
STATUTORY INSTRUMENTS

1990 No. 892

MERCHANT SHIPPING

SAFETY

**The Merchant Shipping (Passenger Ship Construction
and Survey) (Amendment) Regulations 1990**

<i>Made</i>	- - - -	<i>10th April 1990</i>
<i>Laid before Parliament</i>		<i>20th April 1990</i>
<i>Coming into force:</i>		
<i>Regulations 1–4</i>		<i>29th April 1990</i>
<i>Regulation 5</i>		<i>1st February 1992</i>

The Secretary of State for Transport, after consulting with the persons referred to in section 22(2) of the Merchant Shipping Act 1979⁽¹⁾, in exercise of the powers conferred on him by sections 21(1)(a) and (b), (3) to (6) and 22(1) of that Act and of all other powers enabling him in that behalf, hereby makes the following Regulations:

Citation and commencement

1. These Regulations may be cited as the Merchant Shipping (Passenger Ship Construction and Survey) (Amendment) Regulations 1990 and shall come into force on 29th April 1990, except for regulation 5 which shall come into force on 1st February 1992.

Amendment and Revocation of Existing Regulations

2.—(1) In the Merchant Shipping (Passenger Ship Construction) (New and Existing Ships) (Amendment) Regulations 1986⁽²⁾ regulation 2(6) shall be omitted.

(2) In the Merchant Shipping (Passenger Ship Construction) (Amendment) Regulations 1987⁽³⁾.

(i) regulations 3(1), 3(2) and 4(2) and

(ii) in regulation 4(1) the definition of “ro-ro” passenger ship
shall be omitted.

(1) 1979 c. 39.
(2) S.I.1986/1074.
(3) S.I. 1987/1886.

(3) The Merchant Shipping (Passenger Ship Construction) (Amendment No. 2) Regulations 1987⁽⁴⁾, shall be revoked.

(4) In the Merchant Shipping (Stability of Passenger Ships) Regulations 1988⁽⁵⁾ regulations 2(3), 2(4), 2(7), 2(8), 3(3), 3(4), 3(5), 3(6), 3(7), 3(8) and 3(9) shall be omitted.

(5) The Merchant Shipping (Loading and Stability Assessment of Ro/Ro Passenger Ships) Regulations 1989⁽⁶⁾ shall be revoked.

PART A

AMENDMENTS TO 1980 REGULATIONS

3.—(1) The Merchant Shipping (Passenger Ship Construction) Regulations 1980⁽⁷⁾ shall be amended in accordance with the following:

(1) In regulation 1(2) the following definitions shall be inserted in the appropriate alphabetical order:

““Ro/ro passenger ship” means a passenger ship provided with cargo or vehicle spaces not normally subdivided in any way and extending to either a substantial length or the entire length of the ship in which vehicles or cargo can be loaded or unloaded in a horizontal direction;”

““Stability Information Book” means the book required to be provided in compliance with regulation 9A.—(8) of these Regulations.”.

(2) Regulation 1(3) shall be replaced by the following:—

(a) “(3) Subject to sub-paragraphs (b) and (c) below, these Regulations apply to United Kingdom passenger ships wherever they may be and to other passenger ships while they are within the United Kingdom or the territorial waters thereof except:—

(i) ships, the keels of which were laid, or which were at a similar stage of construction, on or after 1st September 1984;

(ii) ships which, although constructed before that date, were subsequently converted to passenger ships, such conversions having commenced on or after that date.

(b) Regulations 9B to 9L shall not apply to ships which are not United Kingdom ships.

(c) Part VIIB shall only apply to ro/ro passenger ships which are not United Kingdom ships while they are within the United Kingdom or the territorial waters thereof.”.

(3) Regulation 9 shall be replaced by the following regulations 9A to 9L:

“Inclining, Stability information, loading and stability assessment

Inclining and Stability information

9A.—(1) This regulation applies to every United Kingdom passenger ship to which these Regulations apply.

(2) Every ship on her completion shall be inclined and the elements of her stability determined. The master shall be supplied by the owner with reliable information relating to

(4) S.I. 1987/2238.

(5) S.I. 1988/1693.

(6) S.I. 1989/100.

(7) S.I. 1980/535, as amended by S.I. 1981/580, 1985/660, 1986/1074, 1987/1886 and 1988/1693.

the stability of the ship in accordance with the following provisions of this regulation. The information relating to stability shall, before issue to the master, be submitted to the Secretary of State for approval, together with a copy thereof for his retention and shall incorporate such additions and amendments as the Secretary of State may in any particular case require.

(3) Every ship of Classes I, II and IIA and every ro/ro ship of Class IV shall undergo a lightweight survey, to determine the ship's lightweight displacement and longitudinal position of its centre of gravity, before 29th April 1992 unless it has been inclined since 29th April 1987. Every such lightweight survey shall be subject to the conditions specified in paragraph (4) of this regulation.

(4) Every ship of Classes I, II and IIA and every ro/ro ship of Class IV shall have a lightweight survey carried out within each period of five years to verify any changes in lightweight displacement and longitudinal centre of gravity. Such periods shall commence on the date of issue of either a Passenger and Safety Certificate or Passenger Certificate subsequent to a previous inclining or lightweight survey, whichever date is the earliest. The ship shall be re-inclined whenever, in comparison with the ship's approved stability information derived from the previous inclining experiment, a deviation from the lightweight displacement exceeding 2% or a deviation of the longitudinal centre of gravity exceeding 1% of the ship's length is found or anticipated. Every inclining or lightweight survey made for this purpose or for the purpose of paragraph (3) of this regulation shall be carried out in the presence of a Department of Transport Surveyor. The interval between lightweight surveys of any such ship may be extended by the Secretary of State for a period of not more than one year if he is satisfied, on the production to him of relevant information about the ship, that the lightweight survey is not necessary at the required interval.

(5) A report of each inclining or lightweight survey carried out in accordance with paragraphs (3) and (4) of this regulation and of the calculation therefrom of the lightweight condition particulars shall be submitted to the Secretary of State for approval, together with a copy for his retention. The approved report shall be placed on board the ship by the owner in the custody of the master and shall incorporate such additions and amendments as the Secretary of State may in any particular case require. The amended lightweight condition particulars so obtained from time to time shall be used by the master in substitution for such previously approved particulars when calculating the ship's stability.

(6) Following any inclining or lightweight survey carried out in accordance with the requirements of paragraphs (3) and (4) of this regulation on the basis of which the elements of the ship's stability have been then determined the master shall be supplied by the owner with amended stability information if the Secretary of State so requires. The information so supplied shall be submitted to the Secretary of State for approval, together with a copy thereof for his retention and shall incorporate such additions and amendments as the Secretary of State may in any particular case require.

(7) Where any alterations are made to a ship so as materially to affect the stability information supplied to the master, amended stability information shall be provided. The ship shall be re-inclined if the Secretary of State so requires.

(8) Stability information provided pursuant to paragraphs (2), (5), (6) and (7) of this regulation shall be furnished in the form of a book ("the stability information book") which shall be kept on board the ship at all times in the custody of the master. The information shall include particulars appropriate to the ship in respect of the matters specified in Schedule 2 to these Regulations and shall be in the form set out in that Schedule.

(9) Every ship shall have a scale of draughts marked clearly at the bow and stern.

Loading and Stability Assessment

9B. Regulations 9C to 9L apply to United Kingdom ships of Classes I, II, II(A) and to United Kingdom ro/ro ships of Class IV including every ship in respect of which there is in force a Passenger and Safety Certificate or Passenger Certificate appropriate to a ship of any of those classes even when it is for the time being engaged on voyages for which a Class III, V, VI or VI(A) Passenger Certificate is appropriate.

Information on stability during loading

9C.—(1) The owner of every ship to which this regulation applies shall ensure that the master is provided with information relating to its stability during the process of loading and unloading. This information shall be included in the ship's stability information book.

(2) Where any alterations are made or changes occur to the ship so as materially to affect the information supplied to the master in accordance with paragraph (1) of this regulation, amended information shall be provided.

(3) The information provided pursuant to paragraphs (1) and (2) of this regulation shall be kept on board the ship at all times in the custody of the master.

Stability and freeboard during loading and unloading

9D. The master shall use the information provided in accordance with regulation 9C and, when necessary, make calculations or cause calculations to be made in order to ensure that the process of loading and unloading is carried out safely; in particular, he shall ensure that:—

- (a) the ship has adequate stability; and
- (b) the freeboard at any door giving access to the hull or to an enclosed superstructure is sufficient to prevent the entry of water.

Recording of draught, trim and freeboard prior to departure

9E.—(1) On completion of the loading of the ship and before it proceeds on a voyage, the master or an officer appointed for the purpose by the master shall ascertain:—

- (a) the ship's draught at the bow and at the stern;
- (b) the trim of the ship by the bow or the stern; and
- (c) the vertical distance from the waterline to the appropriate subdivision load line mark on each side of the ship.

