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SHIPPING



Treaty Series No. 58 (1998)

Agreement concerning

**Specific Stability Requirements for Ro-Ro
Passenger Ships undertaking Regular Scheduled
International Voyages between or to or from
Designated Ports in North West Europe and the
Baltic Sea**

Concluded at Stockholm, 27-28 February 1996 and Opened for Signature
at the Headquarters of the International Maritime Organization,
London, from 1 July until 30 September 1996

[The Agreement entered into force on 1 April 1997]

*Presented to Parliament
by the Secretary of State for Foreign and Commonwealth Affairs
by Command of Her Majesty
1998*

**AGREEMENT
CONCERNING SPECIFIC STABILITY REQUIREMENTS FOR
RO-RO PASSENGER SHIPS UNDERTAKING REGULAR SCHEDULED
INTERNATIONAL VOYAGES BETWEEN OR TO OR FROM
DESIGNATED PORTS IN NORTH WEST EUROPE
AND THE BALTIC SEA**

The Contracting Governments,

BEING PARTIES to the International Convention for the Safety of Life at Sea (SOLAS) 1974¹ as amended;

RECALLING Article VII of the SOLAS Convention;

MINDFUL that the principal responsibility for establishing global safety standards rests with the International Maritime Organization (hereinafter referred to as "the Organization");

NOTING the Organization's efforts in this area;

NOTING IN PARTICULAR the adoption by the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea 1974 held in London on 20, 27, 28 and 29 November 1995 of Conference Resolution 14 "Regional Agreements on Specific Stability Requirements for Ro-Ro Passenger Ships";

RECOGNISING that the prevailing, often adverse, sea and weather conditions with low visibility, the low water temperatures, the need to maintain intensive all year round ro-ro passenger ferry services, the public dependence on such services, recent accidents and the density of ro-ro passenger ship movements and potentially conflicting shipping movements at particular locations require the application of specific stability requirements to all ro-ro passenger ships operating regular scheduled voyages between or to or from designated ports in North West Europe and the Baltic Sea;

HAVE AGREED as follows:

ARTICLE 1

Definitions

For the purposes of the present Agreement:

- (a) *International voyage* means a voyage from a country to which the present Agreement applies to a port outside that country, or conversely;
- (b) *Ro-ro passenger ship* means a passenger ship with ro-ro cargo spaces or special category spaces as defined in regulation II-2/3 of the International Convention for the Safety of Life at Sea 1974 as amended;
- (c) *Specific stability requirements* means the specific stability requirements specified in annex 2;
- (d) *Designated port* means any port within the area bounded by lines and the coast as shown on the map at annex 1 from which ro-ro passenger ships operate on regular scheduled international voyages;
- (e) *Secretary-General* means the Secretary-General of the International Maritime Organization.

¹ Treaty Series No. 46 (1980) Cmnd. 7874.

ARTICLE 2

General Obligation

The Contracting Governments agree to apply the specific stability requirements to ro-ro passenger ships entitled to fly their flag and operating on regular scheduled international voyages carrying passengers

- (a) between designated ports or
- (b) to or from designated ports.

ARTICLE 3

Specific Stability Requirements

The Contracting Governments agree to apply the specific stability requirements no later than the dates prescribed in annex 2.

ARTICLE 4

Single Voyage Exemptions

A ro-ro passenger ship which is not normally engaged on regular scheduled international voyages between or to or from designated ports but which is required to undertake a single voyage between such ports or to or from such a port may be exempted from any or all of the specific stability requirements by a Contracting Government or by the ship's flag State, following consultations with the Contracting Government or Governments between or to or from whose ports the voyage is to take place. An exemption shall not be granted by the ship's flag State unless the ship complies with international safety requirements which in the joint opinion of the ship's flag State and the Contracting Government or Governments between or to or from whose ports the voyage is to take place are adequate for the intended voyage.

ARTICLE 5

Application to Ro-Ro Passenger Ships of Flag States Non-parties to the present Agreement.

- (1) The Contracting Governments agree that the specific stability requirements should apply to all ro-ro passenger ships operating on regular scheduled international voyages carrying passengers between or to or from designated ports, irrespective of flag and bearing in mind the necessity to ensure that no more favourable treatment should be given to ships entitled to fly the flag of States non-parties to the present Agreement.
- (2) The Contracting Governments further agree to encourage the application of the specific stability requirements, on the timescale set out in annex 2, to ro-ro passenger ships entitled to fly the flag of States non-parties to the present Agreement and operating on regular scheduled international voyages carrying passengers between or to or from designated ports.
- (3) Each Contracting Government undertakes to advise the other Contracting Governments, the Secretary-General and, with respect to States that are members of the European Union, the Commission of the European Communities of the steps it has taken to implement paragraph 2 of this Article.

