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CONFERENCE OF CONTRACTING
GOVERNMENTS TO THE
INTERNATIONAL CONVENTION FOR
THE SAFETY OF LIFE AT SEA, 1974

Agenda items 6 and 7

CONSIDERATION AND ADOPTION OF AMENDMENTS TO THE
INTERNATIONAL
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974

CONSIDERATION AND ADOPTION OF RESOLUTIONS AND
RECOMMENDATIONS AND RELATED MATTERS

Conference resolution 1 and amendments to the 1974 SOLAS Convention
annexed thereto and Conference resolutions 2 to 14

As adopted by the Conference

Attached in the annex are the texts of:

- 1 Conference resolution 1 and amendments to the International Convention for the Safety of Life at Sea, 1974 annexed thereto, as set out in attachment 1 to the Final Act of the Conference ; and
- .2 Conference resolutions 2 to 14, as set out in attachment 2 to the Final Act of the Conference.

ANNEX

ATTACHMENT 1 TO THE FINAL ACT OF THE CONFERENCE

RESOLUTION 1 OF THE CONFERENCE OF CONTRACTING GOVERNMENTS TO
THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974
ADOPTED ON 29 NOVEMBER 1995ADOPTION OF AMENDMENTS TO THE ANNEX TO THE INTERNATIONAL
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**THE CONFERENCE,**

RECALLING article VIII (c) of the International Convention for the Safety of Life of Sea, 1974 (hereinafter referred to as "the Convention") concerning the procedure for amending the Convention by a Conference of Contracting Governments,

NOTING resolution A.596(15) adopted by the Assembly of the International Maritime Organization (IMO), concerning the safety of ro-ro ships,

NOTING FURTHER resolutions MSC.11(55), MSC.12(56), MSC.24(60), MSC.26(60) and MSC.27(61) by which amendments to the Convention were adopted by the Maritime Safety Committee of IMO aimed at enhancing the safety of new and existing ro-ro passenger ships, as appropriate,

EXPRESSING ITS CONCERN that, since the adoption of the aforementioned amendments, a number of ro-ro passenger ships have been involved in casualties, one of which has resulted in severe loss of life,

RECOGNIZING the urgent need to further improve the safety standards in all aspects of the design, equipment and operation of ro-ro passenger ships to avoid recurrence of such casualties,

HAVING CONSIDERED amendments to the Annex to the Convention proposed and circulated to all Members of the International Maritime Organization and all Contracting Governments to the Convention,

1. **ADOPTS**, in accordance with article VIII(c)(ii) of the Convention, amendments to the Annex to the Convention the text of which is set out in the Annex to the present resolution;
2. **DETERMINES**, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 January 1997, unless, prior to this date, more than one third of Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. **INVITES** Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 1997 upon their acceptance in accordance with paragraph 2 above.

ANNEX

AMENDMENTS TO THE ANNEX TO THE INTERNATIONAL CONVENTION
FOR THE SAFETY OF LIFE AT SEA, 1974

CHAPTER II-1

CONSTRUCTION - SUBDIVISION AND STABILITY, MACHINERY
AND ELECTRICAL INSTALLATIONS

Regulation 1 - Application

1 In paragraph 3.2, the reference to "regulation 8.9" is replaced by "regulation 8-1".

Regulation 2 - Definitions

2 The following new paragraph 13 is added after the existing paragraph 12:

"13 *Ro-ro passenger ship* means a passenger ship with ro-ro cargo spaces or special category spaces as defined in regulation I1-2/3."

Regulation 8 - Stability of passenger ships in damaged condition

3 In the text in the parenthesis following the title, the reference to "paragraph 9" is replaced by "regulation 8-1".

4 The existing paragraph 2.3.5 is deleted.

5 The following new sentence is added after the existing first sentence of paragraph 7.4:

"The determination of the ship's stability shall always be made by calculation".

6 Existing paragraph 9 is deleted.

7 The following new regulations 8-1 and 8-2 are added after existing regulation 8:

“Regulation 8-1

Stability of ro-ro passenger ships in damaged condition*

Ro-ro passenger ships constructed before 1 July 1997 shall comply with regulation 8, as amended by resolution MSC.12(56), not later than the date of the first periodical survey after the date of compliance prescribed below, according to the value of A/Amax as defined in the annex of

* For the application of specific stability requirements to ro-ro passenger ships, refer to resolution 14 of the 1995 SOLAS Conference.

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).

Value of A/Amax	Date of compliance
less than 85%	1 October 1998
85% or more but less than 90%	1 October 2000
90% or more but less than 95%	1 October 2002
95% or more but less than 97.5%	1 October 2004
97.5% or more	1 October 2005

Regulation 8-2

Special requirements for ro-ro passenger ships carrying 400 persons or more

Notwithstanding the provisions of regulations 8 and 8-1:

- .1 ro-ro passenger ships certified to carry 400 persons or more constructed on or after 1 July 1997 shall comply with the provisions of paragraph 2.3 of regulation 8, assuming the damage applied anywhere within the ship's length L; and
- .2 ro-ro passenger ships certified to carry 400 persons or more constructed before 1 July 1997 shall comply with the requirements of subparagraph .1 not later than the date of the first periodical survey after the date of compliance prescribed in subparagraph .2.1, .2.2 or .2.3 which occurs the latest:

.2.1 Value of A/Amax	Date of compliance
less than 85%	1 October 1998
85% or more but less than 90%	1 October 2000
90% or more but less than 95%	1 October 2002
95% or more but less than 97.5%	1 October 2004
97.5% or more	1 October 2010

.2.2 Number of persons permitted to be carried	Date of compliance
1500 or more	1 October 2002
1000 or more but less than 1500	1 October 2006
600 or more but less than 1000	1 October 2008
400 or more but less than 600	1 October 2010

- .2.3 **Age of the ship equal to or greater than** 20 years,

where the age of the ship means the time counted from the date on which the keel was laid or the date on which it was at a similar stage of construction or from the date on which the ship was converted to a ro-ro passenger ship.

Regulation 10 - Peak and machinery space bulkheads, shaft tunnels, etc., in passenger ships

8 The existing text of paragraphs 3 and 4 is replaced by the following:

"3 Where a long forward superstructure is fitted, the forepeak or collision bulkhead on all passenger ships shall be extended weathertight to the next full deck above the bulkhead deck. The extension shall be so arranged as to preclude the possibility of the bow door causing damage to it in the case of damage to, or detachment of, a bow door.

