For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.
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MSC 76/WP.3 Secretary-General Report of the Secretary-General to the MSC on the evaluation of information communicated in accordance with regulation I/7, paragraph 2 of the STCW Convention as amended.

MSC 76/WP.4 Secretariat List of competent persons to be maintained by the Secretary-General pursuant to section A-I/7 of the STCW Code
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MSC 76/11/1  United Kingdom  Mandatory daily position reporting

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MSC 76/INF.4 (E only)  European Commission  World-Wide Radionavigation System - Presentation of the GALILEO Services and Architecture

MSC 76/INF.13 (E only)  IALA  IALA Guidelines on Universal Shipborne Automatic Identification System (AIS) – 1.1

MSC 76/WP.10  Drafting group  Draft MSC circular on Participation of ships in weather routeing services

MSC 76/WP.11  Drafting group  Draft amendments to SOLAS regulation V/28

*  This paper was considered under both agenda items 9 and 15.
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### 23 Report of the seventy-sixth session of the Committee

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| MSC 76/23 and Add.1 | Secretariat | Report |

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| MSC 76/INF.1 (E only) | Secretariat | List of participants |

***
THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING the new regulation II-1/3-6 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (hereinafter referred to as “the Convention”) adopted by resolution MSC.134(76), concerning access to and within spaces in the cargo area of oil tankers and bulk carriers,

NOTING ALSO that the aforementioned regulation provides that the means of access referred to therein shall comply with the requirements of Technical provisions for means of access for inspections (hereinafter referred to as “the Technical provisions”) to be made mandatory under the Convention;

RECOGNIZING that the Technical provisions referred to above are not intended to inhibit the development of new or novel technologies which provide for an improved means to carry out ship surveys and inspections,

HAVING CONSIDERED, at its seventy-sixth session, the text of the proposed Technical provisions,

1. ADOPTS the Technical provisions for means of access for inspections, the text of which is set out in the Annex to the present resolution;

2. INVITES Contracting Governments to the Convention to note that the Technical provisions will take effect on 1 January 2005 upon entry into force of the new regulation II-1/3-6 of the Convention;

3. REQUESTS the Secretary-General to transmit certified copies of this resolution and the text of the Technical provisions contained in the Annex to all Contracting Governments to the Convention;

4. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and the Annex to all Members of the Organization, which are not Contracting Governments to the Convention;

5. INVITES Governments to encourage the development of novel technologies aimed at facilitating the survey and inspection of ships and to keep the Organization advised of any positive results.
ANNEX

TECHNICAL PROVISIONS FOR MEANS OF ACCESS FOR INSPECTIONS

Preamble

It has long been recognised that the only way of ensuring that the condition of a ship’s structure is maintained to conform with the applicable requirements is for all its components to be surveyed on a regular basis throughout their operational life so as to ensure that they are free from damage such as cracks, buckling or deformation due to corrosion, overloading or contact damage and that thickness diminution is within established limits. The provision of suitable means of access to the hull structure for the purpose of carrying out overall and close-up surveys and inspections is essential and such means should be considered and provided for at the ship design stage.

Ships should be designed and built with due consideration as to how they will be surveyed by flag State inspectors and classification society surveyors during their in-service life and how the crew will be able to monitor the condition of the ship. Without adequate access, the structural condition of the ship can deteriorate undetected and major structural failure can arise. A comprehensive approach to design and maintenance is required to cover the whole projected life of the ship.

In order to address this issue, the Organization has developed these Technical provisions for means of access for inspections, intended to facilitate close-up inspections and thickness measurements of the ship’s structure referred to in SOLAS regulation II-1/3-6 on Access to and within spaces in the cargo area of oil tankers and bulk carriers.

Definitions

Terms used in the Technical provisions have the same meaning as those defined in the 1974 SOLAS Convention, as amended, and in resolution A.744(18), as amended.

Technical provisions

1 Structural members subject to the close-up inspections and thickness measurements of the ship’s structure referred to in SOLAS regulation II-1/3-6, except those in double bottom spaces, shall be provided with a permanent means of access to the extent as specified in table 1 and table 2, as applicable. For oil tankers and wing ballast tanks of ore carriers, rafting may be used in addition to the specified permanent means of access, provided that the structure allows for its safe and effective use.

2 Elevated passageways, where fitted, shall have a minimum width of 600 mm and be provided with toe boards not less than 150 mm high and guard rails over both sides of their entire length. Sloping structure providing part of the access shall be of a non-skid construction. Guard rails shall be 1,000 mm in height and consist of a rail and intermediate bar 500 mm in height and of substantial construction. Stanchions shall be not more than 3 m apart.

3 Access to elevated passageways and vertical openings from the ship’s bottom shall be provided by means of easily accessible passageways, ladders or treads. Treads shall be provided with lateral support for the foot. Where the rungs of ladders are fitted against a vertical surface, the distance from the centre of the rungs to the surface shall be at least 150 mm. Where vertical manholes are fitted higher than 600 mm above the walking level, access shall be facilitated by means of treads and hand grips with platform landings on both sides.
4 Tunnels passing through cargo holds shall be equipped with ladders or steps at each end of the hold so that personnel may easily cross such tunnels.

5 Permanent ladders, except for vertical ladders, which are fitted on vertical structures for close-up inspection or thickness measurement, shall be inclined at an angle of less than 70°. There shall be no obstructions within 750 mm of the face of the inclined ladder, except that in way of an opening this clearance may be reduced to 600 mm. The flights of ladders shall not be more than 9 m in actual length. Resting platforms of adequate dimensions shall be provided. Ladders and handrails shall be constructed of steel or equivalent material of adequate strength and stiffness and securely attached to the tank structure by stays. The method of support and length of stay shall be such that vibration is reduced to a practical minimum. In cargo holds, ladders shall be designed and arranged so that the risk of damage from cargo handling gear is minimized.

6 The width of ladders between stringers shall not be less than 400 mm. The treads shall be equally spaced at a distance apart, measured vertically, of between 250 mm and 300 mm. When steel is used, the treads shall be formed of two square bars of not less than 22 mm by 22 mm in section, fitted to form a horizontal step with the edges pointing upward. The treads shall be carried through the side stringers and attached thereto by double continuous welding. All sloping ladders shall be provided with handrails of substantial construction on both sides, fitted at a convenient distance above the treads.

7 No free-standing portable ladder shall be more than 5 m long.

8 Portable ladders more than 5 m long may only be utilized if fitted with a remotely controlled mechanical device to secure the upper end of the ladder.

9 Movable means of access includes such devices as:

   .1 hydraulic arm fitted with a stable base and with local control at the safety cage. The operational conditions should be in accordance with applicable safety requirements of the manufacturer; and

   .2 wire lift platform.

10 For bulk carriers, access ladders to a cargo hold shall be:

   .1 where the vertical distance between the upper surface of adjacent decks or between deck and the bottom of the cargo space is not more than 6 m, either a vertical ladder or an inclined ladder; and

   .2 where the vertical distance between the upper surface of adjacent decks or between deck and the bottom of the cargo space is more than 6 m, an inclined ladder or ladders, except the uppermost 2.5 m of a cargo space measured clear of overhead obstructions and the lowest 6 m may have vertical ladders, provided that the vertical extent of the inclined ladder or ladders connecting the vertical ladders is not less than 2.5 m.
Table 1 - Means of access for oil tankers

<table>
<thead>
<tr>
<th></th>
<th>Water ballast tanks, except those specified in the right column, and cargo oil tanks</th>
<th>Wing water ballast tanks of less than 5 m width forming double side spaces and their bilge hopper sections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Access to the overhead structure</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>For tanks of which the height is 6 m and over, permanent means of access shall be provided in accordance with .1 to .3:</td>
<td>Where the vertical distance between horizontal upper stringer and deck head exceeds 6 m, one continuous permanent means of access shall be provided for the full length of the tank with a means to allow passing through transverse swash bulkheads installed a minimum of 1.8 m to a maximum of 2.5 m from the overhead structure with a vertical access ladder at each end and mid-span of tank.</td>
</tr>
<tr>
<td></td>
<td>.1 continuous athwartship permanent access arranged at the transverse bulkheads and at every deck transverse, at a minimum of 1.8 m to a maximum of 2.5 m below the overhead structure. If the access is fitted on the side of the unobstructed side of the web plating, then lightening holes of at least 300 mm diameter shall be fitted in the web plating, providing access adjacent to both sides of each tripping bracket;</td>
<td>2.2 For bilge hopper sections of which the vertical distance from baseline to the upper knuckle point is 6 m and over, one longitudinal permanent means of access shall be provided for the full length of the tank. It shall be accessible by vertical permanent means of access at both ends of the tank.</td>
</tr>
<tr>
<td></td>
<td>.2 at least one longitudinal permanent means of access at a minimum of 1.8 m to a maximum of 2.5 m below the overhead structure. Where the longitudinal bulkhead contains attached framing, the access shall be provided at that side; and</td>
<td>2.3 Where the vertical distance referred to in 2.2 is less than 6 m, portable means of access may be utilised in lieu of the permanent means of access. To facilitate the operation of the portable means of access, in-line openings in horizontal stringers should be provided. The openings should be of an adequate diameter and should have suitable protective railings.</td>
</tr>
<tr>
<td></td>
<td>.3 access between the arrangements specified in .1 and .2 and from the main deck to either .1 or .2.</td>
<td>2.4 Whenever practicable, the distance between the overhead structure and the uppermost longitudinal stringer and between the longitudinal stringers should not exceed 6 m.</td>
</tr>
<tr>
<td>1.2</td>
<td>For tanks of which the height is less than 6 m, raft or portable means may be utilized in lieu of the permanent means of access.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access to the vertical structures</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>For tanks of which the height is 6 m and over, containing internal structures, permanent means of access shall be provided to each transverse web.</td>
<td>2.5 Vertical permanent means of access shall be provided to each transverse web in the following cases where the vertical distance is 6 m and over:</td>
</tr>
<tr>
<td>1.4</td>
<td>For tanks of which the height is less than 6 m, raft or portable means may be utilized in lieu of the permanent means of access.</td>
<td>.1 from baseline to the upper knuckle point of the bilge hopper section;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.2 from the upper knuckle point of the bilge hopper section to main deck where no horizontal stringers are provided; and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.3 between horizontal stringers.</td>
</tr>
<tr>
<td>2.6</td>
<td>Access holes within 600 mm of the stringer shall be provided in each transverse web/swash bulkhead above each stringer and tank base.</td>
<td>2.6 Access holes within 600 mm of the stringer shall be provided in each transverse web/swash bulkhead above each stringer and tank base.</td>
</tr>
<tr>
<td>2.7</td>
<td>In the case where the vertical distance referred to in 2.5 is less than 6 m, portable means may be utilised in lieu of the permanent means of access.</td>
<td>2.7 In the case where the vertical distance referred to in 2.5 is less than 6 m, portable means may be utilised in lieu of the permanent means of access.</td>
</tr>
</tbody>
</table>
### Table 2 - Means of access for bulk carriers*

<table>
<thead>
<tr>
<th></th>
<th>1 Cargo holds</th>
<th>2 Ballast tanks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access to overhead structure</strong></td>
<td>1.1 At least 3 permanent means of access shall be fitted to provide access to</td>
<td>2.1 For each topside tank of which the height is 6 m and over, one longitudinal</td>
</tr>
<tr>
<td></td>
<td>the overhead structure at both sides of the cross deck and in the vicinity of</td>
<td>continuous permanent means of access shall be provided along the side shell</td>
</tr>
<tr>
<td></td>
<td>the centreline. Each means of access shall be accessible from the cargo hold</td>
<td>webs and installed at a minimum of 1.8 m to a maximum of 2.5 m below the deck.</td>
</tr>
<tr>
<td></td>
<td>access or directly from the main deck and installed at a minimum of 1.8 m to</td>
<td>2.2 If no access holes are provided through the transverse ring webs within 600</td>
</tr>
<tr>
<td></td>
<td>a maximum of 2.5 m below the deck.</td>
<td>mm of the tank base and the web frame rings have a web height greater than 1 m</td>
</tr>
<tr>
<td></td>
<td>1.2 Alternatively, movable means of access may be utilized for access to the</td>
<td>in way of side shell and sloping plating, then step rungs/grab rails shall be</td>
</tr>
<tr>
<td></td>
<td>overhead structure of cross deck if its vertical distance is 17 m or less above</td>
<td>provided to allow safe access over each transverse web frame ring.</td>
</tr>
<tr>
<td></td>
<td>the tank top.</td>
<td>2.3 Three permanent means of access, fitted at the end bay and middle bay of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>each tank, shall be provided spanning from tank base up to the intersection of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the sloping plate with the hatch side girder. The existing longitudinal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>structure may be used as part of this means of access.</td>
</tr>
<tr>
<td></td>
<td>1.3 Permanent means of vertical access shall be provided in all cargo holds</td>
<td>2.4 For topside tanks of which the height is less than 6 m, a portable means</td>
</tr>
<tr>
<td></td>
<td>and built into the structure to allow for an inspection of a minimum of 25 % of</td>
<td>may be utilized in lieu of the permanent means of access.</td>
</tr>
<tr>
<td></td>
<td>the total number of hold frames port and starboard equally distributed throughout</td>
<td>2.5 For each bilge hopper tank of which the height is 6 m and over, one</td>
</tr>
<tr>
<td></td>
<td>the hold including at each end in way of transverse bulkheads. But in no</td>
<td>longitudinal continuous permanent means of access shall be provided along the</td>
</tr>
<tr>
<td></td>
<td>circumstance shall this arrangement be less than 3 permanent means of vertical</td>
<td>side shell webs and installed at a minimum of 1.2 m to a maximum of 1.8 m below</td>
</tr>
<tr>
<td></td>
<td>access fitted to each side (fore and aft ends of hold and mid-span). Means to</td>
<td>the top of the clear opening of the web ring with a vertical access ladder in the</td>
</tr>
<tr>
<td></td>
<td>readily secure safety cages to the permanent means of access shall be provided.</td>
<td>vicinity of each access to the tank.</td>
</tr>
<tr>
<td></td>
<td>Permanent means of vertical access fitted between two adjacent hold frames is</td>
<td>2.6 If no access holes are provided through the transverse ring webs within 600</td>
</tr>
<tr>
<td></td>
<td>counted for an access for the inspection of both hold frames. A means of</td>
<td>mm of the tank base and the web frame rings have a web height greater than 1 m</td>
</tr>
<tr>
<td></td>
<td>portable access may be used to gain access over the sloping plating of lower</td>
<td>in way of side shell and sloping plating, then step rungs/grab rails shall be</td>
</tr>
<tr>
<td></td>
<td>hopper ballast tanks.</td>
<td>provided to allow safe access over each transverse web frame ring.</td>
</tr>
<tr>
<td></td>
<td>1.4 In addition, portable or movable means of access shall be utilized for</td>
<td>2.7 For bilge hopper tanks of which the height is less than 6 m, a portable</td>
</tr>
<tr>
<td></td>
<td>access to the remaining hold frames up to their upper brackets and transverse</td>
<td>means may be utilized in lieu of the permanent means of access.</td>
</tr>
<tr>
<td></td>
<td>bulkheads.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Bilge hopper tanks</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 For each bilge hopper tank of which the height is 6 m and over, one</td>
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<td></td>
<td></td>
<td>longitudinal continuous permanent means of access shall be provided along the</td>
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<td></td>
<td></td>
<td>side shell webs and installed at a minimum of 1.2 m to a maximum of 1.8 m below</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the top of the clear opening of the web ring with a vertical access ladder in the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>vicinity of each access to the tank.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.6 If no access holes are provided through the transverse ring webs within 600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mm of the tank base and the web frame rings have a web height greater than 1 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in way of side shell and sloping plating, then step rungs/grab rails shall be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>provided to allow safe access over each transverse web frame ring.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.7 For bilge hopper tanks of which the height is less than 6 m, a portable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>means may be utilized in lieu of the permanent means of access.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Double skin side tanks</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.8 Permanent means of access shall be provided in accordance with the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>applicable sections of table 1.</td>
</tr>
</tbody>
</table>

* For ore carriers, permanent means of access in wing ballast tanks shall be provided in accordance with the applicable sections of table 1.
ANNEX 3

RESOLUTION MSC.134(76)
(adopted on 12 December 2002)

ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CONVENTION
FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING FURTHER article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as "the Convention"), concerning the amendment procedure applicable to the Annex to the Convention, other than to the provisions of chapter I thereof,

HAVING CONSIDERED, at its seventy-sixth session, amendments to the Convention, proposed and circulated in accordance with article VIII(b)(i) thereof,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments 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 said amendments shall be deemed to have been accepted on 1 January 2004, unless, prior to that date, more than one third of the 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 SOLAS 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 2004 upon their acceptance in accordance with paragraph 2 above;

4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;

5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.
ANNEX

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

CHAPTER II-1

CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY,
MACHINERY AND ELECTRICAL INSTALLATIONS

PART A-1

STRUCTURE OF SHIPS

1 The following new regulation 3-6 is added after existing regulation 3-5:

“Regulation 3-6

Access to and within spaces in the cargo area of oil tankers and bulk carriers

1 Application

1.1 Except as provided for in paragraph 1.2, this regulation applies to oil tankers of 500 gross tonnage and over and bulk carriers, as defined in regulation IX/1, of 20,000 gross tonnage and over, constructed on or after 1 January 2005.

1.2 Oil tankers of 500 gross tonnage and over constructed on or after 1 October 1994 but before 1 January 2005 shall comply with the provisions of regulation II-1/12-2 adopted by resolution MSC.27(61).

2 Means of access to cargo and other spaces

2.1 Each space within the cargo area shall be provided with a permanent means of access to enable, throughout the life of a ship, overall and close-up inspections and thickness measurements of the ship’s structures to be carried out by the Administration, the company, as defined in regulation IX/1, and the ship’s personnel and others as necessary. Such means of access shall comply with the requirements of paragraph 5 and with the Technical provisions for means of access for inspections, adopted by the Maritime Safety Committee by resolution MSC.133(76), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I.

2.2 Where a permanent means of access may be susceptible to damage during normal cargo loading and unloading operations or where it is impracticable to fit permanent means of access, the Administration may allow, in lieu thereof, the provision of movable or portable means of access, as specified in the Technical provisions, provided that the means of attaching, rigging, suspending or supporting the portable means of access forms a permanent part of the ship’s structure. All portable equipment shall be capable of being readily erected or deployed by ship’s personnel.
2.3 The construction and materials of all means of access and their attachment to the ship’s structure shall be to the satisfaction of the Administration. The means of access shall be subject to survey prior to, or in conjunction with, its use in carrying out surveys in accordance with regulation I/10.

3 Safe access to cargo holds, cargo tanks, ballast tanks and other spaces

3.1 Safe access* to cargo holds, cofferdams, ballast tanks, cargo tanks and other spaces in the cargo area shall be direct from the open deck and such as to ensure their complete inspection. Safe access* to double bottom spaces may be from a pump-room, deep cofferdam, pipe tunnel, cargo hold, double hull space or similar compartment not intended for the carriage of oil or hazardous cargoes.

3.2 Tanks, and subdivisions of tanks, having a length of 35 m or more, shall be fitted with at least two access hatchways and ladders, as far apart as practicable. Tanks less than 35 m in length shall be served by at least one access hatchway and ladder. When a tank is subdivided by one or more swash bulkheads or similar obstructions which do not allow ready means of access to the other parts of the tank, at least two hatchways and ladders shall be fitted.

3.3 Each cargo hold shall be provided with at least two means of access as far apart as practicable. In general, these accesses should be arranged diagonally, for example one access near the forward bulkhead on the port side, the other one near the aft bulkhead on the starboard side.

4 Ship structure access manual

4.1 A ship’s means of access to carry out overall and close-up inspections and thickness measurements shall be described in a Ship structure access manual approved by the Administration, an updated copy of which shall be kept on board. The Ship structure access manual shall include the following for each space in the cargo area:

.1 plans showing the means of access to the space, with appropriate technical specifications and dimensions;

.2 plans showing the means of access within each space to enable an overall inspection to be carried out, with appropriate technical specifications and dimensions. The plans shall indicate from where each area in the space can be inspected;

.3 plans showing the means of access within the space to enable close-up inspections to be carried out, with appropriate technical specifications and dimensions. The plans shall indicate the positions of critical structural areas, whether the means of access is permanent or portable and from where each area can be inspected;

* Refer to the Recommendations for entering enclosed spaces aboard ships, adopted by the Organization by resolution A.864(20).
4. instructions for inspecting and maintaining the structural strength of all means of access and means of attachment, taking into account any corrosive atmosphere that may be within the space;

5. instructions for safety guidance when rafting is used for close-up inspections and thickness measurements;

6. instructions for the rigging and use of any portable means of access in a safe manner;

7. an inventory of all portable means of access; and

8. records of periodical inspections and maintenance of the ship’s means of access.

4.2 For the purpose of this regulation “critical structural areas” are locations which have been identified from calculations to require monitoring or from the service history of similar or sister ships to be sensitive to cracking, buckling, deformation or corrosion which would impair the structural integrity of the ship.

5 General technical specifications

5.1 For access through horizontal openings, hatches or manholes, the dimensions shall be sufficient to allow a person wearing a self-contained air-breathing apparatus and protective equipment to ascend or descend any ladder without obstruction and also provide a clear opening to facilitate the hoisting of an injured person from the bottom of the space. The minimum clear opening shall not be less than 600 mm x 600 mm. When access to a cargo hold is arranged through the cargo hatch, the top of the ladder shall be placed as close as possible to the hatch coaming. Access hatch coamings having a height greater than 900 mm shall also have steps on the outside in conjunction with the ladder.

5.2 For access through vertical openings, or manholes, in swash bulkheads, floors, girders and web frames providing passage through the length and breadth of the space, the minimum opening shall be not less than 600 mm x 800 mm at a height of not more than 600 mm from the bottom shell plating unless gratings or other foot holds are provided.

5.3 For oil tankers of less than 5,000 tonnes deadweight, the Administration may approve, in special circumstances, smaller dimensions for the openings referred to in paragraphs 5.1 and 5.2, if the ability to traverse such openings or to remove an injured person can be proved to the satisfaction of the Administration.”
PART B

SUBDIVISION AND STABILITY

Regulation 12-2 - Access to spaces in the cargo area of oil tankers

2 The existing regulation 12-2 is deleted.

PART C

MACHINERY INSTALLATIONS

Regulation 31 - Machinery control

3 The following new subparagraph .10 is added to paragraph 2 of the regulation:

".10 automation systems shall be designed in a manner which ensures that threshold warning of impending or imminent slowdown or shutdown of the propulsion system is given to the officer in charge of the navigational watch in time to assess navigational circumstances in an emergency. In particular, the systems shall control, monitor, report, alert and take safety action to slow down or stop propulsion while providing the officer in charge of the navigational watch an opportunity to manually intervene, except for those cases where manual intervention will result in total failure of the engine and/or propulsion equipment within a short time, for example in the case of overspeed."

CHAPTER II-2

CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINGUISHMENT

Regulation 3 – Definitions

4 In paragraph 20, the words “regulation VII/2” are replaced by the words “the IMDG Code, as defined in regulation VII/1.1”.

Regulation 19 – Carriage of dangerous goods

5 In table 19.3, in vertical columns 7 and 8 (concerning flashpoints of class 3), the numbers “3.1 3.2” and “3.3”, respectively, are replaced by the number “3”.
6 In table 19.3, in vertical column 13 (concerning class 5.2), the character “X” in rows 15 (concerning paragraph 3.10.1) and 16 (concerning paragraph 3.10.2) is replaced by the character “X\textsuperscript{16}” and a new note 16 is added as follows:

“16 Under the provisions of the IMDG Code, as amended, stowage of class 5.2 dangerous goods under deck or in enclosed ro-ro spaces is prohibited.”

CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS

Regulation 26 - Additional requirements for ro-ro passenger ships

7 The following new subparagraph .4 is added at the end of paragraph 1:

".4 before 1 July 2004 shall comply with the requirements of paragraph 2.5 not later than the first survey on or after that date."

8 The following new subparagraph .5 is added at the end of paragraph 2:

".5 Liferafts carried on ro-ro passenger ships shall be fitted with a radar transponder* in the ratio of one transponder for every four liferafts. The transponder shall be mounted inside the liferaft so its antenna is more than one metre above the sea level when the liferaft is deployed, except that for canopied reversible liferafts the transponder shall be so arranged as to be readily accessed and erected by survivors. Each transponder shall be arranged to be manually erected when the liferaft is deployed. Containers of liferafts fitted with transponders shall be clearly marked.

\* Refer to the Performance standards for survival craft radar transponders for use in search and rescue operations, adopted by the Organization by resolution A.802(19)."

CHAPTER XII
ADDITIONAL SAFETY MEASURES FOR BULK CARRIERS

9 The following new regulations 12 and 13 are added after existing regulation 11:

“Regulation 12

Hold, ballast and dry space water level detectors

(This regulation applies to bulk carriers regardless of their date of construction)

1 Bulk carriers shall be fitted with water level detectors:
\textbf{.1} in each cargo hold, giving audible and visual alarms, one when the water level above the inner bottom in any hold reaches a height of 0.5 m and another at a height not less than 15\% of the depth of the cargo hold but not more than 2 m. On bulk carriers to which regulation 9.2 applies, detectors with only the latter alarm need be installed. The water level detectors shall be fitted in the aft end of the cargo holds. For cargo holds which are used for water ballast, an alarm overriding device may be installed. The visual alarms shall clearly discriminate between the two different water levels detected in each hold;

\textbf{.2} in any ballast tank forward of the collision bulkhead required by regulation II-1/11, giving an audible and visual alarm when the liquid in the tank reaches a level not exceeding 10\% of the tank capacity. An alarm overriding device may be installed to be activated when the tank is in use; and

\textbf{.3} in any dry or void space other than a chain cable locker, any part of which extends forward of the foremost cargo hold, giving an audible and visual alarm at a water level of 0.1 m above the deck. Such alarms need not be provided in enclosed spaces the volume of which does not exceed 0.1\% of the ship’s maximum displacement volume.

2 The audible and visual alarms specified in paragraph 1 shall be located on the navigation bridge.

3 Bulk carriers constructed before 1 July 2004 shall comply with the requirements of this regulation not later than the date of the annual, intermediate or renewal survey of the ship to be carried out after 1 July 2004, whichever comes first.

\textbf{Regulation 13}

\textbf{Availability of pumping systems}

(This regulation applies to bulk carriers regardless of their date of construction)

1 On bulk carriers, the means for draining and pumping ballast tanks forward of the collision bulkhead and bilges of dry spaces any part of which extends forward of the foremost cargo hold shall be capable of being brought into operation from a readily accessible enclosed space, the location of which is accessible from the navigation bridge or propulsion machinery control position without traversing exposed freeboard or superstructure decks. Where pipes serving such tanks or bilges pierce the collision bulkhead, valve operation by means of remotely operated actuators may be accepted, as an alternative to the valve control specified in regulation II-1/11.4, provided that the location of such valve controls complies with this regulation.

2 Bulk carriers constructed before 1 July 2004 shall comply with the requirements of this regulation not later than the date of the first intermediate or renewal survey of the ship to be carried out after 1 July 2004, but in no case later than 1 July 2007.”

***
ANNEX 4

RESOLUTION MSC.135(76)
(adopted on 12 December 2002)

ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CODE
FOR THE SAFE CARRIAGE OF PACKAGED IRRADIATED NUCLEAR FUEL,
PLUTONIUM AND HIGH-LEVEL RADIOACTIVE WASTES ON BOARD SHIPS
(INF CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization
concerning the functions of the Committee,

NOTING resolution MSC.88(71), by which it adopted the International Code for the Safe
Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on
Board Ships (hereinafter referred to as “the INF Code”), which has become mandatory under
chapter VII of the International Convention for the Safety of Life at Sea (SOLAS), 1974,
(hereinafter referred to as “the Convention”),

NOTING ALSO article VIII(b) and regulation VII/14.1 of the Convention concerning the
procedure for amending the INF Code,

RECOGNIZING the need to amend the INF Code to align it with the amendments to
chapter VII of the Convention adopted by resolution MSC.123(75),

HAVING CONSIDERED, at its seventy-sixth session, amendments to the INF Code
proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the
INF Code, 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 2004 unless, prior to that date,
more than one third of the 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 2004 upon their acceptance in
accordance with paragraph 2 above;

4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the
Convention, to transmit certified copies of the present resolution and the text of the amendments
contained in the Annex to all Contracting Governments to the Convention;

5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and
its Annex to Members of the Organization, which are not Contracting Governments to the
Convention.
ANNEX

AMENDMENTS TO THE INTERNATIONAL CODE FOR THE SAFE CARRIAGE OF PACKAGED IRRADIATED NUCLEAR FUEL, PLUTONIUM AND HIGH-LEVEL RADIOACTIVE WASTES ON BOARD SHIPS (INF CODE), AS AMENDED

Chapter 1 – General

1.1 Definitions

1. Existing subparagraph .3 of paragraph 1.1.1 is replaced by the following:

".3 INF cargo means packaged irradiated nuclear fuel, plutonium and high-level radioactive wastes carried as cargo in accordance with class 7 of the IMDG Code."

2. In paragraph 1.1.1.7, the reference “VII/14.6” is replaced by the reference “VII/1.1”.

1.2 Application

3. In paragraph 1.2.2, the word “should” is replaced by the word “shall”.

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ANNEX 5

RESOLUTION MSC.136(76)
(adopted on 11 December 2002)

PERFORMANCE STANDARDS FOR A SHIP SECURITY ALERT SYSTEM

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

RECALLING FURTHER the provisions of the new chapter XI-2 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, and the requirements of regulation XI-2/5, that all ships shall be provided with a ship security alert system,

RECOGNIZING that, for security reasons, a ship security alert system is necessary on board for initiating and transmitting a ship-to-shore security alert to a competent authority designated by the Administration,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its forty-eighth session,

1. ADOPTS the Recommendation on Performance Standards for a ship security alert system, set out in the Annex to the present resolution;

2. RECOMMENDS Governments to ensure that a ship security alert system provided in compliance with relevant international instruments in force on or after 1 July 2004 conforms to performance standards not inferior to those specified in the Annex to the present resolution.
1 Introduction

1.1 The ship security alert system is provided to a ship for the purpose of transmitting a security alert to the shore to indicate to a competent authority that the security of the ship is under threat or has been compromised. It comprises a minimum of two activation points, one of which is on the navigation bridge. These initiate the transmission of a ship security alert. The system is intended to allow a covert activation to be made which alerts the competent authority ashore and does not raise an alarm on board ship nor alert other ships.

1.2 As required by its Administration, the competent authority receiving the alert notifies the authority responsible for maritime security within its Administration, the coastal State(s) in whose vicinity the ship is presently operating, or other Contracting Governments.

1.3 The procedures for the use of the ship security alert system and the location of the activation points are given in the ship security plan agreed by the Administration.

1.4 The ship security alert system may utilise the radio installation provided for compliance with chapter IV of the SOLAS Convention, other radio systems provided for general communications or dedicated radio systems.

2 General

2.1 In addition to complying with the general requirements set out in resolution A.694(17)\(^1\), the ship security alert system should comply with the following performance standards.

2.2 The radio system used for the ship security alert systems should comply with relevant international standards.

3 Power supply

Where the ship security alert system is powered from the ship’s main source of electrical power, it should, in addition, be possible to operate the system from another appropriate source of power.

4 Activation points

Activation points should be capable of being used on the navigation bridge and in other locations. They should be protected against inadvertent operation. It should not be necessary for the user to remove seals or to break any lid or cover in order to operate any control.

\(^1\) Publication IEC60945
5  Operation

5.1 The activation points should operate a radio system such that transmission of the security alert does not require any adjustment of the radio system, i.e. tuning of channels, setting of modes or menu options. Operation of the activation point should not cause any alarm or indication to be raised on the ship.

5.2 The operation of the ship security alert system should not impair the functionality of the GMDSS installation.

6  Transmission of security alerts

6.1 In all cases, transmission initiated by security alert system activation points should include a unique code/identifier indicating that the alert has not been generated in accordance with GMDSS distress procedures. The transmission should include the ship identity and current position. The transmission should be addressed to a shore station and should not be addressed to ship stations.

6.2 The ship security alert system, when activated, should continue the ship security alert until deactivated and/or reset.

7  Testing

The ship security alert system should be capable of being tested.

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ANNEX 6

RESOLUTION MSC.137(76)  
(adopted on 4 December 2002)

STANDARDS FOR SHIP MANOEUVRABILITY

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that by resolution A.751(18) the Assembly approved Interim Standards for ship manoeuvrability (the Interim standards), whereby Governments were recommended to encourage those responsible for the design, construction, repair and operation of ships to apply the Interim Standards and invited to collect data obtained by the application of the Interim Standards and report them to the Organization,

RECALLING FURTHER that by circular MSC/Circ.1053 the Committee approved Explanatory notes to the Standards for ship manoeuvrability, to provide Administrations with specific guidance so that adequate data may be collected by the Organization on the manoeuvrability of ships,

RECOGNIZING the manoeuvring capability of ships to be an important contribution to the safety of navigation,

BELIEVING that the development and implementation of standards for ship manoeuvrability, particularly for large ships and ships carrying dangerous goods in bulk, will improve maritime safety and enhance marine environmental protection,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Ship Design and Equipment at its forty-fifth session,

1. ADOPTS the Standards for ship manoeuvrability, the text of which is set out in the Annex to the present resolution;

2. INVITES Governments to encourage those responsible for the design, construction, repair and operation of ships to apply the Standards to ships constructed on or after 1 January 2004;

3. RESOLVES that the provisions annexed to the present resolution supersede the provisions annexed to resolution A.751(18).
ANNEX

STANDARDS FOR SHIP MANOEUVRABILITY

1 PRINCIPLES

1.1 The Standards for ship manoeuvrability (the Standards) should be used to evaluate the manoeuvring performance of ships and to assist those responsible for the design, construction, repair and operation of ships.

1.2 It should be noted that the Standards were developed for ships with traditional propulsion and steering systems (e.g. shaft driven ships with conventional rudders). Therefore, the Standards and methods for establishing compliance may be periodically reviewed and updated by the Organization, as appropriate, taking into account new technologies, research and development, and the results of experience with the present Standards.

2 GENERAL

2.1 The Standards contained in this document are based on the understanding that the manoeuvrability of ships can be evaluated from the characteristics of conventional trial manoeuvres. The following two methods can be used to demonstrate compliance with these Standards:

1. scale model tests and/or computer predictions using mathematical models can be performed to predict compliance at the design stage. In this case full-scale trials should be conducted to validate these results. The ship should then be considered to meet these Standards regardless of full-scale trial results, except where the Administration determines that the prediction efforts were substandard and/or the ship performance is in substantial disagreement with these Standards; and

2. the compliance with the Standards can be demonstrated based on the results of the full-scale trials conducted in accordance with the Standards. If a ship is found in substantial disagreement with the Standards, then the Administration should take remedial action, as appropriate.

3 APPLICATION

3.1 Notwithstanding the points raised in paragraph 1.2 above, the Standards should be applied to ships of all rudder and propulsion types, of 100 m in length and over, and chemical tankers and gas carriers regardless of the length.

3.2 In the event that the ships referred to in paragraph 3.1 above undergo repairs, alterations or modifications, which, in the opinion of the Administration, may influence their manoeuvrability characteristics, the continued compliance with the Standards should be verified.

3.3 Whenever other ships, originally not subject to the Standards, undergo repairs, alterations or modifications, which, in the opinion of the Administration, are of such an extent that the ship may be considered to be a new ship, then that ship should comply with these Standards. Otherwise, if the repairs, alterations and modifications, in the opinion of the Administration, may influence the manoeuvrability characteristics, it should be demonstrated that these characteristics do not lead to any deterioration of the manoeuvrability of the ship.
3.4 The Standards should not be applied to high-speed craft as defined in the relevant Code.

4 DEFINITIONS

4.1 Geometry of the ship

4.1.1 Length (L) is the length measured between the aft and forward perpendiculars.

4.1.2 Midship point is the point on the centreline of a ship midway between the aft and forward perpendiculars.

4.1.3 Draught (T_a) is the draught at the aft perpendicular.

4.1.4 Draught (T_f) is the draught at the forward perpendicular.

4.1.5 Mean draught (T_m) is defined as
   \[ T_m = \frac{T_a + T_f}{2}. \]

4.1.6 Trim (τ) is defined as \[ τ = T_a - T_f. \]

4.1.7 ∆ is the full load displacement of the ship (tonnes).

4.2 Standard manoeuvres and associated terminology

Standard manoeuvres and associated terminology are as defined below:

.1 The test speed (V) used in the Standards is a speed of at least 90% of the ship's speed corresponding to 85% of the maximum engine output.

.2 Turning circle manoeuvre is the manoeuvre to be performed to both starboard and port with 35° rudder angle or the maximum rudder angle permissible at the test speed, following a steady approach with zero yaw rate.

.3 Advance is the distance travelled in the direction of the original course by the midship point of a ship from the position at which the rudder order is given to the position at which the heading has changed 90° from the original course.

.4 Tactical diameter is the distance travelled by the midship point of a ship from the position at which the rudder order is given to the position at which the heading has changed 180° from the original course. It is measured in a direction perpendicular to the original heading of the ship.

.5 Zig-zag test is the manoeuvre where a known amount of helm is applied alternately to either side when a known heading deviation from the original heading is reached.

.6 The 10°/10° zig-zag test is performed by turning the rudder alternately by 10° to either side following a heading deviation of 10° from the original heading in accordance with the following procedure:
1 after a steady approach with zero yaw rate, the rudder is put over to 10° to starboard or port (first execute);

2 when the heading has changed to 10° off the original heading, the rudder is reversed to 10° to port or starboard (second execute); and

3 after the rudder has been turned to port/starboard, the ship will continue turning in the original direction with decreasing turning rate. In response to the rudder, the ship should then turn to port/starboard. When the ship has reached a heading of 10° to port/starboard of the original course the rudder is again reversed to 10° to starboard/port (third execute).

7 The first overshoot angle is the additional heading deviation experienced in the zig-zag test following the second execute.

8 The second overshoot angle is the additional heading deviation experienced in the zig-zag test following the third execute.

9 The 20°/20° zig-zag test is performed using the procedure given in paragraph 4.2.6 above using 20° rudder angles and 20° change of heading, instead of 10° rudder angles and 10° change of heading, respectively.

10 Full astern stopping test determines the track reach of a ship from the time an order for full astern is given until the ship stops in the water.

11 Track reach is the distance along the path described by the midship point of a ship measured from the position at which an order for full astern is given to the position at which the ship stops in the water.

5 STANDARDS

5.1 The standard manoeuvres should be performed without the use of any manoeuvring aids which are not continuously and readily available in normal operation.

5.2 Conditions at which the standards apply

In order to evaluate the performance of a ship, manoeuvring trials should be conducted to both port and starboard and at conditions specified below:

1 deep, unrestricted water;

2 calm environment;

3 full load (summer load line draught), even keel condition; and

4 steady approach at the test speed.
5.3 Criteria

The manoeuvrability of the ship is considered satisfactory if the following criteria are complied with:

.1 Turning ability

The advance should not exceed 4.5 ship lengths (L) and the tactical diameter should not exceed 5 ship lengths in the turning circle manoeuvre.

.2 Initial turning ability

With the application of 10° rudder angle to port/starboard, the ship should not have travelled more than 2.5 ship lengths by the time the heading has changed by 10° from the original heading.

.3 Yaw-checking and course-keeping abilities

.1 The value of the first overshoot angle in the 10°/10° zig-zag test should not exceed:

.1 10° if L/V is less than 10 s;

.2 20° if L/V is 30 s or more; and

.3 \((5 + 1/2(L/V))°\) degrees if L/V is 10 s or more, but less than 30 s,

where L and V are expressed in m and m/s, respectively.

.2 The value of the second overshoot angle in the 10°/10° zig-zag test should not exceed:

.1 25°, if L/V is less than 10 s;

.2 40°, if L/V is 30 s or more; and

.3 \((17.5 + 0.75(L/V))°\), if L/V is 10 s or more, but less than 30 s.

.3 The value of the first overshoot angle in the 20°/20° zig-zag test should not exceed 25°.

.4 Stopping ability

The track reach in the full astern stopping test should not exceed 15 ship lengths. However, this value may be modified by the Administration where ships of large displacement make this criterion impracticable, but should in no case exceed 20 ship lengths.

