

(2) A short length of suitable metallic or nonmetallic flexible tubing or hose, or a loop of annealed copper tubing shall be installed in the fuel supply line at or near the engine to prevent damage by vibration. If nonmetallic flexible hose is used it shall meet the requirements of § 56.60-25(b) for fuel service. Flexible hose connections should maintain metallic contact between the sections of the fuel supply lines; however, if such contact is not maintained, the fuel tank shall be grounded.

(3) Valves in fuel lines shall be installed to close against the flow.

(c) *Shutoff valves.* Shutoff valves of a suitable type shall be installed in the fuel supply lines, one as close to each tank as practicable, and one as close to each carburetor as practicable. Where fuel tanks are installed below the weather deck, arrangements shall be provided for operating all shutoff valves at the tanks from outside the compartments in which they are located, preferably from an accessible position on the weather deck. The operating gear for the shutoff valves at the tanks shall be accessible at all times and shall be suitably marked.

(d) *Strainers.* A suitable twin strainer shall be fitted in the fuel supply line in the engine compartment. Strainers shall be of the type opening on top for cleaning screens. A drip pan shall be fitted under the strainer.

(e) *Outlets and drains.* Outlets in fuel lines for drawing gasoline for any purpose are prohibited. Valved openings in the bottom of fuel tanks are prohibited; however, openings fitted with threaded plug or cap can be used for cleaning purposes.

(f) *Fuel suction connections.* All fuel suction and return lines shall enter the top of the fuel tanks and connections shall be fitted into spuds. Such lines shall extend nearly to the bottom of the tank.

(g) *Filling and sounding pipes.* Filling and sounding pipes shall be so arranged that vapors or possible overflow when filling cannot escape to the inside of the vessel but will discharge overboard. Such pipes shall terminate on the weather deck clear of any coamings and shall be fitted with suitable shutoff valves or deck plugs. Filling and sounding pipes shall extend to within one-

half of their diameter from the bottom of the tank or from the surface of the striking plate in case of a sounding pipe. A flame screen of noncorrodible wire mesh shall be fitted in the throat of the filling pipe. Sounding pipes shall be kept closed at all times except during sounding.

(h) *Vent pipes.* Each tank shall be fitted with a vent, the cross-sectional area of which shall not be less than that of the filling pipe. The vent pipes shall terminate at least 2 feet above the weather deck and not less than 3 feet from any opening into living quarters or other below deck space. The ends of vent pipes shall terminate with U-bends and shall be fitted with flame screens or flame arresters. The flame screens shall consist of a single screen of corrosion resistant wire of at least 30 by 30 mesh.

(i) *Gasoline tanks.* For requirements pertaining to independent gasoline fuel tanks see subpart 58.50 of this subchapter.

(j) *Fuel pumps.* Each fuel pump must be equipped with controls as required by § 58.01-25 of this subchapter.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9978, June 17, 1970; CGFR 72-59R, 37 FR 6189, Mar. 25, 1972; CGD 83-043, 60 FR 24774, May 10, 1995; USCG-2002-13058, 67 FR 61278, Sept. 30, 2002]

#### § 56.50-75 Diesel fuel systems.

(a) *Vessels greater than 100 gross tons.*

(1) The diesel fuel system shall comply with §§ 56.50-60, 56.50-85, and 56.50-90. The fuel supply piping to engines shall be of seamless steel, annealed seamless copper or brass pipe or tubing, or of nickel copper or copper nickel alloy meeting the requirements of subpart 56.60 for materials and § 56.50-70(a)(2) for thickness. Fuel oil service or unit pumps shall be equipped with controls to comply with § 58.01-25 of this subchapter.

(2) The installation shall comply with § 56.50-70(b).

(3) Tubing connections and fittings shall be drawn or forged metal of the flared type except that flareless fittings of the nonbite type may be used when the tubing system is steel, nickel-copper, or copper-nickel. When making flared tube connections the tubing

shall be cut square and flared by suitable tools. Tube ends shall be annealed before flaring.

(b) *Vessels of 100 gross tons and less and tank barges*—(1) *Materials.* Fuel supply piping shall be of copper, nickel copper or copper nickel having a minimum wall thickness of 0.035 inch except that piping of other materials such as seamless steel pipe or tubing which provides equivalent safety may be used.

(2) *Tubing connections and fittings.* Tubing connections shall comply with the provisions of § 56.50-75(a)(3).

(3) *Installation.* The installation of diesel fuel piping shall comply with the requirements of § 56.50-70(b).

(4) *Shutoff valves.* Shutoff valves shall be installed in the fuel supply lines, one as close to each tank as practicable, and one as close to each fuel pump as practicable. Valves shall be accessible at all times.

(5) *Outlets and drains.* Valves for removing water or impurities from fuel oil systems will be permitted in the machinery space provided such valves are fitted with caps or plugs to prevent leakage.

(6) *Filling pipe.* Tank filling pipes on motorboats and motor vessels of less than 100 gross tons and tank barges shall terminate on an open deck and shall be fitted with suitable shutoff valves, deck plugs, or caps.

(7) *Vent pipes.* Each tank shall be fitted with a vent pipe complying with § 56.50-85.

(8) *Independent diesel fuel tanks.* See subpart 58.50 of this subchapter for specific requirements.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 77-140, 54 FR 40610, Oct. 2, 1989]

#### § 56.50-80 Lubricating-oil systems.

(a) The lubricating oil system shall be designed to function satisfactorily when the vessel has a permanent 15° list and a permanent 5° trim.

(b) When pressure or gravity-forced lubrication is employed for the steam driven main propelling machinery, an independent auxiliary lubricating pump shall be provided.

(c) Oil coolers on steam driven machinery shall be provided with two sep-

arate means of circulating water through the coolers.

(d) For internal combustion engine installations, the requirements of paragraphs (b) and (c) of this section shall be met, but they do not apply to vessels in river and harbor service, nor to any vessel below 300 gross tons. Where the size and design of an engine is such that lubrication before starting is not necessary and an attached pump is normally used, the independent auxiliary pump is not required if a duplicate of the attached pump is carried as spare. In meeting the requirements of paragraph (c) of this section in the case of internal combustion engines, two separate means are to be provided for circulating coolant on those engines on which oil coolers are fitted. One of those means must be independently driven and may consist of a connection from a pump of adequate size normally used for other purposes utilizing the required coolant. Where the design of an engine will not readily accommodate an independent pump connection, the independent auxiliary pump will not be required if a duplicate of the attached pump is carried as a spare. Oil filters shall be provided on all internal combustion engine installations. On main propulsion engines which are fitted with full-flow type filters, the arrangement shall be such that the filters may be cleaned without interrupting the oil supply except that such an arrangement is not required on vessels having more than a single main propulsion engine.

(e) The lubricating oil piping shall be independent of other piping systems and shall be provided with necessary coolers, heaters, filters, etc., for proper operation. Oil heaters shall be fitted with bypasses.

(f) Diesel engine lubrication systems shall be so arranged that vapors from the sump tank may not be discharged back into the engine crank case of engines of the dry sump type.

(g) Steam turbine driven propulsion and auxiliary generating machinery depending on forced lubrication shall be arranged to shut down automatically upon failure of the lubricating system.

(h) Sight-flow glasses may be used in lubricating-oil systems provided it has been demonstrated, to the satisfaction