
STATUTORY INSTRUMENTS

1997 No. 1509

MERCHANT SHIPPING

SAFETY

**The Merchant Shipping (Cargo Ship
Construction) Regulations 1997**

<i>Made</i>	- - - -	<i>7th June 1997</i>
<i>Laid before Parliament</i>		<i>20th June 1997</i>
<i>Coming into force</i>	- -	<i>11th July 1997</i>

The Secretary of State for Transport after consulting the persons referred to in section 86(4) of the Merchant Shipping Act 1995(1), in exercise of the powers conferred by section 85(1)(a) and (b), (3) and (5) to (7) and section 86(1) of that Act, and of all other powers enabling him in that behalf, hereby makes the following Regulations:

PART I
GENERAL

Citation, commencement and revocation

1.—(1) These Regulations may be cited as the Merchant Shipping (Cargo Ship Construction) Regulations 1997 and shall come into force on 11th July 1997.

(2) The following Regulations are hereby revoked—

The Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981(2);

The Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1984(3);

The Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981 (Amendment) Regulations 1984(4);

(1) 1995 c. 21; sections 85 and 86 were amended by the Merchant Shipping and Maritime Securities Act 1997 (c. 8), section 8.
(2) S.I. 1981/572.
(3) S.I. 1984/1217.
(4) S.I. 1984/1219.

The Merchant Shipping (Application of Construction and Survey Regulations to Other Ships) Regulations 1985(5);

The Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981 (Amendment) Regulations 1985(6);

The Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1984 (Amendment) Regulations 1986(7);

The Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1984 (Amendment) Regulations 1992(8).

Interpretation

2.—(1) In these Regulations—

“accommodation spaces” means passenger spaces, corridors, lavatories, cabins, offices, crew spaces, hairdressing salons, pantries not containing cooking appliances, lockers and similar spaces;

“auxiliary steering gear” means the equipment, other than any part of the main steering gear, necessary to steer the ship in the event of failure of the main steering gear but not including the tiller, quadrant or components serving the same purpose;

“bulkhead deck” means the deck up to which the majority of transverse watertight bulkheads are carried;

“cargo area” means that part of a ship which contains cargo spaces, slop tanks and cargo pump rooms, cofferdams, ballast and void spaces adjacent to cargo tanks and also deck areas throughout the length and breadth of the part of the ship over such spaces;

“cargo control station” means a space from which the loading, discharging or transferring of any cargo may be controlled;

“cargo ship” means a mechanically propelled ship which is not a passenger ship, troop ship, pleasure vessel or fishing vessel;

“cargo pump room” means a room in which any pumps used for loading, discharging or transferring cargoes are located;

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

“Certifying Authority” means the Secretary of State or any person or organisation authorised by the Secretary of State;

“chemical tanker” means a tanker constructed or adapted and used for the carriage in bulk of any liquid product of a flammable nature listed in Chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;

“Code of Safety for Special Purpose Ships” means the Code annexed to IMO Resolution A.534(13);

“Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High Level Radioactive Wastes on Board Ships” means the Code annexed to IMO Resolution A.748(18);

“control stations” means spaces in which radio or main navigating equipment, or the emergency source of power, or the central fire recording, or fire control equipment, or fire

(5) S.I. 1985/661.

(6) S.I. 1985/663.

(7) S.I. 1986/1067.

(8) S.I. 1992/135.

extinguishing installations are located or a control room located outside a propelling machinery space;

“dangerous goods” means goods defined as such in the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990⁽⁹⁾;

“dead ship condition” means that condition under which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power;

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

“EEA Agreement” means the Agreement on the European Economic Area signed at Oporto on 2nd May 1992⁽¹⁰⁾ as adjusted by the Protocol signed at Brussels on 17th May 1993;

“EEA State” means a State which is a Contracting Party to the EEA Agreement;

“emergency condition” means a condition under which any services needed for normal operational and habitable conditions are not in working order due to failure of the main source of electrical power;

“emergency source of electrical power” means a source of electrical power intended to supply the emergency switchboard in the event of failure of the supply from the main source of electrical power;

“emergency switchboard” means a switchboard which in the event of failure of the main electrical power supply system is directly supplied by the emergency source of electrical power or the transitional source of emergency power and is intended to distribute electrical energy to the emergency services;

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

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

“forward perpendicular” means the perpendicular defined as such in the Merchant Shipping (Load Line) Rules 1968⁽¹¹⁾;

“freeboard deck” means the deck defined as such in the Merchant Shipping (Load Line) Rules 1968;

“gas carrier” means a tanker constructed or adapted and used for the carriage in bulk of any liquefied gas or certain other substances of a flammable nature listed in Chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (1993 Edition);

“Guidelines for the Design and Construction of Offshore Supply Vessels” means the guidelines annexed to IMO Resolution A.469(XII);

“hazardous area” means an area in which explosive gas-air mixtures are, or may be expected to be, present in quantities such as to require special precautions for the construction and use of electrical apparatus or other apparatus which otherwise would constitute a source of ignition;

“high speed craft” is a craft capable of maximum speed in metres per second (m/s) equal to or exceeding—

$$3.7 \blacktriangle^{0.1667} \text{ (m/s)}$$

where

⁽⁹⁾ 1990/2605, to which there are amendments not relevant to these Regulations.

⁽¹⁰⁾ Cm. 2073.

⁽¹¹⁾ S.I. 1968/1053, relevant amendment is S.I. 1990/2118.

▲ = displacement corresponding to the design waterline (m³);

“IMO” means the International Maritime Organization;

“length” means the length of the ship ascertained in accordance with the requirements of the Merchant Shipping (Load Lines) (Length of Ship) Regulations 1968⁽¹²⁾;

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

“machinery alarm and control centre” means the position from which the propelling and auxiliary machinery can be controlled and where the alarms other than those located in accommodation spaces and at the navigating bridge, necessary for the safe operation of such machinery are located;

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

“machinery space” means any space which contains propelling machinery, boilers, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilising, ventilation and air conditioning machinery, and similar spaces; and, where the context so admits, any trunk to such a space;

“machinery spaces of Category A” means a machinery space which contains—

- (a) internal combustion type machinery used either for main propulsion purposes, or for other purposes where such machinery has in the aggregate a total power output of not less than 375 kilowatts; or
- (b) any oil fired boiler or oil fuel unit;

and any trunk to such a space;

“main generating station” means the space in which the main source of electrical power is situated;

“main source of electrical power” means a source intended to supply electrical power to the main switchboard for distribution to all services necessary for maintaining a ship in normal operational and habitable condition;

“main steering gear” means the machinery, rudder actuators, steering gear power units, if any, and auxiliary equipment and the means of applying torque to the rudder stock, such as the tiller or quadrant, necessary for effecting movement of the rudder for the purpose of steering the ship under normal service conditions;

“main switchboard” means the switchboard which is directly supplied by the main source of electrical power and is intended to distribute electrical energy to the ship’s services;

“Marine Safety Agency” means the Marine Safety Agency, an Executive Agency of the Department of Transport;

“MARPOL” means the International Convention for the Prevention of Pollution from Ships 1973, including its protocols, Annex I (but no other Annex) and appendices thereto, as amended⁽¹³⁾;

“maximum ahead service speed” means the greatest speed which the ship is designed to maintain at sea at her deepest seagoing draught;

“maximum astern speed” means the greatest speed which it is estimated the ship can attain at the designed maximum astern power at the deepest seagoing draught;

⁽¹²⁾ S.I. 1968/1072.

⁽¹³⁾ Cmnd. 5748; amended by the Protocol of 1978 (Cmnd. 7374) and by amendments adopted by IMO in 1983, 1985, 1989, 1992 and 1994.

