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 STATUTORY INSTRUMENTS
 

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1985. No. 1218

## MERCHANT SHIPPING

## SAFETY

**The Merchant Shipping (Fire Protection)  
 (Ships Built Before 25th May 1980)  
 Regulations 1985**
*Laid before Parliament in draft*

<i>Made</i>	- - - - -	29th July 1985
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<i>Coming into Operation</i>	- -	12th August 1985
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The Secretary of State for Transport, after consulting with the persons referred to in section 22(2) of the Merchant Shipping Act 1979(a), in exercise of the powers conferred on him by subsections (1)(a) and (b) and (3)(a), (c), (d), (f), (g), (h), (i), (j), (n) and (o) and (4), (5) and (6) of section 21 and by section 22(1)(a), (b) and (c) of that Act and all other powers enabling him in that behalf, hereby makes the following Regulations:

(a) 1979 c.39; section 21(6)(b) and (c) were substituted by section 49(3) of the Criminal Justice Act 1982 (c.48).



## PART 1—PRELIMINARY

*Citation, commencement, interpretation, revocation and application*

1.— (1) These Regulations may be cited as the Merchant Shipping (Fire Protection) (Ships Built Before 25th May 1980) Regulations 1985 and shall come into operation two weeks after they are made.

(2) In these Regulations 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;

“Administration” means the Government of the State of whose flag the ship is entitled to fly;

“cargo ship” means any ship which is not a passenger ship;

“cargo spaces” means spaces used for cargo including cargo oil tanks, slop tanks and trunks to such spaces;

“Category A tanker” and “Category A combination carrier” means a tanker or as the case may be, a combination carrier, registered in the United Kingdom and constructed or adapted to carry crude oil and petroleum products having a closed flashpoint not exceeding 60°C the Reid vapour pressure of which is below that of atmospheric pressure, and other liquids having a similar fire hazard and the keel of which:

(a) was laid, or which was at a similar stage of construction, on or after 1st February 1975; or

(b) was laid, or was at a similar stage of construction, before 1st February 1975 but was completed after 31st December 1978;

“Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk” means a certificate in compliance with the requirements of the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;

“Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk” means the code so entitled adopted by the International Maritime Organization by Resolution A212(VII);

“combination carrier” means a tanker designed to carry oil or solid cargoes in bulk;

“crew space” means crew accommodation within the meaning of section 20 the Merchant Shipping Act 1970(a);

“control station” includes those spaces in which radio, main navigating or central fire-recording equipment or the emergency generator is located;

“dangerous goods of Classes 1 to 5” means goods so classed in the Merchant Shipping (Dangerous Goods) Regulations 1981(b);

“deadweight” means the difference in tonnes between the displacement of a ship in water of a specific gravity of 1.025 at the load waterline

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(a) 1970 c.36.

(b) S.I. 1981/1747.

corresponding to the assigned summer freeboard and the lightweight of the ship;

“fishing vessel” means a vessel used for catching fish, whales, seals, walrus or other living resources of the sea;

“Guidelines for Inert Gas Systems” (MSC/Circ 353) forms part of the publication “Inert Gas Systems” 1983 Edition, published by the International Maritime Organization;

“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;

“lightweight” means the displacement of a ship in tonnes without cargo, oil fuel, lubricating oil, ballast and fresh water in tanks, stores together with passengers and crew and their effects;

“Merchant Shipping Notice” means a Notice described as such and issued by the Department of Transport;

“oil-fired boiler” means any boiler wholly or partly fired by liquid fuel not being a domestic boiler of less than 73.2 kilowatts;

“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 ship” means a ship carrying more than 12 passengers;

“pleasure craft” means a vessel primarily used for sport or recreation;

“Reid vapour pressure” means the vapour pressure of a liquid as determined by laboratory testing in a standard manner in the Reid apparatus;

“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 trunks to such spaces;

“settling tank” means an oil storage tank having a heating surface of not less than 0.183 square metre per tonne of oil capacity;

“special category space” means an enclosed space, above or below the bulkhead deck, which is intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion, and into and from which such vehicles can be driven and to which passengers have access;

“tanker” means a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of a flammable nature;

“tons” means gross tons and a reference to tons:

(a) in relation to a ship having alternative gross tonnages under paragraph 13 of Schedule 5 of the Merchant Shipping (Tonnage)

Regulations 1982(a) is a reference to the larger of these tonnages; and

- (b) in relation to a ship having its tonnage determined both under Part II and regulation 16 of those Regulations is a reference to its gross tonnage as determined under regulation 16 of those Regulations;

“United Kingdom ship” means a ship as defined in section 21(2) of the Merchant Shipping Act 1979; and

“water seal” means an arrangement or device, using water, to prevent the back flow of gases or vapours from cargo tanks.

(3) Any reference in these Regulations to:

- (a) the Guidelines for Inert Gas Systems;  
(b) a British Standard;  
(c) the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;

shall include a reference to any document amending that publication which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice.

- (4) The Merchant Shipping (Fire Appliances) Rules 1965(b), the Merchant Shipping (Fire Appliances) (Amendment) Rules 1974(c), the Merchant Shipping (Fire Appliances) (Amendment) Rules 1980(d), the Merchant Shipping (Fire Appliances) (Amendment) Rules 1981(e), and the Merchant Shipping (Fire Appliances) (Amendment) Rules 1984(f) are hereby revoked.

(5) In these Regulations, unless the context otherwise requires, any reference to:

- (a) a numbered regulation or schedule is a reference to the regulation or schedule to these Regulations so numbered; and  
(b) a numbered paragraph is a reference to that paragraph so numbered in the regulation or schedule in which that reference appears.

(6) These Regulations apply to:

United Kingdom ships wherever they may be and other ships while they are in the United Kingdom or the territorial waters thereof, being ships the keels of which were laid or which were at a similar stage of construction before 25th May 1980, provided that these Regulations shall not apply to:

- (a) fishing vessels;

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(a) S.I. 1982/841.  
(b) S.I. 1965/1106.  
(c) S.I. 1974/2185.  
(d) S.I. 1980/541.  
(e) S.I. 1981/575.  
(f) S.I. 1984/1222.

- (b) pleasure craft which are not passenger ships and are of less than 13.7 metres in length: and
- (c) the following non-United Kingdom ships:
- (i) cargo ships of less than 500 tons;
  - (ii) troopships;
  - (iii) ships not propelled by mechanical means;
  - (iv) pleasure craft which are not passenger ships;
  - (v) 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 circumstance that neither the master nor owner nor charterer (if any) could have prevented.

*Classification of ships*

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

Passenger ships

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|--------------|--|
| Class I.     | Passenger ships engaged on voyages (not being short international voyages) any of which are long international voyages.  |
| Class II.    | Passenger ships engaged on voyages (not being long international voyages) any of which are short international voyages.  |
| Class II(A). | Passenger ships 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 ships 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 ships 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 ships 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 ships 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 ships 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 the United Kingdom and which do not proceed for a distance of more than 3 miles from land, subject to any conditions which the Secretary of State may impose.
- Ships other than passenger ships**
- Class VII. Ships (other than ships of Classes VII(A), VII(T), XI and XII) engaged on voyages any of which are long international voyages.
- Class VII(A). Ships engaged in the whaling industry or employed as fish processing or canning factory ships, and ships engaged in the carriage of persons employed in the whaling, fish processing or canning industries.
- Class VII(T). Tankers engaged on voyages any of which are long international voyages.
- Class VIII. Ships (other than ships of Classes VIII(T), IX, XI and XII) engaged on voyages (not being long international voyages) any of which are short international voyages.
- Class VIII(A). Ships (other than ships of Classes VII(A)(T), IX, IX(A), IX(A)(T), XI and XII), engaged on voyages which are not international voyages.
- Class VIII(T). Tankers engaged on voyages (not being long international voyages) any of which are short international voyages.
- Class VIII(A)(T). Tankers (other than tankers of Class IX(A)(T)) engaged on voyages which are not international voyages.
- Class IX. Tugs and tenders which proceed to sea but are not engaged on long international voyages.
- Class IX(A). Ships which do not proceed to sea.
- Class IX(A)(T). Tankers which do not proceed to sea.
- Class XI. Sailing ships (other than ships of Class XII) which proceed to sea.
- Class XII. Pleasure craft of 13.7 metres in length or over.

(2) For the purposes of this regulation 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(a);

“partially smooth waters” means as respects any period specified in Schedule 2 to the Merchant Shipping (Smooth and Partially Smooth Waters) Rules 1977(b) the waters of any of the areas specified in column 3 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 column 2 of Schedule 2 to the Merchant Shipping (Smooth and Partially Smooth Waters) Rules 1977; and

“voyage” includes an excursion.

## PART II—PASSENGER SHIPS

### SHIPS OF CLASS I AND II

#### *Fire patrol, alarm and detection systems*

3.— (1) (a) In every ship of Class I and II a fire patrol system capable of promptly detecting an outbreak of fire shall be maintained;

(b) manual fire alarms shall be fitted throughout the passenger spaces and crew spaces. Such alarms shall be capable of giving an alarm immediately to the navigating bridge or fire control station.

(2) Each member of the fire patrol shall be trained to be familiar with the arrangements of the ship as well as the location and operation of any equipment he may be called upon to use.

(3) In every such ship 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 regulation 68.

(4) The Secretary of State may exempt any ship from the requirements of paragraph (3) if he is satisfied that to require compliance therewith would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

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(a) 1949 c.43.

(b) S.I. 1977/252; the relevant amending instrument is S.I. 1978/801.

(5) Every such ship shall at all times when at sea, or in port (except when out of service), be so manned and equipped as to ensure that any initial fire alarm is immediately received by a responsible member of the crew.

(6) In every such ship carrying more than 36 passengers:

- (a) a special alarm to summon the crew shall be fitted which may be part of the ship's general alarm system; and
- (b) a public address system or other effective means of communication shall also be available throughout the accommodation, public and service spaces.

*Fire pumps, fire main, water service pipes, hydrants, hoses and nozzles*

4.— (1) Every ship of Class I and II shall be provided with appliances whereby at least two jets of water can be supplied in accordance with the provisions of regulation 59(3)(a).

(2) Every such ship 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 provided in the ship and shall comply with the requirements of regulation 58.

(3) (a) In every such ship of 1,000 tons or over the arrangement of the fire pumps, their sea connections and the sources of power for operating the fire pumps 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 such ship of less than 1,000 tons a fire in any one compartment could put all the fire pumps required by paragraph (2) 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 emergency pump shall be capable of producing at least one jet of water simultaneously from each of any two hydrants and hoses through nozzles which shall comply with regulation 60(4) while simultaneously maintaining a pressure of at least 2.1 bar at any hydrant in the ship.

(4) In every ship of Class I and II 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 regulations 59 and 60 when all watertight doors and all doors are closed in bulkheads constructed in accordance with regulation 88 of the Merchant Shipping (Passenger Ship Construction) Regulations 1980(a).

(5) Water from the fire main of every such ship carrying more than 36 passengers shall, as far as practicable, be kept immediately available by means of maintaining the pressure in the fire main or by providing an easily operable and readily accessible remote control system for the fire pumps.

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(a) S.I. 1980/535, to which there is an amendment not relevant to these Regulations.

(6) In every such ship at least one fire hose shall be provided for every hydrant which is fitted in compliance with regulation 59.

(7) In every such ship fitted with oil-fired boilers or internal combustion type propulsion 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 machinery space. A spray nozzle shall be provided for every fire hose at every hydrant which is fitted in such spaces in compliance with this regulation.

(8) In every such ship dual purpose spray/jet nozzles shall be provided for at least one quarter of the number of hoses required in parts of the ship other than machinery spaces.