(2) The draughts, trim and the vertical distances ascertained in accordance with paragraph (1) of this regulation shall be recorded by the master or such officer as the case may be in the official log book, or in the case of Class IV ships in a book retained on board for that purpose.

Calculation of stability prior to departure

9F.—(1) On completion of the loading of a ship of Class I, II or II(A) and before the ship proceeds on a voyage the master shall cause the vertical position of the ship's centre of gravity relative to its keel (KG), or its transverse metacentric height (GM), whichever is appropriate for the ship, to be calculated.

(2) In the case of ships of Class II or II(A) the actual weights of goods vehicles and other items of cargo required to be provided shall be in accordance with the Merchant Shipping

(Weighing of Goods Vehicles and other Cargo) Regulations 1988⁽⁸⁾. In the case of ships of Class I the actual weights of goods vehicles and other items of cargo shall be used and shall be determined in accordance with those Regulations as if the ship was a ship of Class II. For items not required to be so weighed, the declared weights or weights estimated as accurately as possible shall be used.

(3) The calculation shall be made using an on-board loading and stability computer, or an approved shore-based loading and stability computer system, or by such other means as will enable accurate results to be obtained. The method by which the calculation is made shall be in accordance with Merchant Shipping Notice No M 1413.

(4) The master shall record the result of the calculation in the official log book.

(5) Where the calculation is made by means of a shore-based loading and stability computer system, a print-out of the calculation shall be presented to the master before the ship proceeds on its voyage. It shall be the duty of the person responsible for that system to ensure that the calculations are substantially correct.

(6) A full record of the calculation or a copy thereof, shall be retained on the ship for at least one calendar month after the calculation is made and shall be made available for inspection at any time during that period. In the case of a ship of Class II or II(A) a copy of the record, or the record itself, shall be forwarded as soon as is practicable to the person designated by the owner under regulation 6 of the Merchant Shipping (Operations Book) Regulations 1988⁽⁹⁾ and retained by him for a period of at least one calendar month. In the case of a ship of Class I a copy of the record, or the record itself, shall be forwarded to a person, nominated by the owner, and retained by him for a period of at least one calendar month.

Permissible standard of stability to be recorded

9G. Before a ship of Class I, II or II(A), or a ro/ro ship of Class IV to which regulation 9L applies, proceeds on a voyage the master shall cause the maximum permissible KG, or the minimum permissible GM, whichever is appropriate to the ship, to be determined and recorded in the official log book, or in the case of Class IV ships in a book retained on board for that purpose.

Condition of loading prior to departure to be satisfactory

9H. Before a ship of Class I, II or II(A) or a ro/ro ship of Class IV to which regulation 9L applies, proceeds on a voyage the master shall ensure that the condition of loading of the ship as recorded in accordance with regulations 9E(2) and 9F(4) is within the permissible standard of stability determined in accordance with regulation 9G and satisfies all the relevant requirements prescribed in the stability information book.

Draught marks and automatic draught gauge system

9I.—(1) Every ship of Class II shall be provided with a reliable automatic draught gauge system, complying with the requirements of Merchant Shipping Notice No M 1413.

- (a) (2) Every ship of Class I or II(A) engaged on services which afford only short periods in port or where insufficient lighting is available during periods of darkness, or which include the use of berths exposed to adverse weather, shall be provided with a reliable automatic draught gauge system as prescribed in paragraph (1) of this regulation.

⁽⁸⁾ S.I. 1988/1275, as amended by S.I. 1989/270.

⁽⁹⁾ S.I. 1988/1716.

- (b) Every other ship of Class I or II(A) shall be provided with such an automatic draught gauge system, except where the draught marks are located where they can be easily read.

Approval of loading conditions for Class IV ships

9J.—(1) Where a ro/ro ship of Class IV plies regularly to and from the same place, in conditions of loading which correspond closely to conditions of loading which are clearly specified in the stability information book, the owner may apply to the Secretary of State for approval of the adoption of the conditions so specified for the purposes of loading in accordance with this regulation.

(2) The Secretary of State may, subject to such conditions as he thinks fit, approve the conditions of loading so specified for the purposes of this regulation if he is satisfied that each such specified condition of loading allows a sufficient margin of stability beyond the minimum required for safety purposes, to allow for small variations which might occur between a specified condition of loading and the actual loading of the ship.

Loading of Class IV ships in accordance with approved conditions

9K.—(1) The master of a ro/ro ship of Class IV in respect of which the Secretary of State has approved conditions of loading in accordance with regulation 9J(2) shall, before the ship proceeds on a voyage:—

- (a) ensure that the actual condition of loading of the ship corresponds closely to one of the specified conditions of loading so approved; and
- (b) record the specified condition of loading so approved to which the actual condition of loading corresponds, in a book specially retained on board for that purpose.

(2) A copy of the information required by paragraph (1)(b) of this regulation shall be forwarded, as soon as is practicable, to a person nominated by the owner as being responsible and retained in his custody for a period of at least one calendar month.

(3) As an alternative to complying with paragraph (1) of this regulation the master of such a ship may comply with the requirements of regulation 9L.

Class IV ships which are not loaded in accordance with approved loading conditions

9L. Where ro/ro ships of Class IV are not loaded in a manner corresponding to specified conditions of loading which have been approved in accordance with regulation 9J, the requirements of regulations 9F, 9G and 9H shall apply as they apply in the case of ships of Classes I, II and II(A), except that a copy of the record of the stability calculation shall be retained ashore, by a person nominated by the owner as being responsible, for a period of not less than one calendar month.”.

(4) In regulation 11(2)(b)(10) for the reference to “9(1)(d) and (2)” there shall be substituted “9A(6) and (7)”.

(5) In regulation 131A for the reference to “1(3)(b)” there shall be substituted “1(3)(c)”.

(6) Regulation 133 shall be replaced by the following:

“133.—(1) If a ship to which these Regulations apply, proceeds or attempts to proceed on any voyage without complying with the requirements of these Regulations, other than the requirements of regulations 9(C) to 9(L), the owner or master of the ship shall each be guilty of an offence and liable on summary conviction to a fine not exceeding the statutory

(10) Regulation 11(2)(b) was inserted by the Merchant Shipping (Stability of Passenger Ships) Regulations 1988 (S.I. 1988/1693).

maximum or on conviction on indictment, to imprisonment for a term not exceeding two years and a fine.

(2) Any contravention of regulation 9C(1), 9C(2) or 9I shall be an offence on the part of the owner, and any contravention of regulations 9D, 9E, 9F(1), (2), (3) and (4), 9G, 9H, 9K(1) or 9L shall be an offence on the part of the master. Any such offence shall be punishable on summary conviction by a fine not exceeding the statutory maximum or on conviction on indictment by imprisonment for a term not exceeding two years, or a fine or both.

(3) Any contravention of regulation 9F(5) shall be an offence by the person responsible for the approved shore-based system. Any such offence shall be punishable on summary conviction by a fine not exceeding the statutory maximum or on conviction on indictment by a fine.

(4) Any contravention of regulation 9E(1) by an officer appointed in accordance with that regulation shall be an offence punishable on summary conviction by a fine not exceeding level 3 on the standard scale or on conviction on indictment by a fine.

(5) If the master or any person designated by the owner as being responsible in accordance with the Regulations referred to in regulation 9F(6) or 9K(2) fails to carry out the requirements of that regulation he shall be guilty of an offence. Any such offence shall be punishable on summary conviction by a fine not exceeding level 3 on the standard scale or on conviction on indictment by a fine.

(6) It shall be a defence for a person charged with committing an offence under these Regulations to show that he took all reasonable steps to avoid committing the offence.”.

(7) Regulation 135(11) shall be replaced by the following:–

“**135.**—(1) After any survey required by these Regulations of any new or existing United Kingdom passenger ship to which Part II of these Regulations applies has been completed and a Passenger and Safety certificate or a Passenger Certificate, as appropriate, has been issued, the Secretary of State may cancel such certificate if the ship has not carried out a lightweight survey or been inclined before 29th April 1992, or inclined or had a lightweight survey thereafter periodically as specified in regulation 9A(4).

(2) If at any time the stability information supplied to the master is found to be invalid the Secretary of State may withdraw the certificate until new and valid stability information is supplied.”.

(8) Schedule 2, paragraph 12 shall be replaced by the following:–

“**12.** Such information, as is necessary to enable the master by rapid and simple processes to obtain accurate guidance as to the stability of the ship under varying conditions of service, shall be provided in order that regulations 10 and 11 of these Regulations will be complied with. This information shall be presented in the form of either required metacentric height (GM) or maximum allowable vertical centre of gravity (KG) values and shall be presented in either graphical or tabular form. This information shall be provided on the basis of the ship being at level keel and at trims of 0.4%L and 0.8%L by the bow and by the stern over the range of displacements or mean draughts which are likely to occur in service: provided that for any such ships which are intended to operate at greater trims than are specified in this paragraph additional information shall be included. The Secretary of State may approve the substitution of lesser trims by the bow and stern as specified in this paragraph if he is satisfied that such a lesser range of trims are sufficient for the purpose intended because of the characteristics of the particular ship.”.

