

diameter in way of the tiller, excluding strengthening for navigation in ice, an alternative power supply, sufficient at least to supply the steering gear power unit which complies with the requirements of sub-clause (6)(b) of this clause and also its associated control system and the rudder angle indicator, shall be provided automatically, within 45 seconds, either from the emergency source of electrical power or from an independent source of power located in the steering gear compartment. This independent source of power shall be used only for this purpose. In every ship of 10,000 gross tonnage and upwards, the alternative power supply shall have a capacity for at least 30 minutes of continuous operation and in any other ship for at least 10 minutes.

(17) In every tanker, chemical tanker or gas carrier of 10,000 gross tonnage and upwards and in every other ship of 70,000 gross tonnage and upwards, the main steering gear shall comprise two or more identical power units complying with the provisions of sub-clause (8) of this clause.

(18) Every tanker, chemical tanker or gas carrier of 10,000 gross tonnage and upwards shall, subject to sub-clause (19) of this clause, comply with the following:

(a) the main steering gear shall be so arranged that in the event of loss of steering capability due to a single failure in any part of one of the power actuating systems of the main steering gear, excluding the tiller, quadrant or components serving the same purpose, or seizure of the rudder actuators, steering capability shall be regained in not more than 45 seconds after the loss of one power actuating system.;

(b) the main steering gear shall comprise either;

(i) two independent and separate power actuating systems, each capable of meeting the requirements of sub-clause (5)(b) of this clause; or

(ii) at least two identical power actuating systems which, acting simultaneously in normal operation, shall be capable of meeting the requirements of sub-clause (5)(b) of this clause. Where necessary to comply with this requirement, interconnection of hydraulic power actuating systems shall be provided. Loss of hydraulic fluid from one system shall be capable of being detected and the defective system automatically isolated so that the other actuating system or systems shall remain fully operational;

(c) steering gears other than of the hydraulic type shall achieve equivalent standards.

(19) For tankers, chemical tankers or gas carriers of 10,000 gross tonnage and upwards, but of less than 100,000 tonnes deadweight, solutions other than those set out in sub-clause (18) of this clause which need not apply the single failure criterion to the rudder actuator or actuators, may be permitted provided that an equivalent safety standard is achieved and that:

(a) following loss of steering capability due to a single failure of any part of the piping system or in one of the power units, steering capability shall be regained within 45 seconds; and

(b) where the steering gear includes only a single rudder actuator, the design, construction and testing of the rudder actuator shall be in accordance with IMO Resolution A.467(XII) "Guidelines for Acceptance of Non-Duplicated Rudder Actuators for Tankers, Chemical Tankers and Gas Carriers of 10,000 Gross Tonnage and Above but less than 100,000 Tonnes Deadweight".

46. Additional Requirements for Electric and Electrohydraulic Steering Gear—(1) Means for indicating that the motors of electric and electrohydraulic steering gear are running shall be installed on the navigating bridge and at a suitable main machinery control position.

(2) Each electric or electrohydraulic steering gear comprising one or more power units shall be served by at least two exclusive circuits fed directly from the main switchboard;

however, one of the circuits may be supplied through the emergency switchboard. An auxiliary electric or electrohydraulic steering gear associated with a main electric or electrohydraulic steering gear may be connected to one of the circuits supplying this main steering gear. The circuits supplying an electric or electrohydraulic steering gear shall have adequate rating for supplying all motors which can be simultaneously connected to them and may be required to operate simultaneously.

(3) Short circuit protection and an overload alarm shall be provided for such circuits and motors. Protection against excess current, including starting current, if provided, shall be for not less than twice the full load current of the motor or circuit so protected, and shall be arranged to permit the passage of the appropriate starting currents. Where a three-phase supply is used an alarm shall be provided that will indicate failure of any one of the supply phases. The alarms required in this paragraph shall be both audible and visual and shall be situated in a conspicuous position in the main machinery space or control room from which the main machinery is normally controlled and as may be required by the Shipping (Fire Appliances) Regulations 1989.

(4) When in a ship of less than 1,600 gross tonnage an auxiliary steering gear which is required by clause 45(6)(c) of this Code to be operated by power is not electrically powered or is powered by an electric motor primarily intended for other services, the main steering gear may be fed by one circuit from the main switchboard. Where such an electric motor primarily intended for other services is arranged to power such an auxiliary steering gear, the requirement of sub-clause (3) of this clause may be waived by the Chief Surveyor if satisfied with the protection arrangement together with the requirements of clauses (45)(7)(a), (45)(7)(b) and (45)(9)(c) applicable to auxiliary steering gear.

47. Protection Against Noise—(1) In every ship measures shall be taken to reduce noise levels in machinery spaces as far as is reasonable and practicable. On completion of a ship, noise levels in machinery spaces shall be measured in a manner approved by the Chief Surveyor.

(2) Noise levels in machinery spaces shall not exceed 110 dB(A) provided that the Chief Surveyor may, under such conditions as he may specify, permit higher noise levels having regard to the size of ship and the type of machinery installed.

(3) Any machinery space in which the noise level exceeds 90 dB(A) and which is required to be manned shall be provided with a designated refuge from noise.

(4) Every entrance to a machinery space in which the noise level exceeds 85 dB(A) shall be provided with a warning notice comprising a symbol complying with British Standards Institution specification number BS5378:1980 and a supplementary sign stating 'High Noise Levels. Use Ear Protectors'. Sufficient ear protectors shall be provided for use in such spaces.

48. Lifts—The construction and installation of every lift used for carrying persons, cargo, vehicles, or ship's stores on board a ship to which these regulations apply shall comply with such specifications as the Chief Surveyor considers necessary.

49. Spare Gear and Tools—(1) Every ship shall be provided with a sufficient quantity of spare gear, having regard to the intended service of the ship, to enable repairs or renewals which are essential for the safety of the ship and of persons on board and which can reasonably be effected while the ship is at sea to be carried out, and such tools as are necessary for fitting that spare gear shall be provided.

(2) Other than for ships of Class I of less than 24 metres in length, the spare gear and tools referred to in subclause (1) of this clause shall not all be stored in one compartment but shall be distributed between at least two compartments. One of these compartments shall preferably be above, the bulkhead