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

“navigable speed” means the minimum speed at which the ship can be effectively steered in the ahead direction;

“noise level” means “A” weighted sound pressure level in decibels dB(A) as defined and tabulated in the British Standards specification number BS EN 60651; 1994 Specifications for Sound Level Meters;

“normal operational and habitable condition” is a condition under which the ship as a whole, the machinery, services, means and aids ensuring propulsion, ability to steer, safe navigation, fire and flooding safety, internal and external communications and signals, means of escape and emergency boat winches, as well as the designed comfortable conditions of habitability, are in working order and functioning normally;

“oil fuel unit” means the equipment used for the preparation of oil fuel for delivery to an oil fired boiler or equipment used for the preparation for delivery of heated oil to an internal combustion engine and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure greater than 180 kPa;

“oil tanker” means a ship constructed or adapted primarily to carry oil in bulk in its cargo spaces and includes a combination carrier or a chemical tanker when it is carrying a cargo or part cargo of oil in bulk;

“pleasure vessel” means—

- (a) any vessel which at the time it is being used is—
 - (i) (a) in the case of a vessel wholly owned by an individual or individuals, used only for the sport or pleasure of the owner or the immediate family or friends of the owner; or
 - (b) in the case of a vessel owned by a body corporate, used only for sport or pleasure and on which the persons are employees or officers of the body corporate, or their immediate family or friends; and
 - (ii) on a voyage or excursion which is one for which the owner does not receive money for or in connection with operating the vessel or carrying any person, other than as a contribution to the direct expenses of the operation of the vessel incurred during the voyage or excursion; or
- (b) any vessel wholly owned by or on behalf of a members’ club formed for the purpose of sport or pleasure which, at the time it is being used, is used only for the sport or pleasure of members of that club or their immediate family; and for the use of which any charges levied are paid into club funds and applied for the general use of the club; and
- (c) in the case of any vessel referred to in paragraphs (a) or (b) above no other payments are made by or on behalf of users of the vessel, other than by the owner.

In this definition “immediate family” means in relation to an individual, the husband or wife of the individual, and a relative of the individual or the individual’s husband or wife, and “relative” means brother, sister, ancestor or lineal descendant;

“power actuating system” means the hydraulic equipment provided for supplying power to turn the rudder stock, comprising a steering gear power unit or units, together with the associated pipes and fittings, and a rudder actuator. The power actuating systems may share common mechanical components, that is, tiller, quadrant and rudder stock or components serving the same purpose;

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

“a similar stage of construction” means a stage at which—

- (a) construction identifiable with a specific ship begins; and
- (b) assembly of that ship, comprising at least 50 tonnes of 1 per cent of the estimated mass of all structural material, whichever is the less, has commenced;

“service spaces” includes galleys, pantries containing cooking appliances, lockers, species rooms, laundries, store rooms, workshops other than those forming part of machinery spaces and similar spaces and trunks to such spaces;

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

“steering gear control system” means the equipment, comprising transmitters, receivers, hydraulic control pumps and their associated motors, motor controllers, piping and cables by which orders are transmitted from the navigating bridge to the steering gear power units.

“steering gear power unit” means—

- (a) in the case of electric steering gear, the electric motor and its associated electric equipment; or
- (b) in the case of electro-hydraulic steering gear, the electric motor, its associated electrical equipment and connected pump; or
- (c) in the case of steam-hydraulic or pneumatic-hydraulic steering gear, the driving engine and connected pump;

“suitable” in relation to material means suitable for the purpose for which it is used;

“surveyor” means a surveyor appointed by a Certifying Authority;

“tanker” means a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of a flammable nature and except where the context otherwise requires, includes a gas carrier and a chemical tanker;

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

- (a) in relation to a ship having alternative gross tonnages under paragraph 13 of Schedule 5 to the Merchant Shipping (Tonnage) Regulations 1982⁽¹⁴⁾, permitted to be used pursuant to regulation 12(1) of the Merchant Shipping (Tonnage) Regulations 1997⁽¹⁵⁾ is a reference to the larger of those tonnages, and
- (b) in relation to a ship having its tonnage determined both under Part II and regulation 12 of those 1997 Regulations is a reference to its gross tonnage as determined under the said regulation 12(2);

“upper deck” means the uppermost complete deck exposed to the sea and weather fitted as an integral part of the ship’s structure, being a deck, openings in the weather portions of which are fitted with permanent means of closing and below which all openings in the sides of the ship are fitted with permanent means of watertight closing;

“watertight” means capable of preventing the passage of water in any direction;

“weathertight” means that in any sea condition water will not penetrate the ship.

(2) Any reference in these Regulations to—

- (a) the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;
- (b) the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;

⁽¹⁴⁾ S.I. 1982/841, to which there are amendments not relevant to these Regulations.

⁽¹⁵⁾ S.I. 1997/1510.

- (c) the Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk;
- (d) the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk;
- (e) Guidelines for the Design and Construction of Offshore Supply Vessels;
- (f) the Code of Safety for Special Purpose Ships;
- (g) the Code for the Safe Carriage of Irradiated Nuclear Fuel Plutonium and High Level Radioactive Wastes on Board Ships;
- (h) MARPOL;
- (i) a British Standard or an equivalent international Standard; or
- (j) a Merchant Shipping Notice; or
- (k) any other specified Code or guidelines;

shall include—

- (i) a reference to any document amending it which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice; and
 - (ii) as respects a reference to a British Standard, a reference to a relevant standard of an EEA State other than the United Kingdom.
 - (a) (3) (a) In these Regulations—
 - (i) a reference to a numbered regulation is, unless otherwise stated, a reference to the regulation of that number in these Regulations;
 - (ii) a reference in a regulation to a numbered paragraph is, unless otherwise stated, a reference to the paragraph of that number in that regulation;
 - (iii) where a sub-heading refers to “requirements” or to “additional requirements” for certain ships, the text following such a subheading in that regulation (or until the next sub-heading in that regulation) shall (unless the context otherwise requires) relate only to such ships;
 - (iv) a reference to a ship constructed on or after a specified date is a reference to a ship the keel of which is laid or which is at a similar stage of construction on or after that date.
- (4) Any approval given pursuant to these Regulations shall be given in writing and shall specify the date when it is to come into force and the conditions (if any) of which it is given.

Exemptions

3.—(1) The Secretary of State may grant exemptions from all or any of the provisions of these Regulations (as may be specified in the exemption) for classes of cases or individual cases on such terms (if any) as he may so specify and may, subject to giving reasonable notice, alter or cancel any such exemption. In particular, the Secretary of State may, either absolutely or subject to such conditions as he thinks fit, exempt any ship the keel of which was laid before the coming into force of individual regulations, from those requirements if he is satisfied that compliance with those requirements are either impractical or unreasonable in the case of that ship.

(2) Every ship the keel of which was laid before 26th May 1965 shall be exempt from the requirements of these Regulations, except regulation 54 and paragraphs 9, 10, 11 and 12 of Schedule 4 in Merchant Shipping Notice MSN 1671 on condition that it complies with all the requirements of the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981 which would have applied to it if those Regulations had not been revoked.

Application

- (a) (a) Subject to paragraph (c), these Regulations apply to—
 - (i) sea-going United Kingdom cargo ships of 500 tons or over wherever they may be;
 - (ii) to other sea-going cargo ships of 500 tons or over, while they are within the United Kingdom waters, when engaged on international voyages; and
 - (iii) to other sea-going cargo ships of 500 tons or over when not engaged on international voyages, while they are within United Kingdom national waters.
- (b) United Kingdom ships which undergo repairs, alterations or modifications of a major character shall meet the requirements applying to a ship constructed at that time in so far as the Secretary of State deems reasonable and practicable.
- (c) Nothing in these Regulations shall apply to—
 - (i) a ship by reason of her being within the United Kingdom or the territorial waters thereof if she would not have been therein but for stress of weather or any other circumstances that the master, or owner, or the charterer (if any), could have prevented;
 - (ii) high-speed craft to which the Merchant Shipping (High-Speed Craft) Regulations 1996⁽¹⁶⁾ apply.

Approved standards

5. In complying with the requirements of these Regulations, as respects construction or maintenance relating to hull, machinery, electrical installations and control installations, United Kingdom ships shall comply with the approved standards listed in Merchant Shipping Notice No. M.1672 relevant to those statutory obligations.

PART II

CONSTRUCTION—ALL SHIPS

Structural strength

6.—(1) The structural strength of every ship and the number and disposition of transverse watertight bulkheads shall be adequate for the service for which the ship is intended.

Additional requirements for ships constructed on or after 1st September 1984

(2) The hull, superstructure, structural bulkheads, deck and deckhouses shall be constructed of steel or other equivalent material except that the crowns and casings of machinery spaces of Category A shall be constructed only of steel.