*Portable fire extinguishers in accommodation and service spaces*

5.— (1) In every ship of Class I and II there shall be provided on each deck a sufficient number of portable fire extinguishers for at least two to be readily available for use in every accommodation and service space between watertight bulkheads and bulkheads constructed in compliance with regulation 88 of the Merchant Shipping (Passenger Ship Construction) Regulations 1980. At least one portable fire extinguisher shall be provided for use on each side of the ship in any area of enclosed accommodation and service spaces above the bulkhead deck. In addition at least one portable fire extinguisher and a fire blanket shall be provided in every galley provided that where the superficial deck area of any galley exceeds 45 square metres 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.

(3) In every such ship there shall be provided in each special category space and cargo space intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion:

- (a) at least two portable extinguishers, suitable for extinguishing oil fires, for every 40 metres length of deck space, so arranged that at least one extinguisher is available on each side of the space and at least one extinguisher is available at each access to the space; and
- (b) one foam applicator complying with the requirements of Schedule 6; at least two such applicators shall be available in the ship for use in any such space.

*Fixed fire smothering arrangements in cargo spaces*

6.— (1) In every ship of Class I and II of 1,000 tons or over there shall be provided a fixed fire smothering gas installation complying with the requirements of regulation 65 which shall be so arranged as to protect every cargo space.

(2) The Secretary of State may exempt any ship (other than a ship engaged in the carriage of dangerous goods of Classes 1 to 5) from the requirements of this regulation if he is 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 and II there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil-fuel unit a fixed fire extinguishing installation of one of the following types:

- (a) a pressure water spraying system complying with the requirements of regulation 64;
- (b) a fire smothering gas installation complying with the requirements of regulation 65;
- (c) a foam fire extinguishing installation complying with the requirements of regulation 66.

(2) If the engine and boiler spaces are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler space into the engine space, the combined engine and boiler spaces shall for the purpose of paragraph (1) be regarded as a single space.

(3) In addition to the fixed installations required by paragraph (1) there shall be provided:

- (a) one or more foam fire extinguishers each of at least 135 litres capacity or one or more carbon dioxide fire extinguishers each of at least 45 kilograms 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 as the case may be to be directed on to any part of the boiler space 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; and
- (c) in each firing space either a receptacle containing at least 0.3 cubic metre of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or a portable fire extinguisher suitable for extinguishing oil fires additional to those required by subparagraph (b).

*Machinery spaces containing internal combustion type machinery*

8.— (1) In every ship of Class I and II there shall be provided for the protection of any space containing internal combustion type machinery used for main propulsion, or used for auxiliary purposes and having a total power of not less than 746 kilowatts, at least one of the fixed fire extinguishing installations required by regulation 7(1).

(2) In addition to the requirement of paragraph (1) there shall be provided in any such space:

- (a) one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilograms capacity; and
- (b) one portable fire extinguisher suitable for extinguishing oil fires for

each 746 kilowatts or part thereof of such machinery, provided that not less than two nor more than six such extinguishers shall be required in any such space.

*Machinery spaces containing steam engines*

9. In every ship of Class I and II there shall be provided in spaces containing steam turbines or enclosed pressure lubricated steam engines used for main propulsion, or used for auxiliary purposes and having a total power of not less than 746 kilowatts:

- (a) foam fire extinguishers each of at least 45 litres capacity or carbon dioxide fire extinguishers each of at least 16 kilograms capacity sufficient in number and so sited as to enable the extinguishing medium 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; 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 regulation 7(1); and
- (b) one portable fire extinguisher, suitable for extinguishing oil fires, for each 746 kilowatts or part thereof of such machinery; provided that not less than two nor more than six such extinguishers shall be required in any such space and provided that such extinguishers shall not be required in addition to any required by regulation 8(2).

*Firemen's outfits*

10.— (1) Every ship of Class I and II shall be provided with:

- (a) two firemen's outfits which shall include breathing apparatus of the air-hose type; and in addition
- (b) two firemen's outfits for every 80 metres (or part thereof) of the aggregate of the lengths of all passenger spaces and service spaces on the deck which carries such spaces or, if there is more than one such deck, on the deck which has the largest of such lengths; every such outfit shall comply with the requirements of regulation 69.

(2) If in any such ship which carries firemen's outfits containing only breathing apparatus of the air-hose type an air hose exceeding 36 metres in length would be necessary to reach from a point on 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 firemen's outfits provided pursuant to paragraph (1)(b) shall include breathing apparatus of the self-contained type.

*International shore connection*

11. Every ship of Class I and II of 1,000 tons or over shall be provided with at least one international shore connection which shall comply with the requirements of Schedule 2 to enable water piped from another ship or shore to be connected 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(A) OF 21.34 METRES IN LENGTH OR OVER

12. Regulation 3(1) and regulations 4 to 11 inclusive shall apply to ships of Class II(A) of 21.34 metres in length or over as they apply to ships of Class I and II.

## SHIPS OF CLASS II(A) OF LESS THAN 21.34 METRES IN LENGTH

*Fire pumps, fire main, water service pipes, hydrants, hoses and nozzles*

13. Every ship of Class II(A) of less than 21.34 metres in length shall be provided with a hand pump having a permanent sea connection and a hose with two nozzles. One such nozzle shall be 10 millimetres diameter. The pump shall be capable through such hose and nozzle of producing a jet of water having a throw of not less than 6 metres which can be directed onto any part of the ship. The other such nozzle shall be a spray nozzle. Such pump shall be situated outside the machinery spaces.

*Portable fire extinguishers*

14. In every ship of Class II(A) of less than 21.34 metres in length at least one portable fire extinguisher shall be provided in each of the passenger spaces above the bulkhead deck, and at least two such extinguishers shall be provided in each of the crew spaces and each of the passenger spaces below that deck. At least one portable fire extinguisher shall be provided for use in any galley.

*Machinery spaces containing oil-fired boilers or oil burning equipment*

15.— (1) In every ship of Class II(A) of less than 21.34 metres 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 45 litres capacity or one or more carbon dioxide extinguishers each of at least 16 kilograms 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 as the case may be 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 extinguishers required by paragraph (1) 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; and
- (b) in each firing space a receptacle containing at least 0.05 cubic metre of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or a portable fire extinguisher suitable for extinguishing oil fires additional to those required by subparagraph (a).

*Machinery spaces containing internal combustion type machinery*

16. In every ship of Class II(A) of 15.24 metres in length or over but of less than 21.34 metres in length each space containing internal combustion type propulsion machinery shall be provided with at least five portable fire extinguishers suitable for extinguishing oil fires; and in every such ship of less

than 15.24 metres in length each space shall be provided with at least three such portable fire extinguishers.

SHIPS OF CLASS III OF 21.34 METRES IN LENGTH OR OVER

*Fire pumps, fire main, water service pipes, hydrants, hoses and nozzles*

17.— (1) Every ship of Class III of 21.34 metres in length or over shall be provided with appliances whereby at least one jet of water can be supplied in accordance with the provisions of regulation 59(3)(b).

(2) Every such ship shall be provided with at least one fire pump operated by power. Such pump shall be capable of delivering at least one jet of water from any fire hydrant provided in the ship and shall comply with the requirements of regulation 58.

(3) Every such ship fitted with oil-fired boilers or internal combustion type propulsion machinery shall be provided with an additional fire pump which shall be permanently connected to the fire main. Such pump may be operated manually or 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) 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); and if it is manually operated it shall be capable of producing through a hose and nozzle a jet of water having a throw of not less than 6 metres.

(4) Every such ship shall be provided with a fire main, water service pipes, hydrants, hoses and nozzles complying with the requirements of regulations 59 and 60.

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

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

*Portable fire extinguishers*

18. In every ship of Class III of 21.34 metres in length or over at least one portable fire extinguisher shall be provided in each of the passenger spaces above the bulkhead deck, and at least two such extinguishers shall be provided in each of the crew spaces and each of the passenger spaces below that deck. At least one portable fire extinguisher shall be provided for use in any galley.

*Machinery spaces containing oil-fired boilers or oil burning equipment*

19.— (1) In every ship of Class III of 21.34 metres 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 a fixed fire extinguishing installation of one of the following types:

- (a) a pressure water spraying system complying with the requirements of regulation 64;
  - (b) a fire smothering gas installation complying with the requirements of regulation 65;
  - (c) a foam fire extinguishing installation complying with the requirements of regulation 66.
- (2) If the engine and boiler spaces are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler space into the engine space, the combined engine and boiler space shall for the purpose of paragraph (1) be regarded as a single space.
- (3) In addition to the installation required by paragraph (1) there shall be provided:
- (a) two or more foam fire extinguishers each of at least 45 litres capacity or two or more carbon dioxide fire extinguishers each of at least 16 kilograms 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 as the case may be to be directed on to any part of the boiler space 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; and
  - (c) in each firing space a receptacle containing at least 0.15 cubic metre of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or a portable fire extinguisher suitable for extinguishing oil fires additional to those required by subparagraph (b).

*Machinery spaces containing internal combustion type machinery*

**20.**— (1) In every ship of Class III of 21.34 metres in length or over there shall be provided for the protection of any space containing internal combustion type machinery used for main propulsion, or used for auxiliary purposes and having a total power of not less than 746 kilowatts, a fixed fire extinguishing installation of one of the types required by regulation 19(1).

(2) In addition to the installation required by paragraph (1) there shall be provided in any such space:

- (a) one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilograms capacity; and
- (b) one portable fire extinguisher suitable for extinguishing oil fires for each 746 kilowatts or part thereof of such machinery provided that not less than two nor more than six such extinguishers shall be required in any such space.

*Firemen's outfits*

**21.** Every ship of Class III of 21.34 metres in length or over shall carry one

fireman's outfit for each 30.5 metres (or part thereof) of the registered length of the ship. Every such outfit shall comply with the requirements of regulation 69.

SHIPS OF CLASS III OF LESS THAN 21.34 METRES IN LENGTH

22. Regulations 13 to 16 inclusive shall apply to ships of Class III of less than 21.34 metres in length as they apply to ships of Class II(A) of less than 21.34 metres in length.

SHIPS OF CLASS IV OF 21.34 METRES IN LENGTH OR OVER

*Fire pumps, fire main, water service pipes, hydrants, hoses, nozzles and extinguishers*

23.— (1) Every ship of Class IV of 21.34 metres in length or over shall be provided with appliances whereby at least one jet of water can be supplied in accordance with the provisions of regulation 59(3)(b).

(2) Every such ship shall be provided with at least one fire pump operated by power. Such pump shall be capable of delivering at least one jet of water from any fire hydrant provided in the ship and shall comply with the requirements of regulation 58.

(3) Every such ship fitted with oil-fired boilers or internal combustion type propulsion machinery shall be provided with an additional fire pump which shall be permanently connected to the fire main. Such pump shall be operated manually or 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) 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); and if it is manually operated it shall be capable of producing through a hose and nozzle a jet of water having a throw of not less than 6 metres.

(4) Every such ship shall be provided with a fire main, water service pipes, hydrants, hoses and nozzles complying with the requirements of regulations 59 and 60.

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

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

(7) In every such ship at least one portable fire extinguisher shall be provided in each of the passenger spaces above the bulkhead deck, and at least two such extinguishers shall be provided in each of the crew spaces and each of the passenger spaces below that deck. At least one portable fire extinguisher shall be provided for use in any galley.

*Machinery spaces containing oil-fired boilers or oil burning equipment*

24.— (1) In every ship of Class IV of 21.34 metres 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 135 litres capacity or one or more carbon dioxide extinguishers each of at least 45 kilograms 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 as the case may be to be directed on to any part of the boiler space or spaces containing any part of the oil fuel installation.

(2) In addition to the extinguishers required by paragraph (1) 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; and
- (b) in each firing space a receptacle containing at least 0.15 cubic metre of sand or other dry material suitable for quenching oil fires together with a scoop for its distribution, or a portable fire extinguisher suitable for extinguishing oil fires additional to those required by subparagraph (a).