* For ships with non-conventional steering and propulsion systems, the Administration may permit the use of comparative steering angles to the rudder angles specified by this Standard.
6 ADDITIONAL CONSIDERATIONS

6.1 In case the standard trials are conducted at a condition different from those specified in paragraph 5.2.3, necessary corrections should be made in accordance with the guidelines contained in the Explanatory notes to the Standards for ship manoeuvrability, developed by the Organization.*

6.2 Where standard manoeuvres indicate dynamic instability, alternative tests may be conducted to define the degree of instability. Guidelines for alternative tests such as a spiral test or pull-out manoeuvre are included in the Explanatory notes to the Standards for ship manoeuvrability, referred to in paragraph 6.1 above.*

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* Refer to MSC/Circ.1053 on Explanatory notes to the Standards for ship manoeuvrability.
ANNEX 7

DRAFT MSC RESOLUTION

ADOPTION OF AMENDMENTS TO THE GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS (RESOLUTION A.744(18), AS AMENDED)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.744(18) by which the Assembly adopted the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (the Guidelines),

RECALLING FURTHER article VIII(b) and regulation XI/2 of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (hereinafter referred to as “the Convention”) concerning the procedure for amending the Guidelines,

NOTING that the Assembly, when adopting resolution A.744(18), requested the Maritime Safety Committee and the Marine Environment Protection Committee to keep the Guidelines under review and update them as necessary, in the light of experience gained in their application,

NOTING ALSO resolutions MSC.49(66), MSC.105(73), MSC.125(75) and resolution 2 of the 1997 Conference of Contracting Governments to the Convention, by which amendments to resolution A.744(18) were adopted by the Maritime Safety Committee and the Conference of Contracting Governments to the Convention, in accordance with article VIII(b) and regulation XI/2 of the Convention,

HAVING CONSIDERED, at its [seventy-seventh] session, amendments to the Guidelines proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers, 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 [..................], unless, prior to that date, more than one third of the 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 [.............] upon their acceptance in accordance with paragraph 2 above;

4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;

5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.

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ANNEX

AMENDMENTS TO THE GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS (RESOLUTION A.744(18), AS AMENDED)

ANNEX B

GUIDELINES ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF OIL TANKERS

1 The following new paragraph is added after the existing paragraph under section 2 “Evaluation of longitudinal strength” of annex 12:

“The condition of the hull girder for longitudinal strength evaluation should be determined in accordance with the methods specified in appendix 3.”

2 The following new appendix 3 is added at the end of appendix 2 to annex 12:

“Appendix 3

Sampling method of thickness measurements for longitudinal strength evaluation and repair methods

1 Extent of longitudinal strength evaluation

Longitudinal strength should be evaluated within 0.4L amidships for the extent of the hull girder length that contains tanks therein and within 0.5L amidships for adjacent tanks which may extend beyond 0.4L amidships where tanks means ballast tanks and cargo tanks.

2 Sampling method of thickness measurement

2.1 Pursuant to the requirements of section 2.5 of Annex B, transverse sections should be chosen such that thickness measurements can be taken for as many different tanks in corrosive environments as possible, e.g. ballast tanks sharing a common plane boundary with cargo tanks fitted with heating coils, other ballast tanks, cargo tanks permitted to be filled with sea water and other cargo tanks. Ballast tanks sharing a common plane boundary with cargo tanks fitted with heating coils and cargo tanks permitted to be filled with sea water should be selected where present.

2.2 The minimum number of transverse sections to be sampled should be in accordance with annex 2 to Annex B. The transverse sections should be located where the largest thickness reductions are suspected to occur or are revealed from deck and bottom plating measurements prescribed in 2.3 and should be clear of areas which have been locally renewed or reinforced.
2.3 At least two points should be measured on each deck plate and/or bottom shell plate required to be measured within the cargo area in accordance with the requirements of annex 2.

2.4 Within 0.1D (where D is the ship’s depth) of the deck and bottom at each transverse section to be measured in accordance with the requirements of annex 2, every longitudinal and girder should be measured on the web and face plate, and every plate should be measured at one point between longitudinals.

2.5 For longitudinal members other than those specified in 2.4 to be measured at each transverse section in accordance with the requirements of annex 2, every longitudinal and girder should be measured on the web and face plate, and every plate should be measured at least in one point per strake.

2.6 The thickness of each component should be determined by averaging all of the measurements taken in way of the transverse section on each component.

3 Additional measurements where the longitudinal strength is deficient

3.1 Where one or more of the transverse sections are found to be deficient in respect of the longitudinal strength requirements given in this annex, the number of transverse sections for thickness measurement should be increased such that each tank within the 0.5L amidships region has been sampled. Tank spaces that are partially within, but extend beyond, the 0.5L region, should be sampled.

3.2 Additional thickness measurements should also be performed on one transverse section forward and one aft of each repaired area to the extent necessary to ensure that the areas bordering the repaired section also comply with the requirements of Annex B.

4 Effective repair methods

4.1 The extent of renewal or reinforcement carried out to comply with this annex should be in accordance with 3.2.

4.2 The minimum continuous length of a renewed or reinforced structural member should be not less than twice the spacing of the primary members in way. In addition, the thickness diminution in way of the butt joint of each joining member forward and aft of the replaced member (plates, stiffeners, girder webs and flanges, etc.) should not be within the substantial corrosion range (75% of the allowable diminution associated with each particular member). Where differences in thickness at the butt joint exceed 15% of the lower thickness, a transition taper is to be provided.

4.3 Alternative repair methods involving the fitting of straps or structural member modification should be subject to special consideration. In considering the fitting of straps, it should be limited to the following conditions:

.1 to restore and/or increase longitudinal strength;
.2 the thickness diminution of the deck or bottom plating to be reinforced should not be within the substantial corrosion range (75% of the allowable diminution associated with the deck plating);

.3 the alignment and arrangement, including the termination of the straps, is in accordance with a standard recognized by the Administration;

.4 the straps are continuous over the entire 0.5L amidships length; and

.5 use of continuous fillet welding and full penetration welds at butt welding and, depending on the width of the strap, slot welds. The welding procedures applied should be approved by the Administration.

4.4 The existing structure adjacent to replacement areas and in conjunction with the fitted straps, etc. should be capable of withstanding the applied loads, taking into account the buckling resistance and the condition of welds between the longitudinal members and hull envelope plating."
ANNEX 8

TERMS OF REFERENCE FOR THE JOINT MSC/MEPC/TCC WORKING GROUP ON THE PROPOSED VOLUNTARY IMO MODEL AUDIT SCHEME

The Joint MSC/MEPC/TCC Working Group on the voluntary IMO Model Audit Scheme, taking into account documents C 88/13/2, C 88/13/3, C 88/13/4, C 88/D, C 89/13/Add.1, C 89/13/1, C 89/13/2, C 89/13/3, C 89/D, MEPC 48/10/5, MEPC 48/10/6, MEPC 48/10/7, MEPC 48/21 (paragraphs 10.4.1 to 10.4.14), TC 52/2, TC 52/2/2, TC 52/2/3, TC 52/14 (paragraphs 2.2 to 2.17), MSC 76/9/1 and Add.1, MSC 76/9/3, MSC 76/9/5, MSC 76/9/6, MSC 76/9/7, MSC 76/9/8 (paragraphs 20 to 25) and MSC 76/23 (paragraphs 9.16 to 9.25), and those substantive issues relating to the development, operation, management, administration and financing of the Scheme listed in annex 1, and any other relevant and substantive issues which may be identified by the group, should:

1 using document C 88/13/2, as a basis on which to build, develop for the voluntary IMO Model Audit Scheme:
   .1 clear objectives; and
   .2 clear principles;

2 develop, as appropriate, a work plan to address the substantive issues raised, including technical co-operation activities, capacity-building and financing for the achievement of the objectives of the Scheme;

3 based on the objectives and principles developed, identify:
   .1 those areas/sectors of the competent authority of a Member State which should be audited and which would provide an objective appraisal of it, taking into account that different Member States may have different ways of discharging their responsibilities; and
   .2 those IMO instruments containing safety, security and environmentally-critical responsibilities and obligations of a Party thereto which could be audited for the attainment of the objectives of the Scheme;

4 develop, as far as practicable, a framework document of the Scheme taking into account the outcome on issues referred to in paragraphs 1 to 3; and

5 prepare a report of the Joint Working Group for the Committees and the 90th session of Council or the 22nd extraordinary session of the Council, as appropriate, including pertinent recommendations to bring the Scheme into operation.
ANNEX 1

ISSUES FOR CONSIDERATION BY THE JOINT WORKING GROUP

The following is a list of substantive issues already identified from the documents submitted for consideration. It is not an exhaustive list and it will be for the joint working group to further consider and elaborate on.

Substantive issues might include:

1 Administration of the voluntary IMO Model Audit Scheme:
   .1 development of an audit manual setting out the process and overall standard of the audit;
   .2 whether a dedicated body of technical expertise might be developed within the Organization to administer the Scheme or carry out audits;
   .3 the training and qualification requirements of the auditors;
   .4 resource requirement and consequences; and
   .5 the selection procedure for auditors.

2 Audit procedure:
   .1 procedure for carrying out the audit;
   .2 the assignment and composition of the audit team;
   .3 the scope of a memorandum of understanding for the audit of a Member State;
   .4 the scope of a memorandum of understanding between the audit team and the Member State to be audited;
   .5 issues surrounding whether the audit report might be carried out in two stages, with an interim report to be followed by a final report, incorporating the results of action taken on issues identified in the interim report;
   .6 the format of anonymised summary reports and the procedure for the circulation of these anonymised reports to all Member States;
   .7 how any disagreements between the auditors and the audited Member State might be resolved; and
   .8 the procedure for the carrying-out of a follow-up audit, if required.
ANNEX 2

OUTCOME OF MEPC 48, TC 52 AND MSC 76 ON THE PROPOSED VOLUNTARY
IMO MODEL AUDIT SCHEME

OUTCOME OF MEPC 48 (document MEPC 48/21, paragraphs 10.4.1 to 10.4.14)

10.4 Outcome of the eighty-eight session of the Council

10.4.1 The Committee noted that, as reported in MEPC 48/10/4, the eighty-eighth session of Council had been held from 10 to 14 June 2002 and the summary of its decisions had been issued as C 88/D. The discussion and decisions made by the Committee regarding the issues brought to its attention are reported below.

10.4.2 The Committee noted that Council had considered those issues emanating from MEPC 47 which had been brought to its attention and had approved the holding of intersessional meetings of the Ballast Water Working Group and the OPRC Working Group prior to MEPC 48.

10.4.3 The Committee noted that Council had reviewed the progress being made on the review of the sub-committee structure and that this issue was considered further under agenda item 18.

10.4.4 The Committee noted that Council had established an ad hoc Working Group to draft a strategic plan for the Organization and to report back to the eighty-ninth session of Council. In this context, both the MSC and MEPC had been requested to:

.1 to consider, taking into account the proposals in documents C 88/13/3 and C 88/13/4 and any other submissions received, how the details of an IMO Model Audit Scheme (to be implemented on a voluntary basis) could be developed;

.2 to advise on those safety and environmentally-critical areas they consider should be covered by the Scheme; and

.3 to consider the matter further, at MEPC 49, and prepare a report for submission to the twenty-second extraordinary session of the Council;

10.4.5 The Committee noted that there were three submissions addressing this issue, MEPC 48/10/5 (15 countries), MEPC 48/10/6 (Belize) and MEPC 48/10/7 (India).

10.4.6 In introducing MEPC 48/10/5, the delegation of the United Kingdom made the following points:

.1 six objectives for the Model Audit Scheme are described which are designed to facilitate the implementation of IMO Conventions by Member States and provide feedback to IMO on any lessons learnt;

.2 the Scheme should focus on the correct implementation and enforcement of internationally agreed instruments and MEPC is being invited to advise on which responsibilities, covered by MARPOL, should be covered;

.3 five principles are proposed for the development of the Scheme;
six issues, requiring further work are identified;

it is proposed that the Scheme be funded by methods which do not incur costs to the Organization; and

an illustration of how such an audit scheme might proceed was included in annex 1 to the submission.

10.4.7 In introducing MEPC 48/10/6, the delegation of Belize made the following points:

for various reasons, there is a clear need for an IMO audit scheme;

such a scheme should focus on areas which are most likely to identify, and so rectify, already perceived deficiencies;

as a result, a focused approach is outlined with proposed supporting advantages.

10.4.8 In introducing MEPC 48/10/7, the delegation of India made the following points:

any audit scheme in which the audits would be performed by external auditors would only be useful to Member States which already have an effective self-evaluation audit process;

rather than introducing an external audit scheme, a system to assist Member States in enhancing self-evaluation was preferred;

a Model National Self-Evaluation Scheme could be used by all Member States and may be enhanced by the services of outside experts but funded by the Member State in question.

10.4.9 The Committee noted that, all three submissions supported the idea of an Audit Scheme whilst recognizing that India was proposing a system to facilitate self-auditing by Member States.

10.4.10 The Committee agreed that, whatever approach is taken, it should not incur any costs to IMO.

10.4.11 In addition to these formal submissions, the Committee also noted the information (MSC 76/15/1) on the outcome of a Quality Shipping Conference, organized by Denmark, which proposed that flag States should support an IMO Model Audit Scheme.

10.4.12 The delegation of the Bahamas questioned the need for further flag State auditing schemes and identified the following examples of problems, which might arise should the Model Audit Scheme be developed:

how will the selection of auditors be carried out to ensure a proper balance of auditors from developing countries?

how will the potential problem with languages be overcome to ensure that there is not an inconsistent approach? and

how will the scheme be financed, particularly with regard to the training of auditors from developing countries?
10.4.13 Taking into account the proposals made in the three submissions, the Committee expressed its preference for the proposal in MEPC 48/10/5 whilst recognizing that there were elements of the other two submissions (MEPC 48/10/6 and MEPC 48/10/7) which should also be explored and that the concerns expressed by Bahamas should also be taken into account.

10.4.14 The Committee agreed to endorse the proposal to hold a Joint MSC/MEPC/TCC Working Group during MSC 77 and requested MEPC delegations to participate in the Joint Working Group in order to provide contributions to the Group to address MARPOL-related issues in the discussion for the Model Audit Scheme. Annex 2 of MEPC 48/10/5 should be taken into account in the discussion at the Joint Working Group.

**OUTCOME OF TC 52 (document TC 52/14, paragraphs 2.2 to 2.17)**

**IMO Model Audit Scheme**

2.2 The Director, TCD, introduced documents TC 52/2, TC 52/2/1/Add.1 and stated that they were largely for information and contained a summary of significant developments relating to the development of an IMO Model Audit Scheme. He also provided information received from ICAO regarding technical assistance support for their Universal Safety Oversight Audit Programme (USOAP).

2.3 The delegation of the United Kingdom introduced document TC 52/2/2 on behalf of Japan, the Marshall Islands, the Republic of Korea and Sweden.

2.4 The underlying objectives of a Model Audit Scheme as detailed in paragraph 5 of document TC 52/2/2 would be:

1. enhance the performance of Member States in implementing appropriate IMO Conventions relating to maritime safety and to prevention of marine pollution;

2. determine the conformance of the Member State audited in implementing in its national law specified IMO Convention standards;

3. determine whether the Member State’s implementation of an oversight system (flag State control) is clear in terms of any delegation, and is effective and proficient (e.g., through the establishment and maintenance of a competent maritime authority capacity appropriate to the delegation);

4. assess how the Member State audited controls and monitors the work of its survey organisation and of recognized organizations to which certain functions may be delegated;

5. provide the Member State audited with any advice necessary to improve its oversight capacity and encourage it, where necessary, to prepare and put in place a plan implementing the findings of the audit; and

6. systematically feed back any lessons learnt, as may be appropriate, into further consideration by the Organization of the effectiveness of IMO legislation.

2.5 The Committee was informed that the co-sponsors of the document believed that the introduction of such a Scheme would assist the Organization to improve flag State performance.
It is not the intention that the Scheme be used to censure Member States where it is found that performance could be improved. If an audit identifies areas of performance, which might be improved, it could also help the Member State identify the additional resources it needs to deliver the desired improvement. In the case of less developed countries, the IMO Technical Co-operation programme might be called upon to meet the costs of addressing the areas where performance could be enhanced.

2.6 The scope, suggested principles of audit and development of an audit system were outlined in paragraphs 7, 8 and 9 respectively of document TC 52/2/2.

2.7 The delegation of the United Kingdom, on behalf of the co-sponsors, invited the Committee to:

.1 consider the Model Audit Scheme from a capacity building point of view, as requested by Council;

.2 consider participating in a joint working group with the MSC and MEPC to meet during MSC 77 to consider the matter further (annex 1 to document TC 52/2/2 refers as background); and

.3 advise the eighty-ninth session of Council of the preliminary outcome of its discussions.

2.8 The delegation of Cyprus introduced document TC 52/2/3 on behalf of the Philippines and Vanuatu and stressed that, although the proposed IMO Audit Scheme would be on a voluntary basis, its success would be greater if all Member States of IMO volunteered themselves to be audited. The co-sponsors of document TC 52/2/3 suggested that the TCC:

.1 identify the areas of maritime infrastructure particularly in the development of technical and legal expertise that some Member States might be lacking and might be perceived as an obstacle for some Member States to volunteer themselves for an audit;

.2 identify what procedures might be needed to be put in place, on top of those in existence at the moment, by the Technical Cooperation Division of the Secretariat of the Organisation, in order to ensure immediate access to resources following the results of an audit; and

.3 conduct a study on the creation of an international financial facility, independent of the TC fund and the budget of the Organisation, where Member States can have access to financial resources for the funding of their maritime infrastructure particularly the safety components of this infrastructure, prior to volunteering themselves for an audit.

2.9 The delegation of Cyprus also drew attention to ICAO resolution A33-10 entitled “Establishment of an International Financial Facility for Aviation Safety (IFFAS)” which, _inter alia_, endorsed the concept of an IFFAS with the objective of financing safety-related projects for which States cannot otherwise provide or obtain the necessary financial resources, with the principal area of application being safety-related deficiencies identified through the ICAO Universal Safety Oversight Audit Programme (USOAP) as an element of the Global Aviation Safety Plan (GFASP). That delegation also noted that the need to establish the financial facility...
was only identified by ICAO after the adoption of the USOAP and suggested that IMO could learn from the experience of ICAO and give early consideration to the feasibility of establishing a similar facility to support the implementation of a voluntary model audit scheme at IMO.

2.10 Many delegations supported the proposals contained in document TC 52/2/2 (United Kingdom, et al) and the participation of the TCC in the joint working group. However, several delegations could not agree with annex 2 to that document on "potential funding devices".

2.11 Some delegations, while agreeing with the principle of technical assistance, felt that Member States should adhere to their responsibilities to implement IMO instruments to which they are parties and do their utmost to try to use their own means and resources prior to asking IMO for assistance.

2.12 Most delegations were of the view that the audit team should include members from developing countries and that training of auditors as part of the capacity-building process through technical co-operation should begin as soon as possible.

2.13 One delegation pointed out that the ICAO IFFAS was complex and IMO would probably need specialized expertise to prepare a study on the feasibility of establishing a similar system to meet the requirements and special characteristics of the maritime sector. The Director of TCD informed the Committee that the Secretariat was prepared to consult with ICAO and, if necessary, retain this specialized expertise using resources available from the TC Fund. However, it was noted that the need for such a study was not immediate but, nevertheless, basic research could begin in due course.

2.14 The Committee endorsed the proposal to participate in the Joint MSC/MEPC/TCC Working Group to consider further the voluntary Model Audit Scheme, which will meet at MSC 77 (28 May to 6 June 2003), prior to the next TCC meeting. Delegations who participate in TCC were urged to participate in this joint meeting.

2.15 The Committee reviewed the draft terms of reference for the proposed MSC/MEPC/TCC Working Group (C 89/WP.1/Rev.1) and agreed that paragraph 2 adequately covered the need to include in the work plan technical co-operation activities and capacity-building. The Committee also noted that paragraphs 1.1.3 through to 1.1.5 covering the training and qualification requirements of the auditors; resource requirement and consequences; and the selection procedure for auditors; and possibly paragraph 1.1.2 related to the establishment of a dedicated body of technical experts, were issues which should be of particular concern to the Committee.

2.16 The Chairman recalled that the TCC had been requested to address the capacity-building issues related to the introduction of the voluntary Audit Scheme. The details of the Scheme were of course not yet known, however, a number of issues had already been identified. For example, the need to ensure the participation of experts from developing countries in the audit process and, in this connection, the need to provide arrangements for training of auditors, perhaps through WMU.

2.17 There was also a consensus that it would be useful for the Secretariat to identify the need for additional arrangements and resources to ensure the timely provision of technical assistance to developing countries following the results of an audit. In addition, as referred to above, the Secretariat was requested to examine the feasibility of establishing a financial facility similar to that established by ICAO for financing technical assistance projects aimed at assisting developing countries in dealing with deficiencies identified through the Audit Scheme.
OUTCOME OF MSC 76 (document MSC 76/23, paragraphs 9.16 to 9.25)

General

9.16 The Committee noted that the Council, at its eighty-eighth session, had approved, in principle, the concept for an IMO Model Audit Scheme to be implemented on a voluntary basis and had requested the Committee to undertake, during this session, specific tasks, as indicated in document MSC 76/9/1, if this would be possible without disrupting its work schedule and noted further that C 89 had reiterated the above decision, with necessary adjustments, to reflect developments since C 88 (see also paragraph 9.17).

9.17 Noting (MSC 76/9/1/Add.1) that, as requested, the Secretary-General, having studied the ICAO Model Audit Scheme, had advised the Council, at its eighty-ninth session, on aspects of ICAO’s scheme which might be taken into account in developing the IMO Scheme and that C 89 (MSC 76/2/Add.1) had also requested:

.1 MSC 77 to consider how the details of an IMO Model Audit Scheme could be developed and advise C 90 on those safety- and security-related areas that the Committee might consider should be covered by the Scheme; and submit a progress report (based on the outcome of the work of the Joint MSC/MEPC/TCC Working Group, which should be instructed to take into account the proposals in all the documents thus far submitted, including the Secretary-General’s proposals in document C 89/13/Add.1 and any other submissions received by the deadline for the submission of documents to MSC 77) to C 90, for its consideration, and to convey any instructions and/or requests on the issue to MEPC 49; and

.2 TC 53 and MEPC 49 to consider the matter further, each from its own perspective, and prepare a report elaborating on the requests of C 90 for submission to the twenty-second extraordinary session of the Council in November 2003, for the latter to decide on appropriate action to move the issue forward,

the Committee took decisions on the specific tasks requested of it as indicated in the ensuing paragraphs.

Development of the details of an IMO Model Audit Scheme

9.18 The Committee considered submissions by Belize (MSC 76/9/3), India (MSC 76/9/5) and Australia, Canada, Denmark, Japan, the Republic of Korea, the Marshall Islands, the Netherlands, Norway, Singapore, Spain, Sweden and the United Kingdom (MSC 76/9/6), which had also been considered by the MEPC (MEPC 48/10/6, MEPC 48/10/7 and MEPC 48/10/5), as well as submissions by Vanuatu (MSC 76/9/7) and Denmark (the relevant part of document MSC 76/15/1).

9.19 The Committee noted that in the submissions received the idea of an IMO Model Audit Scheme had been supported and proposals had been made on new elements based on the extended use of the Self-Assessment Forms (SAFs), reference had been made to ISO 9002 QA Certification and the involvement of the FSI Sub-Committee in the implementation of the Scheme had been suggested.
9.20 The Committee also noted that MEPC 48 had expressed preference for the proposal in document MEPC 48/10/5 calling for the development of an IMO Model Audit Scheme to be implemented on a voluntary basis, as it had been approved, in principle, by C 88 (which was similar to the proposal in document MSC 76/9/6), whilst recognizing that there were elements in documents MEPC 48/10/6 (Belize) and MEPC 48/10/7 (India), which should also be explored. It further noted that MEPC 48 had agreed that, whatever approach was taken, it should not incur any costs to IMO and that there would be a need to take into account, in any further work on the Scheme, the concerns expressed by the delegation of the Bahamas (MSC 76/9/8, paragraph 28), which had identified three examples of problems which might arise.

9.21 The Committee further noted (MSC 76/9/1 (Denmark)) information on a Quality Shipping Conference, which had been organized in Copenhagen in July 2002 (see also paragraph 15.2).

9.22 Following the above, the Committee, taking into account MEPC 48’s decision on preferred Scheme, agreed that document MSC 76/9/6 provided a good basis for the development of the proposed IMO Model Audit Scheme to be implemented on a voluntary basis.

Safety- and security-critical areas to be covered by the Scheme

9.23 The Committee discussed those safety- and security-critical areas to be covered by the Scheme, taking into account annex 2 to document MSC 76/9/6 and, having noted that MEPC 48 had agreed that a similar annex to document MEPC 48/10/5 on environmental issues should be taken into account during the work of the joint working group proposed to be established at MSC 77 (see also paragraph 9.25), as well as the specific comment that consideration should be given to the possible consequences of non-conformities which could be identified during audits relating to the STCW Convention, as amended and the so-called ‘White list’, established a drafting group to prepare a consolidated text of those safety- and security-critical areas, which should be covered by the Scheme, taking into account the documents referred to above and comments and decisions made in plenary.

9.24 Having considered the report of the drafting group (MSC 76/WP.9), the Committee approved those safety- and security-critical areas for the proposed voluntary IMO Model Audit Scheme, which should be considered by the joint working group as follows:

.1 Member State duties arising under the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, are an obvious choice for inclusion within the scope of the proposed voluntary IMO Model Audit Scheme. The following instruments should also be included:

.1 the International Convention on Load Lines (LL), 1966, as amended;

.2 the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended;

.3 the Convention on the International Regulations for Preventing Collisions at Sea (COLREG), 1972, as amended;

.4 the International Convention on Tonnage Measurement of Ships, (TONNAGE), 1969; and

consideration should be given to the inclusion in the Scheme of responsibilities of Member States with respect to maritime security based on measures adopted by the 2002 SOLAS Contracting Governments Conference on Maritime Security; and

in addition, development of the proposed Scheme should also take account of ongoing work within the FSI Sub-Committee relating to the Self-Assessment Forms and proposed amendments to resolution A.847(20) on Guidelines to assist flag States in the implementation of IMO instruments,

and, whilst commending document MSC 76/9/6 (except annex 2 thereto) for full and further study, it also recommended that paragraph 2.3 of document MSC 76/9/3 and paragraph 9 of document MSC 76/9/7 should be taken into account, albeit that the full content of these documents should be further analysed by the joint working group.

**Establishment of a joint working group to meet at MSC 77**

The Committee, having considered (as requested by C 88 and reiterated by C 89) that it would be desirable that a joint working group of the Committee, the MEPC and the Technical Co-operation Committee be established to meet at MSC 77 to consider the proposed IMO Model Audit Scheme further and, noting that the MEPC and the TCC had endorsed the proposal, agreed to the establishment of the Joint MSC/MEPC/TCC Working Group on Voluntary IMO Model Audit Scheme to meet at MSC 77 to progress the matter in accordance with the terms of reference agreed by the Council, set out in annex 8, attaching also the attendant extracts of the reports of MEPC 48, TC 52 and MSC 76.

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ANNEX 9

CRITERIA FOR ASSIGNING CARRIAGE REQUIREMENTS FROM PRODUCTS SUBJECT TO THE IBC CODE*

1 Introduction

1.1 The following criteria are guidelines for the determination of Pollution Classification and assignment of appropriate carriage requirements for bulk liquid cargoes being considered as candidates for entry into the IBC Code or annexes 1, 3 or 4 of MEPC.2/Circs.

1.2 In developing such criteria, every effort has been made to follow the criteria and cut off points developed under the Global Harmonized System (GHS).

1.3 Although the criteria are intended to be closely defined in order to establish a uniform approach, it must be emphasized that these are guidelines only and, where human experience or other factors indicates the need for alternative arrangements, these should always be taken into account. Where deviations from the criteria have been recognized, they should be properly recorded with justifications.

2 Contents

2.1 This annex contains the following sections and appendices:

.1 minimum safety and pollution criteria for bulk liquid cargoes subject to chapter 17 of the IBC Code;

.2 criteria used to assign the minimum carriage requirements for products, which meet the safety or pollution criteria to make them subject to chapter 17 of the IBC Code;

.3 special requirements in chapter 15 of the IBC Code to be included in column o of chapter 17 of the IBC Code;

.4 special requirements in chapter 16 of the IBC Code to be included in column o of chapter 17 of the IBC Code;

.5 special requirements in chapter 16A of the IBC Code to be included in column o of chapter 17 of the IBC Code;

.6 definitions of properties used within this annex;

* Intended to replace the criteria for hazard evaluation of bulk chemicals approved by MSC 42 and MEPC 21, as contained on pages 191 to 200 of the 1998 English edition of the IBC Code, after adoption of the revised MARPOL Annex II.
.7 BLG Product Data Reporting Form (appendix 1)*; and
.8 Guidelines for completing the BLG Product Data Reporting Form (appendix 2)*.

3 Minimum safety and pollution criteria for bulk liquid cargoes subject to chapter 17 of the IBC Code

3.1 Bulk liquid cargoes are deemed to be hazardous and subject to chapter 17 of the IBC Code if they meet one or more of the following criteria:

.1 inhalation LC₅₀ ≤20 mg/l/4h (see definitions in paragraph 8.1.1);
.2 dermal LD₅₀ ≤2000 mg/kg (see definitions in paragraph 8.1.2);
.3 oral LD₅₀ ≤2000 mg/kg (see definitions in paragraph 8.1.3);
.4 toxic to mammals by prolonged exposure (see definitions in paragraph 8.2);
.5 cause skin sensitization (see definitions in paragraph 8.3);
.6 cause respiratory sensitization (see definitions in paragraph 8.4);
.7 corrosive to skin (see definitions in paragraph 8.5);
.8 have a Water Reactive Index (WRI) of >1 (see definitions in paragraph 8.6);
.9 require inertion, inhibition, stabilization, temperature control or tank environmental control in order to prevent a hazardous reaction (see definitions in paragraph 8.10);
.10.1 flash point <23°C;
.10.2 have an explosive/flammability range (expressed as a percentage by volume in air) of ≥20%;
.11 autoignition temperature of ≤200°C; and
.12 classified as pollution category [A, B or C][X or Y].**

* to be developed.

** Subject to consideration by MEPC 49 on the pollution category system incorporated in the revised MARPOL Annex II.
4 Criteria used to assign the minimum carriage requirements for products which meet the minimum safety or pollution criteria to make them subject to chapter 17 of the IBC Code.

4.1 Column a - Proper shipping name

4.1.1 The IUPAC name should be used as far as possible but, where this is unnecessarily complex, then a technically correct and unambiguous alternative chemical name may be used.

4.2 Column b – UN Number (to be transferred to the index)

4.2.1 The number relating to each product shown in the recommendations proposed by the United Nations Committee of Experts on the Transport of Dangerous Goods. UN numbers, where available, are given for information only.

4.3 Column c - Pollution category

4.3.1 Column c identifies the pollution category assigned to each product under MARPOL Annex II.

4.4 Column d - Hazards

4.4.1 An S is assigned to column d if any of the safety criteria described in paragraphs 3.1.1 to 3.1.11 are met.

4.4.2 A P is assigned to column d if the product is classified as pollution category [A, B or C][X or Y], as referred to in paragraph 2.1.12.

4.5 Column e - Ship type

4.5.1 The ship type is assigned according to the following criteria:

Ship Type 1:

- Inhalation LC$_{50}$ <0.5 mg/l/4h; and/or
- Dermal LD$_{50}$ ≤50 mg/kg; and/or
- Oral LD$_{50}$ ≤ 5 mg/kg; and/or
- Autoignition temperature ≤65°C; and/or
- Explosive range ≥50% v/v in air and the flash point <23°C; and/or
- Pollution criteria defined on the basis of the revised GESAMP Hazard Profile.

Ship Type 2:

- Inhalation LC$_{50}$ >0.5mg/l/4h - <2mg/l/4h; and/or
- Dermal LD$_{50}$ >50mg/kg - ≤ 1000 mg/kg; and/or
- Oral LD$_{50}$ >5mg/kg - ≤ 300 mg/kg; and/or
- WRI=2;
- Autoignition temperature ≤200°C; and/or
- Explosive range ≥40% v/v in air and the flash point <23°C; and/or
- Pollution criteria defined on the basis of the revised GESAMP Hazard Profile.
Ship Type 3:

Any of the minimum safety or pollution criteria for bulk liquid cargoes subject to chapter 17 or the IBC Code not meeting the requirements for ship types 1 or 2.

4.6 Column f - Tank type

4.6.1 The tank type is assigned according to the following criteria:

Tank type 1G:  Inhalation LC$_{50} \leq 0.5$ mg/l/4h; and/or
Dermal LD$_{50} \leq 200$ mg/kg; and/or
Autoignition temperature $\leq 65^\circ$C; and/or
Explosive range $\geq 40\%$ v/v in air and the flash point $< 23^\circ$C; and/or
WRI=2

Tank type 2G:  Any of the minimum safety or pollution criteria for bulk liquid cargoes subject to chapter 17 or the IBC Code not meeting the requirements for tank type 1G.

4.7 Column g - Tank vents

4.7.1 The tank venting arrangements are assigned according to the following criteria:

Controlled:  Inhalation LC$_{50} \leq 10$ mg/l/4h; and/or
Toxic to mammals by prolonged exposure; and/or
Respiratory sensitizer; and/or
Special carriage control needed; and/or
Flash point $< 60^\circ$C
Corrosive to skin($<4$ h exposure)

Open:  Any of the minimum safety or pollution criteria for bulk liquid cargoes subject to chapter 17 or the IBC Code not meeting the requirements for Controlled Tank Vents.

4.8 Column h - Tank environmental control

4.8.1 The Tank environmental control conditions are assigned according to the following criteria:

Inert:  Autoignition temperature $\leq 200^\circ$C; and/or
Reacts with air to cause a hazard; and/or
Explosive range $\geq 40\%$ and the flash point $< 23^\circ$C.

Dry:  WRI$\geq 1$

Pad:  Only applies to specific products identified on a case by case basis.

Vent:  Only applies to specific products identified on a case by case basis.
4.9 Column i - Electrical equipment

4.9.1 If the flash point of the product is \( \leq 60^\circ C \) or the product is heated to within \( 15^\circ C \) of its flash point then the electrical equipment required are assigned according to the following criteria, else ‘-’ is assigned:

.1 Column i' - Temperature class:

<table>
<thead>
<tr>
<th>Temperature class</th>
<th>Autoignition temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>( &gt; 450^\circ C )</td>
</tr>
<tr>
<td>T2</td>
<td>( &gt; 300^\circ C ) but ( &lt; 450^\circ C )</td>
</tr>
<tr>
<td>T3</td>
<td>( &gt; 200^\circ C ) but ( &lt; 300^\circ C )</td>
</tr>
<tr>
<td>T4</td>
<td>( &gt; 135^\circ C ) but ( &lt; 200^\circ C )</td>
</tr>
<tr>
<td>T5</td>
<td>( &gt; 100^\circ C ) but ( &lt; 135^\circ C )</td>
</tr>
<tr>
<td>T6</td>
<td>( &gt; 85^\circ C ) but ( &lt; 100^\circ C )</td>
</tr>
</tbody>
</table>

.2 Column i'' - Apparatus group:

<table>
<thead>
<tr>
<th>Apparatus group</th>
<th>MESG at 20°C (mm)</th>
<th>MIC ratio product/methane</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIA</td>
<td>( \geq 0.9 )</td>
<td>( &gt; 0.8 )</td>
</tr>
<tr>
<td>IIB</td>
<td>( \geq 0.5 ) to ( &lt; 0.9 )</td>
<td>( &gt; 0.45 ) to ( \leq 0.8 )</td>
</tr>
<tr>
<td>IIC</td>
<td>( \leq 0.5 )</td>
<td>( &lt; 0.45 )</td>
</tr>
</tbody>
</table>

.2.1 The tests should be carried out in accordance with the procedures described in IEC 79-1A and IEC 79-3.

.2.2 For gases and vapours it is sufficient to make only one determination of either MESG or MIC provided that:

for Group IIA: the MESG \( > 0.9 \) mm or the MIC ratio \( > 0.9 \).
for Group IIB: the MESG is \( \geq 0.55 \) mm and \( \geq 0.9 \) mm; or the MIC ratio is \( \geq 0.5 \) and \( > 0.8 \).
for Group IIC: the MESG is \( < 0.5 \) mm or the MIC ratio is \( < 0.45 \).

.2.3 It is necessary to determine both the MESG and the MIC ratio when:

.1 The MIC ratio determination only has been made, and the ratio is between 0.8 and 0.9, when an MESG determination will be required;

.2 The MIC ratio determination only has been made, and the ratio is between 0.45 and 0.5, when an MESG determination will be required; or

.3 The MESG only has been found, and is between 0.5 mm and 0.55 mm, when an MIC ratio determination will be required.
3 Column I"" Flash point:  

- > 60°C : Yes  
- ≤ 60°C : No  
- Non-flammable : NF

4.10 Column j - Gauging

4.10.1 The type of gauging equipment permitted is assigned according to the following criteria:

- **Closed**: Inhalation LC\textsubscript{50} ≤ 2 mg/kg; and/or Dermal LD\textsubscript{50} ≤ 1000 mg/kg; and/or Toxic to mammals by prolonged exposure; and/or Respiratory sensitizer; and/or Corrosive to skin (≤ 3 min exposure).

- **Restricted**: Inhalation LC\textsubscript{50} > 2 ≤ 10 mg/l/4h; and/or Special carriage control indicates Inerting required; and/or Corrosive to skin (>3 min - ≤ 1 h exposure); and/or Flash point < 60°C.

- **Open**: Any of the minimum safety or pollution criteria for bulk liquid cargoes subject to chapter 17 or the IBC Code not meeting the requirements for closed or restricted gauging.

4.11 Column k - Vapour detection

4.11.1 The type of vapour detection equipment required is determined by the following criteria:

- **Toxic (T)**: Inhalation LC\textsubscript{50} ≤ 10 mg/l/4 h, and/or Respiratory sensitizer; and/or Toxic by prolonged exposure.

- **Flammable (F)**: Flash point ≤ 60°C

4.12 Column l - Fire protection equipment

4.12.1 The appropriate fire fighting media are defined as being appropriate according to the following criteria related to the properties of the product:

- **Solubility >10% (>100000 mg/l)**: A Alcohol-resistant foam.

- **Solubility <10% (<100000 mg/l)**: A Alcohol-resistant foam; and/or B Regular foam.

- **WRI = 0**: C Water spray (generally used as a coolant and can be used under .1 and .2 providing that the WRI=0).

- **WRI ≥ 1**: D Dry powder

Note: all appropriate media will be listed.
4.13 **Column n - Personnel safety equipment for emergencies**

4.13.1 The requirement to have personnel safety equipment for emergencies on board is identified by ‘Yes’ in column o according to the following criteria:

- Inhalation LC$_{50}$ \(\leq 2\) mg/l/4 h; and/or
- Respiratory sensitizer; and/or
- Corrosive to skin (\(\leq 3\) min exposure); and/or
- WRI=2.

5 **Special requirements in chapters 15 to be included in column o**

5.1 The assignment of special requirements in column o should normally follow clear criteria based on the data supplied in the reporting form. Where it is considered appropriate to deviate from such criteria, this should be clearly documented in such a way that it can easily be retrieved on demand.

5.2 The criteria for making reference to the special requirements identified in chapters 15, 16 and 16A are defined below with comments where relevant.

5.3 **Paragraphs 15.1 to 15.10**

5.3.1 Paragraphs 15.1 to 15.10 identify specific products by name with special carriage requirements that cannot be easily accommodated in any other way.

5.4 **Paragraph 15.11 - Acids**

5.4.1 Paragraph 15.11 applies to ALL acids unless they:

- are organic acids - when only paragraphs 15.11.2 - 15.11.4 and paragraphs 15.11.6 - 15.11.8 apply; or
- do not evolve hydrogen - when paragraph 15.11.5 need not apply.

5.5 **Paragraph 15.12 - Toxic products**

5.5.1 All of paragraph 15.12 is added to column o according to the following criteria:

- Inhalation LC$_{50}$ \(\leq 2\) mg/l/4 hr; and/or
- the product is a Respiratory Sensitizer; and/or
- the product is Toxic to mammals by prolonged exposure.

5.5.2 Paragraph 15.12.3 is added to column o according to the following criteria:

- Inhalation LC$_{50}$ >2 - \(\leq 10\) mg/l/4 hr; and/or
- Dermal LD$_{50}$ \(\leq 1000\) mg/kg; and/or
- Oral LD$_{50}$ \(\leq 300\) mg/kg.

5.5.3 Paragraph 15.12.4 is added to column o according to the following criterion:

- Inhalation LC$_{50}$ >2 - \(\leq 10\) mg/l/4 h.
5.6 **Paragraph 15.13 - Cargoes protected by additives**

5.6.1 The requirement to assign paragraph 15.13 to column o is based on the information related to the products tendency to polymerise, decompose, oxidise or undergo other chemical changes which may cause a hazard under normal carriage conditions and which would be prevented by the addition of appropriate additives.

5.7 **Paragraph 15.14 - Cargoes with a vapour pressure greater than atmospheric at 37.8°C**

5.7.1 The requirement to assign paragraph 15.14 to column o is based on the following criterion:

\[ \text{Boiling point} \leq 37.8^\circ \text{C} \]

5.8 **Paragraph 15.16 - Prevention of cargo contamination**

5.8.1 Paragraph 15.16.1 is deleted.

5.8.1 Paragraph 15.16.2 is added to column o according to the following criterion:

\[ \text{WRI} \geq 1 \]

5.9 **Paragraph 15.17 - Increased ventilation requirements**

5.9.1 Paragraph 15.17 shall be added to column o according to the following criteria:

- Inhalation LC\(_{50}\) >0.5 - \(\leq 2 \text{ mg/l/4 hrs} \); and/or
- Respiratory sensitizer; and/or
- Toxic to mammals by prolonged exposure; and/or
- Corrosive to skin (\(\leq 1 \text{ h exposure time} \)).

