

§ 183.402

33 CFR Ch. I (7-1-06 Edition)

(b) [Reserved]

[CGD 73-217, 42 FR 5944, Jan. 31, 1977, as amended by CGD 81-092, 48 FR 55736, Dec. 15, 1983; USCG-1999-5832, 64 FR 34716, June 29, 1999]

§ 183.402 Definitions.

As used in this subpart—

AWG means American Wire Gauge.

Electrical component means electrical equipment such as, but not limited to, conductors, solenoids, motors, generators, alternators, distributors, resistors, appliances and electrical control devices.

Pigtails means external power conductors or wires that are part of electrical components and appliances, such as bilge pumps, blowers, lamps, switches, solenoids, and fuses.

Sheath means a material used as a continuous protective covering, such as electrical tape, molded rubber, molded plastic, or flexible tubing, around one or more insulated conductors.

[CGD 73-217, 42 FR 5944, Jan. 31, 1977, as amended by CGD 85-098, 52 FR 19728, May 27, 1987; CGD 96-026, 61 FR 33670, June 28, 1996]

§ 183.405 General.

Each electrical component on a boat to which this subpart applies must meet the requirements of this subpart unless the component is part of an outboard engine or part of portable equipment.

MANUFACTURER REQUIREMENTS

§ 183.410 Ignition protection.

(a) Each electrical component must not ignite a propane gas and air mixture that is 4.25 to 5.25 percent propane gas by volume surrounding the electrical component when it is operated at each of its manufacturer rated voltages and current loadings, unless it is isolated from gasoline fuel sources, such as engines, and valves, connections, or other fittings in vent lines, fill lines, distribution lines or on fuel tanks, in accordance with paragraph (b) of this section.

(b) An electrical component is isolated from a gasoline fuel source if:

(1) A bulkhead that meets the requirements of paragraph (c) of this section is between the electrical component and the gasoline fuel source;

(2) The electrical component is:

(i) Lower than the gasoline fuel source and a means is provided to prevent fuel and fuel vapors that may leak from the gasoline fuel source from becoming exposed to the electrical component; or

(ii) Higher than the gasoline fuel source and a deck or other enclosure is between it and the gasoline fuel source; or

(3) The space between the electrical component and the gasoline fuel source is at least two feet and the space is open to the atmosphere.

(c) Each bulkhead required by paragraph (b)(1) of this section must:

(1) Separate the electrical component from the gasoline fuel source and extend both vertically and horizontally the distance of the open space between the fuel source and the ignition source;

(2) Resist a water level that is 12 inches high or one-third of the maximum height of the bulkhead, whichever is less, without seepage of more than one-quarter fluid ounce of fresh water per hour; and

(3) Have no opening located higher than 12 inches or one-third the maximum height of the bulkhead, whichever is less, unless the opening is used for the passage of conductors, piping, ventilation ducts, mechanical equipment, and similar items, or doors, hatches, and access panels, and the maximum annular space around each item or door, hatch or access panel must not be more than one-quarter inch.

§ 183.415 Grounding.

If a boat has more than one gasoline engine, grounded cranking motor circuits must be connected to each other by a common conductor circuit that can carry the starting current of each of the grounded cranking motor circuits.

§ 183.420 Batteries.

(a) Each installed battery must not move more than one inch in any direction when a pulling force of 90 pounds or twice the battery weight, whichever is less, is applied through the center of gravity of the battery as follows:

(1) Vertically for a duration of one minute.

(2) Horizontally and parallel to the boat's center line for a duration of one minute fore and one minute aft.

(3) Horizontally and perpendicular to the boat's center line for a duration of one minute to starboard and one minute to port.

(b) Each battery must be installed so that metallic objects cannot come in contact with the ungrounded battery terminals.

(c) Each metallic fuel line and fuel system component within 12 inches and above the horizontal plane of the battery top surface as installed must be shielded with dielectric material.

(d) Each battery must not be directly above or below a fuel tank, fuel filter, or fitting in a fuel line.

(e) A vent system or other means must be provided to permit the discharge from the boat of hydrogen gas released by the battery.

(f) [Reserved]

(g) Each battery terminal connector must not depend on spring tension for its mechanical connection to the terminal.

[CGD 73-217, 42 FR 5944, Jan. 31, 1977, as amended by CGD 81-092, 48 FR 55736, Dec. 15, 1983]

§ 183.425 Conductors: General.

(a) Each conductor must be insulated, stranded copper.

(b) Except for intermittent surges each conductor must not carry a current greater than that specified in Table 5 for the conductor's gauge and temperature rating.

(c) For conductors in engine spaces, amperages must be corrected by the appropriate correction factor in note 1 of Table 5.

(d) Each conductor in a multiconductor sheath must be at least a No. 18 AWG conductor.

(e) Each conductor installed separately must be at least a No. 16 AWG conductor.

(f) Each No. 18 AWG conductor in a multiconductor sheath may not extend out of the sheath more than 30 inches.

(g) This section does not apply to communications systems; electronic navigation equipment; electronic circuits having a current flow of less than one ampere; conductors which are totally inside an equipment housing; resistance conductors that control circuit amperage; high voltage secondary conductors and terminations that are in ignition systems; pigtailed of less than seven inches of exposed length and cranking motor conductors.

TABLE 5—ALLOWABLE AMPERAGE OF CONDUCTORS

Conductor size (AWG)	Temperature rating of conductor insulation						
	60 °C (140 °F)	75 °C (167 °F)	80 °C (176 °F)	90 °C (194 °F)	105 °C (221 °F)	125 °C (257 °F)	200 °C (392 °F)
18	10	10	15	20	20	25	25
16	15	15	20	25	25	30	35
14	20	20	25	30	35	40	45
12	25	25	35	40	45	50	55
10	40	40	50	55	60	70	70
8	55	65	70	70	80	90	100
6	80	95	100	100	120	125	135
4	105	125	130	135	160	170	180
3	120	145	150	155	180	195	210
2	140	170	175	180	210	225	240
1	165	195	210	210	245	265	280
0	195	230	245	245	285	305	325
00	225	265	285	285	330	355	370
000	260	310	330	330	385	410	430
0000	300	360	385	385	445	475	510

NOTES

1. See the following table:	60 °C (140 °F)	75 °C (167 °F)	80 °C (176 °F)	90 °C (194 °F)	105 °C (221 °F)	125 °C (257 °F)	200 °C (392 °F)
Temperature rating of conductor	0.58	0.75	0.78	0.82	0.85	0.89	1.00
2. See the following table:	<i>Correction factor</i>						
Number of current carrying conductors:							
3	0.70						