1965 No. 1104

MERCHANT SHIPPING

SAFETY

The Merchant Shipping (Cargo Ship Construction and Survey) Rules 1965

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ARRANGEMENT OF RULES

PART I — GENERAL

	Rule
Interpretation, application and exemptions	1

PART II — CONSTRUCTION

Structural Strength	2
Watertight Doors	3
Bilge Pumping Arrangements	4
Electrical Equipment and Installation—General	5
Emergency Source of Electric Power—	
Ships of 5,000 tons or over	6
Ships of 1,600 tons or over but of under 5,000 tons	7
Ships of under 1,600 tons	8
Electric and Electro-hydraulic Steering Gear	9
Precautions against Shock, Fire and other Hazards of Electrical Origin	10
Fire Protection	11 to 19
Boilers and Machinery—General	20
Boilers and other Pressure Vessels	21
Machinery	22
Means for going astern	23
Shafts	24
Boiler Feed Systems	25
Steam Pipe Systems	26
Air Pressure Systems	27
Cooling Water System	28
Lubricating and Other Oil Systems	29
Oil and Gaseous Fuel Installations	30
Communication between Bridge and Engine Room	31
Steering Gear	32

	Rule
Spare Gear	33
Compasses	34
Anchors and Chain Cables	35
Means of Escape	36
Means for Stopping Machinery, Shutting off Oil Fuel Suction Pipes and Closing of Openings	37
Alternative Construction, Equipments and Machinery	38
PART III — SURVEYS	
Surveys before Issue of Cargo Ship Safety Construction Certificates	39
Intermediate Surveys	40 & 41

The Board of Trade in exercise of their powers under section 2 of the Merchant Shipping Act 1964(a) and as having effect by virtue of the Transfer of Functions (Shipping and Construction of Ships) Order 1965 (b) and of all other powers enabling them in that behalf hereby make the following Rules:—

PART I — GENERAL

Interpretation applications and exceptions

1.—(1) These Rules shall come into operation on the 26th May 1965 and may be cited as the Merchant Shipping (Cargo Ship Construction and Survey) Rules 1965.

(2) In these Rules, unless the context otherwise requires, the following expressions have the following meanings respectively—

" Accommodation spaces " means passenger spaces, corridors, lavatories, cabins, offices, crew spaces, barber shops, isolated pantries and lockers and similar spaces ;

" B Class panel " means a panel complying with the requirements of Rule 12 of these Rules ;

" Board " means the Board of Trade ;

"Bulkhead deck" means the deck up to which the majority of transverse watertight bulkheads are carried ;

" Certifying Authority " means the Board and any person authorised by the Board and includes Lloyd's Register of Shipping, the British Committee of the Bureau Veritas, the British Committee of Det Norske Veritas and the British Technical Committee of the American Bureau of Shipping being persons so authorised ;

" Control stations " means spaces in which radio, main navigating or central fire-recording equipment, or the emergency generator are located ;

" Equivalent material " where the words are used in the expression " steel or other equivalent material " means any material which, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of an appropriate fire test ;

" Gross tonnage " in the case of vessels having dual tonnages means the larger of the two gross tonnage figures ;

(a) 1964 c. 47. (b) S.I. 1965/145 (1965 I, p.438)

"Incombustible material" means material which when heated to a temperature of 1382°F. (750°C.) neither burns nor gives off inflammable vapours in sufficient quantity to ignite at a pilot flame nor raises the temperature of the test furnace 90°F. (50°C.) or more above 1382°F. (750°C.), when tested in accordance with British Standard Specification 476: Part I: 1953 and the expression "combustible material" shall be construed accordingly;

"Length", in relation to the length of a ship, means (a) the length in feet on the summer load water-line from the foreside of the stem to the afterside of the rudder post, or (b) for ships with no rudder post the length in feet from the foreside of the stem to the axis of the rudder stock or (c) for ships with cruiser sterns, the length in feet which shall be taken as 96 per cent of the total length on the summer load water-line or as the length from the foreside of the stem to the axis of the rudder stock whichever is the greater;

"Machinery control room" means a room from which the propelling machinery and boilers serving the needs of propulsion may be controlled;

"Machinery space" means any space used for propelling, auxiliary or refrigerating machinery, boilers, pumps, engineers' workshops, generators, ventilation or air conditioning machinery, oil filling stations and similar spaces and trunkways to such spaces;

"Maximum service speed" means the greatest speed which the ship is designed to maintain at sea at her deepest seagoing draught;

"Navigable speed" means the minimum speed at which the ship can be effectively steered in the ahead direction;

"Oil fuel unit" means the equipment used for the preparation of oil fuel for delivery to the oil burners of an oil fired boiler and includes the oil pressure pumps, filters and heaters;

"Settling tank" means an oil storage tank having a heating surface of not less than 2 square feet per ton of oil capacity;