*Machinery spaces containing internal combustion type machinery*

25. In every ship of Class IV of 21.34 metres in length or over there shall be provided in any space containing internal combustion type propulsion machinery:

- (a) one foam fire extinguisher of at least 45 litres capacity or one carbon dioxide fire extinguisher of at least 16 kilograms capacity; and
- (b) one portable fire extinguisher suitable for extinguishing oil fires for each 746 kilowatts or part thereof of such machinery; provided that not less than two nor more than six such extinguishers shall be required in any such space.

## SHIPS OF CLASS IV OF LESS THAN 21.34 METRES IN LENGTH

26. Regulations 13 to 16 inclusive shall apply to ships of Class IV of less than 21.34 metres in length as they apply to ships of Class II(A) of less than 21.34 metres in length.

## SHIPS OF CLASS V, VI AND VI(A)

## FULLY-DECKED SHIPS

27.— (1) Regulation 23 shall apply to fully-decked ships of Classes V, VI and VI(A) of 21.34 metres in length or over as it applies to ships of Class IV of 21.34 metres in length or over.

(2) Regulations 13 to 16 inclusive shall apply to fully-decked ships of Class V, VI and VI(A) of less than 21.34 metres in length as they apply to ships of Class II(A) of less than 21.34 metres in length.

## SHIPS NOT FULLY-DECKED

28.— (1) Every ship of Classes V, VI and VI(A) 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:

Length of the ship	Number of foam extinguishers
Not over 9.14 metres	2
Over 9.14 metres but not over 15.24 metres	3
Over 15.24 metres	5

- (d) and in the case of any ship of 12.20 metres in length or over, two fire buckets and in the case of any ship of less than 12.20 metres in length one fire bucket, unless the equipment required by paragraph (2) of this regulation is provided.

(2) Every such ship which is not fully decked in way of the machinery space shall be provided with a hand pump and a hose with a nozzle of 10 millimetres diameter and shall be capable through such hose and nozzle of producing a jet of water having a throw of not less than 6 metres. The hose shall be of sufficient length to enable the jet to be directed onto any part of the ship. Such pump and hose shall also be provided with a spray nozzle.

## PART III—SHIPS OTHER THAN PASSENGER SHIPS OR TANKERS

## SHIPS OF CLASS VII OF 500 TONS OR OVER

*Fire pumps, fire main, water service pipes, hydrants, hoses and nozzles*

29.— (1) Every ship of Class VII of 500 tons or over shall be provided with appliances whereby at least two jets of water can be supplied in accordance with the provisions of regulation 59(3)(a).

- (2) (a) Every such ship 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 provided in the ship and shall comply with the requirements of regulation 58;
- (b) every such ship 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 provided in the ship and shall comply with the requirements of regulation 58.
- (3) (a) If any such ship of 500 tons or over is so arranged that 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 own 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 one jet of water simultaneously from each of any two hydrants in the ship through a hose and nozzle complying with regulation 60(4)(b) while simultaneously maintaining a pressure of at least 2.1 bar 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 in the ship through a hose and nozzle complying with regulation 60(4)(a) a jet of water having a throw of not less than 12.20 metres.
- (4) (a) In every such ship of 500 tons or over there shall be provided a fire main, water service pipes and hydrants complying with the requirements of regulation 59;
- (b) (i) every such ship of 1,000 tons or over shall be provided, in addition to any fire hoses provided in the machinery spaces, with at least one fire hose for each 30 metre length of the ship or with five such hoses whichever is less 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 propulsion 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 machinery space. A fire hose and spray nozzle shall be provided at every such fire hydrant.

#### *Portable fire extinguishers*

**30.** 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*

**31.—** (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 regulation 65 which shall be so arranged as to protect every cargo space; provided that subject to the provisions of regulations 57(1) and 65, steam may be substituted for fire smothering gas in any such installation.

(2) The Secretary of State may exempt any ship (other than a ship engaged in the carriage of dangerous goods of Classes 1 to 5) from the requirements of paragraph (1) in so far as such arrangements relate to the provision of a fixed fire smothering gas or steam installation in the cargo holds of the ship if he is satisfied that:

- (a) the holds are provided with steel hatch covers and effective means of closing all ventilators and other openings; 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 paragraph (1) 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*

32.— (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 a fixed fire extinguishing installation of one of the following types:

- (a) a pressure water spraying system complying with the requirements of regulation 64;
- (b) a fire smothering gas installation complying with the requirements of regulation 65;
- (c) a foam fire extinguishing installation complying with the requirements of regulation 66.

(2) In any such ship of under 1,000 tons a fixed fire smothering steam installation complying with the requirements of regulation 65 may be provided in lieu of any of the installations in paragraph (1).

(3) If the engine room and boiler spaces are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler space into the engine space, the combined engine and boiler space shall for the purpose of paragraph (1) be regarded as a single space.

(4) In addition to the fixed installation required by paragraph (1) there shall be provided:

- (a) in each boiler space:
  - (i) if the number of burners therein is five or more, one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilograms capacity; or
  - (ii) if the number of burners therein is less than five, for each burner 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 required by the preceding sub-paragraph;
- (c) in each firing space a receptacle containing, in a ship of 1,000 tons or over, 0.3 cubic metre, or in a ship of under 1,000 tons, 0.15 cubic metre 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.

(5) If in any such ship of under 1,000 tons a fixed fire smothering steam installation is fitted in compliance with paragraph (2) and steam is supplied by water-tube boilers, there shall in addition be provided for the protection of the boiler space and spaces containing the oil fuel installation one foam fire extinguisher of at least 135 litres capacity or a carbon dioxide fire extinguisher of at least 45 kilograms capacity.

*Machinery spaces containing internal combustion type machinery*

**33.**— (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 is used for auxiliary purposes and having a total power of not less than 746 kilowatts at least one of the fixed fire extinguishing installations required by regulation 32(1) provided that in any such ship of under 1,000 tons a fixed fire smothering steam installation complying with the requirements of regulation 65 may be provided in lieu.

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

- (a) one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilograms capacity; and
- (b) one portable fire extinguisher suitable for extinguishing oil fires for each 746 kilowatts or part thereof of such machinery provided that not less than two nor more than six such extinguishers shall be required in any such space.

*Machinery spaces containing steam engines*

**34.** 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 for main propulsion, or used for auxiliary purposes and having a total power of not less than 746 kilowatts:

- (a) foam fire extinguishers each of at least 45 litres capacity or carbon dioxide fire extinguishers each of at least 16 kilograms capacity sufficient in number and so sited as to enable foam or carbon dioxide as the case may be to be directed on to any part of the pressure lubrication system and on to any part of the casing enclosing pressure lubricated parts of the turbines, engines or associated gearing, provided that such extinguishers shall be not required if equivalent protection is provided in such spaces by a fixed fire extinguishing installation fitted in compliance with regulation 32(1); and
- (b) one portable fire extinguisher, for each 746 kilowatts or part thereof of such machinery, suitable for extinguishing oil fires, provided that not less than two nor more than six such extinguishers shall be required in any such space and provided further that such extinguishers shall not be required in addition to any provided in compliance with regulation 33.

*Firemen's outfits*

35.— (1) Every ship of Class VII of 500 tons or over shall carry firemen's outfits complying with the requirements of regulation 69 in accordance with the following scale:

Tonnage of the ship	Number of outfits
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 36 metres in length would be necessary to reach from a point on the open deck well clear of any hatch or doorway to any part of the accommodation, service, cargo or machinery spaces, at least one fireman's outfit provided pursuant to paragraph (1) shall include breathing apparatus of the self-contained type.

*Fire alarm and detection systems*

36. Every ship of Class VII of 500 tons or over shall be provided with an automatic fire detection and alarm system, of a type approved by the Secretary of State, in any machinery space in which continuous manning is not required by reason of the installation of approved automatic and remote control systems and equipment.

*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 Schedule 2 to enable water piped from another ship or from the shore to be connected 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) (a) Every ship of Class VII of under 500 tons shall be provided with appliances whereby at least one jet of water can be supplied in accordance with the provision of regulation 59(3)(b);
- (b) every such ship shall be provided with at least one fire pump operated by power. Such pump shall be capable of delivering at least one jet of water from any fire hydrant provided in the ship, and shall comply with the requirements of regulation 58;
- (c) in every such ship fitted with oil-fired boilers or internal combustion type propulsion 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 a 10 millimetres diameter nozzle and shall be capable of producing through such hose and nozzle a jet of water

having a throw of not less than 6 metres 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 complying with the requirements of regulation 59 and at least three fire hoses;
- (e) in every such ship fitted with oil-fired boilers or internal combustion type propulsion machinery there shall be provided a spray nozzle suitable for use with the fire hoses required by the preceding subparagraph.

(2) 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.

(3) In every such ship there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil-fuel unit a fixed fire extinguishing installation of one of the following types:

- (a) a pressure water spraying system complying with the requirements of regulation 64;
- (b) a fire smothering gas or steam installation complying with the requirements of regulation 65;
- (c) a foam fire extinguishing installation complying with the requirements of regulation 66.

(4) In every such ship where the engine and boiler spaces are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler space into the engine space, the combined engine and boiler spaces shall, for the purpose of paragraph (3) be regarded as a single space.

(5) In addition to the installation required by paragraph (3) there shall be provided:

- (a) in each boiler 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; and
- (b) in each firing space, a receptacle containing at least 0.15 cubic metre 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 such ship there shall be provided in every space containing internal combustion type machinery either:

- (a) one portable fire extinguisher suitable for extinguishing oil fires for each 74.6 kilowatts or part thereof of such machinery or seven such extinguishers whichever is the less; or
- (b) two such extinguishers together with one foam fire extinguisher of at least 45 litres capacity or one carbon dioxide fire extinguisher of at least 16 kilograms capacity.

(7) Every such ship shall be provided with at least one fireman's outfit complying with the requirements of regulation 69 and which shall contain a breathing apparatus of the air-hose type.

## SHIPS OF CLASS VII(A)

39.— (1) Regulations 29 to 37 inclusive shall apply to every ship of Class VII(A) of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

(2) Every ship of Class VII(A) of less than 500 tons shall, if not subject to the Fishing Vessels (Safety Provisions) Rules 1975(a), carry such fire appliances as are required by those Rules to be carried by fishing vessels of that length.

## SHIPS OF CLASS VIII

## SHIPS OF 1,000 TONS OR OVER

40. Regulations 29, 30 and 32 to 37 inclusive 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.

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

- 41.— (1) (a) Every ship of Class VIII of 500 tons or over shall be provided with appliances whereby at least two jets of water can be supplied in accordance with the provision of regulation 59(3)(a).
- (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 provided in the ship and shall comply with the requirements of regulation 58.
- (c) If any such ship fitted with oil-fired boilers or internal combustion type propulsion machinery is so arranged that 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 with its own 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 in the ship, through a nozzle complying with regulation 60(4)(a) a jet of water having a throw of not less than 12.2 metres.
- (d) In every such ship there shall be provided a fire main, water service pipes and hydrants which shall comply with the requirements of regulation 59.
- (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 propulsion 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.

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(a) S.I. 1975/330, to which there are amendments not relevant to these Regulations.

(2) 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.

(3) In every such ship there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil-fuel unit a fixed fire extinguishing installation of one of the following types:

- (a) a pressure water spraying system complying with the requirements of regulation 64;
- (b) a fire smothering gas or steam installation complying with the requirements of regulation 65;
- (c) a foam fire extinguishing installation complying with the requirements of regulation 66.

(4) In every such ship where the engine and boiler spaces are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler space into the engine space, the combined engine and boiler space shall, for the purpose of paragraph (3), be regarded as a single space.