4 The extension required in paragraph 3 need not be fitted directly above the bulkhead below, provided that all parts of the extension are not located forward of the forward limit specified in paragraph 1 or paragraph 2. However, in ships constructed before 1 July 1997:

.1 where a sloping ramp forms part of the extension, the part of the extension, which is more than 2.3 m above the bulkhead deck, may extend no more than 1 m forward of the forward limits specified in paragraph 1 or paragraph 2; and

.2 where the existing ramp does not comply with the requirements for acceptance as an extension to the collision bulkhead and the position of the ramp prevents the siting of such extension within the limits specified in paragraph 1 or paragraph 2, the extension may be sited within a limited distance aft of the aft limit specified in paragraph 1 or paragraph 2. The limited distance aft should be no more than is necessary to ensure non interference with the ramp. The extension to the collision bulkhead shall open forward and comply with the requirements of paragraph 3 and shall be so arranged as to preclude the possibility of the ramp causing damage to it in the case of damage to, or detachment of, the ramp.

5 Ramps not meeting the above requirements shall be disregarded as an extension of the collision bulkhead.

6 In ships constructed before 1 July 1997, the requirements of paragraphs 3 and 4 shall apply not later than the date of the first periodical survey after 1 July 1997".

9 Existing paragraphs 5 and 6 are renumbered as paragraphs 7 and 8.

Regulation-15 - Openings in watertight bulkheads in passenger ships

10 The following new paragraph 6.5 is added after existing paragraph 6.4:

"6.5 In ships constructed before 1 February 1992, doors which do not comply with paragraphs 6.1 to 6.4 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 into the log-book."

Regulation 19 - Construction and initial tests of watertight decks, trunks, etc., in passenger ships and cargo ships

11 The following new paragraphs 2, 3 and 4 are added after existing paragraph 1:

"2 Where a ventilation trunk passing through a structure penetrates the bulkhead deck, the trunk shall be capable of withstanding the water pressure that may be present within the trunk, after having taken into account the maximum heel angle allowable during intermediate stages of flooding, in accordance with regulation 8.5.

3 Where all or part of the penetration of the bulkhead deck is on the main ro-ro deck, the trunk shall be capable of withstanding impact pressure due to internal water motions (sloshing) of water trapped on the ro-ro deck.

4 In ships constructed before 1 July 1997, the requirements of paragraph 2 shall apply not later than the date of the first periodical survey after 1 July 1997."

12 Existing paragraph 2 is renumbered as paragraph 5.

Regulation 20 - Watertight integrity of passenger ships above the margin line

13 The following new paragraph 3 is added after existing paragraph 2:

"3 In passenger ships constructed on or after 1 July 1997, the open end of air pipes terminating within a superstructure shall be at least 1 m above the waterline when the ship heels to an angle of 15°, or the maximum angle of heel during intermediate stages of flooding, as determined by direct calculation, whichever is the greater. Alternatively, air pipes from tanks other than oil tanks may discharge through the side of the superstructure. The provisions of this paragraph are without prejudice to the provisions of the International Convention on Load Lines in force."

14 The existing paragraphs 3 and 4 are renumbered as paragraphs 4 and 5.

15 The following new regulations 20-2 to 20-4 are added after existing regulation 20-1:

"Regulation 20-2**Watertight integrity from the ro-ro deck (bulkhead deck) to spaces below**

1 In ro-ro passenger ships constructed on or after 1 July 1997:

- .1 subject to the provisions of subparagraphs .2 and .3, all accesses that lead to spaces below the bulkhead deck shall have a lowest point which is not less than 2.5 m above the bulkhead deck;
- .2 where vehicle ramps are installed to give access to spaces below the bulkhead deck, their openings shall be able to be closed weathertight to prevent ingress of water below, alarmed and indicated to the navigation bridge;

- .3 the Administration may permit the fitting of particular accesses to spaces below the bulkhead deck provided they are necessary for the essential working of the ship, e.g. the movement of machinery and stores, subject to such accesses being made watertight, alarmed and indicated to the navigation bridge;
 - .4 the accesses referred to in subparagraphs .2 and .3 shall be closed before the ship leaves the berth on any voyage and shall remain closed until the ship is at its next berth;
 - .5 the master shall ensure that an effective system of supervision and reporting of the closing and opening of such accesses referred to in subparagraphs .2 and .3 is implemented; and
 - .6 the master shall ensure, before the ship leaves the berth on any voyage, that an entry in the log-book, as required by regulation 25, is made of the time of the last closing of the accesses referred to in subparagraphs .2 and .3.
- 2 In ro-ro passenger ships constructed before 1 July 1997:
- .1 all accesses from the ro-ro deck that lead to spaces below the bulkhead deck shall be made weather-tight and means shall be provided on the navigation bridge, indicating whether the access is open or closed;
 - .2 all such accesses shall be closed before the ship leaves the berth on any voyage and shall remain closed until the ship is at its next berth;
 - .3 notwithstanding the requirements of subparagraph .2, the Administration may permit some accesses to be opened during the voyage but only for a period sufficient to permit through passage and, if required, for the essential working of the ship; and
 - .4 the requirements of subparagraph .1 shall apply not later than the date of the first periodical survey after 1 July 1997.

Regulation 20-3

Access to ro-ro decks

In all ro-ro passenger ships, the master or the designated officer shall ensure that, without the expressed consent of the master or the designated officer, no passengers are allowed access to an enclosed ro-ro deck when the ship is underway.

Regulation 20-4

Closure of bulkheads on the ro-ro deck

1 All transverse or longitudinal bulkheads which are taken into account as effective to confine the seawater accumulated on the ro-ro deck shall be in place and secured before the ship leaves the berth and remain in place and secured until the ship is at its next berth.

2 Notwithstanding the requirements of paragraph 1, the Administration may permit some accesses within such bulkheads to be opened during the voyage but only for sufficient time to permit through passage and, if required, for the essential working of the ship."

Regulation 23-2 - Integrity of the hull and superstructure, damage prevention and control

16 The existing text of regulation 23-2 is replaced by the following:

"(This regulation applies to all ro-ro passenger ships, except that for ships constructed before 1 July 1997, paragraph 2 shall apply not later than the date of the first periodical survey after 1 July 1997)

1 Indicators shall be provided on the navigation bridge for all shell doors, loading doors and other closing appliances which, if left open or not properly secured, could, in the opinion of the Administration, lead to flooding of a special category space or ro-ro cargo space. The indicator system shall be designed on the fail-safe principle and shall show by visual alarms if the door is not fully closed or if any of the securing arrangements are not in place and fully locked and by audible alarms if such door or closing appliances become open or the securing arrangements become unsecured. The indicator panel on the navigation bridge shall be equipped with a mode selection function "harbour/sea voyage" so arranged that an audible alarm is given on the navigation bridge if the ship leaves harbour with the bow doors, inner doors, stem ramp or any other side shell doors not closed or any closing device not in the correct position. The power supply for the indicator system shall be independent of the power supply for operating and securing the doors. The indicator systems, approved by the Administration, which were installed on ships constructed before 1 July 1997 need not be changed.

