STATUTORY INSTRUMENTS

1980 No. 541

MERCHANT SHIPPING

SAFETY

The Merchant Shipping (Fire Appliances) (Amendment) Rules 1980

Made - - -	*17th April* 1980
Laid before Parliament	*2nd May* 1980
Coming into Operation	*25th May* 1980

The Secretary of State, in exercise of powers conferred by section 427 of the Merchant Shipping Act 1894(**a**), as substituted by section 2 of the Merchant Shipping (Safety Convention) Act 1949(**b**) ("the 1949 Act") and as amended by section 9 of the Merchant Shipping Act 1964(**c**) and by section 1 of the Merchant Shipping (Safety Convention) Act 1977(**d**) and by section 28 of the 1949 Act and now vested in him(**e**) and of all other powers enabling him in that behalf, hereby makes the following Rules:—

1. These Rules may be cited as the Merchant Shipping (Fire Appliances) (Amendment) Rules 1980 and shall come into operation on 25th May 1980.

2. The Merchant Shipping (Fire Appliances) Rules 1965(**f**) shall be further amended as set out in Rule 3 below, but the said Rule (and the amendments mentioned therein) shall only apply in relation to the following existing ships:

(*a*) British ships (as defined in Rule 1(3)(*a*) of these Rules) other than those which are exempted, as set out in Schedule 2 to these Rules; and

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

Provided that

(i) these Rules shall not apply to:

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

(bb) pleasure craft which are not passenger ships and are of less than 45 feet in length;

(cc) mechanically-propelled sea-going fishing vessels registered in the United Kingdom under Part I or entered in the fishing boat register under Part IV of the Merchant Shipping Act 1894; and

Rules 38A, 38B, 38C and 38D of these Rules shall apply only to existing United Kingdom Tankers of Classes VII(T), VIII(T), VIII(A)(T) and IX(A)(T).

For the purpose of this Rule "existing ship" means a ship the keel of which was laid or which was at a similar stage of construction before 25th May 1980;

(**a**) 1894 c. 60. (**b**) 1949 c. 43 (**c**) 1964 c. 47.
(**d**) 1977 c. 24. (**e**) *See* S.I. 1965/145.
(**f**) S.I. 1965/1106, amended by S.I. 1974/2185.

3.—(1) In Rule 1:

in paragraph (2) (interpretation):

(i) the definition of "Board" shall be deleted and any reference in the Rules to the Board, wherever it occurs, shall be a reference to the Secretary of State;

(ii) in the appropriate alphabetical order there shall be inserted the following definitions:

"dangerous goods of Classes 1 to 5" means goods so classed in the Merchant Shipping (Dangerous Goods) Rules 1978 (**a**);

"passenger ship" means a ship carrying more than 12 passengers, and any reference in these Rules to a passenger steamer, wherever it occurs, shall be a reference to a passenger ship;

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

"Protocol of 1978" means the Protocol of 1978 relating to the International Convention for the Safety of Life at Sea 1974 (Cmnd No. 7346);

"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;

(2) In Rule 2 (classification of ships):

(*a*) For the description of "Class VII" there shall be substituted:

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

(*b*) After the description of "Class VII(A)" there shall be inserted:

"Class VII(T). Tankers engaged on voyages any of which are long international voyages."

(*c*) For the description of "Class VIII" there shall be substituted:

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

(**a**) S.I. 1978/1543, to which there is an amendment not relevant to these Rules.

(*d*) For the description of "Class VIII(A)" there shall be substituted:

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

(*e*) After the description of "Class VIII(A)" there shall be inserted:

"Class VIII(T). Tankers engaged on voyages (not being long international voyages) any of which are short international voyages."

(*f*) After the description of "Class VIII(A)" there shall be inserted:

"Class VIII(A)(T). Tankers engaged only on voyages which are not international voyages."

(*g*) After the description of "Class IX(A)" there shall be inserted:

"Class IX(A)(T). Tankers which do not proceed to sea."

(*h*) In the description of "Class XII" for the words "pleasure yachts" there shall be substituted "pleasure craft".

(3) In Rule 3 (fire patrol, alarm and detection systems) after paragraph (3) there shall be added:

"(4) 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.

(5) Every ship of Class I 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 ship of Class I carrying more than 36 passengers:

(i) a special alarm to summon the crew shall be fitted which may be part of the ship's general alarm system;

(ii) a public address system or other effective means of communication shall also be available throughout the accommodation, public and service spaces.".

