
S T A T U T O R Y I N S T R U M E N T S

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MERCHANT SHIPPING

SAFETY

The Merchant Shipping (Fire Appliances) Rules 1965

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The Board of Trade in exercise of their powers under Section 427 of the Merchant Shipping Act 1894(a), as substituted by Section 2 of the Merchant Shipping (Safety Convention) Act 1949(b) and as amended by Section 9 of the Merchant Shipping Act 1964(c) and as having effect by virtue of the Transfer of Functions (Shipping and Construction of Ships) Order 1965(d), and of all other powers enabling them in that behalf hereby make the following Rules:—

PART I—PRELIMINARY

Interpretation and Repeal

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

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

“Accommodation space” means passenger spaces, corridors, lavatories, cabins, offices, crew spaces, shops, isolated pantries and lockers and similar spaces;

“Board” means the Board of Trade;

(a) 57 & 58 Vict. c. 60.
(c) 1964 c. 47.

(b) 12, 13 & 14 Geo. 6. c. 43.
(d) S.I. 1965/145 (1965 I, p. 438).

- “ Cargo space ” means spaces appropriated for cargo, other than mail and bullion, and trunks leading to such spaces;
- “ Crew space ” means crew accommodation within the meaning of the Merchant Shipping Act 1948(a);
- “ Control station ” includes those spaces in which radio, main navigating or central fire-recording equipment or the emergency generator is located;
- “ Length ” in relation to a registered ship means registered length, and in relation to an unregistered ship means the length from the fore part of the stem to the aft side of the head of the stern post or, if no stern post is fitted to take the rudder, to the fore side of the rudder stock at the point where the rudder passes out of the hull;
- “ Oil fired boiler ” means any boiler wholly or partly fired by liquid fuel not being a domestic boiler of less than 250,000 B.T.U. per hour;
- “ 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;
- “ Passenger space ” means space provided for the use of passengers;
- “ Passenger steamer ” means a steamer carrying more than 12 passengers;
- “ Sailing ship ” includes a ship provided with sufficient sail area for navigation under sails alone, whether or not fitted with mechanical means of propulsion;
- “ Service space ” includes galleys, main pantries, laundries, store rooms, paint rooms, baggage rooms, mail rooms, bullion rooms, carpenters’ and plumbers’ workshops, and trunkways leading to such spaces;
- “ Settling tank ” means an oil storage tank having a heating surface of not less than 2 square feet per ton of oil capacity;
- “ Steamer ” includes a ship propelled by electricity or other mechanical power;
- “ Tanker ” means a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable nature;
- “ Tons ” in relation to the tonnage of a ship means gross tons.

(3) These Rules apply to—

(a) British ships, except ships registered in a Dominion within the meaning of the Statute of Westminster 1931 or in India, Pakistan, Ceylon, Ghana, Malaysia, the Republic of Cyprus, Nigeria, Sierra Leone, Tanzania, Jamaica, Trinidad and Tobago, Uganda, Kenya, Malawi, Malta, Zambia, The Gambia, the Republic of Ireland or in any territory administered by Her Majesty’s Government in any such Dominion;

(b) other ships while they are within any port in the United Kingdom.

Provided that these Rules shall not apply to—

(i) a ship by reason of her being within a port in the United Kingdom if she would not have been in any such port but for stress of weather or any other circumstance that neither the master nor the owner nor the charterer (if any) of the ship could have prevented or forestalled;

(ii) pleasure yachts which are not passenger steamers and are of less than 45 feet in length.

(a) 11 & 12 Geo. 6. c. 44.

(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 and as if these Rules and the Rules hereby revoked were Acts of Parliament.

(5) The Merchant Shipping (Fire Appliances) Rules 1952(b) are hereby revoked.

Classification of Ships

2.—(1) For the purpose of these Rules the ships to which these Rules apply shall be arranged in the following Classes:—

Passenger Steamers

Class I. Passenger steamers engaged on voyages (not being short international voyages) any of which are long international voyages.

Class II. Passenger steamers engaged on voyages (not being long international voyages) any of which are short international voyages.

Class II(A). Passenger steamers in respect of which there is or should be in force a certificate entitled “ Passenger Certificate Class II(A) ” being a certificate for ships engaged on voyages of any kind other than international voyages.

Class III. Passenger steamers in respect of which there is or should be in force a certificate entitled “ Passenger Certificate Class III ” being a certificate for ships engaged only on voyages in the course of which they are at no time more than 70 miles by sea from their point of departure and not more than 18 miles from the coast of the United Kingdom, and which are at sea only in fine weather and during restricted periods.

Class IV. Passenger steamers in respect of which there is or should be in force a certificate entitled “ Passenger Certificate Class IV ” being a certificate for ships engaged only on voyages in partially smooth waters, or in smooth and partially smooth waters.

Class V. Passenger steamers in respect of which there is or should be in force a certificate entitled “ Passenger Certificate Class V ” being a certificate for ships engaged only on voyages in smooth waters.

Class VI. Passenger steamers in respect of which there is or should be in force a certificate entitled “ Passenger Certificate Class VI ” being a certificate for ships engaged only on voyages with not more than 250 passengers on board, to sea, in smooth or in partially smooth waters, in all cases in fine weather and during restricted periods, in the course of which the ships are at no time more than 15 miles, exclusive of any smooth waters, from their point of departure nor more than 3 miles from land.

Class VI(A). Passenger steamers in respect of which there is or should be in force a certificate entitled “ Passenger Certificate Class VI(A) ” being a certificate for ships carrying not more than 50 passengers for a distance of not more than 6 miles on voyages to or from isolated communities on the islands or coast of Scotland, and which do not proceed for a distance of more than 3 miles from land.

Ships other than passenger steamers

Class VII. Steamers (other than ships of Classes I, VII(A), X, XI and XII) and other ships engaged on voyages any of which are long international voyages.

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

(b) S.I. 1952/1950 (1952 II, p. 1856).

Class VII(A). Steamers engaged in the whaling industry or employed as fish processing or canning factory ships, and steamers engaged in the carriage of persons employed in the whaling, fish processing or canning industries.

Class VIII. Steamers (other than ships of Classes II, IX, X, XI and XII) and other ships engaged on voyages (not being long international voyages) any of which are short international voyages.

Class VIII(A). Steamers (other than ships of Classes II(A) to VI(A) inclusive, IX, IX(A), X, XI and XII) and other ships engaged only on voyages which are not international voyages.

Class IX. Tugs and tenders (other than ships of Classes II, II(A), III, VI and VI(A), which proceed to sea but are not engaged on long international voyages.

Class IX(A). Steamers (other than ships of Classes IV to VI inclusive) and other ships which do not proceed to sea.

Class X. Fishing boats other than ships of Classes I to VI(A) inclusive.

Class XI. Sailing ships (other than fishing boats and ships of Class XII) which proceed to sea.

Class XII. Pleasure yachts (other than ships of Classes I to VI(A) inclusive) of 45 feet in length or over.

(2) For the purposes of this Rule the following expressions have the following meanings respectively—

“ Long international voyage ” means an international voyage which is not a short international voyage within the meaning of the Merchant Shipping (Safety Convention) Act 1949;

“ Partially smooth waters ” means, as respects any period specified in Schedule 1 to these Rules, the waters of any of the areas specified in the third column of that Schedule in relation to that period;

“ Restricted period ” means a period falling wholly within the following limits:—

(a) from 1st April to 31st October, both dates inclusive; and

(b) between one hour before sunrise and one hour after sunset in the case of ships fitted with navigation lights conforming to the collision regulations, and between sunrise and sunset in the case of any other ships;

“ Sea ” does not include any partially smooth waters;

“ Smooth waters ” means any waters not being the sea or partially smooth waters, and in particular means waters of any of the areas specified in the second column of Schedule 1 to these Rules;

“ Voyage ” includes an excursion.

PART II—PASSENGER STEAMERS

SHIPS OF CLASS I

Fire patrol, Alarm and Detection Systems

3.—(1) (a) In every ship of Class I an efficient patrol system shall be maintained so that any outbreak of fire may be promptly detected.

(b) Manual fire alarms shall be fitted throughout the passenger spaces and crew spaces which will enable the fire patrol to give an alarm immediately to the navigating bridge or fire control station.

(2) In every ship of Class I there shall be provided in any part of the ship which is not accessible to the fire patrol a fire detection system complying with the requirements specified in Rule 62 of these Rules.

(3) The Board may exempt any ship from the requirements of paragraph (2) of this Rule if they are satisfied that to require compliance therewith would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

Fire pumps, Fire main, Water service pipes, Hydrants, Hoses and Nozzles

4.—(1) Every ship of Class I shall be provided with appliances in accordance with this Rule whereby at least two jets of water as required by these Rules, can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated and any store room and any part of any cargo space when empty.

(2) Every ship of Class I of 4,000 tons or over shall be provided with at least three fire pumps operated by power and every such ship of under 4,000 tons shall be provided with at least two such pumps. Each such pump shall be capable of delivering at least one jet simultaneously from each of any two hydrants, hoses and nozzles provided in the ship and shall comply with the requirements of Rule 53 of these Rules.

(3) (a) In every ship of Class I of 1,000 tons or over the arrangement of the sea connections, pumps and the sources of power for operating them shall be such as will ensure that a fire in any one compartment will not put all the fire pumps out of action.

(b) If in any ship of Class I of less than 1,000 tons a fire in any one compartment could put all the fire pumps out of action there shall be provided, in a position outside the machinery spaces, an independently driven power operated emergency fire pump and its source of power and sea connection. Such pump shall be capable of producing at least two jets of water from any two hydrants and hoses through nozzles which shall comply with Rule 55 (4)(b) of these Rules, while simultaneously maintaining a pressure of at least 30 pounds per square inch at any hydrant in the ship.

(4) In every ship of Class I there shall be provided a fire main, water service pipes, hydrants, hoses and nozzles which shall be so arranged that they comply with the requirements of Rules 54 and 55 of these Rules when all water-tight doors and all doors in bulkheads constructed in accordance with Rule 49(1) of the Merchant Shipping (Passenger Ship Construction) Rules 1965(a) are closed.

(5) In every ship of Class I at least one fire hose shall be provided for every hydrant fitted in compliance with these Rules.

(6) In every ship of Class I fitted with oil-fired boilers or internal combustion type propelling machinery there shall be provided in each space containing such boilers or machinery at least two fire hydrants, one on the port side and one on the starboard side. In addition in any such ship in which there is access to the machinery space by way of a shaft tunnel, a fire hydrant shall be provided in the tunnel at the end adjacent to that space. A spray nozzle shall be provided for every fire hose at every hydrant fitted in such spaces in compliance with these Rules.

Portable fire extinguishers in Accommodation and Service Spaces

5.—(1) In every ship of Class I there shall be provided on each deck a sufficient number of portable fire extinguishers so that at least two of these shall be readily

(a) S.I. 1965/1103.

available for use in every accommodation and service space between watertight bulkheads and bulkheads constructed in compliance with Rule 49(1) of the Merchant Shipping (Passenger Ship Construction) Rules 1965. In enclosed accommodation and service spaces above the bulkhead deck at least one such extinguisher shall be provided for use on each side of the ship in such spaces. In addition at least one portable fire extinguisher and an asbestos blanket shall be provided in every galley provided that where the superficial deck area of any galley exceeds 500 square feet at least two such extinguishers and two such blankets shall be provided.

(2) In every such ship at least one portable fire extinguisher shall be provided for use in each control station.

Fixed fire smothering arrangements in Cargo spaces

6.—(1) In every ship of Class I of 1,000 tons or over there shall be provided a fixed fire smothering gas installation complying with the requirements of Rule 60 of these Rules which shall be so arranged as to protect every cargo space.

(2) The Board may exempt any ship from the requirements of this Rule if they are satisfied that to require compliance therewith would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

Machinery spaces containing Oil-fired boilers or oil burning equipment

7.—(1) In every ship of Class I there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit at least one of the following fixed fire extinguishing installations:—

- (a) a pressure water spraying system complying with the requirements of Rule 59 of these Rules;
- (b) a fire smothering gas installation complying with the requirements of Rule 60 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 61 of these Rules.

If the engine and boiler rooms are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler room into the engine room, the combined engine and boiler rooms shall for the purpose of this paragraph be regarded as a single space.

(2) In addition to the requirements of paragraph (1) of this Rule there shall be provided:—

- (a) in each boiler room one or more foam fire extinguishers each of at least 30 gallons capacity or carbon dioxide fire extinguishers each of at least 100 lb. capacity. The extinguishers shall be sited so as to be readily accessible in the event of fire and they shall be sufficient in number to enable foam or carbon dioxide to be directed on to any part of the boiler room and spaces containing any part of the oil fuel installation;
- (b) in each firing space and in each space which contains any part of any oil fuel installation at least two portable fire extinguishers suitable for extinguishing oil fires;
- (c) in each firing space a receptacle containing at least 10 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

Machinery spaces containing Internal Combustion type machinery

8.—(1) In every ship of Class I there shall be provided for the protection of any space containing internal combustion type machinery used for main propulsion, or having in the aggregate a total power of not less than 1,000 b.h.p. for auxiliary purposes, at least one of the fixed fire extinguishing installations required by Rule 7(1) of these Rules.

