	5
110.....	.....	6	6

¹ Certificated lifeboatmen not required in river service.

(b) The allocation of the certificated lifeboatmen to each lifeboat and each liferaft shall be at the discretion of the master according to circumstances.

§ 78.14-15 Motor-propelled lifeboat.

(a) The master shall assign to each motor-propelled lifeboat a man capable of working the motor.

§ 78.14-20 Lifeboat carrying a wireless or searchlight.

(a) The master shall assign to each lifeboat carrying wireless and/or searchlight a man capable of operating such equipment.

SUBCHAPTER I—CARGO AND MISCELLANEOUS VESSELS

PART 94—LIFESAVING EQUIPMENT

Subpart 94.10—Lifeboats, Liferafts, Lifeboats, Buoyant Apparatus, and Rescue Boats

1. Section 94.10-55(c) is amended by adding a new subparagraph (1) reading as follows:

§ 94.10-55 Inflatable liferafts as an alternate for lifeboats, other liferafts, lifeboats, and buoyant apparatus on certain vessels.

(c) * * *

(1) On seagoing barges employed as drilling tenders in the offshore oil exploration industry where substitution of inflatable liferafts is made, a suitable rescue boat shall be provided. In the case of partial substitution, a lifeboat may serve as the rescue boat.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, 4491, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 489, 395, 363, 367, 526p, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857)

PART 97—OPERATIONS

Subpart 97.14—Manning of Lifeboats and Liferrafts

Section 97.14-5(b) is amended to read as follows:

§ 97.14-5 Person in command of lifeboat or liferaft.

(b) For vessels in services other than ocean service, the master shall appoint a person in command of each lifeboat and each liferaft. Except for vessels in river service, this person in command shall be either a licensed deck officer, an able seaman, or a certificated lifeboatman.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4453, as amended, sec. 10, 35 Stat. amended, 4453, as amended, 4488, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 435, 481, 395, 363, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917. 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, Nov. 26, 1954, 19 F.R. 8026; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, Oct. 26, 1959, 24 F.R. 8857)

SUBCHAPTER J—ELECTRICAL ENGINEERING

PART 110—GENERAL PROVISIONS

Subpart 110.15—Definition of Terms Used in This Subchapter

§ 110.15-175 [Amendment]

Section 110.15-175 *Rotating machinery; enclosure, ventilation and protection terms*, paragraph (k) is amended by changing in the headnote and in the first sentence the word from "water-tight" to "waterproof."

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416)

PART 111—ELECTRICAL SYSTEM; GENERAL REQUIREMENTS

Subpart 111.05—General Requirements

1. Section 111.05-5 is amended by revising paragraph (b)(4), by adding paragraph (b)(5), by revising paragraph (c)(1), and by revising paragraph (d)(13), which reads as follows:

§ 111.05-5 Plan approval.

(b) * * *

(4) The plans may be submitted directly to field technical offices.

(i) Commander, 3d Coast Guard District (mmt), 45 Broadway, New York, N.Y., for the geographical area covered by 1st, 3d and 5th Coast Guard Districts.

(ii) Commander, 8th Coast Guard District (mmt), Room 308, Customhouse, New Orleans, La., for geographical area covered by 2d, 7th and 8th Coast Guard Districts.

(iii) Commander, 12th Coast Guard District (mmt), 630 Sansome Street, San Francisco, Calif., for geographical area

covered by 11th, 12th, 13th, 14th and 17th Coast Guard Districts.

(5) In the case of classed vessels, upon specific request by the submitter, the American Bureau of Shipping will arrange to forward the necessary plans to the Coast Guard indicating its action thereon. In this case, the plans will be returned as noted in subparagraph (3) of this paragraph.

(c) *Number of plans required.* (1) Four copies of each plan are normally required so that one can be returned to the submitter. If the submitter desires additional approved plans, a suitable number should be submitted to permit the required distribution.

(d) * * *

(13) * *Generators, propulsion motors, and vital auxiliary motors.* Manufacturer's outline drawing of each giving nameplate data, degree of enclosure, type of insulation, temperature rise above stated ambient temperature, duty cycle, and application or name of auxiliary driven. Vital motors are those essential, or those which are part of a system that is essential, to the safe operation and navigation of the vessel. Examples of such vital auxiliary motors are propulsion auxiliary motors, steering gear motors, fire and bilge pump motors, motors driving emergency M-G sets, etc.

2. Section 111.05-15 is amended by adding a paragraph (g) reading as follows:

§ 111.05-15 General considerations.

(g) *Means for ground detection.* (1) Adequate means for ground detection for ships' power and lighting systems and distribution systems isolated from the ships' power and lighting systems by transformers or motor-generator sets shall be provided.

