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STATUTORY INSTRUMENTS

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**1975 No. 330**

**The Fishing Vessels (Safety Provisions) Rules 1975**

PART III

RULES FOR LIFE-SAVING APPLIANCES

B

FIRE APPLIANCES

**Requirements for vessels of 60 metres in length and over**

**101.**—(1) In every vessel of 60 metres in length and over to which these Rules apply fire appliances shall be provided whereby at least two jets of water can reach any part of the vessel normally accessible to the crew while the vessel is being navigated, and any store room and any part of any hold space when empty.

(2) In every such vessel at least two fire pumps operated by power shall be provided. Each pump shall be capable of delivering at least one jet simultaneously from each of any two fire hydrants, hoses and nozzles provided in the vessel and shall comply with the requirements of Rule 107 of these Rules.

(3) In every such vessel—

- (a) where a fire in any one compartment could put all the fire pumps out of action there shall be provided, in a position outside the machinery spaces, an independently driven power operated emergency fire pump and its source of power and sea connection;
- (b) the emergency fire pump shall be capable of producing at least two jets of water from any of the fire hydrants and hoses through nozzles which shall comply with Rule 109(3)(a) of these Rules while simultaneously maintaining pressure of at least 2 kilogrammes force per square centimetre at any hydrant in the vessel.

(4) In every such vessel—

- (a) a fire main, water service pipes and hydrants shall be provided which shall comply with the requirements of Rule 108 of these Rules;
- (b) at least one fire hose for each 30 metres length of vessel but in no case less than five hoses in addition to any fire hoses provided in the machinery spaces, shall be provided and these hoses shall have a total length of at least 60 per cent of the length of the vessel. In addition to these hoses there shall be provided one spare fire hose;
- (c) where oil-fired boilers or internal combustion type propelling machinery is installed 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 by way of a shaft tunnel a fire hydrant shall be provided in the tunnel at the end adjacent to that space. A fire hose and spray nozzle shall be provided at every such fire hydrant.

(5) In every such vessel a sufficient number of portable fire extinguishers shall be provided to ensure that at least one such extinguisher will be readily available for use in any part of the accommodation or service spaces. Not less than six extinguishers shall be provided of which one extinguisher suitable for extinguishing oil fires shall be provided adjacent to any oil fired central heating appliance which may be fitted. The extinguishing medium provided in any extinguisher placed in an area of fire risk shall be suitable for the type of fire risk involved.

(6) In every such vessel at least one of the following fixed fire extinguishing installations shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit:—

- (a) a pressure water spraying system complying with the requirements of Rule 112 of these Rules;
- (b) a fire smothering gas installation complying with the requirements of Rule 113 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 114 of these Rules.

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

(7) In every such vessel in addition to the requirements of paragraph (6) above there shall be provided:—

- (a) if the number of burners in each boiler room is three or more, one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilogrammes capacity. If the number of such burners is less than three there shall be provided 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 which may be carried in compliance with the preceding sub-paragraph;
- (c) in each firing space a receptacle containing 0.3 cubic metres 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.

(8) In every such vessel at least one of the fixed fire extinguishing installations required by paragraph (6) above shall be provided for the protection of any space containing internal combustion type machinery used for main propulsion, or having in the aggregate a total power of not less than 1,000 bhp for auxiliary purposes.

(9) In every such vessel in addition to the requirements of paragraph (8) above 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 kilogrammes capacity;
- (b) one portable fire extinguisher suitable for extinguishing oil fires for each 1,000 bhp or part thereof of such machinery but in no event less than two such extinguishers, provided that not more than six such extinguishers shall be required in any such space.

(10) In every such vessel in spaces containing steam turbines or reciprocating steam engines used either for main propulsion or having in the aggregate a total power of not less than 1,000 bhp for auxiliary purposes there shall be provided:—

- (a) foam fire extinguishers each of at least 45 litres capacity or carbon dioxide fire extinguishers each of at least 16 kilogrammes capacity sufficient in number to enable foam or carbon dioxide to be directed on to any part of the lubrication system and on to any part of the casings enclosing pressure lubricated parts of the turbines, engines

or associated gearing, if any, provided that such extinguishers shall not be required if equivalent protection is provided in such spaces by a fixed extinguishing installation fitted in compliance with paragraphs (6) or (8) above;

- (b) one portable fire extinguisher for each 1,000 bhp or part thereof of such machinery, suitable for extinguishing oil fires, but in no event less than two such extinguishers, provided that not more than six such extinguishers shall be required in any one such space and provided that such extinguishers shall not be required in addition to any provided in compliance with paragraph (9) above.