Peak and machinery space bulkheads and stern tubes Requirements for ships constructed on or after 1st September 1984

7.—(1) Every ship shall be fitted with a collision bulkhead which shall be watertight up to the freeboard deck. This bulkhead shall be located at a distance from the forward perpendicular of not less than 5 per cent of the length of the ship or 10 metres, whichever is the least and, except as may be permitted by the Certifying Authority, not more than 8 per cent of the length of the ship.

(16) S.I. 1996/3188.

(2) Where any part of the ship below the waterline extends forward of the forward perpendicular, such as bulbous bow, the distances stipulated in paragraph (1) shall be measured from a position—

- (a) at the mid-length of such extension; or
- (b) forward of the forward perpendicular at a distance of 1.5 per cent of the length of the ship; or
- (c) forward of the forward perpendicular at a distance of 3 metres;

whichever is the aftermost position.

(3) The collision bulkhead may have steps or recesses in it provided that they are within the limits prescribed in paragraphs (1) and (2). Pipes piercing the collision bulkhead shall be fitted with suitable valves operable from above the freeboard deck and the valve chest shall be secured at the bulkhead inside the forepeak. The Certifying Authority may permit the location of such valves on the after side of the collision bulkhead provided that they are readily accessible under all service conditions and the space in which they are located is not a cargo space. All such valves shall be of steel, bronze or other ductile material; valves of ordinary cast iron or similar material shall not be fitted. Doors, manholes, ventilation ducts or any other openings shall not be fitted in the collision bulkhead.

(4) In every ship provided with a long forward superstructure the collision bulkhead shall be extended weathertight to the deck immediately above the freeboard deck. The extension shall, subject to the requirements of paragraph (5), be located within the limits prescribed in paragraphs (1) and (2). The part of the deck, if any, between the collision bulkhead and its extension shall be weathertight.

(5) In every ship provided with a bow door and a sloping loading ramp that forms part of the extension of the collision bulkhead above the freeboard deck, the part of the ramp which is more than 2.3 metres above the freeboard deck may extend forward of the limits specified in paragraphs (1) and (2). The ramp shall be weathertight over its entire length.

(6) The number of openings in the extension of the collision bulkhead above the freeboard deck shall be restricted to the minimum compatible with the design and normal operation of the ship. All such openings shall be capable of being closed weathertight.

Additional requirements for ships constructed on or after 1st February 1992

(7) In every ship, bulkheads made watertight up to the freeboard deck shall be fitted to separate the machinery space from cargo and accommodation spaces.

(8) In every ship, stern tubes shall be enclosed in a watertight space (or spaces) of moderate volume. Other measures may be taken to minimise the danger of water penetrating into the ship in case of damage to stern tube arrangements, subject to the approval of the Certifying Authority.

Construction and testing of watertight bulkheads, decks and inner bottoms Requirements for ships constructed on or after 1st September 1984

8.—(1) In every ship each transverse and longitudinal watertight subdivision bulkhead shall be constructed in such a manner that it shall be capable of supporting the pressure due to the maximum head of water which it might have to sustain in the event of damage to the ship. The head of water shall be at least up to the freeboard deck.

(2) Steps and recesses in the bulkheads shall be watertight and of a strength equivalent to that of the bulkhead.

(3) Frames or beams that pass through a watertight deck or bulkhead shall be made structurally watertight without the use of wood or cement.

(4) Watertight compartments shall be tested either by flooding or by a hose test at the most advanced stage of the fitting out of the ship or by other means acceptable to the Certifying Authority, to establish that the watertight bulkheads are effective.

(5) The forepeak, double bottoms, duct keels and inner skins shall be tested by flooding with water to the head prescribed in paragraph (1).

(6) Tanks intended to hold liquids and which form part of the subdivision of the ship shall be tested by flooding with water to a head corresponding to the deepest subdivision load line or to two thirds of the depth from the top of the keel to the freeboard deck whichever is the greater. In no case shall the test head be less than 0.9 metres above the top of the tank.

(7) The tests prescribed in this regulation shall not necessarily be regarded as a test of fitness of any compartment for the storage of oil fuel or for other special purposes for which a test of a superior character may be appropriate.

Construction and testing of watertight decks, trunks, tunnels, duct keels and ventilators Requirements for ships constructed on or after 1st September 1984

9.—(1) In every ship the watertight decks, trunks, tunnels, duct keels and ventilators shall be of the same strength as the watertight bulkheads at corresponding levels. The means for making them watertight and the arrangements for closing openings in them shall be to the satisfaction of the Certifying Authority. Watertight ventilators and trunks shall be watertight at least up to the freeboard deck.

(2) Watertight decks shall be subjected to a hose or flooding test after completion. Watertight trunks, tunnels and ventilators shall be subject to a hose test on completion. Alternatively they may be tested by other means acceptable to the Certifying Authority.

Watertight doors

10.—(1) Except for ships subject to Part III, every watertight door required to maintain the watertight integrity of a bulkhead, shall be made of suitable material and shall be efficiently constructed for its intended duty.

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

(b) The operating gear for operating from above the bulkhead deck any sliding watertight door fitted in the bulkhead of a machinery space shall be situated outside the machinery space.

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

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

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

Tests of watertight doors Requirements for ships constructed on or after 1st September 1984

11. Each watertight door shall be tested by water pressure equivalent to the head up to the freeboard deck. The test shall be made before the ship is put into service, either before or after the door is fitted.

Ballast and bilge pumping and drainage arrangements

12. Every ship shall be provided with efficient bilge pumping plant and means of drainage in accordance with the provisions of Schedule 1 in Merchant Shipping Notice MSN 1671.

PART III

STABILITY OF SHIPS OF 100 METRES OR OVER

Interpretation

13. In this Part—

“attained subdivision index” means the attained subdivision index of the ship calculated in accordance with regulation 15;

“subdivision length” means the greatest projected moulded length of that part of the ship at or below deck or decks limiting the vertical extent of flooding with the ship at the deepest subdivision load line;

“subdivision load line” means a waterline used in determining the subdivision of the ship;

and

“deepest subdivision load line” means the subdivision load line which corresponds to the draught corresponding to the summer load line assigned to the ship under the Merchant Shipping (Load Lines) Rules 1968.

Application

14. This Part applies to every ship of 100 metres or over in sub-division length constructed on or after 1st February 1992, except any ship which complies with—

- (a) regulation 25 of Annex 1 of MARPOL;
- (b) the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;
- (c) the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk;
- (d) the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;
- (e) the Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk;
- (f) the Guidelines for the Design and Construction of Offshore Supply Vessels;
- (g) the Code for the Safety of Special Purpose Ships;
- (h) both with the damage stability requirements of regulation 27 of the International Load Line Convention 1966 as modified by IMO Resolutions A.320(IX) and 514(13) and, in the case of ships to which paragraph (9) of that regulation applies, with paragraph (12)(f) of Resolution A.320(IX); or
- (i) with enactments contained in the Merchant Shipping Act 1995 or Statutory Instruments insofar as they implement the International Convention for the Prevention of Pollution from Ships 1973/78 or the Codes listed above.

Subdivision indices

15.—(1) The attained subdivision index of every ship shall not be less than the required subdivision index of that ship.

(2) The attained subdivision index of a ship is the value “A” calculated in respect of that ship in accordance with the formula specified in paragraph 3 of Annex I in Merchant Shipping Notice No. M.1476 and the required subdivision index for a ship is the value “R” calculated in respect of that ship in accordance with the formula specified in paragraph 2 of Annex I to that Notice.

(3) In calculating “A” and “R” account shall be taken of the explanatory notes set out in Annex II to that Merchant Shipping Notice.

Stability information

16.—(1) The master of every ship shall be supplied with such reliable information as is necessary to enable him by rapid and simple means to determine the stability of the ship under varying conditions of service.

(2) That information shall include—

(a) one of the following—

(i) a curve of minimum operational metacentric height (GM) versus draught which assures compliance with the applicable intact stability requirements of Schedule 4 Part I to the Merchant Shipping (Load Lines) Rules 1968⁽¹⁷⁾ or with the attained subdivision index of the ship, whichever is the more onerous condition or, where curves representing the requirements cross, the part of each curve which represents the more onerous requirement; or

(ii) a (corresponding) curve of the maximum allowable vertical centre of gravity (KG) versus draught; or

(iii) a tabular or equivalent presentation of either of these curves; and

(b) instructions concerning the operation of cross-flooding arrangements; and

(c) all other data and means of presentation necessary to assist the crew to maintain stability after damage.