(2) If lamps are used for ground detection they shall have a rating of not more than 25 watts nor less than 5 watts operating at approximately one-half voltage in the absence of grounds.

Subpart 111.25—Motors

3. Section 111.25-5 is amended by adding a paragraph (c), reading as follows:

§ 111.25-5 Nameplates.

(c) For nonvital motors, such as winch motors, refrigeration motors, water cooler motors, galley appliance motors, etc., nameplates with standard commercial markings will be acceptable. Nameplates for motors located in corrosive locations shall be made of corrosion-resistant material.

4. Section 111.25-30 is amended by revising paragraphs (a) and (c) to read as follows:

§ 111.25-30 Enclosure and protection.

(a) *General.* Motors for use in the engineroom or spaces where subject to

* The items marked with an asterisk (*) indicate such items may require the approval of the American Bureau of Shipping.

mechanical injury, or dripping of oil or water, shall be either of the waterproof or dripproof protected type, or they may be of the open type if protected in accordance with § 111.10-15(g). Care shall be exercised in locating motors high enough to avoid bilge water. Motors shall not be located beneath and covered by the floorplates unless otherwise approved by the Commandant.

(c) *Motors for use on weather decks.* Motors for use on weather decks shall be of the waterproof type or shall be enclosed in waterproof housings, drained as described in § 110.15-175(k) of this subchapter.

Subpart 111.35—Switchboards and Propulsion Controls

5. Section 111.35-1(i) is amended to read as follows:

§ 111.35-1 General requirements.

(i) *Protection of instrument circuits.* Except as otherwise provided in this paragraph, instruments, pilot lights, ground detector lights, potential transformers, and other switchboard devices shall be supplied by circuits protected by overcurrent devices.

(1) Circuits, the opening of which would create a hazard in the operation of the vessel, shall not be protected against overcurrent. Such circuits will usually include electric propulsion control circuits, voltage regulator supply circuits, and ship's service generator circuit breaker tripping control circuits.

6. Section 111.35-15(b)(7) is amended to read as follows:

§ 111.35-15 Ship's service generator and distribution switchboards.

(b) *Equipment for direct-current switchboard.* * * *

(7) Adequate means for ground detection shall be provided on the ship's service generator and distribution switchboard for the following systems: ship's main power system, ship's main lighting system, and ship's emergency lighting system. When the ground detection means for these systems are ground lamps, a normally closed spring-return-to-normal switch shall be provided in the ground connection.

Subpart 111.45—Motor Circuits and Controllers

7. Section 111.45-1(q) is amended to read as follows:

§ 111.45-1 Motor controllers, general requirements.

(q) *Identification of controllers.* A controller shall be marked with the maker's name or identification symbol, the voltage, the current or horsepower rating, and such other data as may be needed properly to indicate the motor which it controls. The identification data necessary to indicate the motor which the controller controls shall be on the external surface of the enclosure. A wiring diagram of the controller shall

be permanently attached to the inside of the controller door.

Subpart 111.60—Wiring Methods and Materials

8. Section 111.60-30(b) is amended to read as follows:

§ 111.60-30 Receptacle outlets and attachment plugs.

(b) Receptacle outlets provided for the convenience of, and located in quarters, for, passengers or crew for connecting portable appliances operating at 100 volts or more, shall provide a grounding pole.¹

Subpart 111.65—Special Requirements for Certain Locations and Systems

9. Section 111.65-40(d) (3) is amended to read as follows:

§ 111.65-40 Special requirements of electric power-operated lifeboat winches.

(d) *Detail construction requirements.*

(3) *Motors.* Motors shall be of waterproof construction in accordance with the general requirements of this part.

Subpart 111.70—Special Requirements for Tank Vessels

10. Section 111.70-10(c) (4) is amended to read as follows:

§ 111.70-10 Special requirements for tank vessels contracted for on or after November 19, 1955—TB/ALL.

(c) *Installation requirements on tank vessels handling Grade A, B, C, or D liquid cargo.*

(4) *Weather decks.* Motors, their control equipment, and other electrical equipment and installations located on or above the weather decks within 10 feet of the cargo tank openings, cargo pumproom doors or ventilation outlets, or cargo tank vent terminations shall be explosion-proof. Explosion-proof equipment installed in locations exposed to the weather shall be waterproof or shall be enclosed in watertight housings.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426, as amended, 4427, as amended, 4433, as amended, 4453, as amended, 4488, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, sec. 5, 49 Stat. 1384, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 54 Stat. 347, as amended, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404, 405, 411, 435, 481, 366, 395, 363, 369, 367, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.)