(11) In every such vessel a water spray system, independent of any system fitted in the machinery space and which may be connected to the fire main, shall be fitted in the net store and be operable from outside the store.

(12) In every such vessel—

- (a) at least two firemen's outfits, which shall comply with the requirements of Rule 115 of these Rules, shall be carried;
- (b) at least one of these outfits shall include a breathing apparatus of the air hose type;
- (c) where firemen's outfits containing only breathing apparatus of the air hose type are carried and an air hose exceeding 36 metres in length would be necessary to reach from the open deck well clear of any hatch or doorway to any part of the accommodation, service, hold or machinery spaces, at least one breathing apparatus of the self-contained type shall also be provided.

(13) In every such vessel at least one international shore connection complying with the specifications set out in Schedule 19 to these Rules shall be provided, 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 vessel.

### **Requirements for vessels of 45 metres in length and over but less than 60 metres in length**

**102.**—(1) In every vessel of 45 metres in length and over but less than 60 metres in length to which these Rules apply fire appliances shall be provided in accordance with this Rule whereby at least two jets of water can reach any part of the vessel normally accessible to the crew while the vessel is being navigated and any store room and any part of any hold space when empty.

(2) In every such vessel at least two fire pumps operated by power shall be provided one of which may be driven by the main engine. Each pump shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the vessel and shall comply with the requirements of Rule 107 of these Rules.

(3) In every such vessel—

- (a) where a fire in any one compartment could put all the fire pumps out of action, there shall be provided, in a position outside the machinery spaces, an emergency fire pump and its source of power and sea connection;
- (b) the emergency fire pump may be operated by power or manually, and shall be capable of producing from any of the fire hydrants and hoses provided, through a nozzle which shall comply with Rule 109(3)(a) of these Rules, a jet of water having a throw of not less than 12 metres.

(4) In every such vessel—

- (a) a fire main, water service pipes and hydrants shall be provided which shall comply with the requirements of Rule 108 of these Rules;
- (b) at least two fire hoses having a total length of at least 60 per cent of the length of the vessel and one spare fire hose shall be provided in addition to any fire hose provided in the machinery spaces;

(c) where oil-fired boilers or internal combustion type propelling machinery are installed at least one fire hydrant shall be provided in each space containing such machinery. A fire hose and spray nozzle shall be provided at every such hydrant.

(5) In every such vessel at least one of the following fixed fire extinguishing installations shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit:—

- (a) a pressure water spraying system complying with the requirements of Rule 112 of these Rules;
- (b) a fire smothering gas or steam installation complying with the requirements of Rule 113 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 114 of these Rules.

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

(6) In every such vessel in addition to the requirements of paragraph (5) above there shall be provided:—

- (a) if the number of burners in each boiler room is three or more, one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilogrammes capacity. If the number of such burners is less than three, 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 installations, at least two portable fire extinguishers suitable for extinguishing oil fires in addition to any such extinguishers which may be carried in compliance with the preceding sub-paragraph;
- (c) in each firing space a receptacle containing at least 0.15 cubic metres 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 vessel one foam fire extinguisher of at least 45 litres capacity or a carbon dioxide fire extinguisher of at least 16 kilogrammes capacity shall be provided in any space containing internal combustion type machinery used for main propulsion, or having in the aggregate a total power of not less than 250 bhp for auxiliary purposes.

(8) In every such vessel one portable fire extinguisher suitable for extinguishing oil fires for each 100 bhp or part thereof of such machinery shall be provided in any space containing internal combustion type machinery, provided that no more than six extinguishers shall be required in any such space.

(9) In every such vessel in spaces containing steam turbines or reciprocating steam engines used either for main propulsion or having in the aggregate a total power of not less than 500 bhp for auxiliary purposes there shall be provided one portable extinguisher for each 500 bhp or part thereof of such machinery, suitable for extinguishing oil fires, but in no event less than two such extinguishers, provided that not more than six such extinguishers shall be required in any one such space and provided that such extinguishers shall not be required in addition to any provided in compliance with paragraph (6) above.