"Standard fire test" means a test in which a specimen of the material to be tested has a surface area of not less than 50 square feet and a height of 8 feet and is exposed in a test furnace to a series of time-temperature relationships approximately as follows:—

at the end of the first 5 minutes 1000°F. (538°C.);
at the end of the first 10 minutes 1300°F. (704°C.);
at the end of the first 30 minutes 1550°F. (843°C.);

"Steering gear power unit" means

(*a*) in the case of electric steering gear, the electric motor and its associated electrical equipment; or

(*b*) in the case of electrohydraulic steering gear the electric motor, its associated electrical equipment and connected pump; or

(*c*) in the case of steam-hydraulic or pneumatic-hydraulic steering gear, the driving engine and connected pump;

"Suitable" in relation to material means approved by the Board as suitable for the purpose for which it is used;

"Surveyor" means a surveyor appointed by a Certifying Authority;

"Tanker" means a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable nature;

"Tons" means gross tons.

(3) These Rules apply to seagoing ships of not less than five hundred tons other than passenger steamers, troopships, pleasure yachts, fishing vessels and ships not propelled by mechanical means, provided that

(*a*) these Rules shall apply to ships not registered in the United Kingdom only while they are within a port in the United Kingdom; and

(*b*) Rule 3, except paragraph (1), Rules 5 to 19 inclusive, Rule 20 (2), Rule 25 (2), sub-paragraph (c) and (d) of Rule 27 (2), Rule 31, Rule 32 except paragraph (1), Rule 34 and Rule 36 (2) shall not apply to any ship the keel of which was laid before the date of coming into force of these Rules.

(4) The Interpretation Act 1889(a) shall apply to the interpretation of these Rules as it applies to the interpretation of an Act of Parliament.

PART II — CONSTRUCTION

Structural Strength

2. The structural strength of every ship to which these Rules apply and the number and disposition of transverse watertight bulkheads shall be adequate for the service for which the ship is intended.

Watertight doors

3.—(1) In every ship to which these Rules apply in which a watertight door is provided to maintain the watertight integrity of a bulkhead, every such watertight door shall be made of suitable material and shall be efficiently constructed for its intended duty.

(2) (*a*) Every watertight door of the sliding type shall be capable of being operated by efficient hand operated gear both at the door itself and from an accessible position above the bulkhead deck.

(*b*) The operating gear for operating from above the bulkhead deck any sliding watertight door fitted in the bulkhead of a machinery space shall be situated outside the machinery space unless such a position is inconsistent with the efficient arrangement of the necessary gearing.

(3) Where there is access from the lower part of a machinery space to a watertight shaft tunnel the access opening shall be provided with a sliding watertight door which shall be capable of being operated locally on both sides of the door.

(4) Means shall be provided at remote operating positions to indicate when a sliding door is closed.

(5) Watertight doors shall be capable of being operated when the ship is listed up to 15 degrees either way.

(a) 52 & 53 Vict. c. 63.

Bilge Pumping arrangements

4. Every ship to which these Rules apply shall be provided with efficient bilge pumping plant and means for drainage so arranged that water entering any part of the hull, other than a space permanently appropriated for the carriage of fresh water, water ballast, oil fuel or liquid cargo and for which other efficient means of pumping or drainage are provided, can be pumped out through at least one suction pipe when the ship is on even keel or is listed not more than 5 degrees either way. Wing suctions shall be provided where necessary for this purpose. Efficient means shall be provided whereby water may easily flow to the suction pipes.

Provided that the Board may allow the means of pumping or drainage to be dispensed with in particular compartments of any ship or class of ships, if they are satisfied that the safety of the ship is not thereby impaired.

Electrical Equipment and Installation—General

5.—(1) In every ship to which these Rules apply the electrical equipment and installations, including any electrical means of propulsion, shall be such that the ship and all persons on board are protected against electrical hazards and shall conform with the relevant provisions of the Regulations for the Electrical Equipment of Ships issued by the Institution of Electrical Engineers and dated September 1961 except insofar as such Regulations are inconsistent with these Rules.

(2) Every such ship being a ship in which electric power is the only power for maintaining auxiliary services essential for the propulsion or safety of the ship shall be provided with two or more generating sets of such power that the aforesaid services can be operated when any one of the sets is out of service.

(3) Where the electrical load includes services essential for the propulsion or safety of the ship and the normal sea load is such that two or more generators are required to operate in parallel, arrangements shall be made to trip automatically sufficient non-essential load when the total current exceeds the connected generator capacity.

Emergency Source of Electric Power

SHIPS OF 5,000 TONS OR OVER

6.—(1) In every ship to which these Rules apply being a ship of 5,000 tons or over there shall be provided in a position above the uppermost continuous deck and outside the machinery casings a self-contained emergency source of electric power so arranged as to ensure its functioning in the event of fire or other casualty causing failure of the main electrical installation.