ARTICLE 6

Mutual Acceptance of Documents

- (1) Each Contracting Government shall provide each ship entitled to fly its flag and to which the present Agreement applies with a document indicating that the ship complies with the specific stability requirements.
- (2) The Contracting Governments agree to accept a document provided under paragraph 1 as evidence that the ship to which the document relates complies with the specific stability requirements.

(3) When a State non-party to the present Agreement issues a document indicating that a ship complies with the specific stability requirements such a document will be accepted as *prima facie* evidence that the ship so complies.

ARTICLE 7

Signature, Ratification, Acceptance, Approval and Accession

1. The present Agreement shall be open for signature at the Headquarters of the Organization from 1 July until 30 September 1996, and shall thereafter remain open for accession. States may become parties to the present Agreement by:

- (a) signature without reservation as to ratification, acceptance or approval, or
- (b) signature subject to ratification, acceptance or approval, followed by ratification, acceptance or approval, or
- (c) accession.

2. Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General.

3. The Secretary-General shall inform the Governments of all States which have signed the present Agreement or acceded to it of any signature or of the deposit of any instrument of ratification, acceptance, approval or accession and the date of its deposit. When the conditions for entry into force have been met, the Secretary-General shall inform the Governments of these States of the date of entry into force of the Agreement.

ARTICLE 8

Notification and Entry into Force

1. The present Agreement shall be notified by the Government of Sweden to the Secretary-General.

It shall enter into force¹

- (a) twelve months after the date of notification to the Secretary-General, or
- (b) on the date on which not fewer than five States have become parties in accordance with Article 7,

whichever is the later.

2. Any instrument of ratification, acceptance, approval or accession deposited after the date on which the present Agreement enters into force shall take effect thirty days after the date of deposit.

ARTICLE 9

Denunciation

1. Any Contracting Government may, by written notification addressed to the Secretary-General, denounce the present Agreement.

2. A denunciation shall take effect twelve months after its receipt by the Secretary-General.

ARTICLE 10

Deposit and Registration

1. The present Agreement shall be deposited with the Secretary-General.

¹The Agreement entered into force on 1 April 1997.

2. The Secretary-General shall, as soon as the present Agreement enters into force, transmit certified copies of the Agreement to
 - (a) all Contracting Governments to the International Convention for the Safety of Life at Sea 1974 as amended,
 - (b) the Commission of the European Communities.
3. As soon as the present Agreement¹ enters into force the Secretary-General shall transmit a copy of the Agreement to the Secretariat of the United Nations for registration and publication in accordance with Article 102 of the Charter of the United Nations.

ARTICLE 11

Languages

The present Agreement is established in a single copy in the English, French, Spanish and Russian languages, each text being equally authentic.

¹The Agreement entered into force on 1 April 1997.

ANNEX 1

“Significant wave heights”

1. *General*

This annex states the significant wave heights (Hs) which shall be used for determining the height of water when applying the technical standard contained in annex 2.

The figures are provided on a map, presenting the significant wave heights which are not exceeded by a probability of more than 10% on a yearly basis for the different sea areas covered by the Agreement.