(10) In every such vessel at least two firemen's outfits which shall comply with the requirements of Rule 115 of these Rules and which shall contain a breathing apparatus of the air hose type shall be provided.

(11) In every such vessel a water spray system, independent of any system fitted in the machinery space and which may be connected to the fire main, shall be fitted in the net store and be operable from outside the space.

(12) In every such vessel at least one international shore connection complying with the specifications set out in Schedule 19 to these Rules shall be provided 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 vessel.

(13) In every such vessel a sufficient number of portable fire extinguishers shall be provided to ensure that at least one such extinguisher will be readily available for use in any part of the accommodation or service spaces. Not less than four extinguishers shall be provided of which one extinguisher suitable for extinguishing oil fires shall be provided for any oil-fired central heating appliances which may be fitted. The extinguishing medium provided in any extinguisher placed in an area of fire risk shall be suitable for the type of fire risk involved.

### **Requirements for vessels of 24.4 metres in length and over but less than 45 metres in length**

**103.**—(1) In every vessel of 24.4 metres in length and over but less than 45 metres in length to which these Rules apply a fixed fire smothering gas installation shall be provided in every vessel, the hull of which is constructed of wood or glass reinforced plastic, for the protection of the machinery space. Such installation shall comply with the requirements of Rule 113 of these Rules except that the quantity of free fire smothering gas provided shall be equivalent to at least 60 per cent of the gross volume of the machinery space, or in the case of any such vessel where the machinery space is bounded by steel bulkheads the quantity of fire smothering gas shall be equivalent to at least 40 per cent of the gross volume of that space.

(2) In every such vessel fire appliances shall be provided whereby at least one of the jets of water required by this Rule can reach any part of the vessel normally accessible to the crew while the vessel is being navigated and any store room and any part of any hold space when empty.

(3) In every such vessel at least one fire pump operated by power shall be provided which shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the vessel and which shall comply with the requirements of Rule 107 of these Rules.

(4) In every such vessel if the pump required by paragraph (3) above and its source of power and sea connection are not situated outside spaces containing oil-fired boilers or internal combustion type propelling machinery, there shall be provided in a position outside such spaces an additional fire pump and its source of power and sea connection. If this pump is operated by power it shall comply with the requirements of paragraph (3) above and if it is manually operated it shall be provided with a hose and a 9.5 millimetre diameter nozzle through which it shall be 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 vessel.

(5) In every such vessel a fire main, water service pipes and hydrants shall be provided, which shall comply with the requirements of Rule 108 of these Rules, and at least two fire hoses and one spare fire hose.

(6) A spray nozzle suitable for use with the fire hoses required by paragraph (5) above shall be provided in every such vessel fitted with oil-fired boilers or internal combustion type propelling machinery.

(7) In every such vessel a sufficient number of portable fire extinguishers shall be provided to ensure that at least one such extinguisher will be readily available for use in any part of the accommodation or service spaces. Not less than three extinguishers shall be provided of which one extinguisher suitable for extinguishing oil fires shall be provided adjacent to any oil-fired central heating appliance which may be fitted. The extinguishing medium provided in any extinguisher placed in an area of fire risk shall be suitable for the type of fire risk involved.

(8) In every such vessel at least one of the following fixed fire extinguishing installations shall be provided for the protection of any space containing any oil-fired boiler, oil fuel settling tank or oil fuel unit in vessels other than those which comply with paragraph (1) above:—

- (a) a pressure water spraying system complying with the requirements of Rule 112 of these Rules;

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- (b) a fire smothering gas or steam installation complying with the requirements of Rule 113 of these Rules;
- (c) a foam fire extinguishing installation complying with the requirements of Rule 114 of these Rules.

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

(9) In every such vessel in addition to the requirements of paragraph (8) above there shall be provided:—

- (a) in each boiler room and in each space which contains any part of any oil fuel installation, at least two portable fire extinguishers suitable for extinguishing oil fires;
- (b) in each firing space a receptacle containing at least 0.15 cubic metres 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.

(10) In every such vessel one portable fire extinguisher suitable for extinguishing oil fires for each 100 bhp or part thereof of such machinery shall be provided in any space containing internal combustion type machinery, except that no more than seven such fire extinguishers shall be required in any one space and that alternatively there may be provided two such extinguishers together with either:—

- (a) one foam fire extinguisher of at least 45 litres capacity; or
- (b) one carbon dioxide fire extinguisher of at least 16 kilogrammes capacity.