(2) In every such ship the emergency source of electric power required by paragraph (1) of this Rule shall be capable of operating simultaneously for a period of at least 6 hours the following services;

(*a*) the emergency lighting required by Rule 44 (3) (a) and 44 (3) (b) of the Merchant Shipping (Life-Saving Appliances) Rules 1965(a);

(*b*) an emergency lighting system which shall be provided in the main machinery space, the space containing the ship's main electric generating plant, on the navigating bridge and in the chartroom;

(*b*) the general alarm, if electrically operated;

(a) S.I. 1965/1105 (1965 II, p. 2940).

(*d*) the ship's navigation lights if solely electric ; and

(*e*) the daylight signalling lamp if it is operated by the ship's main source of electric power.

(3) (*a*) In every such ship the emergency source of electric power shall be either accumulator (storage) batteries capable of complying with the requirements of the preceding paragraph without being recharged or suffering an excessive voltage drop or a generator driven by internal combustion type machinery with an independent fuel supply and with efficient starting arrangements and the fuel provided for such machinery shall have a flash point of not less than 43°C. (110°F.).

(*b*) The emergency source of electric power shall be so arranged that it will operate efficiently when the ship is listed 22½ degrees and when the trim of the ship is 10 degrees from an even keel.

(*c*) Provision shall be made for the periodical testing of the emergency source of electric power and its associated circuits.

SHIPS OF 1,600 TONS OR OVER BUT UNDER 5,000 TONS

7.—(1) In every ship to which these Rules apply being a ship of 1,600 tons or over but of under 5,000 tons there shall be provided in a position above the uppermost continuous deck or raised quarter-deck and outside the machinery casings a self-contained emergency source of electric power so arranged as to ensure its functioning in the event of fire or other casualty causing failure of the main electrical installation.

(2) In every such ship the emergency source of electric power required by paragraph (1) of this Rule shall be capable of operating simultaneously for a period of at least 3 hours the following services :—

(*a*) the emergency lighting required by Rule 44 (3) (a) and 44 (3) (b) of the Merchant Shipping (Life-Saving Appliances) Rules 1965 ;

(*b*) the general alarm, if electrically operated;

(*c*) the ship's navigation lights if solely electric.

(3) (*a*) In every such ship the emergency source of electric power shall be either accumulator (storage) batteries capable of complying with the requirements of the preceding paragraph without being recharged or suffering an excessive voltage drop or a generator driven by internal combustion type machinery with an independent fuel supply and with efficient starting arrangements and the fuel provided for such machinery shall have a flash point of not less than 43°C. (110°F.).

(*b*) The emergency source of electric power shall be so arranged that it will operate efficiently when the ship is listed 22½ degrees and when the trim of the ship is 10 degrees from an even keel.

(*c*) Provision shall be made for the periodical testing of the emergency source of electric power and its associated circuits.

SHIPS OF UNDER 1,600 TONS

8.—(1) In every ship to which these Rules apply being a ship of under 1,600 tons not having its main source of electric power situated above the uppermost continuous deck or raised quarter deck and outside the machinery

casings there shall be provided in a position above the uppermost continuous deck or raised quarter deck and outside the machinery casings a self-contained emergency source of electric power so arranged as to ensure its functioning in the event of fire or other casualty causing failure of the main electrical installation.

(2) In every such ship the emergency source of electric power required by paragraph (1) of this Rule shall be capable of operating simultaneously for a period of at least 3 hours the following services:

(*a*) the emergency lighting required by Rule 44 (3) (a) and 44 (3) (b) of the Merchant Shipping (Life-Saving Appliances) Rules 1965;

(*b*) the general alarm, if electrically operated;

(*c*) the ship's navigation lights, if solely electric.

(3) (*a*) In every such ship the emergency source of electric power shall be either accumulator (storage) batteries capable of complying with the requirements of the preceding paragraph without being recharged or suffering an excessive voltage drop or a generator driven by internal combustion type machinery with an independent fuel supply and with efficient starting arrangements and the fuel provided for such machinery shall have a flash point of not less than 43°C. (110°F.).

(*b*) The emergency source of electric power shall be so arranged that it will operate efficiently when the ship is listed 22½ degrees and when the trim of the ship is 10 degrees from an even keel.

(*c*) Provision shall be made for the periodical testing of the emergency source of electric power and its associated circuits.

Electric and Electro-hydraulic Steering Gear

9.—(1) Every ship to which these Rules apply which is fitted with electric or electro-hydraulic steering gear shall be provided with indicators which will show when the power units of such steering gear are running. These indicators shall be situated in the machinery control room or in such other position or positions as the Certifying Authority may approve, and on the navigating bridge.

(2) In every such ship of 5,000 tons or over the following provisions shall apply:—

(*a*) electric and electro-hydraulic steering gear shall be served by two circuits fed from the main switchboard, one of which may pass through the emergency switchboard, if one is provided. Each circuit shall have adequate capacity for supplying all the motors which are normally connected to it and which operate simultaneously, and if transfer arrangements are provided in the steering gear room to permit either circuit to supply any motor or combination of motors, the capacity of each circuit shall be adequate for the most severe load condition. The circuits shall be separated as widely as is practicable throughout their length.