2 Television surveillance and a water leakage detection system shall be arranged to provide an indication to the navigation bridge and to the engine control station of any leakage through inner and outer bow doors, stem doors or any other shell doors which could lead to flooding of special category spaces or ro-ro cargo spaces.

3 Special category spaces and ro-ro cargo spaces shall be continuously patrolled or monitored by effective means, such as television surveillance, so that any movement of vehicles in adverse weather conditions and unauthorized access by passengers thereto can be detected whilst the ship is underway.

4 Documented operating procedures for closing and securing all shell doors, loading doors and other closing appliances which, if left open or not properly secured, could, in the opinion of the Administration, lead to flooding of a special category space or ro-ro cargo space, shall be kept on board and posted at an appropriate place."

Regulation 45 - Precautions against shock, fire and other hazards of electrical origin

17 The following new sentence is added after the existing first sentence of paragraph 5.3:

"In ro-ro passenger ships, cabling for emergency alarms and public address systems installed on or after 1 July 1998 shall be approved by the Administration having regard to the recommendations developed by the Organization¹."

CHAPTER 11-2

CONSTRUCTION - FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION

Regulation 3 - Definitions

18 The following new paragraph 34 is added after existing paragraph 33:

"34 *Ro-ro passenger ship* means a passenger ship with ro-ro cargo spaces or special category spaces as defined in this regulation."

19 The following new regulation 28-1 is added after existing regulation 28:

"Regulation 28-1

Escape routes on ro-ro passenger ships

1 Requirements applicable to all ro-ro passenger ships

1.1 This paragraph shall apply to all ro-ro passenger ships. For ships constructed before 1 July 1997 the requirements of the regulation shall apply not later than the date of the first periodical survey after 1 July 1997.

1.2 Handrails or other handholds shall be provided in all corridors along the entire escape route, so that a firm handhold is available every step of the way, where possible, to the assembly stations and embarkation stations. Such handrails shall be provided on both sides of longitudinal corridors more than 1.8 m in width and transverse corridors more than 1 m in width. Particular attention shall be paid to the need to be able to cross lobbies, atriums and other large open spaces along escape routes. Handrails and other handholds shall be of such strength as to withstand a distributed horizontal load of 750 N/m applied in the direction of the centre of the corridor or space, and a distributed vertical load of 750 N/m applied in the downward direction. The two loads need not be applied simultaneously.

¹ Refer to the recommendations for cabling for emergency alarms and public address systems to be developed by the Organization.

1.3 Escape routes shall not be obstructed by furniture and other obstructions. With the exception of tables and chairs which may be cleared to provide open space, cabinets and other heavy furnishings in public spaces and along escape routes shall be secured in place to prevent shifting if the ship rolls or lists. Floor coverings shall also be secured in place. When the ship is underway, escape routes shall be kept clear of obstructions such as cleaning carts, bedding, luggage and boxes of goods.

1.4 Escape routes shall be provided from every normally occupied space on the ship to an assembly station. These escape routes shall be arranged so as to provide the most direct route possible to the assembly station, and shall be marked with symbols in accordance with the recommendations of the Organization.²

1.5 Where enclosed spaces adjoin an open deck, openings from the enclosed space to the open deck shall, where practicable, be capable of being used as an emergency exit.

1.6 Decks shall be sequentially numbered, starting with "1" at the tank top or lowest deck. These numbers shall be prominently displayed at stair landings and lift lobbies. Decks may also be named, but the deck number shall always be displayed with the name.

1.7 Simple "mimic" plans showing the "you are here" position and escape routes marked by arrows, shall be prominently displayed on the inside of each cabin door and in public spaces. The plan shall show the directions of escape, and shall be properly oriented in relation to its position on the ship.

1.8 Cabin and stateroom doors shall not require keys to unlock them from inside the room. Neither shall there be any doors along any designed escape route which require keys to unlock them when moving in the direction of escape.

2 Requirements applicable to ro-ro passenger ships constructed on or after 1 July 1997

2.1 The lowest 0.5 m of bulkheads and other partitions forming vertical divisions along escape routes shall be able to sustain a load of 750 N/m to allow them to be used as walking surfaces from the side of the escape route with the ship at large angles of heel.

2.2 The escape route from cabins to stairway enclosures shall be as direct as possible, with a minimum number of changes in direction. It shall not be necessary to cross from one side of the ship to the other to reach an escape route. It shall not be necessary to climb more than two decks up or down in order to reach an assembly station or open deck from any passenger space.

2.3 External routes shall be provided from open decks, referred to in paragraph 2.2, to the survival craft embarkation stations.

²

Refer to Symbols related to life-saving appliances and arrangements, adopted by the Organization by resolution A.760(18).

3 Requirements applicable to ro-ro passenger ships constructed on or after 1 July 1999

For ro-ro passenger ships constructed on or after 1 July 1999, escape routes shall be evaluated by an evacuation analysis early in the design process. The analysis shall be used to identify and eliminate, as far as practicable, congestion which may develop during an abandonment, due to normal movement of passengers and crew along escape routes, including the possibility that crew may need to move along these routes in a direction opposite the movement of passengers. In addition, the analysis shall be used to demonstrate that escape arrangements are sufficiently flexible to provide for the possibility that certain escape routes, assembly stations, embarkation stations or survival craft may not be available as a result of a casualty.

Regulation 37 - Protection of special category spaces

20 Existing paragraph 2.1 is renumbered as paragraph 2.1.1.

21 The following new paragraph 2.1.2 is added after the renumbered paragraph .1.1:

"2.1.2 Discharges

2.1.2.1 In all ro-ro passenger ships discharge valves for scuppers, fitted with positive means of closing operable from a position above the bulkhead deck in accordance with the requirements of the International Convention on Load Lines in force, shall be kept open while the ships are at sea.

2.1.2.2 Any operation of the valves referred to in paragraph 2.1.2.1 shall be recorded in the log-book."

CHAPTER III

LIFE-SAVING APPLIANCES AND ARRANGEMENTS

Regulation 3 - Definitions

22 The following new paragraph 19 is added after existing paragraph 18:

"19 *Ro-ro passenger ship* means a passenger ship with ro-ro cargo spaces or special category spaces as defined in regulation II-2/3."

Regulation 6 - Communications

23 The following new paragraph 5 is added after existing paragraph 4:

"5 Public address systems on passenger ships

5.1 In addition to the requirements of regulation II-2/40.5 or regulation II-2/41-2, as appropriate, and of paragraph 4.2, all passenger ships shall be fitted with a public address system. With respect to passenger ships constructed before 1 July 1997 the requirements of paragraphs 5.2, 5.3 and 5.5, subject to the provisions of paragraph 5.6, shall apply not later than the date of the first periodical survey after 1 July 1997.