(2) In addition to the requirements of paragraph (1) of this Rule there shall be provided in any such space:—

- (a) one foam fire extinguisher of at least 10 gallons capacity or a carbon dioxide fire extinguisher of at least 35 lb. capacity;
- (b) one portable fire extinguisher suitable for extinguishing oil fires for each 1,000 b.h.p. or part thereof of such machinery but in no event less than two such extinguishers; provided that not more than six such extinguishers shall be required in any such space.

Machinery spaces containing Steam engines

9. In every ship of Class I there shall be provided in spaces containing steam turbines or enclosed pressure lubricated steam engines used either for main propulsion, or having in the aggregate a total power of not less than 1,000 b.h.p. for auxiliary purposes:—

- (a) foam fire extinguishers each of at least 10 gallons capacity or carbon dioxide fire extinguishers each of at least 35 lb. capacity sufficient in number to enable foam or carbon dioxide to be directed on to any part of the pressure lubrication system and on to any part of the casings enclosing pressure lubricated parts of the turbines, engines or associated gearing, if any.

Provided that such extinguishers shall not be required if equivalent protection is provided in such spaces by a fixed fire extinguishing installation fitted in compliance with Rule 7(1) or Rule 8(1) of these Rules;

- (b) one portable fire extinguisher for each 1,000 b.h.p. or part thereof of such machinery, suitable for extinguishing oil fires, but in no event less than two such extinguishers, provided that not more than six such extinguishers shall be required in any one such space and provided that such extinguishers shall not be required in addition to any provided in compliance with Rule 8(2) of these Rules.

Firemen's outfits

10.—(1) Every ship of Class I shall carry one fireman's outfit for each 100 feet (or part thereof) of the registered length of the ship, but in no case less than two. Every such outfit shall comply with the requirements of Rule 63 of these Rules and at least two of them shall include breathing apparatus of the air hose type.

(2) If in any such ship which carries firemen's outfits containing only breathing apparatus of the air hose type an air hose exceeding 120 feet in length would be necessary to reach from the open deck well clear of any hatch or doorway to any part of the accommodation, service, cargo or machinery spaces, at least two sets of breathing apparatus of the self-contained type shall be provided in addition.

International shore connection

11. Every ship of Class I of 1,000 tons or over shall be provided with at least one international shore connection which shall comply with the requirements of Rule 56 of these Rules to enable water to be supplied from another ship or from the shore to the fire main, and fixed provision shall be made to enable such a connection to be used on the port side and on the starboard side of the ship.

SHIPS OF CLASS II

12. Rules 3 to 11 inclusive of these Rules shall apply to ships of Class II as they apply to ships of Class I.

SHIPS OF CLASS II(A) OF 70 FEET IN LENGTH OR OVER

13. Rule 3(1) and Rules 4 to 11 inclusive of these Rules shall apply to ships of Class II(A) of 70 feet in length or over as they apply to ships of Class I.

SHIPS OF CLASS II(A) OF LESS THAN 70 FEET IN LENGTH

Fire Pumps, Fire main, Water service pipes, Hydrants, Hoses and Nozzles

14. Every ship of Class II(A) of less than 70 feet in length shall be provided in a position outside the machinery spaces with a hand pump with a permanent sea connection, a hose with a $\frac{3}{8}$ inch diameter nozzle, capable of producing a jet of water having a throw of not less than 20 feet which can be directed on to any part of the ship, and a spray nozzle.

Portable fire extinguishers

15. Every ship of Class II(A) of less than 70 feet in length shall be provided with at least one portable fire extinguisher in each of the passenger spaces above the bulkhead deck, and with at least two such extinguishers in each of the crew spaces and of the passenger spaces below that deck. At least one portable fire extinguisher shall be available for use in any galley.

Machinery spaces containing Oil-fired boilers or oil burning equipment

16.—(1) In every ship of Class II(A) of less than 70 feet in length there shall be provided in any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit one or more foam fire extinguishers each of at least 10 gallons capacity or carbon dioxide extinguishers each of at least 35 lb capacity. The extinguisher, or extinguishers, shall be sited so as to be readily accessible in the event of fire and they shall be sufficient in number to enable foam or carbon dioxide to be directed on to any part of the boiler room or spaces containing any part of the oil fuel installation.

(2) In addition to the requirements of paragraph (1) of this Rule there shall be provided:—

- (a) in each firing space and in each space which contains any part of any oil fuel installation at least two portable fire extinguishers suitable for extinguishing oil fires;
- (b) in each firing space a receptacle containing at least 2 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

Machinery spaces containing Internal Combustion type machinery

17. Every ship of Class II(A) of 50 feet in length or over but of less than 70 feet in length shall be provided in each space containing internal combustion type propelling machinery with at least five portable fire extinguishers suitable for extinguishing oil fires, and every ship of Class II(A) of less than 50 feet in length shall be provided with at least three such portable fire extinguishers in such spaces.

SHIPS OF CLASS III OF 70 FEET IN LENGTH OR OVER

Fire pumps, Fire main, Water service pipes, Hydrants, Hoses and Nozzles

18.—(1) Every ship of Class III of 70 feet in length or over shall be provided with appliances in accordance with this Rule whereby at least one jet of water as

required by these Rules can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated and any store room and any part of any cargo space when empty.

(2) Every such ship shall be provided with at least one fire pump operated by power. Each such pump shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the ship and shall comply with the requirements of Rule 53 of these Rules.

(3) Every such ship fitted with oil-fired boilers or internal combustion type propelling machinery shall be provided with an additional fire pump which shall be permanently connected to the fire main but which shall not be required to be operated by power. Such pump and its source of power, if any, shall not be situated in the same compartment as the pump required by paragraph (2) of this Rule and shall be provided with a permanent sea connection situated outside the machinery space. If such pump is operated by power it shall comply with the requirements of paragraph (2) of this Rule and if it is manually operated it shall be capable of producing a jet of water having a throw of not less than 20 feet from nozzles provided in compliance with this Rule.

(4) Every such ship shall be provided with a fire main, water service pipes, hydrants, hoses and nozzles which shall comply with the requirements of Rules 54 and 55 of these Rules.

(5) Every such ship shall be provided with at least one fire hose for every hydrant fitted in compliance with these Rules.

(6) Every such ship fitted with oil-fired boilers or internal combustion type machinery shall be provided with at least one fire hydrant in each space containing such boilers or machinery. A spray nozzle shall be provided for every fire hose at every hydrant fitted in such spaces in compliance with these Rules.

Portable fire extinguishers

19. Every ship of Class III of 70 feet in length or over shall be provided with at least one portable fire extinguisher in each of the passenger spaces above the bulkhead deck, and with at least two such extinguishers in each of the crew spaces and of the passenger spaces below that deck. At least one portable fire extinguisher shall be available for use in any galley.

Machinery spaces containing Oil-fired boilers or oil burning equipment

20.—(1) In every ship of Class III of 70 feet in length or over there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit at least one of the following fixed fire extinguishing installations:—

- (a) a pressure water spraying system complying with the requirements of Rule 59 of these Rules;
- (b) a fire smothering gas installation complying with the requirements of Rule 60 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 61 of these Rules.

If the engine and boiler rooms are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler room into the engine room, the combined engine and boiler room shall for the purpose of this paragraph be regarded as a single space.

(2) In addition to the requirements of paragraph (1) of this Rule there shall be provided:—

- (a) in each boiler room two or more foam fire extinguishers each of at least 10 gallons capacity or carbon dioxide fire extinguishers each of at least 35 lb. capacity. The extinguishers shall be sited so as to be readily accessible in the event of fire and they shall be sufficient in number to enable foam or carbon dioxide to be directed on to any part of the boiler room or spaces containing any part of the oil fuel installation;
- (b) in each firing space and in each space which contains any part of any oil fuel installation at least two portable fire extinguishers suitable for extinguishing oil fires;
- (c) in each firing space a receptacle containing at least 5 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

Machinery spaces containing Internal Combustion type machinery

21.—(1) In every ship of Class III of 70 feet in length or over there shall be provided for the protection of any space containing internal combustion type machinery used for main propulsion, or having in the aggregate a total power of not less than 1,000 b.h.p. for auxiliary purposes, one of the fixed fire extinguishing installations required by Rule 20(1) of these Rules.

(2) In addition to the requirements of paragraph (1) of this Rule there shall be provided in any such space:—

- (a) one foam fire extinguisher of at least 10 gallons capacity or a carbon dioxide fire extinguisher of at least 35 lb. capacity;
- (b) one portable fire extinguisher suitable for extinguishing oil fires for each 1,000 b.h.p. or part thereof of the said machinery, but in no event less than two such extinguishers; provided that not more than six such extinguishers shall be required in any such space.

Firemen's outfits

22. Every ship of Class III shall carry one fireman's outfit for each 100 feet (or part thereof) of the registered length of the ship. Every such outfit shall comply with the requirements of Rule 63 of these Rules.

SHIPS OF CLASS III OF LESS THAN 70 FEET IN LENGTH

23.—Rules 14 to 17 inclusive of these Rules shall apply to ships of Class III of less than 70 feet in length as they apply to ships of Class II(A) of less than 70 feet in length.

SHIPS OF CLASS IV OF 70 FEET IN LENGTH OR OVER

24.—(1) Rules 18 and 19 of these Rules shall apply to ships of Class IV of 70 feet in length or over as they apply to ships of Class III of 70 feet in length or over.

(2) In every ship of Class IV of 70 feet in length or over there shall be provided in any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit, one or more foam fire extinguishers each of at least 30 gallons capacity or carbon dioxide extinguishers each of at least 100 lb. capacity. The extinguisher, or extinguishers, shall be sited so as to be readily accessible in the event of fire and they shall be sufficient in number to enable foam or carbon dioxide to be directed on to any part of the boiler room or spaces containing any part of the oil fuel installation.

(3) In addition to the requirements of paragraph (2) of this Rule there shall be provided:—

- (a) in each firing space and in each space which contains any part of any oil fuel installation at least two portable fire extinguishers suitable for extinguishing oil fires;
- (b) in each firing space a receptacle containing at least 5 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

(4) In every ship of Class IV of 70 feet in length or over there shall be provided in any space containing internal combustion type propelling machinery:—

- (a) one foam fire extinguisher of at least 10 gallons capacity or one carbon dioxide fire extinguisher of at least 35 lb. capacity;
- (b) one portable fire extinguisher suitable for extinguishing oil fires for each 1,000 b.h.p. or part thereof of the said machinery, but in no event less than two such extinguishers; provided that not more than six such extinguishers shall be required in any such space.

SHIPS OF CLASS IV OF LESS THAN 70 FEET IN LENGTH

25. Rules 14 to 17 inclusive of these Rules apply to ships of Class IV of less than 70 feet in length as they apply to ships of Class II(A) of less than 70 feet in length.

SHIPS OF CLASS V

FULLY-DECKED SHIPS

26.—(1) Rule 24 of these Rules shall apply to fully-decked ships of Class V of 70 feet in length or over as it applies to ships of Class IV of 70 feet in length or over.

(2) Rules 14 to 17 inclusive of these Rules shall apply to fully-decked ships of Class V of less than 70 feet in length as they apply to ships of Class II(A) of less than 70 feet in length.

SHIPS NOT FULLY-DECKED

27.—(1) Every ship of Class V which is not fully-decked shall be provided with:—

- (a) a receptacle containing an adequate quantity of sand or other dry material suitable for quenching oil fires;
- (b) a scoop for distributing the contents of the receptacle;
- (c) the number of portable foam fire extinguishers shown in the following table:—

| <i>Length of the ship</i> | <i>Number of foam extinguishers</i> |
|--|---|
| Not over 30 feet | 2 |
| Over 30 feet but not over 50 feet ... | 3 |
| Over 50 feet | 5 |

- (d) in the case of any ship of 40 feet in length or over, two fire buckets and in the case of any ship of less than 40 feet in length one fire bucket, unless the equipment required by paragraph (2) of this Rule is provided.

(2) Every ship of Class V which is not fully-decked but is decked in way of the machinery spaces shall be provided in a position outside such spaces with a hand pump, a hose with a $\frac{3}{8}$ inch diameter nozzle, capable of producing a jet of water having a throw of not less than 20 feet which can be directed on to any part of the ship, and a spray nozzle.

SHIPS OF CLASSES VI AND VI(A)

FULLY-DECKED SHIPS

28.—(1) Rule 24 shall apply to fully-decked ships of Classes VI and VI(A) of 70 feet in length or over as it applies to ships of Class IV of 70 feet in length or over.

(2) Rules 14 to 17 inclusive of these Rules shall apply to fully-decked ships of Classes VI and VI(A) of less than 70 feet in length as they apply to ships of Class II(A) of less than 70 feet in length.

SHIPS NOT FULLY-DECKED

29. Rule 27 of these Rules shall apply to ships of Classes VI and VI(A) which are not fully-decked as it applies to ships of Class V which are not fully-decked.

PART III—SHIPS OTHER THAN PASSENGER STEAMERS

SHIPS OF CLASS VII OF 500 TONS OR OVER

Fire pumps, Fire main, Water service pipes, Hydrants, Hoses and Nozzles

30.—(1) Every ship of Class VII of 500 tons or over shall be provided with appliances in accordance with this Rule whereby at least two jets of water as required by these Rules can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated, and any store room and any part of any cargo space when empty.

(2) (a) Every ship of Class VII of 1,000 tons or over shall be provided with at least two fire pumps operated by power. Each such pump shall be capable of delivering at least one jet simultaneously from each of any two fire hydrants, hoses and nozzles provided in the ship and shall comply with the requirements of Rule 53 of these Rules.