(*b*) short circuit protection only shall be provided for such circuits and motors.

(3) In every such ship of under 5,000 tons in which electric power is the sole source of power for both main and auxiliary steering gear, the arrangements shall comply with the requirements of the preceding paragraph except

that if the auxiliary steering gear is powered by a motor primarily intended for other services, suitable overload protection may be fitted. Short circuit protection only shall be provided for motors and power circuits of electrically or electro-hydraulically operated main steering gear fitted in any ship of less than 5,000 tons.

Precautions against Shock, Fire and other Hazards of Electrical Origin

10.—(1) In every ship to which these Rules apply all electrical equipment shall be so constructed and installed that there will be no danger of injury to any person handling it in a proper manner. Subject to the provisions of paragraph (2) of this Rule, where electrical equipment supplied as ship's equipment is to be operated at a voltage in excess of 55 volts, the exposed metal parts of such equipment which are not intended to have a voltage above that of earth but which may have such a voltage under fault conditions, shall be earthed.

(2) Exposed metal parts of portable electric lamps, tools and similar apparatus, supplied as ships' equipment to be operated at a voltage in excess of 55 volts shall be earthed through a conductor in the supply cable, unless by the use of double insulation or a suitable isolating transformer, protection at least as effective as earthing through a conductor is provided. When electric lamps, tools or other apparatus are used in damp spaces, provision shall be made, so far as practicable, to ensure that the danger of electric shock is reduced to a minimum.

(3) Every main and emergency switchboard shall be so arranged as to give easy access to the back and the front thereof without danger to any person. Every such switchboard shall be suitably guarded and a non-conducting mat or grating shall be provided at the back and the front where necessary. No exposed parts which may have a voltage between conductors or to earth exceeding 250 volts direct current or 55 volts alternating current shall be installed on the face of any switchboard or control panel.

(4) The hull return system of distribution shall not be used in any ship to which these Rules apply, but the Board may exempt any such ship, other than a tanker, from the requirements of this Rule.

(5) In every ship to which these Rules apply every electric cable shall, at every position at which an electrical fault may cause a fire, be flame-retardant sheathed or armoured or otherwise equally effectively protected. All metal sheaths and metal armour of electrical cable in every such ship shall be electrically continuous and shall be earthed.

(6) In every such ship lighting fittings shall be arranged to prevent rises in temperature which would be injurious to the electrical wiring thereof or which would result in a risk of fire in the surrounding material.

(7) In every such ship wiring shall be supported in such a manner as to avoid chafing and other injury.

(8) Every separate electrical circuit shall be protected against short circuit.

(9) In every such ship each separate electrical circuit, other than a circuit which operates the ship's steering gear or any other circuit in respect of which

the Board grant an exemption, shall be protected against overload. There shall be clearly and permanently indicated on or near each overload protective device the current carrying capacity of the circuit which it protects and the rating or setting of the device.

(10) In every such ship all accumulator (storage) batteries shall be housed in boxes or compartments which are constructed to protect the batteries from damage and are ventilated to minimise the accumulation of explosive gas. Devices liable to arc shall not be installed in any compartment assigned principally to accumulator batteries.

(11) Every electric space-heater forming part of the equipment of such a ship shall be fixed in position and shall be so constructed as to reduce the risk of fire to a minimum. No such heater shall be constructed with an element so exposed that clothing, curtains, or other material can be scorched or set on fire by heat from the element.

Fire Protection

11. Rules 12 to 18 shall apply to cargo ships of 4,000 tons or over.

12. Where a bulkhead is required by these rules to be constructed of 'B' class panels, such panels shall be capable of preventing the passage of flame throughout a standard fire test of 30 minutes duration. Every 'B' class panel shall be such that if either face thereof is exposed to a standard fire test of 30 minutes duration, the average temperature on the unexposed face of the panel will not increase at any time during the first 15 minutes of the test in the case of an incombustible panel or the duration of the test in the case of a combustible panel by more than 250°F. (139°C.) above the initial temperature on that face, nor shall the temperature at any one point thereon increase by more than 405°F. (225°C.) above the initial temperature.

13.—(1) The hull, including the superstructure, structural bulkheads, decks and deckhouses, shall be constructed of steel or of such other suitable materials as the Board may permit in special cases, having regard to the risk of fire.

(2) The corridor bulkheads serving accommodation spaces and control stations shall be constructed of steel or of incombustible 'B' class panels except that combustible 'B' class panels may be fitted:—

(*a*) in any portion of a corridor bulkhead which abuts on spaces containing no significant fire load; and

(*b*) where a corridor is provided with two or more exits through doors leading directly to an open deck on the same level, in the end portions of the corridor bulkheads over a distance not exceeding 20 feet measured from any such exit.