5.2 The public address system shall be one complete system consisting of a loudspeaker installation which enables simultaneous broadcast of messages to all spaces where crew members or passengers, or both, are normally present and to assembly stations. The public address system shall provide for the broadcast of messages from the navigation bridge and such other places on board as the Administration deems necessary.

5.3 The public address system shall be protected against unauthorized use and be clearly audible above the ambient noise in all spaces; prescribed by paragraph 5.2, and shall be provided with an override function controlled from one location on the navigation bridge and such other places on board as the Administration deems necessary, so that all emergency messages will be broadcast if any loudspeaker in the spaces concerned has been switched off, its volume has been turned down or the public address system is used for other purposes.

5.4 On passenger ships constructed on or after 1 July 1997:

- .1 the public address system shall have at least two loops which shall be sufficiently separated throughout their length and have two separate and independent amplifiers; and
- .2 the public address system and its performance standards shall be approved by the Administration having regard to the recommendations adopted by the Organization.^{3,4}

5.5 The public address system shall be connected to the emergency source of power.

5.6 Ships constructed before 1 July 1997 which are already fitted with the public address system approved by the Administration which comply substantially with these required by paragraph 5.2, 5.3 and 5.5 are not required to change their system.

24 The following new regulations 24-1 to 24-4 are added after existing regulation 24:

"Regulation 24-1

Requirements for ro-ro passenger ships

- 1 This regulation applies to all ro-ro passenger ships. Ro-ro passenger ships constructed:
 - .1 on or after 1 July 1998 shall comply with the requirements of paragraphs 2.3, 2.4, 3.1, 3.2, 3.3, 4 and 5;
 - .2 on or after 1 July 1986 and before 1 July 1998 shall comply with paragraph 5 not later than the first periodical survey after 1 July 1998 and with paragraphs 2.3, 2.4, 3 and 4 not later than the first periodical survey after 1 July 2000; and

³ Refer to the Code on Alarms and Indicators, 1995, adopted by the Organization by resolution A.830(19).

⁴ Refer to performance standards for public address systems, to be developed by the Organization.

- .3 before 1 July 1986 shall comply with paragraph 5 not later than the first periodical survey after 1 July 1998 and with paragraphs 2.1, 2.2, 2.3, 2.4, 3 and 4 not later than the first periodical survey after 1 July 2000.

2 Liferrafts

2.1 The ro-ro passenger ship's liferafts shall be served by marine evacuation systems complying with regulation 48.5 or launching appliances complying with regulation 48.6, equally distributed on each side of the ship.

2.2 Every liferaft on ro-ro passenger ships shall be provided with float-free stowage arrangements complying with the requirements of regulation 23.

2.3 Every liferaft on ro-ro passenger ships shall be of a type fitted with a boarding ramp complying with the requirements of regulation 39.4.1 or regulation 40.4.1, as appropriate.

2.4 Every liferaft on ro-ro passenger ships shall either be automatically self-righting or be a canopied reversible liferaft which is stable in a seaway and is capable of operating safely whichever way up it is floating. Alternatively, the ship shall carry automatically self-righting liferafts or canopied reversible liferafts, in addition to its normal complement of liferafts, of such aggregate capacity as will accommodate at least 50% of the persons not accommodated in lifeboats. This additional liferaft capacity shall be determined on the basis of the difference between the total number of persons on board and the number of persons accommodated in lifeboats. Every such liferaft shall be approved by the Administration having regard to the recommendations adopted by the Organization.⁵

3 Fast rescue boats

3.1 At least one of the rescue boats on a ro-ro passenger ship shall be a fast rescue boat approved by the Administration having regard to the recommendations adopted by the Organization.⁶

3.2 Each fast rescue boat shall be served by a suitable launching appliance approved by the Administration. When approving such launching appliances, the Administration shall take into account that the fast rescue boat is intended to be launched and retrieved even under severe adverse weather conditions, and also shall have regard to the recommendations adopted by the Organization.⁷

⁵ Refer to the requirements for automatically self-righting liferafts and canopied reversible liferafts, to be developed by the Organization.

⁶ Refer to the Guidelines for fast rescue boats, adopted by the Organization by resolution A.656(16). (To be reviewed and revised taking into account the recommendations of the Nordic group).

⁷ Refer to recommendations to be adopted by the Organization.

3.3 At least two crews of each fast rescue boat shall be trained and drilled regularly having regard to the Seafarers Training, Certification and Watchkeeping (STCW) Code and recommendations adopted by the Organization,⁸ including all aspects of rescue, handling, manoeuvring, operating these craft in various conditions, and righting them after capsizing.

3.4 In the case where the arrangement or size of a ro-ro passenger ship, constructed before 1 July 1997, is such as to prevent the installation of the fast rescue boat required by paragraph 3.1, the fast rescue boat may be installed in place of an existing lifeboat which is accepted as a rescue boat or, in the case of ships constructed prior to 1 July 1986, boats for use in an emergency, provided that all of the following conditions are met:

- .1 the fast rescue boat installed is served by a launching appliance complying with the provisions of paragraph 3.2;
- .2 the capacity of the survival craft lost by the above substitution is compensated by the installation of liferafts capable of carrying at least an equal number of persons served by the lifeboat replaced; and
- .3 such liferafts are served by the existing launching appliances or marine evacuation systems.

4 Means of rescue

4.1 Each ro-ro passenger ship shall be equipped with efficient means for rapidly recovering survivors from the water and transferring survivors from rescue units or survival craft to the ship.

4.2 The means of transfer of survivors to the ship may be part of a marine evacuation system, or may be part of a system designed for rescue purposes.

4.3 If the slide of a marine evacuation system is intended to provide the means of transfer of survivors to the deck of the ship, the slide shall be equipped with handlines or ladders to aid in climbing up the slide.

5 Lifejackets

5.1 Notwithstanding the requirements of regulations 7.2 and 212, a sufficient number of lifejackets shall be stowed in the vicinity of the assembly stations so that passengers do not have to return to their cabins to collect their lifejackets.

5.2 In ro-ro passenger ships, each lifejacket shall be fitted with a light complying with the requirements of regulation 32.3.

⁸ Refer to the Recommendation on training requirements for crews of fast rescue boats, adopted by the Organization by resolution A.771(18) and section A-VI/2, table A-VI/2-2 "Specification of the minimum standard of competence in fast rescue boats" of the Seafarers' Training, Certification and Watchkeeping (STCW) Code.