(11) In every such vessel at least one fireman's outfit shall be provided.

(12) In every such vessel a water spray system, independent of any system fitted in the machinery space and which may be connected to the fire main, shall be fitted in the net store and be operable from outside the space.

#### **Requirements for vessels of 21 metres in length and over but less than 24.4 metres in length**

**104.**—(1) In every vessel of 21 metres in length and over but less than 24.4 metres in length to which these Rules apply fire appliances shall be provided whereby at least one jet of water can reach any part of the vessel normally accessible to the crew while the vessel is being navigated and any store room and any part of any hold space when empty.

(2) Where any oil-fired boilers or internal combustion type propelling machinery is installed in any such vessel the hull of which is constructed of wood or glass reinforced plastic and decked in way of the machinery space a means shall be provided outside the machinery space for rapidly injecting into that space a quantity of free fire smothering gas equivalent to at least 60 per cent of the gross volume of that space, or in the case of any such vessel where the machinery space is bounded by steel bulkheads, a quantity of fire smothering gas equivalent to 40 per cent of the gross volume of the space.

(3) In every such vessel at least one fire pump operated by power shall be provided which shall be capable of delivering at least one jet of water from any fire hydrant, hose and nozzle provided in the vessel and which shall comply with the requirements of Rule 107 of these Rules. This pump may be driven by the main engine.

(4) In every such vessel where oil-fired boilers or internal combustion type propelling machinery are installed, if the pump required by paragraph (3) above and its source of power and sea connection are not situated outside spaces containing such boilers or machinery, there shall be provided in a position outside such spaces an additional fire pump and its source of power and sea connection. If this pump is operated by power it shall comply with the requirements of paragraph (3) above and if it is manually operated it shall be provided with a hose and a 9.5 millimetre diameter nozzle through

which it shall be 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 vessel.

(5) In every such vessel a fire main, water service pipes and hydrants shall be provided which shall comply with the requirements of Rule 108 of these Rules and at least two fire hoses.

(6) A spray nozzle suitable for use with the fire hoses required by paragraph (5) above shall be provided in every such vessel fitted with oil-fired boilers or internal combustion type propelling machinery.

(7) In every such vessel at least three portable fire extinguishers so situated as to be readily available for use in the accommodation and service spaces shall be provided. The extinguishing medium provided in any extinguisher placed in an area of fire risk shall be suitable for the type of fire risk involved.

(8) At least two portable fire extinguishers suitable for extinguishing oil fires shall be provided in every such vessel which is fitted with oil-fired boilers or internal combustion type propelling machinery in addition to the requirements of paragraph (7) above.

(9) In every such vessel which is fully-decked a fireman's axe shall be provided.

#### **Requirements for vessels of 9 metres in length and over but less than 21 metres in length**

**105.**—(1) In every vessel of 9 metres in length and over but less than 21 metres in length to which these Rules apply fire appliances shall be provided whereby at least one jet of water can reach any part of the vessel normally accessible to the crew while the vessel is being navigated and any store room and any part of any hold space when empty.

(2) Where any oil-fired boiler or internal combustion type propelling machinery is installed in any such vessel the hull of which is constructed of wood or glass reinforced plastic and decked in way of the machinery space a means shall be provided outside the machinery space for rapidly injecting into that space a quantity of fire smothering gas equivalent to at least 60 per cent of the gross volume of that space, or in any case where the machinery space is bounded by steel bulkheads, a quantity of free fire smothering gas equivalent to 40 per cent of the gross volume of the space, provided that there may be substituted a water spraying system supplied from a hand pump and a permanent sea connection situated outside the machinery space which may be the hand pump and the permanent connection referred to in paragraph (3) below. Such pump shall be connected by fixed piping to a sufficient number of water spraying nozzles suitably sited in the machinery space and capable of extinguishing oil fires.

(3) In every such vessel a hand pump with a permanent sea connection and a hose with a 9.5 millimetre 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 vessel shall be provided in a position outside the machinery spaces and in addition a spray nozzle suitable for use with the hose.

(4) In every such vessel at least two portable fire extinguishers shall be provided. The extinguishing medium provided shall be suitable for the type of fire risk involved.

(5) In every such vessel at least two portable fire extinguishers suitable for extinguishing oil fires shall be provided in vessels fitted with oil-fired boilers or internal combustion type propelling machinery in addition to the requirements of paragraph (4) above.