14.—(1) In every ship to which these Rules apply doorways and similar openings in corridor bulkheads shall be capable of being closed by permanently attached doors or by shutters.

(2) In every such ship the number of ventilation openings in such bulkheads shall be kept to a minimum. Such openings shall, so far as is reasonably practicable, be provided only in or under doors and shall, wherever practicable, be in the lower part of the door.

15. In every ship to which these Rules apply interior stairways, ladders and crew lift trunks within accommodation spaces shall be constructed of steel or other equivalent material.

16. The boundary bulkheads of any emergency generator room and the bulkheads separating a galley, paint-room, lamp-room, or boatswain's store from an accommodation space shall be constructed of steel or other equivalent material.

17. Deck coverings within accommodation spaces and control stations on the deck forming the crown of machinery and cargo spaces shall be of a type which will not readily ignite.

18.—(1) Paints, varnishes and other surface materials having a nitrocellulose or other highly inflammable base shall not be used in accommodation spaces, machinery spaces and control stations.

(2) Pipes intended to convey oil or other combustible liquids shall be of a material acceptable to the Certifying Authority having regard to the risk of fire.

(3) Overboard scuppers, sanitary discharges or other outlets close to the waterline shall not be of a material likely to fail in the event of fire and thereby give rise to a danger of flooding.

(4) Cellulose-nitrate film shall not be used in cinematograph installations.

19. (*a*) In every ship to which these Rules apply the skylights to spaces containing main propulsion machinery or oil-fired boilers or auxiliary internal combustion type machinery of a total horse power of 1000 or over shall be capable of being closed and, where practicable, opened from outside the space in the event of fire and, where they contain glass panels, such panels shall be of fire resisting construction fitted with wire reinforced glass and shall have external, permanently attached shutters of steel or other equivalent material.

(*b*) In such a ship windows shall not be fitted in engine casings except where the Board are satisfied that they are necessary and will not constitute a fire hazard. Where such windows are fitted they shall be of a non-opening type and shall be of fire resisting construction fitted with wire reinforced glass and shall have external, permanently attached shutters of steel or other equivalent material.

Boilers and Machinery—General

20.—(1) In every ship to which these Rules apply the machinery, boilers and other pressure vessels shall be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board.

(2) Without prejudice to the generality of the foregoing means shall be provided which will prevent overpressure in any part of such machinery, boilers and other pressure vessels, and in particular every boiler and every unfired steam generator shall be provided with not less than two safety valves. Provided that the Board may, having regard to the output or any other features of any boiler or unfired steam generator, permit only one safety valve to be fitted if they are satisfied that adequate protection against overpressure is provided.

Boilers and other Pressure Vessels

21.—(1) In every ship to which these Rules apply every boiler or other pressure vessel and its respective mountings shall before being put into service for the first time be subjected to a hydraulic test to a pressure suitably in excess of the working pressure which will ensure that the boiler or other pressure vessel and its mountings are adequate in strength and design for the service for which it is intended and having regard to:—

(*a*) the design and the material of which it is constructed;

(*b*) the purpose for which it is intended to be used; and

(*c*) the working conditions under which it is intended to be used;

and every such boiler or other pressure vessel and its respective mountings shall be maintained in an efficient condition.

(2) In every such ship provision shall be made which will facilitate the cleaning and inspection of every pressure vessel.

Machinery

22.—(1) In every ship to which these Rules apply main and auxiliary machinery essential for the propulsion and safety of the ship shall be provided with effective means of control and the machinery shall be capable of being brought into operation when initially no power is available in the ship.

(2) In every such ship where risk from over-speeding of machinery exists, means shall be provided to ensure that the safe speed is not exceeded.

(3) In every such ship where main or auxiliary machinery or any parts of such machinery are subject to internal pressure those parts shall before being put into service for the first time be subjected to a hydraulic test to a pressure suitably in excess of the working pressure having regard to:—

(*a*) the design and the material of which they are constructed;

(*b*) the purpose for which they are intended to be used; and

(*c*) the working conditions under which they are intended to be used;

and such parts shall be maintained in an efficient condition.

Means for going astern

23. Every ship to which these Rules apply shall have sufficient power for going astern to secure proper control of the ship in all normal circumstances.

Shafts

24. In every ship to which these Rules apply every shaft shall be so designed and constructed that it will withstand the maximum working stresses to which it may be subjected, with a factor of safety which is adequate having regard to:—

(*a*) the material of which it is constructed;

(*b*) the service for which it is intended; and

(*c*) the type of engines by which it is driven or of which it forms a part.

Boiler Feed Systems

25.—(1) In every ship to which these Rules apply every boiler which provides services essential for the safety of the ship and which could be rendered dangerous by the failure of its feed water supply, shall be provided with not less than two efficient and separate feed water systems so arranged that either of such systems may be opened for inspection or overhaul without affecting the efficiency of the other. Means shall be provided which will prevent overpressure in any part of the systems.