Regulation 24-2

Information on passengers

- 1 All persons on board passenger ships shall be counted prior to departure.
- 2 Details of persons who have declared a need for special care or assistance in emergency situations shall be recorded and communicated to the master prior to departure.
- 3 In addition, not later than 1 January 1999, the names and gender of all persons on board, distinguishing between adults, children and infants shall be recorded for search and rescue purposes.
- 4 The information required by paragraphs 1, 2 and 3 shall be kept ashore and made-readily available to search and rescue services when needed.
- 5 Administrations may exempt passenger ships from the requirements of paragraph 3, if the scheduled voyages of such ships render it impracticable for them to prepare such records.

Regulation 24-3

Helicopter landing and pick-up areas

- 1 All ro-ro passenger ships, shall be provided with a helicopter pick-up area approved by the Administration having regard to the recommendations adopted by the Organization.⁹
- 2 Ro-ro passenger ships constructed before 1 July 1997 shall comply with the requirements of paragraph 1 not later than the date of the first periodical survey after 1 July 1997.
- 3 Passenger ships of 130 m in length and upwards, constructed on or after 1 July 1999, shall be fitted with a helicopter landing area approved by the Administration having regard to the recommendations adopted by the Organization.¹⁰

Regulation 24-4

Decision-support system for masters of passenger ships

- 1 This regulation applies to all passenger ships. Passenger ships constructed before 1 July 1997 shall comply with the requirements of this regulation not later than the date of the first periodical survey after 1 July 1999.
- 2 In all passenger ships, a decision-support system for emergency management shall be provided on the navigation bridge.

⁹ Refer to the Merchant Ship Search and Rescue Manual (MERSAR), adopted by the Organization by resolution A.229(VII), as amended.

¹⁰ Refer to recommendations to be developed by the Organization.

3 The system shall, as a minimum, consist of a printed emergency plan or plans.¹¹ All foreseeable emergency situations shall be identified in the emergency plan or plans, including but not limited to, the following main groups of emergencies:

- .1 fire;
- .2 damage to ship;
- .3 pollution;
- .4 unlawful acts threatening the safety of the ship and the security of its passengers and crew;
- .5 personnel accidents;
- .6 cargo-related accidents; and
- .7 emergency assistance to other ships.

4 The emergency procedures established in the emergency plan or plans shall provide decision support to masters for handling any combination of emergency situations.

5 The emergency plan or plans shall have a uniform structure and be easy to use. Where applicable, the actual loading condition as calculated for the passenger ship's voyage stability shall be used for damage control purposes.

6 in addition to the printed emergency plan or plans, the Administration may also accept the use of a computer-based decision-support system on the navigation bridge which provides all the information contained in the emergency plan or plans, procedures, checklists, etc., which is able to present a list of recommended actions to be carried out in foreseeable emergencies."

CHAPTER IV

RADIOCOMMUNICATIONS

Regulation 1 - Application

25 In paragraph 5, the reference to "paragraph 4" is replaced by "paragraphs 4 and 7".

26 At the end of paragraph 5.1.2, after the existing date "1992", the phrase "; however, passenger ships irrespective of size shall not be granted any exemption from the requirements of regulation 3 of chapter IV of that Convention" is added.

27 The following new paragraph 7 is added after existing paragraph 6:

"7 Passenger ships constructed before 1 July 1997 shall, as appropriate, comply with the requirements of regulations 6.4, 6.5, 6.6 and 7.5 not later than the date of the first periodical survey after 1 July 1997."

28 Existing paragraph 7 is renumbered as paragraph 8.

¹¹ Refer to the International Safety Management (ISM) Code, chapter 8 and the guidelines for a structure of an integrated system for shipboard emergency plans scheduled to be finalized in 1996.

Regulation 6 - Radio installations

29 The following new paragraphs 4, 5 and 6 are added after existing paragraph 3:

"4 In passenger ships, a distress panel shall be installed at the conning position. This panel shall contain either one single button which, when pressed, initiates a distress alert using all radiocommunication installations required on board for that purpose or one button for each individual installation. The panel shall clearly and visually indicate whenever any button or buttons have been pressed. Means shall be provided to prevent inadvertent activation of the button or buttons. If the satellite EPIRB is used as the secondary means of distress alerting and is not remotely activated, it shall be acceptable to have an additional EPIRB installed in the wheelhouse near the conning position.

5 In passenger ships, information on the ship's position shall be continuously and automatically provided to all relevant radiocommunication equipment to be included in the initial distress alert when the button or buttons on the distress panel is pressed.

6 In passenger ships, a distress alarm panel shall be installed at the conning position. The distress alarm panel shall provide visual and aural indication of any distress alert or alerts received on board and shall also indicate through which radiocommunication service the distress alerts have been received."

Regulation 7 - Radio equipment: General

30 The following new paragraph 5 is added after existing paragraph 4:

"5 Every passenger ship shall be provided with means for two-way on-scene radiocommunications for search and rescue purposes using the aeronautical frequencies 121.5 MHz and 123.1 MHz from the position from which the ship is normally navigated."

Regulation 16 - Radio personnel

31 The existing paragraph is numbered as paragraph 1.

32 The following new paragraph 2 is added after the renumbered paragraph 1:

"2 In passenger ships, at least one person qualified in accordance with paragraph 1 shall be assigned to perform only radiocommunication duties during distress incidents."

CHAPTER V

SAFETY OF NAVIGATION

Regulation 10 - Distress messages: Obligations and procedures

33 The existing text of paragraphs (a) to (d) is replaced by the following:

"(a) The master of a ship at sea which is in a position to be able to provide assistance, on receiving a signal from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance, if possible informing them or the search and rescue service, that the ship is doing so. If the ship receiving the distress alert is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to their assistance, the master must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress and, taking into account the recommendations of the Organization,¹² inform the appropriate search and rescue service accordingly.

(b) The master of a ship in distress or the search and rescue service concerned, after consultation, so far as may be possible, with the masters of ships which answer the distress alert, has the right to requisition one or more of those ships such as the master of the ship in distress or the search and rescue service considers best able to render assistance, and it shall be the duty of the master or masters of the ship or ships so requisitioned to comply with the requisition by continuing to proceed with all speed to the assistance of persons in distress.

(c) Masters of ships shall be released from the obligation imposed by paragraph (a) of this regulation on learning that their ships have not been requisitioned and that one or more other ships have been requisitioned and are complying with the requisition. This decision shall, if possible, be communicated to the other requisitioned ships and to the search and rescue service.

(d) The master of a ship shall be released from the obligation imposed by paragraph (a) of this regulation, and, if the ship has been requisitioned, from the obligation imposed by paragraph (b) of this regulation, on being informed by the persons in distress or by the search and rescue service or by the master of another ship which has reached such persons that assistance is no longer necessary."