#### **Requirements for vessels less than 9 metres in length**

**106.**—(1) Every vessel less than 9 metres in length to which these Rules apply shall be provided in a position outside the machinery space with a hand pump fitted with a permanent sea connection, a hose with a 9.5 millimetre 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 vessel and in addition a spray nozzle suitable for use with the hose, provided that two fire buckets, one of which shall be fitted with a lanyard,

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may be substituted for such equipment but such buckets shall not be required in addition to buckets provided in compliance with paragraph (2) below.

(2) Every such vessel shall be provided with two portable fire extinguishers or with two fire buckets. When fire buckets are provided at least one shall be fitted with a lanyard.

(3) In addition to the requirements of paragraph (2) above every such vessel which is fitted with oil fired boilers or internal combustion type propelling machinery shall be provided with portable fire extinguishers suitable for extinguishing oil fires in accordance with the following table:—

<i>Length of vessel in metres</i>	<i>Minimum number of extinguishers</i>
Under 6 metres	1
6 metres and over but less than 9 metres	2

### **Requirements for fire pumps**

**107.**—(1) In every vessel to which these Rules apply fire pumps operated by power (other than any emergency fire pump) shall together be capable of delivering for fire fighting purposes a quantity of water under the conditions and at the pressure specified in Rule 108 which shall not be less than the quantity obtained from the following formula:—

Quantity of water in cubic metres per hour =  $km^2$

Where:

$k = 0.008$  for vessels required to be provided with more than one fire pump (excluding any emergency fire pump) and  $k = 0.004$  for vessels required to be provided with only one fire pump; and

where

L = Principal Length of the vessel in metres;

B = Principal Breadth of the vessel in metres;

D = Principal Depth of the vessel in metres;

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

(2) In every such vessel every fire pump required to be operated by power shall, except as expressly provided otherwise, be operated by a means other than the vessel's main engines. Fire pumps may be sanitary, ballast, bilge or general service pumps provided that they are not normally used for pumping oil and that if they are subject to occasional duty for the transfer or pumping of oil, suitable changeover arrangements are fitted and operating instructions are conspicuously displayed at the changeover position, stating that the pump must be flushed through and returned to fire duty immediately after the oil pumping duty is completed.

(3) In every such vessel—

- (a) where more than one fire pump operated by power is required (other than any emergency pump) every 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) above divided by the number of fire pumps required to be provided. In any vessel where more fire pumps operated by power are provided than are required by these Rules the capacity of any such additional fire pumps may be less than that required by paragraph (1) above;
- (b) every fire pump required to be operated by power shall be capable of producing from any fire hydrant or hydrants at least the minimum number of jets of water required by these Rules as appropriate to the length of vessel, while maintaining the pressure required by Rule 108(2) of these Rules.



(4) In every such vessel 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. These valves shall be placed and adjusted so as to prevent excessive pressure in any part of the fire main system.

(5) In every such vessel every centrifugal pump connected to the fire main shall be fitted with a non-return valve.

(6) In every such vessel power pumps driven by the main propulsion machinery shall only be used as fire pumps if the main machinery can be readily disconnected from the propeller shafting.

(7) In every such vessel—

- (a) independent starting arrangements for emergency fire pumps shall be provided and shall be readily accessible and easy to operate;
- (b) where the emergency fire pump is electrically driven the emergency generator shall be capable of being started manually;
- (c) where the emergency fire pump is driven by a direct or hydraulically coupled diesel engine the engine shall be capable of being started manually;
- (d) these pumps shall be positioned so that the supply of water is ensured at all times and the pumps are not likely to be cut off by fire or smoke in the compartment containing the main fire pumps;
- (e) a discharge connection from the emergency fire pump to the fire main shall be fitted and means provided for isolating the machinery spaces from the fire main;
- (f) where the emergency fire pump is used for the production of foam for a machinery space fixed foam system, or for recharging a pre-mixed foam installation, the pump capacity shall be sufficient to provide such facility in addition to the jets of water required by these Rules;
- (g) any service fuel tank for use with emergency pumping units shall provide at least three hours running on full load and sufficient fuel shall be available to enable the unit to be run at full output for at least 12 hours.

