

(b) The neutral conductor of the emergency-main switchboard bus-tie must not have a switch or circuit breaker.

[CGD 94-108, 61 FR 28276, June 4, 1996]

Subpart 111.10—Power Supply

§ 111.10-1 Definitions.

As used in this Subpart:

(a) *Ships's service loads* mean electrical equipment for all auxiliary services necessary for maintaining the vessel in a normal, operational and habitable condition. Ship's service loads include, but are not limited to, all safety, lighting, ventilation, navigational, communications, habitability, and propulsion auxiliary loads. Electrical propulsion motor, bow thruster motor, cargo transfer, drilling, cargo refrigeration for other than Class 5.2 organic peroxides and Class 4.1 self-reactive substances, and other industrial type loads are not included.

(b) *Drilling loads* means all loads associated exclusively with the drilling operation including power to the drill table, mud system, and positioning equipment.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28276, June 4, 1996; 62 FR 23907, May 1, 1997]

§ 111.10-3 Two generating sources.

In addition to the emergency power sources required under part 112 of this chapter, each self-propelled vessel and each mobile offshore drilling unit must have at least two electric generating sources.

[CGD 94-108, 61 FR 28276, June 4, 1996]

§ 111.10-4 Power requirements, generating sources.

(a) The aggregate capacity of the electric ship's service generating sources required in § 111.10-3 must be sufficient for the ship's service loads.

(b) With the ship's service generating source of the largest capacity stopped, the combined capacity of the remaining electric ship's service generating source or sources must be sufficient to supply those services necessary to provide normal operational conditions of propulsion and safety, and minimum comfortable conditions of habitability.

Habitability services include cooking, heating, air conditioning (where installed), domestic refrigeration, mechanical ventilation, sanitation, and fresh water.

(c) The capacity of the ship's service generating sources must be sufficient for supplying the ship's service loads without the use of a generating source which is dependent upon the speed or direction of the main propelling engines or shafting.

(d) Operating generators must provide a continuous and uninterrupted source of power for the ship's service load under normal operational conditions. Any vessel speed change or throttle movement must not cause a ship's service load power interruption.

(e) Vessels with electric propulsion that have two or more constant-voltage generators which supply both ship's service and propulsion power do not need additional ship's service generators provided that with any one propulsion/ship's service generator out of service the capacity of the remaining generator(s) is sufficient for the electrical loads necessary to provide normal operational conditions of propulsion and safety, and minimum comfortable conditions of habitability.

(f) A generator driven by a main propulsion unit (such as a shaft generator) which is capable of providing electrical power continuously, regardless of the speed and direction of the propulsion shaft, may be considered one of the ship's service generating sets required by § 111.10-3. A main-engine-dependent generator which is not capable of providing continuous electrical power may be utilized as a supplemental generator provided that a required ship's service generator or generators having sufficient capacity to supply the ship's service loads can be automatically brought on line prior to the main-engine-dependent generator tripping off-line due to a change in the speed or direction of the main propulsion unit.

[CGD 94-108, 61 FR 28277, June 4, 1996; 61 FR 36787, July 12, 1996]

§ 111.10-5 Multiple energy sources.

Failure of any single generating set energy source such as a boiler, diesel, gas turbine, or steam turbine must not

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cause all generating sets required in § 111.10-3 to be inoperable.

§ 111.10-7 Dead ship.

(a) The generating plant of each self-propelled vessel must provide the electrical services necessary to start the main propulsion plant from a dead ship condition.

(b) If the emergency generator is used for part or all of the electric power necessary to start the main propulsion plant from a dead ship condition, the emergency generator must be capable of providing power to all emergency lighting, emergency internal communications systems, and fire detection and alarm systems in addition to the power utilized for starting the main propulsion plant. Additional requirements are in § 112.05-3(c) of this chapter.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28277, June 4, 1996]

§ 111.10-9 Ship's service supply transformers; two required.

If transformers are used to supply the ship's service distribution system required by this subpart for ships and mobile offshore drilling units, there must be at least two installed, independent power transformers. With the largest transformer out of service, the capacity of the remaining units must be sufficient to supply the ship service loads.

NOTE TO § 111.10-9: A ship's service supply system would consist of transformers, over-current protection devices, and cables, and would normally be located in the system between a medium voltage bus and a low voltage ship's service switchboard.

[CGD 94-108, 61 FR 28277, June 4, 1996; 61 FR 33045, June 26, 1996]

Subpart 111.12—Generator Construction and Circuits

§ 111.12-1 Prime movers.

(a) Prime movers must meet section 58.01-5 and 46 CFR subpart 58.10 except that those for mobile offshore drilling units must meet Part 4, Chapter 3, sections 4/3.17 and 4/3.19 of the ABS MODU Rules (incorporated by reference; see 46 CFR 110.10-1). Further requirements for

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emergency generator prime movers are in 46 CFR subpart 112.50.

(b) Each generator prime mover must have an overspeed device that is independent of the normal operating governor and adjusted so that the speed cannot exceed the maximum rated speed by more than 15 percent.

(c) Each prime mover must shut down automatically upon loss of lubricating pressure to the generator bearings if the generator is directly coupled to the engine. If the generator is operating from a power take-off, such as a shaft driven generator on a main propulsion engine, the generator must automatically declutch (disconnect) from the prime mover upon loss of lubricating pressure to generator bearings.

[CGD 94-108, 61 FR 28277, June 4, 1996; 61 FR 33045, June 26, 1996, as amended at 62 FR 23907, May 1, 1997; USCG-2003-16630, 73 FR 65196, Oct 31, 2008]

§ 111.12-3 Excitation.

In general, excitation must meet sections 4-8-3/13.2(a), 4-8-5/5.5.1, 4-8-5/5.5.2, and 4-8-5/5.17.6 of the ABS Steel Vessel Rules (incorporated by reference; see 46 CFR 110.10-1), except that those for mobile offshore drilling units must meet Part 4, Chapter 3, sections 4/3.21.1 and 4/3.23.1 of the ABS MODU Rules (incorporated by reference; see 46 CFR 110.10-1). In particular, no static exciter may be used for excitation of an emergency generator unless it is provided with a permanent magnet or a residual-magnetism-type exciter that has the capability of voltage build-up after two months of no operation.

[USCG-2003-16630, 73 FR 65196, Oct. 31, 2008]

§ 111.12-5 Construction and testing of generators.

Each generator must meet the applicable requirements for construction and testing in section 4-8-3 of the ABS Steel Vessel Rules (incorporated by reference; see 46 CFR 110.10-1) except that each one for a mobile offshore drilling unit must meet the requirements in part 4, chapter 3, section 4 of the ABS MODU Rules (incorporated by reference; see 46 CFR 110.10-1).

[USCG-2003-16630, 73 FR 65196, Oct. 31, 2008]