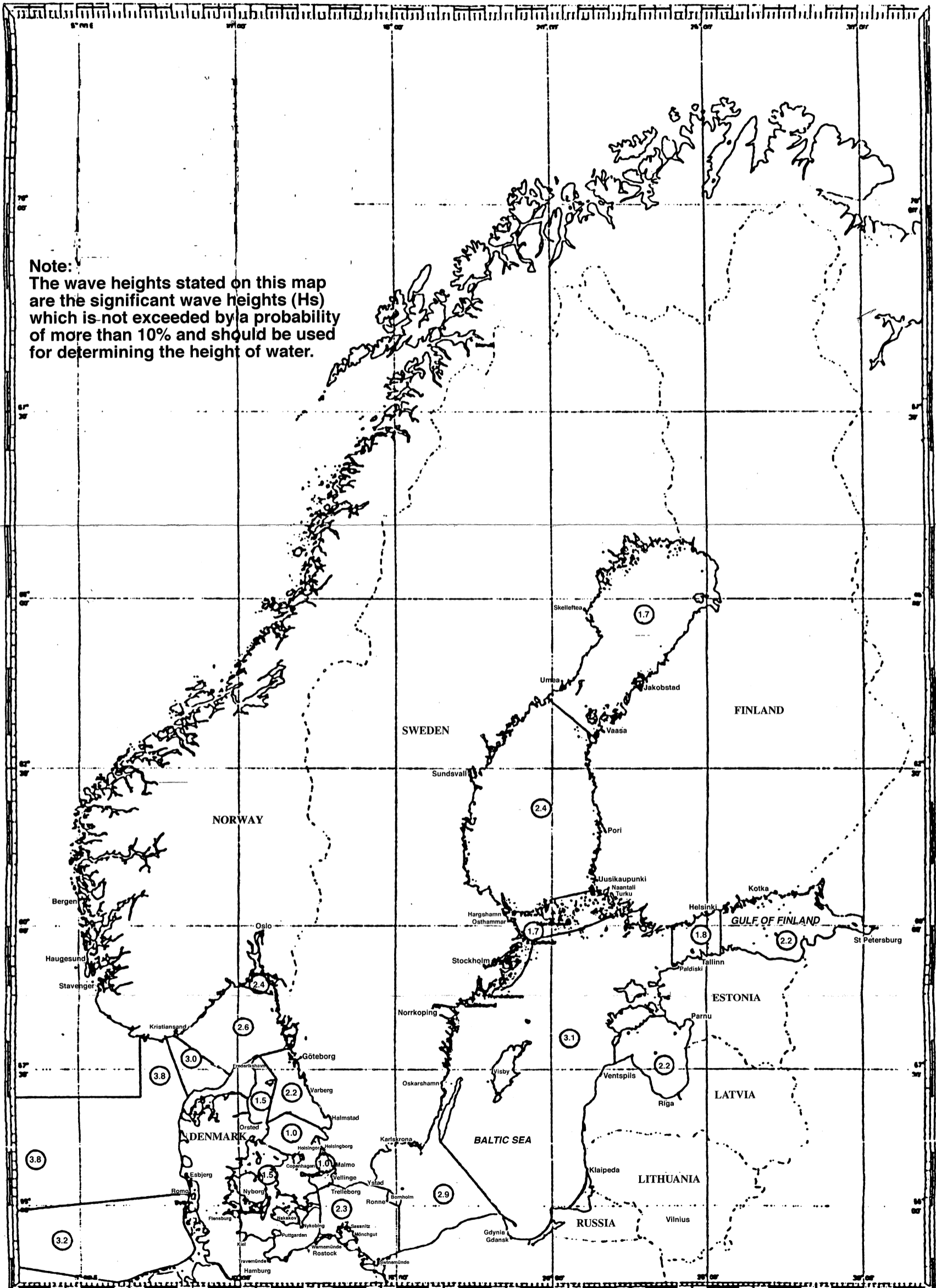
Inshore areas are considered to have a significant wave heights less than 1.5 m unless otherwise is indicated on the map.

2. *Seasonal operation*

If an established operator operating a regular scheduled service on a year round basis wishes to introduce additional ro-ro passenger ships to operate for a shorter season on that service, the significant wave height applying for such a season will have to be agreed by the Governments at both ends of the route.

Any such Agreement other than a single ship Agreement of less than one month's duration shall be notified to the Secretary-General of the International Maritime Organization for circulation to contracting Governments to the SOLAS Convention as well as to the European Commission.

Note:
The wave heights stated on this map are the significant wave heights (Hs) which is not exceeded by a probability of more than 10% and should be used for determining the height of water.



ANNEX 2

STABILITY REQUIREMENTS PERTAINING TO THE AGREEMENT

Preamble

Application

In accordance with this Agreement, passenger ships with ro-ro cargo spaces or special category spaces as defined in regulation II-2/3 of the International Convention for the Safety of Life at Sea, as amended, shall comply with the provisions of this Agreement not later than at the first yearly inspection following the date of compliance prescribed below, according to the value of A/A_{max} as defined in the annex to the Calculation Procedure to Assess the Survivability Characteristics of Existing Ro-Ro Passenger Ships When Using a Simplified Method Based Upon resolution A.265(VIII), developed by the Maritime Safety Committee at its fifty-ninth session in June 1991 (MSC/Circ.574):

<i>Value of A/A_{max}</i>	<i>Date of Compliance</i>
Less than 85%	1 April 1997
Less than 90%	31 December 1998
Less than 95%	31 December 1999
Less than 97.5%	31 December 2000
97.5% or higher	31 December 2001 but in any case not later than 1 October 2002