(4) In Rule 4 (fire pumps etc):

(*a*) after paragraph (4) there shall be inserted:

"(4A) Water from the fire main of every such ship carrying more than 36 passengers shall, as far as practicable, be immediately available, such as by maintenance of pressure or by remote control of fire pumps, which control shall be easily operable and readily accessible."

(*b*) after paragraph (6) there shall be added:

"(7) In every ship of Class I, dual-purpose nozzles shall be provided for at least one quarter of the number of hoses required in parts of the ship other than machinery spaces."

(5) In Rule 5 (portable fire-extinguishers) after paragraph (2) there shall be added:

"(3) In every ship of Class I 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, and 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 to these Rules. Not less than two such applicators shall be available in the ship for use in any such space."

(6) In Rule 6 (fixed fire smothering arrangements) for paragraph (2) there shall be substituted:

"(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 Rule 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."

(7) In Rule 32(2) (fixed fire smothering arrangements) in paragraph (2) after the words "exempt any ship" there shall be inserted "(other than a ship engaged in the carriage of dangerous goods of Classes 1 to 5)".

(8) In Rule 36(1) (firemen's outfits) in column 2 of the scale (number of firemen's outfits), for the figure "1" there shall be substituted the figure "2".

(9) After Rule 36 there shall be added the following Rule:

"*Fire alarm and detection systems*

36A. 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 the installation of automatic and remote control systems and equipment has been approved in lieu of continuous manning of the space."

(10) After Rule 38 there shall be inserted:

"*Ships of Class VII(T), VIII(T), VIII(A)(T) and IX(A)(T) of* 500 *tons or over*

38A. Subject to proviso (ii) of Rules 2 of these Rules, every tanker of Class VII(T) of 20,000 tonnes deadweight or over constructed or adapted to carry crude oil and petroleum products having a closed flash point not exceeding 60°C the Reid vapour pressure of which is below that of atmospheric pressure, and other liquids having a similar fire hazard:

(1) for which the building contract was placed after 1st June 1979; or

(2) 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; or

(3) the delivery of which is after 1st June 1982; or

(4) which undergoes an alteration or modification of a major character:

(*a*) for which a contract was placed after 1st June 1979; or

(*b*) in the absence of a contract, the construction work of which was begun after 1st January 1980; or

(*c*) which is completed after 1st June 1982,

shall be provided with an inert gas system complying with Rule 60B of these Rules and a fixed deck foam system complying with Rule 61A of these Rules. For the purpose of these Rules, conversion of an existing tanker to comply with these Rules shall not be deemed to constitute an alteration or modification of a major character.

38B.—(1) Subject to proviso (ii) of Rule 2 of these Rules, this Rule applies to existing tankers, other than those referred to in Rule 38A of these Rules, of 70,000 tonnes dead weight or over of Class VII(T) constructed or adapted to carry the cargoes stated in Rule 38A of these Rules.

(2) Every tanker to which this Rule applies shall be provided on or before 1st June 1981 with an inert gas system. Every such system shall comply with the requirements of Rule 60B of these Rules.

38C.—(1) Subject to proviso (ii) of Rule 2 of these Rules, this Rule applies to existing tankers, other than those referred to in Rule 38A of these Rules, of 20,000 tonnes deadweight or over but under 70,000 tonnes deadweight of Class VII(T) constructed or adapted to carry the cargoes stated in Rule 38A except tankers of less than 40,000 tonnes deadweight carrying oil other than crude oil or other liquids having a similar fire hazard and fitted with tank washing machines having an individual throughput not greater than 60 cubic metres per hour.

(2) Every tanker to which this Rule applies shall be provided on or before 1st June 1983 with an inert gas system. Every such system shall comply with the requirements of Rule 60B of these Rules.

(3) The Secretary of State may exempt existing tankers, other than those referred to in Rule 38A, carrying crude oil, of less than 40,000 tonnes deadweight, not fitted with tank washing machines having an individual throughput greater than 60 cubic metres per hour, from the requirement of this Rule if it would be unreasonable or impracticable to apply this requirement taking into account the ship's design characteristics.

38D.—(1) Subject to proviso (ii) of Rule 2 of these Rules, every tanker of Class VII(T) of less than 20,000 tonnes deadweight to which the dates specified in Rule 38A of these Rules apply, which operates with a tank cleaning procedure using crude oil washing, shall be fitted with an inert gas system complying with Rule 60B of these Rules.

(2) Every tanker of Class VII(T), other than a tanker specified in paragraph (1) of this Rule, which operates with a tank cleaning procedure using crude oil washing, shall be fitted with an inert gas system. The system shall be to the satisfaction of the Secretary of State and, in addition, shall comply with the requirements of Rules 38B and 38C of these Rules.