5.10 **Paragraph 15.18 - Special cargo pump-room requirements**

5.10.1 Paragraph 15.18 shall be added to column o according to the following criterion:

\[ \text{Inhalation LC}_{50} \leq 0.5 \text{ mg/l/4 h} \]

5.11 **Paragraph 15.19 - Overflow Control**

5.11.1 Paragraph 15.19 shall be added to column o according to the following criteria:

- Inhalation LC\(_{50}\) \(\leq 2 \text{ mg/l/4 h} \); and/or
- Dermal LD\(_{50}\) \(\leq 1000 \text{ mg/kg} \); and/or
- Oral LD\(_{50}\) \(\leq 300 \text{ mg/kg} \); and/or
- Respiratory sensitizer; and/or
- Corrosive to skin (\(\leq 3 \text{ min exposure} \)); and/or
- Autoignition temperature \(\leq 200^\circ \text{C} \); and/or
- Explosive range \(\geq 40\% \text{ v/v in air and flash point} < 23^\circ \text{C} \); and/or
- Classified as ship type 1 on Pollution grounds.
5.11.2 Only paragraph 15.19.6 shall apply if the product has any of the following properties:

- Inhalation LC₅₀ > 2 mg/l/4h - < 10 mg/l/4 h; and/or
- Dermal LD₅₀ > 1000 mg/kg - ≤ 2000 mg/kg; and/or
- Oral LD₅₀ > 300 mg/kg - ≤ 2000 mg/kg; and/or
- Skin sensitizer; and/or
- Corrosive to skin (> 3 min - ≤ 1 hr exposure); and/or
- Flash point ≤ 60°C; and/or
- Classified as ship type 2 on pollution grounds; and/or
- [Pollution category A or B;]
- [Pollution category C with flash point ≤ 60°C.]

5.12 Paragraph 15.21

15.12.1 Paragraph 15.21 is added to column o according to the heat sensitivity of the product. This requirement related to pumps in cargo pump rooms only.

6 Special requirements in chapters 16 to be included in column o

6.1 Paragraphs 16.1 to 16.2.5 and 16.3 to 16.5

6.1.1 These apply to all cargoes and so are not referenced specifically in column o.

6.2 Paragraph 16.2.6

6.2.1 Paragraph 16.2.6 is added to column o for products which meet the following criterion:

- Pollution category B and viscosity ≥ 25 mPa.s at 20°C.

6.3 Paragraph 16.2.7

6.3.1 Paragraph 16.2.7 is only added to column o for products which meet the following criterion:

- Pollution category C and viscosity ≥ 60 mPa.s at 20°C.

6.4 Paragraph 16.2.8

6.4.1 The value of this paragraph must be in doubt as it should be assumed that all cargoes may be unloaded within a special area.

6.5 Paragraph 16.2.9

6.5.1 Paragraph 16.2.9 is added to column o for products which meet the following criterion:

- Melting point ≥ 0°C.

6.6 Paragraph 16.6

6.6.1 Paragraphs 16.6.2 to 16.6.4 are added to column o for products which are identified as requiring temperature control during carriage.
6.6.2 Avoidance of cargo heating to prevent a hazardous reaction is a general operational requirement and not a special one that needs to be described in chapter 15 (Special Requirements) and should also be achieved by proper segregation (reference: chapter 3 of the IBC Code). Therefore, the essence of paragraph 16.16.1 should be incorporated in chapter 3.

7 Special requirements in chapters 16A to be included in column o

7.1 Paragraph 16A.2.2

7.7.1 Paragraph 16A.2.2 applies for products which meet the following criterion:

Melting point >15°C.

8 Definitions

8.1 Acute mammalian toxicity

8.1.1 Acutely toxic by inhalation

<table>
<thead>
<tr>
<th>Inhalation toxicity ($L_{C50}$)</th>
<th>Hazard level</th>
<th>mg/l/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>&lt;0.5</td>
<td></td>
</tr>
<tr>
<td>Moderately high</td>
<td>&gt;0.5 - &lt;2</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>&gt;2 - &lt;10</td>
<td></td>
</tr>
<tr>
<td>Slight</td>
<td>&gt;10 - &lt;20</td>
<td></td>
</tr>
<tr>
<td>Negligible</td>
<td>&gt;20</td>
<td></td>
</tr>
</tbody>
</table>

Note: All inhalation toxicity data are assumed to be associated with vapours and not mists or sprays, unless indicated otherwise.

8.1.2 Acutely toxic in contact with skin

<table>
<thead>
<tr>
<th>Dermal toxicity ($L_{D50}$)</th>
<th>Hazard Level</th>
<th>mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>≤5</td>
<td></td>
</tr>
<tr>
<td>Moderately high</td>
<td>&gt;5 - ≤200</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>&gt;200 - ≤1000</td>
<td></td>
</tr>
<tr>
<td>Slight</td>
<td>&gt;1000 - ≤2000</td>
<td></td>
</tr>
<tr>
<td>Negligible</td>
<td>&gt;2000</td>
<td></td>
</tr>
</tbody>
</table>

8.1.3 Acutely toxic if swallowed

<table>
<thead>
<tr>
<th>Oral toxicity ($L_{D50}$)</th>
<th>Hazard Level</th>
<th>mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>≤5</td>
<td></td>
</tr>
<tr>
<td>Moderately High</td>
<td>&gt;5 - ≤50</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>&gt;50 - ≤300</td>
<td></td>
</tr>
<tr>
<td>Slight</td>
<td>&gt;300 - ≤2000</td>
<td></td>
</tr>
<tr>
<td>Negligible</td>
<td>&gt;2000</td>
<td></td>
</tr>
</tbody>
</table>
8.2 Toxic to mammals by prolonged exposure

8.2.1 A product is classified as toxic by prolonged exposure if it meets any of the following criteria: it is known to be, or suspected of being a carcinogen, mutagen or reprotoxic; or exposure below the lethal dose is known to cause specific organ oriented systemic toxicity (TOST) or other related effects.

8.2.2 Such effects may be identified from the GESAMP Hazard Profile of the product or other recognized sources of such information.

8.3 Skin sensitization

8.3.1 A product is classified as a skin sensitizer:

.1 if there is evidence in humans that the substance can induce sensitization by skin contact in a substantial number of persons; or

.2 where there are positive results from an appropriate animal test.

8.3.2 When an adjuvant type test method for skin sensitization is used, a response of at least 30% of the animals is considered as positive. For a non-adjuvant test method a response of at least 15% of the animals is considered positive.

8.3.3 When a positive result is obtained from the Mouse Ear Swelling Test (MEST) or the Local Lymph Node Assay (LLNA), this may be sufficient to classify the product as a skin sensitizer.

8.4 Respiratory sensitization

8.4.1 A product is classified as a respiratory sensitizer:

.1 if there is evidence in humans that the substance can induce specific respiratory hypersensitivity; and/or

.2 where there are positive results from an appropriate animal test, and/or

.3 where the product is identified as a skin sensitizer and there is no evidence to show that it is not a respiratory sensitizer.

8.5 Corrosive to skin

<table>
<thead>
<tr>
<th>Hazard level</th>
<th>Exposure time to cause full thickness necrosis of skin</th>
<th>Observation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severely corrosive to skin</td>
<td>≤3 min</td>
<td>≤1 h</td>
</tr>
<tr>
<td>Highly corrosive to skin</td>
<td>&gt;3 min - &lt;1 h</td>
<td>&lt;14 days</td>
</tr>
<tr>
<td>Moderately corrosive to skin</td>
<td>&gt;1 h - &lt;4 h</td>
<td>&lt;14 days</td>
</tr>
</tbody>
</table>

Note: Products that are corrosive to skin are, for the purpose of assigning relevant carriage requirements, deemed to be corrosive by inhalation.
8.6 Water reactive substances

8.6.1 These are classified into three groups as follows:

<table>
<thead>
<tr>
<th>Water reactive index (WRI)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Any chemical which, in contact with water, may produce a toxic, flammable or corrosive gas or aerosol</td>
</tr>
<tr>
<td>1</td>
<td>Any chemical which, in contact with water, may generate heat or produce a non-toxic, non-flammable or non-corrosive gas.</td>
</tr>
<tr>
<td>0</td>
<td>Any chemical which, in contact with water, would not undergo a reaction to justify a value of 1 or 2.</td>
</tr>
</tbody>
</table>

8.7 Air reactive substances

8.7.1 Air reactive substances are products which react with air to cause a potentially hazardous situation e.g. the formation of peroxides which may cause an explosive reaction.

8.8 Electrical apparatus - Temperature class (for products which either have a flashpoint of ≤60°C or are heated to within 15°C of their flashpoint)

8.8.1 The temperature class is defined by the International Electrotechnical Commission (IEC) as:

"The highest temperature attained under practical conditions of operation within the rating of the apparatus (and recognized overloads, if any, associated therewith) by any part of any surface, the exposure of which to an explosive atmosphere may involve a risk."

8.8.2 The temperature class of the electrical apparatus is assigned by selecting the maximum surface temperature which is closest to, but less than, the product's autoignition temperature (see paragraph 4.9.1.1).

8.9 Electrical apparatus - Apparatus group (for products with a flashpoint of ≤60°C)

8.9.1 This refers to intrinsically safe and associated electrical apparatus for explosive gas atmospheres which the IEC divide into the following groups:

- **Group I:** for mines susceptible to firedamp (not used by IMO); and
- **Group II:** for applications in other industries - further sub-divided according to its Maximum Experimental Safe Gap (MESG) and/or the Minimum Igniting Current (MIC) of the gas/vapour into groups IIA, IIB and IIC.

8.9.2 This property cannot be determined from other data associated with the product; it has to be either measured or assigned by assimilation with related products in an homologous series (see paragraph 4.9.2.2).
8.10 Special carriage control conditions

8.10.1 Special carriage control conditions refer to specific measures that need to be taken in order to either prevent a hazardous reaction. They include:

Inhibition: the addition of a compound (usually organic) that retards or stops an undesired chemical reaction such as corrosion, oxidation or polymerisation;

Stabilization: the addition of a substance (stabilizer) that tends to keep a compound, mixture or solution from changing its form or chemical nature. Such stabilizers may retard a reaction rate, preserve a chemical equilibrium, act as antioxidants, keep pigments and other components in emulsion form or prevent the particles in colloidal suspension from precipitating;

Inertion: the addition of a gas (usually nitrogen) in the ullage space of a tank that prevents the formation of a flammable cargo/air mixture;

Temperature control: the maintenance of a specific temperature range for the cargo in order to prevent a hazardous reaction or to keep the viscosity low enough to allow the product to be pumped; and

Padding and venting: only applies to specific products identified on a case by case basis.

8.11 Flammable cargoes

8.11.1 A cargo is defined as flammable according to the following criteria:

<table>
<thead>
<tr>
<th>IBC Code descriptor</th>
<th>Flash point (degrees centigrade)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly flammable</td>
<td>&lt; 23</td>
</tr>
<tr>
<td>Flammable</td>
<td>&lt; 60 but &gt; 23</td>
</tr>
</tbody>
</table>

8.11.2 Note: The flash point of mixtures and aqueous solution needs to be measured unless all of the components are non-flammable.

8.11.3 Note: The carriage of bulk liquid cargoes which have a flash point of ≤ 60°C are subject to the regulations in SOLAS chapter II-2, Part D.

***
ANNEX 10

NEW AND AMENDED TRAFFIC SEPARATION SCHEMES AND
ASSOCIATED ROUTEING MEASURES

NEW TRAFFIC SEPARATION SCHEMES IN THE SOUTHERN RED SEA – EAST OF
JABAL ZUQUAR ISLAND AND WEST AND SOUTH OF HANISH AL KUBRA ISLAND

(Reference charts: British Admiralty Charts Nos: 452 and 453
Note: These charts are based on World Geodetic System 1984 Datum (WGS 84))

The new traffic separation scheme east of Jabal Zuqar will consist of:

Two traffic lanes and one traffic separation zone between them.

The direction of navigation will be:

- a southbound traffic lane, 140°(T) as far as the turning line abeam of the 18.3 m shoal, thence 166°(T) to the southern limit of the scheme.
- a northbound traffic lane, 346°(T) as far as the turning line abeam of the 18.3m shoal, thence 320°(T) to the northern limit of the scheme.

Description of the new traffic separation scheme east of Jabal Zuqar Island

(a) A separation zone bounded by a line connecting the following geographical positions:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) 14° 07'.28 N 042° 45'.96 E</td>
<td>(2) 14° 02'.76 N 042° 49'.85 E</td>
<td></td>
</tr>
<tr>
<td>(3) 13° 58'.21 N 042° 51'.00 E</td>
<td>(4) 13° 58'.55 N 042° 52'.30 E</td>
<td></td>
</tr>
<tr>
<td>(5) 14° 03'.76 N 042° 51'.00 E</td>
<td>(6) 14° 08'.27 N 042° 47'.10 E</td>
<td></td>
</tr>
</tbody>
</table>

(b) A traffic lane for southbound traffic between the separation zone and a line connecting the following geographical positions:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) 14° 06'.49 N 042° 44'.98 E</td>
<td>(8) 14° 01'.93 N 042° 48'.94 E</td>
<td></td>
</tr>
<tr>
<td>(9) 13° 57'.97 N 042° 49'.95 E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(c) A traffic lane for northbound traffic between the separation zone and a line connecting the following geographical positions:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10) 14° 09'.40 N 042° 48'.42 E</td>
<td>(11) 14° 04'.88 N 042° 52'.35 E</td>
<td></td>
</tr>
<tr>
<td>(12) 13° 58'.94 N 042° 53'.83 E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The new traffic separation scheme west and south of Hanish al Kubra will consist of:

Two traffic lanes and one traffic separation zone between them.

The direction of navigation will be:

- a southbound traffic lane, 154°(T) as far as the turning line between the Three Foot Rock and the Haycock islands, thence 123°(T) to the eastern limit of the scheme.

- a northbound traffic lane, 309°(T) as far as the turning line between the Three Foot Rock and the Haycock islands, thence 333°(T) to the northern limit of the scheme.

Description of the new traffic separation scheme west and south of Hanish al Kubra Island

(a) A separation zone bounded by a line connecting the following geographical positions:

- (1) 13° 38'.33 N 042° 31'.78 E
- (2) 13° 30'.95 N 042° 35'.60 E
- (3) 13° 26'.61 N 042° 42'.18 E
- (4) 13° 29'.12 N 042° 44'.22 E
- (5) 13° 33'.20 N 042° 39'.08 E
- (6) 13° 40'.15 N 042° 35'.50 E

(b) A traffic lane for southbound traffic between the separation zone and a line connecting the following geographical positions:

- (7) 13° 37'.40 N 042° 29'.93 E
- (8) 13° 29'.82 N 042° 33'.88 E
- (9) 13° 25'.22 N 042° 41'.05 E

(c) A traffic lane for northbound traffic between the separation zone and a line connecting the following geographical positions:

- (10) 13° 40'.82 N 042° 36'.90 E
- (11) 13° 34'.06 N 042° 40'.38 E
- (12) 13° 30'.25 N 042° 45'.18 E
NEW TRAFFIC SEPARATION SCHEME OFF CAPE LA NAO

Note: This chart is based on European Datum.)

Description of the new traffic separation scheme Off Cape La Nao

(a) Northbound traffic separation line bounded by a line connecting the following geographical positions:

<table>
<thead>
<tr>
<th>No.</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38°41’.40 N</td>
<td>000°28’.80 E</td>
</tr>
<tr>
<td>2</td>
<td>38°37’.70 N</td>
<td>000°26’.00 E</td>
</tr>
</tbody>
</table>

(b) Intermediate traffic separation zone bounded by a line connecting the following geographical positions:

<table>
<thead>
<tr>
<th>No.</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>38°37’.90 N</td>
<td>000°23’.10 E</td>
</tr>
<tr>
<td>4</td>
<td>38°42’.20 N</td>
<td>000°26’.80 E</td>
</tr>
<tr>
<td>5</td>
<td>38°43’.00 N</td>
<td>000°25’.00 E</td>
</tr>
<tr>
<td>6</td>
<td>38°37’.90 N</td>
<td>000°20’.60 E</td>
</tr>
</tbody>
</table>

(c) Associated inshore navigation zone established between the coast and a line passing through the following geographical positions:

<table>
<thead>
<tr>
<th>No.</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>38°37’.90 N</td>
<td>000°13’.50 E</td>
</tr>
<tr>
<td>8</td>
<td>38°41’.00 N</td>
<td>000°20’.20 E</td>
</tr>
<tr>
<td>9</td>
<td>38°44’.00 N</td>
<td>000°22’.60 E</td>
</tr>
</tbody>
</table>

and the connection of point No. 7 with the Ifach Headland and the connection of point No. 9 with the Cape San Antonio Lighthouse.

(d) A northbound traffic lane for north-eastbound shipping established between the separation zones described in (a) and (b). The main traffic direction is: 032° (T).

(e) A southbound traffic lane for south-westbound shipping established between the traffic separation zone described in (b) and the associated inshore navigation zone described in (c). The main traffic direction is: 212° (T).

NEW TRAFFIC SEPARATION SCHEME OFF CAPE PALOS

Note: This chart is based on European Datum.)

Description of the new traffic separation scheme Off Cape Palos

(a) A separation line for northbound traffic delimited by a line connecting the following geographical positions:

<table>
<thead>
<tr>
<th>No.</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>37°34’.30 N</td>
<td>000°28’.70 W</td>
</tr>
<tr>
<td>2</td>
<td>37°32’.50 N</td>
<td>000°30’.00 W</td>
</tr>
<tr>
<td>3</td>
<td>37°31’.20 N</td>
<td>000°32’.30 W</td>
</tr>
</tbody>
</table>
(b) A separation zone delimited by a line joining the following geographical positions:

(4) 37°32'.00 N  000°33'.50 W  
(5) 37°33'.50 N  000°31'.40 W  
(6) 37°34'.85 N  000°30'.30 W  
(7) 37°32'.80 N  000°31'.40 W  
(8) 37°34'.40 N  000°32'.20 W  
(9) 37°35'.20 N  000°34'.60 W  

(c) An inshore traffic zone situated between the coast and a line which passes through the following geographical positions:

(10) 37°33'.75 N  000°35'.75 W  
(11) 37°35'.00 N  000°33'.80 W  
(12) 37°35'.70 N  000°33'.40 W  

and a line which joins the geographical position (10) and Cape Agua and a line which joins the geographical position (12) and Cape Roig.

(d) A northbound traffic lane leading north-east situated between the separation zones described in a) and b).

(e) A southbound traffic lane leading south-west situated between the separation zone described in b) and the inshore traffic zone described in c).

AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEMES IN THE GULF OF FINLAND

Traffic separation scheme "Off Porkkala Lighthouse"

Geodetic datum: The national Finnish geodetic chart-coordinate system (KKJ)
WGS84 correction: latitude correction -0,01'
longitude correction is +0,19'.

Description of the amended traffic separation scheme

(a) A separation zone, one mile wide, is centred upon the following geographical positions:

(1) 59°43'.70 N  024°14'.00 E  
(2) 59°44'.90 N  024°21'.40 E  
(3) 59°45'.90 N  024°31'.00 E  

(b) A traffic lane, one and a half miles wide, is established on each side of the separation zone.
(c) A precautionary area is established upon the following geographical positions:

1. 59°43'.95 N  024°31'.80 E
2. 59°46'.15 N  024°53'.50 E
3. 59°50'.05 N  024°51'.90 E
4. 59°47'.85 N  024°30'.20 E

(d) A separation zone, one mile wide, is centred upon the following geographical positions:

1. 59°48'.10 N  024°52'.70 E
2. 59°48'.80 N  025°00'.00 E

(e) A traffic lane, one and a half miles wide, is established on each side of the separation zone.

Traffic separation scheme "Off Hankoniemi Peninsula"

Geodetic datum: The national Finnish geodetic chart-coordinate system (KKJ)
WGS84 correction: latitude correction -0,01'
                  longitude correction +0,20'.

Description of the amended traffic separation scheme

(c) A separation zone, two miles wide, is centred upon the following geographical positions:

1. 59°24' 50 N  022°25'.00 E
2. 59°28' 00 N  022°34'.00 E
3. 59°30' 00 N  022°45'.00 E

(d) A traffic lane, four miles wide, is established on each side of the separation zone.

AMENDMENT TO THE TRAFFIC SEPARATION SCHEME IN THE BAY OF FUNDY
AND APPROACHES

(Reference charts: Canadian Hydrographic Service L/C-4011, 1997 edition.
Note: This chart is based on North American 1983 Geodetic Datum, which is equivalent at this
scale to North American 1927 Geodetic Datum.)

Description of the amended traffic separation scheme

The amended traffic separation scheme “In the Bay of Fundy and Approaches” consists of two
parts. (Positions are in North American 1927 Geodetic Datum Co-ordinates).

Part I

(a) Three separation zones bounded by lines connecting the following geographical positions:

(i) (1) 44°46'.40 N, 066°14'.39 W  (4) 44°11'.83 N, 066°49'.55 W
     (2) 44°31'.85 N, 066°19'.60 W  (5) 44°30'.70 N, 066°17'.20 W
     (3) 44°14'.95 N, 066°52'.70 W  (6) 44°45'.90 N, 066°11'.68 W
(ii) (7) 44°48'.32 N, 066°13'.65 W  (9) 44°46'.88 N, 066°11'.30 W  
(8) 44°47'.33 N, 066°14'.00 W  (10) 44°47'.86 N, 066°10'.95 W;  
and (iii) (11) 45°02'.5 N, 066°08'.25 W  (13) 44°48'.80 N, 066°10'.58 W  
(12) 44°49'.3 N, 066°13'.30 W  (14) 45°02'.00 N, 066°05'.55 W

(b) A traffic lane for north-eastbound traffic is established between the separation zones and a line connecting the following geographical positions:

(15) 44°09'.50 N, 066°47'.05 W  (17) 45°01'.50 N, 066°02'.80 W  
(16) 44°29'.60 N, 066°14'.75 W

(c) A traffic lane for south-westbound traffic is established between the separation zones and lines connecting the following geographical positions:

(i) (18) 45°03'.00 N, 066°11'.00 W  (19) 44°49'.80 N, 066°15'.98 W  
and (ii) (20) 44°46'.90 N, 066°17'.00 W  (22) 44°17'.35 N, 066°55'.17 W  
(21) 44°33'.00 N, 066°22'.00 W

Part II

(d) A separation zone bounded by a line connecting the following geographical positions:

(23) 44°48'.60 N, 066°20'.72 W  (25) 44°48'.88 N, 066°16'.35 W  
(24) 44°47'.90 N, 066°16'.70 W  (26) 44°49'.58 N, 066°20'.40 W

(e) A traffic lane for north-westbound traffic is established between the separation zone and a line connecting the following geographical positions:

(27) 44°49'.80 N, 066°15'.98 W  (28) 44°50'.58 N, 066°20'.05 W

(f) A traffic lane for south-eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

(29) 44°47'.65 N, 066°21'.10 W  (30) 44°46'.90 N, 066°17'.00 W

AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEME IN THE STRAIT OF BAB EL MANDEB

(Reference charts: British Admiralty charts Nos: 452 and 453  
Note: These charts are based on World Geodetic System 1984 Datum (WGS 84).)

The amended traffic separation scheme in the Strait of Bab el Mandeb will consist of:

Two traffic lanes and one traffic separation zone between them.
The direction of navigation will be:

- a southbound traffic lane, 155°(T) as far as the turning line off Mayyun Island, thence 120°(T) to the eastern limit of the existing scheme.
- a northbound traffic lane, 300°(T) as far as the turning line off Mayyun Island, thence 335°(T) to the northern limit of the scheme.

**Description of the amended traffic separation scheme in the Strait of Bab el Mandeb**

(a) A separation zone bounded by a line connecting the following geographical positions:

- (1) 13° 13'.07 N 043° 02'.87 E
- (2) 12° 36'.82 N 043° 20'.22 E
- (3) 12° 32'.53 N 043° 27'.79 E
- (4) 12° 33'.37 N 043° 28'.30 E
- (5) 12° 37'.50 N 043° 21'.00 E
- (6) 13° 13'.83 N 043° 03'.60 E

(b) A traffic lane for southbound traffic between the separation zone and a line connecting the following geographical positions:

- (7) 13° 11'.94 N 043° 01'.72 E
- (8) 12° 35'.78 N 043° 18'.98 E
- (9) 12° 31'.25 N 043° 27'.04 E

(c) A traffic lane for northbound traffic between the separation zone and a line connecting the following geographical positions:

- (10) 13° 15'.00 N 043° 04'.70 E
- (11) 12° 38'.50 N 043° 22'.21 E
- (12) 12° 34'.69 N 043° 29'.03 E

***
ANNEX 11

ROUTEING MEASURES OTHER THAN TRAFFIC SEPARATION SCHEMES

RECOMMENDED ROUTES OFF THE MEDITERRANEAN COAST OF EGYPT

(Reference charts: Admiralty charts No 3400, 2681, 2573 and 2574
Note: These charts are based on World Geodetic System 1984 Datum (WGS 84))

Recommended routes:

Recommended route between SALLUM and MATROUH is defined by a line connecting the following geographical positions:

1. 31° 40'. 60 N  025º 19'. 50 E
2. 31° 51'. 40 N  025º 54'. 00 E
3. 31° 32'. 50 N  027º 21'. 10 E

Recommended route between MATROUH and EL-ISKINDARIA is defined by a line connecting the following geographical positions:

4. 31° 32'. 50 N  027º 21'. 10 E
5. 31° 16'. 30 N  029º 35'. 20 E

Recommended route between EL-ISKINDARIA and EL-ARISH is defined by a line connecting the following geographical positions:

6. 31° 12'. 90 N  029º 47'. 70 E
7. 31° 39'. 10 N  030º 18'. 20 E
8. 31° 45'. 00 N  031º 02'. 00 E
9. 31° 46'. 80 N  032º 50'. 70 E
10. 31° 28'. 30 N  033º 41'. 50 E
11. 31° 12'. 00 N  033º 47'. 00 E

RECOMMENDED TRACKS AND A PRECAUTIONARY AREA FOR THE SOUTHERN RED SEA

(Reference charts: British Admiralty charts Nos: 452 and 453
Note: These charts are based on World Geodetic System 1984 Datum (WGS 84))

RECOMMENDED TRACKS BETWEEN JABAL ZUQAR AND THE PRECAUTIONARY AREA

The direction of navigation will be:

- a southbound traffic lane, 166°(T) from the southern limit of the traffic separation scheme east of Jabal Zuqar as far as the northern limit of the precautionary area lying north of the amended traffic scheme in the Strait of Bab el Mandeb.

- a northbound traffic lane, 346°(T) from the northern limit of the precautionary area lying north of the amended traffic scheme in the Strait of Bab el Mandeb to the southern limit of the traffic separation scheme east of Jabal Zuqar.
Description of the recommended tracks between the traffic separation schemes east of Jabal Zuqar and Bab el Mandeb:

(a) Northern limit, consisting of a line connecting the following geographical positions:

(9) (East of Jabal Zuqar) 13° 57’.97 N 042° 49’.95 E
(12) (East of Jabal Zuqar) 13° 58’.94 N 042° 53’.83 E

(b) Southern limit, consisting of a line connecting the following geographical positions:

(X) (precautionary area) 13° 19’.52 N 043° 03’.60 E
(Y) (precautionary area) 13° 18’.64 N 042° 59’.95 E

RECOMMENDED TRACKS BETWEEN HANISH AL KUBRA AND THE PRECAUTIONARY AREA

The direction of navigation will be:

- a southbound traffic lane, 123°(T) from the south eastern limit of the traffic separation scheme west and south of Hanish al Kubra as far as the north western limit of the precautionary area lying north of the amended traffic scheme through Bab el Mandeb.

- a northbound traffic lane, 309°(T) from the north western limit of the precautionary area lying north of the amended traffic scheme through Bab el Mandeb to the south eastern limit of the traffic separation scheme west and south of Hanish al Kubra.

Description of the recommended tracks between the traffic separation scheme west and south of Hanish al Kubra and the precautionary area:

(a) North western limit, consisting of a line connecting the following geographical positions:

(9) (West and south of Hanish al Kubra) 13° 25’.22 N 042° 41’.05 E
(12) (West and south of Hanish al Kubra) 13° 30’.25 N 042° 45’.18 E

(b) South eastern limit, consisting of a line connecting the following geographical positions:

(Y) (precautionary area) 13° 18’.64 N 042° 59’.95 E
(Z) (precautionary area) 13° 15’.00 N 042° 56’.96 E

PRECAUTIONARY AREA NORTH OF THE AMENDED TRAFFIC SEPARATION SCHEME IN THE STRAIT OF BAB EL MANDEB

A precautionary area is established by a line connecting the following geographical positions:

(10) (North west of Bab el Mandeb) 13° 15’.00 N 043° 04’.70 E
(X) 13° 19’.52 N 043° 03’.60 E
(Y) 13° 18’.64 N 042° 59’.95 E
(Z) 13° 15’.00 N 042° 56’.96 E
(7) (North west of Bab el Mandeb) 13° 11’.94 N 043° 01’.72 E
RECOMMENDATION ON NAVIGATION THROUGH THE GULF OF FINLAND

1 Use of ships' routeing system

1.1 The traffic separation schemes in the Gulf of Finland have been adopted by IMO and rule 10 of the International Regulations for Preventing Collisions at Sea, 1972, as amended applies. Subject to any factors that may adversely affect safe navigation, ships (especially oil and chemical tankers, ships carrying hazardous cargo and deep draught ships) proceeding from the Baltic Sea to the Gulf of Finland and vice versa are strongly recommended to use the traffic separation schemes in the Gulf of Finland.

1.2 Ships crossing the east-westerly flow of traffic between the traffic separation schemes should cross as nearly as practicable at right angles to the traffic flow. Ships leaving or joining the east-westerly flow of traffic between the traffic separation schemes should do it at as small an angle as practicable to the recommended directions of traffic flow.

2 Crossing traffic

In the ice-free season, there is heavy crossing traffic consisting mainly of high-speed craft between Helsinki and Tallinn. This increases the risk of collision in this area. Mariners are reminded that, when risk of collision is deemed to exist, the rules of the 1972 Collision Regulations fully apply and in particular the rules of part B, sections II and III, of which rules 15 and 19(d) are of specific relevance in a crossing situation.

3 Fishing and recreational sailing activities

Mariners should be aware that concentrations of recreational craft may be encountered between Porkkala, Helsinki and Tallinn in summer and should navigate with caution. Fishing vessels are reminded of the requirements of rule 10(i), and sailing vessels and all other vessels of less than 20 metres in length of the requirements of rule 10(j) of the 1972 Collision Regulations.

4 Pilotage

Under national laws pilotage is mandatory in territorial waters.

5 Defects affecting safety

Ships having defects affecting operational safety should take appropriate measures to overcome these defects before entering the Gulf of Finland.

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ANNEX 12

RESOLUTION MSC.138(76)
(adopted on 5 December 2002)

RECOMMENDATION ON NAVIGATION THROUGH
THE ENTRANCES TO THE BALTIC SEA

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/10 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, concerning the adoption by the Organization of ships' routeing systems,

RECALLING FURTHER resolution A.858(20) which, inter alia, authorizes the Committee to perform the function of adopting routeing measures other than traffic separation systems on behalf of the Organization,

TAKING INTO ACCOUNT the General Provisions on Ships' Routeing adopted by the Organization by resolution A.572(14), as amended,

TAKING NOTE OF:

(a) resolution 5 on Intentional pollution of the sea and accidental spillages adopted by the International Conference on Marine Pollution, 1973;

(b) resolution A.159(ES.IV) - Recommendation on pilotage;

(c) SOLAS chapter V, regulation 19 on Carriage requirements for shipborne navigational systems and equipment;

(d) previous resolutions A.579(14) - Recommendation on use of pilotage services in the Sound and A.620(15) - Recommendation on navigation through the entrances to the Baltic Sea, which have been superseded by this resolution;

(e) the established routeing system (Route T) through the entrances to the Baltic Sea; and

(f) the established ship reporting system in the Great Belt Traffic (GBT) area,

BEING AWARE of the close relationship between safety of navigation and the prevention of pollution from ships,

NOTING that, at several places, the entrances to the Baltic Sea are difficult to navigate,
NOTING ALSO that, owing to the risk of grounding or collision and the strong sea current, the navigation of large ships through the entrances to the Baltic Sea constitutes a potential danger of pollution of the entrances and of the entire Baltic Sea area,

NOTING FURTHER that loaded oil and chemical tankers, gas carriers and ships carrying a cargo of irradiated nuclear fuel, plutonium and high-level radioactive wastes (INF-cargoes) constitute a potential danger of pollution of the entrances to the Baltic Sea and a potential hazard to international shipping,

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its forty-eighth session,

1. ADOPTS, in accordance with SOLAS regulation V/10, the Recommendation on navigation through the entrances to the Baltic Sea, as given in Annexes 1 and 2 to the present resolution;

2. DECIDES that the said Annexes will enter into force at 0000 hours UTC on 1 December 2003;

3. REQUESTS the Secretary-General to bring this resolution and its Annexes to the attention of Member Governments and Contracting Governments to the 1974 SOLAS Convention.
ANNEX 1

RECOMMENDATION ON NAVIGATION THROUGH
THE ENTRANCES TO THE BALTIC SEA

ROUTE - T

1 Ships over 40,000 tonnes deadweight, when passing through the entrances to the Baltic Sea, in view of the fact that 17 m is the maximum obtainable depth without dredging in the area north-east of Gedser and that the charted depths, even under normal conditions, may be decreased by as much as 2 m owing to unknown and moving obstructions, should:

.1 not pass the area unless they have a draught with which it is safe to navigate through the area, taking into account the possibility of depths being as much as 2 m less than charted, as mentioned above, and additionally taking into account the possible changes in the indicated depth of water caused by meteorological or other effects;

.2 participate in the ship reporting system (SHIPPOS) operated by the Government of Denmark; and

.3 exhibit the signal prescribed in rule 28 of the International Regulations for Preventing Collisions at Sea, 1972, as amended, in certain areas in the Store Baelt (Hatter Rev, Vengeancegrund and in the narrow route east of Langeland), when constrained by their draught.

2 Ships with a draught of 11 m or more should, furthermore:

.1 use for the passage the pilotage services locally established by the coastal States; and

.2 be aware that anchoring may be necessary owing to the weather and sea conditions in relation to the size and draught of the ship and the sea level and, in this respect, take special account of the information available from the pilot and from radio navigation information services in the area.

3 Ships irrespective of size or draught, carrying a shipment of irradiated nuclear fuel, plutonium and high-level radioactive wastes on board ships (INF-cargoes) should:

.1 participate in the ship reporting system (SHIPPOS) operated by the Government of Denmark; and

.2 use for the passage the pilotage services locally established by the coastal States.

4 Shipowners and masters should consider the full potential of the new and improved navigation equipment introduced in the revised SOLAS chapter V, including Electronic Chart Display and Information System (ECDIS) when navigating in these narrow waters.
ANNEX 2

RECOMMENDATION ON NAVIGATION THROUGH
THE ENTRANCES TO THE BALTIC SEA

THE SOUND

1 Loaded oil tankers with a draught of 7 m or more, loaded chemical tankers and gas carriers, irrespective of size, and ships carrying a shipment of irradiated nuclear fuel, plutonium and high-level radioactive wastes (INF-cargoes), when navigating the Sound between a line connecting Svinbaadan Lighthouse and Hornbaek Harbour and a line connecting Skanör Harbour and Aflandshage (the southernmost point of Amager Island) should:

.1 use the pilotage services established by the Governments of Denmark and Sweden; and

.2 be aware that anchoring may be necessary owing to the weather and sea conditions in relation to the size and draught of the ship and the sea level and, in this respect, take special account of the information available from the pilot and from radio navigation information services in the area.

2 Ship owners and masters should consider the full potential of the new and improved navigation equipment introduced in the revised SOLAS chapter V, including Electronic Chart Display and Information System (ECDIS) when navigating in these narrow waters.

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ANNEX 13

RESOLUTION MSC.139(76)
(adopted on 5 December 2002)

MANDATORY SHIP REPORTING SYSTEMS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, concerning the adoption by the Organization of ship reporting systems,

RECALLING FURTHER resolution A.858(20) which authorizes the Committee to perform the function of adopting ship reporting systems on behalf of the Organization,

TAKING INTO ACCOUNT the existing Guidelines and criteria for ship reporting systems adopted by resolution MSC.43(64), as amended by resolution MSC.111(73),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its forty-eighth session,

1. ADOPTS, in accordance with SOLAS regulation V/11, the mandatory ship reporting systems:

   - "In the Gulf of Finland" described in Annex 1 to the present resolution; and
   - "In the Adriatic Sea" described in Annex 2 to the present resolution;

2. DECIDES that the said mandatory ship reporting system "In the Gulf of Finland" would be implemented on 1 July 2004, whilst the said mandatory ship reporting system "In the Adriatic Sea" will enter into force at 0000 hours UTC on 1 July 2003;

3. REQUESTS the Secretary-General to bring this resolution and its Annexes to the attention of Member Governments and Contracting Governments to the 1974 SOLAS Convention.
A ship reporting system is established in the Gulf of Finland in international waters.

1 CATEGORIES OF SHIPS REQUIRED TO PARTICIPATE IN THE SYSTEM

1.1 Ships required to participate in the mandatory ship reporting system:

1.2 Ships of 300 gross tonnage and upwards proceeding to or from ports or passing through the reporting area between ports in the Gulf of Finland, or ships visiting the area.


2.1 The system covers the international waters in the Gulf of Finland between a line drawn from Bengtskär Lighthouse to 59°33'.30 N 022°30'E to 59°10'N 021°30'E to Kõpu Peninsula and longitude 026°30'E.

2.2 The reference charts are:

.1 Finnish Maritime Administration charts 901 (edition 2000, scale 1:200 000), 902 (edition 2000, scale 1:200 000) and 912 (edition 1999, scale 1:200 000). Geodetic datum is the national geodetic chart-coordinate system (KKJ). WGS84 latitude correction is -0,01' and the longitude correction is +0,19'.

.2 Russian charts 22060-INT1213 (edition 2000, scale 1:250000). Geodetic datum of the year 1942 (Pulkovo). For obtaining position in WGS datum such position should be moved 0,12' westward. 22061-INT1214 (edition 1997, scale 1:250000). Geodetic datum of the year 1942 (Pulkovo). For obtaining position in WGS datum such position should be moved 0,13' westward.


The area of the reporting system is covered by hydrographic surveys.

Border line point by point of the Gulf of Finland ship reporting area

Finland

EUREF89

1 59°36'.477 N  22°38'.074 E
2 59°38'.137 N  22°51'.446 E
3 59°39'.413 N  23°21'.123 E
4 59°47'.022 N  24°12'.365 E
5 59°47'.809 N  24°19'.928 E
6 59°49'.024 N  24°29'.299 E
7 59°53'.524 N  24°47'.122 E
8 59°55'.281 N  24°55'.799 E
9 59°56'.606 N  25°10'.161 E
10 59°55'.879 N  25°28'.276 E
11 59°55'.692 N  25°34'.962 E
12 59°55'.920 N  25°37'.219 E
13 59°58'.608 N  26°01'.039 E
14 60°00'.844 N  26°04'.505 E
15 60°02'.293 N  26°11'.314 E
16 60°02'.791 N  26°17'.683 E
17 60°05'.000 N  26°30'.000 E

Russian Federation

1 60°05'.000 N  26°30'.000 E
2 59°57'.000 N  26°30'.000 E

Estonia

1 59°56'.273 N  26°26'.110 E
2 59°53'.994 N  26°09'.069 E
3 59°48'.894 N  26°01'.170 E
4 59°49'.593 N  25°34'.569 E
5 59°42'.193 N  24°28'.769 E
6 59°34'.592 N  23°57'.069 E
7 59°28'.892 N  23°31'.169 E
8 59°28'.991 N  23°11'.369 E
9 59°28'.191 N  23°08'.469 E
10 59°27'.391 N  23°06'.369 E
11 59°17'.491 N  22°43'.870 E
12 59°17'.691 N  22°36'.070 E
13 59°16'.190 N  22°23'.770 E
14 59°14'.690 N  22°18'.370 E
15 59°03'.390 N  21°50'.870 E
16 59°02'.100 N  21°49'.000 E
17 59°10'.000 N  21°30'.000 E

Finland

1 59°36'.477 N  22°38'.074 E

3 FORMAT, CONTENT OF REPORTS, TIMES AND GEOGRAPHICAL POSITIONS FOR SUBMITTING REPORTS, AUTHORITY TO WHOM REPORTS SHOULD BE SENT AND AVAILABLE SERVICES

Reports should be made using VHF voice transmissions. However, ships equipped with AIS (automatic identification system) can fulfill certain reporting requirements of the system through the use of the universal AIS approved by the Organization.
A ship must give a short position report by voice or by AIS when entering the mandatory ship reporting area. The full report may be given by voice or by non-verbal means. A ship may elect, for reasons of commercial confidentiality, to communicate that section of the report which provides information on cargo by non-verbal means prior to entering the ship reporting area. When leaving port, the ship can give the full report to the ship reporting system by voice or by non-verbal means.