(5) If a fixed fire smothering steam installation is fitted in compliance with the requirements of sub-paragraph (3)(b) and steam is supplied only by water-tube boilers there shall be provided for the protection of the boiler space and spaces containing the oil fuel installation one foam fire extinguisher of at least 135 litres capacity or a carbon dioxide fire extinguisher of at least 45 kilograms capacity.

(6) In addition to the installation required by paragraph (3) there shall be provided:

- (a) in each boiler space:
  - (i) if the number of burners therein is five or more, one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilograms capacity; or
  - (ii) if the number of burners therein is less than five, for each burner 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; and
- (c) in each firing space, a receptacle containing at least 0.15 cubic metre 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.

(7) In every such ship there shall be provided in any space containing internal combustion type machinery used for the main propulsion, or used for auxiliary purposes and having a total power of not less than 186.5 kilowatts one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilograms capacity.

(8) In every such ship there shall be provided in any space containing internal combustion type machinery one portable fire extinguisher suitable for extinguishing oil fires for each 74.6 kilowatts or part thereof of such machinery,

provided that no more than six such extinguishers shall be required in any such space.

(9) Every such ship shall be provided with at least two firemen's outfits complying with the requirements of regulation 69 and at least one such outfit shall contain a breathing apparatus of the air-hose type.

SHIPS OF 150 TONS OR OVER BUT UNDER 500 TONS

- 42.— (1) (a) Every ship of Class VIII of 150 tons or over but under 500 tons shall be provided with appliances whereby at least one jet of water can be supplied in accordance with the provisions of regulation 59(3)(b).
- (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 provided in the ship and shall comply with the requirements of regulation 58.
- (c) In every such ship fitted with oil-fired boilers or internal combustion type propulsion 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 with its own 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 a 10 millimetres diameter nozzle and shall be capable of producing through such hose and nozzle a jet of water having a throw of not less than 6 metres 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 complying with the requirements of regulation 59 and at least two fire hoses.
- (e) In every such ship fitted with oil-fired boilers or internal combustion type propulsion machinery there shall be provided a spray nozzle suitable for use with the fire hoses required by the preceding sub-paragraph.

(2) Every such ship 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.

(3) In every such ship there shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil-fuel unit a fixed fire extinguishing installation of one of the following types:

- (a) a pressure water spraying system complying with the requirements of regulation 64;
- (b) a fire smothering gas or steam installation complying with the requirements of regulation 65;
- (c) a foam fire extinguishing installation complying with the requirements of regulation 66.



(4) In every such ship where the engine and boiler spaces are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler space into the engine space, the combined engine and boiler spaces shall, for the purpose of paragraph (3), be regarded as a single space.

(5) In addition to the installation required by paragraph (3) there shall be provided:

- (a) in each boiler space and in each space which contains any part of any fuel installation, at least two portable fire extinguishers suitable for extinguishing oil fires; and
- (b) in each firing space, a receptacle containing at least 0.15 cubic metre 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 such ship there shall be provided in any space containing internal combustion type machinery either:

- (a) one portable fire extinguisher suitable for extinguishing oil fires for each 74.6 kilowatts or part therefore of such machinery or seven such fire extinguishers, whichever is less; or
- (b) one foam fire extinguisher of at least 45 litres capacity or one carbon dioxide fire extinguisher of at least 16 kilograms capacity.

(7) Every such ship shall be provided with at least one fireman's axe.

#### SHIPS OF UNDER 150 TONS

43.— (1) In every ship of Class VIII of under 150 tons:

- (a) where such ship is 21.34 metres in length or over, such ship shall comply with the requirements of regulation 42(1) except that the fire pump required by regulation 42(1)(b) may be driven by the main engine;
- (b) where such ship is less than 21.34 metres in length there shall be provided in a position outside the machinery spaces a hand pump with a permanent sea connection, a hose with a 10 millimetres diameter nozzle capable of producing a jet of water having a throw of not less than 6 metres 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 9.14 metres in length or in any open ship of less than 21.34 metres in length, two fire buckets, one of which shall be fitted with a lanyard, may be substituted for such equipment but such buckets shall be not be required in addition to buckets provided in compliance with paragraph (2).

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

Length of ship in metres	Minimum number of extinguishers or buckets
Less than 21.34 metres	2
21.34 metres or more	3

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

(3) In addition to the items required by paragraph (2) every such ship which is fitted with oil-fired boilers or internal combustion type propulsion machinery shall be provided with portable fire extinguishers suitable for extinguishing oil fires in accordance with the following table:

Length of ship	Minimum number of extinguishers
Less than 6 metres	1
6 metres or more	2

(4) Every ship of Class VIII of under 150 tons of 9.14 metres in length or over which is:

- (a) fitted with oil-fired boilers or internal combustion type propulsion machinery; and
- (b) is mainly or wholly constructed of wood; and
- (c) is decked in way of the machinery space;

shall, subject to paragraph (5), be provided with means 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, where the machinery space is bounded by steel bulkheads, at least 40 per cent of the gross volume of the space. Such means of injection shall be situated outside the machinery space.

(5) In any such ship of less than 21.34 metres in length there may be substituted for the means of injection required by paragraph (4) a water spraying system supplied from a hand pump with a permanent sea connection. Such pump and sea connection shall be situated outside the machinery space and 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. Such pumps and sea connection may be the pump and sea connection referred to in paragraph (1)(b).

(6) Every ship of Class VIII of under 150 tons which is a fully-decked ship of 21.34 metres in length or over shall be provided with a fireman's axe.

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

44.— (1) Regulations 29, 30 and 32 to 37 inclusive shall apply to ships of Classes VIII(A), IX and IX(A) of 1,000 tons or over as they apply to ships of Class VII of 1,000 tons or over.

(2) Regulations 41(1) to (8), 42 and 43 inclusive shall apply to ships of Class VIII(A), IX and IX(A) of under 1,000 tons as they apply to ships of Class VIII of under 1,000 tons. In addition every such ship of 500 tons or over shall be provided with at least one fireman's outfit complying with the requirements of regulation 69 and which shall contain a breathing apparatus of the air-hose type.

#### SHIPS OF CLASS XI

45.— (1) Regulations 29, 30 and 32 to 37 inclusive shall apply to ships of Class XI of 1,000 tons or over as they apply to ships of Class VII of 1,000 tons or over.

(2) Regulations 41 to 43 inclusive shall apply to ships of Class XI of under 1,000 tons as they apply to ships of Class VIII of under 1,000 tons.

#### SHIPS OF CLASS XII

46.— (1) Regulations 29, 30 and 32 to 37 inclusive shall apply to ships of Class XII of 1,000 tons or over as they apply to ships of Class VII of 1,000 tons or over.

(2) Regulations 41 and 42 shall apply to ships of Class XII of 150 tons or over but under 1,000 tons as they apply to ships of Class VIII of under 1,000 tons.

- (3)(a) Every ship of Class XII of under 150 tons and of 21.34 metres in length or over shall be provided with appliances whereby at least one jet of water can be supplied in accordance with the provision of regulation 59(3)(b).
- (b) Every such ship shall be provided with at least one fire pump operated by power which may be driven by the main engine. 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 regulation 58.
- (c) In every such ship fitted with oil-fired boilers or internal combustion type propulsion machinery, in which the pump required by the preceding sub-paragraph with its own 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 with its own 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 10 millimetres diameter nozzle and shall be capable of producing through such hose and nozzle a jet of water having a throw of not less than 6 metres 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 complying with the requirements of regulation 59 and at least two fire hoses.
- (e) In every such ship fitted with oil-fired boilers or internal combustion type propulsion machinery there shall be provided a spray nozzle suitable for use with the fire hoses required by the preceding sub-paragraph.

(4) Every ship of Class XII of under 150 tons and of less than 21.34 metres 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 6 millimetres in diameter capable of producing a jet of water having a throw of not less than 6 metres 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 15.24 metres in length and in any open ship of less than 21.34 metres 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 (5).

(5) 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:

Length of ship	Minimum number of extinguishers or buckets
Less than 21.34 metres	2
21.34 metres or more	3

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

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

(7) Every ship of Class XII of under 150 tons being a fully decked ship of 21.34 metres in length or over shall be provided with a fireman's axe.

#### PART IV—TANKERS

##### TANKERS OF CLASS VII(T) OF 500 TONS OR OVER

###### *General requirements*

47.— (1) This part of these Regulations shall apply to tankers, except that in the case of a chemical tanker having a valid Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk, alternative arrangements may be provided to the satisfaction of the Secretary of State.

(2) Regulations 29, 30, 32, 33, 34, 36 and 37 shall apply to tankers of Class VII(T) of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

###### *Tankers requiring inert gas systems*

48.— (1) Except as provided in paragraph (3) every tanker of Class VII(T) of 20,000 tonnes deadweight or over constructed or adapted and used to carry crude oil and petroleum products having a closed flashpoint not exceeding 60°C, the Reid vapour pressure of which is below atmospheric pressure, and other liquids having a similar fire hazard shall be provided with an inert gas system complying with Schedule 1.

(2) The Secretary of State may exempt any such tanker of less than 40,000 tonnes deadweight other than those tankers specified in regulation 49(1)(a) to (d) carrying crude oil and not fitted with tank washing machines having an individual throughput of greater than 60 cubic metres per hour, from the inert gas requirements of Schedule 1 if it would be unreasonable or impracticable to apply such requirements taking into account the tanker's design characteristics.

(3) Tankers of less than 40,000 tonnes deadweight carrying oil other than crude oil or other liquids having a similar fire hazard which are not fitted with tank washing machines having an individual throughput greater than 60 cubic metres shall not be required to be fitted with an inert gas system.

(4) Every tanker of Class VII(T) of 500 tons or over which operates with a tank cleaning procedure using crude oil washing shall be fitted with an inert gas system complying with Schedule 1.

(5) In every such tanker of 500 tons or over only fixed tank washing machines shall be permitted when operating a tank cleaning procedure using crude oil washing.

(6) Every such tanker of 500 tons or over fitted with a fixed inert gas system in compliance with this regulation shall be provided with a closed ullage system.

(7) A tanker shall be exempt from the requirements to fit an inert gas system complying with Schedule 1 if it is fitted with an installation providing equivalent protection. For the purposes of this regulation an installation shall be deemed to provide equivalent protection to an inert gas system if it is:

- (a) capable of preventing dangerous accumulations of explosive mixtures in intact cargo tanks during normal service throughout the ballast voyage and necessary in-tank operations; and
- (b) so designed as to minimise the risk of ignition from the generation of static electricity by the system itself.

(8) Where any such tanker is constructed or adapted for the carriage of cargoes which introduce additional fire hazards, additional safety measures shall be provided.

*Tankers requiring foam protection*

49.— (1) Every tanker referred to in regulation 48(1):

- (a) for which the building contract was placed after 1st June 1979;
- (b) in the absence of a building contract, the keel of which was laid or which was at a similar stage of construction after 1st January 1980;
- (c) delivered after 1st June 1982; or
- (d) which undergoes an alteration or modification of a major character:
  - (i) for which a contract was placed after 1st June 1979; or
  - (ii) in the absence of a contract, the construction work of which was begun after 1st January 1980; or
  - (iii) which was completed after 1st June 1982;

shall be fitted with a fixed deck foam system complying with regulation 67.

(2) Every Category A tanker of Class VII(T) of 100,000 tons deadweight or over and every Category A combination carrier of Class VII(T) of 50,000 tons deadweight or over shall be provided with a fixed deck foam system complying with regulation 67.

(3) Every tanker of Class VII(T) of 2,000 tons or over not fitted with an inert gas system complying with Schedule 1 shall be provided with a fixed smothering gas or steam installation complying with regulation 65 or a fixed foam fire extinguishing installation complying with regulation 66(2) providing protection for all cargo spaces.