(3) Any tanker of Class VII(T) operating with a tank cleaning procedure using crude oil washing shall be provided with fixed tank washing machines only.

38E. Every existing ship of Class VII(T) of 2,000 tons or over not fitted with a fixed foam installation in accordance with Rules 61 or 61A of these Rules shall be provided, within six months of 25th May, 1980, 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, and shall be capable, by simple and rapid means of operation, of discharging foam in the area of the cargo piping manifold when such units are connected to the appropriate deck fire hydrants.

38F. Every existing ship of Class VII(T) of under 2000 tons shall be provided, within six months of 25th May 1980, 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.

38G. Subject to proviso (ii) of Rule 2 of these Rules, rules 38A to 38F inclusive and Rule 60B of these Rules shall apply to tankers of Classes VIII(T), VIII(A)(T) and IX(A)(T) as they apply to tankers of Class VII(T)."

(11) In Rule 53 (fire pumps) at the end, of the following paragraph shall be added:

"(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."

(12) After Rule 60A (inert gas system) of these Rules there shall be inserted:—

60B. Every fixed inert gas system fitted in accordance with Rule 38A of these Rules shall comply with the following requirements:—

(*a*) 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 slop tanks non-flammable at all times, except when such tanks are required to be gas free. In the event that the inert gas system is unable to meet this requirement, the master or owner of the ship shall report this failure in the manner set out in Regulation 11 (*c*) of the Protocol of 1978.

(*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;

(iv) purging empty cargo tanks including slop tanks of hydrocarbon gas, 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.

(ii) The system shall be capable of delivering inert gas with an oxygen content of not more than 5 per cent. by volume in the inert gas supply main to the cargo tanks and slop tanks at any required rate of flow.

(*d*) The inert gas supply may be treated flue gas from the main or auxiliary boiler, 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.

(*e*) A flue gas isolating valve shall be fitted in the inert gas supply main between the boiler uptake and the flue gas scrubber. This valve shall be provided with indicators to show whether it is open or shut, and precautions shall be taken to maintain it 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 paragraph (*c*) of this Rule 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.

(ii) Filters or equivalent devices shall be fitted to minimise the amount of water carried over to the inert gas blowers.

(iii) The scrubber shall be located aft of all cargo tanks, slop tanks cargo pump rooms and cofferdams separating these spaces from machinery spaces.

(*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 paragraph (*c*) of this Rule.

(ii) The inert gas system shall be designed so 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 arrange-

ments 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 stabilized before commencing cargo discharge. If the blowers are to be used for gas freeing, their air inlets shall be provided with blanking arrangements.

(iii) The blowers shall be located aft of all cargo tanks, slop tanks, cargo pump rooms and cofferdams separating these spaces from machinery spaces.

(*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 value shall be automatically controlled to close as required by sub-paragraphs (*s*)(ii) and (*s*)(iii) of this Rule. It should also be capable of automatically regulating the flow of inert gas to the cargo tanks and slop tanks unless means are provided to control automatically the speed of the inert gas blowers, required in paragraph (*g*) of this Rule.

(ii) The valve referred to in sub-paragraph (i) of this paragraph 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 paragraph (*i*) of this Rule and the aftermost connection to any cargo tank, slop tank or cargo pipeline.

(ii) The devices referred to in sub-paragraph (i) of this paragraph shall be located in the cargo tank area on deck.

(iii) The water seal referred to in sub-paragraph (i) of this paragraph 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) of this paragraph 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) of this paragraph. 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 sloptanks.

(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) of this paragraph, and the valve referred to in paragraph (*i*) of this Rule, 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 paragraph (*j*) of this Rule.

(ii) (1) 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.

(2) In combination carriers, the arrangement to isolate the slop tanks containing oil or oil residues from other tanks shall consist of blank flanges. Where, in addition, there are also empty cargo tanks which are not required to be isolated from the inert gas main, then the arrangements for isolating the slop tanks from these tanks should be such as to:

(*aa*) prevent the passage of hydrocarbon gas from the slop tanks to the empty tanks; and

(*bb*) facilitate monitoring of and, if necessary, topping up of the pressure in the slop tanks, and in any empty cargo tanks if those cargo tanks are being kept in the inerted condition.

(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 57(3) of the Merchant Shipping (Cargo Ship Construc-

tion and Survey) Regulations 1980(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 paragraph (*b*) of this Rule 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 57(3) of the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1980. 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) the cross sectional area of such a gas outlet pipe referred to in sub-paragraph (i) of this paragraph shall be such that an exit velocity of at least 20 metres per second can be maintained when any three tanks are being simultaneously supplied with inert gas. The outlets shall extend not less than 2 metres above deck level;

(iii) each gas outlet referred to in sub-paragraph (ii) of this paragraph shall be fitted with suitable blanking arrangements;

(iv) (1) 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;

(2) the valve separating the inert gas supply main from the cargo main shall be a non-return valve with a positive means of closure.