Stability Standard

1. In addition to the requirements of SOLAS regulation II-1/8, ro-ro passenger ships shall comply, subject to the provisions of paragraph 2, if applicable, with the following:

.1 the provisions of paragraphs 2.3 regulation 8 shall be complied with when taking into account the effect of a hypothetical amount of sea water which is assumed to have accumulated, on the first deck above the designed waterline of the ro-ro cargo space or special category space as defined in regulation II-2/3 assumed to be damaged (referred to as "the damaged ro-ro deck" hereinafter). The other requirements of regulation 8 need not be complied with in the application of the stability standard¹ contained in this Agreement. The amount of assumed accumulated sea water shall be calculated on the basis of a water surface having a fixed height above:

- (a) the lowest point of the deck edge of the damaged compartment of the ro-ro deck, or
- (b) when the deck edge in way of the damaged compartment is submerged then the calculation is based on a fixed height above the still water surface at all heel and trim angles;

as follows:

0.5 m if the residual freeboard (f_r) is 0.3 m or less,

0.0 m if the residual freeboard (f_r) is 2.0 m or more; and

intermediate values to be determined by linear interpolation, if the residual freeboard (f_r) is 0.3 m or more but less than 2.0 m;

where the residual freeboard (f_r) is the minimum distance between the damaged ro-ro deck and the final waterline at the location of the damage in the damage case being considered without taking into account the effect of the volume of assumed accumulated water on the damaged ro-ro deck;

.2 when a high-efficiency drainage system is installed, the Administration may allow a reduction in the height of the water surface in accordance with the guidelines to be developed by the Organization²;

¹Guidance notes on the standard to be developed.

²Refer to the "guidelines".

- .3 for ships in geographically defined restricted areas of operation, the Administration may reduce the height of the water surface determined in accordance with subparagraph .1 substituting such height of the water surface by the following:
 - .3.1 0.0 m if the significant wave height (h_s) defining the area concerned is 1.5 m or less;
 - .3.2 the value determined in accordance with subparagraph .1 if the significant wave height (h_s) defining the area concerned is 4.0 m or above;
 - .3.3 intermediate values to be determined by linear interpolation if the significant wave height (h_s) defining the area concerned is 1.5 m or more but less than 4.0 m;
 provided that the following conditions are fulfilled:
 - .3.4 the Administration is satisfied that the defined area is represented by the significant wave height (h_s) which is not exceeded with a probability of more than 10%; and
 - .3.5 the area of operation and, if applicable, the part of the year for which a certain value of the significant wave height (h_s) has been established are entered into the certificates; and
- .4 as an alternative to the requirements of subparagraph .1 or subparagraph .3, the Administration may exempt application of the requirements of subparagraph .1 or subparagraph .3 and accept proof, established by model tests carried out for an individual ship in accordance with the model test method developed by the Organization¹, annexed to this document justifying that the ship will not capsize with the assumed extent of damage as provided in paragraph 4 of regulation 8 in the worst location being considered under paragraph 1.1 in an irregular seaway, and
- .5 reference to acceptance of the results of the model test as an equivalence to compliance with subparagraph .1 or subparagraph .3; the value of the significant wave height (h_s) used in the model tests shall be entered into the ship's certificates.
- .6 the information supplied to the master in accordance with paragraphs 7.1 and 7.2 of regulation 8, as developed for compliance with paragraphs 2.3 to 2.3.4, shall apply unchanged for ro-ro passenger ships approved according to these requirements.

2. For assessing the effect of the volume of the assumed accumulated sea water on the damaged ro-ro deck in paragraph 1, the following provisions shall prevail:

- .1 a transverse or longitudinal bulkhead shall be considered intact if all parts of it lie inboard of vertical surfaces on both sides of the ship, which are situated at a distance from the shell plating equal to one-fifth of the breadth of the ship, as defined in regulation 2, and measured at right angles to the centreline at the level of the deepest subdivision load line;
- .2 in cases where the ship's hull is structurally partly widened for compliance with the provisions of this regulation, the resulting increase of the value of one-fifth of the breadth of it is to be used throughout, but shall not govern the location of existing bulkhead penetrations, piping systems, etc., which were acceptable prior to the widening;
- .3 the tightness of transverse or longitudinal bulkheads which are taken into account as effective to confine the assumed accumulated sea water in the compartment concerned in the damaged ro-ro deck shall be commensurate with the drainage system, and shall withstand hydrostatic pressure in accordance with the results of the damage calculation. Such bulkheads shall be at least 4 m in height unless the height of water is less than 0.5 m. In such cases the height of the bulkhead may be calculated in accordance with the following:

¹Refer to the "model test method attached to this document" page 10.

$$B_h = 8h_w$$

where B_h = bulkhead height, and
 h_w = height of water

In any event, the minimum height of the bulkhead shall be not less than 2.2 m. However, in the case of a ship with hanging car decks, the minimum height of the bulkhead shall be not less than the height to the underside of the hanging car deck when in its lowered position.