¹ Applicable to vessels contracted for on or after January 1, 1964. Vessels contracted before January 1, 1964 need not provide a type with grounding pole if operating at 125 volts or less.

PART 112—EMERGENCY LIGHTING AND POWER SYSTEM

Subpart 112.05—General Requirements

1. Section 112.05-1 (including Table 112.05-1(a)) is amended to read as follows:

§ 112.05-1 Intent.

(a) The intent of the provisions in this part is to assure that vessels are provided with a dependable, independent emergency source of electrical power with sufficient capacity to supply all those services that are necessary for

the safety of the passengers and/or the crew in an emergency.

(b) Nonemergency loads may be supplied from the emergency source only when the emergency source has adequate capacity to supply all loads that may be connected to the emergency source simultaneously.

2. Section 112.05-5 is amended to read as follows:

§ 112.05-5 Emergency source of supply.

(a) The emergency source of supply shall be of a type and capacity in accordance with Table 112.05-5(a), except as otherwise provided by § 112.05-15.

TABLE 112.05-5(a)

Size of vessel and service	Type or types of emergency source of power	Period of operation and minimum capacity of emergency source of power
<i>Passenger vessels over 65 feet in length</i>		
Ocean and Coastwise, 1,600 g.t. and over, and any passenger vessel, regardless of tonnage or service, where electric power-operated watertight doors are required.	Storage battery with automatic transfer gear for temporary source, and supplemented by diesel generator with automatic starting and transfer gear for final source.	½ hour. 36 hours.
Ocean and Coastwise, over 15 g.t. but less than 1,600 g.t. ¹	Storage battery with automatic transfer gear or diesel generator with automatic starting and transfer gear.	36 hours or twice the time of run, whichever is the smaller.
Other than Ocean and Coastwise, 100 g.t. and over. ¹	Storage battery with automatic transfer gear or diesel generator with automatic starting and transfer gear.	8 hours or twice the time of run, whichever is the smaller.
Other than Ocean and Coastwise, over 15 g.t. but less than 100 g.t. ¹	Storage battery or diesel generator with automatic or manual operation. ²	8 hours or twice the time of run, whichever is the smaller.
<i>Cargo and miscellaneous self-propelled vessels and tank ships; barges with sleeping accommodations for more than 6 persons³</i>		
All waters, 1,600 g.t. and over.....	Storage battery or diesel generator automatic or manual operation.	12 hours.
All waters, 300 g.t. and over, but less than 1,600 g.t.	Storage battery or diesel generator, automatic or manual operation, or approved relay-controlled battery-operated lanterns.	12 hours or twice the time of run, whichever is the smaller. ⁴

¹ See also § 112.05-15.
² See also §§ 112.35-1 and 112.35-5.
³ Applicable to barges contracted for on or after November 19, 1958.
⁴ Minimum period of operation of relay-controlled, battery-operated lanterns may be less than 12 hours but not less than 6 hours.

(b) The emergency source of supply shall be independent of the vessels' ship's service lighting and powerplant and propulsion plant.

(c) The complete emergency installation shall function satisfactorily when the ship is inclined 22½ degrees and/or when the trim of the ship is 10 degrees.

(d) The emergency source of supply shall be located above the bulkhead deck, or above the freeboard deck, whichever is the higher, and outside the machinery casing. It shall not be forward of the collision bulkhead.

(e) When a compartment containing the emergency source of electric power, or vital components thereof, adjoins a space containing either the ship's service generators or machinery necessary for the operation of the ship's service generators, all common bulkheads and/or decks shall be protected by approved "structural insulation" or other approved material. This protection shall be such as to be capable of preventing an excessive temperature rise in the space containing the emergency source of electric power, or vital components thereof, for a period of at least one hour in the event of fire in the adjoining space. Bulkheads or decks meeting Class A-60 requirements, as defined by § 72.05-10 in Subchapter H (Passenger Vessels) of this

chapter, will be considered as meeting the requirements of this paragraph.

(f) Except for those cables used to connect equipment located in the engine-room or boilerroom, all cables emanating from the emergency switchboard shall be run so as to avoid penetrating the boundaries of the engine-room, boiler-room or the uptakes and casings of these spaces. All such cables shall be kept clear of the bulkheads and decks forming these boundaries.

(g) The emergency switchboard shall be installed as near as practicable to the emergency source of power.

(h) When the emergency source of power is a generator, the emergency switchboard shall be located in the same space as the emergency source of power, unless the operation of the emergency switchboard would thereby be impaired.

Subpart 112.15—Emergency Loads

3. Section 112.15-1 is amended by canceling paragraph (m) and by redesignating paragraph (n) as paragraph (m) which reads as follows:

§ 112.15-1 Temporary emergency source loads.