(*n*) (i) One or more pressure-vacuum breaking devices shall be provided on the inert gas supply main to prevent the cargo tanks from being subject to:

(1) a positive pressure in excess of the test pressure of the cargo tank if the cargo were to be loaded at the maximum rate for which they are designed and all other outlets are left shut; and

(2) 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.

(ii) The location and design of the devices referred to in sub-paragraph (i) of this paragraph shall be in accordance with regulation 57(3) of the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1980.

(a) S.I. 1980/537.

(*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 these gas blowers are operating.

(*p*) (i)Instrumentation shall be fitted for continuously indicating and permanently recording, when the inert gas is being supplied—

(1) the pressure of the inert gas supply main forward of the non-return devices required by sub-paragraph (*j*) (i) of paragraph (*a*) of this Rule and

(2) the oxygen content of the inert gas in the inert gas supply main on the discharge side of the gas blower.

(ii) The devices referred to in sub-paragraph (i) of this paragraph 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:

(1) in the navigating bridge, to indicate at all times the pressure referred to in sub-paragraph (i)(1) of this paragraph and the pressure in the slop tanks of combination carriers, whenever those tanks are isolated from the inert gas supply main; and

(2) in the machinery control room or in the machinery space, to indicate the oxygen content referred to in sub-paragraph (i) (2) of this paragraph.

(*q*) Portable instruments for measuring oxygen and flammable vapour concentration shall be provided. In addition, suitable arrangement 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 paragraphs (*p*) and (*q*) of this Rule.

(*s*) (i) Audible and visual alarms shall be provided to indicate:

(1) low water pressure or low water flow rate to the flue gas scrubber referred to in sub-paragraph (*f*)(i) of this Rule;

(2) high water level in the flue gas scrubber referred to in sub-paragraph (*f*)(i) of this Rule;

(3) high gas temperature referred to in paragraph (*o*) of this Rule;

(4) failure of the inert gas blower referred to in paragraph (*g*) of this Rule;

(5) oxygen content in excess of 8 per cent. volume referred to in sub-paragraph (*p*)(i)(2) of this Rule;

(6) failure of the power supply to the automatic control system for the gas regulating valve and to the indicating devices referred to in paragraph (*i*) and sub-paragraph (*p*)(i) of this Rule;

(7) low water level in the water seal referred to in sub-paragraph (*j*)(i) of this Rule;

(8) gas pressure less than 100 millimetres water gauge referred to in sub-paragraph (*p*)(i)(1) of this Rule; 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

(9) high gas pressure referred to in sub-paragraph (*p*)(i)(1) of this Rule.

(ii) Automatic shut down of the inert gas blowers and gas regulating valve shall be arranged in accordance with limits to the satisfaction of the Secretary of State in respect of sub-paragraphs (i)(1), (i)(2) and (i)(3) of this paragraph.

(iii) Automatic shut down of the gas regulating valve shall be arranged so as to take account of failure of the inert gas blowers referred to in sub-paragraph (*g*) of this paragraph.

(iv) In relation to sub-paragraph (i)(5) of this paragraph, 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 the 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) of this Rule shall be closed.

(v) The alarms required in sub-paragraphs (i)(5), (i)(6) and (i)(8) of this paragraph shall be fitted in the machinery space and cargo control room, where provided, but in any event in such a position that they are immediately received by responsible members of the crew.

(vi) In relation to sub-paragraph (i)(7) of this paragraph, the Secretary of State shall be satisfied as to 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.

(vii) An audible alarm system, independent of that required in sub-paragraph (i)(8) of this paragraph, or automatic shut down of cargo pumps shall be provided to operate on predetermined limits of low pressure in the inert gas main being reached.

(*t*) All tankers fitted with a fixed inert gas system in accordance with this Rule shall be provided with a closed ullage system.

(*u*) A detailed instruction manual shall be provided on board by the owner and it 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. The manual shall include guidance on procedures to be followed in the event of a fault or failure of the inert gas system.

(*v*)(i) Every tanker referred to in Rule 38A (whatever its tonnage), which is required under these rules to have an inert gas system, shall comply with the requirements of the preceding paragraphs of this Rule.