PART "B"

AMENDMENTS TO 1984 REGULATIONS

4.—(1) The Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984(12) shall be amended in accordance with the following:

In regulation 1(2) the following definitions shall be inserted in the appropriate alphabetical order:

““nominated surveyor” means a surveyor nominated by the Secretary of State to undertake the surveys required by these Regulations and includes a marine surveyor of the Department of Transport;”

““Post 1990 ship” means a passenger ship the keel of which is laid, or which is at a similar stage of construction, on or after 29th April 1990 or a cargo ship which is converted to a passenger ship on or after that date;”

““proper officer” means a consular officer appointed by Her Majesty’s Government in the United Kingdom and, in relation to a port in a country outside the United Kingdom which is not a foreign country, also any officer exercising in that port functions similar to those of a superintendent;”

““Ro/ro passenger ship” means a passenger ship provided with cargo or vehicle spaces not normally subdivided in any way and extending to either a substantial length or the entire length of the ship in which vehicles or cargo can be loaded or unloaded in a horizontal direction;”

““Stability information book” means the book required to be provided in compliance with regulation 9A(8) of these Regulations;”

““United Kingdom ro/ro passenger ship” means a ro/ro passenger ship which is a United Kingdom ship;”.

(2) Regulation 1(3) shall be replaced by the following:—

“(3) These Regulations apply:—

- (i) to new United Kingdom passenger ships wherever they may be,
- (ii) subject to the exceptions mentioned below in this paragraph, to other new passenger ships while they are within the United Kingdom or the territorial waters thereof, and
- (iii) to the extent that the Secretary of State deems reasonable and practical, to any major repairs, alterations or modifications to existing United Kingdom passenger ships

except that

- (a) regulations 9B to 9L shall not apply to ships which are not United Kingdom ships,
- (b) regulations 16, 17 and 20 shall not apply to new passenger ships which are not United Kingdom ships; but such ships shall comply instead with regulations 16, 17 and 19 of the Merchant Shipping (Passenger Ship Construction) Regulations 1980, and
- (c) Part VIA shall only apply to ro/ro passenger ships which are not United Kingdom ships while they are within the United Kingdom or the territorial waters thereof.”.

(3) There shall be added after regulation 1(4) the following:—

“(5) Where a ship is managed by a person other than its owner (whether on behalf of the owner or some other person, or on his own behalf), a reference in these Regulations to the owner shall be construed as including a reference to that person.”.

(4) Regulation 9 shall be replaced by the following regulations 9A to 9L:

“Inclining, Stability information, loading and stability assessment

Inclining and Stability information

9A.—(1) This regulation applies to every United Kingdom passenger ship to which these Regulations apply.

(2) Every ship on her completion shall be inclined and the elements of her stability determined. The master shall be supplied by the owner with reliable information relating to the stability of the ship in accordance with the following provisions of this regulation. The information relating to stability shall, before issue to the master, be submitted to the Secretary of State for approval, together with a copy thereof for his retention and shall incorporate such additions and amendments as the Secretary of State may in any particular case require.

(3) Every ship of Classes I, II and IIA and every ro/ro ship of Class IV shall undergo a lightweight survey to determine the ship's lightship displacement and longitudinal position of its centre of gravity, before 29th April 1992 unless it has been inclined since 29th April 1987. Every such lightweight survey shall be subject to the conditions specified in paragraph (4) of this regulation.

(4) Every ship of Classes I, II and IIA and every ro/ro ship of Class IV shall have a lightweight survey carried out within each period of five years to verify any changes in lightship displacement and longitudinal centre of gravity. Such periods shall commence on the date of issue of either a Passenger and Safety Certificate or Passenger Certificate subsequent to a previous inclining or lightweight survey, whichever date is the earliest. The ship shall be re-inclined whenever, in comparison with the ship's approved stability information derived from the previous inclining experiment, a deviation from the lightship displacement exceeding 2% or a deviation of the longitudinal centre of gravity exceeding 1% of the ship's length is found or anticipated. Every inclining or lightweight survey made for this purpose or for the purpose of paragraph (3) of this regulation shall be carried out in the presence of a Department of Transport Surveyor. The interval between lightweight surveys of any such ship may be extended by the Secretary of State for a period of not more than one year if he is satisfied, on the production to him of relevant information about the ship, that the lightweight survey is not necessary at the required interval.

(5) A report of each inclining or lightweight survey carried out in accordance with paragraphs (3) and (4) of this regulation and of the calculation therefrom of the lightship condition particulars shall be submitted to the Secretary of State for approval, together with a copy for his retention. The approved report shall be placed on board the ship by the owner in the custody of the master and shall incorporate such additions and amendments as the Secretary of State may in any particular case require. The amended lightship condition particulars so obtained from time to time shall be used by the master in substitution for such previously approved particulars when calculating the ship's stability.

(6) Following any inclining or lightweight survey carried out in accordance with the requirements of paragraphs (3) and (4) of this regulation on the basis of which the elements of the ship's stability have been then determined the master shall be supplied, by the owner, with amended stability information if the Secretary of State so requires. The information so supplied shall be submitted to the Secretary of State for approval, together with a copy thereof

for his retention and shall incorporate such additions and amendments as the Secretary of State may in any particular case require.

(7) Where any alterations are made to a ship so as materially to affect the stability information supplied to the master, amended stability information shall be provided. The ship shall be re-inclined if the Secretary of State so requires.

(8) Stability information provided pursuant to paragraphs (2), (5), (6) and (7) of this regulation shall be furnished in the form of a book (“the stability information book”) which shall be kept on board the ship at all times in the custody of the master. The information shall include particulars appropriate to the ship in respect of the matters specified in Schedule 2 to these Regulations and shall be in the form set out in that Schedule.

(9) Every ship have a scale of draughts marked clearly at the bow and stern.

Loading and Stability Assessment

9B. Regulations 9C to 9L apply to United Kingdom ships of Classes I, II, II(A) and to United Kingdom ro/ro ships of Class IV including every ship in respect of which there is in force a Passenger and Safety Certificate or Passenger Certificate appropriate to a ship of any of those classes even when it is for the time being engaged on voyages for which a Class III, V, VI or VI(A) Passenger Certificate is appropriate.

Information on stability during loading

9C.—(1) The owner of every ship to which this regulation applies shall ensure that the master is provided with information relating to its stability during the process of loading and unloading. This information shall be included in the ship’s stability information book.

(2) Where any alterations are made or changes occur to the ship so as materially to affect the information supplied to the master in accordance with paragraph (1) of this regulation, amended information shall be provided.

(3) The information provided pursuant to paragraphs (1) and (2) of this regulation shall be kept on board the ship at all times in the custody of the master.

Stability and freeboard during loading and unloading

9D. The master shall use the information provided in accordance with regulation 9C and, when necessary, make calculations or cause calculations to be made in order to ensure that the process of loading and unloading is carried out safely; in particular, he shall ensure that:—

- (a) the ship has adequate stability; and
- (b) the freeboard at any door giving access to the hull or to an enclosed superstructure is sufficient to prevent the entry of water.

Recording of draught, trim and freeboard prior to departure

9E.—(1) On completion of the loading of the ship and before it proceeds on a voyage, the master or an officer appointed for the purpose by the master shall ascertain:—

- (a) the ship’s draught at the bow and at the stern;
- (b) the trim of the ship by the bow or the stern; and
- (c) the vertical distance from the waterline to the appropriate subdivision load line mark on each side of the ship.

(2) The draughts, trim and the vertical distances ascertained in accordance with paragraph (1) of this regulation shall be recorded by the master or such officer as the case may

be in the official log book, or in the case of Class IV ships in a book retained on board for that purpose.

Calculation of stability prior to departure

9F.—(1) On completion of the loading of a ship of Class I, II or II(A) and before the ship proceeds on a voyage the master shall cause the vertical position of the ship's centre of gravity relative to its keel (KG), or its transverse metacentric height (GM), whichever is appropriate for the ship, to be calculated.

(2) In the case of ships of Class II or II(A) the actual weights of goods vehicles and other items of cargo required to be provided shall be in accordance with the Merchant Shipping (Weighing of Goods Vehicles and other Cargo) Regulations 1988⁽¹³⁾. In the case of ships of Class I the actual weights of goods vehicles and other items of cargo shall be used and shall be determined in accordance with those Regulations as if that ship was a ship of Class II. For items not required to be so weighed, the declared weights or weights estimated as accurately as possible shall be used.

(3) The calculation shall be made using an on-board loading and stability computer, or an approved shore-based loading and stability computer system, or by such other means as will enable accurate results to be obtained. The method by which the calculation is made shall be in accordance with Merchant Shipping Notice No M 1413.

(4) The master shall record the result of the calculation in the official log book.