(m) Supply to motor-generator or other conversion equipment where a

temporary emergency source of alternating current is necessary for essential communication systems, emergency or safety requirements.

4. Section 112.15-5 is amended by revising paragraphs (a) and (i) and by adding a paragraph (p) which read as follows:

§ 112.15-5 Final emergency source loads.

(a) The emergency lighting and power loads listed in paragraphs (b) to (l), inclusive, of this section shall be arranged so that they can be energized from the final source. It is recommended that loads listed in paragraphs (j) to (p), inclusive, of this section be arranged so that they can be energized from the final source where the capacity and character of the emergency plant will permit.

(i) Smoke detector system, if installed.

(p) Electric whistle and siren control, if installed.

Subpart 112.20—Operation of Emergency Systems Having Both a Temporary and a Final Source of Emergency Lighting and Power

5. Section 112.20-5(a) is amended to read as follows:

§ 112.20-5 Failure of power from the normal source.

(a) In the event of a reduction of potential of the normal source by 15 to 40 percent of normal value, the loads listed in § 112.15-1 shall automatically be supplied from the temporary source of emergency lighting and power. For systems in which a reduction of frequency of the normal source or final source will adversely affect the emergency system and emergency loads, suitable means shall be provided to transfer the loads listed in § 112.15-1 to the temporary source.

Subpart 112.25—Operation of Emergency System Having an Automatic Starting Diesel-Engine-Driven Emergency Generator as the Sole Source of Emergency Lighting and Power

6. Section 112.25-5(a) is amended to read as follows:

§ 112.25-5 Reduction of potential.

(a) In the event of failure of power from the normal source, such as a reduction of potential by 15 to 40 percent of normal value, the engine driving the emergency generator shall automatically be started with no load connected to the emergency generator.

Subpart 112.30—Operation of Emergency Systems Having an Automatically Connected Storage Battery as the Sole Source of Emergency Lighting and Power

7. Section 112.30-5(a) is amended to read as follows:

§ 112.30-5 Reduction of potential.

(a) Upon reduction of potential from the normal source by 15 to 40 percent of normal value, the emergency loads shall automatically be disconnected from the normal source and connected to the emergency storage battery.

Subpart 112.55—Storage Battery Installation

8. Section 112.55-15(a) is amended to read as follows:

§ 112.55-15 Capacity of storage battery.

(a) The capacity of a storage battery shall be ample to close each watertight door three times and to open each watertight door two times, and to carry the remaining emergency loads continuously for the duration of time required by Table 112.05-1(a), at the end of which time the potential of the storage battery shall be not less than 87.5 percent of nominal while supplying the remaining emergency loads. The nominal potential of a lead-acid storage battery will be taken as 2.0 volts per cell; the nominal potential of a nickel-alkaline (Edison) storage battery will be taken as 1.3 volts per cell.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426, as amended, 4427, as amended, 4433, as amended, 4453, as amended, 4488, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, sec. 5, 49 Stat. 1384, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 54 Stat. 347, as amended, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404, 405, 411, 435, 481, 366, 395, 363, 369, 367, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.)

PART 113—COMMUNICATION AND ALARM SYSTEMS AND EQUIPMENT

Subpart 113.25—General Alarm Systems

1. Section 113.25-5(b) is amended to read as follows:

§ 113.25-5 Operation.

(b) The general alarm system shall be operated by means of a manually operated contact maker located in the wheelhouse. On tankships the general alarm system shall also be controlled by means of a manually operated contact maker located in an accessible location in the deck officers' quarters and in the engine room. On vessels other than tank vessels one additional contact maker may be installed in an accessible location other than the wheelhouse. Except for those installed in the wheelhouse, all contact makers shall be protected against tampering by means of an enclosure provided with a breakable transparent window.

Subpart 113.70—Smoke Detector Systems

2. Section 113.70-10(a) is amended to read as follows:

§ 113.70-10 Power supply.

(a) On vessels fitted with an automatically started emergency lighting and power system, the smoke detector system shall be supplied by a branch circuit from the emergency switchboard. On vessels fitted with a temporary source of emergency lighting and power, the branch circuit may be connected to the temporary emergency source of supply.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4417a, as amended, 4418, as amended, 4421, as amended, 4426, as amended, 4427, as amended, 4433, as amended, 4453, as amended, 4488, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, sec. 5, 49 Stat. 1384, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 54 Stat. 347, as amended, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 391a, 392, 399, 404, 405, 411, 435, 481, 366, 395, 363, 369, 367, 1333, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.)

Dated: August 13, 1963.

E. J. ROLAND,
Admiral, U.S. Coast Guard,
Commandant.

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