(2) If in any such ship it is possible for oil to enter the feed water system of a boiler, the arrangements for supplying boiler feed water shall provide for the interception of oil in the feed water.

(3) Every feed check valve, fitting, or pipe through which feed water passes from a pump to such boilers in any such ship shall be designed and constructed to withstand the maximum working stresses to which it may be subjected, with a factor of safety which is adequate having regard to the material of which it is constructed and the working conditions under which it will be used. Every such valve, fitting, or pipe shall before being put into service for the first time be subjected to a hydraulic test suitably in excess of the maximum working pressure of the boiler to which it is connected or of the maximum working pressure to which the feed line may be subjected, whichever shall be the greater and shall be maintained in an efficient condition. The feed pipes shall be adequately supported.

Steam Pipe Systems

26.—(1) In every ship to which these Rules apply every steam pipe and every fitting connected thereto through which steam may pass shall be so designed and constructed as to withstand the maximum working stresses to which it may be subjected, with a factor of safety which is adequate having regard to—

(*a*) the material of which it is constructed ; and

(*b*) the working conditions under which it will be used.

(2) Without prejudice to the generality of the foregoing, every such steam pipe or fitting shall before being put into service for the first time be subjected to a test by hydraulic pressure to a pressure suitably in excess of the working pressure to be determined having regard to the requirements of sub-paragraphs (*a*) and (*b*) of the preceding paragraph and every such steam pipe or fitting shall be maintained in an efficient condition.

(3) Steam pipes shall be adequately supported.

(4) Provision shall be made which will avoid excessive stress likely to lead to the failure of any such steam pipe or fitting, whether by reason of variation in temperature, vibration or otherwise.

(5) Efficient means shall be provided for draining every such steam pipe so as to ensure that the interior of the pipe is kept free of water and that water hammer action will not occur under any conditions likely to arise in the course of the intended service of the ship.

(6) If in any ship to which these Rules apply a steam pipe may receive steam from any source at a higher pressure than it can withstand with an adequate factor of safety, an efficient reducing valve, relief valve and pressure gauge shall be fitted to such pipe.

Air Pressure Systems

27.—(1) In every ship to which these Rules apply being a ship in which machinery essential for the propulsion and safety of the ship or of persons on board is required to be started, operated or controlled solely by compressed air, there shall be provided an efficient air system which shall include a sufficient number of air compressors and compressed air storage vessels to ensure that an adequate supply of compressed air is available under all conditions likely to be met in service.

(2) (*a*) In every such ship the parts of every such compressed air system other than a pneumatic control system which are subjected to air pressure shall be designed and constructed to withstand, with an adequate factor of safety, the maximum working stresses to which they may be subjected and every air pressure pipe or fitting in such system shall before being put into service for the first time be subjected to a hydraulic test to twice its maximum working pressure and be maintained in an efficient condition.

(*b*) Means shall be provided in any such ship to prevent over-pressure in any part of any such compressed air system and, where water jackets or casings of air compressors and coolers might be subjected to dangerous overpressure due to leakage into them from air pressure parts, suitable pressure relief arrangements shall be provided.

(*c*) Provision shall be made to reduce to a minimum entry of oil into any such air pressure system and to drain the system. Provision shall also be made to protect the system from the effects of internal explosion.

(*d*) In every ship to which these Rules apply all discharge pipes from starting air compressors shall lead directly to the starting air receivers, and all starting air pipes from the air receivers to main or auxiliary engines shall be entirely separate from the compressor discharge pipe system.

Cooling Water System

28. In every ship to which these Rules apply in which cooling water services are essential for the running of the propelling machinery there shall be at least two means of operating such water services.

Lubricating and other Oil Systems

29. In every ship to which these Rules apply in which oil for lubrication, cooling or operation of the main propelling machinery and its ancillary services is circulated under pressure, provision shall be made so that in the event of the failure of a pump an alternative means of circulating such oil is available.

Oil and Gaseous Fuel Installations

30.—(1) In every ship to which these Rules apply oil fuel provided for use in boilers or machinery shall have a flash point of not less than 150°F. (closed test). Provided that the Board may subject to such conditions as they may impose—

(*a*) permit any ship to use oil fuel having a flash point of not less than 130°F. in boilers, or oil fuel having a flash point of not less than 110°F. in internal combustion type machinery;

(*b*) permit the use of gaseous fuel in ships designed for the carriage of liquefied gas if such fuel results solely from evaporation of cargo carried.

Nothing in this paragraph of this Rule shall apply to fuel provided for machinery permitted by Rule 6 (3) (a), Rule 7 (3) (a) or Rule 8 (3) (a) of these Rules.

(2) In every ship to which these Rules apply being a ship in which oil or gaseous fuel is used, the arrangements for the storage, distribution and utilisation of the fuel shall be such that, having regard to the hazards of fire and explosion which the use of such fuel may entail, the safety of the ship and of persons on board is preserved.