(5) Where the calculation is made by means of a shore-based loading and stability computer system, a print-out of the calculation shall be presented to the master before the ship proceeds on its voyage. It shall be the duty of the person responsible for that system to ensure that the calculations are substantially correct.

(6) A full record of the calculation, or a copy thereof, shall be retained on the ship for at least one calendar month after the calculation is made and shall be made available for inspection at any time during that period. In the case of a ship of Class II or II(A) a copy of the record, or the record itself, shall be forwarded as soon as is practicable to the person designated by the owner under regulation 6 of the Merchant Shipping (Operations Book) Regulations 1988⁽¹⁴⁾ and retained by him for a period of at least one calendar month. In the case of a ship of Class I a copy of the record, or the record itself, shall be forwarded to a person nominated by the owner and retained by him for a period of at least one calendar month.

Permissible standard of stability to be recorded

9G. Before a ship of Class I, II or II(A), or a ro/ro ship of Class IV to which regulation 9L applies, proceeds on a voyage the master shall cause the maximum permissible KG, or the minimum permissible GM, whichever is appropriate to the ship, to be determined and recorded in the official log book, or in the case of Class IV ships in a book retained on board for that purpose.

Condition of loading prior to departure to be satisfactory

9H. Before a ship of Class I, II or II(A) or a ro/ro ship of Class IV to which regulation 9L applies, proceeds on a voyage the master shall ensure that the condition of loading of the ship as recorded in accordance with regulations 9E(2) and 9F(4) is within the permissible standard of stability determined in accordance with regulation 9G and satisfies all the relevant requirements prescribed in the stability information book.

⁽¹³⁾ S.I. 1988/1275.

⁽¹⁴⁾ S.I. 1988/1716.

Draught marks and automatic draught gauge system

9I.—(1) Every ship of Class II shall be provided with a reliable automatic draught gauge system, complying with the requirements of Merchant Shipping Notice No M 1413.

- (a) (2) Every ship of Class I or II(A) engaged on services which afford only short periods in port or where insufficient lighting is available during periods of darkness, or which include the use of berths exposed to adverse weather, shall be provided with a reliable automatic draught gauge system as prescribed in paragraph (1) of this regulation.
- (b) Every other ship of Class I or II(A) shall be provided with such an automatic draught gauge system, except where the draught marks are located where they can be easily read.

Approval of loading conditions for Class IV ships

9J.—(1) Where a ro/ro ship of Class IV plies regularly to and from the same place, in conditions of loading which correspond closely to conditions of loading which are clearly specified in the stability information book, the owner may apply to the Secretary of State for approval of the adoption of the conditions so specified for the purposes of loading in accordance with this regulation.

(2) The Secretary of State may, subject to such conditions as he thinks fit, approve the conditions of loading so specified for the purposes of this regulation if he is satisfied that each such specified condition of loading allows a sufficient margin of stability beyond the minimum required for safety purposes, to allow for small variations which might occur between a specified condition of loading and the actual loading of the ship.

Loading of Class IV ships in accordance with approved conditions

9K.—(1) The master of a ro/ro ship of Class IV in respect of which the Secretary of State has approved conditions of loading in accordance with regulation 9J(2) shall, before the ship proceeds on a voyage:—

- (a) ensure that the actual condition of loading of the ship corresponds closely to one of the specified conditions of loading so approved; and
- (b) record the specified condition of loading so approved to which the actual condition of loading corresponds, in a book specially retained on board for that purpose.

(2) A copy of the information required by paragraph (1)(b) of this regulation shall be forwarded, as soon as is practicable, to a person nominated by the owner as being responsible and retained in his custody for a period of at least one calendar month.

(3) As an alternative to complying with paragraph (1) of this regulation the master of such a ship may comply with the requirements of regulation 9L.

Class IV ships which are not loaded in accordance with approved loading conditions

9L. Where ro/ro ships of Class IV are not loaded in a manner corresponding to specified conditions of loading which have been approved in accordance with regulation 9J, the requirements of regulations 9F, 9G and 9H shall apply as they apply in the case of ships of Classes I, II and II(A), except that a copy of the record of the stability calculation shall be retained ashore, by a person nominated by the owner as being responsible, for a period of not less than one calendar month.”.

- (5) Regulation 11 shall be replaced by the following regulations 11A and 11B:—

“Stability in damaged condition

11A.—(1) This regulation applies to all passenger ships to which these Regulations apply except post 1990 ships.

- (a) (2) In addition to the requirements of regulation 10 of these Regulations, every ship shall be so constructed as to provide sufficient intact stability in all service conditions to enable the ship to withstand the flooding of any one of the main compartments into which the ship is sub-divided in accordance with the provision of regulation 6 of these Regulations. The sufficiency of intact stability required shall be calculated in accordance with Parts 1 and 2 of Schedule 3 to these Regulations. If two of the main compartments, being adjacent to each other, are separated by a bulkhead which is stepped under the conditions of paragraph 6(3)(a) of Schedule 1 to these Regulations, the intact stability shall be adequate to withstand the flooding of those two adjacent main compartments.
- (b) Where in any such ship the factor of subdivision required under paragraph 4 or paragraph 9 of Schedule 1 to these Regulations is .50 or less but more than .33, the intact stability shall be adequate to withstand the flooding of any two adjacent main compartments.
- (c) Where in any such ship the factor of subdivision required under paragraph 4 of Schedule 1 to these Regulations is .33 or less, the intact stability shall be adequate to withstand the flooding of any three adjacent main compartments.
- (a) (3) For the purposes of this regulation the sufficiency of the intact stability of every such ship shall be determined in accordance with the provisions of Parts 1 and 2 of Schedule 3 to these Regulations.
- (b) The intact stability of every United Kingdom ro/ro passenger ship shall be re-examined in accordance with the provisions of Part 2 of Schedule 3 to these Regulations in order to establish the sufficiency of positive stability provided as required by regulation 11A(2)(a) and 11A(3)(a) whenever considered necessary by the Secretary of State in connection with amended stability information prepared in accordance with regulation 9A(6) and (7). Such re-examinations shall demonstrate to the satisfaction of the Secretary of State that at all stages of flooding there is sufficient positive residual stability after the assumed damage prescribed in Part 1 of Schedule 3.
- (a) (4) Every ship shall be so constructed as to keep asymmetrical flooding, when the ship is in a damaged condition, at the minimum consistent with efficient arrangements. If cross-flooding fittings are provided in any such ship the fittings shall, where practicable, be self-acting but in any case where controls to cross-flooding fittings are provided, they shall be capable of being operated from above the bulkhead deck. Such fittings together with their controls as well as the maximum heel before equalisation shall be such as will not endanger the safety of the ship. The cross-flooding fittings shall be capable of reducing the heel within 15 minutes, sufficiently to meet the requirements of sub-paragraph (2)(c) of paragraph 2 of Part 2 of Schedule 3 to these Regulations.
- (b) If the margin line may become submerged during the flooding assumed for the purposes of the calculation referred to in Schedule 3 to these Regulations, the construction of the ship shall be such as will enable the master of the ship to ensure:
 - (i) that the maximum angle of heel during any stage of such flooding will not be such as will endanger the safety of the ship; and
 - (ii) that the margin line shall not be submerged in the final stage of flooding.

- (a) (5) There shall be provided by the owner in every ship, which is required by Part IIA of these Regulations to be subdivided, a document for the use of the master of the ship containing:—
 - (i) information as to the use of any cross-flooding fittings provided in the ship;
 - (ii) information necessary for the maintenance of sufficient intact stability under service conditions to enable the ship to withstand damage to the extent referred to in Part 1 of Schedule 3 to these Regulations; and
 - (iii) information as to the conditions of stability on which the calculations of heel have been based, together with a warning that excessive heeling might result should the ship sustain damage when in a less favourable condition.

This additional information shall be included in the stability information book.

11B.—(1) This regulation only applies to post 1990 ships.