(4) Every tanker of Class VII(T) of 2,000 tons or over not fitted with a fixed deck foam system complying with regulation 67, or a fixed foam fire extinguishing installation complying with regulation 66(2) shall be provided with a mobile foam liquid fire fighting unit having a capacity of at least 100 litres of foam concentrate or alternatively two portable foam applicators each having not less than 50 litres of foam concentrate readily available. Such unit or appliances, when connected to the appropriate deck fire hydrants, shall be capable by simple and rapid means of operation of discharging foam on to the area of the cargo piping manifold.

(5) Every tanker of Class VII(T) of under 2,000 tons not provided with any of the deck foam arrangements or foam appliances referred to in paragraph (4) shall be provided with at least one mobile foam appliance whereby foam is immediately available, by simple and rapid means of operation, for discharge in the area of the cargo piping manifolds.

(6) A tanker shall be exempt from the requirement to be fitted with a fixed deck foam system complying with regulation 67 if it is provided with a fire extinguishing system providing equivalent protection. For the purposes of this regulation, a fire extinguishing system shall be deemed to provide equivalent protection to a fixed deck foam system if it is:

- (a) capable of extinguishing spill fires and precludes ignition of spilled oil not yet ignited; and
- (b) capable of combating fires in ruptured tanks.

(7) Where any such tanker is constructed or adapted for the cargoes which introduce additional fire hazards, additional safety measures shall be provided.

*Special requirements for combination carriers*

**50.** Combination carriers shall not carry solid cargoes unless all cargo tanks are empty of crude oil and other petroleum products having a close flash point not exceeding 60°C and other liquids having a similar fire hazard and are gas freed or unless the arrangements provided are in accordance with the relevant operational requirements contained in the "Guidelines for Inert Gas Systems" and to the satisfaction of the Secretary of State.

*Fixed fire extinguishing arrangements in cargo pump rooms in Category A tankers and in Category A combination carriers*

**51.** In every Category A tanker of Class VII(T) of 500 tons or over and in every Category A combination carrier of Class VII(T) of 500 tons or over, each cargo pump room shall be provided with a fixed fire extinguishing system operated from a readily accessible position outside the pump room. The system shall use water or other medium approved by the Secretary of State.

*Firemen's outfits*

**52.** In every tanker of Class VII(T) of 500 tons or over there shall be

provided not less than four firemen's outfits complying with the requirements of regulation 69. One such outfit carried in any such tanker shall include a breathing apparatus of the air-hose type and the remainder shall include breathing apparatus of the self-contained type provided that where the air hose of an air-hose type breathing apparatus has in order to comply with paragraph (2) of Schedule 5 to exceed 36 metres in length, a further self-contained breathing apparatus shall be provided as an addition.

TANKERS OF CLASS VII(T) OF UNDER 500 TONS

53. Regulation 38 shall apply to every tanker of Class VII(T) of under 500 tons as it applies to ships of Class VII of under 500 tons. In addition there should be provided at least one mobile foam appliance whereby foam is immediately available by simple and rapid means of operation for discharge in the area of the cargo manifolds.

TANKERS OF CLASS VIII(T), VIII(A)(T) AND IX (A)(T)

TANKERS OF 500 TONS OR OVER

54. Regulations 29, 30, 32, 33, 34, 36 and 37 shall apply to tankers of Classes VIII(T), VIII(A)(T) and IX(A)(T) of 500 tons or over as they apply to ships of Class VII of 500 tons or over. In addition regulations 48 to 52 inclusive shall apply to such tankers as they apply to tankers of Class VII(T) of 500 tons or over.

TANKERS OF 150 TONS OR OVER BUT UNDER 500 TONS

55. Regulation 42 shall apply to tankers of Classes VIII(T), VIII(A)(T) and IX(A)(T) 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. In addition there shall be provided at least one mobile foam appliance whereby foam is immediately available by simple and rapid means of operation for discharge in the area of the cargo manifolds.

TANKERS OF UNDER 150 TONS

56. Regulation 44 of these Regulations shall apply to tankers of Class VIII(T) of under 150 tons as it applies to ships of Class VIII of under 150 tons. In addition, there shall be provided a mobile foam appliance whereby foam is immediately available by simple and rapid means of operation for discharge in the area of the cargo manifolds.

PART V—GENERAL

*Additional requirements for ships carrying explosives*

57.— (1) Where any ship (other than a passenger ship) carries explosives of

such nature and of such quantity as are not permitted to be carried in a passenger ship by regulation 12(1) of the Merchant Shipping (Dangerous Goods) Regulations 1981(a) such explosives shall not be carried in any compartment fitted with steam fire smothering arrangements. A fire detection system complying with regulation 68 or a smoke detection system shall be provided in any compartment containing such explosives and in every adjacent compartment.

(2) For the purposes of this regulation "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 regulation, 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*

58.— (1) (a) In passenger ships, fire pumps (other than any emergency fire pump) which are to be operated by power shall, (operating together if more than one) be capable of delivering for fire fighting purposes under the conditions and of the pressure specified in regulation 59 a quantity of water 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) Regulations 1980.

(b) In ships other than passenger ships fire pumps (other than any emergency pump) which are required to be operated by power shall (operating together if more than one) be capable of delivering for fire fighting purposes under the conditions and at the pressure specified in regulation 59 a quantity of water of  $Cd^2$  per hour

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)  $d = 1 + 0.066 \sqrt{L(B + D)}$  to the nearest 0.25

where:

$L$  = length of the ship in metres 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;

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(a) S.I. 1981/1747.



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

D = moulded depth of the ship in metres 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 cubic metres per hour.

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

(3)(a) In every ship which is required by these Regulations 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) divided by the number of fire pumps required by these Regulations to be provided in the ship, provided that when more fire pumps operated by power than are required by these Regulations are provided in any ship, the Secretary of State may permit the capacity of any such additional fire pumps to be less than 80 per cent.

(b) Every fire pump required by these Regulations 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 Regulations as appropriate to the class and tonnage of the ship, while maintaining the pressure required by regulation 59(2).

(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) any emergency fire pump shall be situated in positions aft of the ship's collision bulkhead.

(7) In any ship in which automatic and remote-control systems have been provided in the machinery space, in lieu of continuous manning of the space, arrangements shall be made to ensure immediate availability of a water supply from the fire main at the required pressure either by permanent pressurisation or by suitably placed remote starting arrangements of the fire pumps.

*Fire main, water service pipes and hydrants*

59.— (1) In every ship required by these Regulations to be provided with one or more 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 regulation 58 from:

- (a) one pump where only one pump is required by these Regulations that pump; or
- (b) two such pumps simultaneously where two such pumps are required; or
- (c) from the two largest pumps simultaneously where more than two such pumps are so required;

provided that in any ship, other than a passenger ship, the diameter of the fire main and of the water service pipes shall not be required to be greater than is necessary for the discharge of 140 cubic metres of water per hour.

(2) Such fire pumps shall be capable, when discharging the maximum amounts referred to in paragraph (1) through adjacent fire hydrants with nozzles of the sizes specified in regulation 60, of maintaining at any hydrant the following minimum pressure:

- (a) in any passenger ship;
    - (i) of 4,000 tons and upwards—  
3.1 bar (0.31 newtons per square millimetre)
    - (ii) of 1,000 tons and upwards but under 4,000 tons—  
2.7 bar (0.27 newtons per square millimetre)
    - (iii) of under 1,000 tons—  
2.1 bar (0.21 newtons per square millimetre)
  - (b) in any ship other than a passenger ship,
    - (i) of 6,000 tons and upwards—  
2.7 bar (0.27 newtons per square millimetre)
    - (ii) of 1,000 tons and upwards but under 6,000 tons—  
2.5 bar (0.25 newtons per square millimetre)
    - (iii) of under 1,000 tons—  
2.1 bar (0.21 newtons per square millimetre)
- (3)(a) Where any ship is required by these Regulations to be provided with appliances capable of supplying two jets of water complying with this regulation, hydrants sufficient in number shall be so positioned as to enable at least two jets of water not emanating from the same hydrant, one such jet being 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 Regulations to be provided with appliances capable of supplying one jet of water complying with this regulation, 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 one fire hose and one nozzle are provided for each fire hydrant in the ship all fire hose couplings and nozzles in the ship shall be interchangeable;
- (c) hydrant valves of the screw lift type or cocks shall be fitted in such positions that any of the fire hoses may be isolated and 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 or alternatively the pipe wall thickness shall be increased by a corrosion allowance approved by the Secretary of State;
- (e) where wash deck lines are not self-draining suitable drain cocks shall be fitted to avoid damage by frost.

*Fire hoses, nozzles, etc.*

**60.**— (1) Fire hoses provided in compliance with these Regulations shall not exceed 18 metres in length except that fire hoses in ships having a moulded breadth of 27 metres or more used for exterior locations and cargo spaces may exceed 18 metres but shall not exceed 27 metres in length. All such hoses shall be made of closely woven flax canvas or other suitable material. All such hoses shall be provided with couplings, branch pipes and other necessary fittings and, except as otherwise required by these Regulations with a plain nozzle.

(2) Every fire hose provided in compliance with these Regulations, 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 Class XII fire hoses provided in compliance with these Regulations shall not be used for any purpose other than for fire fighting or testing the fire appliances.

- (4)(a) Every ship which is required by these Regulations to be provided with fire pumps operated by power shall be provided with nozzles of 12 millimetres, 16 millimetres, or 19 millimetres in diameter or as near thereto in diameter as possible. Nozzles larger in diameter may be provided if the requirements of these Regulations 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 at the pressure required by regulation 59 from the smallest fire pump permitted by regulation 58 (3)(a) provided that the diameter of the nozzles shall not be required to be greater than 19 millimetres;

- (c) for accommodation and service spaces the diameter of the nozzles shall not be required to be greater than 12 millimetres;
- (d) in Category A tankers and in Category A combination carriers of 500 tons or over respectively, all nozzles provided in accordance with these Regulations shall be of dual purpose spray/jet type incorporating a shut-off facility;
- (e) every spray nozzle provided in compliance with these Regulations 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) provided that a dual purpose spray/jet nozzle capable of producing alternately such a spray and a plain water jet may be provided in substitution.

*International shore connection*

**61.** Any international shore connection provided in compliance with these Regulations shall be constructed in accordance with the requirements of Schedule 2.

*Fire extinguishers*

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

- (2)(a) Portable fire extinguishers (other than carbon dioxide fire extinguishers) provided in compliance with these Regulations shall, if they are of a type discharging fluid, have a capacity of not more than 13.5 litres and not less than 9 litres;
  - (b) portable carbon dioxide fire extinguishers provided in compliance with these Regulations shall have a capacity of not less than 3 kilograms of carbon dioxide;
  - (c) portable dry powder fire extinguishers provided in compliance with these Regulations shall have a capacity of not less than 4.5 kilograms of dry powder;
  - (d) portable fire extinguishers of other types provided in compliance with these Regulations shall be of not less than the fire extinguishing equivalent of a 9 litre fluid fire extinguisher;
  - (e) portable fire extinguishers provided in compliance with these Regulations shall not exceed 25.6 kilograms in weight in the fully charged service condition and shall be as portable as a 13.5 litres fluid fire extinguisher.
- (3) Portable fire extinguishers provided in compliance with these Regulations 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 Regulations shall, subject to the limitations of paragraphs (2) and (3), be constructed in accordance with the following specifications of the British Standards Institution:

Type of Extinguisher	Specification Number
Water type (Soda-acid)	BS 138: 1948
Water type (Gas-pressure)	BS 1382: 1948
Foam type (Chemical)	BS 740: Part 1: 1948
Foam type (Gas-pressure)	BS 740: Part 2: 1952
Carbon dioxide	BS 3326: 1960
Dry powder	BS 3465: 1962

or BS 5432 which supersedes those specifications.