34 The following new regulation 10-1 is added after existing regulation 10:

"Regulation 10-1

Master's discretion for safe navigation

The master shall not be constrained by the shipowner, charterer or any other person from taking any decision which, in the professional judgment of the master, is necessary for safe navigation, in particular in severe weather and in heavy seas."

¹² Refer to the immediate action to be taken by each ship on receipt of a distress message in the Merchant Ship Search and Rescue Manual (MERSAR), as it may be amended.

Regulation 13 - Manning

35 The following new paragraph (c) is added after existing paragraph (b):

"(c) On every passenger ship to which chapter I applies, to ensure effective crew performance in safety matters, a working language shall be established and recorded in the ship's log-book. The company¹³ or the master, as appropriate, shall determine the appropriate working language. Each seafarer shall be required to understand and, where appropriate, give orders and instructions and to report back in that language. If the working language is not an official language of the State whose flag the ship is entitled to fly, all plans and lists required to be posted shall include a translation into the working language".

Regulation 15 - Search and rescue

36 The following new paragraph (c) is added after existing paragraph (b):

"(c) Passenger ships to which chapter I applies, trading on fixed routes, shall have on board a plan for co-operation with appropriate search and rescue services in event of an emergency. The plan shall be developed in co-operation between the ship and the search and rescue services and be approved by the Administration. The plan shall include provisions for periodic exercises to be undertaken as agreed by the passenger ship and the search and rescue services concerned to test its effectiveness".

37 The following new regulation 23 is added after existing regulation 22:

"Regulation 23

Operational limitations

(This regulation applies to all passenger ships to which chapter I applies)

1 On passenger ships constructed before 1 July 1997, the requirements of this regulation shall apply not later than the date of the first periodical survey after 1 July 1997.

2 A list of all limitations on the operation of a passenger ship including exemptions from any of these regulations, restrictions in operating areas, weather restrictions, sea state restrictions, restrictions in permissible loads, trim, speed and any other limitations, whether imposed by the Administration or established during the design or the building stages, shall be compiled before the passenger ship is put in service. The list, together with any necessary explanations, shall be documented in a form acceptable to the Administration, which shall be kept on board readily available to the master. The list shall be kept updated. If the language used is not English or French, the list shall be provided in one of the two languages."

¹³ *Company* means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who, on assuming such responsibility, has agreed to take over all the duties and responsibilities imposed by the International Safety Management (ISM) Code.

CHAPTER VI
CARRIAGE OF CARGOES

Regulation 5 - Stowage and securing

38 The following new paragraph 6 is added after existing paragraph 5:

"6 Cargo units, including vehicles and containers, shall be loaded, stowed and secured throughout the voyage in accordance with the Cargo Securing Manual approved by the Administration. In ships with ro-ro cargo spaces, as defined in regulation II-2/3.14, all securing of cargo units, in accordance with the Cargo Securing Manual, shall be completed before the ship leaves the berth. The Cargo Securing Manual shall be drawn up to a standard at least equivalent to the guidelines developed by the Organization.¹⁴"

¹⁴ Refer to the guidelines to be developed by the Organization.

ATTACHMENT 2 TO THE FINAL ACT OF THE CONFERENCE

RESOLUTION 2

**FIRE-EXTINGUISHING ARRANGEMENTS IN MACHINERY SPACES
OF PASSENGER SHIPS**

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

BEING OF THE OPINION that the safety of passenger ships would be improved if their machinery spaces were equipped with automatic local extinguishing systems in areas presenting high fire risk, in addition to the installed main fire-extinguishing system,

NOTING that the issue is already in the work programme of the Maritime Safety Committee of the International Maritime Organization (IMO),

1. **URGES** the Maritime Safety Committee of IMO to expedite its work relating to automatic local extinguishing systems;
2. **INVITES** Contracting Governments to encourage the installation of such automatic local extinguishing systems in machinery spaces of passenger ships in areas presenting high fire risk, in addition to the installed main fire-extinguishing system, pending adoption by IMO of the relevant amendments to the 1974 SOLAS Convention.

RESOLUTION 3

ESCAPE ARRANGEMENTS IN SHIPS CONSTRUCTED BEFORE 1 JULY 1997

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

NOTING that, in accordance with new SOLAS regulation 11-2/28-1, ships constructed on or after 1 July 1997 are required to have bulkheads and other partitions forming vertical divisions along escape routes arranged in such a way as to allow them to be used as walking surfaces at large angles of heel,

BEING OF THE OPINION that the safety of passengers on ro-ro passenger ships constructed before 1 July 1997 should be improved by arranging escape routes in such a way that passengers could escape at large angles of heel,

RECOGNIZING that implementation of the fire protection requirements of the 1992 SOLAS amendments may entail modifications to the accommodation spaces of passenger ships,

URGES Contracting Governments to ensure that, when ro-ro passenger ships constructed before 1 July 1997 undergo modifications to the accommodation spaces, consideration is given to the fitting thereon of bulkheads and partitions of the standard prescribed in SOLAS regulation II-2/28-1.

RESOLUTION 4

MAXIMUM EVACUATION TIME FOR NEW RO-RO PASSENGER SHIPS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

CONSIDERING new SOLAS regulation 11-2/28-1.3 regarding requirements for an evacuation analysis,

BEING OF THE OPINION that there is need for an evacuation time to be specified within which the evacuation of a ro-ro passenger ship should be completed,

NOTING that it has been proposed that the maximum evacuation time of a ro-ro passenger ship should be 60 minutes,

URGES the Maritime Safety Committee of the International Maritime Organization to consider the maximum evacuation time for ro-ro passenger ships and develop requirements or recommendations, as appropriate.

RESOLUTION 5

AMENDMENTS TO CHAPTER III OF THE 1974 SOLAS CONVENTION

THE CONFERENCE,

HAVING ADOPTED amendments to chapter III of the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

NOTING that the Maritime Safety Committee (MSC) of the International Maritime Organization (IMO), at its sixty-fifth session, approved proposed amendments to chapter III of the 1974 SOLAS Convention with a view to their adoption at its sixty-sixth session,

RECOGNIZING the necessity of incorporating the amendments to SOLAS chapter III adopted by this Conference in the text of amendments to be considered by the sixty-sixth session of the MSC with a view to adoption,

REQUESTS the Secretary-General to convey to MSC 66 the text of amendments to SOLAS chapter III adopted by the Conference with a view to their incorporation in the revised chapter III.