- (a) (2) In addition to the requirements of regulation 10 of these Regulations, every ship shall be so constructed as to provide sufficient intact stability in all service conditions to enable the ship to withstand the flooding of any one of the main compartments into which the ship is subdivided in accordance with the provision of regulation 6 of these Regulations. The sufficiency of intact stability required shall be calculated in accordance with Parts 1 and 3 to Schedule 3 of these Regulations. If two of the main compartments, being adjacent to each other, are separated by a bulkhead which is stepped under the conditions of paragraph 6(3)(a) of Schedule 1 to these Regulations, the intact stability shall be adequate to withstand the flooding of those two adjacent main compartments.
 - (b) Where in any such ship the factor of subdivision required under and subject to the provisions of paragraph 4 or paragraph 9 of Schedule 1 to these Regulations is .50 or less but more than .33, the intact stability shall be adequate to withstand the flooding of any two adjacent main compartments.
 - (c) Where in any such ship the factor of subdivision required under paragraph 4 of Schedule 1 to these Regulations is .33 or less, the intact stability shall be adequate to withstand the flooding of any three adjacent main compartments.
- (3) For the purposes of this regulation the sufficiency of the intact stability of every such ship shall be determined in accordance with the provisions of Parts 1 and 3 of Schedule 3 to these Regulations.
- (a) (4) Every ship shall be so constructed as to keep asymmetrical flooding when the ship is in a damaged condition at the minimum consistent with efficient arrangements. If cross-flooding fittings are provided in any such ship the fittings shall, where practicable, be self-acting but in any case where controls to cross-flooding fittings are provided, they shall be capable of being operated from above the bulkhead deck. Such fittings together with their controls shall be such as will not endanger the safety of the ship. The maximum angle of heel after flooding but before equalisation shall not exceed 15 degrees. The cross-flooding fittings shall be capable of reducing the heel within 15 minutes, sufficiently to meet the requirements of paragraph 3(2)(ii) of Part 3 of Schedule 3 to these Regulations.
 - (b) If the margin line may become submerged during the flooding assumed for the purposes of the calculation referred to in Schedule 3 to these Regulations, the construction of the ship shall be such as will enable the master of the ship to ensure:
 - (i) that the maximum angle of heel during any stage of such flooding will not be such as will endanger the safety of the ship but shall not exceed the maximum heel defined in paragraph 3(2)(ii) of Part 3 of Schedule 3;

- (ii) that the margin line shall not be submerged in the final stage of flooding.
- (a) (5) There shall be provided by the owner in every ship, which is required by Part IIA of these Regulations to be subdivided, a document for the use of the master of the ship containing:—
 - (i) information as to the use of any cross-flooding fittings provided in the ship;
 - (ii) information necessary for the maintenance of sufficient intact stability under service conditions to enable the ship to withstand damage to the extent referred to in Schedule 3 to these Regulations; and
 - (iii) information as to the conditions of stability on which the calculations of heel have been based, together with a warning that excessive heeling might result should the ship sustain damage when in a less favourable condition.

This additional information shall be included in the stability information book.”.

(6) In regulation 80B for the reference to “1(3)(b)” there shall be substituted “1(3)(c)”.

(7) Regulation 82 shall be replaced by the following:—

“Responsibilities of owner and master

82.—(1) The owner or master of every ship to which these Regulations apply shall ensure that:

- (a) the condition of the ship and its equipment is maintained so as to comply with the relevant provisions of these Regulations;
- (b) after every survey required by these Regulations has been completed, no material change shall be made in the structural arrangement, machinery, equipment and other items subject to such survey, without the approval of the Secretary of State; and
- (c) whenever an accident occurs to a ship or a defect is discovered either of which affects the safety of the ship or the efficiency or completeness of its equipment, it shall be reported at the earliest opportunity to the Secretary of State or a proper officer, either of whom shall cause investigations to be initiated to determine whether a survey by a nominated surveyor is necessary and shall in that event require such a survey to be carried out. If the ship is in a port outside the United Kingdom the master or owner shall, in addition, make such a report immediately to the appropriate authorities of the country in which the port is situated.

(2) The nominated surveyor shall ascertain from the appropriate authorities of the country in which the port is situated that the report referred to in paragraph 1(c) of this regulation has been made.”.

(8) Regulation 86 shall be renumbered regulation 86(1), and the words “other than the requirements of regulations 9C to 9L” added after “Regulations”.

(9) After regulation 86(1) the following new paragraphs shall be inserted:—

“(2) Any contravention of regulation 9C(1), 9C(2) or 9I shall be an offence on the part of the owner, and any contravention of regulations 9D, 9E, 9F(1), (2), (3) and (4), 9G, 9H, 9K(1) or 9L shall be an offence on the part of the master. Any such offence shall be punishable on summary conviction by a fine not exceeding the statutory maximum or on conviction on indictment by imprisonment for a term not exceeding two years, or a fine or both.

(3) Any contravention of regulation 9F(5) shall be an offence by the person responsible for the approved shore-based system. Any such offence shall be punishable on summary conviction by a fine not exceeding the statutory maximum or on conviction on indictment by a fine.

(4) Any contravention of regulation 9E(1) by an officer appointed in accordance with that regulation shall be guilty of an offence punishable on summary conviction by a fine not exceeding level 3 on the standard scale or on conviction on indictment by a fine.

(5) If the master or any person designated by the owner as being responsible in accordance with the Regulations referred to in regulation 9F(6) or 9K(2) fails to carry out the requirements of that regulation he shall be guilty of an offence. Any such offence shall be punishable on summary conviction by a fine not exceeding level 3 on the standard scale or on conviction on indictment by a fine.

(6) It shall be a defence for a person charged with committing an offence under these Regulations to show that he took all reasonable steps to avoid committing the offence.”.

(10) Regulation 88(15) shall be replaced by the following:—

“88.—(1) After any survey required by these Regulations of any new or existing United Kingdom passenger ship to which Part IIA of these Regulations applies has been completed and a Passenger and Safety Certificate or a Passenger Certificate, as appropriate, has been issued, the Secretary of State may cancel such certificate if the ship has not carried out a lightweight survey or been inclined before 29th April 1992, or inclined or had a lightweight survey thereafter periodically as specified in regulation 9A(4).

(2) If any time the stability information supplied to the master is found to be invalid the Secretary of State may withdraw the certificate until new and valid stability information is supplied.”.

(11) In Schedule 2 paragraph 10(2) “Schedule III” shall read “Schedule 3”.

(12) Schedule 2, paragraph 12 shall be replaced by the following:—

“12. Such information, as is necessary to enable the master by rapid and simple processes to obtain accurate guidance as to the stability of the ship under varying conditions of service, shall be provided in order that regulations 10, 11A and 11B of these Regulations will be complied with. This information shall be presented in the form of required metacentric height (GM) values or permissible vertical centre of gravity (KG) values and shall be presented in either graphical or tabular form. This information shall be provided on the basis of the ship being at level keel and at trims of 0.4%L and 0.8%L by the bow and by the stern over the range of displacements or mean draughts which are likely to occur in service: provided that for any such ships which are intended to operate at greater trims than are specified in this paragraph additional information shall be included. The Secretary of State may permit the substitution of lesser trims by the bow and stern as specified in this paragraph if he is satisfied that such a lesser range of trims are sufficient for the purpose intended because of the characteristics of the particular ship.”.

(13) Schedule 3 shall be replaced by the following:—

“SCHEDULE 3

Regulations 11A and 11B

STABILITY IN DAMAGED CONDITION

PART 1

Assumptions on which calculations are to be based

1. The sufficiency of intact stability of every ship to which Part IIA of these Regulations applies shall be determined by calculation which has regard to the design and construction of the ship, and the damaged compartments, and which is in accordance with the following assumptions:

(1) the ship shall be assumed to be in the worst service conditions as regards stability which is likely to be experienced having regard to the intended service of the ship, or damage calculations shall be made over the operational draught range as a basis for curves of required metacentric height (GM) values or permissible vertical centre of gravity (KG) values.

(2) the volume permeabilities and surface permeabilities shall be assumed to be as follows:

Space ^(a)	Permeability
Occupied by cargo or stores	60
(in ships carrying goods vehicles and accompanying personnel the permeability of the cargo spaces shall be assumed in accordance with paragraph (2) of regulation 19)	
Appropriated for cargo or stores but not occupied by substantial quantities thereof	95
Appropriated as accommodation for passengers and crew	95
Appropriated for machinery	85
Appropriated for liquids	0 or 95, whichever results in the more onerous requirements.

(b) Higher surface permeabilities shall be assumed in respect of spaces which, in the vicinity of the damaged water plane, contain no substantial quantity of accommodation or machinery and spaces which are not generally occupied by any substantial quantity of cargo or stores.

(3) The extent of damage shall be assumed to be as follows:

- (a) longitudinal extent: 3.00 metres plus 3 per cent of the length of the ship, or 11.00 metres or 10 per cent of the length of the ship, whichever is the least. Provided that where the required factor of subdivision is .33 or less, the assumed longitudinal extent of damage shall be increased as necessary so as to include any two consecutive main transverse watertight bulkheads;
- (b) transverse extent: 20 per cent of the breadth of the ship, measured inboard from the ship's side at right angles to the centre line at the level of the deepest subdivision load waterline taken parallel to the keel;
- (c) vertical extent: from the base line upwards without limit;

- (d) if any damage of lesser extent than that indicated in the foregoing sub-paragraphs (a), (b) and (c) would result in a more severe condition regarding heel or loss of metacentric height, such damage shall be assumed for the purposes of the calculation.
- (4) Where the ship is fitted with decks, inner skins or longitudinal bulkheads of sufficient tightness to restrict the flow of water, regard shall be had to such restrictions in the calculation.