(3) In every ship to which these Rules apply being a ship in which oil or gaseous fuel is used in engines or boilers for the propulsion or safety of the ship, the arrangements for the storage, distribution and utilisation of the fuel shall be such that the effective use of the engines can be maintained under all conditions likely to be met by the ship in service.

(4) Every oil fuel installation which serves a boiler supplying steam for the propulsion of the ship shall include not less than two oil fuel units.

Communication between Bridge and Engine Room

31. Every ship to which these Rules apply shall be provided with two means of communicating orders from the navigating bridge to the engine room control platform. One of the means shall be an engine room telegraph.

Steering Gear

32.—(1) Every ship to which these Rules apply shall be provided with efficient main and auxiliary steering gear.

Provided that if duplicate steering gear power units and their connections are fitted to the satisfaction of the Certifying Authority and each power unit complies with the requirements of paragraph (2) (c) of this Rule and the duplicate units and connections operating together comply with the requirements of paragraph (2) (b) of this Rule no auxiliary steering gear shall be required.

(2) In every such ship—

(*a*) the main steering gear, including the rudder and associated fittings, shall be of adequate strength and sufficient to steer the ship at maximum service speed. The main steering gear and rudder stock shall be so designed that they are not damaged at maximum astern speed;

(*b*) the main steering gear shall be capable of putting the rudder over from 35 degrees on one side to 35 degrees on the other side with the ship running ahead at maximum service speed. The rudder shall be capable of being put over from 35 degrees on either side to 30 degrees on the other side in 28 seconds at maximum service speed;

(*c*) the auxiliary steering gear shall be capable of being brought rapidly into action and shall be of adequate strength and of sufficient power to enable the ship to be steered at navigable speed and in any such ship in

which a rudder stock of over 14 inches diameter in way of the tiller is required to comply with the requirements of sub-paragraph (*a*) of this paragraph, the auxiliary steering gear shall be operated by power.

(3) In every such ship which is fitted with power operated steering gear the position of the rudder shall be indicated at the principal steering station.

Spare Gear

33. Every ship to which these Rules apply shall be provided with sufficient spare gear having regard to the intended service of the ship.

Compasses

34.—(1) Subject to the provisions of paragraph (2) of this Rule, every ship to which these Rules apply shall be provided with two efficient magnetic compasses which shall be mounted in binnacles and sited on the ship's centre line. One of such compasses shall be provided for use as a standard compass and shall be sited near to the normal steering position and in a position from which the view of the horizon is least obstructed. The other of such compasses shall be provided for use as a steering compass and shall be sited at the normal steering position unless the projected or reflected image of the standard magnetic compass is provided for this purpose or a gyro-compass or a repeater from a gyro- or transmitting magnetic compass is positioned near the normal steering position, in which case the second magnetic compass, mounted in a binnacle or on a pedestal, may be fitted at the emergency steering position.

(2) Where there is no emergency steering position, two magnetic compasses and binnacles shall not be required provided that the ship is equipped with a standard projector magnetic compass and a gyro-compass with repeaters and provided also that a spare magnetic compass bowl with its gimbal units is carried on board so that it may be interchanged with the standard compass if that compass should become unserviceable.

Anchors and Chain Cables

35. Every ship to which these Rules apply shall be provided with such anchors and chain cables as are sufficient in number, weight and strength, having regard to the size and intended service of the ship.

Means of Escape

36.—(1) In every ship to which these Rules apply stairways and ladderways shall be arranged so as to provide ready means of escape to the lifeboat embarkation deck from all crew spaces, passenger spaces and other spaces in which the crew are normally employed.

(2) In every ship to which these Rules apply there shall be provided from each engine room, shaft tunnel and boiler room two means of escape as widely separated as practicable, one of which may be a watertight door if such a door is available as a means of escape. Where no such watertight door is available, the two means of escape shall consist of two sets of steel ladders leading to separate doors in the casing or elsewhere from which there is access to the lifeboat or liferaft embarkation deck or decks. The Board may exempt any such ship of less than 2,000 tons from the requirements of this paragraph.

Means for Stopping Machinery, Shutting off Oil Fuel Suction Pipes and Closing of Openings

37.—(1) In every ship to which these Rules apply there shall be provided means for stopping ventilating fans serving machinery, accommodation and cargo spaces. For machinery and cargo spaces there shall be provided means for closing all skylights, doorways, ventilators, annular spaces around funnels and other openings to such spaces. Such means shall be capable of being operated from positions outside the said spaces which would not be made inaccessible by a fire within such spaces.

(2) In every ship to which these Rules apply machinery driving forced and induced draught fans, oil fuel transfer pumps, oil fuel unit pumps and other similar fuel pumps shall be fitted with remote controls situated outside the spaces in which such machinery or pumps are situated. Such controls shall be capable of stopping such machinery or pumps in the event of fire in the said spaces.