### **Requirements for the fire main, water service pipes and hydrants**

**108.**—(1) In every vessel to which these Rules apply where fire pumps are operated by power the diameter of the fire main and of the water service pipes connecting the hydrants thereto shall be sufficient for the effective distribution of the maximum discharge required by these Rules from—

- (a) the power pump where only one pump is required by the Rules; or
- (b) both power pumps operating simultaneously where two such pumps are so required:

Provided that the diameter of the fire main and of the water service pipes shall be required to be sufficient only for the discharge of 140 cubic metres per hour.

(2) In every such vessel when the fire pumps are discharging the quantity of water required by paragraph (1) above through adjacent fire hydrants in any part of the vessel from nozzles of sizes specified in Rule 109 of these Rules the following minimum pressure shall be capable of being maintained at any hydrant:—

- (a) in vessels of 60 metres in length and upwards—2.6 kilogrammes force per square centimetre; or
- (b) vessels under 60 metres in length—2 kilogrammes force per square centimetre.

(3) Where any such vessel is required by the Rules to provide—

- (a) two jets of water under the conditions required by these Rules a sufficient number of hydrants shall be so positioned as to enable at least two jets of water not emanating from

the same hydrant, one of which shall be from a single length of hose, to reach any part of the vessel normally accessible to the crew while the vessel is being navigated, and any store room and any part of any hold space when empty;

- (b) one jet of water under the conditions required by these Rules a sufficient number of hydrants shall be so positioned as to enable one jet of water from a single length of hose to reach any part of the vessel normally accessible to the crew while the vessel is being navigated, and any store room and any part of any hold space when empty.

(4) In every such vessel the fire main shall have no connections with other than those necessary for fire-fighting and washing down.

(5) In every such vessel 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. Unless one fire hose and nozzle is provided for each fire hydrant in the vessel all fire hose couplings and nozzles shall be interchangeable.

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

(7) In every such vessel the water pipes shall not be made of cast iron, and if made of iron or steel shall be galvanised.

(8) In every such vessel where wash deck lines are not self-draining suitable drain cocks shall be fitted to avoid damage by frost.

#### **Requirements for fire hoses, nozzles, etc**

**109.**—(1) In every such vessel to which these Rules apply fire hoses provided in compliance with these Rules shall not exceed 18 metres in length. These hoses shall be made of closely woven flax canvas or other suitable material and shall be provided with couplings, branch-pipes and other necessary fittings, and with a plain nozzle in addition to any spray nozzle required by these Rules.

(2) In every such vessel every fire hose, together with the tools and fittings necessary for its use, shall be kept in a conspicuous position near the hydrant or connections with which it is intended to be used.

(3) In every such vessel—

- (a) fire pumps operated by power shall be provided with nozzles of 12 millimetres, 16 millimetres or 20 millimetres in diameter, or as near thereto in diameter as possible. Nozzles larger in diameter may be provided if the requirements of these Rules relating to the provision of water for fire-fighting purposes are otherwise met;

- (b) the diameter of the nozzles for machinery spaces and exterior locations shall be such as to obtain the maximum possible discharge from the minimum number of jets of water and at the pressure required by these Rules from the smallest fire pump permitted by Rule 107(3) (a) of these Rules;

provided that the diameter of the nozzles shall not be required to be greater than 20 millimetres;

- (c) the diameter of the nozzles for accommodation and service spaces shall not be required to be greater than 12 millimetres;

- (d) every spray nozzle 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) above;

provided that a dual-purpose nozzle capable of producing such a spray and a plain water jet may be provided as a substitute.

### **Requirements for fire extinguishers**

**110.**—(1) In every vessel to which these Rules apply non-portable foam and carbon dioxide fire extinguishers shall be constructed in accordance with the requirements of Schedules 20 and 21 to these Rules respectively.

(2) In every such vessel—

- (a) portable fire extinguishers (other than carbon dioxide fire extinguishers) 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 shall have a capacity of not less than 3 kilogrammes of carbon dioxide;
- (c) portable dry powder fire extinguishers shall have a capacity of not less than 4.5 kilogrammes of dry powder;
- (d) portable fire extinguishers of other types shall be of not less fire extinguishing capability than a 9 litres fluid fire extinguisher;
- (e) portable fire extinguishers shall not exceed 25 kilogrammes in weight in the fully charged service condition.

(3) In every such vessel portable fire extinguishers for use in accommodation or service spaces shall, so far as practicable, have a uniform method of operation.