(b) Every ship of Class VII of 500 tons or over but under 1,000 tons shall be provided with at least two fire pumps operated by power each of which shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the ship and shall comply with the requirements of Rule 53 of these Rules.

(3) (a) If in any ship of Class VII of 500 tons or over a fire in any one compartment could put all the fire pumps out of action there shall be provided, in a position outside the machinery spaces, an independently driven power operated emergency fire pump and its source of power and sea connection, provided that in any such ship of under 1,000 tons the emergency fire pump may be manually operated.

(b) In every such ship of 1,000 tons or over the emergency fire pump shall be capable of producing at least two jets of water from any of the fire hydrants and hoses through nozzles which shall comply with Rule 55 (4)(b) of these Rules while simultaneously maintaining a pressure of at least 30 pounds per square inch at any hydrant in the ship.

(c) In every such ship of 500 tons or over but under 1,000 tons, the emergency fire pump shall be capable of producing from any of the fire hydrants and hoses

in the ship through a nozzle which shall comply with Rule 55 (4)(a) of these Rules a jet of water having a throw of not less than 40 feet.

(4) (a) In every ship of Class VII of 500 tons or over there shall be provided a fire main, water service pipes and hydrants which shall comply with the requirements of Rule 54 of these Rules.

(b) (i) Every such ship of 1,000 tons or over shall, in addition to any fire hoses provided in the machinery spaces, be provided with at least one fire hose for each 100 feet length of the ship but in no case less than five hoses and such hoses shall have a total length of at least 60 per cent of the length of the ship. In addition to such hoses there shall be provided one spare fire hose.

(ii) Every such ship of 500 tons or over but under 1,000 tons shall in addition to any fire hoses provided in the machinery spaces, be provided with at least two fire hoses having a total length of at least 60 per cent of the length of the ship and one spare fire hose.

(c) In every such ship of 500 tons or over fitted with oil-fired boilers or internal combustion type propelling machinery, there shall be provided in each space containing such boilers or machinery at least two fire hydrants one on the port side and one on the starboard side and in addition where there is access to the machinery space of any such ship by way of a shaft tunnel, a fire hydrant shall be provided in the tunnel at the end adjacent to that space. A fire hose and spray nozzle shall be provided at every such fire hydrant.

Portable fire extinguishers

31. Every ship of Class VII of 500 tons or over shall be provided with a sufficient number of portable fire extinguishers to ensure that at least one such extinguisher will be readily available for use in any part of the accommodation or service spaces. The number of such extinguishers shall not be less than five in a ship of 1,000 tons or over and not less than three in a ship of 500 tons or over but under 1,000 tons.

Fixed fire smothering arrangements in Cargo spaces

32.—(1) In every ship of Class VII of 2,000 tons or over there shall be provided a fixed fire smothering gas installation complying with the requirements of Rule 60 of these Rules which shall be so arranged as to protect every cargo space.

Provided that subject to the provisions of Rule 52(1) and Rule 60 of these Rules, steam may be substituted for fire smothering gas in any such installation and provided that in any tanker, a fixed installation discharging foam externally and through suitable mobile sprayers internally to the liquid cargo tanks and complying with the requirements of Rule 61(2) of these Rules may be substituted for the fixed fire smothering gas installation required by this Rule.

(2) The Board may exempt any ship from the requirements of the preceding paragraph to provide a fixed fire smothering gas or steam installation in the cargo holds of the ship, not being the tanks of a tanker, if they are satisfied that—

- (a) the holds therein are provided with steel hatch covers and effective means of closing all ventilators and other openings leading to the holds; or
- (b) the ship is constructed for, and employed solely in, the carriage of ore, coal or grain; or
- (c) to require compliance with the requirements of the aforesaid paragraph would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

Machinery spaces containing Oil-fired boilers or oil burning equipment

33.—(1) In every ship of Class VII of 500 tons or over there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit at least one of the following fixed fire extinguishing installations:—

- (a) a pressure water spraying system complying with the requirements of Rule 59 of these Rules;
- (b) a fire smothering gas installation complying with the requirements of Rule 60 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 61 of these Rules.

Provided that in any such ship of 500 tons or over but under 1,000 tons a fixed fire smothering steam installation complying with the requirements of Rule 60 of these Rules may be provided in lieu of any of the above installations.

If the engine room and boiler rooms are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler room into the engine room, the combined engine and boiler room shall for the purpose of this paragraph be regarded as a single space.

(2) In addition to the requirements of paragraph (1) of this Rule there shall be provided:—

- (a) in each boiler room one foam fire extinguisher of at least 10 gallons capacity or a carbon dioxide fire extinguisher of at least 35 lb. capacity if the number of burners therein is five or more. If the number of burners in the boiler room is less than five there shall be provided for each burner therein one portable fire extinguisher suitable for extinguishing oil fires;
- (b) in each firing space and in each space which contains any part of any oil fuel installation at least two portable fire extinguishers suitable for extinguishing oil fires, in addition to any which may be carried in compliance with the preceding sub-paragraph;
- (c) in each firing space a receptacle containing, in a ship of 1,000 tons or over, 10 cubic feet, or in a ship of 500 tons or over but under 1,000 tons, 5 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

(3) If in any ship of Class VII of 500 tons or over but under 1,000 tons a fixed fire smothering steam installation is fitted in compliance with the proviso contained in paragraph (1) of this Rule and steam is supplied by water-tube boilers there shall in addition be provided for the protection of the boiler room and spaces containing the oil fuel installation one foam fire extinguisher of at least 30 gallons capacity or a carbon dioxide fire extinguisher of at least 100 lb. capacity.

Machinery Spaces containing Internal Combustion type machinery

34.—(1) In every ship of Class VII of 500 tons or over there shall be provided for the protection of any space containing internal combustion type machinery used for main propulsion, or having in the aggregate a total power of not less than 1,000 b.h.p. for auxiliary purposes, at least one of the fixed fire extinguishing installations required by Rule 33(1) of these Rules.

Provided that in any such ship of 500 tons or over but under 1,000 tons a fixed fire smothering steam installation complying with the requirements of Rule 60 of these Rules may be provided in lieu of any of the said installations.

(2) In addition to the requirements of paragraph (1) of this Rule there shall be provided in any such space:—

(a) one foam fire extinguisher of at least 10 gallons capacity or a carbon dioxide fire extinguisher of at least 35 lb. capacity;

(b) one portable fire extinguisher suitable for extinguishing oil fires for each 1,000 b.h.p. or part thereof of such machinery but in no event less than two such extinguishers; provided that not more than six such extinguishers shall be required in any such space.

Machinery spaces containing Steam engines

35. In every ship of Class VII of 500 tons or over there shall be provided in spaces containing steam turbines or enclosed pressure lubricated steam engines used either for main propulsion, or having in the aggregate a total power of not less than 1,000 b.h.p. for auxiliary purposes:—

(a) foam fire extinguishers each of at least 10 gallons capacity or carbon dioxide fire extinguishers each of at least 35 lb. capacity sufficient in number to enable foam or carbon dioxide to be directed on to any part of the pressure lubrication system and on to any part of the casings enclosing pressure lubricated parts of the turbines, engines or associated gearing, if any.

Provided that such extinguishers shall not be required if equivalent protection is provided in such spaces by a fixed fire extinguishing installation fitted in compliance with Rule 33(1) or Rule 34(1) of these Rules;

(b) one portable fire extinguisher, for each 1,000 b.h.p. or part thereof of such machinery, suitable for extinguishing oil fires, but in no event less than two such extinguishers, provided that not more than six such extinguishers shall be required in any one such space and provided that such extinguishers shall not be required in addition to any provided in compliance with Rule 34(2) of these Rules.

Firemen's outfits

36.—(1) Every ship of Class VII of 500 tons or over shall carry firemen's outfits which shall comply with the requirements of Rule 63 of these Rules in accordance with the following scale:—

| <i>Tonnage of the ship</i> | <i>Number of outfits</i> |
|------------------------------|--------------------------|
| 500 but under 2,500 | 1 |
| 2,500 but under 4,000 | 2 |
| 4,000 and over... .. | 3 |

(2) At least one such outfit carried in any such ship shall include a breathing apparatus of the air hose type.

(3) If in any such ship which carries firemen's outfits containing only breathing apparatus of the air hose type an air hose exceeding 120 feet in length would be necessary to reach from the open deck well clear of any hatch or doorway to any part of the accommodation, service, cargo or machinery spaces, at least one breathing apparatus of the self-contained type shall be provided in addition.

International shore connection

37. Every ship of Class VII of 1,000 tons or over shall be provided with at least one international shore connection which shall comply with the requirements of Rule 56 of these Rules to enable water to be supplied from another ship or from the shore to the fire main, and fixed provision shall be made to enable such a connection to be used on the port side and on the starboard side of the ship.

SHIPS OF CLASS VII OF UNDER 500 TONS

38.—(1) This Rule applies to ships of Class VII of under 500 tons.

(2) (a) Every such ship shall be provided with appliances in accordance with this Rule whereby at least one jet of water as required by these Rules can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated, and any store room and any part of any cargo space when empty.

(b) Every such ship shall be provided with at least one fire pump operated by power which shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the ship, and which shall comply with the requirements of Rule 53 of these Rules.

(c) In every such ship fitted with oil-fired boilers or internal combustion type propelling machinery there shall be provided in a position outside the spaces containing such boilers or machinery an additional fire pump and its source of power and sea connection. If such pump is operated by power, it shall comply with the requirements of the preceding sub-paragraph and if it is manually operated, it shall be provided with a hose and $\frac{3}{8}$ inch diameter nozzle through which it shall be capable of producing a jet of water having a throw of not less than 20 feet which can be directed on to any part of the ship.

(d) In every such ship there shall be provided a fire main, water service pipes and hydrants which shall comply with the requirements of Rule 54 of these Rules and at least three fire hoses.

(e) In every such ship fitted with oil-fired boilers or internal combustion type propelling machinery there shall be provided a spray nozzle suitable for use with the fire hoses required by the preceding sub-paragraph.

(3) Every such ship shall be provided with at least three portable fire extinguishers so situated as to be readily available for use in the accommodation and service spaces.

(4) In every ship to which this Rule applies there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit at least one of the following fixed fire extinguishing installations:—

- (a) a pressure water spraying system complying with the requirements of Rule 59 of these Rules;
- (b) a fire smothering gas or steam installation complying with the requirements of Rule 60 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 61 of these Rules.

If the engine and boiler room are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler room into the engine room, the combined engine room and boiler room shall, for the purpose of this paragraph, be regarded as a single space.

(5) In addition to the requirements of paragraph (4) of this Rule there shall be provided:—

- (a) in each boiler room and in each space which contains any part of any oil fuel installation, at least two portable fire extinguishers suitable for extinguishing oil fires;
- (b) in each firing space, a receptacle containing at least 5 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

(6) In every ship to which this Rule applies there shall be provided in any space containing internal combustion type machinery one portable fire extinguisher suitable for extinguishing oil fires for each 100 b.h.p. or part thereof of such machinery, except that no more than seven such extinguishers shall be required in any one space and that alternatively there may be provided two such extinguishers together with either—

- (i) one foam fire extinguisher of at least 10 gallons capacity; or
- (ii) one carbon dioxide fire extinguisher of at least 35 lb. capacity.

(7) Every ship to which this Rule applies shall be provided with at least one fireman's outfit which shall comply with the requirements of Rule 63 of these Rules and which shall contain a breathing apparatus of the air hose type.

SHIPS OF CLASS VII(A)

39.—(1) Rules 30 to 37 inclusive of these Rules shall apply to every ship of Class VII(A) of 500 tons or over which is employed as a whale factory ship, or a fish processing or canning factory ship, or which is engaged in the carriage of persons engaged in the whaling, fish processing or canning industries, as they apply to ships of Class VII of 500 tons or over.

(2) Rules 45 to 49 inclusive of these Rules shall apply to ships of Class VII(A) other than those ships specified in paragraph (1) of this Rule as they apply to ships of Class X.

SHIPS OF CLASS VIII

SHIPS OF 1,000 TONS OR OVER

40. Rules 30 and 31 and Rules 33 to 37 inclusive of these Rules shall apply to ships of Class VIII of 1,000 tons or over as they apply to ships of Class VII of 1,000 tons or over. In addition Rule 32 shall apply to tankers of Class VIII of 2,000 tons or over.

SHIPS OF 500 TONS OR OVER BUT UNDER 1,000 TONS

41.—(1) This Rule applies to ships of Class VIII of 500 tons or over but under 1,000 tons.

(2) (a) Every ship to which this Rule applies shall be provided with appliances in accordance with this Rule whereby at least two jets of water as required by these Rules can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated and any store room and any part of any cargo space when empty.

(b) Every such ship shall be provided with at least two fire pumps operated by power one of which may be driven by the main engine. Each such pump shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the ship and shall comply with the requirements of Rule 53 of these Rules.

(c) If in any such ship fitted with oil-fired boilers or internal combustion type propelling machinery a fire in any one compartment could put all the fire pumps out of action, there shall be provided, in a position outside the machinery spaces, an emergency fire pump and its source of power and sea connection. Such pump may be operated by power or manually, and shall be capable of producing from any of the fire hydrants and hoses provided in the ship, through a nozzle which shall comply with Rule 55 (4) (a) of these Rules, a jet of water having a throw of not less than 40 feet.