PART 2

Sufficiency of the stability in the damaged condition as applicable to all passenger ships to which Part IIA of these Regulations apply, except post 1990 ships

2. The intact stability of the ship shall be deemed to be sufficient if the calculation specified in paragraph 1 of this Schedule shows that, after the assumed damage, the condition of the ship is as follows:

- (1) in the event of symmetrical flooding:
 - (a) at all stages of flooding there shall be sufficient positive residual stability to the satisfaction of the Secretary of State;
 - (b) at intermediate stages of flooding the margin line is not to be submerged unless partial subdivision above the margin line in accordance with regulation 24 limits sufficiently the spread of water along the bulkhead deck and results in an angle of heel not exceeding 20 degrees. In the case of ships carrying vehicles on the bulkhead deck, the angle of heel at intermediate stages of flooding shall not be greater than that which will submerge the margin line;
 - (c) at the final stage of flooding the margin line shall not be submerged and there shall be a positive residual metacentric height of at least 50 millimetres as calculated by the constant displacement method.
- (2) In the event of asymmetrical flooding:
 - (a) the provisions of sub-paragraph (1)(a) shall apply;
 - (b) the provisions of sub-paragraph (1)(b) shall apply;
 - (c) at the final stage of flooding, and after equalization measures, if any, have been taken, the angle of heel is not to exceed 7 degrees and the margin line is not to be submerged.
- (3) The range of stability in the damaged condition shall be to the satisfaction of the Secretary of State.

PART 3

Sufficiency of stability in the damaged condition as applicable to all passenger ships to which Part IIA of these Regulations apply and which are post 1990 passenger ships

3. The intact stability of the ship shall be deemed to be sufficient if the calculation specified in paragraph 1 of this Schedule shows that, after the assumed damage, the condition of the ship is as follows:

- (1) In the final stage after damage, and after equalisation where provided:
 - (a) the positive residual righting lever curve shall have a minimum range of 15 degrees beyond the angle of equilibrium;

- (b) the area under the righting lever curve shall be at least 0.015 metre radians, measured from the angle of equilibrium to the lesser of:
 - (i) The angle at which progressive flooding occurs;
 - (ii) 22 degrees (measured from the upright) in the case of one compartment flooding, or 27 degrees (measured from the upright) in the case of the simultaneous flooding of two or more adjacent compartments;
- (c) a residual righting lever is to be obtained within the range specified in 2(a), taking into account the greatest of the following heeling moments:
 - (i) the crowding of all passengers towards one side;
 - (ii) the launching of all fully loaded davit-launched survival craft on one side;
 - (iii) due to wind pressure as calculated by the formula;

$$GZ \text{ (in metres)} = \frac{\text{heeling moment}}{\text{displacement}} + 0.04$$

However, in no case is this righting lever to be less than 0.10 m;

- (d) for the purpose of calculating the heeling moments in paragraph 3(c), the following assumptions shall be made:
 - (i) moments due to crowding of passengers;
 - (aa) 4 persons per square metre;
 - (bb) a mass of 75 kg for each passenger;
 - (cc) passengers shall be distributed on available deck areas towards one side of the ship on the decks where muster stations are located and in such a way that they produce the most adverse heeling moment.
 - (ii) moments due to launching of all fully loaded davit-launched survival craft on one side:
 - (aa) all lifeboats and rescue boats fitted on the side to which the ship has heeled after having sustained damage shall be assumed to be swung out fully loaded and ready for lowering;
 - (bb) for lifeboats which are arranged to be launched fully loaded from the stowed position, the maximum heeling moment during launching shall be taken;
 - (cc) a fully loaded davit-launched liferaft attached to each davit on the side to which the ship has heeled after having sustained damage shall be assumed to be swung out ready for lowering;
 - (dd) persons not in the life-saving appliances which are swung out shall not provide either additional heeling or righting moment;
 - (ee) life-saving appliances on the side of the ship opposite to the side to which the ship has heeled shall be assumed to be in a stowed position.
 - (iii) moments due to wind pressure:
 - (aa) a wind pressure of 120N/m² to be applied;
 - (bb) the area applicable shall be the projected lateral area of the ship above the waterline corresponding to the intact condition;
 - (cc) the moment arm shall be the vertical distance from a point at one half of the mean draught corresponding to the intact condition to the centre of gravity of the lateral area;

- (e) In intermediate stages of flooding the maximum righting lever shall be at least 0.05 m and the range of positive righting levers shall be at least 7 degrees. In all cases only one breach in the hull and only one free surface need to be assumed.
- (2) The final condition of the ship after damage and, in the case of asymmetrical flooding, after equalisation measures have been taken shall be as follows:
 - (i) In the case of symmetrical flooding there shall be a positive residual metacentric height of at least 50 mm as calculated by the constant displacement method;
 - (ii) In the case of asymmetrical flooding the angle of heel for one-compartment flooding shall not exceed 7 degrees. For the simultaneous flooding of two or more adjacent compartments a heel of 12 degrees shall not be exceeded;
 - (iii) In no case shall the margin line be submerged in the final stage of flooding. At intermediate stages of flooding the margin line is not to be submerged unless partial subdivision above the margin line in accordance with regulation 24 limits sufficiently the spread of water along the bulkhead deck and results in an angle of heel not exceeding 20 degrees. In the case of ships carrying vehicles on the bulkhead deck, the angle of heel at intermediate stages of flooding shall not be greater than that which will submerge the margin line.”.

PART C

REQUIREMENTS FOR POST 1992 SHIPS WHICH COME INTO FORCE ON 1st FEBRUARY 1992

Amendments to 1984 Regulations—Post 1992

5. The Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984 as amended by Part B of these Regulations shall be further amended in accordance with the following:—

(1) In regulation 1(2) the following definition shall be inserted in the appropriate alphabetical order:

““Post 1992 ship” means a passenger ship the keel of which is laid, or which is at a similar stage of construction, on or after 1st February 1992 or a cargo ship which is converted to a passenger ship on or after that date.”.

(2) Regulation 14(1) shall be renumbered regulation 14(1)(b).

(3) A new regulation 14(1)(a) shall be added before regulation 14(1)(b) as follows:—

(a) “**14.** (1) This regulation applies to every United Kingdom passenger ship to which these Regulations apply except post 1992 ships.”.

(4) Regulation 15(1) shall be renumbered regulation 15(1)(b).

(5) A new regulation 15(1)(a) shall be added before regulation 15(1)(b) as follows:—

(a) “**15.** (1) This regulation applies to every United Kingdom passenger ship to which these Regulations apply except post 1992 ships.”.

(6) After regulation 15 there shall be inserted a new regulation 15A as follows:—

“OPENINGS IN WATERTIGHT BULKHEADS IN PASSENGER SHIPS

15A.—(1) This regulation shall only apply to post 1992 ships.

(2) In every ship of Classes I, II and II(A) the number of openings in watertight bulkheads shall be reduced to the minimum compatible with the design and proper working of the ship; satisfactory means shall be provided for closing these openings.

- (a) (3) Where pipes, scuppers, electric cables, etc, are carried through watertight subdivision bulkheads, arrangements shall be made to ensure the watertight integrity of the bulkheads.
- (b) Valves not forming part of a piping system shall not be permitted in watertight subdivision bulkheads.
- (c) Lead or other heat sensitive materials shall not be used in systems which penetrate watertight subdivision bulkheads, where deterioration of such systems in the event of fire would impair the watertight integrity of the bulkheads.
- (a) (4) No doors, manholes, or access openings are permitted:
 - (i) in the collision bulkhead below the margin line;
 - (ii) in watertight transverse bulkheads dividing a cargo space from an adjoining cargo space or from a permanent or reserve bunker, except as provided in paragraph (11)(a) and in regulation 19 of these Regulations.
- (b) Except as provided in paragraph (4)(c), the collision bulkhead may be pierced below the margin line by not more than one pipe for dealing with fluid in the forepeak tank, provided that the pipe is fitted with a screwdown valve capable of being operated from above the bulkhead deck, the valve chest being secured inside the forepeak to the collision bulkhead. This valve may be fitted on the after side of the collision bulkhead provided that the valve is readily accessible under all service conditions and the space in which it is located is not a cargo space.
- (c) If the forepeak is divided to hold two different kinds of liquids the collision bulkhead may be pierced below the margin line by two pipes, each of which is fitted as required by paragraph (4)(b), provided there is no practical alternative to the fitting of such a second pipe and that, having regard to the additional subdivision provided in the forepeak, the safety of the ship is maintained.
- (a) (5) Watertight doors fitted in bulkheads between permanent and reserve bunkers shall always be accessible, except as provided in paragraph (10)(d) for between-deck bunker doors.
- (b) Satisfactory arrangements shall be made by means of screens or otherwise to prevent coal from interfering with the closing of watertight bunker doors.

(6) Subject to paragraph (12), not more than one door, apart from the doors to bunkers and shaft tunnels, may be fitted in each main transverse bulkhead within spaces containing the main and auxiliary propulsion machinery including boilers serving the needs of propulsion and all permanent bunkers. Where two or more shafts are fitted, the tunnels shall be connected by an intercommunicating passage. There shall be only one door between the machinery space and the tunnel spaces where two shafts are fitted and only two doors where there are more than two shafts. All these doors shall be of the sliding type and shall be so located as to have their sills as high as practicable. The hand gear for operating these doors from above the bulkhead deck shall be situated outside the spaces containing the machinery.