- .4 For special arrangements such as, e.g., full width hanging decks and wide side casings, other bulkhead heights may be accepted based on detailed model tests;
- .5 The effect of the volume of the assumed accumulated sea water need not be taken into account for any compartment of the damaged ro-ro deck, provided that such a compartment has on each side of the deck freeing ports evenly distributed along the sides of the compartment complying with the following:
 - .5.1 $A \geq 0.3 l$
where A is the total area of freeing ports on each side of the deck in m^2 ; and
 l is the length of the compartment in m;
 - .5.2 the ship shall maintain a residual freeboard of at least 1.0 m in the worst damage condition without taking into account the effect of the assumed volume of water on the damaged ro-ro deck; and
 - .5.3 such freeing ports shall be located within the height of 0.6 m above the damaged ro-ro deck, and the lower edge of the ports shall be within 2 cm above the damaged ro-ro deck; and
 - .5.4 such freeing ports shall be fitted with closing devices or flaps to prevent water entering the ro-ro deck whilst allowing water which may accumulate on the ro-ro deck, whilst allowing water which may accumulate on the ro-ro deck to drain; and
- .6 when a bulkhead above the ro-ro deck is assumed damaged, both compartments bordering the bulkhead shall be assumed flooded to the same height of water surface as calculated in paragraphs 1.1 and 1.3 above.

APPENDIX

MODEL TEST METHOD

1. Objectives

In the tests provided for in paragraph 1.4 of the stability requirements pertaining to the agreement, the ship should prove capability to withstand a seaway defined in paragraph 3 hereunder in the worst damage case scenario.

2. Ship model

2.1 The model should copy the actual ship for both outer configuration and internal arrangement—in particular of all damaged spaces, having an effect on the process of flooding and shipping of water. The damage should represent the worst damage case defined for compliance with paragraph 2.3.2 of SOLAS regulation II-1/8 (SOLAS 90). An additional test is required at a level keel midship damage, if the worst damage location according to SOLAS 90 is outside the range $\pm 10\%$ Lpp from the midship. This additional test is only required when the ro-ro spaces are assumed to be damaged.

2.2 The model should comply with the following:

- .1 length between perpendiculars (Lpp) is to be at least 3 m;
- .2 hull is to be thin enough in areas where this feature has influence on the results;
- .3 characteristics of motion should be modelled properly to the actual ship, paying particular attention to scaling of radii of gyration in roll and pitch motions. Draught, trim, heel and centre of gravity should represent the worst damage case;
- .4 main design features such as watertight bulkheads, air escapes, etc., above and below the bulkhead deck that can result in asymmetric flooding should be modelled properly as far as practicable, to represent the real situation;
- .5 the shape of the damage opening shall be as follows:
 - .5.1 rectangular side profile with a width according to SOLAS regulation II-1/8.4.1 and unlimited vertical extent;
 - .5.2 isosceles triangular profile in the horizontal plane with a height equal to B/5 according to SOLAS regulation II-1/8.4.2.

3. Procedure for experiments

3.1 The model should be subjected to a long-crested irregular seaway defined by the JONSWAP spectrum with a significant wave height H_s , defined in paragraph 1.3 of the stability requirements and having peak enhancement factor γ and peak period T_p as follows:

- .1 $T_p = 4\sqrt{H_s}$ with $\gamma = 3.3$; and
- .2 T_p equal to the roll resonant period for the damaged ship without water on deck at the specified loading condition but not higher than $6\sqrt{H_s}$ and with $\gamma = 1$.

3.2 The model should be free to drift and placed in beam seas (90° heading) with the damage hole facing the oncoming waves. The model should not be restrained in a manner to resist capsize. If the ship is upright in flooded condition, 1° of heel towards the damage should be given.

3.3 At least 5 (five) experiments for each peak period should be carried out. The test period for each run shall be of a duration such that a stationary state has been reached but should be run for not less than 30 min in full-scale time. A different wave realization train should be used for each test.