(5) Where portable dry powder fire extinguishers are provided in compliance with these Regulations 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) No fire extinguisher provided for use in any ship shall contain an extinguishing medium which either itself or when in use gives off gases harmful to persons.

(7) For the purposes of these Regulations 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 Regulations 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 Regulations shall be kept fully charged.

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

#### *Fire buckets*

**63.**— (1) Every fire bucket provided in compliance with these Regulations 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 Regulations shall not be used for any purpose other than extinguishing fire.

#### *Fixed pressure water spraying systems for machinery spaces*

**64.**— (1) Every fixed pressure water spraying system fitted in compliance with these Regulations 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 which are 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 designed 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 designed pressure simultaneously to all sections of the water spraying system in any one compartment. The pump and its controls shall be installed outside the space or spaces to be protected. The water spraying system shall be so arranged that it cannot be put out of action by a fire in the space or spaces it is designed to protect.

(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 ship.

(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*

65.— (1) In every such installation provided for the injection of gas or steam into machinery or cargo spaces for fire extinguishing purposes, other than an installation fitted in a ship of Class VIII of under 150 tons in compliance with regulation 43(4), the pipes for conveying the gas or steam 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.

(2) 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 18.3 metres 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 near as practicable 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:

(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 those 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 further that if two or more spaces containing boilers or machinery are not entirely separate they shall for the purposes of this regulation be considered as forming one space;

(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 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, whichever is greater;

(e) for the purpose of this paragraph the volume of gas shall be calculated at 0.56 cubic metre to the kilogram;

(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 (4)(b) 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 (4)(c) 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 such space 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 rate of at least 1.33 kilograms of steam per hour for each cubic metre of the gross volume of the largest such space. The arrangements shall be such that steam will be immediately available 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. Provision shall be 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*

66.— (1) Subject to paragraph (2) every fixed foam fire extinguishing installation fitted in compliance with these Regulations other than the deck foam system specified in regulation 67 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 150 millimetres 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 shall include means for the effective distribution of the foam through a permanent system of piping and control valves or cocks to discharge outlets and fixed sprayers directing the foam on to oil fire hazards in the protected space and which shall be capable of being operated 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 to meet the requirements of regulation 49(3) for the protection of the cargo oil tanks shall be capable of distributing on the decks over such tanks through fixed discharge outlets in not more than 15 minutes a quantity of foam sufficient to cover to a depth of at least 50 millimetres the whole of the tank deck area. Such installation shall be capable of generating foam suitable for extinguishing oil fires and shall include means 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.

*Deck foam systems*

**67.**—(1) Every fixed deck foam system fitted in accordance with regulation 49(1) or 49(2) shall comply with the following paragraphs.

(2) The arrangements for providing foam shall be capable of delivering foam to the entire cargo tank area as well as into any cargo tank, the deck of which has been ruptured.

(3) The deck foam system shall be capable of simple and rapid operation: the main control station for the system shall be suitably located outside the cargo tank area, adjacent to the accommodation spaces and readily accessible and operable in the event of fire in the areas protected.

(4) The rate of supply of foam solution shall be not less than the greater of the following:

- (a) 0.6 litre per minute per square metre of the cargo deck area, where cargo deck area means the maximum breadth of the ship times the total longitudinal extent of the cargo tank spaces, or
- (b) 6 litres per minute per square metre of the horizontal sectional area of the single tank having the largest such area.

(5) Sufficient foam concentrate shall be supplied to ensure at least 20 minutes of foam generation when using solution rates stipulated in subparagraph 4(a) or 4(b) whichever is the greater. The foam expansion ratio (being the ratio of the volume of foam produced to the volume of the mixture of water and foam making concentrate supplied) shall not exceed 12 to 1; provided that where systems essentially produce low expansion foam but at an expansion ratio slightly in excess of 12 to 1 the quantity of foam solution available shall be calculated as for 12 to 1 expansion ratio systems.

(6) Foam from the fixed foam system shall be supplied by means of monitors and foam applicators. Each monitor shall be capable of supplying at least 50 per cent of the required foam rate.

(7) The number and position of monitors shall be such as to comply with paragraph (2). The capacity of any monitor in litres per minute of foam solution shall be at least three times the deck area in square metres protected by that monitor, such area being entirely forward of the monitor. The distance from the monitor to the farthest extremity of the protected area forward of that monitor shall not be more than 75 per cent of the monitor throw in still air conditions.

(8) A monitor and hose connection for a foam applicator shall be situated both port and starboard at the poop front or accommodation spaces facing the cargo deck. Applicators shall be provided for flexibility of action during fire-fighting operations and to cover areas screened from the monitors.

(9) Valves shall be provided in both the foam main and the fire main immediately forward of every monitor position to isolate damaged sections of these mains.

(10) Operation of a deck foam system at its required output shall permit the simultaneous use of the minimum required number of jets of water at the required pressure from the fire main.

*Fire detection systems*

**68.**— (1) Every fire detection system fitted in compliance with these Regulations 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 provided with direct communication with the navigating bridge, provided that the Secretary of State may in any ship permit the indicators to be distributed among several stations if he is satisfied that such arrangements are at least as effective as centralised indicators.

(2) In any passenger ship electrical equipment used in the operation of any fire detection system fitted in compliance with these Regulations shall be capable of being supplied from two sources of electric power one of which shall be the emergency source of power required by regulation 101 of the Merchant Shipping (Passenger Ship Construction) Regulations 1980.

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

*Firemen's outfits*

**69.**— (1) Every fireman's outfit carried in compliance with these Regulations shall consist of:

- (a) a breathing apparatus complying with the requirements specified in Schedule 5;
- (b) a portable self-contained electric battery-operated safety lamp capable of functioning efficiently for a period of at least three hours;
- (c) a fireman's axe;
- (d) protective clothing of material suitable to protect the skin from the heat radiating from the fire and from burns and scalding by steam, the outer surface of which shall be water-resistant;
- (e) boots and gloves of rubber or other electrically non-conducting material; and
- (f) a rigid helmet providing effective protection against impact.

(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*

**70.**— (1) In every ship to which these Regulations apply means shall be provided for stopping ventilating fans serving machinery, accommodation and cargo spaces. Means shall be provided for closing all skylights, doorways,

ventilators, and other openings to such spaces including annular spaces around funnels. Such means shall be capable of being operated from positions which are outside such spaces and which would not be made inaccessible by a fire within such spaces.

(2) In every such ship any 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 such ship 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. Such valve or cock shall be capable of being closed from a readily accessible position outside the space in which the tank is situated, provided that where the pipe is an inlet pipe 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.

*Additional requirements for ships provided with a helicopter landing area and fuelling facilities*

71.— (1) On any helicopter landing area there shall be provided and stored adjacent to the means of access to that area:

- (a) dry powder extinguishers of total capacity not less than 45 kilograms;
- (b) a foam application system consisting of monitors or foam making branch pipes capable of delivering foam solution at a rate of not less than 6 litres per minute per square metre of the area contained within a circle of diameter D metres for not less than five minutes, where D is the distance across the main rotor and tail rotor in the fore and aft line of a helicopter with a single-main rotor, and across both rotors for a tandem-main rotor helicopter:

except that where a ship is provided with foam arrangements in compliance with either regulation 49(1), 49(4) or 49(5) and where it is practicable for such arrangements to be used for the protection of the helicopter landing area, this requirement need not be complied with; and

- (c) carbon dioxide extinguishers of total capacity of not less than 16 kilograms, which shall be provided with fittings so as to enable them to be applied to the engine area of any helicopter using the landing area.

(2) The arrangement of water service pipes, hydrants, hoses and nozzles shall be such that at least two jets of water can reach any part of the helicopter landing area and, where helicopter refuelling facilities are provided, any part of the fuel storage tanks and associated pumps and piping.

(3) All such nozzles provided in accordance with paragraph (2) shall be of dual purpose spray/jet type.

(4) In every ship provided with helicopter refuelling facilities, at least two portable extinguishers suitable for fighting oil fires shall be provided in addition to any other portable fire extinguisher required by these Regulations. Such extinguishers shall be kept in a position adjacent to the fuel storage tanks and associated pumps and piping.

#### *Fire control plans*

72.— (1) In every ship of Classes I and II and in every ship of Class II(A) of 21.34 metres 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 adjoining decks, 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 regulation 70.

(2) In every ship of 500 tons or over, other than one to which paragraph (1) applies, there shall be permanently exhibited for the guidance of the master and officers of the ship general arrangement plans showing clearly all the information referred to in paragraph (1) which is applicable to the ship.

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

(4) A duplicate set of the general arrangement plans shall be permanently stored in a prominently marked weathertight enclosure outside the deck house for the assistance of shore-side fire-fighting personnel.

(5) In ships to which paragraph (1) or (2) applies, instructions concerning the maintenance and operation of all the equipment and installations on board for fire-fighting and containment of the fire shall be kept in one book readily available in an accessible position.

#### *Availability of fire-fighting appliances*

73. Fire-fighting appliances carried in any ship shall be maintained in good order and shall be kept available for immediate use at all times. All moveable fire-fighting appliances, other than firemen's outfits, 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*

74.— (1) Where these Regulations 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 Secretary of State 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 he is satisfied that that such other fitting, material, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by these Regulations.

(2) The Secretary of State may grant exemptions from all or any of the provisions of these Regulations (as may be specified in the exemption) for classes of cases or individual cases on such terms (if any) as he may so specify and may, subject to giving reasonable notice, alter or cancel such exemption.

(3) Every ship of Class I-IX(A)(T), XI or XII the keel of which was laid before 26th May 1965 shall be exempt from the provisions of these Regulations to the extent and subject to the conditions specified in Schedule 7.

#### *Penalties*

75. If a ship proceeds or attempts to proceed on a voyage without complying with the requirements of these Regulations, the owner and master of the ship each shall be guilty of an offence and liable on summary conviction to a fine not exceeding £1,000 or on conviction on indictment, to imprisonment for a term not exceeding two years and a fine.

#### *Powers to detain*

76. In any case where a ship does not comply with the requirements of these Regulations, the ship shall be liable to be detained and section 692 of the Merchant Shipping Act 1894 (which relates to the detention of a ship) shall have effect in relation to the ship, subject to the modification that for the words "this Act" wherever they appear, there shall be substituted "the Merchant Shipping (Fire Protection) (Ships Built Before 25th May 1980) Regulations 1985".

*Nicholas Ridley,*  
Secretary of State for Transport.

29th July 1985.

## Regulation 48

## SCHEDULE 1

## INERT GAS SYSTEMS

(1) Every fixed inert gas system shall comply with the following requirements except that the requirements of sub-paragraphs *h*; *(i)*(ii); *(j)*(ii); *(j)*(vii); *(j)*(ix); *(k)*(iii); *(k)*(iv); *(m)*(iii)(2); and *(s)*(viii) of paragraph (2) need not apply to inert gas systems fitted before 1st June 1981.