(4) In every such vessel portable fire extinguishers shall, subject to the limitations of paragraphs (2) and (3) above, be constructed in accordance with the specifications set out in Schedule 22 to these Rules.

(5) In every such vessel where portable dry powder fire extinguishers are provided in 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) In every such vessel fire extinguishers shall not contain an extinguishing medium which is harmful to persons.

(7) In every such vessel for the purposes of these Rules the capacity of any fire extinguisher other than a carbon dioxide fire extinguisher shall be taken to be the greatest volume or weight of extinguishing medium which it can contain when sufficient space is left to ensure the proper operation of the extinguisher and the capacity of a carbon dioxide fire extinguisher shall be taken to be two-thirds of a kilogramme of carbon dioxide for each litre of water capacity of the cylinder.

(8) In every such vessel every fire extinguisher provided shall be kept fully charged at all times.

(9) In every such vessel a spare charge shall be provided for every portable fire extinguisher except that for each such fire extinguisher which is of a type that cannot readily be recharged while the vessel is at sea, an additional portable fire extinguisher of the same type or its equivalent shall be provided in lieu of a spare charge.

### **Requirements for fire alarm and fire detection systems**

**111.**—(1) In every vessel to which these Rules apply, where an automatic fire alarm and fire detection system is installed it shall comply with the requirements specified in this Rule and shall be installed and so arranged as to protect all accommodation spaces and service spaces in the vessel provided that the foregoing provisions of this Rule shall not apply:—

- (a) to the extent that there is no substantial fire risk in the accommodation spaces and service spaces; or
- (b) in respect of any store room which is provided with adequate arrangements for the detection of fire or for the smothering of fire by gas or other suitable means.

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(2) In every such vessel every fire detection system shall be fit for its intended service and be capable of automatically indicating the presence of fire and its location. The indicators shall be positioned in the wheelhouse or they may be distributed among several stations provided such distribution is at least as effective as if the indicators were positioned in the wheelhouse.

(3) The indicating system of any fire detecting system in every such vessel shall operate both audible and visible alarms at the stations referred to in paragraph (2) above.

(4) In every such vessel of 24.4 metres in length and over electrical equipment used in the operation of any fire detection system fitted in compliance with these Rules shall be supplied from two sources of electric power one of which shall be the emergency source of power required by Rule 41 of these Rules.

### **Requirements for fixed pressure water spraying system for machinery spaces**

**112.**—(1) In every vessel to which these Rules apply every fixed pressure water spraying system shall be provided with a pump, piping system, control valve and spraying nozzles.

(2) In every such vessel the spraying nozzles shall be of such a type, sufficient in number and so arranged as to ensure such distribution of water spray 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) In every such vessel the water spraying system may be divided into sections and shall be controlled from distribution manifolds, the valves of which shall be capable of being operated from easily accessible positions outside the spaces to be protected, and which will not be readily cut off by an outbreak of fire.

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

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

(6) In every such vessel 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) In every such vessel 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) In every such vessel operating instructions in clear and permanent lettering shall be affixed to every water spraying system or in a position adjacent thereto.

### **Requirements for fixed fire smothering gas and steam installations**

**113.**—(1) In every vessel to which these Rules apply fixed fire smothering gas or steam installations shall where fitted comply with the requirements of this Rule except that in vessels to which Rules 103(1), 104(2) and 105(2) apply the quantity of gas carried shall be sufficient to give the minimum quantity of free gas required by those Rules.

(2) In every such vessel in every installation provided for the injection of gas or steam into machinery or hold spaces for fire extinguishing purposes, the pipes for conveying the gas or steam shall be provided with control valves or cocks which shall be so placed that they will be easily accessible and not readily cut off from use by an outbreak of fire. These 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.

(3) In every such vessel 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 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.