(d) In every such ship there shall be provided a fire main, water service pipes and hydrants which shall comply with the requirements of Rule 54 of these Rules.

(e) Every such ship shall, in addition to any fire hose provided in the machinery spaces, be provided with at least two fire hoses having a total length of at least 60 per cent of the length of the ship and one spare fire hose.

(f) In every such ship fitted with oil-fired boilers or internal combustion type propelling machinery there shall be provided in each space containing such machinery at least one fire hydrant. A fire hose and spray nozzle shall be provided at every such hydrant.

(3) Every ship to which this Rule applies shall be provided with at least three portable fire extinguishers so situated as to be readily available for use in the accommodation and service spaces.

(4) In every ship to which this Rule applies there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit, at least one of the following fixed fire extinguishing installations:—

- (a) a pressure water spraying system complying with the requirements of Rule 59 of these Rules;
- (b) a fire smothering gas or steam installation complying with the requirements of Rule 60 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 61 of these Rules.

If the engine room and boiler rooms are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler room into the engine room, the combined engine room and boiler room shall, for the purpose of this paragraph, be regarded as a single space. If a fixed fire smothering steam installation is fitted in compliance with the requirements of sub-paragraph (b) of this paragraph and steam is supplied only by water-tube boilers there shall be provided for the protection of the boiler room and spaces containing the oil fuel installation one foam fire extinguisher of at least 30 gallons capacity or a carbon dioxide fire extinguisher of at least 100 lb. capacity.

(5) In addition to the requirements of paragraph (4) of this Rule there shall be provided:—

- (a) in each boiler room, if the number of burners therein is five or more, one foam fire extinguisher of at least 10 gallons capacity or a carbon dioxide fire extinguisher of at least 35 lb. capacity. If the number of burners is less than five there shall be provided for each burner therein one portable fire extinguisher suitable for extinguishing oil fires;
- (b) in each firing space, and in each space which contains any part of any oil fuel installation, at least two portable fire extinguishers suitable for extinguishing oil fires in addition to any such extinguishers which may be carried in compliance with the preceding sub-paragraph;
- (c) in each firing space, a receptacle containing at least 5 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

(6) In every ship to which this Rule applies there shall be provided in any space containing internal combustion type machinery used for main propulsion, or having in the aggregate a total power of not less than 250 b.h.p. for auxiliary purposes, one foam fire extinguisher of at least 10 gallons capacity or a carbon dioxide fire extinguisher of at least 35 lb. capacity.

(7) In every ship to which this Rule applies there shall be provided in any space containing internal combustion type machinery one portable fire extinguisher suitable for extinguishing oil fires for each 100 b.h.p. or part thereof of such machinery, provided that no more than six such extinguishers shall be required in any such space.

(8) Every ship to which this Rule applies shall be provided with at least one fireman's outfit which shall comply with the requirements of Rule 63 of these Rules, and which shall contain a breathing apparatus of the air hose type.

SHIPS OF 150 TONS OR OVER BUT UNDER 500 TONS

42.—(1) This Rule applies to ships of Class VIII of 150 tons or over but under 500 tons.

(2) (a) Every ship to which this Rule applies shall be provided with appliances in accordance with this Rule whereby at least one jet of water as required by these Rules can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated and any store room and any part of any cargo space when empty.

(b) Every such ship shall be provided with at least one fire pump operated by power which shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the ship and which shall comply with the requirements of Rule 53 of these Rules.

(c) In every such ship fitted with oil-fired boilers or internal combustion type propelling machinery, if the pump required by the preceding sub-paragraph and its source of power and sea connection are not situated outside spaces containing such boilers or machinery, there shall be provided in a position outside such spaces an additional fire pump and its source of power and sea connection. If such pump is operated by power, it shall comply with the requirements of the preceding sub-paragraph and if it is manually operated, it shall be provided with a hose and $\frac{3}{8}$ inch diameter nozzle through which it shall be capable of producing a jet of water having a throw of not less than 20 feet which can be directed on to any part of the ship.

(d) In every such ship there shall be provided a fire main, water service pipes and hydrants which shall comply with the requirements of Rule 54 of these Rules and at least two fire hoses.

(e) In every such ship fitted with oil-fired boilers or internal combustion type propelling machinery there shall be provided a spray nozzle suitable for use with the fire hoses required by the preceding sub-paragraph.

(3) Every ship to which this Rule applies shall be provided with at least two portable fire extinguishers so situated as to be readily available for use in the accommodation and service spaces.

(4) In every ship to which this Rule applies there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit at least one of the following fixed fire extinguishing installations:—

- (a) a pressure water spraying system complying with the requirements of Rule 59 of these Rules;
- (b) a fire smothering gas or steam installation complying with the requirements of Rule 60 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 61 of these Rules.

If the engine and boiler rooms are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler room into the engine room, the combined engine room and boiler room shall, for the purpose of this paragraph, be regarded as a single space.

(5) In addition to the requirements of paragraph (4) of this Rule, there shall be provided:—

(a) in each boiler room and in each space which contains any part of any oil fuel installation, at least two portable fire extinguishers suitable for extinguishing oil fires;

(b) in each firing space, a receptacle containing at least 5 cubic feet of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

(6) In every ship to which this Rule applies there shall be provided in any space containing internal combustion type machinery one portable fire extinguisher suitable for extinguishing oil fires for each 100 b.h.p. or part thereof of such machinery, except that no more than seven such fire extinguishers shall be required in any one space and that alternatively there may be provided two such extinguishers together with either—

(a) one foam fire extinguisher of at least 10 gallons capacity; or

(b) one carbon dioxide fire extinguisher of at least 35 lb. capacity.

(7) Every ship to which this Rule applies shall be provided with at least one fireman's axe.

SHIPS OF UNDER 150 TONS

43.—(1) This Rule applies to ships of Class VIII of under 150 tons.

(2) (a) Rule 42(2) of these Rules shall apply to every ship to which this Rule applies of 70 feet in length or over, except that the fire pump required by Rule 42(2)(b) may be driven by the main engine.

(b) Every ship to which this Rule applies of less than 70 feet in length shall be provided in a position outside the machinery spaces with a hand pump with a permanent sea connection, a hose with a $\frac{3}{8}$ inch diameter nozzle capable of producing a jet of water having a throw of not less than 20 feet which can be directed on to any part of the ship, and in addition a spray nozzle suitable for use with the hose, provided that in any ship of less than 30 feet in length or in any open ship of less than 70 feet in length, two fire buckets one of which shall be fitted with a lanyard may be substituted for such equipment but such buckets shall not be required in addition to buckets provided in compliance with paragraph (3) of this Rule.

(3) Every ship to which this Rule applies shall be provided with portable fire extinguishers or with fire buckets in accordance with the following table:—

| <i>Length of ship in feet</i> | <i>Minimum number of extinguishers or buckets</i> |
|-----------------------------------|---|
| Under 70 feet | 2 |
| 70 feet or over | 3 |

When fire buckets are provided at least one shall be fitted with a lanyard.

(4) In addition to the requirements of paragraph (3) of this Rule every ship to which this Rule applies which is fitted with oil-fired boilers or internal combustion type propelling machinery shall be provided with portable fire

extinguishers suitable for extinguishing oil fires in accordance with the following table:—

| <i>Length of ship in feet</i> | | | <i>Minimum number of extinguishers</i> |
|-----------------------------------|-----|-----|--|
| Under 20 feet | ... | ... | 1 |
| 20 feet or over | ... | ... | 2 |

(5) Every ship to which this Rule applies of 30 feet in length or over which is fitted with oil-fired boilers or internal combustion type propelling machinery shall, if it is mainly or wholly constructed of wood and is decked in way of the machinery space, be provided with means outside the space for rapidly injecting into the machinery space a quantity of fire smothering gas equivalent to at least 60 per cent of the gross volume of that space, or in the case of any such ship where the machinery space is bounded by steel bulkheads the quantity of fire smothering gas shall be equivalent to at least 40 per cent of the gross volume of the space; provided that in such a ship to which this Rule applies of less than 70 feet in length there may be substituted a water spraying system supplied from a hand pump and a permanent sea connection situated outside the machinery space which may be the hand pump and the sea connection referred to in paragraph (2)(b) of this Rule. Such pump shall be connected by fixed piping to a sufficient number of water spraying nozzles suitably sited in the machinery space and capable of extinguishing oil fires.

(6) Every ship to which this Rule applies being a fully-decked ship of 70 feet in length or over shall be provided with a fireman's axe.

SHIPS OF CLASS VIII(A), IX AND IX(A)

44.—(1) Rules 40 to 43 inclusive of these Rules shall apply to ships of Classes VIII(A), IX and IX(A) as they apply to ships of Class VIII.

(2) The Board may exempt any ship of Classes VIII(A) and IX(A), and any ship of Class IX which is under 500 tons or which is not engaged on an international voyage, from any of the requirements of these Rules.

SHIPS OF CLASS X

SHIPS OF 1,000 TONS OR OVER

45. Rules 30 and 31 and Rules 33 to 36 inclusive of these Rules shall apply to ships of Class X of 1,000 tons or over as they apply to ships of Class VII of 1,000 tons or over.

SHIPS OF 500 TONS OR OVER BUT UNDER 1,000 TONS

46. Rule 41 of these Rules shall apply to ships of Class X of 500 tons or over but under 1,000 tons as it applies to ships of Class VIII of 500 tons or over but under 1,000 tons.

SHIPS OF 150 TONS OR OVER BUT UNDER 500 TONS

47.—(1) Subject to the provisions of paragraph (2) of this Rule, Rule 42 of these Rules shall apply to ships of Class X of 150 tons or over but under 500 tons, as it applies to ships of Class VIII of 150 tons or over but under 500 tons.

(2) In every such ship of Class X mainly or wholly constructed of wood there shall be provided for the protection of the machinery space a fixed fire smothering gas installation complying with the requirements of Rule 60 of these Rules except that the quantity of fire smothering gas provided shall be equivalent to

at least 60 per cent of the gross volume of the machinery space, or in the case of any such ship where the machinery space is bounded by steel bulk heads the quantity of fire smothering gas shall be equivalent to at least 40 per cent of the gross volume of that space.

SHIPS OF UNDER 150 TONS

48. Rule 43 of these Rules shall apply to ships of Class X of under 150 tons as it applies to ships of Class VIII of under 150 tons.

49. The Board may exempt any ship of Class X from any of the requirements of these Rules.

SHIPS OF CLASS XI

50.—(1) Rules 40 to 43 inclusive of these Rules shall apply to ships of Class XI as they apply to ships of Class VIII.

(2) The Board may exempt any ship of Class XI from any of the requirements of these Rules.

SHIPS OF CLASS XII

51.—(1) Rules 40 to 42 inclusive of these Rules shall apply to ships of Class XII of 150 tons or over as they apply to ships of Class VIII of 150 tons or over.

(2) (a) Every ship of Class XII of under 150 tons and of 70 feet in length or over shall be provided with appliances in accordance with this Rule whereby at least one jet of water as required by these Rules can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated and any store room and any part of any cargo space when empty.

(b) Every such ship shall be provided with at least one fire pump operated by power which may be driven by the main engine and which shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the ship and which shall comply with the requirements of Rule 53 of these Rules.

(c) In every such ship fitted with oil-fired boilers or internal combustion type propelling machinery, if the pump required by the preceding sub-paragraph and its source of power and sea connection are not situated outside spaces containing such boilers or machinery, there shall be provided in a position outside such spaces an additional fire pump and its source of power and sea connection. If such pump is operated by power, it shall comply with the requirements of the preceding sub-paragraph and if it is manually operated, it shall be provided with a hose and $\frac{3}{8}$ inch diameter nozzle through which it shall be capable of producing a jet of water having a throw of not less than 20 feet which can be directed on to any part of the ship.

(d) In every such ship there shall be provided a fire main, water service pipes and hydrants which shall comply with the requirements of Rule 54 of these Rules and at least two fire hoses.

(e) In every such ship fitted with oil-fired boilers or internal combustion type propelling machinery there shall be provided a spray nozzle suitable for use with the fire hoses required by the preceding sub-paragraph.

(3) Every ship of Class XII of under 150 tons and of less than 70 feet in length shall be provided in a position outside the machinery spaces with a hand pump with a permanent sea connection, a hose with a nozzle at least $\frac{1}{4}$ inch in diameter capable of producing a jet of water having a throw of not less than 20 feet which can be directed on to any part of the ship, and in addition a spray nozzle suitable for use with the hose, provided that in any such ship of less than 50 feet

in length and in any open ship of less than 70 feet in length two fire buckets one of which shall be fitted with a lanyard may be substituted for such equipment but such buckets shall not be required in addition to buckets provided in compliance with paragraph (4) of this Rule.

(4) Every ship of Class XII of under 150 tons shall be provided with portable fire extinguishers or with fire buckets in accordance with the following table:—

| <i>Length of ship in feet</i> | | | <i>Minimum number of extinguishers or buckets</i> |
|-----------------------------------|-----|-----|---|
| Under 70 feet | ... | ... | 2 |
| 70 feet or over | ... | ... | 3 |

When fire buckets are provided at least one shall be fitted with a lanyard.