- (a) (7) Watertight doors shall be power-operated sliding doors complying with the requirements of paragraph (8) capable of being closed simultaneously from the central operating console at the navigating bridge in not more than 60 seconds with the ship in the upright position.
- (b) The means of operation, whether by power or by hand, of any power-operated sliding watertight door shall be capable of closing the door with the ship listed to 15 degrees

either way taking into account the forces which may act on either side of the door as may be experienced when water is flowing through the opening applying a static head equivalent to a water height of at least 1 m above the sill on the centreline of the door.

- (c) Watertight door controls, including hydraulic piping and electric cables, shall be kept as close as practicable to the bulkhead in which the doors are fitted, in order to minimise the likelihood of them being involved in any damage which the ship may sustain. The positioning of watertight doors and their controls shall be such that if the ship sustains damage within one fifth of the breadth of the ship, such distance being measured at right angles to the centreline of the ship at the level of the deepest subdivision load line, the operation of the watertight doors clear of the damaged portion of the ship is not impaired.
- (d) All power-operated sliding watertight doors shall be provided with means of indication which will show at all remote operating positions whether the doors are open or closed. Remote operating positions shall only be at the navigating bridge as required by paragraph (8)(a)(v) and, at the location where hand operation above the bulkhead deck is required by paragraph (8)(a)(iv).
- (a) (8) Each power-operated sliding watertight door:
 - (i) shall have a vertical or horizontal motion;
 - (ii) shall, subject to paragraph (12), be normally limited to a maximum clear opening width of 1.2 m. If approved by the Secretary of State larger doors may be permitted only to the extent considered necessary for the effective operation of the ship provided that other safety measures, including the following, are taken into consideration:
 - (aa) special consideration shall be given to the strength of the door and its closing appliances in order to prevent leakages;
 - (bb) the door shall be located inboard of the B/5 line;
 - (cc) the door shall be kept closed when the ship is at sea, except for limited periods when absolutely necessary as determined by the Secretary of State;
 - (iii) shall be fitted with the necessary equipment to open and close the door using electric power, hydraulic power, or any other form of power that is approved by the Secretary of State;
 - (iv) shall be provided with an individual hand-operated mechanism. It shall be possible to open and close the door by hand at the door itself from either side, and in addition, close the door from an accessible position above the bulkhead deck with an all round crank motion or some other movement providing the same degree of safety acceptable to the Secretary of State. Direction of rotation or other movement is to be clearly indicated at all operating positions. The time necessary for the complete closure of the door, when operating by hand gear, shall not exceed 90 seconds with the ship in the upright position;
 - (v) shall be provided with controls for opening and closing the door by power from both sides of the door and also for closing the door by power from the central operating console at the navigating bridge;
 - (vi) shall be provided with an audible alarm, distinct from any other alarm in the area, which will sound whenever the door is closed remotely by power and which shall sound for at least five seconds but no more than ten seconds before the door begins to move and shall continue sounding until the door is completely closed. In the case of remote hand operation it is sufficient for

the audible alarm to sound only when the door is moving. Additionally, in passenger areas and areas of high ambient noise an audible alarm may be required to be supplemented by an intermittent visual signal at the door; and

- (vii) shall have an approximately uniform rate of closure under power. The closure time, from the time the door begins to move to the time it reaches the completely closed position, shall in no case be less than 20 seconds or more than 40 seconds with the ship in the upright position.
- (b) The electrical power required for power-operated sliding watertight doors shall be supplied from the emergency switchboard either directly or by a dedicated distribution board situated above the bulkhead deck. The associated control, indication and alarm circuits shall be supplied from the emergency switchboard either directly or by a dedicated distribution board situated above the bulkhead deck and be capable of being automatically supplied by the transitional source of emergency electrical power required by regulation 46(7)(f) in the event of failure of either the main or emergency source of electrical power.
- (c) Power-operated sliding watertight doors shall have either:
 - (i) a centralised hydraulic system with two independent power sources each consisting of a motor and pump capable of simultaneously closing all doors. In addition, there shall be for the whole installation hydraulic accumulators of sufficient capacity to operate all the doors at least three times, ie closed-open-closed, against an adverse list of 15 degrees. This operating cycle shall be capable of being carried out when the accumulator is at the pump cut-in pressure. The fluid used shall be chosen considering the temperatures liable to be encountered by the installation during its service. The power operating system shall be designed to minimise the possibility of having a single failure in the hydraulic piping adversely affect the operation of more than one door. The hydraulic system shall be provided with a low-level alarm for hydraulic fluid reservoirs serving the power-operated system and a low gas pressure alarm or other effective means of monitoring loss of stored energy in hydraulic accumulators. These alarms are to be audible and visual and shall be situated on the central operating console at the navigating bridge; or
 - (ii) an independent hydraulic system for each door with each power source consisting of a motor and pump capable of opening and closing the door. In addition, there shall be a hydraulic accumulator of sufficient capacity to operate the door at least three times, ie closed-open-closed, against an adverse list of 15 degrees. This operating system shall be capable of being carried out when the accumulator is at the pump cut-in pressure. The fluid used shall be chosen considering the temperatures liable to be encountered by the installation during its service. A low gas pressure group alarm or other effective means of monitoring loss of stored energy in hydraulic accumulators shall be provided at the central operating console on the navigating bridge. Loss of stored energy indication at each local operating position shall also be provided; or
 - (iii) an independent electrical system and motor for each door with each power source consisting of a motor capable of opening and closing the door. The power source shall be capable of being automatically supplied by the transitional source of emergency electrical power as required by regulation 46(7)(f), in the event of failure of either the main or emergency source of electrical power and with sufficient capacity to operate the door at least three times, ie closed-open-closed against an adverse list of 15 degrees.

- (d) For the systems specified in (8)(c)(i), (8)(c)(ii) and (8)(c)(iii), power systems for power-operated watertight sliding doors shall be separate from any other power system and a single failure in the electric or hydraulic power-operated systems excluding the hydraulic actuator shall not prevent the hand operation of any door.
- (e) Control handles shall be provided at each side of the bulkhead at a minimum height of 1.6 m above the floor and shall be so arranged as to enable persons passing through the doorway to hold both handles in the open position without being able to set the power closing mechanism in operation accidentally. The direction of movement of the handles in opening and closing the door shall be in the direction of door movement and shall be clearly indicated.
- (f) As far as practicable, electrical equipment and components for watertight doors shall be situated above the bulkhead deck and outside hazardous areas and spaces.
- (g) The enclosures of electrical components necessarily situated below the bulkhead deck shall provide protection against the ingress of water to the extent laid down in Merchant Shipping Notice No. M 1412.
- (h) Electric power, control, indication and alarm circuits shall be protected against fault in such a way that a failure in one door circuit will not cause a failure in any other door circuit. Short circuits or other faults in the alarm or indicator circuits of a door shall not result in a loss of power operation of that door. Arrangements shall be such that leakage of water into the electrical equipment located below the bulkhead deck will not cause the door to open.
- (i) A single electrical failure in the power operating or control system of a power-operated sliding watertight door shall not result in a closed door opening. Availability of the power supply shall be continuously monitored at a point in the electrical circuit as near as practicable to each of the motors required by paragraph (8)(c). Loss of any such power supply shall activate an audible and visual alarm at the central operating console at the navigating bridge.
- (a) (9) The central operating console at the navigating bridge shall have a “master mode” switch with two modes of control: a “local control” mode which shall allow any door to be locally opened and locally closed after use without automatic closure, and a “doors closed” mode which shall automatically close any door that is open. The “doors closed” mode shall permit doors to be opened locally and shall automatically re-close the doors upon release of the local control mechanism. The “master mode” switch shall normally be in the “local control” mode. The “doors closed” mode shall only be used in an emergency or for testing purposes.
- (b) The central operating console at the navigating bridge shall be provided with a diagram showing the location of each door, with visual indicators to show whether each door is open or closed. A red light shall indicate a door is fully open and a green light shall indicate a door is fully closed. When the door is closed remotely the red light shall indicate the intermediate position by flashing. The indicating circuit shall be independent of the control circuit for each door.
- (c) It shall not be possible to remotely open any door from the central operating console.
- (a) (10) All watertight doors shall be kept closed during navigation except that they may be opened during navigation as specified in paragraphs (10)(b), (10)(c) and (10)(d). Watertight doors of width or more than 1.2 m permitted by paragraph (12) may only be opened in the circumstances detailed in that paragraph. Any door which is opened in accordance with this paragraph shall thereafter be kept in readiness for immediate closure.