3.1 Format

3.1.1 The information given below is derived from the format-type given in paragraph 2 of the appendix to resolution A.851(20).

3.2 Content

3.2.1 A short report by voice or by AIS from a ship to the shore-based authorities should contain the following information:

A  Name of the ship, call sign or IMO identification number (or MMSI for transponder reports)
B  Date and Time (UTC)
C or D  Position (expressed in latitude and longitude or bearing to and distance from a landmark)
E and F  Course and speed of the ship

3.2.2 A full report from a ship to the shore-based authorities by voice or by non-verbal means should contain the following information:

I  Destination and ETA
L  Route information
O  Vessel's draught
P  Hazardous cargo, class and quantity, if applicable
Q or R  Breakdown, damage and/or deficiencies affecting the structure, cargo or equipment of the ship or any other circumstances affecting normal navigation in accordance with the provisions of the SOLAS and MARPOL Conventions
T  Contact information of ship's agent or owner
U  Ship's deadweight tonnage
W  Total number of persons on board
X  Miscellaneous remarks, e.g. ice class, amount and nature of bunkers if over 5000 tons, navigational status

Note:

On receipt of a position message, the system operators will establish the relationship between the ship's position and the information supplied by the position-fixing equipment available to them. Information on course and speed will help operators to identify one ship among a group of ships. This will be achieved automatically if AIS transponder is used.

All VHF-, telephone-, radar-, AIS- and other relevant information will be recorded and the records stored for 30 days.
3.3 **Geographical position for submitting reports**

3.3.1 Eastbound traffic should make a report to TALLINN TRAFFIC when crossing the line drawn from Bengtskär Lighthouse to 59°33.30'N 022°30'E to 59°10'N 021°30'E to Kõpu Peninsula or when entering the ship reporting area from south.

3.3.2 Westbound traffic should make a short report to HELSINKI TRAFFIC when crossing longitude 026°30'E or when entering the ship reporting area from north.

3.3.3 A full report to the nearest shore station should be made on departure from port.

3.3.4 Further reports should be made to the relevant shore station whenever there is a change of navigational status or circumstance, particularly in relation to items Q and R of the reporting format.

3.4 **Crossing traffic**

3.4.1 Reports to the nearest shore station should be made on departure from a port within the coverage area. Recognizing that ferries crossing between Helsinki and Tallinn generally operate according to published schedules, special reporting arrangements can be made on a ship-by-ship basis, subject to the approval of both HELSINKI TRAFFIC and TALLINN TRAFFIC.

3.4.2 Further reports should be made to the relevant shore station whenever there is a change of navigational status or circumstance, particularly in relation to items Q and R of the reporting format.

3.4.3 On the area between Helsinki and Tallinn Lighthouses there is a heavy crossing traffic in summer consisting mostly of high speed craft and recreational craft. In the area between Porkkala Lighthouse and Naissaar there are recreational sailing activities in summer.

3.5 **Authority**

3.5.1 The shore-based Authorities are:

- Estonia: Estonian Maritime Administration
- Finland: Finnish Maritime Administration
- Russian Federation: Russian Maritime Administration

3.5.2 The Estonian, Finnish and Russian Authorities monitor shipping within the mandatory ship reporting area of the Gulf of Finland by radar. This does not relieve ship masters of their responsibility for the navigation of their ship.

4 **INFORMATION TO BE PROVIDED TO PARTICIPATING SHIPS AND PROCEDURES TO BE FOLLOWED**

4.1 **Information provided**

4.1.1 Each Authority provides information to shipping about specific and urgent situations which could cause conflicting traffic movements and other information concerning safety
of navigation, for instance information about weather, ice, water level, navigational problems or other hazards. Information is broadcast on the following frequencies when necessary or on request.

<table>
<thead>
<tr>
<th>Station</th>
<th>Frequency</th>
<th>Times</th>
<th>Additional broadcasts in wintertimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tallinn</td>
<td>VHF channel 61</td>
<td>on request or</td>
<td>on request or</td>
</tr>
<tr>
<td></td>
<td>working channel 81</td>
<td>when needed</td>
<td>when needed</td>
</tr>
<tr>
<td>Helsinki</td>
<td>VHF channel 60</td>
<td>on request or</td>
<td>on request or</td>
</tr>
<tr>
<td></td>
<td>working channel 80</td>
<td>when needed</td>
<td>when needed</td>
</tr>
<tr>
<td>St. Petersburg</td>
<td>VHF channel 74</td>
<td>on request or</td>
<td>on request or</td>
</tr>
<tr>
<td></td>
<td>working channel 10</td>
<td>when needed</td>
<td>when needed</td>
</tr>
</tbody>
</table>

4.1.2 Information broadcasts will be preceded by an announcement on VHF channel 16 on which channel it will be made. All ships navigating in the area should listen to the announced broadcast.

4.1.3 If necessary, individual information can be provided to a ship, particularly in relation to positioning and navigational assistance or local conditions. If a ship needs to anchor due to breakdown or emergency the operator can recommend suitable anchorage in the area.

4.2 Ice routing in winter

4.2.1 During severe ice conditions the traffic separation schemes may be declared not valid. Such a decision is agreed jointly by the National Icebreaking Authorities and communicated to shipping with the daily ice reports. The decision may include all or a named traffic separation scheme.

4.2.2 During the period when the Gulf of Finland is covered by ice, ships reporting to the centre, will receive information on the recommended route through the ice and/or are requested to contact the national co-ordinating icebreaker for further instructions. The icebreaker gives the route according to the ice situation to the ships which fulfill the national ice class regulations and which are fit for winter navigation.

4.3 Deviations

4.3.1 If a ship participating in the mandatory ship reporting system fails to appear on the radar screen or fails to communicate with the Authority or an emergency is reported, MRCCs or MRSCs in the area are responsible for initiating a search for the ship in accordance with the rules laid down for the search and rescue service, including the involvement of other participating ships known to be in that particular area.

5 RADIO COMMUNICATION REQUIRED FOR THE SYSTEM, FREQUENCIES ON WHICH REPORTS SHOULD BE TRANSMITTED AND INFORMATION TO BE REPORTED

5.1 The radio communications equipment required for the system is that defined in the GMDSS for sea area A1.
5.2 Ships are required to maintain a continuous listening watch in the area and to report and take any action required by the maritime Authorities to reduce risks:

5.3 Common call and information channels:

on channel 16 call and distress

5.4 The full report can be made by voice on VHF radio using the following channels:

<table>
<thead>
<tr>
<th>Main</th>
<th>Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>HELSINKI TRAFFIC</td>
<td>60</td>
</tr>
<tr>
<td>TALLINN TRAFFIC</td>
<td>61</td>
</tr>
<tr>
<td>ST. PETERSBURG TRAFFIC</td>
<td>74</td>
</tr>
</tbody>
</table>

5.5 Ship reports can, alternatively, be made by AIS, provided that the report can be transmitted fully.

5.6 Confidential information may be transmitted by other means.

5.7 The language used for communication shall be English, using the IMO Standard Marine Communication Phrases, where necessary.

6 RELEVANT RULES AND REGULATIONS IN FORCE IN THE AREA OF THE SYSTEM

6.1 Regulations for Preventing Collisions at Sea

The International Regulations for Preventing Collisions at Sea are applicable throughout the reporting area.

6.2 Traffic Separation Schemes

The Traffic Separation Schemes in the Gulf of Finland have been adopted by IMO and rule 10 of the International Regulations for Preventing Collisions at Sea applies.

6.3 Pilotage

Pilotage is mandatory in national waters under national laws.

6.4 Dangerous and hazardous cargoes

6.4.1 Ships carrying dangerous or hazardous cargoes and bound to or from any port within the ship reporting area must comply with the international and national regulations. The ship reporting system does not relieve ship masters of their responsibility to give the nationally required reports and information to customs authorities.

6.4.2 Discharges of oil and ship-generated waste is monitored by the joint Estonian, Finnish and Russian Authorities. Ships causing pollution within the area can be prosecuted and fined.
7 SHORE-BASED FACILITIES TO SUPPORT OPERATION OF THE SYSTEM

The joint Estonian, Finnish and Russian Authorities have radar, information processing and retrieval system, radio VHF and Automatic Identification System (AIS) facilities. The frequencies used in AIS–NET are AIS1 and AIS2.

7.1 HELSINKI TRAFFIC

7.1.1 System capability

7.1.1.1 The control centre is situated at the Helsinki VTS in Helsinki. The operator can control, monitor and display the status of all the VTS sensors from the consoles. The VTS centre will at all times be manned by two operators.

7.1.1.2 HELSINKI TRAFFIC maintains a continuous watch on traffic in the Gulf of Finland on channels 60 and 16. Operators add reported vessel information to the associated database and can display supporting information on the screen. The system is capable of providing an automatic alarm to identify any track which strays into an unauthorised area. Recording equipment automatically stores information from all tracks, which can either be replayed in the system or from the recorded resource. Records are made by an authorized method that can be used as an evidence. Operators have access to different ship registers and hazardous cargo data.

7.1.2 Radar facilities

7.1.2.1 The surveillance sensors can observe targets of at least 300 gross tons and a minimum height of 10 metres in the given traffic area.

7.1.3 Radiocommunication facilities

7.1.3.1 Radiocommunication terminals are sited in the consoles of HELSINKI TRAFFIC operation room. VHF radio transceivers are located at Hanko, Porkkala, Harmaja, Emäsalo and Orrengrund.

The VHF channels used are:

- Channel 60  working channel
- Channel 80  reserve channel

7.1.4 AIS facilities

7.1.4.1 HELSINKI TRAFFIC can continually receive the messages broadcasted by ships fitted with transponders to gain information on their identity and position. This information is displayed as an icon on an electronic chart covering the Gulf of Finland mandatory ship reporting area.

7.1.5 Personnel qualifications and training

7.1.5.1 HELSINKI TRAFFIC is staffed with personnel trained according to national and international recommendations.
7.1.5.2 The training of the personnel comprises an overall study of the navigation safety measures, the relevant international (IMO) and national provisions with respect to safety of navigation. The training also includes thorough real-time simulations in different ship bridge simulators. The trainees are trained as well in navigating ships through the VTS area as servicing shipping from the VTS Centre.

7.2 TALLINN TRAFFIC

7.2.1 System capability

7.2.1.1 The VTS system will be located in the office of the Maritime Administration at Hundipea port, Tallinn. From the consoles the operator can control, monitor and display the status of all VTS sensors. The VTS centre will at all times be manned with two operators.

7.2.1.2 TALLINN TRAFFIC maintains a continuous watch over traffic on the Gulf of Finland on channels 61 and 16. Operators add the reported vessel information to the associated database and can display supporting information on screen. The system is capable of providing an automatic alarm to identify any track that strays into the unauthorized area. Recording equipment automatically stores information from all tracks, which can either be replayed on the system or from the recorded resource. Records are made according to an authorized method that can be used as evidence.

7.2.2 Radar facilities

7.2.2.1 The surveillance sensors can observe targets of at least 300 gross tonnage and a minimum height of 10 metres in the given traffic area.

7.2.3 Radio communication facilities

7.2.3.1 VHF radio transceivers are located at TALLINN TRAFFIC operation room.

The VHF channels used are:

- Channel 61 working channel
- Channel 81 reserve channel

7.2.3.2 TALLINN TRAFFIC monitors shipping in the Gulf of Finland by radar, VHF and RDF equipment and with AIS shipborne transponders. All the traffic and messages will be stored to the database and displayed on the electronic chart. The messages from AIS transponders, not in accordance with IEC 61993-2 will be filtered out. System uses standard AIS channels.

7.2.4 Personnel qualifications and training

7.2.4.1 TALLINN TRAFFIC is staffed with personnel trained according to national and international recommendations.
7.3 **ST. PETERSBURG TRAFFIC**

7.3.1 **System capability**

7.3.1.1 The Centre is situated at VTMIS Centre located in Petrodvorets. The Centre is linked with shore-based VHF station located at island Gogland. VHF range covers the waters close to the border.

7.3.1.2 ST. PETERSBURG TRAFFIC maintains a continuous watch on traffic on the Gulf of Finland on channels 74 and 16. Operators add reported vessel information to the associated database and can display supporting information on screen. The system is capable of providing an automatic alarm to identify any track, which strays into an unauthorized area. Recording equipment automatically stores information from all tracks, which can either be replayed on the system or from the recorded resource.

7.3.2 **Radar facilities**

7.3.2.1 The nearest radar sensor to ship reporting system is placed on island Gogland with antenna height 80 metres above sea level can observe targets at least 300 gross tons at the distances up to 026°30'E.

7.3.3 **Radio communication facilities**

7.3.3.1 Radio communication terminals are sited in consoles of ST. PETERSBURG TRAFFIC operation rooms. VHF radio transceivers are located at Gogland.

The VHF channels used are:

- Channel 74 working channel
- Channel 10 reserve channel

7.3.4 **AIS facilities St. Petersburg**

7.3.4.1 The ST. PETERSBURG TRAFFIC can monitor ships sailing in the eastern part of the Gulf of Finland to the east of 026°30'E and equipped with universal AIS shipborne stations.

7.3.5 **Personnel qualifications and training**

7.3.5.1 The ST. PETERSBURG TRAFFIC is staffed with personnel trained according to national and international recommendations.

7.3.5.2 The training of the personnel comprises an overall study of the navigation safety measures, the relevant international (IMO) and national provisions with respect to safety of navigation. The training also includes thorough real-time simulations.

8 **ALTERNATIVE COMMUNICATION IF THE COMMUNICATION FACILITIES OF THE SHORE-BASED AUTHORITIES FAIL**

8.1 The system is designed with sufficient system redundancy to cope with normal equipment failure.
9 MEASURES TO BE TAKEN IF A SHIP FAILS TO COMPLY WITH THE REQUIREMENTS OF THE SYSTEM

9.1 The primary objective of the system is to facilitate the exchange of information between the ship station and the shore station and to support safe navigation and the protection of the marine environment. All means will be used to encourage and promote the full participation of ships required to submit reports under SOLAS regulation V/11. If reports are not submitted and the offending ship can be positively identified, then information will be passed to the relevant Flag State Authorities for investigation and possible prosecution in accordance with national legislation.

SUMMARY OF SHIP REPORTING SYSTEM IN THE GULF OF FINLAND

1 Ships required to participate:

Ships of 300 gross tonnage and over are required to participate in the system.

2 Position for submitting reports:

The ship reporting area covers the international water area in the Gulf of Finland between a line drawn from Bengtskär Lighthouse to 59°33.30'N 022°30'E to 59°10'N 021°30'E to Kõpu Peninsula and longitude 026°30'E.

Reports are to be submitted:

When entering the ship reporting area in the Gulf of Finland.

Eastbound traffic to TALLINN TRAFFIC.
Westbound traffic to HELSINKI TRAFFIC

The report to the nearest of the shore stations on departure from a port within the area limits.

3 Communication:

By voice on VHF radio, call on given channel.

<table>
<thead>
<tr>
<th>Working channels</th>
<th>main</th>
<th>reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>HELSINKI TRAFFIC</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>TALLINN TRAFFIC</td>
<td>61</td>
<td>81</td>
</tr>
<tr>
<td>ST. PETERSBURG TRAFFIC</td>
<td>74</td>
<td>10</td>
</tr>
</tbody>
</table>

Alternatively by AIS.

Confidential information may be transmitted by non-verbal means.
4 Reporting format:

Short position report:

A  Name of the ship, call sign or IMO identification number (or MMSI for transponder reports)
B  Date and time (UTC)
C or D Position (expressed in latitude and longitude or bearing to and distance from a landmark)
E and F Course and speed of the ship

Full report:

I  Destination and ETA
L  Route information
O  Vessel's draught
P  Hazardous cargo, class and quantity, if applicable
Q or R Breakdown, damage and/or deficiencies affecting the structure, cargo or equipment of the ship or any other circumstances affecting normal navigation in accordance with the provisions of the SOLAS and MARPOL Conventions
U  Ship's deadweight tonnage
W  Total number of persons on board
X  Miscellaneous remarks, e.g. ice class, bunkers over 5000 tons, navigational status

5 Authority receiving the report:

Estonia:  Estonian Maritime Administration
Finland:  Finnish Maritime Administration
Russia:  Russian Maritime Administration

6 Winter season:

During severe ice conditions the traffic separation schemes may be declared not valid. Such a decision is agreed jointly by the Estonian, Finnish and Russian Authorities and is communicated to shipping in connection with the daily ice reports.

When a ship reports to the Traffic Centre, it will receive the preliminary waypoints and the national co-ordinating icebreaker's name and working channel from the operator.

The vessel shall contact the national co-ordinating icebreaker for further instructions.
Radio reports to the Gulf of Finland mandatory ship reporting system

<table>
<thead>
<tr>
<th>Designator</th>
<th>Function</th>
<th>Information required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short position report:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Ship</td>
<td>Name and call sign or IMO identification</td>
</tr>
<tr>
<td>B</td>
<td>Time</td>
<td>Date and time (UTC)</td>
</tr>
<tr>
<td>C</td>
<td>Position</td>
<td>Geographical position by two 4-digit groups; or</td>
</tr>
<tr>
<td>D</td>
<td>Position</td>
<td>Name of reporting point</td>
</tr>
<tr>
<td>E</td>
<td>Course</td>
<td>East- or west- or north- or south-bound</td>
</tr>
<tr>
<td>F</td>
<td>Speed</td>
<td>In knots (2-digit group)</td>
</tr>
<tr>
<td><strong>Full report:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Destination and ETA</td>
<td>Destination and estimated time of arrival</td>
</tr>
<tr>
<td>L</td>
<td>Route information</td>
<td>Where the ship is en route</td>
</tr>
<tr>
<td>O</td>
<td>Draught</td>
<td>Vessel's maximum draught</td>
</tr>
<tr>
<td>P</td>
<td>Cargo</td>
<td>Hazardous cargo, class and quantity</td>
</tr>
<tr>
<td>Q</td>
<td>Deficiencies</td>
<td>Brief details of defects or restrictions of manoeuvrability</td>
</tr>
<tr>
<td>R</td>
<td>Pollution</td>
<td>Description of pollution or dangerous goods lost overboard</td>
</tr>
<tr>
<td>T</td>
<td>Owner or agent</td>
<td>Contact information of the ship's owner or agent</td>
</tr>
<tr>
<td>U</td>
<td>Tonnage (DWT)</td>
<td>Ship's deadweight tonnage</td>
</tr>
<tr>
<td>W</td>
<td>Persons</td>
<td>Total number of persons on board</td>
</tr>
<tr>
<td>X</td>
<td>Miscellaneous</td>
<td>Miscellaneous remarks, e.g. ice class, bunkers navigational status etc.</td>
</tr>
</tbody>
</table>
1 CATEGORIES OF SHIPS REQUIRED TO PARTICIPATE IN THE SYSTEM

1.1 Ships of the following categories are required to participate in the system:

- all oil tanker ships of 150 gross tonnage and above;
- all ships of 300 gross tonnage and above, carrying on board, as cargo, dangerous or polluting goods, in bulk or in packages.

1.2 For the purpose of this system:

- “dangerous goods” means goods classified in the IMDG Code, in Chapter 17 of the IBC Code and in Chapter 19 of the IGC Code;
- “polluting goods” means oils as defined in MARPOL Annex I, noxious liquid substances as defined in MARPOL Annex II, harmful substances as defined in MARPOL Annex III.


2.1 The operational area of the mandatory ship reporting system covers the whole Adriatic Sea, north from the latitude 40° 25’.00 N as shown in the attached chartlet as annex 1: the area is divided into 5 (five) sectors, each of them assigned to a competent authority, operating on a VHF channel as shown in the attached table as annex 2.

2.2 The reference charts including the operational area of the ADRIATIC TRAFFIC system are the Italian Chart No.435 INT 306 of the Italian Navy Hydrographic Institute (Edition 1993, Datum ED-50) and the Croatian Chart No. 101 of the Hydrographic Institute of the Republic of Croatia (Ed. 1998, Datum Besselov Elipsoid).

3 FORMAT AND CONTENTS OF THE REPORT, TIMES AND GEOGRAPHICAL POSITIONS FOR SUBMITTING REPORTS, AUTHORITIES TO WHOM REPORTS SHALL BE SENT, AVAILABLE SERVICES

The formats for reporting are derived from the one attached as appendix to resolution A.851(20).

3.1 First report

3.1.1 The first report of ADRIREP (FR) shall be sent by radio to the competent authorities in accordance with the format shown in annex 3.
3.1.2 The first report shall contain the following information, in order to meet the objectives of the ADRIATIC TRAFFIC:

- ship’s name, call sign, IMO identification number and flag;
- date and time of the report;
- present position;
- course;
- speed;
- port of departure;
- destination and estimated time of arrival;
- estimated time of arrival at the next check point;
- ship’s draught;
- the general category of hazardous cargo as defined by the IMDG, IBC, IGC Codes and MARPOL Annex I;
- ship’s representative and/or owner available on 24-hour basis;
- ship’s type, deadweight, gross tonnage and length overall;
- total number of persons on board; and
- any other relevant information.

3.1.3 In the last section of the first report, in accordance with provisions of SOLAS and MARPOL Conventions, ships shall also report information on any defect, damage, deficiency or limitations as well as, if necessary, information related to pollution incident or loss of cargo. The possession of this information will enable the operators of the shore-based competent authority to broadcast safety messages to other ships and to ensure more effective tracking of the trajectories of ships concerned.

3.2 Position report

3.2.1 The position report of ADRIREP (PR) shall be sent by radio to the competent authorities in accordance with the format shown in annex 4.

3.2.2 The position report shall contain the following information, in order to meet the objectives of the ADRIATIC TRAFFIC:

- ship’s name, call sign, IMO identification number and flag;
- date and time of the report;
- present position;
- course;
- speed;
- port of departure;
- destination and estimated time of arrival;
- estimated time of arrival at the next check point; and
- any other relevant information.

3.2.3 The present format shall be supplemented by any other information which differs from the one provided by the previous report.
3.3  **Times and geographical positions for submitting reports**

3.3.1  **Sailing the Adriatic Sea northwards**

  .1  The ship shall transmit the first report to the competent shore-based authority of the interested sector when:

    - entering the Adriatic Sea by crossing northwards the parallel 40° 25'.00 N;
    - entering the Adriatic Sea by leaving a port inside the area covered by the system.

  .2  The ship shall transmit the position report to the competent shore-based authorities when:

    - entering a new sector by crossing northwards its southern borderline, as per annex 2;
    - entering the port of destination in the area covered by the system.

3.3.2  **Sailing the Adriatic Sea southwards**

  .1  The ship shall transmit the first report to the competent shore-based authority of the interested sector when leaving a port inside the area covered by the system.

  .2  The shore-based authority to whom the first report shall be transmitted is that of the Country of the port the ship is leaving.

  .3  The recipient of the report will inform the maritime authority of the ship’s destination (if in the area covered by the system), Brindisi Coast Guard and the other shore-based authorities in between, if any.

  .4  The ship shall transmit the position reports to the competent shore-based authorities when:

    - entering a new sector by crossing southwards its northern borderline, as per annex 2;
    - entering the port of destination in the area covered by the system.

3.3.3  **Crossing the Adriatic Sea**

3.3.3.1  The ship shall send the position report to the closest shore based authority of the country the ship is leaving, which shall inform the maritime authority of the port of destination.

3.3.4  **Special cases**

  .1  The ship which, sailing northwards or southwards, enters Sector 5 shall transmit the report to, alternatively, one of the competent authorities as per annex 2, according to where the ship is going to or coming from.

  .2  The ship crossing southwards the latitude 40° 25'.00 N and going out either of Sector 1 or of the area covered by the system shall transmit an additional final position report to Brindisi Coast Guard.
3.4 **Authorities to whom the reports should be sent**

3.4.1 The ships participating in the system shall transmit by radio the report to the “shore-based authorities” as in annex 2.

4 **INFORMATION TO BE PROVIDED TO PARTICIPATING SHIPS AND PROCEDURES TO BE FOLLOWED**

4.1 The shore-based authority which receives the first report (01/FR) shall inform the maritime authority of the ship’s destination (if in the area covered by the system) and the other shore-based authorities in between, if any.

4.2 The competent shore-based authority of Sector 5 (as per paragraph 3.3.4) which receives the position report from the ship entering the sector will also inform the other two shore-based authorities about the entrance of the above mentioned ship.

4.3 Once received a report, the ADRIATIC TRAFFIC competent authority will provide the ship with:

- information on navigational conditions (status of aids to navigation, presence of other ships and, if necessary, their position, etc.);
- information on weather conditions; and
- any other relevant information.

5 **RADIOCOMMUNICATION REQUIRED FOR THE SYSTEM, FREQUENCIES ON WHICH REPORTS SHOULD BE TRANSMITTED AND INFORMATION TO BE REPORTED**

5.1 ADRIATIC TRAFFIC will be based on VHF voice radiocommunications.

5.2 The call to the appropriate shore-based authority shall be made on the VHF channel assigned to the sector in which the ship is located, as per annex 2.

5.3 However, ship which cannot use the frequencies listed in the annex 2 in order to transmit the reports, should use, via coast station, any other available communication equipment (e.g. MF, HF or INMARSAT ) on which communication might be established.

5.4 The language used for communication shall be English, using the IMO Standard Marine Communications Phrases, where necessary.

6 **RULES AND REGULATIONS IN FORCE IN THE AREA OF THE SYSTEM**

6.1 The International Regulations for Preventing Collisions at Sea (COLREGs) are applicable through the whole area covered by the system.

7 **SHORE-BASED FACILITIES TO SUPPORT OPERATION OF THE SYSTEM**

1 Brindisi Coast Guard (Italy)
   - telephone and telefax communication facilities;
   - VHF communication equipment.
.2 MRCC Bar (Yugoslavia)
   - telephone and telex communication facilities;
   - VHF, MF and HF communication equipment.

.3 MRCC Rijeka (Croatia)
   - telephone and telex communication facilities;
   - VHF, MF, HF and INMARSAT-C communication equipment.

.4 MRSC Ancona (Italy)
   - telephone and telex communication facilities;
   - VHF, MF and HF communication equipment.

.5 MRSC Venezia (Italy)
   - telephone and telex communication facilities;
   - VHF, MF and HF communication equipment.

.6 MRSC Trieste (Italy)
   - telephone and telex communication facilities;
   - VHF, MF and HF communication equipment.

.7 MRCC Koper (Slovenia)
   - telephone and telex communication facilities;
   - VHF communication equipment.

8 ALTERNATIVE COMMUNICATION IF THE COMMUNICATION FACILITIES
   OF THE SHORE BASED AUTHORITIES FAIL

8.1 ADRIATIC TRAFFIC is planned with a sufficient system redundancy to cope with
   normal equipment failure. Since that the system is based on the VHF voice
   communication, each shore based facility has got at least two VHF transmitters/receivers;
   in addition to that, in case of failing contacts by VHF, the shore based authorities can
   operate and be contacted through phone, fax, INMARSAT-C and MF/HF facilities. In
   order to ensure the continuous 24-hour activity, the shore based facilities have been
   located and manned with properly trained and dedicated personnel in the respective
   national MRCCs/MRSCs. Should a shore based authority suffer an irretrievable
   breakdown and call off itself from the system until the failure is repaired, it could be
   relieved by one of the adjacent shore based authorities.

9 MEASURES TO BE TAKEN IF A SHIP FAILS TO COMPLY WITH THE
   REQUIREMENTS OF THE SYSTEM

9.1 The primary objective of the system is to support the safe navigation and the protection of
   the marine environment through the exchange of information between the ship and the
   shore. If a ship does not submit reports and can be positively identified, then information
   will be passed to the competent Flag State authorities for investigation and possible
   prosecution in accordance with national legislation. Information will be passed also to
   Port State Control inspectors.
ANNEX 2

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>SOUTHERN BORDERLINE</th>
<th>NORTHERN BORDERLINE</th>
<th>COMPETENT AUTHORITY</th>
<th>VHF FREQUENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Latitude 40° 25'.00 N</td>
<td>Latitude 41° 30'.00 N</td>
<td>Brindisi Coast Guard (Italy)</td>
<td>Channel 10</td>
</tr>
<tr>
<td>2</td>
<td>Latitude 41° 30'.00 N</td>
<td>Latitude 42° 00'.00 N</td>
<td>Bar MRCC (Yugoslavia)</td>
<td>Channel 12</td>
</tr>
<tr>
<td>3</td>
<td>Latitude 42° 00'.00 N</td>
<td>Latitude 43° 20'.00 N</td>
<td>Rijeka MRCC (Croatia)</td>
<td>Channel 10</td>
</tr>
<tr>
<td>4</td>
<td>Latitude 43° 20'.00 N</td>
<td>Latitude 44° 30'.00 N</td>
<td>Ancona MRSC (Italy)</td>
<td>Channel 10</td>
</tr>
<tr>
<td>5</td>
<td>Latitude 44° 30'.00 N</td>
<td>Coastline</td>
<td>Venezia MRSC (Italy)</td>
<td>Channel 10</td>
</tr>
<tr>
<td>5</td>
<td>Latitude 44° 30'.00 N</td>
<td>Coastline</td>
<td>Trieste MRSC (Italy)</td>
<td>Channel 10</td>
</tr>
<tr>
<td>5</td>
<td>Latitude 44° 30'.00 N</td>
<td>Coastline</td>
<td>Koper MRCC (Slovenia)</td>
<td>Channel 12</td>
</tr>
</tbody>
</table>
## FORMAT OF “ADRIATIC TRAFFIC” SHIP REPORTING SYSTEM FIRST REPORT

<table>
<thead>
<tr>
<th>Message identifier:</th>
<th>- ADRIREP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of report</td>
<td>- 01/FR (first report)</td>
</tr>
<tr>
<td>A Ship</td>
<td>- Name, call sign, IMO identification number and flag of the vessel</td>
</tr>
<tr>
<td>B Date/time (UTC)</td>
<td>- A 6 – digit group giving date of month (first two digits), hours and minutes (last 4 digits)</td>
</tr>
<tr>
<td>C Present position</td>
<td>- A 4-digit group giving latitude in degrees and minutes suffixed with “N” or “S” and a five-digit group giving longitude in degrees and minutes suffixed with “E” or “W”</td>
</tr>
<tr>
<td>E Course</td>
<td>- a three digit group giving the course in degrees</td>
</tr>
<tr>
<td>F Speed</td>
<td>- a three digit group giving a speed in Knots</td>
</tr>
<tr>
<td>G Departure</td>
<td>- port of departure</td>
</tr>
<tr>
<td>I Destination and estimated time of arrival</td>
<td>- ETA in UTC expressed as in B above, followed by port of destination</td>
</tr>
<tr>
<td>N Estimated time of arrival at the next check point</td>
<td>- Date/time group expressed by a 6-digit group, as in B above, followed by the parallel of the check point</td>
</tr>
<tr>
<td>O Draught of the vessel</td>
<td>- draught expressed by a four digit group indicating centimetres</td>
</tr>
<tr>
<td>P Cargo information</td>
<td>- the general category of hazardous cargo as defined by the IMDG, IBC, IGC Codes and MARPOL Annex I.</td>
</tr>
<tr>
<td>T Agent</td>
<td>- ship’s representative and/or owner available on 24-hour basis</td>
</tr>
<tr>
<td>U Size and type</td>
<td>- type, DWT, GT, and length overall in meters</td>
</tr>
<tr>
<td>W Total number of persons on board</td>
<td>- The total number of crew and other persons on board</td>
</tr>
<tr>
<td>X Miscellaneous</td>
<td>- Any other relevant information</td>
</tr>
</tbody>
</table>
### ANNEX 4

**FORMAT OF “ADRIATIC TRAFFIC” SHIP REPORTING SYSTEM POSITION REPORT/FINAL REPORT**

<table>
<thead>
<tr>
<th>Message identifier:</th>
<th>- ADRIREP</th>
</tr>
</thead>
</table>
| Type of report      | - 01/PR (position report)  
- 02/PR  
- 03/PR  
- ER (final report) |
| A Ship              | Name, call sign, IMO identification number and flag of the vessel |
| B Date/time (UTC)   | A 6 – digit group giving date of month (first two digits), hours and minutes (last 4 digits) |
| C Present position  | A 4-digit group giving latitude in degrees and minutes suffixed with “N” or “S” and a five-digit group giving longitude in degrees and minutes suffixed with “E” or “W” |
| E Course            | A three digit group giving the course in degrees |
| F Speed             | A three digit group giving a speed in Knots |
| G Departure         | Port of departure |
| I Destination and estimated time of arrival | ETA in UTC expressed as in B above, followed by port of destination |
| N Estimated time of arrival at the next check point | Date/time group expressed by a 6-digit group, as in B above, followed by the parallel of the check point |
| X Miscellaneous     | Any other relevant information |

**Note:** The format of the position/final report shall contain in addition to this format any other field which differs from the information provided in the last report.
ANNEX 14

RESOLUTION MSC.140(76)
(adopted on 5 December 2002)

RECOMMENDATION FOR THE PROTECTION OF THE AIS VHF DATA LINK

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the functions of adopting performance standards and technical specifications for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

RECALLING FURTHER resolution MSC.74(69), Annex 3 - Recommendation on Performance Standards for an Universal Shipborne Automatic Identification System (AIS),

REALIZING the application of AIS devices to safety of navigation as well as security,

NOTING that the International Telecommunications Union Sector for Radiocommunications (ITU-R) recognizes a Class A category of AIS meeting the requirements of resolution MSC.74(69), as well as Class B and other categories of AIS not meeting the requirements of resolution MSC.74(69), Annex 3,

NOTING ALSO that Class A devices are intended to meet compulsory AIS fitting requirements of the 1974 SOLAS Convention, and Class B devices are intended to meet the needs of vessels, which fit AIS on a voluntary basis,

NOTING FURTHER the benefit of Class B devices,

RECOGNIZING that the radio channels used by AIS, particularly AIS 1 (161.975 MHz) and AIS 2 (162.025 MHz), are regarded as an AIS network, and any disruption to those channels by any one AIS device could affect the operation of all AIS devices on that network,

RECOGNIZING FURTHER the compelling need to ensure the integrity of the AIS VHF data link,

RECOMMENDS that:

1. Class B AIS devices, as well as any device which transmits on the radio channels AIS 1 or AIS 2, should meet the appropriate requirements of Recommendation ITU-R M.1371 (series);

2. Class B AIS devices should be approved by the Administration;

3. Administrations should take steps necessary to ensure the integrity of the radio channels used for AIS in their waters.

***
ANNEX 15

DRAFT AMENDMENTS TO SOLAS CHAPTER V

CHAPTER V

SAFETY OF NAVIGATION

Regulation 2 - Definitions

1 The following new paragraph 4 is added after existing paragraph 3:

"4 Length of a vessel means her length overall."

Regulation 22 - Navigation bridge visibility

2 The existing text of introductory paragraph 1 is replaced by the following:

"1 Ships of not less than 45 m in length, as defined in regulation 2.4, constructed on or after 1 July 1998, shall meet the following requirements:"

Regulation 28 - Records of navigational activities

3 The title of the regulation is replaced by the following:

“Records of navigational activities and daily reporting”

4 The existing paragraph is numbered as paragraph 1.

5 The following new paragraph 2 is added after paragraph 1:

“2 Each ship of 500 gross tonnage and above, engaged on international voyages exceeding 48 h shall submit a daily report to its company* which shall retain it and all subsequent daily reports for the duration of the voyage. Daily reports may be transmitted by any means, provided that they are transmitted to the company as soon as practicable after determination of the position named in the report. Automated reporting systems may be used, provided they include a recording function of their transmission and that those functions and interfaces with position-fixing equipment are subjected to regular verification by the ship’s master. The report shall contain the following:

.1 ship’s position;

.2 ship’s course and speed; and

.3 details of any external or internal conditions that are affecting the ship’s voyage or the normal safe operation of the ship.

***

* The company named on the ship’s Safety Management Certificate as responsible for the operation as defined in SOLAS Chapter IX, regulation 1.”
ANNEX 16

DRAFT AMENDMENTS TO ANNEX B TO THE 1988 LOAD LINE PROTOCOL
(i.e., to the International Convention on Load Lines, 1966,
as modified by the Protocol of 1988 relating thereto)

1 The existing text of Annex I to Annex B is replaced by the following:

“ANNEX I

REGULATIONS FOR DETERMINING LOAD LINES

CHAPTER I

GENERAL

The regulations assume that the nature and stowage of the cargo, ballast, etc., are such as to secure sufficient stability of the ship and the avoidance of excessive structural stress.

The regulations also assume that where there are international requirements relating to stability or subdivision, these requirements have been complied with.

Regulation 1
Strength and intact stability of ships

(1) The Administration shall satisfy itself that the general structural strength of the ship is adequate for the draught corresponding to the freeboard assigned.

(2) A ship which is designed, constructed and maintained in compliance with the appropriate requirements of an organization, including a classification society, which is recognized by the Administration or with applicable national standards of the Administration in accordance with the provisions of regulation 3(1), may be considered to provide an acceptable level of strength. This shall apply to all references to strength and construction within this annex.

(3) Ships shall comply with a stability standard acceptable to the Administration.

Regulation 2
Application

(1) Ships with mechanical means of propulsion or lighters, barges or other ships without independent means of propulsion, shall be assigned freeboards in accordance with the provisions of regulations 1 to 40 inclusive.

(2) Ships carrying timber deck cargoes may be assigned, in addition to the freeboards prescribed in paragraph (1), timber freeboards in accordance with the provisions of regulations 41 to 45.
(3) Ships designed to carry sail, whether as the sole means of propulsion or as a supplementary means, and tugs, shall be assigned freeboards in accordance with the provisions of regulations 1 to 40, inclusive. Additional freeboard may be required as determined by the Administration.

(4) Ships of wood or of composite construction, or of other materials the use of which the Administration has approved, or ships whose constructional features are such as to render the application of the provisions of this Annex unreasonable or impracticable, shall be assigned freeboards as determined by the Administration.

(5) Regulations 10 to 26, inclusive, shall apply to every ship to which a minimum freeboard is assigned. Relaxations from these requirements may be granted to a ship to which a greater than minimum freeboard is assigned on condition that the Administration is satisfied with the safety conditions provided.

(6) Where the assigned summer freeboard is increased such that the resulting draught is not more than that corresponding to a minimum summer freeboard for the same ship, but with an assumed freeboard deck located a distance below the actual freeboard deck at least equal to the standard superstructure height, the conditions of assignment in accordance with regulations 12, 15 through 20, 23, 24 and 25, as applicable, to the actual freeboard deck may be as required for a superstructure deck.

(7) Unless expressly provided otherwise, the regulations of this Annex shall apply to ships the keels of which are laid or which are at a similar stage of construction on or after [date of entry into force].

(8) For ships the keels of which are laid or which are at a similar stage of construction before [date of entry into force], the Administration shall ensure that the requirements which are applicable under the International Convention on Load Lines, 1966 or of that Convention, as modified by the Protocol of 1988 relating thereto, adopted by the International Conference on Harmonized System of Survey and Certification, 1988, are complied with.

(9) High-speed craft which comply with the requirements of the International Code of Safety for High-Speed Craft, 2000 adopted by the Maritime Safety Committee of the Organization by resolution MSC.97(73)(2000 HSC Code) and which have been surveyed and certified as provided in the Code shall be deemed to have complied with the requirements of this Annex. The certificates and permits issued under the 2000 HSC Code shall have the same force and the same recognition as the certificates issued under this Annex.

Regulation 3
Definitions of terms used in the Annexes

(1) Organizations, including classification societies, referred to in the article 13 of the Convention and regulation 1(2) shall comply with the guidelines adopted by the Organization by resolution A.739(18), as may be amended by the Organization, and the specifications adopted by the Organization by resolution A.789(19), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VI of the present Protocol.
(2) Length

(a) The length (L) shall be taken as 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or as the length from the fore side of the stem to the axis of the rudder stock on that waterline, if that be greater.

(b) For ships without a rudder stock, the length (L) is to be taken as 96% of the waterline at 85% of the least moulded depth.

(c) Where the stem contour is concave above the waterline at 85% of the least moulded depth, both the forward terminal of the total length and the fore-side of the stem respectively shall be taken at the vertical projection to that waterline of the aftermost point of the stem contour (above that waterline) (see figure 3.1).

(d) In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline at 85% of the least moulded depth $D_{\text{min}}$, found by drawing a line parallel to the keel line of the vessel (including skeg) tangent to the moulded sheer line of the freeboard deck. The least moulded depth is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side at the point of tangency (see figure 3.2).

![Figure 3.1](image-url)
(3) Perpendiculars. The forward and after perpendiculars shall be taken at the forward and after ends of the length (L). The forward perpendicular shall coincide with the foreside of the stem on the waterline on which the length is measured.

(4) Amidships. Amidships is at the middle of the length (L).

(5) Breadth. Unless expressly provided otherwise, the breadth (B) is the maximum breadth of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material.

(6) Moulded depth

(a) The moulded depth is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

(b) In ships having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of deck and sides, the lines extending as though the gunwale were of angular design.