- (2) (a) (i) The inert gas system shall be designed, constructed and tested to the satisfaction of the Secretary of State. It shall be designed and operated so as to render and maintain the atmosphere of the cargo tanks including the slop tanks non-flammable at all times, except where such tanks are to be gas free; and
- (ii) in the event that the inert gas system becomes unable to meet the operational requirements set out above and it has been assessed that it is impractical to effect a repair, then cargo discharge, deballasting and necessary tank cleaning shall only be resumed when the "emergency procedures" laid down in the "Guidelines for Inert Gas Systems" are complied with.
- (b) The system shall be capable of:
- (i) inerting empty cargo tanks including slop tanks by reducing the oxygen content of the atmosphere in each tank to a level at which combustion cannot be supported;
- (ii) maintaining the atmosphere in any part of any cargo tank or slop tank at an oxygen content not exceeding 8 per cent by volume and at a positive pressure at all times both in port and at sea except when it is necessary for such a tank to be gas free;
- (iii) eliminating the need for air to enter a tank during normal operations except when it is necessary for such a tank to be gas free; and
- (iv) purging empty cargo tanks including slop tanks of hydrocarbon vapour, so that subsequent gas freeing operations will at no time create a flammable atmosphere within the tank.
- (c) (i) The system shall be capable of delivering inert gas to the cargo tanks and slop tanks at a rate of at least 125 per cent of the maximum rate of discharge capacity of the ship, expressed as a volume; and
- (ii) the oxygen content of the inert gas main shall not normally exceed 5 per cent by volume.
- (d) The inert gas supply may be treated flue gas from the main or auxiliary boilers, from one or more separate gas generators or other sources or from any combination thereof. The Secretary of State may approve systems using inert gases other than flue gas, provided he is satisfied that an equivalent standard of safety is achieved. Systems using stored carbon dioxide shall not be permitted unless the Secretary of State is satisfied that the risk of ignition from generation of static electricity by the system itself is minimised.

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- (e) Flue gas isolating valves shall be fitted in the inert gas supply mains between the boiler uptakes and the flue gas scrubber. These valves shall be provided with indicators to show whether they are open or shut, and precautions shall be taken to maintain them gas-tight and keep the seating clear of soot. Arrangements shall be made so that boiler soot blowers cannot be operated when the corresponding flue gas valve is open.
- (f) (i) A flue gas scrubber shall be fitted which will effectively cool the volume of gas specified in sub-paragraph (c) and remove solids and sulphur combustion products. The cooling water arrangements shall be such that an adequate supply of water will always be available without interfering with any essential services on the ship. Provision shall also be made for an alternative supply of cooling water; and
- (ii) filters or equivalent devices shall be fitted to minimise the amount of water carried over to the inert gas blowers.
- (g) (i) At least two blowers shall be fitted which together shall be capable of delivering to the cargo tanks and slop tanks, at least the volume of gas required by sub-paragraph (c). In a system provided with a gas generator, the Secretary of State may permit only one blower if that system is capable of delivering the total volume of gas required by sub-paragraph (c) to the protected cargo tanks, provided that sufficient spares for the blower and its prime mover are carried on board to enable any failure of the blower and its prime mover to be rectified by the ship's crew;
- (ii) two fuel oil pumps shall be fitted to the inert gas generator. The Secretary of State may permit only one fuel oil pump on condition that sufficient spares for the fuel oil pump and its prime mover are carried on board to enable any failure of the fuel oil pump and its prime mover to be rectified by the ship's crew;
- (iii) the inert gas system shall be so designed that the maximum pressure which it can exert on any cargo tank or slop tank will not exceed the test pressure of any such tank. Suitable shut-off arrangements shall be provided on the suction and discharge connections of each blower. Arrangements shall be provided to enable the functioning of the inert gas plant to be stabilised before commencing cargo discharge. If the blowers are to be used for gas freeing, their air inlets shall be provided with blanking arrangements.
- (h) (i) The design and location of scrubber and blowers with relevant piping and fittings shall be such as to prevent flue gas leakages into enclosed spaces;
- (ii) to permit safe maintenance, an additional water seal or other effective means of preventing flue gas leakage shall be fitted between the flue gas isolating valves and scrubber or incorporated in the gas entry to the scrubber.
- (i) (i) A gas regulating valve shall be fitted in the inert gas supply main. This valve shall be automatically controlled to close as required in sub-paragraph (s)(iii) and (iv). It shall also be capable of automatically regulating the flow of inert gas to the cargo tanks and slop tanks unless means are provided to automatically control the speed of the inert gas blowers required in sub-paragraph (g);

- (ii) the valve referred to in sub-paragraph (i) shall be located at the forward bulkhead of the most forward gas safe space through which the inert gas supply main passes.
- (j)
- (i) At least two non-return devices, one of which shall be a water seal, shall be fitted in the inert gas supply main, in order to prevent the return of hydrocarbon vapour to the machinery spaces uptakes or to any gas safe spaces under all normal conditions of trim, list and motion of the ship. They shall be located between the automatic valve required by sub-paragraph (i) and the aftermost connection to any cargo tank or cargo pipeline;
  - (ii) the devices referred to in this paragraph shall be located in the cargo area on deck;
  - (iii) the water seal referred to in sub-paragraph (i) shall be capable of being supplied by two separate pumps, each of which shall be capable of maintaining an adequate supply at all times;
  - (iv) the arrangement of the seal and its associated provisions shall be such that it will prevent back-flow of hydrocarbon vapours and will ensure the proper functioning of the seal under operating conditions;
  - (v) provision shall be made to ensure that the water seal is protected against freezing, in such a way that the integrity of the seal is not impaired by overheating;
  - (vi) a water loop or other arrangement approved by the Secretary of State shall also be fitted to all associated water supply and drain piping and all venting or pressure sensing piping leading to gas safe spaces. Means shall be provided to prevent such loops from being emptied by vacuum;
  - (vii) the deck water seal and all loop arrangements shall be capable of preventing return of hydrocarbon vapours at a pressure equal to the test pressure of the cargo tanks;
  - (viii) the second non-return device mentioned in sub-paragraph (i) shall be a non-return valve or equivalent capable of preventing the return of vapours or liquids or both and fitted forward of the deck water seal required by sub-paragraph (i). It shall be provided with either positive means of closure or an additional valve having such means of closure located forward of the non-return valve to isolate the deck water seal from the inert gas main to the cargo tanks and slop tanks;
  - (ix) as an additional safeguard against the possible leakage of hydrocarbon liquids or vapours back from the deck main, means shall be provided to permit the section of the line between the valve having positive means of closure referred to in sub-paragraph (viii), and the valve referred to in sub-paragraph (i) to be vented in a safe manner when the first of these valves is closed.
- (k)
- (i) The inert gas main may be divided into two or more branches forward of the non-return devices required by sub-paragraph (j);
  - (ii) (A) the inert gas supply main shall be fitted with branch piping leading to each cargo tank and slop tank. Branch piping for



- inert gas shall be fitted with either stop valves or equivalent means of control for isolating each tank. Where stop valves are fitted, they shall be provided with locking arrangements, which shall be under the control of a responsible ship's officer;
- (B) in combination carriers, the arrangements to isolate the slop tanks containing oil or oil residues from other tanks shall consist of blank flanges which will remain in position at all times when cargoes other than oil are being carried except as provided for in the relevant section of the "Guidelines for Inert Gas Systems";
  - (iii) means shall be provided to protect cargo tanks and slop tanks against the effect of over-pressure or vacuum caused by thermal variations when such tanks are isolated from the inert gas main;
  - (iv) piping systems shall be so designed as to prevent the accumulation of cargo or water in the pipelines under all normal conditions;
  - (v) suitable arrangements shall be provided to enable the inert gas main to be connected to an external supply of inert gas.
- (l) The arrangements for the venting of all vapours displaced from the cargo tanks during loading or ballasting shall comply with regulation 70(3) of the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981(a) and shall consist of either one or more mast risers, or a number of high velocity vents. The inert gas supply main may be used for such venting.
- (m) The arrangements for inerting, purging or gas freeing of empty tanks as required in sub-paragraph (b) shall be approved by the Secretary of State and shall be such that the accumulation of hydrocarbon vapours in pockets formed by the internal structural members in a tank is minimised and that:
- (i) on individual cargo tanks or slop tanks the gas outlet pipe, if fitted, shall be positioned as far as practicable from the inert gas/air inlet and in accordance with regulation 70(3) of the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981. The inlet of such outlet pipes may be located at either deck level or at not more than 1 metre above the bottom of the tank;
  - (ii) each gas outlet referred to in sub-paragraph (i) shall be fitted with suitable blanking arrangements; and
  - (iii) (A) if a connection is fitted between the inert gas supply main and the cargo piping system, arrangements shall be made to ensure an effective isolation having regard to the high pressure difference which may exist between the systems; this shall consist of two shut-off valves with an arrangement to vent the space between the valves in a safe manner or an arrangement consisting of a spool-piece with associated blanks;
  - (B) the valve separating the inert gas supply main from the cargo main and which is on the cargo main side shall be a non-return valve with a positive means of closure.

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(a) S.I. 1981/572.

- (n) (i) One or more pressure-vacuum breaking devices shall be provided to prevent the cargo tanks from being subject to:
- (A) a positive pressure in excess of the test pressure of the cargo tank if the cargo were to be loaded at the maximum rated capacity and all other outlets were left shut; and
  - (B) a negative pressure in excess of 700 millimetres water gauge, if cargo were to be discharged at the maximum rated capacity of the cargo pumps and the inert gas blower were to fail;
- such devices shall be installed on the inert gas main unless they are installed in the venting system required by regulation 12 of the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1984(a) or on individual cargo tanks;
- (ii) the location and design of the devices referred to above shall be in accordance with regulation 70(3) of the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981.
- (o) Means shall be provided for continuously indicating the temperature and pressure of the inert gas at the discharge side of the gas blowers, whenever those gas blowers are operating.
- (p) (i) Instrumentation shall be fitted for continuously indicating and permanently recording when the inert gas is being supplied:
- (A) the pressure of the inert gas supply main forward of the non-return devices required by sub-paragraph (j)(i); and
  - (B) the oxygen content of the inert gas in the inert gas supply main on the discharge side of the gas blowers;
- (ii) the devices referred to in sub-paragraph (i) shall be placed in the cargo control room where provided. Where no cargo control room is provided, they shall be placed in a position easily accessible to the officer in charge of cargo operations;
- (iii) in addition, meters shall be fitted:
- (A) in the navigating bridge, to indicate at all times the pressure referred to in sub-paragraph (i)(A) and the pressure in the slop tanks of combination carriers, whenever those tanks are isolated from the inert gas supply main; and
  - (B) in the machinery control room or in the machinery space, to indicate the oxygen content referred to in sub-paragraph (i)(B).
- (q) Portable instruments for measuring oxygen and flammable vapour concentration shall be provided. In addition, suitable arrangements shall be made on each cargo tank and slop tank such that the condition of the tank atmosphere can be determined using these portable instruments.
- (r) Suitable means shall be provided for the zero and span calibration of both fixed and portable gas concentration measurement instruments, referred to in sub-paragraphs (p) and (q).
- (s) (i) Audible and visual alarms shall be provided to indicate:
- (A) low water pressure or low water flow rate to the flue gas scrubber referred to in sub-paragraph (f)(i);

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(a) S.I. 1984/1217.