(ii) Every tanker other than those referred to in (*v*)(i) which is required under these Rules to have an inert gas system shall comply with the requirements of the preceding paragraphs except that:

(1) inert gas systems fitted on board such tankers before 1st June 1981 need not comply with the following paragraphs:—

(*c*)(ii); (*f*)(iii); (*g*)(iii); (*h*); (*i*)(ii); (*j*)(ii); (*j*)(vii); (*j*)(ix) (*k*)(iii); (*k*)(iv); (*m*)(ii); (*m*)(iv)(2); and (*s*)(vii);

(2) inert gas systems fitted on board such tankers on or after 1st June 1981 need not comply with the following paragraphs:—

(*c*)(ii); (*f*)(iii); (*g*)(iii); and (*m*)(ii)."

(13) In Rule 63 (firemen's outfits) after sub-paragraph (1)(*c*) there shall be added:

"(*d*) protective clothing of material to protect the skin from the heat radiating from the fire and from burns and scalding by steam. The outer surface shall be water-resistant;

(*e*) boots and gloves of rubber or other electrically non-conducting material;

(*f*) a rigid helmet providing effective protection against impact."

(14) After Rule 64 there shall be inserted the following Rules:

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

64A—(1) On any helicopter landing area there shall be provided and stored adjacent to the means of access to that area, within six months of 25th May 1980:—

(*a*) dry powder extinguishers of total capacity not less than 45 kilogrammes;

(*b*) a suitable foam applicator 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. For the purpose of this Rule, 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 rotor helicopter:

Provided that where a ship is provided with foam arrangements complying with the requirements of either Rule 38A, 38E or 38F of these Rules, this requirement need not be complied with;

(*c*) carbon dioxide extinguishers of total capacity of not less than 16 kilogrammes, which shall be so equipped as to enable it 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 type.

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

15. At the end of the Rule, after Schedule 5:

(*a*) Schedule 1 to these Rules (portable foam applicator unit) shall be added as Schedule 6; and

(*b*) Schedule 2 to these Rules (exemptions) shall be added as Schedule 7.

Norman Tebbit,

Parliamentary Under-Secretary of State,

17th April 1980. Department of Trade.

SCHEDULE 1

Rule 5(3)(b)

"SCHEDULE 6

PORTABLE FOAM APPLICATOR UNIT

(1) Every portable foam applicator unit provided in compliance with these Rules 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 foam concentrate from which the nozzle specified at 1(*a*) can induce the contents; and

(*c*) a spare tank identical to that specified at 1(*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 (ie the ratio of the volume of foam produce to the volume of foam solution) shall not exceed 12 to 1."

SCHEDULE 2

Rule 2(a)

"SCHEDULE 7

EXEMPTIONS

PART I—SHIPS OF CLASS I–IXA and XI

1. Save as otherwise provided in paragraphs 3, 4 and 5, the Merchant Shipping (Fire Appliances) Rules 1965(a) (hereinafter called 'the 1965 Rules') shall not apply to any ship of the following class, that is to say:

a ship of Class I–IXA or XI of which the keel was laid before 26th May 1965, subject to the condition in paragraph 2.

(a) S.I. 1965/1106.

2. It shall be a condition of the exemption given by paragraph 1 that any exempted ship shall comply with all the requirements of the Merchant Shipping (Fire Appliances) Rules 1952(a) (hereinafter called 'the 1952 Rules') which would, having regard to the terms and conditions (including any provision as to termination) of any relevant exemption in force on the 25th May 1965, have been applicable to the ship if those Rules had not been revoked.

3. Ships of the classes specified in column 1 of the Annex hereto are not by virtue of this exemption exempted from, and must comply with, the provisions of the 1965 Rules specified in relation to them in column 2 of the Annex.

4. With effect from 1st January 1966, ships of Classes VII and VIIA of 2000 tons or over, being ships of which the keel was laid before 26th May 1965, shall be exempt, when carrying explosives of such nature or in such quantity as are not permitted to be carried in a passenger steamer by Rule 8(1) of the Merchant Shipping (Dangerous Goods) Rules 1978(b), from the provisions of Rule 32(1) (Fixed fire smothering gas installations) subject to due compliance with the prohibition imposed by Rule 52(1) on the use of steam for fire smothering purposes in compartments containing explosives and to the condition that the ship is provided in every compartment in which explosives are carried with one of the following:

(*a*) an efficient temporary fire smothering gas installation; or

(*b*) a system of perforated pipes designed and fitted so that water can be sprayed into the compartment at the rate of 5 litres per square metre per minute; or

(*c*) a system, for example by providing pipes down the ventilators, whereby the compartment may be rapidly filled with an adequate quantity of high expansion foam

and complies as respects all other cargo spaces with the requirements of the 1952 Rules as provided in paragraph 2.