(3) Where the curve provided or presented in compliance with paragraph (2)(a) is based wholly or in part on the attained subdivision index of the ship the operational GM(KG) values shall be applied in the manner and to the extent specified in paragraph 7 of Annex I in Merchant Shipping Notice No. M.1476.

(a) (4) (a) The information required to be supplied by this regulation shall, before it is supplied to the master, be submitted for approval to that Assigning Authority to which the information supplied in respect of the ship pursuant to rule 30 of the Merchant Shipping (Load Line) Rules 1968 is required to be submitted in accordance with paragraph (5) of that rule.

(b) In this paragraph, “Assigning Authority” has the same meaning as in the Merchant Shipping (Load Line) Rules 1968.

(5) There shall be permanently exhibited or readily available on the navigating bridge for the guidance of the officer in charge of the ship, plans showing clearly for each deck and hold the boundaries of the watertight compartments, the openings therein, the means of closure and position of any controls thereof, and the arrangements for the correction of any list due to flooding. In addition, booklets containing this information shall be made available by the owners for the use of the officers of the ship.

Openings in watertight bulkheads and internal decks

17.—(1) The number of openings in the boundaries of watertight compartments shall be the minimum compatible with the design and proper working of the ship. Where penetration of watertight bulkheads and internal decks is necessary for access, piping, ventilation, electrical cables, or for any other purpose, arrangements shall be made to maintain watertight integrity at each such point of penetration. The Certifying Authority may permit openings in compartment boundaries above the freeboard deck to be weathertight rather than watertight where it is demonstrated that any

(17) Rule 30(5) was substituted by S.I. 1990/2128.

progressive flooding resulting therefrom can be easily controlled and the safety of the ship would not be impaired.

(2) Doors provided to ensure the watertight integrity of internal openings which are used while the ship is at sea shall be of the sliding watertight type and capable of being remotely closed from the bridge and capable also of being operated locally from each side of the door without the door closing automatically. Indicators shall be provided at the bridge position showing whether the doors are open or closed, and an audible alarm shall be provided when the door closes. The power for operating and controlling the doors, indicators and alarms shall be supplied from the emergency switchboard required by regulation 49. The control system shall be so designed that if the system fails, closure by hand will not be prevented or impeded. Each power-operated sliding watertight door shall be provided with an individual hand-operated opening and closing mechanism. Means shall be provided at the door itself to open and close the door safely by hand from both sides and from an accessible position above the bulkhead deck.

(3) Access doors and access hatch covers normally closed at sea and intended to ensure the watertight integrity of internal openings, shall be provided locally and on the bridge, with indicators to show whether these doors or hatch covers are open or closed. A notice shall be affixed to each such door or hatch cover stating that it is not to be left open at sea. Such doors and hatch covers shall not be used except where access is necessary and is authorised by the officer of the watch.

(4) Watertight doors or ramps of satisfactory construction may be fitted to subdivide large cargo spaces internally where the Certifying Authority is satisfied that such doors or ramps are essential. These watertight doors or ramps may be of the hinged, rolling or sliding type, but shall not be remotely controlled. They shall be closed before the voyage commences and shall be kept closed throughout the voyage. The time of opening such doors or ramps when the voyage has ended and of closing them before the voyage commences shall be entered in the log book. Any doors or ramps which may be accessible during the voyage shall be fitted with a device which prevents unauthorised opening.

(5) Every closing appliance which is required to be kept permanently closed at sea to ensure the watertight integrity of a compartment shall be provided with a notice affixed to it stating that it is to be kept closed, except that manholes secured by closely bolted covers need not be so marked.

External openings

18.—(1) All external openings which lead to compartments assumed intact for the purposes of calculating the subdivision index “A”, and which are below the final waterlines, shall be watertight.

(2) External openings required to be watertight in accordance with paragraph (1) shall be of sufficient strength and, except in the case of cargo hatch covers, shall be fitted with indicators on the bridge.

(3) Openings in the shell plating below the deck limiting the vertical extent of damage shall be kept permanently closed while at sea. Any of these openings which may be accessible during the voyage, shall be fitted with a device which prevents unauthorised opening.

(4) Notwithstanding the requirements of paragraph (3), the Certifying Authority may authorise the opening of specific doors, at the discretion of the master, if it is satisfied that such opening is necessary for the operation of the ship and provided that the safety of the ship would not be thereby impaired.

(5) Every watertight closing appliance which is required to be permanently closed at sea to ensure the integrity of an external opening shall be provided with a notice affixed to it stating that it is to be kept closed at sea; provided that manholes secured by closely bolted covers need not be so marked.

PART IV

DOUBLE BOTTOMS IN SHIPS OTHER THAN TANKERS

Requirements for ships (other than tankers) constructed on or after 1st February 1992

19.—(1) A double bottom shall be fitted extending from the collision bulkhead to the after peak bulkhead, so far as this is practicable and compatible with the design and proper working of the ship.

(2) Where a double bottom is required to be fitted, its depth shall be to the satisfaction of the Certifying Authority and the inner bottom shall be continued out to the ship's side in such a manner as to protect the bottom to the turn of the bilge.

(3) Small wells constructed in the double bottom, in connection with the drainage arrangements of holds, shall not extend in depth more than necessary. A well extending to the outer bottom is permissible at the after end of the shaft tunnel of the ship. Other wells may be permitted by the Certifying Authority, if it is satisfied that the arrangements give protection equivalent to that afforded by a double bottom complying with this regulation.

(4) A double bottom need not be fitted under watertight compartments used exclusively for the carriage of liquids, provided the safety of the ship in the event of bottom damage is not, in the opinion of the Certifying Authority, thereby impaired.

PART V

DAMAGE CONTROL IN DRY CARGO SHIPS

Requirements for dry cargo ships constructed on or after 1st February 1992

20.—(1) There shall be permanently exhibited or readily available on the navigating bridge, for the guidance of the officer in charge of the ship, a plan showing clearly for each deck and hold, the boundaries of the watertight compartments, the openings therein with the means of closure and position of any controls thereof, and the arrangements for the correction of any list due to flooding. In addition, booklets containing this information shall be made available to the officers of the ship.

(2) Indicators shall be provided on the navigating bridge for all sliding doors and for hinged doors in watertight bulkheads to show whether these doors are open or closed. In addition, shell doors and other openings which, in the opinion of the Certifying Authority, could lead to major flooding if left open or not properly secured, shall also be provided with such indicators.

(3) The booklet referred to in paragraph (1) shall contain general precautions being a listing of equipment, conditions and operational procedures, considered by the Certifying Authority to be necessary to maintain watertight integrity under normal ship operations.

(4) The booklet referred to in paragraph (1) shall contain specific precautions being a listing of elements (such as closures, security of cargo, sounding of alarms), considered by the Certifying Authority to be vital to the survival of the ship and its crew.

PART VI

CONSTRUCTION—TANKERS

General

21.—(1) This Part applies to United Kingdom and other tankers the keels of which were laid, or were at a similar stage of construction, on or after 25th May 1980; and to United Kingdom and other tankers converted into or adapted to be tankers on or after 25th May 1980.

(2) This Part applies to tankers designed to carry crude oil and petroleum products which have a closed flash-point not exceeding 60°C and a Reid vapour pressure below atmospheric pressure, or other liquids having a similar fire hazard, except chemical tankers and gas carriers which comply with the constructional requirements specified in the Codes referred to in the definitions of such ships in regulation 2.

(3) In this Part “fire protection arrangements” and “fire extinguishing arrangements” mean requirements for those matters, so far as relevant, contained in the Merchant Shipping (Fire Appliances) Regulations 1980(18), the Merchant Shipping (Fire Protection) Regulations 1984(19), and (notwithstanding their revocation by these Regulations) the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981(20).

(4) The hull, superstructures, structural bulkheads, decks and deckhouses shall be constructed of steel or other equivalent material except that the crowns and casings of machinery spaces of Category A and the exterior boundaries of superstructures and deckhouses which are required to be insulated to “A-60” standard shall be constructed only of steel.