RESOLUTION 6

LOW-POWERED RADIO HOMING DEVICES FOR LIFERAFTS ON RO-RO PASSENGER SHIPS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), "1974, concerning the safety of ro-ro passenger ships,

NOTING that a low-powered radio homing device for liferafts is intended to operate on a maritime VHF frequency or a UHF frequency and that such an international frequency or frequencies must first be allocated by an International Telecommunication Union (ITU) World Administrative Radio Conference and that the ITU Radiocommunication Bureau will have to develop technical standards for such radio equipment on the basis of operational requirements which the International Maritime Organization (IMO) has yet to prepare,

NOTING FURTHER that this procedure will take some time,

BEING OF THE OPINION that such a low-powered radio homing device for liferafts would greatly assist Search and Rescue (SARI) operations following a ro-ro passenger ship casualty,

1. **INVITES** the Maritime Safety Committee of IMO to:
 - (a) develop, as a matter of urgency, operational requirements and performance standards for low-powered radio homing devices for liferafts; and
 - (b) consider adopting amendments to the SOLAS Convention requiring carriage of low-powered radio homing devices for liferafts on all ro-ro passenger ships, at the earliest opportunity;
2. **INVITES** IMO, in co-operation with ITU, as a matter of priority, to:
 - (a) develop technical standards for low-powered radio homing devices for liferafts; and
 - (b) ensure the allocation of suitable radio frequencies for low-powered radio homing devices for liferafts.

RESOLUTION 7

DEVELOPMENT OF REQUIREMENTS, GUIDELINES AND PERFORMANCE STANDARDS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

NOTING that a number of the adopted requirements concerning carriage of equipment require such equipment to take account of, or conform to, requirements, guidelines or performance standards adopted by the International Maritime Organization (IMO) which have yet to be developed,

BEING OF THE OPINION that the performance standards referred to above should be developed to enable manufacturers to develop suitable equipment and ships to fit the equipment before the amendments to the SOLAS Convention, adopted by the Conference, enter into force,

REQUESTS the Maritime Safety Committee of IMO to develop as a matter of urgency:

- (a) performance standards for public address systems (regulation II1/6.5.4);
- (b) requirements for automatically self-righting liferafts and canopied reversible liferafts (regulation II1/24-1.2.4);
- (c) revised guidelines for fast rescue boats (regulation IIU24-1.3.1);
- (d) requirements for launching appliances for fast rescue boats (regulation II1/24-1.3.2);
and
- (e) guidelines for helicopter landing and pick-up areas (regulation II1124-3).

RESOLUTION 8

DISTRESS MESSAGES: OBLIGATIONS AND PROCEDURES

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

CONSIDERING new SOLAS regulation V/10(a) which requires that, if the ship receiving the distress alert is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to the assistance of persons in distress, the master thereof must, taking into account the recommendations of the International Maritime Organization (IMO), inform the appropriate search and rescue service accordingly,

NOTING that the recommendations referred to above have to be developed by IMO for use by all seafarers,

BEING OF THE OPINION that the said recommendations should be adopted as amendments to the Merchant Ship Search and Rescue (MERSAR) Manual prior to entry into force of the relevant 1995 SOLAS amendments,

1. **REQUESTS** the Maritime Safety Committee of IMO to prepare and adopt as a matter of urgency amendments to the MERSAR Manual recommending the procedure to be followed by ships receiving a distress alert and failing to proceed to the assistance of persons in distress when it is unreasonable to expect them to do so;
2. **INVITES** Contracting Governments to take steps to ensure that such amendments to the MERSAR Manual are adopted with the minimum delay.

RESOLUTION 9

AUTOMATIC SHIP IDENTIFICATION TRANSPONDER/TRANSCEIVER SYSTEMS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

BEING OF THE OPINION that the safety of navigation would be considerably improved if all ships above a certain size were fitted with ship identification transponder/transceiver systems capable of automatically providing shore stations and other ships with information as to the ship's identity, type, position, course, speed, navigational status and other safety-related information and to receive such information from similarly-fitted ships,

NOTING that the Maritime Safety Committee of the International Maritime Organization (IMO) is conducting a complete review of SOLAS chapter V - Safety of navigation, and is preparing carriage requirements and performance standards for shipborne automatic ship identification transponders,

NOTING FURTHER that automatic ship identification transponder/transceiver systems require the allocation of suitable radio frequencies and development of technical standards for the equipment concerned by the International Telecommunication Union (ITU),

INVITES the Maritime Safety Committee of IMO to:

- (a) develop, as a matter of urgency, operational requirements and performance standards for automatic ship identification transponder/transceiver systems; and
- (b) consider adopting amendments to the SOLAS Convention concerning carriage requirements for such automatic ship transponder/transceiver systems;

2. **INVITES** IMO, in co-operation with ITU, as a matter of priority, to:

- (a) develop technical standards for automatic ship identification transponder/transceiver systems; and
- (b) ensure the allocation of suitable radio frequencies for automatic ship identification transponder/transceiver systems.

RESOLUTION 10

ESTABLISHMENT OF WORKING LANGUAGES ON SHIPS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

CONSIDERING new SOLAS regulation V/13(c), which requires that, on every passenger ship to which SOLAS chapter I applies, a working language should be established to ensure effective crew performance in safety matters,

NOTING ALSO that the International Safety Management (ISM) Code, adopted by the Assembly of the International Maritime Organization by resolution A.741(18), prescribes that shipping companies should ensure that ships personnel are able to communicate effectively in the execution of their duties related to the safety management system of their ships,

BEING OF THE OPINION that it would be desirable that the requirements of SOLAS regulation V/13(c) should apply to all ships, whether on international voyages or not,

URGES Contracting Governments to take steps to ensure that a working language is established on all their ships by implementing, as far as practicable, regulation V/13(c).

RESOLUTION 11

OPERATIONAL LIMITATIONS ON PASSENGER SHIPS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

CONSIDERING that new SOLAS regulation V/23 requires that a list of all limitations on the operation of passenger ships to which SOLAS chapter I applies should be kept on board so as to be readily available to the master,

BEING OF THE OPINION that it would be desirable that, where operational limitations on a passenger ship exist, a list of all limitations on the operation of the ship should be kept on board and updated, when necessary, regardless of whether the passenger ship is engaged on international voyages or not,

URGES Contracting Governments to ensure that lists of all operational limitations are maintained on board and kept up-to-date on all their passenger ships so as to be readily available for the information of the master.

RESOLUTION 12

VOYAGE DATA RECORDERS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

NOTING that operational requirements and performance standards are under consideration by the International Maritime Organization (IMO) but have yet to be prepared,

BEING OF THE OPINION that it would be desirable that ships, in particular passenger ships, are fitted with a voyage data recorder to assist in investigations into casualties,

REQUESTS the Maritime Safety Committee of IMO to:

- (a) develop, as a matter of urgency, operational requirements and performance standards for voyage data recorders, taking into account any potential human element implications; and
- (b) consider developing carriage requirements for voyage data recorders for inclusion in SOLAS, at the earliest opportunity;

2. **URGES** Contracting Governments to encourage the use of voyage data recorders on ships under their flags on an experimental basis in order to gain experience in their use.