5. Ships to which this exemption applies, other than ships carrying more than 12 passengers, being ships of which the keel was laid before 26th May 1965, shall, when carrying explosives of such nature or in such quantity as are not permitted to be carried in a passenger steamer by Rule 8(1) of the Merchant Shipping (Dangerous Goods) Rules 1978, be exempt from the requirement in Rule 52 that there shall be provided in any compartment containing explosives and in every adjacent cargo compartment a fire detection system complying with the requirements of Rule 62 or a smoke detection system, subject to the following conditions:

(1) that efficient means in the form of pipes or ventilators are provided in both the said types of compartment by which fire in any such compartment may readily be detected in other parts of the ship by sense of smell; or

(2) 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.

6. In so far as exemption is given by paragraph 1 from the provisions of Rule 57(2) to (10) of the 1965 Rules (requirements with which portable fire extinguishers must comply) in respect of portable fire extinguishers which on the date this exemption takes effect form part of the equipment of a ship and comply with the corresponding requirements of the 1952 Rules, such exemption shall remain in operation until it requires replacement.

(a) S.I. 1952/1950. (b) S.I. 1978/1543.

ANNEX TO PART I

Column 1 (*Class of Ship*)	*Column 2* (*Provisions of* 1965 *Rules from which exemption is not given*)
Passenger ships of Classes I and II and of Class IIA of 70 feet in length or over.	Rule 3(4) (training of fire patrol) Rule 3(5) (response to fire alarm) Rule 4(7) (provision of dual purpose nozzles) Rule 5 (portable fire extinguishers in accommodation and service spaces, galleys, control stations, special category spaces and spaces containing motor vehicles) and Rule 57(2) to (10). Rule 6(2) (provision for exemption) Rule 10 (firemen's outfits) and Rule 63. Rule 11 (international shore connection) and Rule 56.
Passenger ships of Classes I and II and of Class IIA of 70 feet in length or over and carrying more than 36 passengers	Rule 3(6) (special alarm and public address system) Rule 4(4A) (availability of water supply)
Passenger ships of Class III of 70 feet in length or over.	Rule 22 (firemen's outfits) and Rule 63.
Passenger ships of Class IV of 70 feet in length or over.	Rule 24(2) (non-portable fire extinguishers in spaces containing oil-fired boilers or oil-burning equipment) and Rule 57(1) and (6) to (9).
Ships of Class VII— (1) of 500 tons or over	Rule 30(4)(*b*)(i) and (ii) (fire hoses) and Rule 55(1) to (3) Rule 32(2) (provision for exemption) Rule 36 (firemen's outfits) and Rule 63. Rule 36A (fire detection in machinery spaces when operating with unmanned machinery spaces) Rule 37 (international shore connection) and Rule 56 Rule 53(7) (availability of water supply when operating with unmanned machinery spaces) Rule 64(A) (additional requirements for ships with helicopter facilities)

Column 1 (*Class of Ship*)	*Column* 2 (*Provision of* 1965 *Rules from which exemption is not given*)
(2) of under 500 tons	Rule 38(2)(*d*) in so far as it requires the provision of fire hoses, and Rule 55(1) to (3)
	Rule 53(7) (availability of water supply when operating with unmanned machinery spaces)
Ships of Class VII(T), VIII(T), VIII(A)(T) and IX(A)(T) of 500 tons or over	Rule 36(A) (fire detection in machinery spaces when operating with unmanned machinery spaces)
	Rules 38A to 38G inclusive (requirements for inert gas installations and deck foam systems)
	Rule 53(7) (availability of water supply when operating with unmanned machinery spaces)
	Rule 64(A) (additional requirements for ships with helicopter facilities)
Ships of Classes VIII, VIIIA, IX, IXA and XI—	
(1) of 1,000 tons or over ...	Rule 30(4)(*b*)(i) (fire hoses) and Rule 55(1) to (3)
	Rule 36 (fireman's outfits) and Rule 63
	Rule 36(A) (fire detection in machinery spaces when operating with unmanned machinery spaces)
	Rule 37 (international shore connection) and Rule 56
	Rule 53(7) (availability of water supply when operating with unmanned machinery spaces)
	Rule 64(A) (additional requirements for ships with helicopter facilities)
(2) of 500 tons or over but under 1,000 tons	Rule 41(2)(*e*) (fire hoses) and Rule 55(1) to (3)
	Rule 41(6) and 41(7) (fire extinguishers in machinery spaces containing internal combustion type machinery) and Rule 57.
(3) of 150 tons or over but under 500 tons	Rule 42(6) (fire extinguishers in machinery spaces containing internal combustion type machinery) and Rule 57
(4) of under 150 tons	Rule 43(5) (additional requirement for ships of wooden construction)
Ships of any class to which this exemption applies other than ships carrying more than 12 passengers	Rule 52 (requirements for ships carrying explosives) in so far as it prohibits the use of steam for fire smothering purposes in any compartment containing explosives