(c) Where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

(7) Depth for freeboard (D)

(a) The depth for freeboard (D) is the moulded depth amidships, plus the freeboard deck thickness at side.
(b) The depth for freeboard (D) in a ship having a rounded gunwale with a radius greater than 4% of the breadth (B) or having topsides of unusual form is the depth for freeboard of a ship having a midship section with vertical topsides and with the same round of beam and area of topside section equal to that provided by the actual midship section.

(8) Block coefficient

(a) The block coefficient ($C_B$) is given by:

$$C_B = \frac{V}{L \cdot B \cdot d_1}$$

$V$ is the volume of the moulded displacement of the ship, excluding appendages, in a ship with a metal shell, and is the volume of displacement to the outer surface of the hull in a ship with a shell of any other material, both taken at a moulded draught of $d_1$; and where $d_1$ is 85% of the least moulded depth.

(b) When calculating block coefficient of a multi-hull craft, the full breadth (B) as defined in paragraph (5) is to be used and not the breadth of a single hull.

(9) Freeboard

The freeboard assigned is the distance measured vertically downwards amidships from the upper edge of the deck line to the upper edge of the related load line.

(10) Freeboard deck.

(a) The freeboard deck is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing.

(b) Lower deck as a freeboard deck

At the option of the owner and subject to the approval of the Administration, a lower deck may be designated as the freeboard deck provided it is a complete and permanent deck continuous in a fore and aft direction at least between the machinery space and peak bulkheads and continuous athwartships.

(i) When this lower deck is stepped the lowest line of the deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.

(ii) When a lower deck is designated as the freeboard deck, that part of the hull which extends above the freeboard deck is treated as a superstructure so far as concerns the application of the conditions
of assignment and the calculation of freeboard. It is from this deck that the freeboard is calculated.

(iii) When a lower deck is designated as the freeboard deck, such deck as a minimum shall consist of suitably framed stringers at the ship sides and transversely at each watertight bulkhead which extends to the upper deck, within cargo spaces. The width of these stringers shall not be less than can be conveniently fitted having regard to the structure and the operation of the ship. Any arrangement of stringers shall be such that structural requirement can also be met.

(c) Discontinuous freeboard deck, stepped freeboard deck.

(i) Where a recess in the freeboard deck extends to the sides of the ship and is in excess of one metre in length, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck (see figure 3.3).

(ii) Where a recess in the freeboard deck does not extend to the sides of the ship, the upper part of the deck is taken as the freeboard deck (see figure 3.3).

(iii) Recesses not extending from side to side in a deck below the exposed deck, designated as the freeboard deck, may be disregarded provided all openings in the weather deck are fitted with weathertight closing appliances.

(iv) Due regard shall be given to the drainage of exposed recesses and to free surface effects on stability.

(v) Provisions (i) through (iv) are not intended to apply to dredgers, hopper barges or other similar types of ships with large open holds, where each case requires individual consideration.

![Figure 3.3](image-url)
(11) Superstructure

(a) A superstructure is a decked structure on the freeboard deck, extending from side to side of the ship or with the side plating not being inboard of the shell plating more than 4% of the breadth (B).

(b) An enclosed superstructure is a superstructure with:

(i) enclosing bulkheads of efficient construction;

(ii) access openings, if any, in these bulkheads fitted with doors complying with the requirements of regulation 12;

(iii) all other openings in sides or ends of the superstructure fitted with efficient weathertight means of closing.

A bridge or poop shall not be regarded as enclosed unless access is provided for the crew starting from any point on the uppermost complete exposed deck or higher to reach machinery and other working spaces inside these superstructures by alternative means which are available at all times when bulkhead openings are closed.

(c) The height of a superstructure is the least vertical height measured at side from the top of the superstructure deck beams to the top of the freeboard deck beams.

(d) The length of a superstructure (S) is the mean length of the part of the superstructure which lies within the length (L).

(e) Bridge. A bridge is a superstructure which does not extend to either the forward or after perpendicular.

A detached bridge is a bridge that is not attached to other superstructures. A bridge whose after bulkhead is located within 0.05 L from the after perpendicular does not qualify as a detached bridge (see figure 3.4).

(f) Poop. A poop is a superstructure which extends from the after perpendicular forward to a point which is aft of the forward perpendicular. The poop may originate from a point aft of the aft perpendicular.
(g) Forecastle. A forecastle is a superstructure which extends from the forward perpendicular aft to a point which is forward of the after perpendicular. The forecastle may originate from a point forward of the forward perpendicular.

(h) Full superstructure. A full superstructure is a superstructure which, as a minimum, extends from the forward to the after perpendicular.

(i) Raised quarterdeck. A raised quarterdeck is a superstructure which extends forward from the after perpendicular, generally has a height less than a normal superstructure, and has an intact front bulkhead (sidescuttles of the non-opening type fitted with efficient deadlights and bolted man hole covers) (see figure 3.5). Where the forward bulkhead is not intact due to doors and access openings, the superstructure is then to be considered as a poop.

![Figure 3.5](image)

(12) Superstructure deck. A superstructure deck is a deck forming the upper boundary of a superstructure.

(13) Flush deck ship. A flush deck ship is one which has no superstructure on the freeboard deck.

(14) Weathertight. Weathertight means that in any sea conditions water will not penetrate into the ship.

(15) Watertight. Watertight means capable of preventing the passage of water through the structure in either direction with a proper margin of resistance under the pressure due to the maximum head of water which it might have to sustain.

(16) Well. A well is any area on the deck exposed to the weather, where water may be entrapped. Wells are considered to be deck areas bounded on two or more sides by deck structures.

**Regulation 4**

**Deck line**

The deck line is a horizontal line 300 mm in length and 25 mm in breadth. It shall be marked amidships on each side of the ship, and its upper edge shall normally pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell (as illustrated in figure 6.1 contained in regulation 6), provided that the deck line may be placed with reference to another fixed
point on the ship on condition that the freeboard is correspondingly corrected. The location of the reference point and the identification of the freeboard deck shall in all cases be indicated on the International Load Line Certificate.

Regulation 5
Load line mark

The load line mark shall consist of a ring 300 mm in outside diameter and 25 mm wide which is intersected by a horizontal line 450 mm in length and 25 mm in breadth, the upper edge of which passes through the centre of the ring. The centre of the ring shall be placed amidships and at a distance equal to the assigned summer freeboard measured vertically below the upper edge of the deck line (as illustrated in figure 6.2).

Regulation 6
Lines to be used with the load line mark

1. The lines which indicate the load line assigned in accordance with these regulations shall be horizontal lines 230 mm in length and 25 mm in breadth which extend forward of, unless expressly provided otherwise, and at right angles to, a vertical line 25 mm in breadth marked at a distance 540 mm forward of the centre of the ring (as illustrated in figure 6.2).

2. The following load lines shall be used:

(a) The Summer Load Line indicated by the upper edge of the line which passes through the centre of the ring and also by a line marked S.

(b) The Winter Load Line indicated by the upper edge of a line marked W.

(c) The Winter North Atlantic Load Line indicated by the upper edge of a line marked WNA.

(d) The Tropical Load Line indicated by the upper edge of a line marked T.

(e) The Fresh Water Load Line in summer indicated by the upper edge of a line marked F. The Fresh Water Load Line in summer is marked abaft the vertical line. The difference between the Fresh Water Load Line in summer and the Summer Load Line is the allowance to be made for loading in fresh water at the other load lines.

(f) The Tropical Fresh Water Load Line indicated by the upper edge of a line marked TF and marked abaft the vertical line.

3. If timber freeboards are assigned in accordance with these regulations, the timber load lines shall be marked in addition to ordinary load lines. These lines shall be horizontal lines 230 mm in length and 25 mm in breadth which extend abaft unless expressly provided otherwise, and are at right angles to, a vertical line 25 mm in breadth marked at a distance 540 mm abaft the centre of the ring (as illustrated in figure 6.3).

4. The following timber load lines shall be used:
(a) The Summer Timber Load Line indicated by the upper edge of a line marked LS.

(b) The Winter Timber Load Line indicated by the upper edge of a line marked LW.

(c) The Winter North Atlantic Timber Load Line indicated by the upper edge of a line marked LWNA.

(d) The Tropical Timber Load Line indicated by the upper edge of a line marked LT.

(e) The Fresh Water Timber Load Line in summer indicated by the upper edge of a line marked LF and marked forward of the vertical line. The difference between the Fresh Water Timber Load Line in summer and the Summer Timber Load Line is the allowance to be made for loading in fresh water at the other timber load lines.

(f) The Tropical Fresh Water Timber Load Line indicated by the upper edge of a line marked LTF and marked forward of the vertical line.

(5) Where the characteristics of a ship or the nature of the ship's service or navigational limits make any of the seasonal lines inapplicable, these lines may be omitted.

(6) Where a ship is assigned a greater than minimum freeboard so that the load line is marked at a position corresponding to, or lower than, the lowest seasonal load line assigned at minimum freeboard in accordance with the present Protocol *, only the Fresh Water Load Line need be marked.

(7) Where a Winter North Atlantic Load Line is identical with the Winter Load Line corresponding to the same vertical line, this load line shall be marked W.

(8) Alternative/additional load lines required by other international conventions in force may be marked at right angles to and abaft the vertical line specified in paragraph (1).

Figure 6.1 Deck line

* Note by the Secretariat: Because the replacement text is a consolidated text of both the present Convention and Protocol relating thereto, the word “Convention” has been replaced by “Protocol”, as appropriate.
Regulation 7
Mark of assigning Authority

The mark of the Authority by whom the load lines are assigned may be indicated alongside the load line ring above the horizontal line which passes through the centre of the ring, or above and below it. This mark shall consist of not more than four initials to identify the Authority’s name, each measuring approximately 115 mm in height and 75 mm in width.

Regulation 8
Details of marking

The ring, lines and letters shall be painted in white or yellow on a dark ground or in black on a light ground. They shall also be permanently marked on the sides of the ships to the satisfaction of the Administration. The marks shall be plainly visible and, if necessary, special arrangements shall be made for this purpose.

Regulation 9
Verification of marks

The International Load Line Certificate shall not be delivered to the ship until the officer or surveyor acting under the provisions of article 13 of the Convention has certified that the marks are correctly and permanently indicated on the ship's sides.
CHAPTER II
CONDITIONS OF ASSIGNMENT OF FREEBOARD

Regulation 10
Information to be supplied to the master

(1) The master of every new ship shall be supplied with information to arrange for the loading and ballasting of his ship in such a way as to avoid the creation of any unacceptable stresses in the ship's structure, provided that this requirement need not apply to any particular length, design or class of ship where the Administration considers it to be unnecessary.

(2) Information shall be provided to the master in a form that is approved by the Administration or a recognised organization. Stability information, and loading information also related to ship strength when required under paragraph (1), shall be carried on board at all times together with evidence that the information has been approved by the Administration.

(3) Ships which are not required under the International Convention for Safety of Life at Sea in force to undergo an inclining test upon its completion shall:

(a) be so inclined and the actual displacement and position of the centre of gravity shall be determined for the lightship condition;

(b) if the Administration so approves, have its inclining test on completion dispensed with, provided basic stability data are available from the inclining test of a sister ship and it is shown to the satisfaction of the Administration that reliable stability information for the ship can be obtained from such basic data;

(c) if the Administration decides that the performance of an inclining experiment is not practicable or safe or yields inaccurate results due to the specific proportions, arrangements, strength or hull form of a ship, have the ship’s lightship characteristics determined by a detailed weight estimate confirmed by a lightweight survey;

(d) have supplied for the use of its master such information* as is necessary to enable the master, by rapid and simple processes, to obtain accurate guidance as to the stability of the ship under all conditions likely to be encountered in normal service; and

(e) carry on board at all times its approved stability information together with evidence that the information has been approved by the Administration.

(4) Where any alterations are made to a ship so as to materially affect the loading or stability information supplied to the master, amended information shall be provided. If necessary the ship shall be re-inclined.

* Refer to the Code on Intact Stability adopted originally by resolution A.749(18), as amended.
Regulation 11
Superstructure end bulkheads

Bulkheads at exposed ends of enclosed superstructures shall be of an acceptable level of strength.

Regulation 12
Doors

(1) All access openings in bulkheads at ends of enclosed superstructures shall be fitted with doors of steel or other equivalent material, permanently and strongly attached to the bulkhead, and framed, stiffened and fitted so that the whole structure is of equivalent strength to the un-pierced bulkhead and weathertight when closed. The means for securing these doors weathertight shall consist of gaskets and clamping devices or other equivalent means and shall be permanently attached to the bulkhead or to the doors themselves, and the doors shall be so arranged that they can be operated from both sides of the bulkhead.

(2) Unless otherwise permitted by the Administration, doors shall open outwards to provide additional security against the impact of the sea.

(3) Except as otherwise provided in these regulations, the height of the sills of access openings in bulkheads at ends of enclosed superstructures shall be at least 380 mm above the deck.

(4) Portable sills shall be avoided. However, in order to facilitate the loading/unloading of heavy spare parts or similar, portable sills may be fitted on the following conditions:

   (a) they must be installed before the ship leaves port; and

   (b) sills shall be gasketed and fastened by closely spaced through bolts.

Regulation 13
Position of hatchways, doorways and ventilators

For the purpose of the regulations, two positions of hatchways, doorways and ventilators are defined as follows:

Position 1 - Upon exposed freeboard and raised quarter decks, and upon exposed superstructure decks situated forward of a point located a quarter of the ship’s length from the forward perpendicular.

Position 2 - Upon exposed superstructure decks situated abaft a quarter of the ship’s length from the forward perpendicular and located at least one standard height of superstructure above the freeboard deck.

   Upon exposed superstructure decks situated forward of a point located a quarter of the ship’s length from the forward perpendicular and located at least two standard heights of superstructure above the freeboard deck.
Regulation 14
Cargo and other hatchways

(1) The means for securing the weathertightness of cargo and other hatchways in position 1 and 2 shall be at least equivalent to the requirements of regulation 16-1.

(2) Coamings and hatchway covers to exposed hatchways on decks above the superstructure deck shall comply with the requirements of the Administration.

Regulation 15
Hatchways closed by portable covers and secured weathertight by tarpaulins and battening devices

(1) Unless granted otherwise by the Administration, ships subject to the 1988 Load Line Protocol shall comply with regulations 16 and 16-1.

Hatchway covers

(2) The width of each bearing surface for hatchway covers shall be at least 65 mm.

(3) Where covers are made of wood, the finished thickness shall be at least 60 mm in association with a span of not more than 1.5 m.

(4) Where covers are made of mild steel the strength shall be calculated with assumed loads not less than 1.75 t/m² on hatchways in position 1, and not less than 1.30 t/m² on hatchways in position 2, and the product of the maximum stress thus calculated and the factor 4.25 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0028 times the span under these loads.

(5) The assumed loads on hatchways in position 1 may be reduced to 1 t/m² for ships 24 m in length and shall be not less than 1.75 t/m² for ships 100 m in length. The corresponding loads on hatchways in position 2 may be reduced to 0.75 t/m² and 1.30 t/m², respectively. In all cases, values at intermediate lengths shall be obtained by linear interpolation.

Portable beams

(6) Where portable beams for supporting hatchway covers are made of mild steel the strength shall be calculated with assumed loads not less than 1.75 t/m² on hatchways in position 1 and not less than 1.30 t/m² on hatchways in position 2 and the product of the maximum stress thus calculated and the factor 5 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0022 times the span under these loads. For ships of not more than 100 m in length the requirements of paragraph (5) shall be applicable.
Pontoon covers

(7) Where pontoon covers used in place of portable beams and covers are made of mild steel the strength shall be calculated with the assumed loads given in paragraph (4), and the product of the maximum stress thus calculated and the factor 5 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0022 times the span. Mild steel plating forming the tops of covers shall be not less in thickness than 1% of the spacing of stiffeners or 6 mm if that be greater. For ships of not more than 100 m in length the requirements of paragraph (5) are applicable.

(8) The strength and stiffness of covers made of materials other than mild steel shall be equivalent to those of mild steel to the satisfaction of the Administration.

Carriers or sockets

(9) Carriers or sockets for portable beams shall be of substantial construction, and shall provide means for the efficient fitting and securing of the beams. Where rolling types of beams are used, the arrangements shall ensure that the beams remain properly in position when the hatchway is closed.

Cleats

(10) Cleats shall be set to fit the taper of the wedges. They shall be at least 65 mm wide and spaced not more than 600 mm centre to centre; the cleats along each side or end shall be not more than 150 mm from the hatch corners.

Battens and wedges

(11) Battens and wedges shall be efficient and in good condition. Wedges shall be of tough wood or other equivalent material. They shall have a taper of not more than 1 in 6 and shall be not less than 13 mm thick at the toes.

Tarpaulins

(12) At least two layers of tarpaulin in good condition shall be provided for each hatchway in position 1 or 2. The tarpaulins shall be waterproof and of ample strength. They shall be of a material of at least an approved standard weight and quality.

Security of hatchway covers

(13) For all hatchways in position 1 or 2 steel bars or other equivalent means shall be provided in order efficiently and independently to secure each section of hatchway covers after the tarpaulins are battened down. Hatchway covers of more than 1.5 m in length shall be secured by at least two such securing appliances.
Regulation 16

Hatchway coamings

(1) The coamings of hatchways shall be of substantial construction in accordance with their position, and their height above the deck shall be at least as follows:

(a) 600 mm if in position 1; and  
(b) 450 mm if in position 2.

(2) The height of these coamings may be reduced, or the coamings omitted entirely, on condition that the Administration is satisfied that the safety of the ship is not thereby impaired in any sea conditions.

Regulation 16-1

Hatch covers

(1) All hatchways in positions 1 and 2 shall be fitted with hatch covers of steel or other equivalent material. Except as provided in regulation 14(2) such covers shall be weathertight and fitted with gaskets and clamping devices. The means for securing and maintaining weathertightness shall be to the satisfaction of the Administration. The arrangements shall ensure that the tightness can be maintained in any sea conditions, and for this purpose tests for tightness shall be required at the initial survey, and may be required at renewal and annual surveys or at more frequent intervals.

Hatch cover minimum design loads

(2) For ships of 100 m in length and above

(a) Position 1 hatch covers located in the forward quarter of ship’s length shall be designed for wave loads at the forward perpendicular, calculated from the following equation:

\[
\text{Load} = 5.0 + (L_{H}-100)a \text{ t/m}^2
\]

where:

\[
L_{H} \quad \text{is } L \text{ for ships of not more than 340 m but not less than 100 m in length and equal to 340 m for ships of more than 340 m in length;}
\]

\[
L \quad \text{is the length of the ship (metres), as defined in regulation 3;}
\]

\[
a \quad \text{is given in table 16-1.1,}
\]

and reduced linearly to 3.5 t/m\(^2\) at the end of the forward quarter’s length, as shown in table 16-1.2. The design load used for each hatch cover panel shall be that determined at its midpoint location.

(b) All other position 1 hatch covers shall be designed to 3.5 t/m\(^2\)

(c) Position 2 hatch covers shall be designed to 2.6 t/m\(^2\).  

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(d) Where a position 1 hatchway is located at least one superstructure standard height higher than the freeboard deck, it may be designed to 3.5 t/m².

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Table 16 –1.1

(3) For ships 24 m in length

(a) Position 1 hatch covers located in the forward quarter of ship’s length shall be designed for wave loads of 2.43 t/m² at the forward perpendicular and reduced linearly to 2.0 t/m² at the end of the forward quarter’s length as shown in table 16-1.2. The design load used for each hatch cover panel shall be that determined at its midpoint location.

(b) All other position 1 hatch covers shall be designed to 2.0 t/m².

(c) Position 2 hatch covers shall be designed to 1.5 t/m².

(d) Where a position 1 hatchway is located at least one superstructure standard height higher than the freeboard deck, it may be designed to 2.0 t/m².

(4) For ships between 24 m and 100 m in length wave loads shall be obtained by linear interpolation as shown in table 16-1.

<table>
<thead>
<tr>
<th></th>
<th>Position 1</th>
<th></th>
<th>Position 2</th>
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<td>FP</td>
<td>0.25L</td>
<td>Aft of 0.25L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L&gt;100 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freeboard deck</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equation in 16-1(2)(a)</td>
<td></td>
<td>3.5 t/m²</td>
<td>3.5 t/m²</td>
</tr>
<tr>
<td>Superstructure deck</td>
<td></td>
<td>3.5 t/m²</td>
<td></td>
</tr>
<tr>
<td>L=100 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freeboard deck</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0 t/m²</td>
<td></td>
<td>3.5 t/m²</td>
<td>3.5 t/m²</td>
</tr>
<tr>
<td>Superstructure deck</td>
<td></td>
<td>3.5 t/m²</td>
<td></td>
</tr>
<tr>
<td>L=24 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freeboard deck</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2.43 t/m²</td>
<td></td>
<td>2.0 t/m²</td>
<td>2.0 t/m²</td>
</tr>
<tr>
<td>Superstructure deck</td>
<td></td>
<td>2.0 t/m²</td>
<td></td>
</tr>
</tbody>
</table>

Table 16-1.2

Values of wave load for ship lengths between 24 m and 100 m, and for positions between FP and 0.25 L, shall be obtained by linear interpolation.

(5) All hatch covers shall be designed such that:
(a) The product of the maximum stress determined in accordance with the above loads and the factor of 1.25 shall not exceed the minimum upper yield point strength of the material in tension and the critical buckling strength in compression.

(b) The deflection is limited to not more than 0.0056 times the span.

(c) Steel plating forming the tops of covers shall be not less in thickness than 1% of the spacing of stiffeners or 6 mm if that be greater.

(d) An appropriate corrosion margin is incorporated.

Alternative securing arrangements

(6) The means for securing and maintaining weathertightness by other means than gaskets and clamping shall be to the satisfaction of the Administration.

(7) Hatch covers which rest on coamings shall be located in their closed position by means capable of withstanding horizontally acting loads in any sea conditions.

Regulation 17
Machinery space openings

(1) Machinery space openings in position 1 or 2 shall be properly framed and efficiently enclosed by steel casings of ample strength, and where the casings are not protected by other structures their strength shall be specially considered. Access openings in such casings shall be fitted with doors complying with the requirements of regulation 12(1), the sills of which shall be at least 600 mm above the deck if in position 1, and at least 380 mm above the deck if in position 2. Other openings in such casings shall be fitted with equivalent covers, permanently attached in their proper positions.

(2) Where machinery casings are not protected by other structures, double doors (i.e. inner and outer doors complying with the requirements of regulation 12(1)) shall be required for ships assigned freeboards less than those based on table 28.2 of regulation 28. An inner sill of 230 mm in conjunction with the outer sill of 600 mm shall be provided.

(3) Coamings of any fiddley, funnel or machinery space ventilator in an exposed position on the freeboard deck or superstructure deck shall be as high above the deck as is reasonable and practicable. In general, ventilators necessary to continuously supply the machinery space shall have coamings of sufficient height to comply with regulation 19(3), without having to fit weathertight closing appliances. Ventilators necessary to continuously supply the emergency generator room, if this is considered buoyant in the stability calculation or protecting opening leading below, shall have coamings of sufficient height to comply with regulation 19(3), without having to fit weathertight closing appliances.

(4) Where due to ship size and arrangement this is not practicable, lesser heights for machinery space and emergency generator room ventilator coamings, fitted with weathertight closing appliances in accordance with regulation 19(4), may be
permitted by the Administration in combination with other suitable arrangements to ensure an uninterrupted, adequate supply of ventilation to these spaces.

(5) Fiddley openings shall be fitted with strong covers of steel or other equivalent material permanently attached in their proper positions and capable of being secured weathertight.

Regulation 18
Miscellaneous openings in freeboard and superstructure decks

(1) Manholes and flush scuttles in position 1 or 2 or within superstructures other than enclosed superstructures shall be closed by substantial covers capable of being made watertight. Unless secured by closely spaced bolts, the covers shall be permanently attached.

(2) Openings in freeboard decks other than hatchways, machinery space openings, manholes and flush scuttles shall be protected by an enclosed superstructure, or by a deckhouse or companionway of equivalent strength and weathertightness. Similarly, any such opening in an exposed superstructure deck, in the top of a deckhouse on the freeboard deck which gives access to a space below the freeboard deck or a space within an enclosed superstructure shall be protected by an efficient deckhouse or companionway. Doorways in such companionways or deckhouses that lead or give access to stairways leading below, shall be fitted with doors in accordance with regulation 12(1). Alternatively, if stairways within a deckhouse are enclosed within properly constructed companionways fitted with doors complying with regulation 12(1), the external door need not be weathertight.

(3) Openings in the top of a deckhouse on a raised quarterdeck or superstructure of less than standard height, having a height equal to or greater than the standard quarterdeck height are to be provided with an acceptable means of closing but need not be protected by an efficient deckhouse or companionway as defined in the regulation provided the height of the deckhouse is at least the standard height of a superstructure. Openings in the top of the deck house on a deck house of less than a standard superstructure height may be treated in a similar manner.

(4) In position 1 the height above the deck of sills to the doorways in companionways shall be at least 600 mm. In position 2 it shall be at least 380 mm.

(5) Where access is provided from the deck above as an alternative to access from the freeboard deck in accordance with regulation 3(11)(b) then the height of sills into a bridge or poop shall be 380 mm. The same shall apply to deckhouses on the freeboard deck.

(6) Where access is not provided from above, the height of the sills to doorways in deckhouses on the freeboard deck shall be 600 mm.

(7) Where the closing appliances of access openings in superstructures and deckhouses are not in accordance with regulation 12(1), interior deck openings shall be considered exposed (i.e. situated in the open deck).
Regulation 19
Ventilators

(1) Ventilators in position 1 or 2 to spaces below freeboard deck or decks of enclosed superstructures shall have coamings of steel or other equivalent material, substantially constructed and efficiently connected to the deck. Ventilators in position 1 shall have coamings of a height of at least 900 mm above the deck; in position 2 the coamings shall be of a height at least 760 mm above the deck. Where the coaming of any ventilator exceeds 900 mm in height it shall be specially supported.

(2) Ventilators passing through superstructures other than enclosed superstructures shall have substantially constructed coamings of steel or other equivalent material at the freeboard deck.

(3) Ventilators in position 1 the coamings of which extend to more than 4.5 m above the deck, and in position 2 the coamings of which extend to more than 2.3 m above the deck, need not be fitted with closing arrangements unless specifically required by the Administration.

(4) Except as provided in paragraph (3), ventilator openings shall be provided with weathertight closing appliances of steel or other equivalent material. In ships of not more than 100 m in length the closing appliances shall be permanently attached; where not so provided in other ships, they shall be conveniently stowed near the ventilators to which they are to be fitted.

(5) In exposed locations, the height of coamings may be increased to the satisfaction of the Administration.

Regulation 20
Air pipes

(1) Where air pipes to ballast and other tanks extend above the freeboard or superstructure decks, the exposed parts of the pipes shall be of substantial construction; the height from the deck to the point where water may have access below shall be at least 760 mm on the freeboard deck and 450 mm on the superstructure deck.

(2) Where these heights may interfere with the working of the ship, a lower height may be approved, provided the Administration is satisfied that the closing arrangements and other circumstances justify a lower height.

(3) Air pipes shall be provided with automatic closing devices.

(4) Pressure-vacuum valves (PV valves) may be accepted on tankers.
Regulation 21  
Cargo ports and other similar openings

(1) Cargo ports and other similar openings in the sides of ships below the freeboard deck shall be fitted with doors so designed as to ensure the same watertightness and structural integrity as the surrounding shell plating. Unless otherwise granted by the Administration, these opening shall open outwards. The number of such openings shall be the minimum compatible with the design and proper working of the ship.

(2) Unless otherwise permitted by the Administration, the lower edge of openings referred to in paragraph (1) shall not be below a line drawn parallel to the freeboard deck at side, which is at its lowest point at least 230 mm above the upper edge of the uppermost load line.

(3) Where it is permitted to arrange cargo ports and other similar openings with their lower edge below the line specified in paragraph (2), additional features shall be fitted to maintain the watertight integrity.

(4) The fitting of a second door of equivalent strength and watertightness is one acceptable arrangement. A leakage detection device shall be provided in the compartment between the two doors. Drainage of this compartment to the bilges controlled by a readily accessible screw down valve, shall be arranged. The outer door shall open outwards.

(5) Arrangements for bow doors and their inner doors, side doors and stern doors and their secureings shall be in compliance with the requirements of a recognised organization, or with the applicable national standards of the Administration and which provide an equivalent level of safety.

Regulation 22  
Scuppers, inlets and discharges

(1) (a) Discharges led through the shell either from spaces below the freeboard deck or from within superstructures and deckhouses on the freeboard deck fitted with doors complying with the requirements of regulation 12 shall, except as provided in paragraph (2), be fitted with efficient and accessible means for preventing water from passing inboard. Normally each separate discharge shall have one automatic non-return valve with a positive means of closing it from a position above the freeboard deck. Where the inboard end of the discharge pipe is located at least 0.01 L above the Summer Load Line, the discharge may have two automatic non-return valves without positive means of closing. Where that vertical distance exceeds 0.02 L, a single automatic non-return valve without positive means of closing may be accepted. The means for operating the positive action valve shall be readily accessible and provided with an indicator showing whether the valve is open or closed.
(b) One automatic non-return valve and one sluice valve controlled from above the freeboard deck instead of one automatic non-return valve with a positive means of closing from a position above the freeboard deck, is acceptable.

(c) Where two automatic non-return valves are required, the inboard valve shall always be accessible for examination under service conditions (i.e., the inboard valve shall be above the level of the Tropical Load Line). If this is not practicable, then, provided a locally controlled sluice valve is fitted between the two automatic non-return valves, the inboard valve need not be located above the Tropical Load Line.

(d) Where sanitary discharges and scuppers lead overboard through the shell in way of machinery spaces, a locally operated positive closing valve at the shell, together with a non-return valve inboard, is acceptable. The controls of the valves are to be in an easily accessible position.

(e) The position of the inboard end of discharges shall be related to the Summer Timber Load Line when a timber freeboard is assigned.

(f) The requirements for non-return valves are applicable only to those discharges which remain open during the normal operation of a ship. For discharges which are to be kept closed at sea, a single screw down valve operated from the deck is acceptable.

(g) Table 22.1 provides the acceptable arrangements of scuppers, inlets, and discharges.
Table 22.1

(2) Scuppers led through the shell from enclosed superstructures used for the carriage of cargo shall be permitted only where the edge of the freeboard deck is not immersed when the ship heels 5° either way. In other cases the drainage shall be led inboard in accordance with the requirements of the International Convention for the Safety of Life at Sea in force.
(3) In manned machinery spaces, main and auxiliary sea inlets and discharges in connection with the operation of machinery may be controlled locally. The controls shall be readily accessible and shall be provided with indicators showing whether the valves are open or closed.

(4) Scuppers and discharge pipes originating at any level and penetrating the shell either more than 450 mm below the freeboard deck or less than 600 mm above the summer load line, shall be provided with a non-return valve at the shell. This valve, unless required by paragraph (2), may be omitted if the piping is of substantial thickness (see paragraph (7) below).

(5) Scuppers leading from superstructures or deckhouses not fitted with doors complying with the requirements of regulation 12 shall be led overboard.

(6) All shell fittings and the valves required by this regulation shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable. All pipes to which this regulation refers shall be of steel or other equivalent material to the satisfaction of the Administration.

(7) Scupper and discharge pipes:

(a) For scupper and discharge pipes, where substantial thickness is not required:

(i) for pipes having an external diameter equal to or less than 155 mm, the thickness shall not be less than 4.5 mm;

(ii) for pipes having an external diameter equal to or more than 230 mm, the thickness shall not be less than 6 mm.

Intermediate sizes shall be determined by linear interpolation.

(b) For scupper and discharge pipes, where substantial thickness is required:

(i) for pipes having an external diameter equal to or less than 80 mm, the thickness shall not be less than 7 mm;

(ii) for pipes having an external diameter of 180 mm, the thickness shall not be less than 10 mm;

(iii) for pipes having an external diameter equal to or more than 220 mm, the thickness shall not be less than 12.5 mm; and

Intermediate sizes shall be determined by linear interpolation.

Regulation 22-1
Garbage chutes

(1) Two gate valves controlled from the working deck of the chute instead of the non-return valve with a positive means of closing from a position above the freeboard deck, are acceptable.
(i) The lower gate valve shall, in addition, be controlled from a position above the freeboard deck. An interlock system between the two valves shall be arranged.

(ii) The inboard end shall be located above the waterline formed by an 8.5° heel to port or starboard at a draft corresponding to the assigned summer freeboard, but not less than 1,000 mm above the summer waterline. Where the inboard end exceeds 0.01L above the summer waterline, valve control from the freeboard deck is not required provided the inboard gate valve is always accessible under service conditions.

(iii) Alternatively the upper and lower gate valves may be replaced by a hinged weathertight cover at the inboard end of the chute together with a discharge flap. The cover and flap shall be arranged with an interlock so that the discharge flap cannot be operated until the hopper cover is closed.

(2) The entire chute, including the cover, shall be constructed of material of substantial thickness.

(3) The controls for the gate valves and/or hinged covers shall be clearly marked: "Keep closed when not in use".

(4) Where the inboard end of the chute is below the freeboard deck of a passenger ship or the equilibrium waterlines of a cargo ship to which damage stability requirements apply then:

(i) the inboard end hinged cover/valve shall be watertight;

(ii) the valve shall be a screw-down non-return valve fitted in an easily accessible position above the deepest load line; and

(iii) the screw-down non-return valve shall be controlled from a position above the bulkhead deck and provided with open/closed indicators. The valve control shall be clearly marked: "Keep closed when not in use".

**Regulation 22-2**

**Spurling pipes and cable lockers**

(1) Spurling pipes and cable lockers shall be watertight up to the weather deck.

(2) Where means of access is provided, it shall be closed by a substantial cover and secured by closely spaced bolts.

(3) Spurling pipes through which anchor cables are led shall be provided with permanently attached closing appliances to minimize water ingress.
Regulation 23
Side scuttles, windows and skylights

(1) Side scuttles and windows, together with their glasses, deadlights and storm covers*, if fitted, shall be of an approved design and substantial construction. Non-metallic frames are not acceptable.

(2) Side scuttles are defined as being round or oval openings with an area not exceeding 0.16 m². Round or oval openings having areas exceeding 0.16 m² shall be treated as windows.

(3) Windows are defined as being rectangular openings generally, having a radius at each corner relative to the window size and round or oval openings with an area exceeding 0.16 m².

(4) Side scuttles to the following spaces shall be fitted with hinged inside deadlights:
   (a) spaces below freeboard deck;
   (b) spaces within the first tier of enclosed superstructures;
   (c) first tier deckhouses on the freeboard deck protecting openings leading below or considered buoyant in stability calculations.

Deadlights shall be capable of being closed and secured watertight if fitted below the freeboard deck and weathertight if fitted above.

(5) Side scuttles shall not be fitted in such a position that their sills are below a line drawn parallel to the freeboard deck at side and having its lowest point 2.5% of the breadth (B), or 500 mm, whichever is the greatest distance, above the Summer Load Line (or Timber Summer Load Line if assigned).

(6) If required damage stability calculations indicate that the side scuttles would become immersed at any intermediate stage of flooding or the final equilibrium waterline they shall be of the non-opening type.

(7) Windows shall not be fitted in the following locations:
   (a) below the freeboard deck;
   (b) in the first tier end bulkheads or sides of enclosed superstructures; or
   (c) in first tier deckhouses that are considered buoyant in the stability calculations.

(8) Side scuttles and windows at the side shell in the second tier shall be provided with hinged inside deadlights capable of being closed and secured weathertight if the superstructure protects direct access to an opening leading below or is considered buoyant in the stability calculations.

* Deadlights are fitted to the inside of windows and side scuttles, while storm covers are fitted to the outside of windows, where accessible, and may be hunged or portable.
(9) Side scuttles and windows in side bulkheads set inboard from the side shell in the second tier which protect direct access below to spaces listed in paragraph (4), shall be provided with either hinged inside deadlights or, where they are accessible, permanently attached external storm covers which are capable of being closed and secured weathertight.

(10) Cabin bulkheads and doors in the second tier and above separating side scuttles and windows from a direct access leading below or the second tier considered buoyant in the stability calculations may be accepted in place of deadlights or storm covers fitted to the side scuttles and windows.

(11) Deckhouses situated on a raised quarter deck or on the deck of a superstructure of less than standard height, may be regarded as being in the second tier as far as the requirements for deadlights are concerned, provided the height of the raised quarter deck or superstructure is equal to or greater than the standard quarter deck height.

(12) Fixed or opening skylights shall have glass thickness appropriate to their size and position as required for side scuttles and windows. Skylight glasses in any position shall be protected from mechanical damage and where fitted in position 1 or 2, shall be provided with permanently attached deadlights or storm covers.

Regulation 24
Freeing ports

(1) (a) Where bulwarks on the weather portions of freeboard or superstructure decks form wells, ample provision shall be made for rapidly freeing the decks of water and for draining them.

(b) Except as provided in paragraphs (1)(c) and (2), the minimum freeing port area \( A \) on each side of the ship for each well on the freeboard deck shall be that given by the following formulae in cases where the sheer in way of the well is standard or greater than standard.

The minimum area for each well on superstructure decks shall be one-half of the area given by the following formulae:

Where the length of bulwark \( l \) in the well is 20 m or less

\[
A = 0.7 + 0.035 \, l \, m^2,
\]

where \( l \) exceeds 20 m

\[
A = 0.07 \, l \, m^2.
\]

\( l \) need in no case be taken as greater than 0.7L.

If the bulwark is more than 1.2 m in average height, the required area shall be increased by 0.004 \( m^2 \) per metre of length of well for each 0.1 m difference in height. If the bulwark is less than 0.9 m in average height, the required area may be decreased by 0.004 \( m^2 \) per m of length of well for each 0.1 m difference in height.
(c) In ships with no sheer, the area calculated according to paragraph (b) shall be increased by 50%. Where the sheer is less than the standard, the percentage shall be obtained by linear interpolation.

(d) On a flush deck ship with a deckhouse amidships having a breadth at least 80% of the beam of the ship and the passageways along the side of the ship not exceeding 1.5 m in width, two wells are formed. Each shall be given the required freeing port area based upon the length of each well.

(e) Where a screen bulkhead is fitted completely across the ship at the forward end of a midship deckhouse, the exposed deck is divided into two wells and there is no limitation on the breadth of the deckhouse.

(f) Wells on raised quarterdecks shall be treated as being on freeboard decks.

(g) Gutter bars greater than 300 mm in height fitted around the weather decks of tankers in way of cargo manifolds and cargo piping shall be treated as bulwarks. Freeing ports shall be arranged in accordance with this regulation. Closures attached to the freeing ports for use during loading and discharge operations are to be arranged in such a way that jamming cannot occur while at sea.

(2) Where a ship fitted with a trunk does not comply with the requirements of regulation 36(1)(e) or where continuous or substantially continuous hatchway side coamings are fitted between detached superstructures, the minimum area of the freeing port openings shall be calculated from the following table:

<table>
<thead>
<tr>
<th>Breadth of hatchway or trunk in relation to the breadth of ship</th>
<th>Area of freeing ports in relation to the total area of the bulwarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% or less</td>
<td>20%</td>
</tr>
<tr>
<td>75% or more</td>
<td>10%</td>
</tr>
</tbody>
</table>

The area of freeing ports at intermediate breadths shall be obtained by linear interpolation.

(3) The effectiveness of the freeing area in bulwarks required by paragraph (1) depends on the free flow area across the deck of a ship.

The free flow area on deck is the net area of gaps between hatchways, and between hatchways and superstructures and deckhouses up to the actual height of the bulwark.

The freeing port area in bulwarks shall be assessed in relation to the net free flow area as follows:

(a) If the free flow area is not less than the freeing area calculated from paragraph (2) as if the hatchway coamings were continuous, then the minimum freeing port area calculated from paragraph (1) shall be deemed sufficient.

(b) If the free flow area is equal to, or less than the area calculated from paragraph (1), minimum freeing area in the bulwarks shall be determined from paragraph (2).
(c) If the free flow area is smaller than calculated from paragraph (2), but greater than calculated from paragraph (1), the minimum freeing area in the bulwark shall be determined from the following formula:

\[ F = F_1 + F_2 - f_p \ m^2 \]

where:

- \( F_1 \) is the minimum freeing area calculated from paragraph (1);
- \( F_2 \) is the minimum freeing area calculated from paragraph (2); and
- \( f_p \) is the total net area of passages and gaps between hatch ends and superstructures or deckhouses up to the actual height of bulwark.

(4) In ships having superstructures on the freeboard deck or superstructure decks, which are open at either or both ends to wells formed by bulwarks on the open decks, adequate provision for freeing the open spaces within the superstructures shall be provided.

The minimum freeing port area on each side of the ship for the open superstructure (\( A_s \)) and for the open well (\( A_w \)), shall be calculated in accordance with the following procedure:

(a) Determine the total well length (\( l_t \)) equal to the sum of the length of the open deck enclosed by bulwarks (\( l_w \)) and the length of the common space within the open superstructure (\( l_s \)).