(5) In addition to the requirements of paragraph (4) of this Rule every ship of Class XII of under 150 tons which is fitted with oil-fired boilers or internal combustion type propelling machinery shall be provided with two portable fire extinguishers suitable for extinguishing oil fires.

(6) Every ship of Class XII of under 150 tons being a fully decked ship of 70 feet in length or over shall be provided with a fireman's axe.

(7) The Board may exempt any ship of Class XII from any of the requirements of these Rules.

PART IV—GENERAL

Additional requirements for ships carrying Explosives

52.—(1) Where any ship to which these Rules apply, other than a ship carrying more than 12 passengers, carries explosives of such nature or in such quantity as are not permitted to be carried in a passenger steamer by Rule 10(1) of the Merchant Shipping (Dangerous Goods) Rules 1965(a) steam shall not be used for fire smothering purposes in any compartment containing explosives and in any such compartment containing explosives and in every adjacent cargo compartment there shall be provided a fire detection system complying with the requirements of Rule 62 of these Rules or a smoke detection system.

(2) For the purposes of this Rule, "compartment" means all spaces contained between two adjacent permanent bulkheads and includes the lower hold and all cargo spaces above it. The whole of any shelter deck space not subdivided by steel bulkheads the openings in which can be closed by steel closing plates shall for the purpose of this Rule be considered as a single space. Where steel bulkheads with openings closed by steel closing plates are fitted, the enclosed spaces in the shelter deck shall be considered as part of the compartment or compartments below.

Fire pumps

53.—(1) (a) In every passenger steamer to which these Rules apply which is required by these Rules to be provided with fire pumps operated by power, such fire pumps (other than any emergency fire pump) shall together be capable of delivering for fire fighting purposes a quantity of water, under the conditions and at the pressure specified in Rule 54 of these Rules, of not less than two thirds of the quantity required to be dealt with by the bilge pumps provided in the ship in compliance with Part III of the Merchant Shipping (Passenger Ship Construction) Rules 1965.

(b) In every ship, other than a passenger steamer, to which these Rules apply which is required by these Rules to be provided with fire pumps operated by power, such fire pumps (other than any emergency fire pump) shall together be

(a) S.I. 1965/1067.

capable of delivering for fire fighting purposes a quantity of water, under the conditions and at the pressure specified in Rule 54 of these Rules, which shall not be less than the quantity obtained from the following formula:—

$$\text{Quantity of water in tons per hour} = Cd^2$$

Where:—

- (i) $C = 5$ for ships required to be provided with more than one fire pump (excluding any emergency fire pump) and $C = 2.5$ for ships required to be provided with only one fire pump, and

(ii) $d = 1 + \sqrt{\frac{L(B + D)}{2500}}$ to the nearest $\frac{1}{4}$

where

L = length of the ship in feet on the summer load waterline from the foreside of the stem to the afterside of the rudder post. Where there is no rudder post, the length is measured from the foreside of the stem to the axis of the rudder stock. For ships with cruiser sterns, the length shall be taken as 96 per cent of the total length on the designed summer load waterline or as the length from the foreside of the stem to the axis of the rudder stock if that be the greater;

B = greatest moulded breadth of the ship in feet; and

D = moulded depth of the ship in feet measured to the bulkhead deck amidships;

Provided that in any such ship the total capacity of the fire pumps for fire fighting purposes shall not be required to exceed 180 tons per hour.

(2) Every fire pump required by these Rules to be operated by power shall, except as expressly provided otherwise in these Rules, be operated by a means other than the ship's main engines. Fire pumps provided in compliance with these Rules may be sanitary, ballast, bilge or general service pumps provided that they are not normally used for pumping oil and that if they are subject to occasional duty for the transfer or pumping of oil, suitable change-over arrangements are fitted and operating instructions are conspicuously displayed at the change-over position.

(3) (a) In every ship to which these Rules apply which is required by these Rules to be provided with more than one fire pump operated by power (other than any emergency pump) every such fire pump shall have a capacity of not less than 80 per cent of the total capacity of the fire pumps required by paragraph (1) of this Rule divided by the number of fire pumps required by these Rules to be provided in the ship, provided that when more fire pumps operated by power than are required by these Rules are provided in any ship, the Board may permit the capacity of any such additional fire pumps to be less than 80 per cent.

(b) Every fire pump required by these Rules which is operated by power shall be capable of producing from any fire hydrant or hydrants in the ship, at least the minimum number of jets of water required by these Rules as appropriate to the class and tonnage of the ship, while maintaining the pressure required by Rule 54(2) of these Rules.

(4) Relief valves shall be provided in conjunction with all fire pumps if the pumps are capable of developing a pressure exceeding the design pressure of the fire main, water service pipes, hydrants and hoses. Such valves shall be so placed and adjusted as to prevent excessive pressure in any part of the fire main system.

(5) Every centrifugal pump which is connected to the fire main shall be fitted with a non-return valve.

(6) In every ship of Class I, II or II(A) to which these Rules apply, any emergency fire pump shall be situated in positions aft of the ship's collision bulkhead.

Fire main, Water service pipes and Hydrants

54.—(1) In every ship which is required by these Rules to be provided with fire pumps operated by power, the diameter of the fire main and of the water service pipes connecting the hydrants thereto shall be sufficient for the effective distribution of the maximum discharge required by these Rules from—

- (a) where only one pump is required by the Rules that pump, or
- (b) where two such pumps are so required both pumps operating simultaneously, or
- (c) where more than two such pumps are so required the two largest of such pumps operating simultaneously;

provided that in any ship other than a passenger steamer the diameter of the fire main and of the water service pipes shall be required to be sufficient only for the discharge of 140 tons per hour.

(2) When the fire pumps required by these Rules are discharging the quantity of water required by paragraph (1) of this Rule through adjacent fire hydrants in any part of the ship from nozzles of sizes specified in Rule 55 of these Rules the following minimum pressure shall be capable of being maintained at any hydrant:—

- (a) in any passenger steamer,
 - (i) of 4,000 tons and upwards—
45 pounds per square inch; or
 - (ii) of 1,000 tons and upwards but under 4,000 tons—
40 pounds per square inch; or
 - (iii) of under 1,000 tons—
30 pounds per square inch;
- (b) in any ship other than a passenger steamer,
 - (i) of 6,000 tons and upwards—
40 pounds per square inch; or
 - (ii) of 1,000 tons and upwards but under 6,000 tons—
37 pounds per square inch; or
 - (iii) of under 1,000 tons—
30 pounds per square inch.

(3) (a) Where any ship is required by these Rules to provide two jets of water under the conditions required by these Rules, hydrants sufficient in number shall be so positioned as to enable at least two jets of water not emanating from the same hydrant, one of which shall be from a single length of hose, to reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated, and to any store room and any part of any cargo space when empty.

(b) Where any ship is required by these Rules to provide one jet of water under the conditions required by these Rules, hydrants sufficient in number shall be so positioned as to enable one jet of water from a single length of hose to reach any part of the ship normally accessible to the passengers or crew while

the ship is being navigated, and any store room and any part of any cargo space when empty.

(4) (a) The fire main shall have no connections other than those necessary for fire-fighting and washing down.

(b) Materials readily rendered ineffective by heat shall not be used for fire mains unless adequately protected. The pipes and fire hydrants shall be so placed that the fire hoses may be easily coupled to them. In ships which may carry deck cargo the fire hydrants shall be so placed that they are always readily accessible and the pipes shall be arranged as far as practicable to avoid risk of damage by such cargo. Unless there is provided one fire hose and nozzle for each fire hydrant in the ship there shall be complete interchangeability of fire hose couplings and nozzles.

(c) Valves of the screw lift type or cocks shall be fitted in such positions on the pipes that any of the fire hoses may be removed while the fire pumps are at work.

(d) The water pipes shall not be made of cast iron, and if made of iron or steel shall be galvanised.

(e) Where wash deck lines are not self-draining suitable drain cocks shall be fitted to avoid damage by frost.

Fire hoses, Nozzles, etc.

55.—(1) Fire hoses provided in compliance with these Rules shall not exceed 60 feet in length except that in ships having a moulded breadth of 90 feet or more the length of the fire hoses for exterior locations and for cargo spaces shall not exceed 90 feet in length. Such hoses shall be made of closely woven flax canvas or other suitable material and shall be provided with couplings, branch-pipes and other necessary fittings, and with a plain nozzle in addition to any spray nozzle required by these Rules.

(2) Every fire hose provided in compliance with these Rules, together with the tools and fittings necessary for its use, shall be kept in a conspicuous position near the hydrants or connections with which it is intended to be used.

(3) Except in partially decked ships of Classes V, VI and VI(A) and in ships of Classes X and XII fire hoses provided in compliance with these Rules shall not be used for any purpose other than extinguishing fire or testing with fire appliances.

(4) (a) Every ship which is required by these Rules to be provided with fire pumps operated by power shall be provided with nozzles of $\frac{1}{2}$ inch, $\frac{5}{8}$ inch or $\frac{3}{4}$ inch in diameter or as near thereto in diameter as possible. Nozzles larger in diameter may be provided if the requirements of these Rules relating to the provision of water for fire fighting purposes are otherwise complied with.

(b) For machinery spaces and exterior locations the diameter of the nozzles shall be such as to obtain the maximum possible discharge from the minimum number of jets of water and at the pressure required by these Rules from the smallest fire pump permitted by Rule 53(3) (a) of these Rules; provided that the diameter of the nozzles shall not be required to be greater than $\frac{3}{4}$ inch.

(c) For accommodation and service spaces the diameter of the nozzles shall not be required to be greater than $\frac{1}{2}$ inch.

(d) Every spray nozzle provided in compliance with these Rules shall be capable of producing a water spray suitable for extinguishing oil fires and shall be provided in addition to any plain nozzle required by paragraph (1) of this Rule; provided that a dual-purpose nozzle capable of producing alternately such a spray and a plain water jet may be provided in substitution.

International shore connection

56. Any international shore connection provided in compliance with these Rules shall be constructed in accordance with the requirements of Schedule 2 to these Rules.

Fire extinguishers

57.—(1) Non-portable foam and carbon dioxide fire extinguishers provided in compliance with these Rules shall be constructed in accordance with the requirements of Schedules 3 and 4 to these Rules respectively.

(2) (a) Portable fire extinguishers (other than carbon dioxide fire extinguishers) provided in compliance with these Rules shall, if they are of a type discharging fluid, have a capacity of not more than 3 and not less than 2 imperial gallons.

(b) Portable carbon dioxide fire extinguishers provided in compliance with these Rules shall have a capacity of not less than 7 lb. of carbon dioxide.

(c) Portable dry powder fire extinguishers provided in compliance with these Rules shall have a capacity of not less than 10 lb. of dry powder.

(d) Portable fire extinguishers of other types provided in compliance with these Rules shall be of not less than the fire extinguishing equivalent of a 2 gallon fluid fire extinguisher.

(e) Portable fire extinguishers provided in compliance with these Rules shall not exceed 56 lb. in weight in the fully charged service condition and shall be as portable as a 3 gallon fluid fire extinguisher.

(3) Portable fire extinguishers provided in compliance with these Rules for use in accommodation or service spaces of any ship shall so far as practicable have a uniform method of operation.

(4) Portable fire extinguishers provided in compliance with these Rules shall, subject to the limitations of paragraphs (2) and (3) of this Rule, be constructed in accordance with the following specifications of the British Standards Institution:—

| <i>Type of Extinguisher</i> | <i>Specification Number</i> |
|---------------------------------|-----------------------------|
| Water type (Soda-acid) | B.S. 138: 1948. |
| Water type (Gas-pressure)... .. | B.S. 1382: 1948. |
| Foam type (Chemical) | B.S. 740: Part 1: 1948. |
| Foam type (Gas-pressure)... .. | B.S. 740: Part 2: 1952. |
| Carbon dioxide | B.S. 3326: 1960. |
| Dry powder | B.S. 3465: 1962. |

(5) Where portable dry powder fire extinguishers are provided in compliance with these Rules in either accommodation and service spaces or in machinery spaces their number shall not exceed one half of the total number of extinguishers provided in either of those spaces.

(6) Fire extinguishers provided for use in any ship to which these Rules apply shall not contain an extinguishing medium which either itself or when in use gives off gases harmful to persons.

(7) For the purposes of these Rules the capacity of any fire extinguisher other than a carbon dioxide fire extinguisher shall be taken to be the greatest volume or weight of extinguishing medium which it can contain when sufficient space is left to ensure the proper operation of the extinguisher.

(8) For the purposes of these Rules the capacity of a carbon dioxide fire extinguisher shall be taken to be the greatest weight of carbon dioxide which it can safely contain in a tropical climate.

(9) Every fire extinguisher provided in compliance with these Rules shall be kept fully charged at all times.

(10) A spare charge shall be provided for every portable fire extinguisher provided in compliance with these Rules, except that for each such fire extinguisher which is of a type that cannot readily be recharged while the ship is at sea, an additional portable fire extinguisher of the same type, or its equivalent, shall be provided in lieu of a spare charge.

Fire buckets

58.—(1) Every fire bucket provided in compliance with these Rules shall be painted red and shall be clearly and permanently marked with the word " FIRE ". Except in open ships every such fire bucket shall be kept filled with sand or water.

(2) Except in open ships fire buckets provided in compliance with these Rules shall not be used for any purpose other than extinguishing fire.

Fixed pressure Water spraying systems for machinery spaces

59.—(1) Every fixed pressure water spraying system fitted in compliance with these Rules shall be provided with a pump, piping system, control valves, and spraying nozzles.