Location of spaces

22.—(1) Machinery spaces shall be positioned aft of cargo tanks and slop tanks and shall be separated from them by a cofferdam, cargo pump room, oil fuel bunker tank or permanent ballast tank and shall be positioned aft of such cofferdam or cargo pump room except that the lower part of a cargo pump room may be recessed into a machinery space of Category A in order to accommodate pumps subject to the crown of the recess being not more than one third of the moulded depth above the keel; provided that, in the case of a ship not exceeding 25,000 tonnes deadweight where a recess of such height is not practicable for reasons of access and arrangement of piping, the recess may be increased to a height not exceeding one half of the moulded depth above the keel. Pump rooms, other than cargo pump rooms, containing pumps and fittings for ballasting spaces adjacent to cargo tanks and slop tanks and pumps and fittings for oil fuel transfer may be considered equivalent to a cargo pump room for the purpose of this regulation provided that the fire protection arrangements and fire extinguishing arrangements of those pump rooms are in accordance with the requirements for cargo pump rooms.

(2) Except as otherwise permitted by paragraphs (3), (4) and (5) accommodation spaces, control stations, main cargo control stations and service spaces other than isolated lockers for cargo handling gear shall be positioned aft of cargo tanks and slop tanks and pump rooms or cofferdams which separate cargo tanks and slop tanks from machinery spaces except that such spaces may be positioned over the recess of a pump room to which paragraph (1) refers.

(3) Accommodation spaces, control stations, main cargo control stations and service spaces may be positioned forward of the cargo area provided that they are separated from the cargo tanks and slop tanks by a cofferdam, pump room, or the whole or part of an oil fuel bunker tank or permanent

(18) S.I. 1980/544, to which there are amendments not relevant to these Regulations.

(19) S.I. 1984/1218; relevant amendment is S.I. 1993/1193.

(20) S.I. 1981/572, to which there are amendments not relevant to these Regulations.

ballast tank except that such spaces may be positioned over the recess of a pump room to which paragraph (1) refers.

(4) Navigating spaces may be positioned above the cargo tanks and slop tanks provided that they are used only for navigating purposes and are separated from the upper deck by means of an open space the height of which shall be not less than 2 metres.

(5) Where accommodation spaces, control stations, cargo stations, and machinery spaces other than machinery spaces of Category A are located over part of an oil fuel bunker tank the horizontal separation of such spaces from cargo tanks or slop tanks shall be to the satisfaction of the Certifying Authority.

(6) Means shall be provided to isolate oil spills on the upper deck from accommodation and service spaces and shall take into account stern cargo handling facilities where these are provided.

Additional requirements for ships constructed on or after 1st September 1984

(7) Notwithstanding paragraph (1) machinery spaces containing internal combustion machinery having an output greater than 375 kilowatts (other than main propulsion machinery) and provided for the safety of the ship and machinery spaces other than machinery spaces of Category A may be positioned forward of the cargo area provided that they are separated from the cargo tanks and slop tanks in the manner specified in paragraph (1) for machinery spaces positioned aft of such tanks.

(8) In combination carriers when the slop is carried on dry cargo voyages the slop tanks shall be surrounded by cofferdams except where the boundaries of the slop tanks are the hull, main cargo deck, cargo pump room bulkhead or oil fuel bunker tank. Such cofferdams shall not be open to a double bottom, pipe tunnel, pump room or other enclosed space and shall be provided with means of being filled with water and of being drained. Where the boundary of a slop tank is the cargo pump room bulkhead the pump room shall not be open to any double bottom, pipe tunnel or other enclosed space except that bolted gas-tight access covers may be permitted.

(9) The piping between the slop tanks and the pump room on combination carriers shall be provided with isolating arrangements located adjacent to the slop tanks or, where such an arrangement is impracticable, within the pump room at the position where the piping penetrates the bulkhead. The isolating arrangements shall be either a valve and a spectacle flange or a spool piece and blank flanges.

(10) A separate pumping arrangement shall be provided on combination carriers for discharging the contents of the slop tanks to a connection located above the main deck.

(11) The slop tank hatches and cleaning openings on combination carriers shall be on the open deck and, unless such openings are closed by bolted watertight plates, shall be provided with locking arrangements which shall be under the control of a ship's officer.

(12) Cargo oil pipes installed below deck on combination carriers shall be located within wing cargo tanks except that when cargo wing tanks are not provided the Certifying Authority may permit the installation of such pipes in ducts which shall be capable of being adequately cleaned and ventilated.

Cargo tank ventilation Requirements for tankers constructed on or after 1st September 1984

23.—(1) The cargo tank venting systems shall be independent of the ventilation arrangements for any other compartments. The arrangement and position of the openings in the cargo tank deck from which the emission of flammable vapours can occur shall be such as to minimise the possibility of flammable vapours being admitted into enclosed spaces containing a source of ignition or collecting in the vicinity of machinery and equipment which may constitute an ignition hazard.

(2) The cargo tank venting arrangements shall be in accordance with the provisions of Schedule 2 in Merchant Shipping Notice MSN 1671.

Ventilation of pump rooms and other enclosed spaces Requirements for tankers constructed on or after 25th May 1980

24.—(1) Cargo pump rooms and pump rooms having a similar hazard shall be mechanically ventilated and discharges from the exhaust fans shall be led to a safe place on the open deck. The ventilation of these rooms shall have sufficient capacity to minimize the possibility of accumulation of flammable vapours. The number of changes of air shall be at least 20 per hour, based upon the gross volume of the space. The air ducts shall be arranged so that all of the space is effectively ventilated. The ventilation system shall be of the exhaust type, using fans of the non-sparking type.

(2) Ventilation inlets and outlets and other deckhouse and superstructure boundary space openings shall be located clear of the cargo pump room openings. Openings for machinery space ventilation shall be located as far aft as practicable taking into consideration the location of any stern loading and discharging facilities provided.

Additional requirements for tankers constructed on or after 1st September 1984

(3) The cargo spaces and their adjacent enclosed spaces in combination carriers shall be capable of being ventilated by permanently installed or portable fans. A fixed gas detection system shall be provided in cargo pump rooms, pipe ducts and the cofferdams adjacent to slop tanks. Arrangements shall be provided to detect the presence of flammable vapours in all other spaces within the cargo tank area from the open deck or other easily accessible positions.

Inerting, ventilation and gas measurement Requirements for tankers constructed on or after 1st October 1994

25.—(1) Double hull and double bottom spaces shall be fitted with suitable connections for the supply of air.

(2) On oil tankers required to be fitted with inert gas systems—

- (a) double hull spaces shall be fitted with suitable connections for the supply of inert gas;
- (b) where hull spaces are connected to a permanently fitted inert gas distribution system, means shall be provided to prevent hydrocarbon gases from the cargo tanks entering the double hull spaces through the system;
- (c) where such spaces are not permanently connected to an inert gas distribution system, appropriate means shall be provided to allow connection to the inert gas main.

(3) Suitable portable instruments for measuring oxygen and flammable vapour concentrations shall be provided. In selecting these instruments, due attention shall be given to their use in combination with the fixed gas-sampling line system referred to in paragraph (4).

(4) Where the atmosphere in double hull spaces cannot be reliably measured using flexible gas-sampling hoses, such spaces shall be fitted with permanent gas sampling lines. The configuration of such line systems shall be adapted to the design of such spaces.

(5) The materials of construction and the dimensions of gas sampling lines shall be such as to prevent restriction. Where plastic materials are used, they shall be electrically conductive.

Access to spaces in the cargo tank area of oil tankers Requirements for oil tankers constructed on or after 1st October 1994

26.—(1) Access to cofferdams, ballast tanks, cargo tanks and other spaces in the cargo area shall be direct from the open deck and be such as to ensure their complete inspection. Access to double bottom spaces may be through a cargo pump-room, deep cofferdam, pipe tunnel or similar compartments, provided adequate ventilation for safety can be ensured.

(2) For access through horizontal openings, hatches or manholes, the dimensions shall be sufficient to allow a person wearing a self-contained breathing apparatus and protective equipment to ascend or descend any ladder without obstruction and also to provide a clear opening to facilitate the hoisting of an injured person from the bottom of the space. The minimum clear opening shall be not less than 600 millimetres×600 millimetres.

(3) For access through vertical openings, or manholes providing passage through the length and breadth of the space, the minimum clear opening shall be not less than 600 millimetres×800 millimetres at a height of not more than 600 millimetres from the bottom shell plating unless gratings or other footholds are provided.