(b) To determine (\( A_s \)):

(i) Calculate the freeing port area (\( A \)) required for an open well of length \( l_t \) in accordance with paragraph (1) with standard height bulwark assumed.

(ii) Multiply by the factor of 1.5 to correct for the absence of sheer, if applicable, in accordance with paragraph (1)(c).

(iii) Multiply by the factor \( (b_o/l_t) \) to adjust the freeing port area for the breadth \( (b_o) \) of the openings in the end bulkhead of the enclosed superstructure.

(iv) To adjust the freeing port area for that part of the entire length of the well which is enclosed by the open superstructure, multiply by the factor:

\[ 1 - \left(\frac{l_w}{l_t}\right)^2 \]

where \( l_w \) and \( l_t \) are defined in paragraph (4)(a).

(v) To adjust the freeing port area for the distance of the well deck above the freeboard deck, for decks located more than 0.5 \( h_s \) above the freeboard deck, multiply by the factor:

\[ 0.5 \left(\frac{h_o}{h_w}\right) \]

where \( h_o \) is the distance of the well deck above the freeboard deck and \( h_s \) is one standard superstructure height.
(c) To determine \((A_w)\):

(i) The freeing port area for the open well \((A_w)\) shall be calculated in accordance with paragraph (b)(i), using \(l_w\) to calculate a nominal freeing port area \((A')\), and then adjusted for the actual height of the bulwark \((h_b)\) by the application of one of the following area corrections, whichever is applicable:

For bulwarks greater than 1.2 m in height:

\[
A_c = l_w((h_b - 1.2)/0.10)(0.004) \text{ m}^2
\]

For bulwarks less than 0.9 m in height:

\[
A_c = l_w((h_b - 0.9)/0.10)(0.004) \text{ m}^2
\]

For bulwarks between 1.2 m and 0.9 m in height there is no correction (i.e. \(A_c = 0\)).

(ii) The corrected freeing port area, \((A_w = A' + A_c)\), shall then be adjusted for absence of sheer, if applicable, and height above freeboard deck as in paragraphs (b)(ii) and (b)(v), using \(h_s\) and \(h_w\).

(d) The resulting freeing port areas for the open superstructure \((A_s)\) and for the open well \((A_w)\) shall be provided along each side of the open space covered by the open superstructure and each side of the open well, respectively.

(e) The above relationships are summarised by the following equations, assuming \(l_t\), the sum of \(l_w\) and \(l_s\), is greater than 20 m:

Freeing port area \(A_w\) for the open well:

\[
A_w = (0.07l_w + A_c) \text{ (sheer correction)} (0.5h_s/h_w)
\]

Freeing port area \(A_s\) for the open superstructure:

\[
A_s = (0.07l_t) \text{ (sheer correction)} (b_o/l_t) (1 - (l_w/l_t)^2 (0.5h_s/h_w)
\]

Where \(l_t\) is 20 m or less, the basic freeing port area is \(A = 0.7 + 0.035l_t\) in accordance with paragraph (1).

(5) The lower edges of freeing ports shall be as near the deck as practicable. Two-thirds of the freeing port area required shall be provided in the half of the well nearest the lowest point of the sheer curve. One third of the freeing port area required shall be evenly spread along the remaining length of the well. With zero or little sheer on the exposed freeboard deck or an exposed superstructure deck the freeing port area shall be evenly spread along the length of the well.

(6) All freeing port openings in the bulwarks shall be protected by rails or bars spaced approximately 230 mm apart. If shutters are fitted to freeing ports, ample clearance shall be provided to prevent jamming. Hinges shall have pins or bearings of non-corrodible material. Shutters shall not be fitted with securing appliances.
Regulation 25
Protection of the crew

(1) The deckhouses used for the accommodation of the crew shall be constructed to an acceptable level of strength.

(2) Guard rails or bulwarks shall be fitted around all exposed decks. The height of the bulwarks or guard rails shall be at least 1 metre from the deck, provided that where this height would interfere with the normal operation of the ship, a lesser height may be approved if the Administration is satisfied that adequate protection is provided.

(3) Guard rails fitted on superstructure and freeboard decks shall have at least three courses. The opening below the lowest course of the guard rails shall not exceed 230 mm. The other courses shall be not more than 380 mm apart. In the case of ships with rounded gunwales the guard rail supports shall be placed on the flat of the deck. In other locations, guardrails with at least two courses, shall be fitted. The following provisions apply:

(a) Fixed, removable or hinged stanchions shall be fitted about 1.5 m apart. Removable or hinged stanchions shall be capable of being locked in the upright position.

(b) At least every third stanchion shall be supported by a bracket or stay.

(c) Where necessary for the normal operation of the ship, steel wire ropes may be accepted in lieu of guard rails. Wires shall be made taut by means of turnbuckles.

(d) Where necessary for the normal operation of the ship, chains fitted between two fixed stanchions and/or bulwarks are acceptable in lieu of guard rails.

(4) Satisfactory means for safe passage required by regulation 25-1 (in the form of guard rails, life lines, gangways or underdeck passages, etc.) shall be provided for the protection of the crew in getting to and from their quarters, the machinery space and any other spaces used in the essential operation of the ship.

(5) Deck cargo carried on any ship shall be so stowed that any opening which is in way of the cargo and which gives access to and from the crew's quarters, the machinery space and all other parts used in the essential operation of the ship, can be closed and secured against water ingress. Protection for the crew in the form of guard rails or life lines shall be provided above the deck cargo if there is no convenient passage on or below the deck of the ship.

Regulation 25-1
Means for safe passage of crew

(1) The safe passage of crew shall be provided by at least one of the means denoted in table 25-1.1 below:
## Acceptable arrangements according to type of freeboard assigned***:

<table>
<thead>
<tr>
<th>Type of ship</th>
<th>Assigned summer freeboard</th>
<th>Type ‘A’</th>
<th>Type ‘B-100’</th>
<th>Type ‘B-60’</th>
<th>Type ‘B’ and ‘B+’</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Access to midship quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.1 Between poop and bridge, or</td>
<td>&lt; 3,000 mm</td>
<td>a</td>
<td>b</td>
<td>c(1)</td>
<td>d(1)</td>
</tr>
<tr>
<td>1.1.2 Between poop and deckhouse containing living accommodation or navigating equipment, or both.</td>
<td>&gt; 3,000 mm</td>
<td>a</td>
<td>b</td>
<td>c(1)</td>
<td>d(1)</td>
</tr>
<tr>
<td>1.2 Access to ends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.1 Between poop and bow (if there is no bridge),</td>
<td>≤ 3,000 mm</td>
<td>a</td>
<td>b</td>
<td>c(1)</td>
<td>f(1)</td>
</tr>
<tr>
<td>1.2.2 Between bridge and bow, or</td>
<td>&gt; 3,000 mm</td>
<td>a</td>
<td>b</td>
<td>c(1)</td>
<td>f(1)</td>
</tr>
<tr>
<td>1.2.3 Between a deckhouse containing living accommodation or navigating equipment, or both, and bow, or</td>
<td></td>
<td>a</td>
<td>b</td>
<td>c(1)</td>
<td>f(1)</td>
</tr>
<tr>
<td>1.2.4 In the case of a flush deck ship, between crew accommodation and the forward and after ends of ship.</td>
<td></td>
<td>a</td>
<td>b</td>
<td>c(1)</td>
<td>f(1)</td>
</tr>
<tr>
<td>2.1 Access to bow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.1 Between poop and bow or</td>
<td>≤ ((A_t + H_s))**</td>
<td>a</td>
<td>e</td>
<td>f(1)</td>
<td>f(5)</td>
</tr>
<tr>
<td>2.1.2 Between a deckhouse containing living accommodation or navigating equipment, or both, and bow, or</td>
<td>&gt; ((A_t + H_s))**</td>
<td>a</td>
<td>e</td>
<td>f(1)</td>
<td>f(2)</td>
</tr>
<tr>
<td>2.1.3 In the case of a flush deck ship, between crew accommodation and the forward ends of ship.</td>
<td></td>
<td>a</td>
<td>e</td>
<td>f(1)</td>
<td>f(2)</td>
</tr>
<tr>
<td>2.2 Access to after end</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the case of a flush deck ship, between crew accommodation and the after end of ship.</td>
<td>As required in 1.2.4 for other types of ships</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- * Oil tankers, chemical tankers and gas carriers as defined in SOLAS II-1/2.12, VII/8.2 and VII/11.2, respectively
- ** \(A_t\): the minimum summer freeboard calculated as type ‘A’ ship regardless of the type freeboard actually assigned.
- ** \(H_s\): the standard height of superstructure as defined in regulation 33.
- *** Arrangements a-f are described in subparagraph (a) below as indents (i) to (vi) respectively. Locations (1)-(5) are described in subparagraph (b) below.

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Table 25-1.1

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I:\MSC\76\23-ADD.1.DOC
(a) Acceptable arrangements referred to in table 25-1.1 are defined as follows:

(i) A well lighted and ventilated under-deck passageway (with a clear opening of at least 0.8 m wide and 2 m high), as close as practicable to the freeboard deck, connecting and providing access to the locations in question.

(ii) A permanent and efficiently constructed gangway, fitted at or above the level of the superstructure deck, on or as near as practicable to the centre line of the ship, providing a continuous platform at least 0.6 m in width and a non-slip surface and with guard rails extending on each side throughout its length. Guard rails shall be at least 1 m high with three courses and constructed as required in regulation 25(3). A foot-stop shall be provided.

(iii) A permanent walkway at least 0.6 m in width, fitted at freeboard deck level and consisting of two rows of guard rails with stanchions spaced not more than 3 m. The number of courses of rails and their spacing shall be in accordance with regulation 25(3). On type ‘B’ ships, hatchway coamings not less than 0.6 m in height, may be accepted as forming one side of the walkway, provided that two rows of guard rails are fitted between the hatchways.

(iv) A wire rope lifeline not less than 10 mm in diameter, supported by stanchions not more than 10 m apart, or a single hand rail or wire rope attached to hatch coamings, continued and supported between hatchways.

(v) A permanent gangway that is:

- fitted located at or above the level of the superstructure deck;
- located on or as near as practicable to the centre line of the ship;
- located so as not to hinder easy access across the working areas of the deck;
- providing a continuous platform at least 1 m in width;
- constructed of fire resistant and non-slip material;
- fitted with guard rails extending on each side throughout its length; guard rails shall be at least 1 m high with courses as required by regulation 25(3) and supported by stanchions spaced not more than 1.5 m;
- provided with a foot stop on each side;
- having openings, with ladders where appropriate, to and from the deck. Openings shall not be more than 40 m apart;
- having shelters set in way of the gangway at intervals not exceeding 45 m if the length of the exposed deck to be traversed exceeds 70 m. Every such shelter shall be capable of accommodating at least one person and be so constructed as to afford weather protection on the forward, port and starboard sides.
(vi) A permanent walkway located at the freeboard deck level, on or as near as practicable to the centre line of the ship, having the same specifications as those for a permanent gangway listed in (e) except for foot stops. On type ‘B’ ships (certified for the carriage of liquids in bulk), with a combined height of hatch coaming and fitted hatch cover of not less than 1m in height, the hatchway coamings may be accepted as forming one side of the walkway, provided that two rows of guard rails are fitted between the hatchways.

(b) Permitted transverse locations for arrangements in subparagraphs (iii), (iv) and (vi) above, where appropriate:

(i) At or near the centre line of the ship; or fitted on hatchways at or near the centre line of the ship.
(ii) Fitted on each side of the ship.
(iii) Fitted on one side of the ship, provision being made for fitting on either side.
(iv) Fitted on one side of the ship only.
(v) Fitted on each side of the hatchways, as near to the centre line as practicable.

(c) Where wire ropes are fitted, turnbuckles shall be provided to ensure their tautness.

(d) Where necessary for the normal operation of the ship, steel wire ropes may be accepted in lieu of guard rails.

(e) Where necessary for the normal operation of the ship, chains fitted between two fixed stanchions are acceptable in lieu of guard rails.

(f) Where stanchions are fitted, every third stanchion shall be supported by a bracket or stay.

(g) Removable or hinged stanchions shall be capable of being locked in the upright position.

(h) A means of passage over obstructions, such as pipes or other fittings of a permanent nature, shall be provided.

(i) Generally, the width of the gangway or deck-level walkway should not exceed 1.5 m.

(2) For tankers less than 100 m in length, the minimum width of the gangway platform or deck level walkway fitted in accordance with paragraphs (e) or (f) above, respectively, may be reduced to 0.6 m.
Regulation 26
Special conditions of assignment for type ‘A’ ships

Machinery casings

(1) Machinery casings on type ‘A’ ships, as defined in regulation 27, shall be protected by one of the following arrangements:

(a) an enclosed poop or bridge of at least standard height; or

(b) by a deckhouse of equal height and equivalent strength.

(2) Machinery casings may, however, be exposed if there are no openings giving direct access from the freeboard deck to the machinery space. A door complying with the requirements of regulation 12 is acceptable in the machinery casing, provided that it leads to a space or passageway which is as strongly constructed as the casing and is separated from the stairway to the engine-room by a second weathertight door of steel or other equivalent material.

Gangway and Access

(3) A fore and aft permanent gangway, constructed in accordance with the provisions of regulation 25-1(1)(a)(v), shall be fitted on type ‘A’ ships at the level of the superstructure deck between the poop and the midship bridge or deckhouse where fitted. The arrangement contained in regulation 25-1(1)(a)(i) is considered an equivalent means of access to carry out the purpose of the gangway.

(4) Safe access from the gangway level shall be available between separate crew accommodations and also between crew accommodations and the machinery space.

Hatchways

(5) Exposed hatchways on the freeboard and forecastle decks or on the tops of expansion trunks on type ‘A’ ships shall be provided with efficient watertight covers of steel or other equivalent material.

Freeing arrangements

(6) Type ‘A’ ships with bulwarks shall have open rails fitted for at least half the length of the weather deck or other equivalent freeing arrangements. A freeing port area, in the lower part of the bulwarks, of 33% of the total area of the bulwarks is an acceptable equivalent freeing arrangement. The upper edge of the sheer strake shall be kept as low as practicable.

(7) Where superstructures are connected by trunks, open rails shall be fitted for the whole length of the exposed parts of the freeboard deck.
CHAPTER III
FREEBOARDS

Regulation 27
Types of ships

(1) For the purposes of freeboard computation, ships shall be divided into type ‘A’ and type 'B'.

Type 'A' ships

(2) A type 'A' ship is one which:
   (a) is designed to carry only liquid cargoes in bulk;
   (b) has a high integrity of the exposed deck with only small access openings to cargo compartments, closed by watertight gasketed covers of steel or equivalent material; and
   (c) has low permeability of loaded cargo compartments.

(3) A type ‘A’ ship if over 150 m in length to which a freeboard less than type 'B' has been assigned, when loaded in accordance with the requirements of paragraph (11), shall be able to withstand the flooding of any compartment or compartments, with an assumed permeability of 0.95, consequent upon the damage assumptions specified in paragraph (12), and shall remain afloat in a satisfactory condition of equilibrium, as specified in paragraph (13). In such a ship, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

(4) A type ‘A’ ship shall be assigned a freeboard not less than that based on table 28.1.

Type ‘B’ ships

(5) All ships which do not come within the provisions regarding type ‘A’ ships in paragraphs (2) and (3) shall be considered as type ‘B’ ships.

(6) Type ‘B’ ships, which in position 1 have hatch covers fitted with securing arrangements accepted under the provisions of regulation 16-1(6) shall be assigned freeboards based upon the values given in table 28.2, increased by the values given in table 27.1:
Freeboard increase over tabular freeboard for type 'B' ships, for ships with hatch covers accepted under the provisions of regulation 16-1(6)

<table>
<thead>
<tr>
<th>Length of ship (m)</th>
<th>Freeboard increase (mm)</th>
<th>Length of ship (m)</th>
<th>Freeboard increase (mm)</th>
<th>Length of ship (m)</th>
<th>Freeboard increase (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>108 and below</td>
<td>50</td>
<td>139</td>
<td>175</td>
<td>170</td>
<td>290</td>
</tr>
<tr>
<td>109</td>
<td>52</td>
<td>140</td>
<td>181</td>
<td>171</td>
<td>292</td>
</tr>
<tr>
<td>110</td>
<td>55</td>
<td>141</td>
<td>186</td>
<td>172</td>
<td>294</td>
</tr>
<tr>
<td>111</td>
<td>57</td>
<td>142</td>
<td>191</td>
<td>173</td>
<td>297</td>
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<tr>
<td>112</td>
<td>59</td>
<td>143</td>
<td>196</td>
<td>174</td>
<td>299</td>
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<tr>
<td>113</td>
<td>62</td>
<td>144</td>
<td>201</td>
<td>175</td>
<td>301</td>
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<tr>
<td>114</td>
<td>64</td>
<td>145</td>
<td>206</td>
<td>176</td>
<td>304</td>
</tr>
<tr>
<td>115</td>
<td>68</td>
<td>146</td>
<td>210</td>
<td>177</td>
<td>306</td>
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<tr>
<td>116</td>
<td>70</td>
<td>147</td>
<td>215</td>
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<td>117</td>
<td>73</td>
<td>148</td>
<td>219</td>
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<td>119</td>
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<td>122</td>
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<td>123</td>
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<td>244</td>
<td>185</td>
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<td>124</td>
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<td>247</td>
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<td>129</td>
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<td>160</td>
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<td>130</td>
<td>126</td>
<td>161</td>
<td>267</td>
<td>192</td>
<td>341</td>
</tr>
<tr>
<td>131</td>
<td>131</td>
<td>162</td>
<td>270</td>
<td>193</td>
<td>343</td>
</tr>
<tr>
<td>132</td>
<td>136</td>
<td>163</td>
<td>273</td>
<td>194</td>
<td>346</td>
</tr>
<tr>
<td>133</td>
<td>142</td>
<td>164</td>
<td>275</td>
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<td>348</td>
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<td>134</td>
<td>147</td>
<td>165</td>
<td>278</td>
<td>196</td>
<td>350</td>
</tr>
<tr>
<td>135</td>
<td>153</td>
<td>166</td>
<td>280</td>
<td>197</td>
<td>353</td>
</tr>
<tr>
<td>136</td>
<td>159</td>
<td>167</td>
<td>283</td>
<td>198</td>
<td>355</td>
</tr>
<tr>
<td>137</td>
<td>164</td>
<td>168</td>
<td>285</td>
<td>199</td>
<td>357</td>
</tr>
<tr>
<td>138</td>
<td>170</td>
<td>169</td>
<td>287</td>
<td>200</td>
<td>358</td>
</tr>
</tbody>
</table>

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ships above 200 m in length shall be dealt with by the Administration.

Table 27.1

(7) Type ‘B’ ships, which in position 1 have hatchways fitted with hatch covers complying with the requirements of regulation 16-1(2) through (5), shall, except as provided in paragraphs (8) to (13) inclusive, be assigned freeboards based on table 28.2.

(8) Any type ‘B’ ship of over 100 m in length may be assigned freeboards less than those required under paragraph (7), provided that, in relation to the amount of reduction granted, the Administration is satisfied that:

(a) the measures provided for the protection of the crew are adequate;

(b) the freeing arrangements are adequate;
(c) the covers in position 1 and 2 comply with the provisions of regulation 16-1(2) through (6) and have adequate strength, special care being given to their sealing and securing arrangements; and

(d) the ship, when loaded in accordance with the requirements of paragraph (11), shall be able to withstand the flooding of any compartment or compartments, with an assumed permeability of 0.95, consequent upon the damage assumptions specified in paragraph (12), and shall remain afloat in a satisfactory condition of equilibrium, as specified in paragraph (13). In such a ship, if over 150 m in length, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

In calculating the freeboards for Type 'B' ships which comply with the requirements of paragraphs (8), (11), (12) and (13), the values from table 28.2 shall not be reduced by more than 60% of the difference between the tabular values in tables 28.1 and 28.2 for the appropriate ship lengths.

(10) (a) The reduction in tabular freeboard allowed under paragraph (9) may be increased up to the total difference between the values in table 28.1 and those in table 28.2 on condition that the ship complies with the requirements of:

(i) regulation 26, other than paragraph (5), as if it were a Type ‘A’ ship;

(ii) paragraphs (8), (11) and (13); and

(iii) paragraph (12), provided that throughout the length of the ship any one transverse bulkhead will be assumed to be damaged, such that two adjacent fore and aft compartments shall be flooded simultaneously, except that such damage will not apply to the boundary bulkheads of a machinery space.

(b) In such a ship, if over 150 m in length, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

**Initial condition of loading**

(11) The initial condition of loading before flooding shall be determined as follows:

(a) The ship is loaded to its summer load waterline on an imaginary even keel.

(b) When calculating the vertical centre of gravity, the following principles apply:

(i) Homogeneous cargo is carried.

(ii) All cargo compartments, except those referred to under subparagraph (iii), but including compartments intended to be partially filled, shall be considered fully loaded except that in the
case of fluid cargoes each compartment shall be treated as 98% full.

(iii) If the ship is intended to operate at its summer load waterline with empty compartments, such compartments shall be considered empty provided the height of the centre of gravity so calculated is not less than as calculated under subparagraph (ii).

(iv) 50% of the individual total capacity of all tanks and spaces fitted to contain consumable liquids and stores is allowed for. It shall be assumed that for each type of liquid, at least one transverse pair or a single centreline tank has maximum free surface, and the tank or combination of tanks to be taken into account shall be those where the effect of free surfaces is the greatest; in each tank the centre of gravity of the contents shall be taken at the centre of volume of the tank. The remaining tanks shall be assumed either completely empty or completely filled, and the distribution of consumable liquids between these tanks shall be effected so as to obtain the greatest possible height above the keel for the centre of gravity.

(v) At an angle of keel of not more than 5° in each compartment containing liquids, as prescribed in subparagraph (ii) except that in the case of compartments containing consumable fluids, as prescribed in subparagraph (iv), the maximum free surface effect shall be taken into account.

Alternatively, the actual free surface effects may be used, provided the methods of calculation are acceptable to the Administration.

(vi) Weights shall be calculated on the basis of the following values for specific gravities:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt water</td>
<td>1.025</td>
</tr>
<tr>
<td>Fresh water</td>
<td>1.000</td>
</tr>
<tr>
<td>Oil fuel</td>
<td>0.950</td>
</tr>
<tr>
<td>Diesel oil</td>
<td>0.900</td>
</tr>
<tr>
<td>Lubricating oil</td>
<td>0.900</td>
</tr>
</tbody>
</table>

**Damage assumptions**

(12) The following principles regarding the character of the assumed damage apply:

(a) The vertical extent of damage in all cases is assumed to be from the base line upwards without limit.

(b) The transverse extent of damage is equal to B/5 or 11.5 m, whichever is the lesser, measured inboard from the side of the ship perpendicularly to the centreline at the level of the summer load waterline.
(c) If damage of a lesser extent than specified in subparagraphs (a) and (b) results in a more severe condition, such lesser extent shall be assumed.

(d) Except where otherwise required by paragraph (10)(a), the flooding shall be confined to a single compartment between adjacent transverse bulkheads provided the inner longitudinal boundary of the compartment is not in a position within the transverse extent of assumed damage. Transverse boundary bulkheads of wing tanks which do not extend over the full breadth of the ship shall be assumed not to be damaged, provided they extend beyond the transverse extent of assumed damage prescribed in subparagraph (b).

If in a transverse bulkhead there are steps or recesses of not more than 3 m in length located within the transverse extent of assumed damage as defined in subparagraph (b), such transverse bulkhead may be considered intact and the adjacent compartment may be floodable singly. If, however, within the transverse extent of assumed damage there is a step or recess of more than 3 m in length in a transverse bulkhead, the two compartments adjacent to this bulkhead shall be considered as flooded. The step formed by the afterpeak bulkhead and the afterpeak tank top shall not be regarded as a step for the purpose of this regulation.

(e) Where a main transverse bulkhead is located within the transverse extent of assumed damage and is stepped in way of a double bottom or side tank by more than 3 m, the double bottom or side tanks adjacent to the stepped portion of the main transverse bulkhead shall be considered as flooded simultaneously. If this side tank has openings, into one or several holds, such as grain feeding holes, such hold or holds shall be considered as flooded simultaneously. Similarly in a ship designed for the carriage of fluid cargoes, if a side tank has openings into adjacent compartments, such adjacent compartments shall be considered as empty and as being flooded simultaneously. This provision is applicable even where such openings are fitted with closing appliances, except in the case of sluice valves fitted in bulkheads between tanks and where the valves are controlled from the deck. Manhole covers with closely spaced bolts are considered equivalent to the unpierced bulkhead except in the case of openings in topside tanks making the topside tanks common to the holds.

(f) Where the flooding of any two adjacent fore and aft compartments is envisaged, main transverse watertight bulkheads shall be spaced at least 1/3 L^{23} or 14.5 m, whichever is the lesser, in order to be considered effective. Where transverse bulkheads are spaced at a lesser distance, one or more of these bulkheads shall be assumed as non-existent in order to achieve the minimum spacing between bulkheads.

**Condition of equilibrium**

(13) The condition of equilibrium after flooding shall be regarded as satisfactory provided:
(a) The final waterline after flooding, taking into account sinkage, heel and trim, is below the lower edge of any opening through which progressive downflooding may take place. Such openings shall include air pipes, ventilators and openings which are closed by means of watertight doors (even if they comply with regulation 12) or hatch covers (even if they comply with regulation 16-1(1) through (5) or regulation 19(4)), and may exclude those openings closed by means of manhole covers and flush scuttles (which comply with regulation 18), cargo hatch covers of the type described in regulation 27(2), remotely operated sliding watertight doors, and sidescuttles of the non-opening type (which comply with regulation 23). However, in the case of doors separating a main machinery space from a steering gear compartment, watertight doors may be of a hinged, quick-acting type kept closed at sea, whilst not in use, provided also that the lower sill of such doors is above the summer load waterline.

(b) If pipes, ducts or tunnels are situated within the assumed extent of damage penetration as defined in paragraph (12)(b), arrangements shall be made so that progressive flooding cannot thereby extend to compartments other than those assumed to be floodable in the calculation for each case of damage.

(c) The angle of heel due to unsymmetrical flooding does not exceed 15°. If no part of the deck is immersed, an angle of heel of up to 17° may be accepted.

(d) The metacentric height in the flooded condition is positive.

(e) When any part of the deck outside the compartment assumed flooded in a particular case of damage is immersed, or in any case where the margin of stability in the flooded condition may be considered doubtful, the residual stability is to be investigated. It may be regarded as sufficient if the righting lever curve has a minimum range of 20° beyond the position of equilibrium with a maximum righting lever of at least 0.1 m within this range. The area under the righting lever curve within this range shall be not less than 0.0175 m.rad. The Administration shall give consideration to the potential hazard presented by protected or unprotected openings which may become temporarily immersed within the range of residual stability.

(f) The Administration is satisfied that the stability is sufficient during intermediate stages of flooding.

Ships without means of propulsion

(14) A lighter, barge or other ship without independent means of propulsion shall be assigned a freeboard in accordance with the provisions of these regulations. Barges which meet the requirements of paragraphs (2) and (3) may be assigned type ‘A’ freeboards:

(a) The Administration should especially consider the stability of barges with cargo on the weather deck. Deck cargo can only be carried on barges to which the ordinary type ‘B’ freeboard is assigned.
(b) However, in the case of barges which are unmanned, the requirements of regulations 5, 26(3), 26(4) and 39 shall not apply.

(c) Such unmanned barges which have on the freeboard deck only small access openings closed by watertight gasketed covers of steel or equivalent material may be assigned a freeboard 25% less than those calculated in accordance with these regulations.

Regulation 28
Freeboard tables

Type ‘A’ ships

(1) The tabular freeboard for Type ‘A’ ships shall be determined from table 28.1:

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Freeboards at intermediate lengths of ship shall be obtained by linear interpolation.

Ships above 365 m in length shall be dealt with by the Administration.
Type ‘B’ ships

(2) The tabular freeboard for type ‘B’ ships shall be determined from table 28.2:

Table 28.2
Freeboard table for type ‘B’ ships

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<td>3380</td>
<td>270</td>
<td>4276</td>
<td>333</td>
<td>4985</td>
</tr>
<tr>
<td>208</td>
<td>3397</td>
<td>271</td>
<td>4289</td>
<td>334</td>
<td>4995</td>
</tr>
<tr>
<td>209</td>
<td>3413</td>
<td>272</td>
<td>4302</td>
<td>335</td>
<td>5005</td>
</tr>
<tr>
<td>210</td>
<td>3430</td>
<td>273</td>
<td>4315</td>
<td>336</td>
<td>5015</td>
</tr>
<tr>
<td>211</td>
<td>3445</td>
<td>274</td>
<td>4327</td>
<td>337</td>
<td>5025</td>
</tr>
<tr>
<td>212</td>
<td>3460</td>
<td>275</td>
<td>4339</td>
<td>338</td>
<td>5035</td>
</tr>
<tr>
<td>213</td>
<td>3475</td>
<td>276</td>
<td>4350</td>
<td>339</td>
<td>5045</td>
</tr>
<tr>
<td>214</td>
<td>3490</td>
<td>277</td>
<td>4362</td>
<td>340</td>
<td>5055</td>
</tr>
<tr>
<td>215</td>
<td>3505</td>
<td>278</td>
<td>4373</td>
<td>341</td>
<td>5065</td>
</tr>
<tr>
<td>216</td>
<td>3520</td>
<td>279</td>
<td>4385</td>
<td>342</td>
<td>5075</td>
</tr>
<tr>
<td>217</td>
<td>3537</td>
<td>280</td>
<td>4397</td>
<td>343</td>
<td>5086</td>
</tr>
<tr>
<td>218</td>
<td>3554</td>
<td>281</td>
<td>4408</td>
<td>344</td>
<td>5097</td>
</tr>
<tr>
<td>219</td>
<td>3570</td>
<td>282</td>
<td>4420</td>
<td>345</td>
<td>5108</td>
</tr>
<tr>
<td>220</td>
<td>3586</td>
<td>283</td>
<td>4432</td>
<td>346</td>
<td>5119</td>
</tr>
<tr>
<td>221</td>
<td>3601</td>
<td>284</td>
<td>4443</td>
<td>347</td>
<td>5130</td>
</tr>
<tr>
<td>222</td>
<td>3615</td>
<td>285</td>
<td>4455</td>
<td>348</td>
<td>5140</td>
</tr>
<tr>
<td>223</td>
<td>3630</td>
<td>286</td>
<td>4467</td>
<td>349</td>
<td>5150</td>
</tr>
<tr>
<td>224</td>
<td>3645</td>
<td>287</td>
<td>4478</td>
<td>350</td>
<td>5160</td>
</tr>
</tbody>
</table>
Freeboards at intermediate lengths of ship shall be obtained by linear interpolation.

Ships above 365 m in length shall be dealt with by the Administration.

**Regulation 29**

**Correction to the freeboard for ships under 100 m in length**

The tabular freeboard for a type ‘B’ ship of between 24 m and 100 m in length having enclosed superstructures with an effective length of up to 35% of the length of the ship shall be increased by:

$$7.5 \times (100 - L) \times \left(0.35 - \frac{E_1}{L}\right) \text{ (mm)}$$

where $L$ is the length of the ship in m; and

$E_1$ is the effective length $E$ of superstructure in m as defined in regulation 35, but excluding the length of trunks.

**Regulation 30**

**Correction for block coefficient**

Where the block coefficient ($C_b$) exceeds 0.68, the tabular freeboard specified in regulation 28 as modified, if applicable, by regulations 27(8), 27(10) and 29 shall be multiplied by the factor:

$$\frac{C_b + 0.68}{1.36}$$

Block coefficient is not to be taken greater than 1.0.

**Regulation 31**

**Correction for depth**

1. Where $D$ exceeds $\frac{L}{15}$ the freeboard shall be increased by $\left(D \cdot \frac{L}{15}\right)$ R mm, where R is $\frac{L}{0.48}$ at lengths less than 120 m and 250 at 120 m length and above.

2. Where $D$ is less than $\frac{L}{15}$ no reduction shall be made except in a ship with an enclosed superstructure covering at least 0.6 L amidships, with a complete trunk, or combination of detached enclosed superstructures and trunks which extend all fore and aft, where the freeboard shall be reduced at the rate prescribed in paragraph (1).
(3) Where the height of superstructure or trunk is less than the corresponding standard height, the calculated reduction shall be corrected in the ratio of the height of the actual superstructure or trunk to the applicable standard height, as defined in regulation 33.

**Regulation 32**

**Correction for position of deck line**

Where the actual depth to the upper edge of the deck line is greater or less than $D$, the difference between the depths shall be added to or deducted from the freeboard.

**Regulation 32-1**

**Correction for recess in freeboard deck**

(1) Where a recess is arranged in the freeboard deck, and it does not extend to the sides of the ship, the freeboard calculated without regard to the recess shall be corrected for the consequent loss of buoyancy. The correction shall be equal to the value obtained by dividing the volume of the recess by the waterplane area of the ship at 85% of the least moulded depth (see figure 32-1.1).

(2) The correction shall be an addition to the freeboard obtained after all other corrections have been applied, except bow height correction.

(3) Where the freeboard, corrected for lost buoyancy as above, is greater than the minimum geometric freeboard determined on the basis of a moulded depth measured to the bottom of the recess, the latter value may be used.

**Figure 32-1.1**

Correction is the addition to freeboard equal to:

$$\frac{l \times b \times d_r}{WP \ Area \ at \ 0.85D}$$
**Regulation 33**

**Standard height of superstructure**

The standard height of a superstructure shall be as given in the following table:

<table>
<thead>
<tr>
<th>L (m)</th>
<th>Raised quarterdeck</th>
<th>All other superstructures</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 or less</td>
<td>0.90</td>
<td>1.80</td>
</tr>
<tr>
<td>75</td>
<td>1.20</td>
<td>1.80</td>
</tr>
<tr>
<td>125 or more</td>
<td>1.80</td>
<td>2.30</td>
</tr>
</tbody>
</table>

The standard heights at intermediate lengths of the ship shall be obtained by linear interpolation.

**Regulation 34**

**Length of superstructure**

1. Except as provided in paragraph (2), the length of a superstructure (S) shall be the mean length of the parts of the superstructure which lie within the length (L).

   Where a superstructure bulkhead is recessed, the effective length of the superstructure shall be reduced by an amount equal to the area of the recess in plan view divided by the breadth of the superstructure at the midlength of the recess. Where the recess is unsymmetrical about the centreline, the largest portion of the recess shall be considered as applying to both sides of the ship. A recess need not be decked over.

2. Where the end bulkhead of an enclosed superstructure extends in a fair convex curve beyond its intersection with the superstructure sides, the length of the superstructure may be increased on the basis of an equivalent plane bulkhead. This increase shall be two-thirds of the fore and aft extent of the curvature. The maximum curvature which may be taken into account in determining this increase is one-half the breadth of the superstructure at the point of intersection of the curved end of the superstructure with its side.

Where there is an extension to a superstructure, which extension has a breadth on each side of the centre line at least 30% of the breadth of the ship, the effective length of the superstructure may be increased by considering an equivalent superstructure bulkhead in the form of a parabola. This parabola shall extend from the extension at the centreline and pass through the junction of the actual superstructure bulkhead with the sides of the extension and extend to the sides of the ship. This parabola shall be completely contained within the boundary of the superstructure and its extensions.

If the superstructure is set-in from the side, up to the limit allowed under regulation 3(11), the equivalent bulkhead should be calculated on the basis of the actual breadth of the superstructure (and not the breadth of the ship).
Superstructures which have sloped end bulkheads shall be dealt with in the following manner:

(a) When the height of superstructure, clear of the slope, is equal to or smaller than the standard height, length $S$ is to be obtained as shown in figure 34.1.

(b) When the height is greater than the standard, length $S$ is to be obtained as shown in figure 34.2.

(c) The foregoing will apply only when the slope, related to the base line, is $15^\circ$ or greater. Where the slope is less than $15^\circ$, the configuration shall be treated as sheer.

![Figure 34.1 Height of superstructure equal to or smaller than the standard height $h$](attachment:figure34.1.png)

![Figure 34.2 Height of superstructure greater than the standard height](attachment:figure34.2.png)

**Regulation 35**

**Effective length of superstructure**

(1) Except as provided for in paragraph (2) the effective length ($E$) of an enclosed superstructure of standard height shall be its length.

(2) In all cases where an enclosed superstructure of standard height is set in from the sides of the ship as permitted in regulation 3(11), the effective length shall be the length modified by the ratio of $b/B_s$, where

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$b$</td>
<td>breadth of the superstructure at the middle of its length; and</td>
</tr>
<tr>
<td>$B_s$</td>
<td>breadth of the ship at the middle of the length of the superstructure.</td>
</tr>
</tbody>
</table>
Where a superstructure is set in for a part of its length, this modification shall be applied only to the set in part.

(3) Where the height of an enclosed superstructure is less than the standard height, the effective length shall be its length reduced in the ratio of the actual height to the standard height. Where the height exceeds the standard, no increase shall be made to the effective length of the superstructure (see figures 34.1 and 34.2).

Where the height, clear of the slope, of a superstructure which has sloped end bulkheads is less than the standard height, its effective length E shall be its length S as obtained from figure 34.1, reduced in the ratio of the actual height to the standard height.

Where a poop or forecastle of less than standard height is fitted on a ship with excessive sheer but without any superstructure within 0.2 L amidships, credit may be given to the height of the poop or forecastle by increasing the actual height by the difference between the actual and the standard sheer profiles. The deduction for excess sheer per regulation 38(16) is not to be granted.

(4) The effective length of a raised quarter deck, if fitted with an intact front bulkhead, shall be its length up to a maximum of 0.6 L. Where the bulkhead is not intact, the raised quarter deck shall be treated as a poop of less than standard height.

The maximum effective length of 0.6 L of a raised quarterdeck is to be measured from the after perpendicular even where a poop is fitted in conjunction with the raised quarterdeck.

(5) Superstructures which are not enclosed shall have no effective length.

**Regulation 36**

**Trunks**

(1) A trunk or similar structure which does not extend to the sides of the ship shall be regarded as efficient on the following conditions:

(a) the trunk is at least as strong as a superstructure;

(b) the hatchways are in the trunk deck, and the hatchway coamings and covers comply with the requirements of regulations 13 to 16-1 inclusive and the width of the trunk deck stringer provides a satisfactory gangway and sufficient lateral stiffness. However, small access openings with watertight covers may be permitted in the freeboard deck;

(c) a permanent working platform fore and aft fitted with guard rails is provided by the trunk deck, or by detached trunks connected to superstructures by efficient permanent gangways;

(d) ventilators are protected by the trunk, by watertight covers or by other equivalent means;
(e) open rails are fitted on the weather parts of the freeboard deck in way of the trunk for at least half their length or, alternatively, freeing port area in the lower part of the bulwarks, subject to regulation 24(2), of 33% of the total area of the bulwarks is provided;

(f) the machinery casings are protected by the trunk, by a superstructure of at least standard height, or by a deckhouse of the same height and of equivalent strength;

(g) the breadth of the trunk is at least 60% of the breadth of the ship; and

(h) where there is no superstructure, the length of the trunk is at least 0.6 L.

(2) The full length of an efficient trunk reduced in the ratio of its mean breadth to B shall be its effective length.

(3) The standard height of a trunk is the standard height of a superstructure other than a raised quarter deck.

(4) Where the height of a trunk is less than the standard height, its effective length shall be reduced in the ratio of the actual to the standard height. Where the height of hatchway coamings on the trunk deck is less than that required under regulation 16, a reduction from the actual height of trunk shall be made which corresponds to the difference between the actual and the required height of coaming.

(5) Where trunk height is less than standard and the trunk hatch coamings are also of less than standard height, or omitted entirely, the reduction from the actual height of trunk on account of insufficient hatch coaming height shall be taken as the difference between 600 mm and the actual height of coaming, or 600 mm if no hatch coamings are fitted. Reduction in the actual height of trunk shall not be required in cases where only small hatches with less than standard height are fitted in the trunk deck for which dispensation from the requirement of standard coaming height may be given.

(6) Continuous hatchways may be treated as a trunk in the freeboard computation provided provisions of this paragraph are complied with in all respects.

The trunk deck stringer referred to in paragraph (1)(b) may be fitted outboard of the trunk side bulkhead in association with the following:

(a) the stringer so formed is to provide a clear walkway of at least 450 mm in width on each side of the ship;

(b) the stringer is to be of solid plate efficiently supported and stiffened;

(c) the stringer is to be as high above the freeboard deck as practicable. In the freeboard calculation, the trunk height is to be reduced by at least 600 mm or by the actual difference between the top of the trunk and the stringer, whichever is greater;
(d) hatch cover securing appliances are to be accessible from the stringer or walkway; and

(e) the breadth of the trunk is to be measured between the trunk side bulkheads.

(7) Where the trunk adjoining the superstructures such as poop, bridge or forecastle is included in the calculation of freeboard, openings shall not be arranged in that part of the bulkhead which is common for the trunk and superstructure. A relaxation may be made for small openings such as for piping, cable or manholes with covers attached by means of bolts.

(8) The sides of a trunk included in the calculation of freeboard shall be intact. Side scuttles of the non-opening type and bolted manhole covers may be allowed.