3.4 If none of the experiments result in final inclination towards the damage, the experiments should be repeated with 5 runs at each of the two specified wave conditions or, alternatively, the model should be given an additional 1° angle of heel towards the

damage and the experiment repeated with 2 runs at each of the two specified wave conditions. The purpose of these additional experiments is to demonstrate, in the best possible way, survival capability against capsizing in both directions.

3.5 The tests are to be carried out for the following damage cases:

- .1 the worst damage case with regard to the area under the GZ curve according to SOLAS; and
- .2 the worst midship damage case with regard to residual freeboard in the midship area if required by 2.1.

4. *Survival criteria*

4.1 The ship should be considered as surviving if a stationary state is reached for the successive test runs as required in 3.3 but subject to 4.2.

4.2 Angles of roll of more than 30° against the vertical axis, occurring more frequently than in 20% of the rolling cycles or steady heel greater than 20° should be taken as capsizing events even if a stationary state is reached.

5. *Test approval*

5.1 It is the responsibility of the Administration to approve the model test programme in advance. It should also be borne in mind that lesser damages may provide a worst case scenario.

5.2 Test should be documented by means of a report and a video or other visual record containing all relevant information of the ship and test results. A copy of the video and report should be submitted to the Organization, together with the Administration's acceptance of the test.

RESOLUTION

Representatives of Governments and Maritime Administrations, having met in Stockholm 27-28 February 1996 to conclude an Agreement concerning specific stability requirements for ro-ro passenger ships undertaking regular scheduled international voyages carrying passengers between or to or from designated ports in North West Europe and the Baltic Sea,

HAVING reached an agreement on implementing the specific stability requirements on their ships not later than the dates defined in the Agreement,

RECOGNIZING the possibilities of implementing the requirements earlier by agreement between Contracting Governments, in consultations with other flag States concerned, for ships trading between their ports,

FURTHER RECOGNIZING the inherent problem of one compartment ro-ro passenger ships,

AGREE, as a matter of priority, to bring their one compartment ro-ro passenger ships in compliance with the technical requirements of the Agreement as soon as possible,

FURTHER AGREE that Contracting Governments can, by agreement between them, apply earlier implementation dates than those specified in annex 2 for ships trading between their ports. In negotiating such agreements other flag States concerned should be invited to participate.

1 October 1996

Ref. T1/3.01

As of 30 September 1996, signatures had been affixed by representatives of seven Governments. The signatures and dates on which they were affixed, together with other inscriptions, are set out below:

FOR DENMARK: (signed) Helle Dueholm	14 August 1996
FOR FINLAND: subject to ratification (signed) Kyösti Vesterinin	14 August 1996
FOR GERMANY: subject to ratification (signed) Paul Freiherr von Maltzahn Christoph Hinz	14 August 1996
FOR IRELAND: (signed) S. A. McLoughlin	1 July 1996
FOR NORWAY: (signed) Kjell Colding ¹	25 September 1996
FOR SWEDEN: (signed) Johan Franson	14 August 1996
FOR THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND: (signed) [Viscount] Goschen	1 July 1996

ACCESSION

<i>Country</i>	<i>Date</i>
Netherlands, The	3 February 1997

Article 8 provides that the Agreement shall enter into force

“(a) twelve months after the date of notification to the Secretary-General, or

(b) on the date on which not fewer than five States have become parties in accordance with Article 7,

whichever is the later.”

With the signature by Norway the requirements for entry into force of the Agreement have been fulfilled. Therefore, in accordance with the provisions of article 8 thereof, the Agreement will enter into force on 1 April 1997, i.e. twelve months after the date of notification to the Secretary-General.

¹Accompanied by the following statement:

“Recognising the inherent problem of water on deck on ro-ro passenger ships, the Norwegian Maritime Directorate has already applied the major part of the stability requirements of Annex 2 to the Agreement to Norwegian ro-ro passenger ships undertaking regular scheduled voyages between designated ports.

Referring to the Resolution adopted by the representatives of the Government and Maritime Administrations who concluded the Agreement in Stockholm 27–28 February 1996, recognising the possibility of an early implementation of the requirements of the Agreement, the Government of Norway wishes to inform that it is seeking agreements with other Contracting Parties. The intention is to obtain the same safety standards on every ro-ro passenger ship on regular voyages to and from Norwegian designated ports.

Taking into account the close co-operation for enhancing stability between the countries now Parties to the Agreement, the Government of Norway anticipates that the negotiation of agreements on an early upgrading of ro-ro passenger ships servicing Norwegian designated ports will be successfully concluded.”