RESOLUTION 13**CARGO SECURING EQUIPMENT****THE CONFERENCE,**

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

NOTING that SOLAS chapter VI requires cargo units, including containers, to be loaded, stowed and secured throughout the voyage in accordance with a Cargo Securing Manual approved by the Administration,

NOTING FURTHER that the Maritime Safety Committee of the International Maritime Organization (IMO) is developing provisions to be included in the Cargo Securing Manual required by SOLAS chapter VI,

BEING OF THE OPINION that cargo units, including vehicles and containers on ro-ro ships, should be secured using equipment of adequate strength, under all conditions including heeling,

URGES the Maritime Safety Committee of IMO to include, in the provisions to be included in the Cargo Securing Manual, minimum strength requirements for equipment used for securing cargo units, including vehicles and containers on ro-ro ships, taking into account forces due to the motion of the ship, angle of heel after damage or flooding and other considerations relevant to the strength of the cargo securing arrangements.

RESOLUTION 14

REGIONAL AGREEMENTS ON SPECIFIC STABILITY REQUIREMENTS FOR RO-RO PASSENGER SHIPS

THE CONFERENCE,

HAVING ADOPTED amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, concerning the safety of ro-ro passenger ships,

CONSIDERING new SOLAS regulation II-118-1 by which every ro-ro passenger ship shall comply with regulation II-1/8, as amended by resolution MSC.12(56), in the future,

RECALLING the provisions of article VII of the SOLAS Convention,

ACKNOWLEDGING the desire of certain Contracting Governments that, having regard to the prevailing sea conditions and other local conditions, specific stability requirements should apply to all ro-ro passenger ships undertaking regular scheduled voyages between designated ports of those Contracting Governments,

1. **AGREES** that two or more Contracting Governments may conclude agreements modifying the requirements of regulation II-1/8-1 in respect of every ro-ro passenger ship carrying passengers on regular scheduled voyages between designated ports in their territory, provided that these ships comply with safety requirements which are adequate in the opinion of these Governments for the voyages to be undertaken;
2. **AGREES ALSO** that, if these safety requirements include specific stability requirements, they should not exceed those specified in the Annex to the present resolution;
3. **DECIDES** that Contracting Governments proposing an agreement shall notify the Secretary-General of the International Maritime Organization of their intention to negotiate an agreement and shall make appropriate arrangements for other interested Contracting Governments to be involved in the negotiations. When notifying the Secretary-General of their intention to negotiate an agreement, and on the concluding of an agreement, the Contracting Governments involved shall communicate to the Secretary-General all relevant particulars relating to it for circulation to all Contracting Governments. An agreement shall not enter into force until 12 months after its conclusion has been notified to the Secretary-General;
4. **URGES** all Contracting Governments to apply the provisions of such agreements on ro-ro passenger ships entitled to fly their flags when engaged on regular scheduled voyages between designated ports covered by such agreements.

ANNEX

STABILITY REQUIREMENTS PERTAINING TO THE AGREEMENT

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 paragraph 2.3 of regulation 8 shall be complied with when taking into account the effect of a hypothetical volume of seawater which is assumed to have accumulated, subject to the provisions of paragraph 3, on the first deck above the designed waterline of the ro-ro cargo space or special category space as defined in SOLAS 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 these requirements. The volume of assumed accumulated seawater shall be kept the same at all trim and heeling angles, and shall be calculated with the following distribution density assuming that it were spread over the damaged ro-ro deck in the ship's upright position:

0.5 m³/m², if the residual freeboard (fr) is 0.3 m or less;

0.0 m³/m², if the residual freeboard (fr) is 2 m or more; and

intermediate values to be determined by linear interpolation, if the residual freeboard (fr) is 0.3 m or more but less than 2 m,

where the residual freeboard (fr) 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 seawater on the damaged ro-ro deck;

- .2 when a high-efficiency drainage system is installed, the Administration may allow a reduction of the distribution density of the volume of assumed accumulated seawater in accordance with the guidelines developed by the Organization;¹⁵
- .3 for ships in geographically defined restricted areas of operation, the Administration may reduce the distribution density representing the volume of assumed accumulated seawater determined in accordance with subparagraph .1 substituting such distribution density by the following:
- .3.1 0.0 m³/m², if the significant wave height (hs) 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 (hs) defining the area concerned is 4 m or above;

¹⁵

Refer to the guidelines to be developed by the Organization.

- .3.3 intermediate values to be determined by linear interpolation, if the significant wave height (hs) defining the area concerned is 1.5 m or more but less than 4 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 (hs) 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 (hs) has been established are entered into the certificates;
- .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 Organization,¹⁶ 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 wider paragraph 11 in an irregular seaway; and
- .5 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 thereof, shall apply unchanged to ro-ro passenger ships approved according to these requirements.

2 For assessing the effect of the volume of the assumed accumulated seawater 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 seawater in the compartment concerned on 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;
- .4 for special arrangements like hanging decks and wide side casings, other bulkhead heights may be accepted based on detailed model tests;

¹⁶ Refer to the Model test method, given in the appendix.

- .5 in calculating the effect of the water on the damaged ro-ro deck, the volume and surface effect of the water shall be reduced by 10% to account for the permeability of the ro-ro space;
- .6 the effect of the volume of the assumed accumulated seawater need not be taken into account for any compartment on 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:
- .6.1 $A \geq 0.3 l$
- where: A is the total area of freeing ports on each side of the deck in m²; and
- l is the length of the compartment in m;
- .6.2 the ship shall maintain the residual freeboard of at least 1 m in the worst damage condition without taking into account the effect of the assumed volume of water on the damaged ro-ro deck;
- .6.3 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
- .6.4 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, to drain; and
- .7 when a bulkhead above the ro-ro deck is assumed damaged, both compartments bordering the bulkhead shall be assumed to be flooded but the distribution density of seawater in such compartment may be determined by the following formula:

$$d = d_0 \cdot A_1 / (A_1 + A_2)$$

where: d_0 is the distribution density when assuming the bulkhead is undamaged, as determined in accordance with paragraph 1 of these requirements;

A_1 is the area of the larger compartment in m²; and

A_2 is the area of the smaller compartment in m².

3 For ships with centrecasings, any horizontal openings for passenger or vehicle access to the other side need not be closed and made watertight. The calculation of amount of water on deck should be made as if the centrecasing is watertight provided the opening is not greater than 5.5 m in width or the sum of all openings is not greater than 5.5 m in width. If the opening in the centrecasing is greater than 5.5 m in width then the calculation of amount of water on deck should be based upon the deck area on both sides of the centrecasing and with free flow of water between the two sides.

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 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 capsizes. 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 capsizes 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 born 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.