(4) For oil tankers of less than 5,000 tonnes deadweight smaller dimensions may be approved by the Certifying Authority in special circumstances, if the ability to traverse such openings or to remove an injured person can be proved to the satisfaction of the Certifying Authority.

PART VII

MACHINERY INSTALLATION

General

27.—(1) In every ship the machinery, boilers and other pressure vessels, and associated piping systems and fittings, shall be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board, due regard being paid to moving parts, hot surfaces and other hazards. The design shall have regard to the materials used in construction, the purpose for which the equipment is intended, the working conditions to which it will be subjected and the environmental conditions on board.

Additional requirements for ships constructed on or after 1st September 1984

(2) Where the arrangements of the main propulsion machinery are unconventional the Secretary of State may require a separate source of propulsion power to be provided sufficient to give the ship a navigable speed.

(3) Means shall be provided whereby the normal operation of propulsion machinery can be sustained or restored when there is a breakdown of—

- (a) a generating set which serves as a main source of electrical power;
- (b) the source of steam supply;
- (c) the boiler feed water system;
- (d) the fuel oil supply systems for boilers or engines;
- (e) the sources of lubricating oil pressure;
- (f) the sources of water pressure;
- (g) a condensate pump and the arrangements to maintain vacuum in condensers;
- (h) the mechanical air supply for boilers;
- (i) an air compressor and receiver for starting or control purposes; and
- (j) the hydraulic, pneumatic or electrical means for control of main propulsion machinery including controllable pitch propellers;

or any other auxiliary system essential for propulsion.

The Certifying Authority may for the purposes of this paragraph, if it is safe so to do, permit a partial reduction in propulsion capability from normal operation.

(4) Main propulsion machinery and all auxiliary machinery essential to the propulsion and the safety of the ship shall be designed to operate when the ship is upright and when inclined at any angle of list up to and including 15 degrees either way under static conditions and 22.5 degrees either way under dynamic conditions (rolling) and simultaneously inclined dynamically (pitching) 7.5 degrees by bow or stern. The Certifying Authority may permit a reduction in these angles taking into consideration the type, size and service conditions of the ship.

(5) Access shall be provided to facilitate the cleaning, inspection and maintenance of main propulsion and auxiliary machinery including boilers and pressure vessels.

Machinery

28.—(1) The main and auxiliary machinery essential for the propulsion and safety of the ship shall be provided with effective means of control and means shall be provided such as starting batteries, compressed air or the emergency generator, to ensure that the machinery can be brought into operation from the dead ship condition without external aid.

(2) Where risk from over-speeding of machinery would otherwise exist, two independent means of control shall be provided to ensure that the safe speed is not exceeded; provided that the Certifying Authority may permit a single means of limiting the speed of machinery where it considers it safe so to do.

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

- (a) the design and the material of which they are constructed;
- (b) the purpose for which they are intended to be used; and
- (c) the working conditions under which they are intended to be used;

and such parts shall be maintained in an efficient condition.

Additional requirements for ships constructed on or after 1st September 1984

(4) The propulsion machinery systems shall be designed, constructed and installed so that undue stress due to vibration is not induced during normal operation.

(5) All gearing and every shaft and coupling used for transmission of power essential for the propulsion and safety of the ship or for the safety of persons on board shall be so designed and constructed that they will withstand the maximum working stresses which they will be subjected to in all service conditions taking into account the type of engines by which they are driven or of which they form part.

(6) Every internal combustion engine having a cylinder diameter of 200 millimetres or greater or a crankcase volume of 0.6 cubic metres or greater shall be provided with crankcase explosion relief valves of a suitable type having sufficient area to relieve abnormal pressure in the crankcase. The explosion relief valves shall be arranged or provided with means to ensure that any discharge from them is so directed as to minimize the possibility of injury to personnel.

(7) Every main propulsion turbine and, where applicable, main internal combustion propulsion machinery and auxiliary machinery shall be provided with automatic shut-off arrangements that will operate in the case of failures, such as a lubricating oil supply failure, which could lead rapidly to complete breakdown, serious damage or explosion. The Certifying Authority may permit arrangements that over-ride the automatic shut-off devices.

Means of manoeuvring and going astern

29.—(1) Every ship shall have sufficient power for going astern to secure proper control of the ship in all normal circumstances. The ability of the machinery to reverse the direction of thrust of the propeller in sufficient time and so to bring the ship to rest from maximum ahead service speed shall be demonstrated and recorded.

Ships constructed on or after 1st September 1984

(2) The effectiveness of any supplementary means of stopping or manoeuvring the ship shall be demonstrated and recorded.

(3) Every ship with multiple propellers shall undergo trials to determine the ability of the ship to manoeuvre with one propeller inoperative.

(4) The trial records required by paragraphs (1), (2) and (3) shall be available on the ship.

Boilers and other pressure vessels

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

- (a) the design and the material of which it is constructed;
- (b) the purpose for which it is intended to be used; and
- (c) the working conditions under which it is intended to be used;

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

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

(3) Means shall be provided which will prevent overpressure in any part of boilers and other pressure vessels, and in particular every boiler and every unfired steam generator shall be provided with not less than two safety valves. The Certifying Authority may, having regard to the output or any other feature of any boiler or unfired steam generator, permit only one safety valve to be fitted if it is satisfied that adequate protection against overpressure is provided.

Additional requirements for ships constructed on or after 1st September 1984

(4) Every unattended oil fired boiler shall be provided with arrangements to shut off the fuel supply and give an alarm at an attended location in the event of low boiler water level, combustion, air supply failure or flame failure.

(5) Every boiler designed to contain water at a specific level shall be provided with at least two means for indicating the water level, at least one of which shall be a direct reading gauge glass.

(6) Every water-tube boiler serving turbine machinery shall be fitted with a high water level alarm.

(7) Means shall be provided to test and control the quality of the water in boilers.

Boiler feed systems

31.—(1) Every boiler which provides services essential for the safety of the ship and which would be rendered dangerous by the failure of its feed water supply shall be provided with not less than two efficient and separate feed water systems so arranged that either of such systems may be opened for

inspection or overhaul without affecting the efficiency of the other. Means shall be provided which will prevent overpressure in any part of the systems.

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

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

Additional requirements for ships constructed on or after 1st September 1984

(4) Means shall be provided to test and control the quality of the feed water to boilers.

Steam pipe systems

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

- (a) the material of which it is constructed; and
- (b) the working conditions under which it will be used.

(2) Without prejudice to the generality of the foregoing, every steam pipe or fitting shall, before being put into service for the first time, be subjected to a test by hydraulic pressure to a pressure suitably in excess of the working pressure to be determined having regard to the requirements of subparagraphs (1)(a) and (b) and every such steam pipe or fitting shall be maintained in an efficient condition.

(3) Steam pipes shall be adequately supported.

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

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

(6) If a steam pipe is connected to any source at a higher pressure than it can otherwise withstand with an adequate factor of safety, an efficient reducing valve, relief valve and pressure gauge shall be fitted to such pipe.

Air pressure systems

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

(2) Every part of a compressed air system subjected to air pressure shall be designed and constructed to withstand, with an adequate factor of safety, the maximum working stresses to which they may be subjected. Every air pressure pipe or fitting in such a system, other than a pneumatic control system, shall, before being put into service for the first time, be subject to a hydraulic test

suitably in excess of the maximum working pressure to which it may be subjected and be maintained in an efficient condition.

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

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

(5) All discharge pipes from starting air compressors shall lead directly to the starting air receivers, and all starting air pipes from the air receivers to main or auxiliary engines shall be entirely separate from the compressor discharge pipe system.

Cooling water systems

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

Oil and gaseous fuel installations

35.—(1) In every ship oil fuel provided for use in boilers or machinery shall have a flash point of not less than 60°C (closed cup test): provided that the Marine Safety Agency may, subject to such conditions as it may impose—

- (a) permit any ship to use oil fuel having a flash point of not less than 55°C in boilers, or oil fuel having a flash point of not less than 43°C in internal combustion type machinery provided that the ambient temperature of the machinery space in which such fuel oil is stored or used is at least 10°C below the flash point of the fuel oil;
- (b) permit the use of fuel oil with a flash point of less than 43°C provided that it is not stored in any machinery space;
- (c) permit the use of gaseous fuel in ships designed for the carriage of liquefied gas if such fuel results solely from evaporation of the cargo carried.

