

§ 182.320

F (Marine Engineering) of this chapter as determined necessary by the cognizant OCMI.

(c) Auxiliary boilers and heating boilers and their associated piping and fittings will be given separate consideration and must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter as determined necessary by the cognizant OCMI, except that heating boilers must be tested or examined every three years.

§ 182.320 Water heaters.

(a) A water heater must meet the requirements of parts 53 and 63 of this chapter if rated at not more than 689 kPa (100 psig) and 121 °C (250 °F), except that an electric water heater is also acceptable if it:

- (1) Has a capacity of not more than 454 liters (120 gallons);
- (2) Has a heat input of not more than 58.6 kilowatts (200,000 Btu per hour);
- (3) Is listed under UL 174, UL 1453 (both incorporated by reference; see 46 CFR 175.600) or other standard specified by the Commandant; and
- (4) Is protected by a pressure-temperature relief device.

(b) A water heater must meet the requirements of parts 52 and 63 of this chapter if rated at more than 689 kPa (100 psig) or 121 °C (250 °F).

(c) A water heater must be installed and secured from rolling by straps or other devices to the satisfaction of the cognizant OCMI.

[CGD 85-080, 61 FR 986, Jan. 10, 1996; 61 FR 20557, May 7, 1996, as amended at 62 FR 51358, Sept. 30, 1997; USCG-2003-16630, 73 FR 65207, Oct. 31, 2008]

§ 182.330 Pressure vessels.

All unfired pressure vessels must be installed to the satisfaction of the cognizant OCMI. The design, construction, and original testing of such unfired pressure vessels must meet the applicable requirements of subchapter F (Marine Engineering) of this chapter.

46 CFR Ch. I (10-1-12 Edition)

Subpart D—Specific Machinery Requirements

§ 182.400 Applicability.

(a) This subpart applies to all propulsion and auxiliary machinery installations of the internal combustion piston type.

(b) Requirements of this subpart that are only applicable to engines that use gasoline or other fuels having a flashpoint of 43.3 °C (110 °F) or lower are specifically designated in each section.

(c) Requirements of this subpart that are only applicable to engines that use diesel fuel or other fuels having a flashpoint of more than 43.3 °C (110 °F) are specifically designated in each section.

(d) Where no specific gasoline, diesel, or other fuel designation exists, the requirements of this subpart are applicable to all types of fuels and machinery.

§ 182.405 Fuel restrictions.

The use of alternative fuels, other than diesel fuel or gasoline, as fuel for an internal combustion engine will be reviewed on a case-by-case basis by the Commandant.

[CGD 85-080, 61 FR 986, Jan. 10, 1996, as amended by CGD 97-057, 62 FR 51050, Sept. 30, 1997]

§ 182.410 General requirements.

(a) Starting motors, generators, and any spark producing device must be mounted as high above the bilges as practicable. Electrical equipment in spaces, compartments, or enclosures that contain machinery powered by, or fuel tanks for, gasoline or other fuels having a flashpoint of 43.3 °C (110 °F) or lower must be explosion-proof, intrinsically safe, or ignition protected for use in a gasoline atmosphere as required by § 183.530 of this chapter.

(b) Gauges to indicate engine revolutions per minute (RPM), jacket water discharge temperature, and lubricating oil pressure must be provided for all propulsion engines installed in the vessel. The gauges must be readily visible at the operating station.

(c) An enclosed space containing machinery powered by gasoline or other fuels having a flash point of 43.3 °C (110

°F) or lower must be equipped with a flammable vapor detection device in compliance with § 182.480.

(d) In systems and applications where flexible hoses are permitted to be clamped:

- (1) Double hose clamping is required where practicable;
- (2) The clamps must be of a corrosion resistant metallic material;
- (3) The clamps must not depend on spring tension for their holding power; and
- (4) Two clamps must be used on each end of the hose, or one hose clamp can be used if the pipe ends are expanded or beaded to provide a positive stop against hose slippage.

§ 182.415 Carburetors.

(a) All carburetors except the downdraft type must be equipped with integral or externally fitted drip collectors of adequate capacity and arranged so as to permit ready removal of fuel leakage. Externally fitted drip collectors, must be covered with flame screens. Drip collectors, where practicable, should automatically drain back to engine air intakes.

(b) All gasoline engines installed in a vessel, except outboard engines, must be equipped with an acceptable means of backfire flame control. Installation of backfire flame arresters bearing basic Approval Numbers 162.015 or 162.041 or engine air and fuel induction systems bearing basic Approval Numbers 162.042 or 162.043 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.

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

- (1) A backfire flame arrester complying with SAE J-1928 or UL 1111 (both incorporated by reference; see 46 CFR 175.600) and marked accordingly. The flame arrester must be suitably secured to the air intake with a flamtight connection.
- (2) An engine air and fuel induction system that 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 J-1928, or other standard specified by the Commandant.

(3) 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 flamtight 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.

(4) An engine air induction system on a vessel with an integrated engine-vessel design must be approved, marked, and tested under § 162.043 in subchapter Q of this chapter, or other standard specified by the Commandant.

[CGD 85-080, 61 FR 986, Jan. 10, 1996, as amended by USCG-2003-16630, 73 FR 65207, Oct. 31, 2008]

§ 182.420 Engine cooling.

(a) Except as otherwise provided in paragraphs (b), (c), (d), and (e) of this section, all engines must be water cooled and meet the requirements of this paragraph.

(1) The engine head, block, and exhaust manifold must be water-jacketed and cooled by water from a pump that operates whenever the engine is operating.

(2) A suitable hull strainer must be installed in the circulating raw water intake line of an engine cooling water system.

(3) A closed fresh water system may be used to cool the engine.

(b) An engine water cooling system on a vessel of not more than 19.8 meters (65 feet) in length, carrying not more than 12 passengers, may comply with the requirements of ABYC P-4 (incorporated by reference; see 46 CFR