**Regulation 37**

**Deduction for superstructures and trunks**

(1) Where the effective length of superstructures and trunks is 1 L, the deduction from the freeboard shall be 350 mm at 24 m length of ship, 860 mm at 85 m length and 1,070 mm at 122 m length and above, deductions at intermediate lengths shall be obtained by linear interpolation.

(2) Where the total effective length of superstructures and trunks is less than 1 L the deduction shall be a percentage obtained from one of the following table:

<table>
<thead>
<tr>
<th>Total effective length of superstructures and trunks</th>
<th>0</th>
<th>0.1 L</th>
<th>0.2 L</th>
<th>0.3 L</th>
<th>0.4 L</th>
<th>0.5 L</th>
<th>0.6 L</th>
<th>0.7 L</th>
<th>0.8 L</th>
<th>0.9 L</th>
<th>1 L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of deduction for all types of superstructures</td>
<td>0</td>
<td>7</td>
<td>14</td>
<td>21</td>
<td>31</td>
<td>41</td>
<td>52</td>
<td>63</td>
<td>75.3</td>
<td>87.7</td>
<td>100</td>
</tr>
</tbody>
</table>

Percentages at intermediate lengths of superstructures and trunks shall be obtained by linear interpolation.

(3) For ships of type ‘B’, where the effective length of a forecastle is less than 0.07 L, no deduction is allowed.

**Regulation 38**

**General**

(1) The sheer shall be measured from the deck at side to a line of reference drawn parallel to the keel through the sheer line amidships.
(2) In ships designed with a rake of keel, the sheer shall be measured in relation to a reference line drawn parallel to the design load waterline.

(3) In flush deck ships and in ships with detached superstructures the sheer shall be measured at the freeboard deck.

(4) In ships with topsides of unusual form in which there is a step or break in the topsides, the sheer shall be considered in relation to the equivalent depth amidships.

(5) In ships with a superstructure of standard height which extends over the whole length of the freeboard deck, the sheer shall be measured at the superstructure deck. Where the height exceeds the standard the least difference (Z) between the actual and standard heights shall be added to each end ordinate. Similarly, the intermediate ordinates at distances of $1/6L$ and $1/3L$ from each perpendicular shall be increased by $0.444Z$ and $0.111Z$ respectively. Where there is an enclosed poop or forecastle superimposed on the superstructure, sheer credit shall be allowed for such a poop or forecastle, according to the method of paragraph (12) as shown in figure 38.1.

![Figure 38.1](image)

(6) Where the deck of an enclosed superstructure has at least the same sheer as the exposed freeboard deck, the sheer of the enclosed portion of the freeboard deck shall not be taken into account.

(7) Where an enclosed poop or forecastle is of standard height with greater sheer than that of the freeboard deck, or is of more than standard height, an addition to the sheer of the freeboard deck shall be made as provided in paragraph (12).

Where a poop or forecastle consists of two layers, the method shown in figure 38.2 shall be used.
In figures 38.1 and 38.2, the following definitions apply:

\[ Z \] is as per paragraph (5); and

\[ Z_v \] is the end ordinate of a virtual standard parabolic curve taken through the point "X". If \( Z_v \) is greater than \( Z + h \), the end ordinate shall be \( Z + h \), in which case point "X" shall be disregarded and curve (2) not taken into account.

When the length of the first tier superstructure is greater than 0.5\( l \), the virtual standard parabolic curve shall commence at amidships as indicated in figure 38.1.

**Standard sheer profile**

(8) The ordinates of the standard sheer profile are given in the following table:

<table>
<thead>
<tr>
<th>Station</th>
<th>Ordinate (in mm)</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>After half</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After perpendicular</td>
<td>[ 25 \left( \frac{L}{3} + 10 \right) ]</td>
<td>1</td>
</tr>
<tr>
<td>( \frac{1}{6} ) L from A.P.</td>
<td>[ 11.1 \left( \frac{L}{3} + 10 \right) ]</td>
<td>3</td>
</tr>
<tr>
<td>( \frac{1}{3} ) L from A.P.</td>
<td>[ 2.8 \left( \frac{L}{3} + 10 \right) ]</td>
<td>3</td>
</tr>
<tr>
<td>Amidships</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
### Measurement of variation from standard sheer profile

(9) Where the sheer profile differs from the standard, the four ordinates of each profile in the forward or after half shall be multiplied by the appropriate factors given in the above table of ordinates. The difference between the sums of the respective products and those of the standard divided by 8 measures the deficiency or excess of sheer in the forward or after half. The arithmetical mean of the excess or deficiency in the forward and after halves measures the excess or deficiency of sheer.

(10) Where the after half of the sheer profile is greater than the standard and the forward half is less than the standard, no credit shall be allowed for the part in excess and deficiency only shall be measured.

(11) Where the forward half of the sheer profile exceeds the standard, and the after portion of the sheer profile is not less than 75% of the standard, credit shall be allowed for the part in excess. Where the after part is less than 50% of the standard no credit shall be given for the excess sheer forward. Where the after sheer is between 50% and 75% of the standard, intermediate allowances may be granted for excess sheer forward.

(12) Where sheer credit is given for a poop or forecastle the following formula shall be used:

\[
s = \frac{yL'}{3L}
\]

where  

- \( s \) is the sheer credit, to be deducted from the deficiency or added to the excess of sheer;
- \( y \) is the difference between actual and standard height of superstructure at the after or forward perpendicular;
- \( L' \) is the mean enclosed length of poop or forecastle up to a maximum length of 0.5 \( L \); and
- \( L \) is the length of the ship as defined in regulation 3(2).
The above formula provides a curve in the form of a parabola tangent to the actual sheer curve at the freeboard deck and intersecting the end ordinate at a point below the superstructure deck a distance equal to the standard height of a superstructure. The superstructure deck shall not be less than standard height above this curve at any point. This curve shall be used in determining the sheer profile for forward and after halves of the ship.

(13)  
(a) Any excess in the height of a superstructure which does not extend to the after perpendicular cannot be regarded as contributing to the sheer allowance.

(b) Where the height of a superstructure is less than standard, the superstructure deck shall not be less than the minimum height of the superstructure above the virtual shear curve at any point. For this purpose \( y \) shall be taken as the difference between the actual and minimum height of the superstructure at the after/forward perpendicular.

(c) For a raised quarterdeck credit may be given only when the height of this quarterdeck is greater than the standard height of 'other superstructures' as defined in regulation 33, and only for the amount by which the actual height of the raised quarterdeck exceeds that standard height.

(d) When a poop or a forecastle has sloping end bulkheads, the sheer credit may be allowed on account of excess height. The formula given in paragraph (12) shall be used, the values for \( y \) and \( L' \) being as shown in figure 38.3.

![Figure 38.3 Sheer credit S for excess height](image)

**Correction for variations from standard sheer profile**

(14) The correction for sheer shall be the deficiency or excess of sheer (see paragraphs (9) to (11) inclusive), multiplied by

\[
0.75 - \frac{S_I}{2L}
\]

where \( S_I \) is the total length \( S \) of enclosed superstructures as defined in regulation 34 without trunks.

**Addition for deficiency in sheer**

(15) Where the sheer is less than the standard, the correction for deficiency in sheer (see paragraph (14)) shall be added to the freeboard.
**Deduction for excess sheer**

(16) In ships where an enclosed superstructure covers 0.1L before and 0.1L abaft amidships, the correction for excess of sheer as calculated under the provisions of paragraph (14) shall be deducted from the freeboard; in ships where no enclosed superstructure covers amidships, no deduction shall be made from the freeboard; where an enclosed superstructure covers less than 0.1L before and 0.1L abaft amidships, the deduction shall be obtained by linear interpolation. The maximum deduction for excess sheer shall be at the rate of 125 mm per 100 m of length.

In applying this paragraph the height of the superstructure shall be related to its standard height. Where the height of the superstructure or raised quarterdeck is less than standard, the reduction shall be in the ratio of the actual to the standard height thereof.

**Regulation 39**

**Minimum bow height and reserve buoyancy**

(1) The bow height ($F_b$), defined as the vertical distance at the forward perpendicular between the waterline corresponding to the assigned summer freeboard and the designed trim and the top of the exposed deck at side, shall be not less than:

$$F_b = (6075(L/100) - 1875(L/100)^2 + 200(L/100)^3) \times (2.08 + 0.609C_b - 1.603C_{wf} - 0.0129(L/d_1))$$

where:

- $F_b$ is the calculated minimum bow height, in mm;
- $L$ is the length, as defined in regulation 3, in m;
- $B$ is the moulded breadth, as defined in regulation 3, in m;
- $d_1$ is the draught at 85% of the depth $D$, in m;
- $C_b$ is the block coefficient, as defined in regulation 3;
- $C_{wf}$ is the waterplane area coefficient forward of $L/2$: $C_{wf} = A_{wf}/\{L/2 \times B\}$; and
- $A_{wf}$ is the waterplane area forward of $L/2$ at draught $d_1$, in m$^2$.

For ships to which timber freeboards are assigned, the summer freeboard (and not the timber summer freeboard) is to be assumed when applying paragraph (1).

(2) Where the bow height required in paragraph (1) is obtained by sheer, the sheer shall extend for at least 15% of the length of the ship measured from the forward perpendicular. Where it is obtained by fitting a superstructure, such superstructure shall extend from the stem to a point at least 0.07$L$ abaft the forward perpendicular, and shall be enclosed as defined in regulation 3(11).

(3) Ships which, to suit exceptional operational requirements, cannot meet the requirements of paragraphs (1) and (2) of this regulation may be given special consideration by the Administration.
(4) (a) The sheer of the forecastle deck may be taken into account, even if the length of the forecastle is less than 0.15L, but greater than 0.07L, provided that the forecastle height is not less than one half of standard height of superstructure as defined in regulation 33 between 0.07L and the forward terminal.

(b) Where the forecastle height is less than one half of standard height of superstructure, as defined in regulation 33, the credited bow height may be determined as follows (figures 39.1 and 39.2 illustrate the intention of (i) and (ii) respectively):

(i) Where the freeboard deck has sheer extending from abaft 0.15L, by a parabolic curve having its origin at 0.15L abaft the forward terminal at a height equal to the midship depth of the ship, extended through the point of intersection of forecastle bulkhead and deck, and up to a point at the forward terminal not higher than the level of the forecastle deck. However, if the value of the height denoted $h_t$, on figure 39.1 is smaller than the value of the height denoted $h_b$, then $h_t$ may be replaced by $h_i$ in the available bow height.

(ii) Where the freeboard deck has sheer extending for less than 0.15L or has no sheer, by a line from the forecastle deck at side at 0.07L extended parallel to the base line to the forward terminal.

![Figure 39.1](image)

$$h_i = Z_b \left( \frac{0.15L}{x_b} \right)^2 - Z_f$$
(5) All ships assigned a type ‘B’ freeboard, other than oil tankers*, chemical tankers* and gas carriers*, shall have additional reserve buoyancy in the fore end. Within the range of 0.15L abaft of the forward perpendicular, the sum of the projected area between the summer load waterline and the deck at side (A1 and A2 in figure 39.3) and the projected area of an enclosed superstructure, if fitted, (A3) shall not be less than:

\[(0.15F_{\text{min}} + 4.0(L/3 + 10))L/1000 \text{ m}^2\]

where:

- \(F_{\text{min}}\) is calculated by: \(F_{\text{min}} = (F_0 \times f_1) + f_2\);
- \(F_0\) is the tabular freeboard, in mm, taken from table 28.2, corrected for regulation 27(9) or 27(10), as applicable;
- \(f_1\) is the correction for block coefficient given in regulation 30; and
- \(f_2\) is the correction for depth, in mm, given in regulation 31.

* Oil tankers, chemical tankers and gas carriers as defined in SOLAS regulations II-1/2.12, VII/8.2 and VII/11.2, respectively.
Regulation 40
Minimum freeboards

Summer freeboard

(1) The minimum freeboard in summer shall be the freeboard derived from the tables in regulation 28, as modified by the corrections in regulations 27, as applicable, 29, 30, 31, 32, 37, 38 and, if applicable, 39.

(2) The freeboard in salt water, as calculated in accordance with paragraph (1), but without the correction for deck line, as provided by regulation 32, shall not be less than 50 mm. For ships having in position 1 hatchways with covers which do not comply with the requirements of regulations 16-1(1) through (5) or 26, the freeboard shall be not less than 150 mm.

Tropical freeboard

(3) The minimum freeboard in the Tropical Zone shall be the freeboard obtained by a deduction from the summer freeboard of one forty-eighth of the summer draught measured from the top of the keel to the centre of the ring of the load line mark.

(4) The freeboard in salt water, as calculated in accordance with paragraph (3), but without the correction for deck line, as provided by regulation 32, shall not be less than 50 mm. For ships having in position 1 hatchways with covers which do not comply with the requirements of regulations 16-1(1) through (5) or 26, the freeboard shall be not less than 150 mm.

Winter freeboard

(5) The minimum freeboard in winter shall be the freeboard obtained by an addition to the summer freeboard of one forty-eighth of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

Winter North Atlantic freeboard

(6) The minimum freeboard for ships of not more than 100 m in length which enter any part of the North Atlantic defined in regulation 52 (Annex II), during the winter seasonal period shall be the winter freeboard plus 50 mm. For other ships, the Winter North Atlantic Freeboard shall be the winter freeboard.

Fresh water freeboard

(7) The minimum freeboard in fresh water of unit density shall be obtained by deducting from the minimum freeboard in salt water:

\[
\frac{\Delta}{40T} \text{(cm)}
\]

where: \(\Delta\) displacement in salt water in tonnes at the summer load waterline

\(T\) tonnes per centimetre immersion in salt water at the summer load waterline.
(8) Where the displacement at the summer load waterline cannot be certified, the deduction shall be one forty-eight of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

CHAPTER IV
SPECIAL REQUIREMENTS FOR SHIPS ASSIGNED TIMBER FREEBOARD

Regulation 41
Application of this chapter

Regulations 42 to 45 inclusive apply only to ships to which timber load lines are assigned.

Regulation 42
Definitions

(1) Timber deck cargo. The term "timber deck cargo" means a cargo of timber carried on an uncovered part of a freeboard deck. The term does not include wood pulp or similar cargo.

(2) Timber load line. A timber deck cargo may be regarded as giving a ship a certain additional buoyancy and a greater degree of protection against the sea. For that reason, ships carrying a timber deck cargo may be granted a reduction of freeboard calculated according to the provisions of regulation 45 and marked on the ship's side in accordance with the provisions of regulations 6(3) and (4). However, in order that such special freeboard may be granted and used, the timber deck cargo shall comply with certain conditions which are laid down in regulation 44, and the ship itself shall also comply with certain conditions relating to its construction which are set out in regulation 43.

Regulation 43
Construction of the ship

Superstructure

(1) Ships shall have a forecastle of at least standard height and a length of at least 0.07L. In addition, if the ship is less than 100 m in length, a poop of at least standard height, or a raised quarterdeck with a deckhouse of at least the same total height shall be fitted aft.

Double bottom tanks

(2) Double bottom tanks where fitted within the midship half length of the ship shall have adequate watertight longitudinal subdivision.

* Reference is made to the Code of Safe Practice for Ships Carrying Timber Deck Cargoes, originally adopted by the Organization by resolution A.715(XVII), as amended.
**Bulwarks**

(3) The ship shall be fitted either with permanent bulwarks at least 1 m in height, specially stiffened on the upper edge and supported by strong bulwark stays attached to the deck and provided with necessary freeing ports, or with efficient rails of the same height and of specially strong construction.

**Regulation 44**

**Stowage**

**General**

(1) Openings in the weather deck over which cargo is stowed shall be securely closed and battened down.

The ventilators and air pipes shall be efficiently protected.

(2) Timber deck cargoes shall extend over at least the entire available length which is the total length of the well or wells between superstructures.

Where there is no limiting superstructure at the after end, the timber shall extend at least to the after end of the aftermost hatchway.

The timber deck cargo shall extend athwartships as close as possible to the ship's side, due allowance being made for obstructions such as guard rails, bulwark stays, uprights, pilot access, etc., provided any gap thus created at the side of the ship shall not exceed a mean of 4% of the breadth. The timber shall be stowed as solidly as possible to at least the standard height of the superstructure other than any raised quarterdeck.

(3) On a ship within a seasonal winter zone in winter, the height of the deck cargo above the weather deck shall not exceed one third of the extreme breadth of the ship.

(4) The timber deck cargo shall be compactly stowed, lashed and secured. It shall not interfere in any way with the navigation and necessary work of the ship.

**Uprights**

(5) Uprights, when required by the nature of the timber, shall be of adequate strength considering the breadth of the ship; the strength of the uprights shall not exceed the strength of the bulwark and the spacing shall be suitable for the length and character of timber carried, but shall not exceed 3 m. Strong angles or metal sockets or equally efficient means shall be provided for securing the uprights.
Lashings

(6) Timber deck cargo shall be effectively secured throughout its length by a lashing system acceptable to the Administration for the character of the timber carried*.

Stability

(7) Provision shall be made for a safe margin of stability at all stages of the voyage, regard being given to additions of weight, such as those arising from absorption of water or icing, if applicable, and to losses of weight such as those arising from consumption of fuel and stores.

Protection of crew, access to machinery spaces, etc.

(8) In addition to the requirements of regulation 25(5), guard-rails or life lines not more than 350 mm apart vertically shall be provided on each side of the cargo deck to a height of at least 1 m above the cargo.

In addition a lifeline, preferably wire rope set up taut with a stretching screw, shall be provided as near as practicable to the centreline of the ship. The stanchion supports to all guard-rails and lifelines shall be so spaced as to prevent undue sagging. Where the cargo is uneven a safe walking surface of not less than 600 mm in width shall be fitted over the cargo and effectively secured beneath or adjacent to the lifeline.

(9) Where the requirements prescribed in paragraph (8) are impracticable, alternative arrangements satisfactory to the Administration shall be used.

Steering arrangements

(10) Steering arrangements shall be effectively protected from damage by cargo and, as far as practicable, shall be accessible. Efficient provision shall be made for steering in the event of a breakdown in the main steering arrangements.

Regulation 45
Computation for freeboard

(1) The minimum summer freeboards shall be computed in accordance with regulations 27(5), 27(6), 27(14), 28, 29, 30, 31, 32, 37 and 38, except that regulation 37 is modified by substituting the following percentages for those given in regulation 37:

<table>
<thead>
<tr>
<th>Total effective length of superstructure</th>
<th>0</th>
<th>0.1L</th>
<th>0.2L</th>
<th>0.3L</th>
<th>0.4L</th>
<th>0.5L</th>
<th>0.6L</th>
<th>0.7L</th>
<th>0.8L</th>
<th>0.9L</th>
<th>1.0L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of deduction for all types of superstructure</td>
<td>20</td>
<td>31</td>
<td>42</td>
<td>53</td>
<td>64</td>
<td>70</td>
<td>76</td>
<td>82</td>
<td>88</td>
<td>94</td>
<td>100</td>
</tr>
</tbody>
</table>

* Reference is made to the Code of Safe Practice for Ships Carrying Timber Deck Cargoes, originally adopted by the Organization by resolution A.715(XVII), as amended.
Percentages at intermediate lengths of superstructure shall be obtained by linear interpolation.

(2) The Winter Timber Freeboard shall be obtained by adding to the Summer Timber Freeboard one thirty-sixth of the moulded summer timber draught.

(3) The Winter North Atlantic Timber Freeboard shall be the same as the Winter North Atlantic Freeboard prescribed in regulation 40(6).

(4) The Tropical Timber Freeboard shall be obtained by deducting from the Summer Timber Freeboard one forty-eighth of the moulded summer timber draught.

(5) The Fresh Water Timber Freeboard shall be computed in accordance with regulation 40(7) based on the summer timber load waterline or with regulation 40(8) based on the summer timber draught measured from the top of the keel to the summer timber load line.

(6) Timber freeboards may be assigned to ships with reduced type ‘B’ freeboards, provided the timber freeboards are calculated on the basis of the ordinary type ‘B’ freeboard.

(7) The Timber Winter mark and/or the Timber Winter North Atlantic mark shall be placed at the same level as the reduced type ‘B’ Winter mark when the computed Timber Winter mark and/or the computed Timber Winter North Atlantic mark fall below the reduced type ‘B’ Winter mark.”

**ANNEX II**

**ZONES, AREAS AND SEASONAL PERIODS**

**Regulation 49 - Seasonal tropical areas**

2 The existing text of paragraph 7(b) is replaced by the following:

“(b) An area bounded:

on the north and east by the southern boundary of the Tropical Zone;

on the south by the parallel of latitude of 24°S from the east coast of Australia to longitude 154°E, thence by the meridian of longitude 154°E to the Tropic of Capricorn and thence by the Tropic of Capricorn to longitude 150°W, thence by the meridian of longitude 150°W to latitude 20°S and thence by the parallel of latitude 20°S to the point where it intersects the southern boundary of the Tropical Zone; and

on the west by the boundaries of the area within the Great Barrier Reef included in the Tropical Zone and by the east coast of Australia.

Seasonal periods:

TROPICAL: 1 April to 30 November
SUMMER: 1 December to 31 March.”
ANNEX 17

RESOLUTION MSC.141(76)
(adopted on 5 December 2002)

REVISED MODEL TEST METHOD UNDER RESOLUTION 14
OF THE 1995 SOLAS CONFERENCE

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 38(c) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution 14 on Regional agreements on specific stability requirements for ro-ro passenger ships, adopted by the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea, 1974 (the 1995 SOLAS Conference),

NOTING that resolution 14 of the 1995 SOLAS Conference includes an option whereby the Administration may, as an alternative to calculation of the stability properties of a ship, accept model tests carried out for an individual ship in accordance with the model test method developed by the Organization, as appended to the Annex to the said resolution,

BEING AWARE of the experience gained from model tests carried out in the past by Administrations using the aforementioned model test method,

BEARING IN MIND the compelling need to keep pace with new technology and knowledge,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety at its forty-fifth session,

1. ADOPTS the Revised Model Test Method under resolution 14 of the 1995 SOLAS Conference, including the associated Guidance Notes appended thereto, the text of which is set out in the Annex to the present resolution;

2. INVITES Member Governments which are party to regional agreements under resolution 14 of the 1995 SOLAS Conference to use the annexed Revised Model Test Method and associated Guidance Notes in lieu of the original model test method appended to the said resolution.
ANNEX

REVISED MODEL TEST METHOD

1 Objectives

This revised model test method is a revision of the method contained in the Appendix to the Annex to resolution 14 of the 1995 SOLAS Conference. Since the entry into force of the Stockholm Agreement a number of model tests has been carried out in accordance with the test method previously in force. During these tests a number of refinements in the procedures have been identified. This new model test method aims to include these refinements and, together with the appended Guidance Notes, provide a more robust procedure for the assessment of survivability of a damaged ro-ro passenger ship in a seaway. In this respect, the model should prove capable of withstanding the seaway defined in paragraph 4 below, in the worst damage case scenario.

2 Definitions

LBP is the length between perpendiculars
HS is the significant wave height
B is the moulded breadth of the ship
TP is the peak period
TZ is the zero crossing period

3 Ship model

3.1.1 The model should copy the actual ship for both outer configuration and internal arrangement – in particular all damaged spaces having an effect on the process of flooding and shipping of water. Intact draught, trim, heel and limiting operational KG corresponding to the worst damage case should be used. Furthermore, the test case(s) to be considered should represent the worst damage case(s) defined in accordance with SOLAS regulation II-1/8.2.3.2 (SOLAS 90) with regard to the total area under the positive GZ curve and the centreline of the damage opening should be located within the following range:

.1 ± 35 % LBP from midship;

.2 an additional test will be required for the worst damage within ±10% LBP from midship if the damage case referred to in .1 is outside of ±10% LBP from midship.

3.2 The model should comply with the following:

.1 the length between perpendiculars (LBP) should be at least 3 m or a length corresponding to a model scale of 1:40, whichever is greater, and the vertical extent up to at least 3 superstructure standard heights above the bulkhead (freeboard) deck;

.2 hull thickness of flooded spaces should not exceed 4 mm;
.3 in both intact and damaged conditions, the model should satisfy the correct
displacement and draught marks (TA, TM, TF, port and starboard) with a maximum
tolerance in any one draught mark of +2 mm. Draught marks forward and aft
should be located as near FP and AP as practicable;

.4 all damaged compartments and ro-ro spaces should be modelled with the correct
surface and volume permeabilities (actual values and distributions) ensuring that
floodwater mass and mass distribution are correctly represented;

.5 the actual ship characteristics of motion should be modelled properly, paying
particular attention to the intact GM tolerance and radii of gyration in roll and
pitch motion. Both radii should be measured in air and be in the range of 0.35B to
0.4B for roll motion, and 0.2LOA to 0.25LOA for pitch motion;

.6 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. Ventilating
and cross-flooding arrangements should be constructed to a minimum cross
section of 500 mm²;

.7 the shape of the damage opening at side should be as follows:

.1 trapezoidal profile with side at 15° slope to the vertical and the width at
the design waterline defined according to SOLAS regulation II-1/8.4.1;

.2 isosceles triangular profile in the horizontal plane with the height equal
to B/5 according to SOLAS regulation II-1/8.4.2. If side casings are fitted
within B/5, the damaged length in way of the side casings should not be
less than 25 mm;

.3 notwithstanding the provisions of subparagraphs .7.1 and .7.2 above, all
compartments taken as damaged in calculating the worst damage case(s)
referred to in paragraph 3.1 should be flooded in the model tests.

3.3 The model in the flooded equilibrium condition should be heeled by an additional angle
corresponding to that induced by the heeling moment \( M_h = \max(M_{\text{pass}}, M_{\text{launch}}) - M_{\text{wind}} \) but in no
case should the final heel be less than 1° towards damage. \( M_{\text{pass}}, M_{\text{launch}} \) and \( M_{\text{wind}} \) are as specified
in SOLAS regulation II-1/8.2.3.4. For existing ships this angle may be taken as 1°.

4 Procedure for experiment

4.1 The model should be tested in a long-crested irregular seaway defined by the JONSWAP
spectrum with significant wave height \( H_s \), a peak enhancement factor \( \gamma = 3.3 \) and a peak period
\( T_p = 4\sqrt{H_s}, (T_2 = T_p / 1.285) \). \( H_s \) is the significant wave height for the area of operation, which is
not exceeded by a probability of more than 10% on a yearly basis, but limited to a maximum
of 4 m.

Furthermore,

.1 the basin width should be sufficient to avoid contact or other interaction with the
sides of the basin and is recommended not to be less than \( L_{BP} + 2 \text{ m} \);
2 the basin depth should be sufficient for proper wave modelling but should not be less than 1 m;

3 for a representative wave realisation to be used, measurements should be performed prior to the test at 3 different locations within the drift range;

4 the wave probe closer to the wave maker should be located at the position where the model is placed when the test starts;

5 variation in $H_S$ and $T_P$ should be within $\pm 5\%$ for the three locations; and

6 during the tests, for approval purposes, a tolerance of $+2.5\%$ in $H_S$, $\pm 2.5\%$ in $T_P$ and $\pm 5\%$ in $T_Z$ should be allowed with reference to the probe closer to the wave maker.

4.2 The model should be free to drift and placed in beam seas (90° heading) with the damage facing the oncoming waves, with no mooring system permanently attached to the model used. To maintain a beam sea heading of approximately 90° during the model test the following requirements should be satisfied:

1 heading control lines, intended for minor adjustment, should be located at the centre line of the stem and stern, in a symmetrical fashion and at a level between the position of KG and the damaged waterline; and

2 the carriage speed should be equal to the actual drift speed of the model with speed adjustment made when necessary.

4.3 At least 10 experiments should be carried out. The test period for each experiment should be of a duration such that a stationary state is reached, but not less than 30 min in full-scale. A different wave realisation train should be used for each experiment.

5 Survival criteria

5.1 The model should be considered as surviving if a stationary state is reached for the successive test runs required in 4.3.

5.2 The model should be considered as capsized if angles of roll of more than 30° to the vertical axis or steady (average) heel greater than 20° for a period longer than 3 minutes full-scale occur, even if a stationary state is reached.

6 Test documentation

6.1 The model test programme should be approved by the Administration in advance.

6.2 Tests should be documented by means of a report and a video or other visual records containing all relevant information on the model and the test results, which are to be approved by the Administration. These should include, as a minimum, the theoretical and measured wave spectra and statistics ($H_S$, $T_P$, $T_Z$) of the wave elevation at the 3 different locations in the basin for a representative realisation, and for the tests with the model, the time series of main statistics of the measured wave elevation close to the wave maker and records of model roll, heave and pitch motions, and of the drift speed.
ATTACHMENT

GUIDANCE NOTES ON THE REVISED MODEL TEST METHOD

The purpose of these notes is to ensure uniformity in the methods employed in the construction and verification of the model as well as the undertaking and analyses of the model tests, while appreciating that available facilities and costs will affect in some way this uniformity.

The contents of paragraphs 1 and 2 of the Revised Model Test Method are considered self-explanatory.

Paragraph 3 - Ship model

3.1 The material of which the model is made is not important in itself, provided that the model, both in the intact and damaged condition, is sufficiently rigid to ensure that its hydrostatic properties are the same as those of the actual ship and also that the flexural response of the hull in waves is negligible.

It is also important to ensure that the damaged compartments are modelled as accurately as practicably possible to ensure that the correct volume of floodwater is represented.

Since ingress of water (even small amounts) into the intact parts of the model will affect its behaviour, measures must be taken so that this ingress does not occur.

In model tests involving worst SOLAS damages near the ship ends, it was observed that progressive flooding was not possible because of the tendency of the water on deck to accumulate near the damage opening and hence flow out. As such models were able to survive very high sea states, while they capsized in lesser sea states with less onerous SOLAS damages, away from the ends, the limit ±35% was introduced to prevent this.

Extensive research carried out for the purpose of developing appropriate criteria for new vessels has clearly shown that in addition to the GM and freeboard being important parameters in the survivability of passenger ships, the area under the residual stability curve is also another major factor. Consequently in choosing the worst SOLAS damage for compliance with the requirement of paragraph 3.5.1 the worst damage is to be taken as that which gives the least area under the residual stability curve.

3.2 Model particulars

1 In recognising that scale effects play an important role in the behaviour of the model during tests it is important to ensure that these effects are minimised as much as practically possible. The model should be as large as possible since details of damaged compartments are easier constructed in larger models and the scale effects are reduced. It is therefore required that the model length is not less than that corresponding to 1:40 scale or 3 m, whichever is greater.

It has been found during tests that the vertical extent of the model can affect the results when tested dynamically. It is therefore required that the ship be modelled to at least three superstructure standard heights above the bulkhead (freeboard) deck so that the large waves of the wave train do not break over the model.
The model in way of the assumed damages should be as thin as practically possible to ensure that the amount of floodwater and its centre of gravity are adequately represented. The hull thickness should not exceed 4 mm. It is recognised that it may not be possible for the model hull and the elements of primary and secondary subdivision in way of the damage to be constructed with sufficient detail and due to these constructional limitations it may not be possible to calculate accurately the assumed permeability of the space.

It is important that not only the draughts in the intact condition are verified but also that the draughts of the damaged model are accurately measured for correlation with those derived from the damaged stability calculation. For practical reasons a tolerance of +2 mm in any draught is accepted.

After measuring the damaged draughts it may be found necessary to make adjustments to the permeability of the damaged compartment by either introducing intact volumes or by adding weights. However, it is also important to ensure that the centre of gravity of the floodwater is accurately represented. In this case any adjustments made must err on the side of safety.

If the model is required to be fitted with barriers on deck and their height is less than the bulkhead height indicated below, the model should be fitted with CCTV so that any "splashing over" and any accumulation of water on the undamaged area of the deck can be monitored. In this case a video recording of the event should form part of the tests records.

The height 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 should 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:

\[ B_h = 8h_w \]

where \( B_h \) is the bulkhead height; and \( h_w \) is the height of water.

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

In order to ensure that the model motion characteristics represent those of the actual ship it is important that the model is inclined in the intact condition so that the intact GM is verified. The mass distribution should be measured in air. The transverse radius of gyration of the actual ship should be in the range 0.35B to 0.4B and the longitudinal radius of gyration should be in the range 0.2L to 0.25L.

Note: While inclining and rolling the model in the damage condition may be accepted as a check for the purpose of verifying the residual stability curve, such tests should not be accepted in lieu of the intact tests.

It is assumed that the ventilators of the damaged compartment of the actual ship are adequate for unhindered flooding and movement of the floodwater. However in trying to scale down the ventilating arrangements of the actual ship undesirable scale effects may be introduced. In order to ensure that these do not occur it is
recommended to construct the ventilating arrangements to a larger scale than that of the model, ensuring that this does not affect the flow of water on the car deck.

.7 It is deemed appropriate to consider a damage shape representative of a cross section of the striking ship in the bow region. The 15° angle is based on a study of the cross section at a distance of B/5 from the bow for a representative selection of vessels of different types and sizes.

The isosceles triangular profile of the prismatic damage shape is that corresponding to the load waterline.

Additionally, in cases where side casings of width less than B/5 are fitted and in order to avoid any possible scale effects, the damage length in way of the side casings should not be less than 25 mm.

3.3 In the original model test method of resolution 14 of the 1995 SOLAS Conference the effect of heeling induced by the maximum moment deriving from any of passenger crowding, launching of survival craft, wind and turning was not considered even though this effect was part of SOLAS. Results from an investigation have shown however that it would be prudent to take these effects into account and to retain the minimum of 1° heel towards the damage for practical purposes. It is to be noted that heeling due to turning was considered not to be relevant.

3.4 In cases where there is a margin in GM in the actual loading conditions compared to the GM limiting curve (derived from SOLAS 90), the Administration may accept that this margin is taken advantage of in the model test. In such cases the GM limiting curve should be adjusted. This adjustment can be done as follows:

\[ d = d_S - 0.6 \times (d_S - d_{LS}) \]

where: \(d_S\) is the subdivision draught; and
\(d_{LS}\) is the lightship draught.

The adjusted curve is a straight line between the GM used in the model test at the subdivision draught and the intersection of the original SOLAS 90 curve and draught d.
Paragraph 4 - Procedure for experiments

4.1 Wave spectra

The JONSWAP spectrum should be used as this describes fetch and duration in limited seas, which correspond to the majority of the conditions worldwide. In this respect it is important that not only the peak period of the wave train is verified but also that the zero crossing period is correct.

It is required that for every test run the wave spectrum be recorded and documented. Measurements for this recording should be taken at the probe closest to the wave making machine.

It is also required that the model be instrumented so that its motions (roll, heave and pitch) as well as its attitude (heel, sinkage and trim) are monitored and recorded.

It has been found that it is not practical to set absolute limits for significant wave heights, peak periods and zero crossing periods of the model wave spectra, therefore an acceptable margin has been introduced.

4.2 To avoid interference of the mooring system with the ship dynamics, the towing carriage (to which the mooring system is attached) should follow the model at its actual drifting speed. In a sea state with irregular waves the drift speed will not be constant; a constant carriage speed would result in low frequency, large amplitude drift oscillations, which may affect the model behaviour.

4.3 A sufficient number of tests in different wave trains are necessary to ensure statistical reliability, i.e. the objective is to determine with a high degree of confidence that an unsafe ship will capsize in the selected conditions. A minimum number of 10 runs are considered to provide a reasonable level of reliability.

Paragraph 5 - Survival criteria

The contents of this paragraph are considered self-explanatory.

Paragraph 6 - Test approval

The following documents should be part of the report to the Administration:

.1 damage stability calculations for worst SOLAS and midship damage (if different);
.2 general arrangement drawing of the model together with details of construction and instrumentation;
.3 inclining experiment and measurements of radii of gyration;
.4 nominal and measured wave spectra (at the 3 different locations for a representative realisation and for the tests with the model from the probe closest to the wave maker);
.5 representative records of model motions, attitude and drift; and
.6 relevant video recordings.

Note: All tests must be witnessed by the Administration.
# ANNEX 18

## WORK PROGRAMMES OF THE SUB-COMMITTEES

### SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG)

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<thead>
<tr>
<th>Target completion date/number of sessions needed for completion</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>2</strong> Casualty analysis (co-ordinated by FSI)</td>
<td>Continuous</td>
</tr>
<tr>
<td>H.1 Matters related to the probabilistic methodology for oil outflow analysis</td>
<td>2003</td>
</tr>
<tr>
<td>H.2 Review of Annex I of MARPOL 73/78</td>
<td>2003</td>
</tr>
<tr>
<td>H.3 Review of Annex II of MARPOL 73/78</td>
<td>2003</td>
</tr>
<tr>
<td>H.4 Environmental and safety aspects of alternative tanker designs under MARPOL 73/78 regulation I/13F</td>
<td></td>
</tr>
<tr>
<td>.1 development of the final guidelines</td>
<td>2 sessions</td>
</tr>
</tbody>
</table>

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**Notes:**

1. "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.

2. Items printed in bold letters have been selected for the provisional agenda for BLG 8.
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<tr>
<th>H.5</th>
<th>Requirements for protection of personnel involved in the transport of cargoes containing toxic substances in all types of tankers</th>
<th>2004</th>
<th>BLG 1/20, section 12; BLG 7/15, section 9</th>
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<tbody>
<tr>
<td>H.6</td>
<td>Oil tagging systems</td>
<td>2003</td>
<td>MEPC 45/20, paragraph 17.4; BLG 7/15, section 10</td>
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<tr>
<td>H.7</td>
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<td>2004</td>
<td>MSC 74/24, paragraph 18.5; BLG 7/15, paragraph 12.3</td>
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<tr>
<td>H.8</td>
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<td>2003</td>
<td>MEPC 41/20, paragraph 7.7; MSC 69/22, paragraph 20.8.1; BLG 7/15, section 8</td>
</tr>
<tr>
<td>H.9</td>
<td>Ship recycling-related matters</td>
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**Notes:**
1. "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.
2. Items printed in bold letters have been selected for the provisional agenda for DSC 8.

* As adopted by resolution MSC.122(75).
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2. Items printed in bold letters have been selected for the provisional agenda for FP 47.
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* The work on the item should commence in 2004 as part of the next scheduled review of the 2000 HSC Code.
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* The work on the item should commence in 2004 as part of the next scheduled review of the 2000 HSC Code.
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<tr>
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<td>H.4</td>
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<tr>
<td>H.6</td>
<td>Revision of the fishing vessel Safety Code and Voluntary Guidelines (co-ordinated by SLF)</td>
<td>2003</td>
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**Notes:**

1. "H" means a high priority item and "L" a low priority one. However, within the high and low priority groups, items have not been listed in any order of priority.

2. Items printed in bold letters have been selected for the provisional agenda for DE 46. However, inclusion of items H.4, H.9 and H.13 in the provisional agenda is subject to the decision on the extension of the duration of DE 46.
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<td>H.9</td>
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<td>H.20</td>
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* The work on the item should commence in 2004 as part of the next scheduled review of the 2000 HSC Code.

** The item will be given a preliminary consideration at DE 46 and included in the provisional agenda for DE 47.
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<td><strong>H.23</strong> Standards for hatch cover securing mechanisms on bulk carriers</td>
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<td>.1</td>
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<td>MEPC 41/20, paragraph 8.22.1; DE 42/15, paragraphs 10.2 to 10.4</td>
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<tr>
<td>.2</td>
<td>guidelines on on-board exhaust gas cleaning systems</td>
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<tr>
<td>.3</td>
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<tr>
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<td>MSC 74/24, paragraph 11.3; DE 45/27, section 15</td>
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<thead>
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<td>MSC 75/24, paragraph 22.6</td>
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<tr>
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<tbody>
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<td></td>
<td></td>
<td></td>
<td>MSC 76/23, paragraph 20.38</td>
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### Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF)

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<th>Target completion date/number of sessions needed for completion</th>
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<td>1 Analysis of intact stability casualty records</td>
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<td>2 Analysis of damage cards</td>
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</tr>
<tr>
<td>H.1 Development of the revised SOLAS chapter II-1 parts A, B and B-1</td>
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<tr>
<td>H.2 Development of explanatory notes for harmonized SOLAS chapter II-1</td>
<td>2004</td>
</tr>
<tr>
<td>H.3 Revision of the fishing vessel Safety Code and Voluntary Guidelines (in co-operation with FP, COMSAR, NAV, DE and STW)</td>
<td>2004</td>
</tr>
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</table>

**Notes:**

1. "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.