- (B) high water level in the flue gas scrubber referred to in sub-paragraph (f)(i);
  - (C) high gas temperature referred to in sub-paragraph (o);
  - (D) failure of any of the inert gas blowers referred to in sub-paragraph (g);
  - (E) oxygen content referred to in sub-paragraph (p)(i)(B) in excess of 8 per cent by volume;
  - (F) failure of the power supply to the automatic control system for the gas regulating valve and to the indicating devices referred to in sub-paragraphs (i) and (p)(i) respectively;
  - (G) low water level in the water seal referred to in sub-paragraph (j)(i);
  - (H) gas pressure as referred to in sub-paragraph (p)(i)(A) less than 100 millimetres water gauge; the alarm arrangement for this gas pressure shall be such as to ensure that the pressure in slop tanks in combination carriers can be monitored at all times; and
  - (I) high gas pressure referred to in sub-paragraph (p)(i)(A);
- (ii) in the system with gas generators, audible and visual alarms shall be provided in accordance with sub-paragraphs (i)(A), (i)(C) and (i)(E) to (i)(I) and additional alarms to indicate:
    - (A) insufficient fuel oil supply;
    - (B) failure of the power supply to the generator; and
    - (C) failure of the power supply to the automatic control system for the generator;
  - (iii) automatic shut down of the inert gas blowers and gas regulating valve shall be arranged to operate on system designed limits being reached in respect of sub-paragraphs (i)(A), (i)(B) and (i)(C);
  - (iv) automatic shut down of the gas regulating valve shall be arranged to operate on failure of the inert gas blowers referred to in sub-paragraph (g);
  - (v) in relation to sub-paragraph (i)(E) when the oxygen content of the inert gas exceeds 8 per cent, immediate action shall be taken to reduce the oxygen level. Unless the quality of gas improves, all in-tank operations shall be suspended so as to avoid air being drawn into the tanks and the isolation valve referred to in sub-paragraph (j)(viii) shall be closed;
  - (vi) the alarms required in sub-paragraphs (i)(E), (i)(F) and (i)(H) shall be fitted in the machinery space and cargo control room, where provided, but in the event in such a position that they are immediately received by responsible members of the crew;
  - (vii) in relation to the water seal referred to in sub-paragraph (i)(G) arrangements shall be made to the satisfaction of the Secretary of State for the maintenance of an adequate reserve of water at all times and the integrity of the arrangements to permit the automatic formation of the water seal when the gas flow ceases. The audible and visual alarm on the low level of water in the water seal shall operate when the inert gas is not being supplied;

- (viii) an audible alarm system, independent of that required in subparagraph (i)(H) or automatic shut down of cargo pumps shall be provided to operate on the system designed limit of low pressure in the inert gas main being reached.
- (t) A detailed instruction manual for any inert gas system fitted in compliance with this Schedule shall be provided on board by the owner. The manual shall cover the operational safety and maintenance requirements and occupational health hazards relevant to the inert gas system and its application to the cargo tank system. In addition the manual shall include guidance on procedures to be followed in the event of a fault or failure of the inert gas system as described in the "Guidelines for Inert Gas Systems".

## Regulations 11, 37 and 61      SCHEDULE 2

## INTERNATIONAL SHORE CONNECTION

(1) The international shore connection which is required by these Regulations to be carried in the ship shall be in accordance with the following specification:

Outside diameter: 178 millimetres  
Inner diameter: 64 millimetres  
Bolt circle diameter: 132 millimetres  
Holes: 4 holes of 19 millimetres diameter equidistantly placed, slotted to the flange periphery  
Flange thickness: 14.5 millimetres minimum  
Bolts: 4, each of 16 millimetres diameter, 50 millimetres length with eight washers  
Flange surface (side not permanently attached as required by paragraph (2)); flat face  
Material: any suited to 10 bar (1.0 newtons per square millimetre) service  
Gasket: any suited to 10 bar (1.0 newtons per square millimetre) service

(2) The international shore connection shall be permanently attached to a coupling which will fit the ship's hydrants and hoses.

(3) The gasket, bolts and washers referred to in paragraph (1) shall be kept aboard the ship together with the international shore connection.

## Regulation 62(1)      SCHEDULE 3

## NON-PORTABLE FOAM FIRE EXTINGUISHERS

(1) Every foam fire extinguisher, other than a portable fire extinguisher, 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 in the case of an extinguisher of 136 litres capacity or over for a distance of 14 metres for a period of not less than 90 seconds, or for a distance of 10 metres for a period of not less than 60 seconds in the case of an extinguisher of less than 136 litres.

(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 19.3 bar with the solution at a temperature of 38°C.

(8) The extinguisher shall be capable of withstanding for a period of 5 minutes an internal pressure of 1.5 times the pressure in the extinguisher when put into action with all outlets closed, and in no event of less than 24 bar.

(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; and
- (f) the year in which the extinguisher was manufactured.

## Regulation 62(1)

## SCHEDULE 4

## NON-PORTABLE CARBON DIOXIDE FIRE EXTINGUISHERS

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

Numbers BS 401: 1931, BS 1287: 1946, BS 1288: 1946, or BS 5045 Part 1, (which supersedes those specifications), or BS 5396: 1976.

(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 122 bar 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:

Capacity of extinguisher	Minimum bore of discharge hose
16 kilograms	10 millimetres
45 kilograms	12 millimetres

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 15°C and 18°C inclusive, the extinguisher shall discharge gas at such a rate that carbon dioxide equal in weight to 75 per cent of the capacity of the container will be discharged in the periods respectively set forth in the following table:

Capacity of extinguisher	Period
16 kilograms	30 to 45 seconds
45 kilograms	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 BS 3326: 1960, or BS 5423: 1980 (which supersedes that specification).

## Regulation 69(1)

## SCHEDULE 5

## BREATHING APPARATUS

(1) Every breathing apparatus shall be either:

- (a) a smoke helmet or a smoke mask, in either case 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 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 such 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 shall be of the open circuit compressed air type and shall be of a type which has a Certificate of Assurance issued by the Health and Safety Executive certifying that it complies with the requirements of the Joint Testing Memorandum of the Health and Safety Executive, the Department of Transport and the Home Departments.
- (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 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 per minute at any time when the pressure in the supply cylinder or cylinders is above 10.5 kilograms per square centimetre. 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 16 kilograms; 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 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; and
  - (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 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.

- (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 be resistant to penetration 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 3 metres 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 500 kilograms and shall be overlaid up to at least 32 millimetres 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-flammable 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; and
  - (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.



## SCHEDULE 6

Regulation 5(3)(b)

## PORTABLE FOAM APPLICATOR UNIT

(1) Every portable foam applicator unit provided in compliance with these Regulations shall be provided with:

- (a) an induction type of air-foam nozzle capable of being connected to the fire main by means of a fire hose;
- (b) a portable tank containing at least 20 litres of foam concentrate from which the nozzle specified at sub-paragraph (a) can induce the contents; and
- (c) a spare tank identical to that specified at sub-paragraph (b).

(2) The nozzle shall be suitable for delivering foam solution (which is the mixture of water and foam concentrate) at the rate of at least 200 litres per minute.

(3) The foam expansion ratio (which is the ratio of the volume of foam produced to the volume of foam solution) shall not exceed 12 to 1.

## SCHEDULE 7

Regulation 74(3)

## EXEMPTIONS

## SHIPS OF CLASSES I TO IX(A)(T), XI AND XII

(1) Except as provided in paragraphs (2), (3) and (4) every ship of Class I to IX(A)(T), XI or XII the keel of which was laid before 26th May 1965 shall be exempt from all the requirements of these Regulations on condition that it complies with all the requirements of the Merchant Shipping (Fire Appliances) Rules 1952(a) which would have applied to it if those Rules had not been revoked.

(2) Ships of the classes or descriptions specified in column 1 of the Annex hereto are not exempt from, and must comply with the provisions of these Regulations specified in relation to them in column 2 of that Annex.

(3) A ship to which regulation 31(1) applies (ships of Classes VII and VII(A)) which is carrying explosives is exempt from the requirement of that regulation to provide a fixed fire smothering installation if; and only if;

- (a) it duly complies with the prohibition imposed by regulation 57(1) on the use of steam for fire smothering purposes in compartments containing explosives; and
- (b) it is provided in such compartments with either:
  - (i) an efficient temporary fire smothering gas installation; or

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(a) S.I. 1952/1950.

- (ii) a system of perforated pipes so designed and fitted that water can be sprayed into the compartment at the rate of 5 litres per square metre per minute.

(4) A ship to which regulation 57 applies (ships (other than passenger ships) carrying explosives) is exempt from the requirement of that regulation to provide a fire detection system if; and only if:

- (a) efficient means in the form of pipes or ventilators are provided in every compartment containing explosives and in every adjacent cargo compartment by which fire in any such compartment may readily be detected in other parts of the ship by sense of smell; and
- (b) that Standing Instructions to Ships' Officers and Crew require the inspection of every such compartment at intervals of not more than 2 hours and that the making of every such inspection be recorded in the ship's log together with the time at which it was made.



Column 1 (Class of Ship)	Column 2 (Provisions of these Regulations from which exemption is not given)
Ships of Classes VIII, VIII(A), IX, IX(A) and XI: (1) of 1,000 tons or over	Regulation 48 (requirements for inert gas systems) Regulation 49 (requirements for deck foam systems) Regulation 52 (firemen's outfits) Regulation 58(7) (availability of water supply when operating with unmanned machinery spaces) Regulation 71 (additional requirements for ships with helicopter facilities)
(2) of 500 tons or over but under 1,000 tons	Regulation 29(4)(b)(i) (fire hoses) and regulation 60(1) to (3) Regulation 35 (firemen's outfits) and regulation 69
(3) of 150 tons or over but under 500 tons	Regulation 36 (fire detection in machinery spaces when operating with unmanned machinery spaces) Regulation 37 (international shore connection) and regulation 61 Regulation 58(7) (availability of water supply when operating with unmanned machinery spaces) Regulation 71 (additional requirements for ships with helicopter facilities)
(4) of under 150 tons	Regulation 41(1)(e) (fire hoses) and regulation 60(1) to (3) Regulation 41(7) and (8) (fire extinguishers in machinery spaces containing internal combustion type machinery) and regulation 62
Ships of any class to which this exemption applies other than passenger ships	Regulation 42(6) (fire extinguishers in machinery spaces containing internal combustion type machinery) and regulation 62
Ships of Class XII: (1) of 1,000 tons or over	Regulation 43(4) and (5) (additional requirement for ships of wooden construction) Regulation 57 (requirements for ships carrying explosives) in so far as it prohibits the use of steam for fire smothering purposes in any compartment containing explosives
Ships of Class XII: (1) of 1,000 tons or over	Regulation 32 (fixed fire extinguishing installation and fire extinguishers for machinery spaces containing oil-fired boilers or oil burning equipment)

Column 1 (Class of Ship)	Column 2 (Provisions of these Regulations from which exemption is not given)
(2) of 500 tons or over but under 1,000 tons	Regulation 41(3) to (6) inclusive (fixed fire extinguishing installation and fire extinguishers for machinery spaces as above)
(3) of 150 tons or over but under 500 tons	Regulation 42(3) to (6) inclusive (fixed fire extinguishing installation and fire extinguishers for machinery spaces as above)

## EXPLANATORY NOTE

*(This Note is not part of the Regulations.)*

These Regulations consolidate the rules for fire-fighting appliances in ships built before 25th May 1980. The rules consolidated (and revoked) are as follows:

the Merchant Shipping (Fire Appliances) Rules 1965,  
the Merchant Shipping (Fire Appliances) (Amendment) Rules 1974,  
the Merchant Shipping (Fire Appliances) (Amendment) Rules 1980,  
the Merchant Shipping (Fire Appliances) (Amendment) Rules 1981 and  
the Merchant Shipping (Fire Appliances) (Amendment) Rules 1984.

In addition, these Regulations give effect to the provisions of Chapter II-2 of the Amendments to the International Convention for the Safety of Life at Sea, 1974 (SOLAS) adopted on 20th November 1981 by the Maritime Safety Committee of the International Maritime Organization at its 45th Session in relation to non-United Kingdom ships built before 25th May 1980 while they are within the United Kingdom or the territorial waters thereof. Those provisions had already been given effect to for United Kingdom ships in the amendment rules of 1984.

The principal provisions are additional requirements for inert gas systems applicable to specified tankers.

Documents published by the International Maritime Organization may be obtained from that Organization, 4 Albert Embankment, London SE1 7SR.

Merchant Shipping Notices are obtainable from the Department of Transport Marine Library, Sunley House, 90 High Holborn, London WC1V 6LP and from any Department of Transport Marine Office.

Copies of the British Standards specifications referred to in these Regulations may be obtained from any of the sales outlets operated by the British Standards Institution, or by post from the British Standards Institution at Linford Wood, Milton Keynes, MK14 6LE (Telephone Number: Milton Keynes (STD 0908) 320066).

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