(2) The spraying nozzles shall be of such a type, sufficient in number and so arranged as to ensure distribution of water spray such as will effectively extinguish oil on fire in the spaces protected thereby. Spraying nozzles shall be fitted above bilges, tank tops and other areas over which oil fuel is liable to spread and above other main fire hazards in the spaces to be protected.

(3) The water spraying system may be divided into sections and shall be controlled from distribution manifolds the valves of which shall be capable of being operated from easily accessible positions outside the spaces to be protected and which will not be readily cut off by an outbreak of fire.

(4) The water spraying system shall be kept charged at the necessary pressure and the pump supplying the water for the system shall be automatically put into action by a pressure drop in the system.

(5) The pump shall be capable of supplying water at the necessary pressure simultaneously to all sections of the water spraying system in any one compartment to be protected. The pump and its controls shall be installed outside the space or spaces to be protected. It shall not be possible for a fire in the space or spaces protected by the water spraying system to put the system out of action.

(6) Means shall be provided which will prevent nozzles from becoming clogged by impurities in the water or corrosion of piping, nozzles, valves and pump.

(7) The water spraying system shall include mobile sprayers ready for immediate use in the firing area of the boiler or in the vicinity of the oil fuel unit.

(8) No part of the water spraying system shall be situated forward of the collision bulkhead in any passenger steamer.

(9) Operating instructions in clear and permanent lettering shall be affixed to every water spraying system or in a position adjacent thereto.

Fixed Fire Smothering Gas and Steam installations

60.—(1) This Rule applies to every fixed fire smothering gas or steam installation fitted in compliance with these Rules other than an installation fitted in a ship of Class VIII or of Class X of under 150 tons in compliance with Rule 43(5) of these Rules.

(2) In every such installation provided for the injection of gas or steam into machinery or cargo spaces for fire extinguishing purposes, the pipes for conveying the gas or steam shall be provided with control valves or cocks which shall be so placed that they will be easily accessible and not readily cut off from use by an outbreak of fire. Such control valves or cocks shall be permanently marked to indicate clearly the compartments to which the pipes are led. Suitable provision shall be made to prevent inadvertent admission of the gas or steam to any compartment. Where cargo spaces fitted with a gas or steam smothering system for fire protection are used as passenger spaces the smothering gas or steam pipe connection shall be blanked during service as a passenger space.

(3) (a) The piping shall be so arranged as to provide effective distribution of fire smothering gas or steam. Where steam is used in any hold exceeding 60 feet in length there shall be at least two pipes one of which shall be fitted in the forward part and one in the after part of the hold. Except in tankers and ships used for the conveyance of coal, pipes for conveying steam shall be fitted with outlets as low as practicable in the space which they serve and as nearly as possible to the centre line of the space.

(b) In tankers the piping shall be so arranged that the steam or fire smothering gas will be distributed over the surface of the cargo.

(4) (a) When carbon dioxide is used as the extinguishing medium in cargo spaces, the quantity of gas available shall be sufficient to give a minimum volume of free gas equal to 30 per cent of the gross volume of the largest cargo compartment in the ship which is capable of being sealed.

(b) When carbon dioxide is used as an extinguishing medium for spaces containing boilers or machinery, the quantity of gas carried shall be sufficient to give a minimum quantity of free gas equal to the larger of the following quantities, either

- (i) 40 per cent of the gross volume of the largest space containing boilers or machinery, such volume being measured up to the level at which the horizontal area of the casing is 40 per cent or less of the gross area of such space; or
- (ii) 35 per cent of the gross volume of the largest space containing boilers or machinery, including the casing;

provided that the aforesaid percentages may be reduced to 35 per cent and 30 per cent respectively for ships of under 2,000 tons, not being passenger ships, and provided that if two or more spaces containing boilers or machinery are not entirely separate they shall for the purposes of this Rule be considered as forming one compartment.

(c) When carbon dioxide is used as the extinguishing medium for a space containing any oil-fired boiler or oil fuel installation, a quantity of gas which can be discharged without danger to the operator shall be available for manual application, by means of a suitable applicator, in the firing area of the boiler and in the vicinity of the oil fuel unit.

(d) When carbon dioxide is used as the extinguishing medium both for cargo spaces and for spaces containing boilers or machinery the quantity of gas shall

not be required to be more than the maximum required either for the largest cargo compartment or machinery space.

(e) For the purpose of this paragraph the volume of gas shall be calculated at 9 cubic feet to the pound.

(f) When carbon dioxide is used as the extinguishing medium for any space containing boilers or machinery the fixed piping system shall be such that 85 per cent of the gas required to provide the concentration referred to in sub-paragraph (b) of this paragraph when applied to the space concerned can be discharged into that space within two minutes.

(g) Means shall be provided for giving audible warning to persons within the space when carbon dioxide other than that specified in sub-paragraph (c) of this paragraph is about to be released into any working space.

(5) When a system producing inert gas is used to provide smothering gas in a fixed fire smothering installation for cargo spaces, it shall be capable of producing hourly a volume of free gas at least equal to 25 per cent of the gross volume of the largest compartment protected in this way for a period of 72 hours.

(6) When steam is used as the extinguishing medium in cargo spaces the boiler or boilers available for supplying steam shall have an evaporation of at least 1 pound of steam per hour for each 12 cubic feet of the gross volume of the largest cargo compartment. The arrangements shall be such that steam will be available immediately and will not be dependent on the lighting of boilers and that it can be supplied continuously until the end of the voyage in the quantity required by this paragraph in addition to any steam necessary for the normal requirements of the ship including propulsion and that provision is made for extra feed water necessary to meet this requirement.

(7) No part of the control, storage or generating arrangement of any fixed fire smothering gas or steam installation shall be situated forward of the collision bulkhead in any passenger steamer.

(8) Operating instructions in clear and permanent lettering shall be affixed to every fixed fire smothering gas installation or in a position adjacent thereto.

Fixed Foam fire extinguishing installations

61.—(1) Every fixed foam fire extinguishing installation fitted in compliance with these Rules shall be capable of discharging through fixed discharge outlets in not more than 5 minutes, a quantity of foam sufficient to cover to a depth of 6 inches the largest single area over which oil fuel is liable to spread. Such installation shall be capable of generating foam suitable for extinguishing oil fires and means shall be provided for the effective distribution of the foam through a permanent system of piping and control valves or cocks to discharge outlets, and for the foam to be effectively directed by fixed sprayers on other main oil fire hazards in the protected space either simultaneously or separately. Such installation shall include mobile sprayers ready for immediate use in the firing area of the boiler and in the vicinity of the oil fuel unit.

(2) Every fixed foam fire extinguishing installation fitted in lieu of a fixed fire smothering gas installation required by these Rules to be provided in the oil cargo spaces of any tanker shall be capable of distributing on the decks over the oil cargo tanks through fixed discharge outlets in not more than 15 minutes a quantity of foam sufficient to cover to a depth of at least 2 inches the whole of the tank deck area. Such installation shall be capable of generating foam suitable for extinguishing oil fires and means shall be provided for the effective distribution of the foam through a permanent system of piping and control valves or cocks to discharge outlets. There shall be sufficient mobile foam

sprayers capable of being connected to the installation whereby foam can be directed into any tank.

For the purpose of this paragraph, " tank deck area " means an area equivalent to the extreme length of the cargo tanks multiplied by the breadth of the ship.

(3) Every fixed foam fire extinguishing installation shall be so arranged that a fire in any of the spaces it protects will not render the controls inaccessible nor put the installation out of action.

(4) Operating instructions in clear and permanent lettering shall be affixed to every fixed foam fire extinguishing installation or in a position adjacent thereto.

Fire Detection systems

62.—(1) Every fire detection system fitted in compliance with these Rules shall be capable of automatically indicating the presence or indication of fire and its location. The indicators shall be centralised either on the navigating bridge or at other control stations which are provided with direct communication with the navigating bridge, provided that the Board may in any ship permit the indicators to be distributed among several stations if they are satisfied that such arrangements are at least as effective as if the indicators were so centralised.

(2) In any passenger steamer electrical equipment used in the operation of any fire detection system fitted in compliance with these Rules shall be capable of being supplied from two sources of electric power one of which shall be the emergency source of power required by Rule 40 of the Merchant Shipping (Passenger Ship Construction) Rules 1965.

(3) The indicating system of any fire detection system fitted in compliance with these Rules shall operate both audible and visible alarms at the stations referred to in paragraph (1) of this Rule.

Firemen's outfits

63.—(1) Every fireman's outfit carried in compliance with these Rules shall consist of:—

- (a) a breathing apparatus complying with the requirements specified in Schedule 5 to these Rules;
- (b) a portable self-contained electric battery-operated safety lamp capable of functioning efficiently for a period of at least three hours; and
- (c) a fireman's axe.

(2) Where more than one such outfit is provided they shall be kept in readily accessible and widely separated positions which are not likely to be cut off in the event of fire.

Means for Stopping machinery, Shutting off oil fuel suction pipes and Closing of openings

64.—(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 which shall 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, a valve shall be fitted on the tank but an additional 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.

Fire Control plans

65.—(1) In every ship of Classes I and II and in every ship of Class II(A) of 70 feet in length or over there shall be permanently exhibited for the guidance of the master and officers of the ship general arrangement plans showing clearly for each deck the position of the control stations, the sections of the ship which are enclosed by fire resisting bulkheads, the sections of the ship which are enclosed by fire retarding bulkheads, together with particulars of the fire alarms, fire detection systems, the sprinkler installations, the fixed and portable fire extinguishing appliances and firemen's outfits, the means of access to the various compartments and decks in the ship, the ventilating system including particulars of the master fan controls, the position of dampers and identification numbers of the ventilating fans serving each section of the ship, the location of the international shore connection and the position of all means of control referred to in Rule 64 of these Rules.

(2) In every ship of 500 tons or over, other than a ship of Class I or II or a ship of Class II(A) of 70 feet in length or over, there shall be permanently exhibited for the guidance of the master and officers of the ship general arrangement plans showing clearly the information referred to in paragraph (1) of this Rule where it is applicable to the ship.

(3) The general arrangement plans required by this Rule shall be kept up-to-date, any alterations being recorded thereon without delay.

Availability of fire fighting appliances

66. Fire appliances carried in any ship to which these Rules apply shall be maintained in good order and shall be kept available for immediate use at all times. All moveable fire appliances, other than firemen's outfits, carried in compliance with these Rules shall be stowed where they will be readily accessible from the spaces in which they are intended to be used, and, in particular, one of the portable fire extinguishers intended for use in any space shall be stowed near the entrance to that space.

Equivalents and Exemptions

67.—(1) Where these Rules require that a particular fitting, material, appliance or apparatus, or type thereof, shall be fitted or carried in a ship, or that any particular provision shall be made, the Board may allow any other fitting, material, appliance or apparatus, or type thereof, to be fitted or carried, or any

other provision to be made in that ship, if they are satisfied that that other fitting, material, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by these Rules.

(2) The Board may, on such conditions as they think fit, exempt any ship constructed before the coming into operation of these Rules from any of the requirements of these Rules if they are satisfied that that requirement is either impracticable or unreasonable in the case of that ship.

Roy Mason,
Minister of State,
Board of Trade.

11th May 1965.

Rule 2 SCHEDULE 1
LIMITS OF SMOOTH WATER AND PARTIALLY SMOOTH WATER AREAS

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|----------------------------|--|---|
| Shetland Isles:— | | |
| Blue Mull Sound | — | Between Gutcher and Belmont. |
| Yell Sound | — | Between Tofts Voe and Ulsta. |
| Lerwick | — | In winter in the area bounded by a line from Point of Scotland to Heogan to the northward, and from Holm of Mel to the lighthouse situated some 3 cables to the eastward of the Nabb to the southward. In summer in the area bounded by a line from Easter Rova Head to Score Head to the northward, and from the south end of Ness of Sound to Kirka-bisterness to the southward. |
| Orkney Isles:— | | |
| Kirkwall | — | Between Kirkwall and Rousay not east of a line between Point of the Grand (Egilsay) and Galt Ness (Shapinsay) or between Work Head (Mainland) through Helliars Holm light to the shore of Shapinsay; not north west of the south east tip of Eynhallow Island, or north of the southern tip of Holm of Scockness. |
| Stromness | — | To Scapa but not outside Scapa Flow. |
| Scotland E. Coast:— | | |
| Cromarty | In Cromarty Firth within a line between North Sutor and South Sutor. | Within a line from North Sutor to Nairn Breakwater. |

* The outer limits of the smooth water areas specified in the second column of this Schedule shall be taken to be the corresponding inner limits of the partially smooth water areas specified in the third column of this Schedule.

† Unless otherwise indicated these limits apply at all times of the year. In this Schedule "summer" means the months of April to October, inclusive, and "winter" means the months of November to March, inclusive.

SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|---|---|---|
| Inverness | Within a line from Fort George to Chanonry Point to Fort William. | Within a line from North Sutor to Nairn Breakwater. |
| Aberdeen | Within a line from South Jetty to Abercromby Jetty. | No partially smooth waters. |
| Dundee | Within a line from Fish Dock, Dundee to Craig Head, East Newport. | Within a line from Broughty Castle to Tayport. |
| Queensferry | Within the Firth of Forth but not east of the Forth railway bridge. | Within a line from Kirkcaldy to Portobello. |
| Leith | Within the Breakwaters. | Within a line from Kirkcaldy to Portobello. |
| England E. Coast:— Berwick-on-Tweed | Within a line from Spittal Point to the inner end of Breakwaters. | No partially smooth waters. |
| Amble | Within the Breakwaters. | No partially smooth waters. |
| Blyth | Within the Pier Heads. | No partially smooth waters. |
| Newcastle, North and South Shields | Within the Tyne Pier Heads. | No partially smooth waters. |
| Sunderland | Within the Sunderland Pier Heads. | No partially smooth waters. |
| Hartlepool, East | Within the Breakwaters. | No partially smooth waters. |
| Stockton, Middlesbrough | Not eastward of No. 8 Beacon. | No partially smooth waters. |
| Whitby | Within Whitby Pier Heads. | No partially smooth waters. |
| Hull | — | In winter within a line from New Holland to Paull. In summer within a line from Cleethorpes Pier to Patrington Church. |

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SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|---|---|--|
| Goole | Within a line from North Ferriby to South Ferriby. | In winter within a line from New Holland to Paull. In summer within a line from Cleethorpes to Patrington Church. |
| Grimsby | — | In winter no partially smooth waters. In summer within a line from Cleethorpes Pier to Patrington Church. |
| Boston | Inside the New Cut. | No partially smooth waters. |
| Wisbech | Inside Wisbech Cut. | No partially smooth waters. |
| King's Lynn | Inside Lynn Cut. | No partially smooth waters. |
| Yarmouth and Lowestoft | On all inland navigation within the Harbour Entrances at Yarmouth or Lowestoft. | No partially smooth waters. |
| Woodbridge | On the River Deben to the Mouth. | No partially smooth waters. |
| Harwich, Ipswich or Felixstowe Railway Pier | On the River Orwell or on the River Stour, and within a line from Dovercourt Breakwater to Landguard Point. | No partially smooth waters. |
| Maldon | On the River Blackwater within a line from West Mersea Point to Sales Point. | In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable. |
| Burnham-on-Crouch | On the River Crouch within a line from Hollywell Point to Foulness Point. | In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable. |
| London | River Thames, westward of a N/S line through P.H.A. Isolation Hospital, Gravesend. | In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable. |

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SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|-----------------------------|--|--|
| Rochester | Sheerness and Whitstable inside Sheppey. | In summer within a line from Clacton Pier to Reculvers. In winter within a line from Colne Point to Whitstable. |
| England S. Coast Dover | Within a line drawn across the East and West entrances to the Harbour. | No partially smooth waters. |
| Rye | On the River Rother above Coastguard Cottages. | No partially smooth waters. |
| Littlehampton | On the River Arun above Littlehampton Pier. | No partially smooth waters. |
| Chichester | Within a line drawn between Eastoke Point and West Wittering (Tower). | No partially smooth waters. |
| Langston Harbour | Within a line drawn between Eastney Point and Gunner Point. | Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge, to the eastward, and the Needles and Hurst Point to the westward. |
| Portsmouth | Within Portsmouth Harbour. | Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge, to the eastward, and the Needles and Hurst Point to the westward. |
| Bembridge, Isle of Wight | Within Brading Harbour. | Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge, to the eastward, and the Needles and Hurst Point to the westward. |

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† Unless otherwise indicated these limits apply at all times of the year. In this Schedule "summer" means the months of April to October, inclusive, and "winter" means the months of November to March, inclusive.

SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|----------------------|---|--|
| Cowes, Isle of Wight | The River Medina within a line joining East and West Cowes | Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge, to the eastward, and the Needles and Hurst Point to the westward. |
| Southampton | Within a line from Calshot Castle to Hook Beacon. | Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge, to the eastward, and the Needles and Hurst Point to the westward. |
| Beaulieu | Within Beaulieu River not eastward of a N/S line through Needs Oar Point. | Inside the Isle of Wight within an area bounded by lines drawn between Gunner Point and Trinity Church, Bembridge, to the eastward and the Needles and Hurst Point to the westward. |
| Christchurch | Within Christchurch Harbour excluding the Run. | No partially smooth waters. |
| Poole | Inside the Harbour not seaward of the line of the Chain Ferry between Sandbanks and S. Haven Point. | No partially smooth waters. |
| Weymouth | — | Within Portland Harbour and between River Wey and Portland Harbour. |
| Exeter | Within a line from Warren Point to the Coastguard Flag Staff at Exmouth. | No partially smooth waters. |
| Teignmouth | Within the Harbour. | No partially smooth waters. |
| Dartmouth | River Dart within a line from Kettle Point to Battery Point. | No partially smooth waters. |

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SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|--|---|--|
| Salcombe and Kingsbridge | River Salcombe not seaward of a line Splat Point to Lambury Point. | No partially smooth waters. |
| Plymouth | Within a line from Mount Batten Pier to Ravensness Point through Drake's Island. The River Yealm within a line from Warren Point to Misery Point. | Within a line from Cawsand to the Breakwater to Staddon Pier. |
| Fowey | Inside the Harbour. | No partially smooth waters. |
| Falmouth | Within a line from St. Anthony Head to Penedennis Point. | In winter within a line from St. Anthony Head to Rosemullion Point. In summer within a line from St. Anthony Head to Nare Point. |
| England and Wales W. Padstow | Coast Padstow Harbour within a line from Gun Point to Brae Hill. | Within a line from Stepper Point to Trebetherick Point. |
| Barnstaple | Within the Bar. | No partially smooth waters. |
| Bridgwater | Inside Stert Point. | Within the Bar. |
| Bristol | Within a line from Avonmouth Pier to Wharf Point. | In winter within a line from Blacknore Point to Caldicot Pill Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down. |
| Gloucester | River Severn or Avon to Sharpness Point via Gloucester Canal. | In winter within a line from Blackmore Point to Caldicot Pill, Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down. |
| Chepstow | River Wye, above Chepstow. | In winter within a line from Blacknore Point to Caldicot Pill, Portskewett. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down. |

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SCHEDULE 1 (*continued*)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|--------------------------|--|--|
| Cardiff | Within a line from Low Water Pier Head to Penarth Head. | In winter no partially smooth waters. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down. |
| Barry Dock | Inside the Docks. | In winter no partially smooth waters. In summer within a line from Barry Dock Pier to Steepholm thence to Brean Down. |
| Neath | In the River Neath. | No partially smooth waters. |
| Swansea | Inside the Dock. | No partially smooth waters. |
| Llanelly and Burry Port. | Within an area bounded by a line drawn from Burry Port Western Pier to Whiteford Point on the west and Loughor Railway Bridge on the east. | No partially smooth waters. |
| Milford | Within a line from South Hook Point to Thorn Point. | No partially smooth waters. |
| Fishguard | In the Harbour within a line joining the North and East Breakwater Heads. | No partially smooth waters. |
| Cardigan | Inside the Bar. | No partially smooth waters. |
| Aberdovey | Within a line from Aberdovey Station to Trwyn Bach. | No partially smooth waters. |
| Barmouth | Within a line from Barmouth to Penrhyn Point. | No partially smooth waters. |
| Portmadoc | Within a line from Harlech Point to Graig Ddu. | No partially smooth waters. |
| Holyhead | Within an area bounded by the main breakwater and a line drawn from the head of the breakwater to Brynglas Point, Towyn Bay. | No partially smooth waters. |

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SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|----------------------|--|--|
| Caernarvon, Bangor | Within the Menai Straits between Aber Menai Point and Beaumaris. | Within the Menai Straits from Caernarvon Bar to Puffin Island. |
| Conway | Within a line from Mussel Hill to Tremlyd Point. | No partially smooth waters. |
| Chester | River Dee not below Connah's Quay. | In winter within a line from Hilbre Point to Point of Air. In summer within a line from Formby Point to Point of Air. |
| Liverpool | Above the Rock Lighthouse. | In winter no partially smooth waters. In summer within a line from Formby Point to Point of Air. |
| Preston | Within a line from Lytham to Southport. | Within a line from Southport to Blackpool inside the banks. |
| Fleetwood | Within a line from Low Light to Knott End Pier. | In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head. |
| Lancaster | Within a line from Sunderland Point to Chapel Hill. | In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head. |
| Heysham | — | In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head. |
| Morecambe | — | In winter no partially smooth waters. In summer within a line from Rossal Point to Humphrey Head. |
| Barrow | Between Walney Island and the mainland. | No partially smooth waters. |
| Douglas, Isle of Man | From Battery Pier to Victoria Pier. | No partially smooth waters. |

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SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|-------------------------------|--|---|
| Carlisle | Above Port Carlisle. | Within a line from Southernness Point to Silloth. |
| Scotland W. Coast Dumfries | Within a line from Airds Point to Scar Point. | Within a line from Southernness Point to Silloth. |
| Stranraer | Within a line from Cairn Ryan to Kirkcolm Point. | Loch Ryan within a line from Finnart's Point to Milleur Point. |
| Ayr | Inside the Bar. | No partially smooth waters. |
| Glasgow | Above partially smooth waters. | <i>Outer limit:</i> a line from Skipness to a position one mile south of Garroch Head thence to Farland Head <i>Inner limit in winter:</i> a line from Cloch Lighthouse to Dunoon Pier. <i>Inner limit in summer:</i> a line from Bogany Point, Isle of Bute to Skelmorlie Castle, and a line drawn from Ardlamont Point to the southern extremity of Etterick Bay, inside the Kyles of Bute. <i>Note:</i> The above inner summer limit is extended between 5th June and 5th September (both dates inclusive) by a line drawn from a point two miles off the Ayrshire coast at Skelmorlie Castle to Tormont End, Cumbræ, and a line drawn from Portachur Point, Cumbræ to Green Point, Ayrshire. |
| Colintraive | Between Colintraive and Rhudhabodach. | No partially smooth waters. |
| Campbeltown | Inside the harbour within a line from Macringan's Point to Ottercharach Point. | No partially smooth waters. |
| Oban | — | Within an area bounded on the north by a line from Dunollie Point Light to Ard na Chruidh and to the south by a line from Rudha Seanach to Ard na Cuile. |

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SCHEDULE 1 (continued)

| DISTRICT | Smooth Water Areas | Partially Smooth Water Areas*† |
|--|---|--|
| Ballachulish | Within Loch Leven and not outside Peter Straits. | No partially smooth waters. |
| Fort William | In Loch Linnhe north of Corran Point Light, and including Loch Eil and the Canal to Inverness. | No partially smooth waters. |
| Kyle of Lochalsh | Within Kyle Akin not westward of Eilean Ban Light or eastward of Eileanan Dubha. | Through Loch Alsh to the Head of Loch Duich. |
| Strome | Between Stromemore and Stome Ferry. | No partially smooth waters. |
| Ullapool | In Loch Broom within a line drawn between Ullapool Point Light and Aultnaharrie. | No partially smooth waters. |
| Kylesku | Across Loch Cairnbawn in the area between the eastern-most point of Garbh Eilean and the western-most point of Eilean na Rainich. | No partially smooth waters. |
| Northern Ireland Carlingford Lough | Within a line from Greenore to Green-castle Point. | No partially smooth waters. |
| Strangford Lough | Within Strangford Lough but not seaward of Rue Point. | No partially smooth waters. |
| Larne | Within a line from Larne pier to the ferry pier on Island Magee. | No partially smooth waters. |
| Belfast | Within a line from Holywood to Macedon Point. | In winter no partially smooth waters. In summer within a line from Carrickfergus to Bangor. |
| Lough Erne | Upper or Lower Lough Erne. | No partially smooth waters. |
| Lough Neagh | Within two miles of the shore. | At a greater distance than two miles from the shore. |
| Londonderry | Within a line from Magiligan Point to Green-castle. | No partially smooth waters. |

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SCHEDULE 2

Rule 11 and Rule 37

INTERNATIONAL SHORE CONNECTION

(1) The international shore connection, as hereinafter illustrated, which is required by these Rules to be carried in the ship shall be in accordance with the following specification:—

Outside diameter: 7 inches

Inner diameter: $2\frac{1}{2}$ inches

Bolt circle diameter: $5\frac{1}{4}$ inches

Holes: 4 holes of $\frac{3}{4}$ inch diameter equidistantly placed, slotted to the flange periphery.

Flange thickness: $\frac{9}{16}$ inch minimum.

Bolts: 4, each of $\frac{5}{8}$ inch diameter, 2 inches in length with eight washers.