(4) In every such vessel—

- (a) where carbon dioxide is used as the extinguishing medium in hold 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 hold compartment in the vessel which is capable of being sealed;
- (b) where carbon dioxide is used as an extinguishing medium for spaces containing boilers or machinery, the quantity of gas carried shall be sufficient to give a minimum quantity of free gas equal to the larger of the following quantities, either:—
  - (i) 40 per cent of the gross volume of the largest space containing boilers or machinery, such volume being measured up to the level at which the horizontal area of the casing is 40 per cent or less of the gross area of such space; or
  - (ii) 35 per cent of the gross volume of the largest space containing boilers or machinery, including the casing;

provided that the aforesaid percentages may be reduced to 35 per cent and 30 per cent respectively for vessels of under 70 metres in length and provided that if two or more spaces containing boilers or machinery are not entirely separate they shall, for the purposes of this Rule, be considered as forming one compartment;

- (c) where carbon dioxide is used as the extinguishing medium for a space containing any oil-fired boiler or oil fuel installation a quantity of gas which can be discharged without danger to the operator shall be available for manual application, by means of a suitable applicator, in the firing area of the boiler and in the vicinity of the oil fuel unit;
- (d) where carbon dioxide is used as the extinguishing medium both for hold 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 hold compartment or machinery space. For the purpose of this paragraph the volume of gas shall be calculated at 0.56 cubic metres to 1 kilogramme;
- (e) 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 paragraph (b) above, when applied to the space concerned, can be discharged into that space within two minutes;
- (f) means shall be provided for giving audible warning to persons within the space when carbon dioxide, other than that specified in paragraph (c) above, is about to be released into any working space.

(5) In every such vessel when steam is used as the extinguishing medium in hold spaces the boiler or boilers available for supplying steam shall have an evaporation of at least 1 kilogramme of steam per hour for each 0.75 cubic metres of the gross volume of the largest hold compartment. The arrangements shall be such that steam will be available immediately and will not be dependent on the lighting of boilers and that it can be supplied continuously until the end of the voyage in the quantity required by this paragraph in addition to any steam necessary for the normal requirements of the vessel including propulsion and that provision is made for extra feed water necessary to meet this requirement.

(6) In every such vessel suitable halogenated hydrocarbons in suitable and safe concentrations may be used as a fire extinguishing medium in engine and boiler rooms.

(7) In every such vessel operating instructions in clear and permanent lettering shall be affixed to every fixed fire smothering gas installation or in a position adjacent thereto.

#### **Requirements for fixed foam fire extinguishing installations**

**114.**—(1) In every vessel to which these Rules apply every fixed foam fire extinguishing installation 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 152 millimetres the largest single area over which oil fuel is liable to spread. This installation shall be capable of generating foam suitable for extinguishing oil fires and means shall be provided for the effective distribution of the foam through a permanent system of piping and control valves or cocks to discharge outlets, and for the foam to be effectively directed by fixed sprayers on other main oil fire hazards in the protected space either simultaneously or separately. The 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) In every such vessel 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 or put the installation out of action.

(3) In every such vessel operating instructions in clear and permanent lettering shall be affixed to every fixed foam fire extinguishing installation or in a position adjacent thereto.

#### **Requirements for firemen's outfits**

**115.**—(1) In every vessel to which these Rules apply every fireman's outfit shall consist of:—

- (a) a breathing apparatus complying with the requirements set out in Schedule 23 to these Rules;
- (b) a portable self-contained electric battery-operated safety lamp capable of functioning efficiently for a period of at least three hours; and
- (c) a fireman's axe.

(2) In every such vessel where two or more such outfits are 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**

**116.**—(1) In every vessel to which these Rules apply means for stopping ventilating fans serving machinery, accommodation and hold spaces shall be provided. Means shall be provided for closing all skylights, doorways, ventilators, funnel ventilation openings and other openings in machinery and hold spaces. Such means shall be capable of being operated from positions outside the spaces which would not be made inaccessible by a fire within such spaces.

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

(4) In every such vessel the remote electric stops of ventilation fans serving accommodation spaces shall be operable from the wheelhouse.

### **Fire control plans**

**117.**—(1) In every vessel of 45 metres in length and over to which these Rules apply there shall be permanently exhibited for the guidance of the crew general arrangement plans showing clearly for each deck the position of the control stations, the sections of the vessel which are enclosed by fire resisting bulkheads, the sections of the vessel which are enclosed by fire retarding bulkheads, together with particulars of the fire detection systems, the fixed and portable fire extinguishing appliances and firemen's outfits, the means of access to the various compartments and decks in the vessel, 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 vessel, the location of the international shore connection and the position of all means of control referred to in Rule 116 of these Rules.

(2) In every such vessel the general arrangement plans required by this Rule shall be kept up-to-date, any alterations being recorded thereon without delay.

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

**118.** In every vessel to which these Rules apply, fire appliances shall be maintained in good order and shall be kept available for immediate use at all times. All movable fire 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.