- (b) A watertight door may be opened during navigation to permit the passage of passengers or crew, or when work in the immediate vicinity of the door necessitates it being opened. The door must be immediately closed when transit through the door is complete or when the task which necessitated it being open is finished.
- (c) Some watertight doors may be permitted to remain open during navigation only if considered absolutely necessary; that is, being open is determined essential to the safe and effective operation of the ship's machinery or to permit passengers normally unrestricted access through out the passenger area. Such determination shall be made in accordance with Merchant Shipping Notice No. M.1283 only after careful consideration of the impact on ship operations and survivability. A watertight door permitted to remain thus open shall be clearly indicated in the ship's stability information book and shall always thereafter be kept in readiness for immediate closure.
- (d) Sliding watertight doors fitted between bunkers in the between-decks below the bulkhead deck may be permitted to be open at sea for the purpose of trimming coal. The opening and closing of these doors shall be recorded in the log-book.
- (a) (11) If essential and approved by the Secretary of State, watertight doors of satisfactory construction may be fitted in watertight bulkheads dividing cargo between-deck spaces. Such doors may be hinged, rolling or sliding doors but shall not be remotely controlled. They shall be fitted at the highest level and as far from the shell plating as practicable, but in no case shall the outboard vertical edges be situated at a distance from the shell plating which is less than one-fifth of the breadth of the ship, such distance being measured at right angles to the centreline of the ship at the level of the deepest subdivision load line.
- (b) Such doors shall be closed before the voyage commences and shall be kept closed during navigation; the time of opening such doors in port and of closing them before the ship leaves port shall be entered in the log book. Should any of the doors be accessible during the voyage, they shall be fitted with a device which prevents unauthorised opening. When it is proposed to fit such doors, the number and arrangements shall be approved by the Secretary of State.
- (12) Portable plates on bulkheads shall not be permitted except in machinery spaces. Such plates shall always be in place before the ship leaves port, and shall not be removed during navigation except in cases of urgent necessity at the discretion of the master. The times of removal and replacement of any such portable plates shall be recorded in the log-book, and the necessary precautions shall be taken in replacing them to ensure that the joints are watertight. The Secretary of State may approve the fitting of not more than one power-operated sliding watertight door in each main transverse bulkhead larger than those specified in paragraph (8)(a)(ii) to be substituted for these portable plates, provided these doors are closed before the ship leaves port and remain closed during navigation except in case of urgent necessity at the discretion of the master. These doors need not meet the requirements of paragraph (8)(a)(iv) regarding complete closure by hand-operated gear in 90 seconds. The time of opening and closing these doors, whether the ship is at sea or in port, shall be recorded in the log-book.
- (a) (13) Where trunkways or tunnels for access from crew accommodation to the stokehold, for piping, or for any other purposes are carried through main transverse watertight bulkheads, they shall be watertight. The access to at least one end of each such tunnel or trunkway, if used as a passage at sea, shall be through a trunk extending watertight to a height sufficient to permit access above the margin line. The access to the other end of the trunkway or tunnel may be through a watertight door of the type required by its location in the ship. Such trunkways or tunnels shall not extend through the first subdivision bulkhead abaft the collision bulkhead.

- (b) Where it is proposed to fit tunnels piercing main transverse watertight bulkheads, these will require the approval of the Secretary of State.
 - (c) Where trunkways in connection with refrigerated cargo and ventilation or forced draught trunks are carried through more than one watertight bulkhead, the means of closure at such openings shall be operated by power and be capable of being closed from a central position situated above the bulkhead deck.
- (14) In every ship of Classes III to VI, inclusive, bulkheads required by these Regulations to be watertight shall not be pierced by doorways, ventilation trunks or other similar openings.”.
- (7) Regulation 16(1) shall be renumbered regulation 16(1)(b).
- (8) A new regulation 16(1)(a) shall be added before regulation 16(1)(b) as follows:–
- (a) “(16)(1) This regulation applies to every United Kingdom passenger ship to which these Regulations apply except post 1992 ships.”.
- (9) Regulation 17(1) shall be renumbered regulation 17(1)(b).
- (10) A new regulation 17(1)(a) shall be added before regulation 17(1)(b) as follows:–
- (a) “**17.** (1) This regulation applies to every United Kingdom passenger ship to which these Regulations apply except post 1992 ships.”.
- (11) Regulation 18(2) shall be renumbered regulation 18(2)(a).
- (12) A new regulation 18(2)(b) shall be added after regulation 18(2)(a) as follows:–
- (b) “(2) In the case of post 1992 ships other methods of sealing sliding watertight doors shall be approved by the Secretary of State.”.
- (13) Regulation 20(4)(d) shall be renumbered regulation 20(4)(d)(ii).
- (14) A new sub-paragraph (d)(i) shall be added before regulation 20(4)(d)(ii) as follows:–
- “(d) (i) Regulation 20(4)(d) applies to every United Kingdom passenger ship to which these Regulations apply except post 1992 ships.”.
- (15) After regulation 20(4)(d) shall be inserted a new regulation 20(4)(d)A as follows:–
- “(d)A In the case of post 1992 ships;
 - (i) Provision shall be made for the drainage of enclosed cargo spaces on the bulkhead deck; however the means of discharge may be dispensed with in any particular compartment of any ship if by reason of size or internal subdivision of those spaces the safety of the ship is not thereby impaired.
 - (ii) Where the freeboard to the bulkhead deck is such that the deck edge is immersed when the ship heels more than 5 degrees, the drainage shall be by means of a sufficient number of scuppers of suitable size discharging directly overboard. Every discharge shall be in compliance with the requirements of sub-paragraph (b)(i), (b)(ii) or (c)(iii) of this regulation.
 - (iii) Where the freeboard is such that the edge of the bulkhead deck is immersed when the ship heels 5 degrees or less, the drainage of the enclosed cargo spaces on the bulkhead deck shall be led to a suitable space, or spaces, of adequate capacity, having a high water level alarm and provided with suitable arrangements for discharge overboard. In addition it shall be ensured that:–
 - (aa) the number, size and disposition of the scuppers are such as to prevent unreasonable accumulation of free water;
 - (bb) the pumping arrangements required by this regulation shall take account of the requirements for any fixed pressure water-spraying fire-extinguishing system;

- (cc) water contaminated with petrol or other dangerous substances is not drained to machinery spaces or other spaces where sources of ignition may be present; and
 - (dd) where the enclosed cargo space is protected by a carbon dioxide fire-extinguishing system the deck scuppers are fitted with means to prevent the escape of the smothering gas.”.
- (16) The following shall be added at the end of regulation 37(1):—
- “For post 1992 ships the definition of “D” shall be as follows:
- D = moulded depth of ship amidships at the bulkhead deck in metres; provided that, in a ship having an enclosed cargo space on the bulkhead deck which is internally drained in accordance with the requirements of regulation 20—(4)(d)A(iv) and which extends for the full length of the ship, D shall be measured to the next deck above the bulkhead deck. Where the enclosed cargo spaces cover a lesser length, D shall be taken as the moulded depth to the bulkhead deck plus $1h/L$, where l and h are the aggregate length and height respectively of the enclosed cargo space in metres.”.
- (17) There shall be added after regulation 46(7)(e) the following:—
- “(f) (i) in the case of post 1992 ships supply power to operate the watertight doors, as required by regulation 15A(8)(c)(iii), but not necessarily all of them simultaneously, unless an independent temporary source of stored energy is provided, and supply power to the control, indication and alarm circuits as required by regulation 15A(8)(b) for half an hour.”.

Signed by authority of the Secretary of State for Transport

10th April 1990

Robert Atkins
Parliamentary Under Secretary of State,
Department of Transport

Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations amend the Merchant Shipping (Passenger Ship Construction) Regulations 1980 and the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984 and give effect, in relation to new United Kingdom passenger ships, to the amendments to the International Convention for the Safety of Life at Sea 1974 adopted by the International Maritime Organization at its 55th Session by Resolutions MSC. 12(56) and MSC. 13(57).

They principally:

- (a) amend and revoke various earlier amendment Regulations and revoke the Merchant Shipping (Loading and Stability Assessment of Ro-Ro Passenger Ships) Regulations 1989 (regulation 2);
- (b) insert the requirements of the previous Loading and Stability Assessment Regulations, which now apply to all types of passenger ships, as amendments to both the 1980 and 1984 Passenger Ship Construction Regulations respectively. These Regulations also introduce new SOLAS amendment Regulations which require a lightweight survey to be carried out on passenger ships every five years. This latter amendment replaces the requirement to incline ro-ro passenger ships only, every four years (regulations 3(3) and 4(4));
- (c) provide for limiting stability envelope curves to be calculated for all passenger ships instead of only for ro-ro passenger ships (regulations 3(8) and 4(12));
- (d) provide for new SOLAS Regulations which increase the residual stability criteria requirements for new passenger ships (regulations 4(5) and (13));
- (e) introduce new SOLAS amendment Regulations for openings in watertight bulkheads in passenger ships built after 1st February 1992 (“post 1992 ships”) (regulation 5); and
- (f) introduces requirements for the drainage of enclosed cargo spaces above the bulkhead deck again for post 1992 ships (regulation 5(15)).

Amendments to SOLAS can be obtained from the International Maritime Organisation, 4 Albert Embankment, London SE1 7SR.