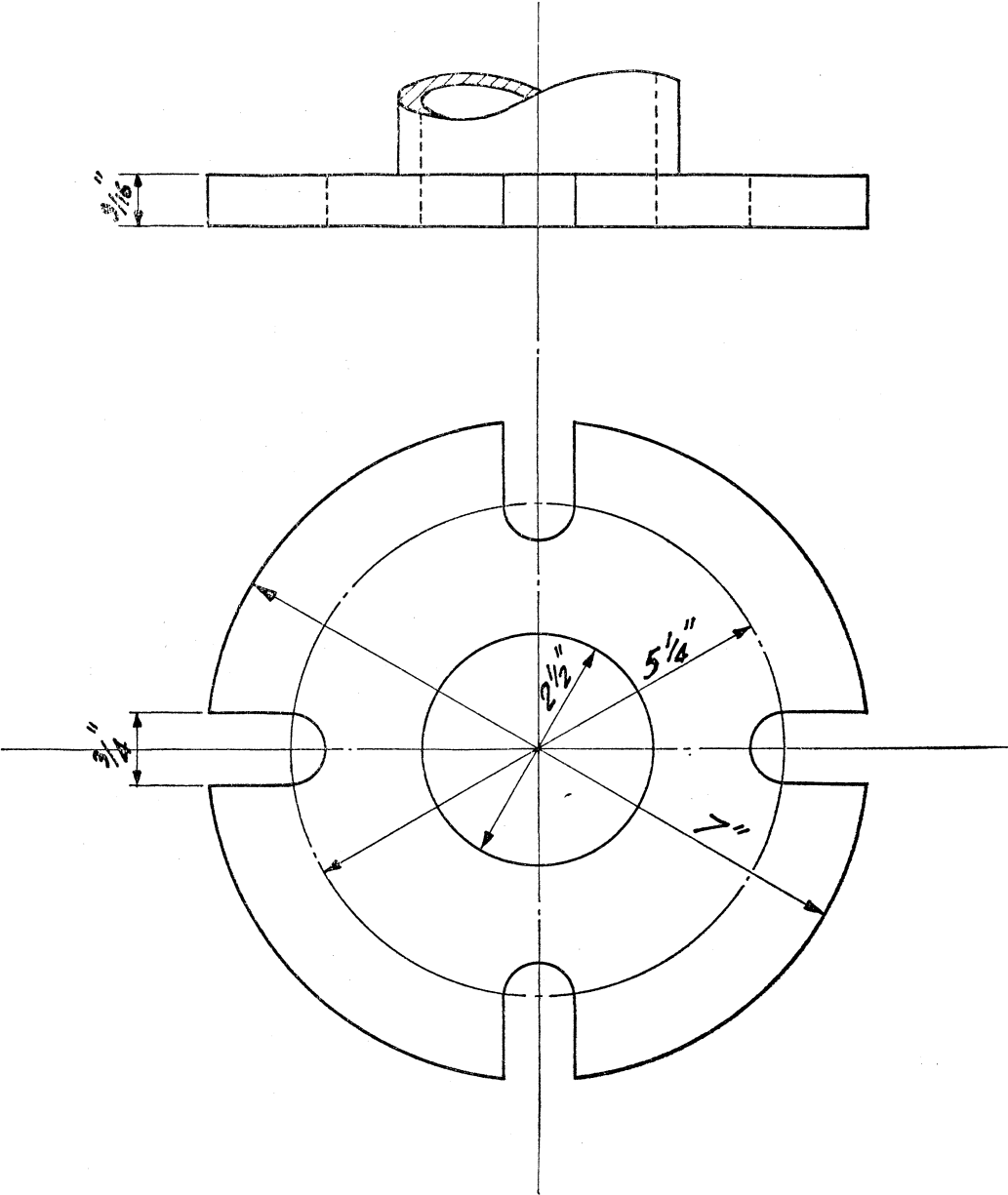
Flange surface: flat face.

Material: any suited to 150 pounds per square inch service.

Gasket: any suited to 150 pounds per square inch service.

(2) The connection shall be constructed of material suitable for 150 pounds per square inch service. The flange shall have a flat face on one side, and to the other there shall be permanently attached a coupling which will fit the ship's hydrants and hose. The connection shall be kept aboard the ship together with its gasket, bolts and washers.

INTERNATIONAL SHORE CONNECTION



SCHEDULE 3

Rule 57 (1) NON-PORTABLE FOAM FIRE EXTINGUISHERS

(1) Every foam fire extinguisher, other than a portable fire extinguisher, provided in compliance with these Rules shall be so designed and constructed that the interior of the extinguisher can be examined.

(2) The body of the extinguisher shall be cylindrical with ends which shall be dished outwards, without reverse flanging, to a radius not exceeding the diameter of the body. The body and ends shall be made of sheet steel which shall be tinned or lead-coated internally or they shall be provided with equivalent protection against corrosion internally. Every other part of the extinguisher shall, where necessary, be protected against corrosion.

(3) The body of the extinguisher shall be welded or riveted. All riveted joints shall be soldered.

(4) The body shall be provided with an opening for the introduction of an inner container. The opening shall be fitted with a cap of gunmetal or other suitable material, screwed with a continuous thread, through the side of which safety holes or slots shall be provided so that when the cap is being removed any pressure of gas remaining in the container may be released gradually should the discharge opening be choked. The cap joint shall be made with acid-resisting rubber, greased leather or other suitable material.

(5) If the extinguisher is provided with an inner container, such container shall be adequately supported.

(6) A reinforced discharge hose shall be provided, together with a nozzle, the area of which shall be such that, when the extinguisher is operated, the foam is projected a distance of 45 feet for a period of not less than 100 seconds in the case of an extinguisher of 30 gallons capacity or over, and a distance of 35 feet for a period of not less than 90 seconds in the case of an extinguisher of under 30 gallons capacity.

(7) The charge and the air space above the level of the solution in the body shall be so regulated that the maximum pressure in the extinguisher when put into action, with all outlets closed, does not exceed 280 pounds per square inch with the solution at a temperature of 100°F.

(8) The extinguisher shall be capable of withstanding for a period of 5 minutes an internal pressure of $1\frac{1}{4}$ times the pressure in the extinguisher when put into action with all outlets closed, and in no event of less than 350 lb.

(9) The outside of the extinguisher shall be clearly and permanently marked with—

- (a) the name of the maker or vendor of the extinguisher;
- (b) the capacity of the extinguisher;
- (c) the level of the solution, when the extinguisher is filled to its working capacity;
- (d) the pressure under which the extinguisher was tested;
- (e) instructions for operating the extinguisher;
- (f) the year in which the extinguisher was manufactured.

SCHEDULE 4

Rule 57(1)

NON-PORTABLE CARBON DIOXIDE FIRE EXTINGUISHERS

(1) Every carbon dioxide fire extinguisher, other than a portable fire extinguisher, provided in compliance with these Rules shall be provided with cylinders constructed in accordance with any one of the following specifications of the British Standards Institution:—

Numbers B.S. 401: 1931. B.S. 1287: 1946. B.S. 1288: 1946.

(2) Each cylinder shall be provided with an internal discharge tube and a valve to release the gas.

(3) The extinguisher shall be provided with a discharge hose which shall be reinforced so as to withstand a pressure of at least 1,800 pounds per square inch when the necessary couplings are fitted. The bore of the discharge hose shall not be less than the sizes respectively set forth in the following table:—

| <i>Capacity of extinguisher</i> | <i>Minimum bore of discharge hose</i> |
|---|---|
| 35 lb. | $\frac{3}{8}$ inch |
| 100 lb. | $\frac{1}{2}$ inch |

The discharge hose shall be provided with a horn which shall be of electrically non-conducting material and of a design which will reduce the velocity of the gas discharged. The metal part of the operating handle shall be suitably sheathed to protect the hands of the operator from extreme cold.

(4) At any temperature between 60°F. (15°C.) and 65°F. (18°C.) inclusive, the extinguisher shall discharge gas at such a rate that carbon dioxide equal in weight to $\frac{2}{3}$ of the capacity of the container will be discharged in the periods respectively set forth in the following table:—

| <i>Capacity of extinguisher</i> | <i>Period</i> |
|---|---------------------|
| 35 lb. | .. 30 to 45 seconds |
| 100 lb. | .. 60 to 90 seconds |

(5) The outside of the extinguisher shall be clearly and permanently marked in accordance with Section Four of the specification of the British Standards Institution Number B.S.3326: 1960.

SCHEDULE 5

BREATHING APPARATUS

Rule 63(1)

(1) Every breathing apparatus provided in compliance with these Rules may be either—

- (a) a smoke helmet or a smoke mask, each of which shall be provided with an air pump or bellows and an air hose; or
- (b) a self-contained breathing apparatus.

Smoke helmet and smoke mask

(2) Every smoke helmet or smoke mask provided in compliance with these Rules shall be provided with a hose for the supply of air from the outside atmosphere. An air pump or bellows shall be provided which shall be suitable for pumping air through the hose. The hose shall be of the non-collapsing type and shall be sufficient in length to enable the air pump or bellows to be on the

open deck in clean air well clear of any hatch or doorway while the wearer of the helmet or mask is in any part of the accommodation, service, cargo or machinery spaces. Efficient couplings shall be provided if two or more lengths of hose are to be joined in order to reach the aforesaid spaces. The air inlet to the pump or bellows shall be so protected as to ensure that the supply of air cannot be obstructed.

Self-contained breathing apparatus

(3) (a) Every self-contained breathing apparatus provided in compliance with these Rules shall be of the open circuit compressed air type.

(b) The storage capacity of the compressed air cylinder or cylinders attached to the apparatus and carried by the wearer shall be at least 1,200 litres (42 cubic feet) of free air. The storage cylinders shall be constructed of suitable material and shall be of efficient design and of sufficient strength to withstand with an adequate factor of safety the internal air pressure to which they may be subjected, and each cylinder shall be capable of withstanding a test by hydraulic pressure suitably in excess of the maximum working pressure.

(c) Means shall be provided for the automatic regulation of the air supply to the wearer of the apparatus in accordance with his breathing requirements when he is breathing any volume of free air of up to 85 litres (3 cubic feet) per minute at any time when the pressure in the supply cylinder or cylinders is above 150 pounds per square inch. Means shall be provided for overriding the automatic air supply valve.

(d) A pressure gauge with an anti-bursting orifice shall be incorporated in the high-pressure air supply system to enable the wearer to read directly and easily the pressure of air in the supply cylinder or cylinders.

(e) Means shall be provided for warning the wearer audibly when 80 per cent of the usable capacity of the apparatus has been consumed.

(f) The maximum weight of any such apparatus shall not exceed 35 lb. excluding any lifeline and, if they do not form an integral part of the apparatus, any safety belt or harness.

(g) Every self-contained breathing apparatus shall be provided with fully charged spare cylinders having a spare storage capacity of at least 2,400 litres (84 cubic feet) of free air except that:—

(i) if the ship is carrying five sets or more of such apparatus the total spare storage capacity of free air shall not be required to exceed 9,600 litres (336 cubic feet) or

(ii) if the ship is equipped with means for re-charging the air cylinders to full pressure with air free from contamination, the spare storage capacity of the fully charged spare cylinders of each such apparatus shall be of at least 1,200 litres (42 cubic feet) of free air, and the total spare storage capacity of free air provided in the ship shall not be required to exceed 4,800 litres (168 cubic feet).

(h) A servicing and instruction manual shall be kept with each such apparatus.

General

(4) (a) Every breathing apparatus shall be constructed of materials having adequate mechanical strength, durability and resistance to deterioration by heat or by contact with water and such materials shall be resistant to fire and shall

not allow the breathing circuit to be penetrated by smoke or chemical fumes likely to be encountered in service. The fabric used in the construction of any harness provided with such apparatus shall be resistant to shrinkage. Exposed metal parts of the apparatus, harness and fittings shall be of materials so far as practicable resistant to frictional sparking.

(b) The following equipment shall be provided for use with each set of breathing apparatus:—

- (i) a fire-proof life-and-signalling-line at least 10 feet longer than is required to reach from the open deck in clean air well clear of any hatch or doorway to any part of the accommodation, service, cargo or machinery spaces. The line shall be made of copper or galvanised steel wire rope having a breaking strength of at least 1,120 lb. and shall be overlaid up to at least $1\frac{1}{4}$ inches in circumference by hemp or other covering to provide a surface which can be firmly gripped when wet;
- (ii) an adjustable safety belt or harness to which such line shall be capable of being securely attached and detached by the wearer by means of a snap-hook;
- (iii) means for protecting the eyes and face of the wearer against smoke ;
- (iv) plates of suitable non-inflammable material bearing a clearly legible code of signals to be used between the wearer and his attendant, one of which shall be attached to the safety belt or harness and another attached to the free end of the life-line;
- (v) (for every apparatus other than a smoke helmet) a lightweight safety helmet with lining and adjustable head-band.

(c) Every breathing apparatus shall be clearly marked with the name of the maker or vendor and the year of manufacture. Operating instructions in clear and permanent lettering shall be affixed to such apparatus.

EXPLANATORY NOTE

(This note is not part of the Rules)

These Rules supersede the Merchant Shipping (Fire Appliances) Rules 1952. They 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 relating to the provision of fire appliances in merchant ships engaged on international voyages.

The principal changes are:—

- (a) The introduction of more detailed requirements, including an extension to most ships of the requirement for an emergency pump outside the machinery spaces, to secure the maximum availability of water for fire-fighting purposes throughout the ship.

- (b) The provision of a standard hose coupling on passenger ships of Classes I, II and II(A) and on non-passenger ships (other than fishing vessels) of 1,000 tons or more to enable the ships' fire mains to be readily supplied in an emergency with water from other ships or from land.
- (c) The provision of a fixed fire-fighting installation for the protection of the engine room in most of the motor passenger ships of Classes I, II, II(A) and III and in the larger non-passenger motor ships.
- (d) The provision of non-portable fire extinguishers for the protection of any machinery spaces containing steam engines in most passenger ships of Class I, II and II(A) and in the larger non-passenger ships.
- (e) The prohibition of steam for use in the fixed installation protecting boiler rooms and oil-firing installations in non-passenger ships of 1,000 tons except when it is provided in addition to the protective measures required by the Rules.
- (f) Special measures for the protection of the machinery spaces of ships of wooden construction.

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