PART II—SHIPS OF CLASS X

1. Save as otherwise provided in paragraphs 3 and 4, the Merchant Shipping (Fire Appliances) Rules 1965 (hereinafter called 'the 1965 Rules') shall not apply to any ship of the following class, that is to say:

a ship of Class X of which the keel was laid before 26th May 1965,
subject to the condition in paragraph 2.

2. It shall be a condition of the exemption given by paragraph 1 that any exempted ship shall comply with all the requirements of the Merchant Shipping (Fire Appliances) Rules 1952 (hereinafter called 'the 1952 Rules') which would, having regard to the terms and conditions (including any provision as to termination) of any relevant exemption in force on the 25th May 1965, have been applicable to the ship if those Rules had not been revoked.

3. Ships to which this exemption applies are not by virtue thereof exempted from, and must comply with, the provisions of the 1965 Rules specified in relation to them in Column 2 of the Annex hereto.

4. Ships to which this exemption applies other than ships carrying more than 12 passengers, shall, if carrying explosives of such nature or in such quantity as are not permitted to be carried in a passenger steamer by Rule 8(1) of the Merchant Shipping (Dangerous Goods) Rules 1978, be exempt from the requirement in Rule 52 that there shall be provided in any compartment containing explosives and in every adjacent cargo compartment a fire detection system complying with the requirements of Rule 62 or a smoke detection system, subject to the following conditions:

(1) That efficient means in the form of pipes or ventilators are provided in both the said types of compartment by which fire in any such compartment may readily be detected in other parts of the ship by sense of smell;

(2) That Standing Instructions to Ship's 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.

5. In so far as exemption is given by paragraph 1 from the provisions of Rule 57(2) to (10) of the 1965 Rules (requirements with which portable fire extinguishers must comply) in respect of portable fire extinguishers which on the date this exemption takes effect form part of the equipment of a ship and comply with the corresponding requirements of the 1952 Rules, such exemption shall remain in operation until it requires replacement.

6. Ships of Class X of under 150 tons shall not be exempted from the following: Rule 43(5) (Certain ships of wooden construction: machinery space: fire smothering gas injection system or, where permitted, a water spraying system in lieu);

Provided that any such ship of less than 70 feet in length shall be exempt from the requirements of the said Rule 43(5) to the extent that, if the ship is provided with a water spraying system pursuant to the proviso therein, that system may be supplied from a hand pump outside the machinery space with a permanent sea connection within the machinery space so arranged as not to be rendered ineffective by fire in the machinery space.

ANNEX TO PART II

Column 1 (*Class of Ship*)	*Column 2* (*Provisions of* 1965 *Rules from which exemption is not given*)
Ships of Class X— (1) of 1,000 tons or over ...	Rule 30(4)(*b*)(i) (fire hoses) and Rule 55(1) to (3). Rule 31 (portable fire extinguishers in accommodation and service spaces); Rule 33(2)(*a*) (fire extinguishers in oil-fired boiler room); Rule 34(1) (fixed fire extinguishing installations in machinery spaces containing internal combustion type machinery); Rule 34(2)(*a*) and (*b*) (fire extinguishers in machinery spaces containing internal combustion type machinery). Provided that such ships shall be exempt from the requirements of the said Rule 34(1) subject to the condition that a foam fire extinguisher of at least 10 gallons capacity or a carbon dioxide fire extinguisher of at least 35 lb capacity shall be provided in addition to that required pursuant to Rule 34(2)(*a*). Rule 36 (firemen's outfits) and Rule 63
(2) of 500 tons or over but under 1,000 tons	Rule 41(2)(*c*) (fire hoses) and Rule 55(1) to (3) Rule 41(6) and 41(7) (fire extinguishers in machinery spaces containing internal combustion type machinery) and Rule 57.
(3) of 150 tons or over but under 500 tons	Rule 42(6) (fire extinguishers in machinery spaces containing internal combustion type machinery) and Rule 57.
(4) of any tonnage, other than ships carrying more than 12 passengers	Rule 52 (requirements for ships carrying explosives) in so far as it prohibits the use of steam for fire smothering purposes in any compartment containing explosives.