Nothing in this paragraph shall apply to fuel provided for use in a generator provided in accordance with paragraph 1(g) of Schedule 10 in Merchant Shipping Notice MSN 1671.

(2) In every ship in which oil or gaseous fuel is used, the arrangement for storage, distribution and utilisation of fuel shall comply at least with the provisions of Schedule 4 in Merchant Shipping Notice MSN 1671.

Lubricating and other oil systems

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

(2) In ships constructed on or after 1st September 1984, lubricating oil and other flammable oils shall not be carried in fore peak tanks.

Remote control of propulsion machinery from the navigation bridge

37. Every United Kingdom ship constructed on or after 1st May 1981 operating with unmanned machinery spaces, and every other ship constructed on or after 1st September 1984, shall be provided with—

- (a) effective means for the operation and control of main auxiliary machinery essential for the propulsion and safety of the ship; and
- (b) remote control of the propulsion machinery from the navigating bridge in accordance with the provisions of Schedule 5 in Merchant Shipping Notice MSN 1671.

Steering gear

38. Every ship shall be provided with the means for steering which shall be in accordance with the provisions of Schedule 6 in Merchant Shipping Notice MSN 1671.

Ventilating systems in machinery spaces Requirements for ships constructed on or after 1st September 1984

39. Machinery spaces of Category A in every such ship shall be ventilated so that an adequate supply of air is maintained for the safety and well-being of personnel and the operation of machinery, including boilers, at full power in all weather conditions. Any other machinery space shall be adequately ventilated having regard in particular to the prevention of an accumulation of oil vapour under all normal conditions.

Protection against noise Requirements for ships constructed on or after 1st September 1984

40.—(1) In every such ship, measures shall be taken to reduce noise levels in machinery spaces as far as is reasonable and practical. On completion of a ship noise levels in machinery spaces shall be measured and a record of the measurements taken shall be retained on the ship.

(2) Noise levels and their measurement shall be in accordance with the provisions of Schedule 8 in Merchant Shipping Notice MSN 1671.

Communication between navigating bridge and machinery space

41.—(1) Every ship shall be provided with two means for communicating orders from the navigating bridge to the position in the machinery space or machinery control room from which the main engines are normally controlled. One of the means shall be an engine room telegraph.

Additional requirements for ships constructed on or after 1st September 1984

(2) The means for communicating orders referred to in paragraph (1) shall be independent of each other. In addition, means of communication shall be provided to any other position from which the main engines may be controlled.

Additional requirements for ships constructed on or after 1st October 1994

(3) Appropriate means of communication shall be provided from the navigating bridge and the engine-room to any other position from which the speed or direction of thrust of the propellers may be controlled.

Engineers' alarm Requirements for ships constructed on or after 1st September 1984

42. Every ship shall be provided with an engineers' alarm which shall be clearly audible in the engineers' accommodation when operated from a position in the machinery space or machinery control room from which the engines are normally controlled.

Spare gear

43. Every ship shall be provided with sufficient spare gear having regard to the intended service of the ship.

Periodically unattended machinery spaces Requirements for ships constructed on or after 1st May 1981

44. Every ship with machinery spaces containing machinery used or essential for propulsion and intended to be periodically unattended under any sailing condition, including manoeuvring, shall comply with the provisions of Schedule 9 in Merchant Shipping Notice MSN 1671.

Closing of openings Requirements for tankers constructed on or after 25th May 1980 and to other ships constructed on or after 1st September 1984.

45.—(1) In every ship the number of skylights, doors, ventilators, openings in funnels for exhaust ventilation and other openings, to machinery spaces shall be the minimum compatible with the proper working and safety of the ship.

(2) The skylights to machinery spaces of Category A shall be constructed of steel and their flaps shall be capable of being closed and opened from a suitable position outside the space in the event of fire. Adequate arrangements shall be made to permit the release of smoke in the event of fire.

(3) Windows shall not be fitted in machinery space boundaries. This requirement shall not preclude the use of glass in control rooms located within the machinery space boundaries.

(4) Any machinery space of Category A which is accessible from an adjacent shaft tunnel shall be provided with a light-weight steel fire-screen door in addition to any water tight door. The fire-screen door shall be operable from each side and shall be located at the shaft tunnel side of the bulkhead.

PART VII

ELECTRICAL INSTALLATIONS

General

46.—(1) In every ship the electrical installation shall be such that—

- (a) all electrical auxiliary services necessary for maintaining the ship in normal operational and habitable conditions will be ensured without recourse to the emergency source of electrical power; and
- (b) the electrical services essential for safety will be ensured under emergency conditions.

(2) The electrical equipment and installations, including any electrical means of propulsion, shall be such that the ship and all persons on board are protected against electrical hazards.

Main source of electrical power and main switchboard

47.—(1) Every ship in which electrical power is the only power for maintaining auxiliary services essential for the propulsion or safety of the ship shall be provided with two or more generating sets of such power that these services can be operated when any one of the sets is out of service.

(2) Load shedding or other equivalent arrangements shall be provided to protect the generators required by paragraph (1) against sustained overload.

Additional requirements for ships constructed on or after 1st September 1984

(3) A main source of electrical power shall be provided in every such ship with sufficient capacity to supply all the services required by regulation 46(1)(a) and (b). This main source of electrical power shall consist of at least two generating sets. The main source of electrical power shall be arranged so that such services can be maintained regardless of the speed and direction of rotation of the propulsion machinery or shafting.

(4) The arrangement of the generating sets required by paragraph (3) shall be such that with any one of the sets out of service—

- (a) normal operational conditions of propulsion and safety of the ship and minimum comfortable conditions of habitability including those for cooking, heating, domestic refrigeration, mechanical ventilation, sanitary and fresh water can be maintained; and
- (b) from a dead ship condition, the remaining sets are capable of providing the electrical services necessary to start the main propulsion plant. The emergency source of electrical power may be used for this purpose if it is capable of simultaneously supplying the emergency supplies required by Part 3 in Schedule 10 in Merchant Shipping Notice MSN 1671, or it is capable of supplying such services when combined with any other source of electrical power.

(5) Any transforming equipment supplying an electrical system referred to in this regulation shall be arranged to ensure the same continuity of supply as that required for generating sets by this regulation.

(6) The main switchboard shall be located in the same main fire zone and watertight compartment as the main generating sets in any ship with only one generating station. Where there is more than one generating station and only one main switchboard, that switchboard shall be located in the same main fire zone and watertight compartment as one of the generating stations. The Certifying Authority may permit other arrangements where other essential features of the ship render the application of this requirement impracticable subject to such alternative provisions as it may require. For the purposes of this paragraph an environmental enclosure for the main switchboard such as a machinery control room within the main boundary of the space, does not provide separation between the generating sets and switchboards.

(7) The main busbars shall be subdivided in every ship in which the total installed electrical power of the main generating sets exceeds 3 megawatt. Each section of the busbars shall be interconnected by removable links or other suitable means such that the main generating sets and any supplies to duplicated services which are directly connected to the busbars are, so far as it is practicable, equally divided between the sections. The Certifying Authority may permit other arrangements which provide equivalent system redundancy.

Lighting systems Requirements for ships constructed on or after 1st September 1984

48.—(1) The main source of electrical power in every ship shall be capable of illuminating any part of the ship normally accessible to and used by the passengers or the crew.

(2) The emergency electric lighting shall be arranged so that a fire or other casualty in spaces containing the emergency source of electrical power, the associated transformers, if any, the emergency switchboard and the emergency lighting switchboard will not render inoperative the main electric lighting system as required by paragraph (1).

(3) Lighting fittings shall be arranged to prevent rises in temperature which would be damaging to the fitting or the electric wiring or which would result in a risk of fire.

Emergency and transitional sources of electrical power and emergency switchboards

49.—(1) Every ship shall be provided, in a position above the uppermost continuous deck and outside the machinery casings, with a self-contained emergency source of electrical power so

arranged as to ensure its functioning in the event of fire or other casualty causing failure of the main electrical installation.

(2) The emergency and transitional source of electrical power and emergency switchboards shall be in accordance with the provisions of Schedule 10 in Merchant Shipping Notice MSN 1671.