2. Items printed in bold letters have been selected for the provisional agenda for SLF 46.
## Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) (continued)

<table>
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<tr>
<th>Target completion date/number of sessions needed for completion</th>
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<td>H.4 Safety aspects of ballast water management 1 session</td>
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<tr>
<td>H.5 <strong>Large passenger ship safety</strong> 2003</td>
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<td>H.6 <strong>Review of the Intact Stability Code</strong> 2004</td>
<td>SLF 41/18, paragraph 3.14; SLF 45/14, section 6</td>
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<tr>
<td>H.7 <strong>Review of the OSV Guidelines</strong> (co-ordinated by DE) 2005</td>
<td>MSC 75/24, paragraph 22.4; SLF 45/14, paragraph 11.1.2.2</td>
</tr>
<tr>
<td>H.8 Review of the 2000 HSC Code and amendments to the DSC Code and the 1994 HSC Code (co-ordinated by DE) 2 sessions*</td>
<td>MSC 76/23, paragraphs 8.19 and 20.4</td>
</tr>
<tr>
<td>H.9 <strong>Consideration of IACS unified interpretations</strong> 2004</td>
<td>MSC 76/23, paragraph 20.3</td>
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<td>H.10 <strong>Revision of technical regulations of the 1966 LL Convention</strong> 2005</td>
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<tr>
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<td>MSC 65/25, paragraph 21.23; SLF 45/14, paragraph 11.1.2.3</td>
</tr>
<tr>
<td>L.2 <strong>Revision of resolution A.266(VIII)</strong> 2 sessions</td>
<td>SLF 45/14, paragraphs 3.19 and 11.1.4.1; MSC 76/23, paragraph 20.50</td>
</tr>
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</table>

* The work on the item should commence in 2004 as part of the next scheduled review of the 2000 HSC Code.
### SUB-COMMITTEE ON STANDARDS OF TRAINING AND WATCHKEEPING (STW)

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<tr>
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<tbody>
<tr>
<td>1 Validation of model training courses</td>
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</tr>
<tr>
<td>2 Casualty analysis (co-ordinated by FSI)</td>
<td>Continuous</td>
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</table>

#### H.1 Follow-up action to the 1995 STCW Conference, including:

1. preparation of procedures for regular updating of the so-called “white list” and consideration of the need for amending the STCW Convention and the STCW Code  
   - 2 sessions  
   - STW 33/17, paragraph 14.3.1; MSC 75/24, paragraph 22.46.1
2. watchkeeping at anchor  
   - 2 sessions  
   - STW 33/17, paragraph 14.3.2; MSC 75/24, paragraph 22.46.2
3. preparation of amendments to the STCW Code to clarify the title of certificates and endorsements relating to the revised STCW Convention  
   - 2 sessions  
   - MSC 75/24, paragraph 22.47.1

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1. "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.  
2. Items printed in bold letters have been selected for the provisional agenda for STW 34.
### Sub-Committee on Standards of Training and Watchkeeping (STW) (continued)

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<tr>
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<tbody>
<tr>
<td>.4 review of the STCW Convention requirements and procedures relating to the recognition of certificates under STCW regulation I/10</td>
<td>2 sessions MSC 75/24, paragraph 22.47.2</td>
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</table>

**H.2** Follow-up action to the 1995 STCW-F Conference including:

- **.1** guidance on training, certification and watchkeeping standards for fishing vessel personnel serving on board large fishing vessels (resolution 6)
  - 2 sessions STW 32/16, paragraph 7.11

- **.2** requirements for officers in charge of an engineering watch and watchkeeping provisions (resolution 7)
  - 2 sessions

- **.3** clarification of STCW-F Convention requirements
  - 2 sessions

**H.3** **Unlawful practices associated with certificates of competency**

- 2005 MSC 71/23, paragraph 20.55.2; STW 33/17, section 6

**H.4** **Large passenger ship safety**

- 2003 MSC 74/24, paragraph 21.4; STW 33/17, section 11

**H.5** **Training of crew in launching/recovering operations of fast rescue boats and means of rescue in adverse weather conditions**

- 2003 MSC 74/24, paragraph 21.56; STW 33/17, section 13

**H.6** Measures to prevent accidents with Lifeboats (co-ordinated by DE)

- 2 sessions MSC 74/24, paragraph 21.34
### Sub-Committee on Standards of Training and Watchkeeping (STW) (continued)

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<tr>
<th>Reference</th>
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<tr>
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<td>H.8 Mandatory education and training requirements for fatigue prevention, mitigation and management</td>
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</tr>
<tr>
<td>L.1 Development of requirements for training in ballast water management</td>
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<tr>
<td>L.2 Review of the implementation of STCW chapter VII</td>
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\*The item will be given a preliminary consideration at STW 34 and included in the provisional agenda for STW 35.
## ANNEX 19

**PROVISIONAL AGENDAS FOR THE FORTHCOMING SESSIONS OF THE SUB-COMMITTEES**

**SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG) - 8TH SESSION**

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<td>Matters related to the probabilistic methodology for oil outflow analysis</td>
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<td>5</td>
<td>Review of Annex I of MARPOL 73/78</td>
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<td>6</td>
<td>Review of Annex II of MARPOL 73/78</td>
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<td>7</td>
<td>Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments</td>
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<td>8</td>
<td>Amendments to requirements on electrical installations in the IBC and IGC Codes</td>
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<td>9</td>
<td>Application of MARPOL Annex I requirements to FPSOs and FSUs</td>
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<td>10</td>
<td>Requirements for protection of personnel involved in the transport of cargoes containing toxic substances in all types of tankers</td>
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<td>Oil tagging systems</td>
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<td>12</td>
<td>Revision of the fire protection requirements of the IBC and IGC Codes</td>
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SUB-COMMITTEE ON DANGEROUS GOODS, SOLID CARGOES AND CONTAINERS (DSC) – 8TH SESSION

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Amendments to the IMDG Code and supplements, including harmonization of the IMDG Code with the UN Recommendations on the Transport of Dangerous Goods
   .1 harmonization of the IMDG Code with the UN Recommendations on the Transport of Dangerous Goods
   .2 amendments to the IMDG Code* and supplements
   .3 review of Annex III of MARPOL 73/78

4 Review of the BC Code, including evaluation of properties of solid bulk cargoes

5 Cargo securing manual

6 Casualty and incident reports and analysis

7 Development of a manual on loading and unloading of solid bulk cargoes for terminal representatives

8 Guidance on serious structural deficiencies in containers

9 Measures to enhance maritime security

10 Ship/terminal interface improvement for bulk carriers

11 Alternative hold loading ban for bulk carriers

12 Work programme and agenda for DSC 9

13 Election of Chairman and Vice-Chairman for 2004

14 Any other business

15 Report to the Maritime Safety Committee

* As adopted by resolution MSC.122(75)
SUB-COMMITTEE ON FIRE PROTECTION (FP) – 47TH SESSION

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Unified interpretations of SOLAS chapter II-2, the FSS Code and related fire test procedures

4 Analysis of fire casualty records
   .1 use of smoke helmet type breathing apparatus
   .2 revision of the fire casualty record

5 Revision of resolution A.654(16)

6 Revision of the fishing vessel Safety Code and Voluntary Guidelines

7 Large passenger ship safety

8 Performance testing and approval standards for fire safety systems

9 Guidelines for the manufacture and installation of oil mist detectors

10 Revision of the gas concentration limit on sulphur dioxide for floor coverings

11 Use of directional sound for passenger evacuation

12 Consideration of IACS unified interpretations

13 Work programme and agenda for FP 48

14 Election of Chairman and Vice-Chairman for 2004

15 Any other business

16 Report to the Maritime Safety Committee
SUB-COMMITTEE ON FLAG STATE IMPLEMENTATION (FSI) – 11TH SESSION

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Mandatory reports under MARPOL 73/78

4 Casualty statistics and investigations

5 Regional co-operation on port State control

6 Reporting procedures on port State control detentions and analysis and evaluation of reports

7 Responsibilities of Governments and measures to encourage flag State compliance

8 Comprehensive analysis of difficulties encountered in the implementation of IMO instruments

9 Review of resolution A.746(18)

10 Self-assessment of flag State performance

11 Illegal, unregulated and unreported (IUU) fishing and implementation of resolution A.925(22)

12 Development of guidelines under the 2001 AFS Convention

13 Measures to prevent accidents with lifeboats

14 Development of provisions on transfer of class

15 Ship recycling-related matters

16 Introduction of the HSSC into MARPOL Annex VI on prevention of air pollution

17 Consideration of IACS unified interpretations

18 PSC officer training for bulk carriers

19 Measures to enhance maritime security

20 Work programme and agenda for FSI 12

21 Election of Chairman and Vice-Chairman for 2004

22 Any other business

23 Report to the Committees
SUB-COMMITTEE ON RADIOCOMMUNICATIONS AND SEARCH AND RESCUE (COMSAR) – 7TH SESSION

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Global Maritime Distress and Safety System (GMDSS)
   .1 matters relating to the GMDSS Master Plan
   .2 operational and technical co-ordination provisions of maritime safety information (MSI) services, including review of the related documents
   .3 procedures for responding to DSC alerts

4 ITU maritime radiocommunication matters
   .1 Radiocommunication ITU-R Study Group 8 matters
   .2 ITU World Radiocommunication Conference matters

5 Satellite services (Inmarsat and COSPAS-SARSAT)

6 Emergency radiocommunications, including false alerts and interference

7 Matters concerning search and rescue, including those related to the 1979 SAR Conference and the implementation of the GMDSS
   .1 harmonization of aeronautical and maritime search and rescue procedures, including SAR training matters
   .2 plan for the provision of maritime SAR services, including procedures for routeing distress information in the GMDSS
   .3 medical assistance in SAR services

8 Review of the SOLAS and SAR Convention provisions regarding the treatment of persons rescued at sea

9 Bridge-to-bridge radiocommunications

10 Large passenger ship safety
Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) – 7th session
(continued)

11 Developments in maritime radiocommunication systems and technology
12 Revision of the IAMSAR Manual
13 Development of a procedure for recognition of mobile-satellite systems
14 Revision of performance standards for NAVTEX equipment
15 Review of performance standards provisions (resolution A.809(19)) to require means of attachment of radiotelephone apparatus to its user
16 Measures to enhance maritime security
17 Harmonization of GMDSS requirements for radio installations on board SOLAS ships
18 Review of the FAL and SALVAGE Convention provisions to address the treatment of persons rescued at sea
19 Work programme and agenda for COMSAR 8
20 Election of Chairman and Vice-Chairman for 2004
21 Any other business
22 Report to the Maritime Safety Committee
SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV) – 49TH SESSION

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Routeing of ships, ship reporting and related matters

4 Requirements for the display and use of AIS information on shipborne navigational displays

5 Places of refuge

6 Anchoring, mooring and towing equipment

7 Feasibility study on carriage of VDR on existing cargo ships

8 Revision of performance standards for radar reflectors

9 Review of performance standards for radar equipment

10 ITU matters, including Radiocommunication ITU-R Study Group 8 matters

11 Large passenger ship safety: effective voyage planning for large passenger ships

12 Measures to enhance maritime security

13 World-wide radionavigation system (WWRNS)

14 Casualty analysis

15 Guidance on early abandonment of bulk carriers

16 Work programme and agenda for NAV 50

17 Election of Chairman and Vice-Chairman for 2004

18 Any other business

19 Report to the Maritime Safety Committee
SUB-COMMITTEE ON SHIP DESIGN AND EQUIPMENT (DE) – 46TH SESSION

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Guidelines for on-board NOx monitoring and recording devices

4 Revision of resolutions MEPC.60(33) and A.586(14)

5 Amendments to resolution A.744(18)

6 Safety aspects of ballast water management *

7 Large passenger ship safety

8 Revision of the fishing vessel Safety Code and Voluntary Guidelines

9 Measures to prevent accidents with lifeboats

10 Interpretations of the 2000 HSC Code *

11 Review of fast rescue boat and means of rescue requirements

12 Anchoring, mooring and towing equipment

13 Carriage and stowage of immersion suits

14 Performance testing and approval standards for SOLAS personal life-saving appliances *

15 Consideration of IACS unified interpretations

16 Protection of pump-rooms of tankers and access to shore-based computer programs for salvage operations

17 Amendments to SOLAS requirements on electrical installations

18 Performance standards for water ingress alarms on bulk carriers

19 Guidance on early abandonment of bulk carriers

20 Application of IACS URs S26, S27 and S31 to bulk carriers

21 Steel repair standards and shipbuilding practices

22 Standards for hatch cover securing mechanisms on bulk carriers

23 Alternate hold loading ban for bulk carriers

* Subject to the decision on the extension of the duration of DE 46 referred to in paragraph 20.48 of document MSC 76/23.
Sub-Committee on Ship Design and Equipment (DE) – 46th session (continued)

24  Double-side-skin construction of bulk carriers
25  Application of structural standards in SOLAS chapter XII
26  Improved loading/stability information for bulk carriers *
27  Performance standards for protective coatings *
28  Free-fall lifeboats with float-free capability *
29  Work programme and agenda for DE 47
30  Election of Chairman and Vice-Chairman for 2004
31  Any other business
32  Report to the Maritime Safety Committee
SUB-COMMITTEE ON STABILITY AND LOAD LINES AND ON FISHING VESSELS SAFETY (SLF) - 46TH SESSION

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Development of the revised SOLAS chapter II-1 parts A, B and B-1

4 Development of explanatory notes for harmonized SOLAS chapter II-1

5 Revision of the fishing vessel Safety Code and Voluntary Guidelines

6 Review of the Intact Stability Code

7 Review of the OSV Guidelines

8 Large passenger ship safety

9 Harmonization of damage stability provisions in IMO instruments

10 Consideration of IACS unified interpretations

11 Revision of technical regulations of the 1966 LL Convention

12 Improved loading/stability information for bulk carriers

13 Work programme and agenda for SLF 47

14 Election of Chairman and Vice-Chairman for 2004

15 Any other business

16 Report to the Maritime Safety Committee
SUB-COMMITTEE ON STANDARDS OF TRAINING AND WATCHKEEPING (STW) – 34TH SESSION

Opening of the session

1. Adoption of the agenda
2. Decisions of other IMO bodies
3. Validation of model training courses
4. Follow-up action to the 1995 STCW Conference
5. Unlawful practices associated with certificates of competency
6. Casualty analysis
7. Large passenger ship safety
8. Training of crew in launching/recovering operations of fast rescue boats and means of rescue in adverse weather conditions
9. Measures to enhance maritime security
10. Mandatory education and training requirements for fatigue prevention, mitigation and management
11. Work programme and agenda for STW 35
12. Election of Chairman and Vice-Chairman for 2004
13. Any other business
14. Report to the Maritime Safety Committee

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ANNEX 20

STATEMENTS ON THE TANKER "PRESTIGE" INCIDENT

STATEMENT BY THE DELEGATION OF SPAIN

Following the accident to the tanker Prestige, the Spanish delegation made a full statement to the IMO Council at its most recent session, outlining the preliminary views and proposals of the Spanish Government to prevent similar disasters happening again. In this Committee, I wish to refer solely to the issues that fall within the Committee's area of responsibility.

However, bearing in mind how important it is to the Organization and its organs to have up-to-date information on crisis situations which affect maritime safety and pollution of the marine environment, I also wish to take this opportunity to give you the latest information on the situation resulting from the accident to the Prestige.

I am sure that you have all watched with concern the management of the crisis caused by the accident to the Bahamas registered oil tanker Prestige, 243 metres in length and 42,000 gross register tonnage, which suffered an accident on 13 November 2002 while passing through the Finisterre traffic separation scheme, west of the coast of Galicia, Spain, laden with 77,000 tonnes of heavy fuel oil. The ship was listing as a result of a fissure in its starboard side, which caused flooding of the tanks and fuel oil to leak from them, and it was in serious danger of sinking owing to the adverse weather conditions.

The immediate reaction of the Spanish maritime authorities was to coordinate both the rescue of the crew by means of rescue helicopters and the operation to bring the ship under tow.

 Barely two hours later, the first of the maritime rescue vessels reached the location of the Prestige and asked the Master to secure the tow. After overcoming the Master’s initial resistance and after working all night in very heavy seas, they managed to attach a tow-line when the ship was some 4½ miles offshore on the morning of the 14th.

The subsequent operations were concentrated on preventing massive pollution of the coastline. For this reason, the initial task was to tow the ship away from the coast in view of the obvious danger of spillage of 77,000 tonnes of fuel oil if the hull were to break up completely, after it had been discovered that there was damage to the walls of three tanks, which were interconnected, and, in turn, that there was a breach in the external skin of starboard tank number 3, which was the main cause of the accident.

Once the drifting ship had been brought under control, a team of experts was put on board to assess the condition of the ship and to try and start its engines. On the afternoon of the 14th, they managed to start the engine and secure a new tow line, and the ship sailed at a speed of 6 knots towards the north-west and away from the coast. During the night, on the decision of the salvage company, the engines were stopped and, on tow, the ship was turned south and later south-west. Finally, on the morning of the 19th, the Prestige broke in two and the stern and the bow sections sank about 133 miles off the Spanish coast in a depth of some 3,500 metres.

During the whole episode, a substantial amount of the ship’s cargo spilled into the sea, which caused heavy pollution of the sea, the sea bottom and the Spanish coastline, with as yet incalculable consequences. Spain has taken measures to prevent marine pollution and has begun...
the task of cleaning up and recovering oil from the affected coastal areas with the assistance of local, national and international services contributed by more than ten countries.

On behalf of the Spanish Government, I wish to take this opportunity to express once again our gratitude for the rapid response and the offers of help and international co-operation, especially the participation of ships, resources and equipment to combat pollution, and the advice provided by France, Portugal, Germany, the Netherlands, Belgium, Norway, the United Kingdom, the United States, Denmark, Italy and Greece. This demonstrates the solidarity and concern that this kind of attack on the marine environment arouses in every country.

Today, underwater explorations are being conducted to assess the state of the hull. To date, about 7,000 tonnes of oil have been recovered from the sea and some 2,000 tonnes from the land. Some 500 kilometres of coastline and 164 beaches have been affected by pollution and approximately 1,500 people are engaged in the clean-up operations.

One of the initial reactions of the Government of Spain is to reaffirm its conviction that this type of pre-MARPOL vessel should be withdrawn from shipping immediately, a proposal which Spain put forward to MEPC at the appropriate time, although the decision finally adopted by that Committee was less stringent. This is not an issue that should be brought up again in the MSC, Mr. Chairman, but we do wish to put forward to this Committee the proposal that the transit of these ships should be restricted, in accordance with the criteria listed below, and these, Mr. Chairman, are specific proposals which we wish this Committee to take into account in directing the work of the relevant subcommittees, including modifying the work programmes, pursuant to your well-known slogan of “exceptional circumstances require exceptional measures”.

These initiatives include:

- distancing shipping routes from exclusive economic zones and, specifically, immediately distancing the transit of ships from the Finisterre traffic separation scheme.

- geographical restriction of shipping areas having regard to meteorological or geographical conditions (closed or semi-closed seas).

The following proposals concentrate on other aspects that the Committee should consider, perhaps under a new agenda item called “Analysis of the consequences of the Prestige accident”. Full justification for each of these proposals is contained in Council document C 89/INF.3, and I invite the distinguished delegates to study the contents of this document. In the interests of brevity, I shall confine delegates to putting forward specific proposals which Spain wishes to promote and see implemented with the support of the members of this Committee.

1 With reference to the responsibility of flag States, there is an urgent need for the fastest possible introduction of an IMO Model Audit Scheme to make audit mandatory for flag States.

2 With reference to the responsibility of port States, and particularly taking into account that the Prestige had not been inspected in the previous three years despite having been clearly identified as a vessel that was a prime subject of inspection, improvement of ships inspection systems by port States, including:

- reduction of inspection intervals;
- extended mandatory inspections for ships which have shown defects in previous inspections;
- obligation to notify defects to be rectified prior to the ship’s arrival in port;
- standardization, compatibility and access to databases of different regional agreements; and
- empowerment of inspectors to monitor repairs and rectification of serious defects detected by them.

.3 In regard to classification societies, and bearing in mind that the Prestige had valid certificates issued by a highly reputed classification society, the requirement for strict compliance by classification societies with the minimum standards laid down in the SOLAS Convention, i.e. Assembly resolutions A.739(18) and A.789(19), and the amendment of these resolutions if necessary, as well as,

.4 Control and requirement of new responsibilities of recognized organizations acting on behalf of flag States.

.5 In regard to the issue of “places of refuge”, Spain has already expressed its view in this Committee that priority must be given to the interests of coasts at risk over commercial interests in designating places of refuge, and it therefore considers that guidelines should be developed as quickly as possible on places of refuge which do not infringe the sovereign powers of coastal States with respect to protection of their coasts and related interests, such places to be designated in the light of the individual circumstances of each case, each coastal State’s capacity for emergency response and the guarantees provided by the commercial interests of the ship and/or cargo.

.6 Other issues, such as the accelerated introduction of safety equipment on all ships, such as automatic identification systems, voyage data recorders, etc.

STATEMENT BY THE DELEGATION OF THE BAHAMAS

(3 December 2002 (a.m.))

Mr. Chairman, last week His Excellency Basil O’Brien, the High Commissioner of the Bahamas and the Permanent Representative to IMO, made statements to Council on the loss of the Prestige. On Monday he outlined the circumstances surrounding the incident as far as could be determined and the need for a review of IMO policy on Places of Refuge. The Bahamian accident investigators had been denied access to the master who was being kept in custody in Spain. As the key witness, the master’s impression of events is essential to forming a clear opinion on what happened.

On Friday of last week, a further statement was made to say that the master was still in custody and that that Government of the Bahamas would be taking action under article 292 of UNCLOS.

I will not repeat the statements made last week. However, I wish to bring the Committee up to date on the matter.
On the master’s position he is still being held in custody, in what we believe to be a high security prison. We do not yet have details of any charges which have been made against him. The Government of the Bahamas is pursuing action under article 292 of UNCLOS. Our investigators are still being denied access to him.

In view of the comments of the distinguished delegate from Spain, I wish to add a few further remarks concerning the conduct of the master.

Following the incident, the master ensured that his crew was safe, and the High Commissioner thanked the Spanish authorities for their help. The master then volunteered to stay on his ship to try to help to save her. He also asked the Chief Officer and Chief Engineer to stay to assist and they too volunteered.

To appreciate these actions distinguished delegates should understand the conditions on board. The ship was still listing over 20º, the wind was force 9-10 with a very high swell causing the ship to roll heavily. The foredeck was covered in oil from the damaged tanks. There was no power on the winches which were steam driven, as the boiler had tripped out in the initial stages of the incident.

When a tug arrived there are conflicting versions of what happened. The Spanish authorities version is that the master of the *Prestige* refused to make the tug fast until a towage contract was signed. The version of the Chief Officer and Chief Engineer, who were on the bridge at the time, is that the tug refused to make fast until a contract was signed. We have yet to hear the master’s view or to gain access to the Spanish contemporary records.

**But**, regardless of the true version, when the three officers went forward to attempt to take a line, it took twenty minutes to go from the bridge to the forecastle. The three then spent seven hours on the forecastle before finally make a tug fast.

When they made their way back to the bridge, they were confronted by a Spanish Port Engineer who demanded that the main engine was started.

I will not continue with this long narrative, but I have to say that we understand that despite the master’s brave efforts he was put in jail when he stepped ashore.

We have not been told of any formal charges against him apart from a general statement that he disobeyed an order. We do not know which order he disobeyed, who gave it or by what authority, but we do question the right of anyone to ask people to risk their lives under such conditions.

The three crew who remained on board were extremely brave and, it is difficult to understand why anyone should be jailed as a consequence.

We have continued to pursue other aspects of our investigation into the incident. Distinguished delegates will wish to be appraised of the progress made to date.

The Bahamas Maritime Authority has launched a thorough investigation and is determined to do everything possible to find the fundamental causes of the failure of the ship’s structure.

A preliminary examination of the records provided by the American Bureau of Shipping has been carried out. First indications are that the surveys and repairs carried out on the *Prestige*
during its special survey in China in May 2001 and the annual survey conducted in May 2002 met the highest industry standards. A SIRE inspection was carried out by a major oil company in March of this year that the ship passed with flying colours. She also spent four months before the incident in a Paris Memorandum of Understanding port and was available for inspection during the whole of that time.

Among other issues that will be investigated is whether the current standards are adequate and whether the design or age of the ship were contributory factors to its loss.

It is far too early to identify the initiating cause of the structural failure, but of particular interest to the investigation will be the effect of the repairs carried out at the special survey. At that survey a significant amount of steel work was renewed and assessments will be made of the effects of new steel work being connected to the old structure. Possible subjects for an in-depth investigation will include the stresses introduced into the hull by the repairs and the question of metal fatigue induced by 26 years of operation.

We are discussing how these concerns can be taken forward with experts in the relevant fields. The Bahamas Maritime Authority will publish its finding when the investigation has been completed.

**STATEMENT BY THE DELEGATION OF PORTUGAL**

*(3 December 2002 (a.m.))*

Portugal expresses its sympathy to the Government of Spain and its people. It is appalling that accidents such as this keep happening and we must, as an international community, take all necessary action.

Portugal wants to reiterate its commitment to the improvement of maritime safety and the prevention of marine pollution.

At this stage, we will not go over particular measures. However, we wish to highlight that:

- flag State performance must be improved;
- port State control must be more efficient;
- classification societies must be better monitored;
- other measures regarding namely structural requirements for ships and navigation must also be considered.

**STATEMENT BY THE DELEGATION OF FRANCE**

*(3 December 2002 (a.m.))*

Speaking as a neighbouring and sympathetic country, and one that had been too often a victim, and as a responsible member within the Organization, the French delegation endorsed the views expressed by Spain, which had urged the Committee to take up this issue. The French delegation recalled its statement to the Council at its eighty-ninth session (C 89/INF.5), which, once again, emphasized the responsibilities of the flag State. The delegation asked for that document to be circulated among members of the Committee.
Statement by the delegation of France to the 89th session of the IMO Council

(25 November 2002)

This session of the Council, now at last enlarged to 40 Members, should have been a time of true celebration, no more no less, to celebrate the enhanced representation of the member States of the Organization which France has always supported wholeheartedly right from the start.

The gravity of events reminds us of the real world and our responsibilities. More than ever, this enlargement must send a strong political signal, a solemn commitment to face the new challenges and hunt down the old demons that haunt the maritime world.

This Organization, its member States, their peoples and the maritime community as a whole have been stricken, wounded and plunged into grief by a series of events of the utmost gravity: the terrorist threat which challenges us on all fronts as well as the latest maritime disasters such as we hoped never to see again: the sinking of the Joola on 26 September in Senegal with the loss of over one thousand lives, the Prestige, whose consequences, albeit of another order, are none the less appalling.

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The terrorist threat is not really new, but its scale, its many faces demand an unprecedented level of response. This Organization plays a crucial role in preventing and eliminating these risks in the maritime domain. We have high hopes of the work of the Diplomatic Conference in December. Let us beware lest the necessary commitments prove no more than limp consensus.

Keeping in mind the tragic events of 11 September and the murderous attacks that followed in many other places in the world, we cannot help but recall that the risks at sea, unfortunately, were all too soon illustrated by the attack on the French tanker, the Limburg in Yemen on 6 October last.

France will continue to play an active part in our work and naturally looks forward to significant results. I wish to announce that the Limburg affair will be the subject of a special presentation on Monday 9 December, the first day of the Conference.

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The terrorist menace is a risk of an exceptional kind and on a scale which requires exceptional measures to ensure "maritime security". Ensuring "maritime safety and protection of the marine environment", however, is a familiar part this Organization's mandate. As to the Prestige disaster on 13 November, that is nothing new.

We thought we had finally put an end to these all too frequent and intolerable situations. Obviously, that is not so. How many more times must we say that such events are unacceptable?

It was up to the State, of course, or perhaps States, directly affected by that accident to rise in protest against the accident itself and its consequences.
It was up to the flag State, of course, to provide some explanations about the incident.

Now it is the turn of our delegation to have its say, not only because France stands shoulder to shoulder in solidarity with our neighbours, not only because France is all too often the direct victim of such disasters, but because France is "horrified", as the President of the Republic put it, and must therefore react and act at every level and in every appropriate context to bring about decisive and effective measures.

* * *

We will watch the investigations into this accident closely, albeit conscious as we are that the immediate task now is to combat this formidable pollution.

The time has come, however, for our Organization to define its policy and strategy. This is a major item on our Council's agenda.

I will conclude, therefore, with some considerations of a policy and strategic order:

France has always maintained, time and again, in this forum that the prime responsibility for the effective application and enforcement of the instruments adopted under the aegis of this Organization lies with the flag State.

France has always maintained, time and again, that control by the port State, the coastal State, the State potentially threatened, is merely a substitute for the failings of the flag State.

Today, our delegation reiterates in the strongest terms that this transfer of the responsibility and the burden has reached unacceptable levels. Intervention by the coastal State or the port State is the expression of a notion that can be described as "legitimate defence". Do we want, can we allow that the proper functioning of maritime transport should rely on such an arrangement? Please, I beg you, let us all get back to the source of the problem and, dare we say it, the root of the evil.

STATEMENT BY THE DELEGATION OF YEMEN
(3 December 2002 (a.m.))

Address by H.E. Captain Saeed Abdulla H. Al-Yafai
Minister of Transport and Maritime Affairs of the Republic of Yemen
to the 76th session of the Maritime Safety Committee

Mr. Chairman, Secretary-General, Heads and members of delegations, Ladies and Gentlemen.

You may be all aware of the French tanker Limburg incident on October 6th and the considerable damage that incident had on the marine environment and the economy of the Republic of Yemen.

However, I would like to start by expressing my country's gratitude and appreciation to the distinguished Secretary-General, Mr. O'Neil and his deputy, Admiral Mitropoulos and to the staff of IMO who offered us all the help possible, in the form of technical experts, promptly and without hesitation.
The incident placed my country in a difficult position, as we were not only victims of terrorism, but also victims of serious oil pollution for which no compensation was available under the CLC Convention. When this Convention was drafted in 1969, terrorism was not known nor experienced as it is today. Furthermore, we then became the victims of massively increased marine insurance premiums imposed on vessels calling Yemeni ports as an immediate and direct result of the incident. Our losses as a direct result of this unreasonable additional premium imposed by insurance companies exceeds US$10 millions per month. While our losses as a result of the terrorist attack on the Limburg exceeds US$25 millions per month which is crippling our economy and serving the purpose of terrorism. I believe that it will be both appropriate and necessary, particularly at this pivotal meeting of the MSC where maritime safety and the revision of IMO instruments relating to safety are being considered, to take into full account the impact of terrorist attacks that can result in serious damage to the marine environment, but for which no protection through the CLC to cover the costs of mitigating measures, or compensation for direct and indirect damage, is made available to the country affected. We firmly believe that the change in circumstances around the world, not just as these have affected Yemen, expose a gap in the CLC that needs to be closed. Limburg has forced this on our attention, and we are therefore expressing our Government's concern on this matter and consider it our duty to share our concerns with you. Specifically, we believe that IMO should carefully consider taking action to amend Article III of the 1969 Civil Liability Convention, and I formally request the distinguished Secretary-General of IMO to take the necessary steps to this effect.

Thanking you.
Thank you Mr. Chairman,

I find it appropriate while listening to statements being made about the Prestige disaster off the coast of Spain to inform this august committee of the steps taken by the Government of Yemen concerning the Limburg disaster which took place off the coast of Yemen on 6 October 2002, and may I start by expressing the sympathy of the people and Government of Yemen with the people and Government of Spain for the damage that the Prestige incident caused them, in particular our sympathy goes to those who lost their livelihood as a result of this incident.

As a comparison with the steps taken by Spain with the Prestige incident, the Government of Yemen took immediate action to rescue the crew of the Limburg in very difficult and dangerous circumstances. Twelve crew members jumped overboard and we managed to rescue eleven of them from a burning sea and in very close proximity which was still exploding. Unfortunately one Bulgarian seaman lost his life by drowning in this incident. When the Master decided to abandon ship with the remaining crew members none of the lifeboats could be used and again our people rescued the rest of the crew under very dangerous circumstances.

The Master and his crew were transferred to a five-star hotel in Mukalla and were given full freedom to contact their families and to speak to press and to the owners of the ship.

The tanker was floating with the tide and wind and again we managed, under very difficult and dangerous circumstances to connect a tow line to the ship and save her from going aground, while continuing to fight the fire.

Almost 18,000 tons of crude oil spilled, 120 km of coastline was polluted and about 3,000 fishermen lost their source of livelihood. We did what we can with our modest resources to clean up the sandy beaches. The rocky coastline is still up to this moment covered with crude oil as we do not have the required equipment nor the resources to purchase much equipment to do the necessary clean-up. In my statement yesterday, I mentioned that we could not resort the only compensation under the CLC Convention as the explosion was caused by a terrorist act and I called upon the Secretary-General of IMO to start a process to amend Article III of the CLC Convention to deal with this new reality which did not exist almost 34 years ago in 1969 when the CLC was concluded.

With the incident of the Prestige, many countries came to the help of Spain and we applaud that, yet in spite of the efforts we made through the various Embassies in Yemen, not a single country came forward with an offer to help us clean our coastline. We cannot understand and we feel very sad at the attitude and double standards of the international maritime community. Our coastline is still polluted by oil from the Limburg and our fishermen are still out of work and without any form of compensation. We await the conscious of the Maritime Community to wake up.

We request that this statement and our statement of yesterday be recorded in the proceedings of this 76th session of the MSC.

Thank you, Mr. Chairman.
STATEMENT BY THE DELEGATION OF MOROCCO  
(10 December 2002 (a.m.))

DECLARATION

Measures to improve the safety of navigation 
and prevention of pollution

Document submitted by the delegation of the Kingdom of Morocco

The delegation of the Kingdom of Morocco has followed with great interest the declaration made by the distinguished representative of the European Union within the work programme of this Committee regarding the measures taken by the European Union after the Prestige disaster.

In this regard, I wish to inform you, Mr. President, of the action taken by the Government of Morocco on the day following the shipwreck which polluted the Spanish coast, through a quotation from the official communiqué of the Ministry of Works and Transport for Morocco:

"COMMUNIQUE FROM THE 
THE MINISTRY OF EQUIPMENT AND TRANSPORT

Following the ecological disaster along the Spanish coast caused by the shipwreck of the tanker Prestige, His Majesty's Government expresses solidarity with the Kingdom of Spain and sends its sympathies to the people of Spain affected by this disaster.

His Majesty's Government, conscious of the dangers of the global transport by sea of noxious and potentially dangerous substances and the number of accidents caused by certain ships transporting these substances, has noted the joint declaration on the subject adopted at the Franco-Spanish Summit in Malaga, 26 November 2002.

The Kingdom of Morocco, as an associate member of the European Union and a country neighbouring the disaster area, subscribes to the principles of the said declaration, associates itself with the proposed terms of co-operation and supports the measures proposed with a view to improving the safety of navigation and to taking action to prevent the occurrence of such disasters in the future.

The Kingdom of Morocco also wishes to announce that it will support and defend the above measures within the framework of the competent international organizations.

His Majesty's Government has, therefore, decided that all monohull ships over 15 years old carrying crude oil, heavy fuel oil, tar or other materials constituting a risk to the marine environment, must submit a preliminary declaration to the competent Moroccan authorities in order to request access to the Moroccan exclusive economic zone.
The crew of the said ships must from now on supply all necessary information, in particular the nature of the cargo, the identities of the charterer and the shipowner and the commercial destination of the goods being carried."

The Kingdom of Morocco is in the process of adopting legislation to enact the measures quoted in the above communiqué.

I take this opportunity to request the delegations who are neighbours of Morocco, and especially Spain, to reactivate existing instruments of co-operation in the area of safety of navigation and to prepare joint action in order to increase awareness of and prevent such incidents in future.

Mr. President, the delegation of Morocco requests that this information be supplied to all States participating in the seventy-sixth session of the Maritime Safety Committee.

The delegation of Morocco invites the Committee to note this information and requests that this document be brought to the attention of all delegations present, to be circulated as you judge appropriate, Mr. President, and to be inserted in the final report of the Committee.

Thank you Mr. President.

STATEMENT BY THE REPRESENTATIVE OF
THE EUROPEAN COMMISSION
(9 December 2002 (p.m.))

Intervention of the representative of the European Commission at MSC 76 on the “Prestige”

Mr. Chairman, the Council of Ministers of the EU took a number of far-reaching decisions in its meeting of 6 December 2002, following the sinking of the Prestige off the Galician coast of Spain.

Many of these decisions, for example the one disallowing the use of Single Hull Tankers for the transportation of heavy grades of oil to and from EU ports, terminals or anchorage areas, are the responsibility of Member States as coastal States. There are a number of them, however, that are requests to the IMO and its MSC, MEPC and Legal Committees. The EU Council has “acknowledged the determined efforts of the International Maritime Organization since the Erika accident” and has addressed requirements for the following issues:

• The need to address a Condition Assessment Scheme in the general survey regime for tankers regardless of design from the age of 15 years.

• The need that rules regarding the use of double hull tankers for the transportation of heavy grades of oil, and the accelerated phasing out of single hull tankers are established as soon as possible on a world-wide level, through an amendment to the MARPOL Convention.
Finalization of the International Guidelines on the identification of places of refuge for ships in distress in the IMO.

Development of new preventive distances for ships along the coasts of the Member States of the EU (requests will be introduced to IMO).

Urges the IMO to develop the use of the instrument of designating Sensitive Sea Areas (SSA) and Particularly Sensitive Sea Areas (PSSA).

The need to adopt the supplementary Compensation Fund in May and be operational by the end of 2003.

Asks the development, in the framework of the IMO, of the requirements for the protection of large fuel oil tankers in all categories of ships against collision and stranding.

Supports the ongoing work in the IMO to develop a Flag State Code and a Model Audit Scheme, so ensuring that flag States carry out their duties under the International Conventions.

In addition the EU Council has stressed the necessity to re-examine international rules concerning the law of the seas and maritime transport. The Council has considered that the law does not offer sufficient means for the protection of coastal States against an ever-increasing traffic of dangerous and polluting goods, which present high risks.

**STATEMENT BY THE DELEGATION OF MALTA**

*(13 December 2002 (a.m.))*

The delegation of Malta refers to the incidents that have featured in the public media over these last days regarding six Maltese-registered tankers some of which were, and the others could have been denied the freedom of trade and navigation, to the extent that one of these ships was even boarded out at sea, even though all these ships were trading legally and none of them posed any threat to safety of life at sea or the marine environment more than any other vessel also operating lawfully.

Malta cannot understand the official silence on these incidents even from the International Maritime Organization.

The motor tankers **Byzantio** (built 1976), **Enalios Titan** (1978), **Express** (1980), **Gudermes** (1976), **Moskovskiy Festival** (1985) and **Yevgeniy Titov** (1986) are classed with top classification societies, in these cases, American Bureau of Shipping, Det Norske Veritas and Lloyds's Register of Shipping. Furthermore, all six ships carry valid certificates as required in terms of the relevant international conventions issued by one of these societies, as the case may be, on behalf of the Government of Malta.

Moreover, five of these tankers, at least in recent years, had not been involved in any casualty. Even more, these same ships had all been inspected several times by flag State control or under the port State control regime and the outcome of these inspections had always been positive with none of these ships ever being detained.
In particular, the Moskovskiy Festial had successfully passed a port State control inspection in Satan Cruz de Tenerife, Spain as a recently as one month ago. This same ship has also been inspected in Gibraltar only a few days ago and was described by the port State control inspector as a fine ship.

Although the other tanker, the Byzantio, was said to have been involved in a casualty in April this year, this was only a contact while at anchor with a bunkering ship, when there was no impact and none of the two vessels suffered any serious damage and there were no injuries or any oil spillage. The Byzantio had also been detained in Ireland last August for deficiencies related to fire appliances and crew certification, certainly nothing related to the structure of the ship. Corrective action was taken and since then this ship has successfully passed two port State control inspections in Rotterdam, Netherlands and in Tallinn, Estonia, a class inspection in Tallinn and a flag State control inspection also in Rotterdam.

It is pertinent to point out that all these six tankers form part of an international fleet of more than 5000 single hull tankers registered in and operating under several jurisdictions worldwide. It is to be noted that following a decision taken at an international conference convened by the International Maritime Organization in April 2001 single hull tankers will be phased out, according to their year of built, starting in 2003 for ships delivered in 1989 or later.

Malta was one of the States that had supported this accelerated phasing out of single hull tankers. Malta also believes that if the need is felt to accelerate even further the phasing out of these ships, such a decision should be taken internationally after having taken into consideration the impact of such a decision. Shipping being by its very nature an international industry, action affecting international trade and transport should be taken internationally, avoiding as much as possible unilateral action and, even more so, arbitrary action that can only lead to chaos and disaster.

During a recent discussion at the United Nations on the subject of Oceans and the Law of the Sea one eminent speaker emphasized how oceans and the law of the sea have become inseparable. Malta wants to believe that in the beginning of this third millennium the maritime industry would continue to operate in a regulated regime of peace and order and does not revert to the law of might is right that prevailed in centuries gone by.

Malta, sitting astride one of the major arteries of shipping, has always supported and shall continue to support international action aimed at minimising as much possible threats to the marine environment and to the livelihood and quality of life of the people who could be affected by any catastrophe.

Malta expects that the International Maritime Organization promotes implementation and adherence to all international maritime law by all States whether these are acting in their capacity as flag State, port State or coastal State and by everybody, including in particular those bodies which have a special relationship with this Organization.

Malta, as a responsible member of in the international community of States and in the execution of its functions as a maritime Administration, shall continue to strive towards ensuring safety of life at sea and the security of the world oceans and the protection of the marine environment as the common heritage of mankind. All this, however, through the rule of law and international concerted action.
Malta, reiterates its support for any action taken after an international dialogue between the strategic partners of the maritime industry in the interest of safer and more secure shipping and cleaner oceans.