(3) In every ship to which these Rules apply every pipe connected to any oil fuel storage, settling, or daily service tank, not being a double bottom tank, which if damaged would permit discharge of the contents so as to cause a fire hazard, shall be fitted with a valve or cock which shall be secured to the tank to which it is connected and be capable of being closed from a readily accessible position outside the space in which the tank is situated provided that in the case of any inlet pipe to such a tank, a non-return valve similarly secured to the tank may be substituted. In the case of an oil fuel deep tank traversed by any shaft or pipe tunnel, in addition to the valve which shall be fitted on the tank a valve or valves may be fitted on the pipe line or lines outside the tunnel or tunnels to enable control to be exercised in the event of fire.

Alternative Construction, Equipments and Machinery

38. Where these Rules require that the hull or machinery of a ship shall be constructed in a particular manner, or that particular equipment shall be provided, or that particular provisions shall be made, the Board may allow the hull or machinery of the ship to be constructed in any other manner, or any other equipment to be provided or other provision made, if they are satisfied that such other construction, equipment or provision is at least as effective as that required by these Rules.

PART III — SURVEYS

Surveys before issue of cargo ships safety construction certificates

39.—(1) The owner of every ship to which these Rules apply shall cause the same to be surveyed by a surveyor appointed by a Certifying Authority and any application for a survey shall be accompanied by such information relating to the ship as the Certifying Authority may require.

(2) A Certifying Authority shall upon receipt of an application for survey and any fee payable on such application cause the ship to be certified by a qualified surveyor.

(3) The surveyor shall survey the ship and shall satisfy himself that the arrangements, materials and scantlings of the structure, boilers and other pressure vessels and their appurtenances (other than domestic boilers having a heating surface of 50 square feet or less and a working pressure of 50 lb. per square inch or less and other domestic pressure vessels having such a working pressure), main and auxiliary machinery, electrical installations and other equipment comply with the requirements of Part II of these Rules and are in all respects satisfactory for the service for which the ship is intended, having regard to the period for which a cargo ship safety construction certificate in respect of the ship is to be issued.

(4) The surveyor, if satisfied on the survey that he may properly do so, shall forward to the Certifying Authority a declaration of survey containing such particulars of the ship as are required by the Certifying Authority to enable them to issue a cargo ship safety construction certificate in respect of the ship in accordance with the provisions of Section 3 of the Merchant Shipping Act 1964.

Intermediate Surveys

40.—(1) The owner of every ship in respect of which a cargo ship safety construction certificate has been issued shall, so long as the certificate remains in force, cause the ship to be surveyed in the manner and at the intervals specified in paragraph (2) of this Rule for the purpose of seeing whether the certificate should remain in force, and if the ship is not so surveyed, the Board may cancel the certificate.

(2) The surveys to be carried out under paragraph (1) of this Rule shall be as follows :—

(*a*) the hull and ship's side fastenings shall be examined in dry dock at intervals not exceeding two years and ship's side fittings shall be thoroughly examined at intervals not exceeding four years ;

(*b*) all boilers, including exhaust gas or steam heated steam generators, economisers, and domestic boilers (other than domestic boilers having a heating surface of 50 square feet or less and a working pressure of 50 lb. per square inch or less) shall be examined internally and externally at intervals not exceeding two years until they are eight years old and thereafter annually ;

(*c*) screw shafts and tube shafts fitted with continuous liners or running in oil shall be withdrawn and surveyed at intervals not exceeding three years and other screw and tube shafts shall be withdrawn and surveyed at intervals not exceeding two years.

(3) Every application for the survey of a ship under this Rule shall be made by or on behalf of the owner of the ship to the Certifying Authority by whom the certificate was issued.

41.—(1) The Certifying Authority shall, on receipt of the application and of any fee payable on such application, cause the ship to be surveyed by a qualified surveyor.

(2) The surveyor shall survey the ship with a view to satisfying himself

(*a*) that such of the parts of the ship and its equipment specified in Rule 40 (2) of these Rules as are the subject of the application for survey remain efficient and, so far as practicable,

(*b*) that no material alterations have been made in the hull, machinery or equipment of the ship to which the cargo ship safety construction certificate relates without the approval of the Certifying Authority.

(3) On the completion of the survey in accordance with the requirements of the preceding paragraph, the surveyor shall forward a report on the survey to the Certifying Authority.

Roy Mason
Minister of State,
Board of Trade.

11th May 1965.

EXPLANATORY NOTE

(*This Note is not part of the Rules*)

These Rules contain provisions relating to the hull, equipment and machinery of cargo ships of not less than 500 gross tons and in particular to the watertight doors, bilge pumping arrangements, electrical equipment, fire protection and boilers and machinery of such ships.

The Rules prescribe that such ships shall be surveyed at regular intervals by surveyors of the Board or a person authorised by the Board (in the Rules referred to as a Certifying Authority) and contain provisions as to the manner in which such surveys shall be carried out.

They also include such requirements as appear to the Board of Trade to implement the provisions of the International Convention for the Safety of Life at Sea 1960.