Location and construction of cables Requirements for ships constructed on or after 1st September 1984

50.—(1) All electrical cables external to equipment shall be flame retardant and shall be installed so that their flame retarding or equivalent properties are not impaired. The Certifying Authority may permit installation of cables which do not comply with the foregoing for particular purposes, such as radio frequency cables, where compliance would be impracticable.

(2) Cables shall be installed and supported in such a manner as to avoid chafing and other damage. All metal sheaths and metal armour of electric cables shall be electrically continuous and shall be earthed except that the Certifying Authority may permit such earthing to be omitted for particular purposes.

(3) Cables serving emergency services shall not, so far as is practicable, be routed through galleys, laundries, machinery spaces of Category A and their casings or other high risk areas except insofar as it is necessary to provide emergency services in such areas. Cables connecting fire pumps to the emergency switchboard shall be of a fire resistant type where they pass through high fire risk areas.

(4) Cables serving emergency services shall, where practicable, be installed in such a manner as to preclude them being rendered unserviceable by the effect of a fire in an adjacent space and subsequent heating of the dividing bulkhead.

(5) The electrical, mechanical, flame retarding and, where applicable, fire resisting properties of the terminations and joints in any conductor shall be at least equivalent to those of the conductor.

General precautions against shock, fire and other hazards Requirements for ships constructed on or after 26th May 1965

51. In every ship all electrical equipment shall be constructed and installed so that it will not cause injury when handled or touched in a proper manner. The precautions to be taken shall at least be in accordance with those set out in Schedule 11 in Merchant Shipping Notice MSN M1671.

Electrical equipment in hazardous areas and spaces Requirements for ships constructed on or after 1st September 1984

52. Electrical equipment shall not be installed in any hazardous area except in accordance with the requirements set out in Schedule 12 in Merchant Shipping Notice MSN 1671.

PART IX

MISCELLANEOUS

Anchors, anchor handling equipment and chain cables

53. Every ship shall be provided with such anchors, anchor handling equipment together with such anchors and chain cables as are sufficient in number, weight and strength having regard to the size of the ship. This equipment shall be tested and certified by the Certifying Authority.

Emergency towing arrangements

54. Tankers, including oil tankers, chemical tankers and gas carriers, of not less than 20,000 tonnes deadweight shall be fitted with an emergency towing arrangement at both ends of the ship. For tankers constructed before 1st January 1996 such an arrangement shall be fitted at the first scheduled dry-docking or by 1st January 1999, whichever is the earlier. The design and construction of the towing arrangement shall be guided by the provisions contained in Schedule 13 in Merchant Shipping Notice MSN 1671.

Materials used in construction Requirements for ships constructed on or after 1st September 1984

55.—(1) Every overboard scupper, sanitary discharge or other inlet or outlet installed in a location where the failure of any such inlet or outlet could cause flooding in the event of fire shall be constructed of materials that are not readily rendered ineffective by heat.

(2) Pipes intended to convey oil or other flammable liquids shall be of a suitable material having regard to risk of fire. Such pipes shall not be installed in accommodation and service spaces unless adequate precautions are taken having regard to the risk of fire and the Certifying Authority considers their installation necessary.

(3) The surface of any insulation shall be impervious to oil or oil vapours in any space where the penetration of oil or oil products would otherwise be possible.

(4) Asbestos or any material containing asbestos shall not be installed in any part of the ship except that white asbestos may be used in machinery when a substitute material is not available.

Gas welding, flame cutting and domestic gaseous fuel installations Requirements for ships constructed on or after 1st September 1984

56.—(1) In every ship every gas welding, flame cutting or domestic gaseous fuel installation shall be designed, constructed and installed so that the safety of the ship and of the persons on board is not impaired.

(2) Every domestic liquefied petroleum gas installation shall be at least in accordance with Merchant Shipping Notice No. M.984.

PART X

EQUIVALENTS, PENALTIES AND DETENTION

Alternative construction, equipment and machinery

- (a) (a) Where these Regulations require that the hull or machinery of a ship shall be constructed in a particular manner, or that particular equipment shall be provided, or that particular provisions shall be made, the Secretary of State shall permit the hull or machinery of the ship to be constructed in any other manner, or any other equipment to be provided or other provision made, if he is satisfied by trial thereof or otherwise that such other construction, equipment or provision is at least as effective as that required by these Regulations.
- (b) For the purposes of these Regulations, the results of a verification or test shall be accepted if the verification or test is carried out—
- (i) in accordance with these Regulations or with a Standard, Code of Practice, specification or technical description of an EEA State other than the United Kingdom offering equivalent levels of safety, suitability and fitness for the purpose; and

- (ii) by a body or laboratory of an EEA State other than the United Kingdom offering suitable and satisfactory guarantees of technical and professional competence and independence.

Penalties

58. If a ship proceeds or attempts to proceed to sea without complying with the requirements of these Regulations, the owner and master of the ship shall each, in respect of each case of non-compliance, be guilty of an offence and liable on summary conviction to a fine not exceeding the statutory maximum or, on conviction on indictment to imprisonment for a term not exceeding two years or a fine or both.

Power to detain

59. In any case where a ship does not comply with the requirements of these Regulations, the ship shall be liable to be detained and section 284 of the Merchant Shipping Act 1995 (which relates to the detention of a ship) shall have effect in relation to the ship, subject to the modification that as if for the words “this Act” wherever they appear, there were substituted “the Merchant Shipping (Cargo Ship Construction) Regulations 1997”.

Signed by the authority of the Secretary of State for Transport

7th June 1997

Glenda Jackson
Parliamentary Under-Secretary of State,
Department of Transport

EXPLANATORY NOTE

(This note is not part of the Regulations)

1. These Regulations replace the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981 and 1984, and amendments. They also implement certain recent amendments to the Safety of Life at Sea Convention 1974 (SOLAS) and implement in part EC Directive [94/57/EC](#).

2. The Regulations now contain requirements for ships of all dates of construction since 1965. A number of details of technical requirements previously contained in Regulations are now contained in a Merchant Shipping Notice.

3. The principal changes from the previous Regulations are—

(a) a number of requirements on United Kingdom ships which went beyond existing SOLAS requirements are omitted.

(b) the new SOLAS amendments implemented are—

(i) amendments made by Resolution MSC 13(57) including, among other matters, revised requirements as to damage control information, and double bottoms in ships other than tankers;

(ii) amendments made by Resolution MSC 27(61) including requirements for access to the cargo tank area of tankers and revised requirements for communications, electrical arrangements and ventilation of spaces;

(iii) amendments made by Resolution 1 of the Conference on Global Maritime Distress and Safety System;

(iv) amendments made by Resolution MSC 31(63) for emergency towing arrangements in oil tankers, chemical tankers and gas carriers of more than 20,000 dwt, and requirements for oil fuel installations; and

(c) United Kingdom ships in complying with their statutory requirements as to construction and maintenance of hull, machinery, electrical installations and control installations now also have to comply with certain rules of Classifications Societies or the Institution of Electrical Engineers (referred to in the Regulations as “approved standards”) (*regulation 5*).

4. The Regulations enable the Secretary of State to authorise persons to act as Certifying Authorities for the purpose of the Regulations. Currently so authorised are Lloyd’s Register of Shipping, the British Committee of Bureau Veritas, the British Committee of Det Norske Veritas, the British Committee of Germanischer Lloyd, the British Committee of Registro Italiano Navale and the British Technical Committee of the American Bureau of Shipping.

5. A compliance cost assessment has been prepared and copies can be obtained from the Marine Safety Agency, Department of Transport, Spring Place, 105 Commercial Road, Southampton SO15 1EG. A copy has been placed in the library of each House of Parliament.

6. Merchant Shipping Notices are obtainable from Eros Marketing Support Services Ltd, Unit B, Imber Court Trading Estate, Orchard Lane, East Molesey, Surrey KT8 0BN (Telephone number: 0181 957 5028). The SOLAS Convention, its Protocol and amendments and the Codes and Guidelines referred to in the Regulations are obtainable from the International Maritime Organisation, 4, Albert Embankment, London SE1 7SR. British or International Standards are obtainable from the British Standards Institution, 389 Chiswick High Road, London W4 4AL and

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the Institution of Electrical Engineers Regulations from the Institution at Savoy Place, London WC2 0BL.