PART III—SHIPS OF CLASS XII

1. Save as otherwise provided in paragraphs 3 and 4 of the Merchant Shipping (Fire Appliances) Rules 1965 (hereinafter called 'the 1965 Rules') shall not apply to any ship of the following class, that is to say:

a ship of Class XII of which the keel was laid before 26th May 1965, subject to the condition in paragraph 2.

2. It shall be a condition of the exemption given by paragraph 1 that any exempted ship shall comply with all the requirements of the Merchant Shipping (Fire Appliances) Rules 1952(a) (hereinafter called 'the 1952 Rules') which would, having regard to the terms and conditions (including any provision as to termination) of any relevant exemption in force on the 25th May 1965, have been applicable to the ship if those Rules had not been revoked.

3. Ships to which this exemption applies are not by virtue hereof exempted from, and must comply with, the provisions of the 1965 Rules specified in relation to them in Column 2 of the Annex hereto.

4. A ship to which this exemption applies other than a ship carrying more than 12 passengers shall, if carrying explosives of such nature or in such quantity as are not permitted to be carried in a passenger steamer by Rule 8(1) of the Merchant Shipping (Dangerous Goods) Rules 1978 (b), be exempt from the requirements of Rule 52 of the 1965 Rules to the following extent only, that is to say:

(1) The ship shall be exempt from the requirement of the said Rule that there shall be provided in any compartment containing explosives and in every adjacent cargo compartment a fire detection system complying with the requirements of Rule 62 or a smoke detection system, subject to the following conditions:

(*a*) that efficient means in the form of pipes or ventilators are provided in both the said types of compartment by which fire in any such compartment may readily be detected in other parts of the ship by sense of smell;

(*b*) that Standing Instructions to Ship's 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.

(2) The ship shall comply with the requirements of the said Rule insofar as they prohibit the use of steam for fire smothering purposes in any compartment containing explosives.

5. In so far as exemption is given by paragraph 1 from the provisions of Rule 57(2) to (10) of the 1965 Rules (requirements with which portable fire extinguishers must comply) in respect of portable fire extinguishers which on the date this exemption takes effect form part of the equipment of a ship and comply with the corresponding requirements of the 1952 Rules, such exemption shall remain in operation until it requires replacement.

ANNEX TO PART III

Column 1 (*Class of ship*)	*Column* 2 (*Provisions of* 1965 *Rules from which exemption is not given*)
Ships of Class XII—	
(1) of 1,000 tons or over ...	Rule 33 (fixed fire extinguishing installation and fire extinguishers for machinery spaces containing oil-fired boilers or oil-burning equipment).
(2) of 500 tons or over but under 1,000 tons	Rule 41(4) and (5) (fixed fire extinguishing installation and fire extinguishers for machinery spaces as above).
(3) of 150 tons or over but under 500 tons	Rule 42(4) and (5) (fixed fire extinguishing installation and fire extinguishers for machinery spaces as above)."

(a) S.I. 1952/1950. (b) S.I. 1978/1543.

EXPLANATORY NOTE

(This Note is not part of the Rules.)

These Rules further amend the Merchant Shipping (Fire Appliances) Rules 1965 and apply to existing British ships (other than sea-going United Kingdom registered fishing vessels and pleasure craft less than 45 feet) and to other existing ships while they are within a port in the United Kingdom.

Additional requirements are imposed on specified classes of existing ships which give effect to the provisions of the International Convention for the Safety of Life at Sea 1974 (Cmnd. 7874) and of Chapter II-2 of the Protocol of 1978 relating to the International Convention for the Safety of Life at Sea 1974 (Cmnd. 7346).

These are:

(1) A description of tankers is added to the classification of ships;

(2) In specified ships of Class I, additional portable fire extinguishers and equipment for firemen's outfits are required to be provided;

(3) In specified ships of Class VII additional portable fire extinguishers, firemen's outfits and equipment for firemen's outfits, and fire alarm and detection system for periodically unmanned machinery spaces are required to be provided;

(4) Specified tankers of 500 tons or over carrying crude oil or petroleum products will, by specified dates, be required to be provided with an inert gas system and mobile deck foam applicator unit complying with specified requirements;

(5) Additional fire extinguishing arrangements are required for ships having helicopter landing facilities;

(6) General exemptions from the requirements of the Rules in respect of certain classes of ships, the keels of which were laid before 26th May 1965, are set out in a separate Schedule to the Rules.

New ships are required to comply with all the provisions of the 1974 Convention and Chapter II-2 of the Protocol of 1978 in respect of fire appliances and those requirements are set out in the Merchant Shipping (Fire Appliances) Regulations 1980 (S.I. 1980/544) which come into operation on the same date as these Rules.