

Subject

Summary of the Outcomes of MSC 107

# **ClassNK**

## ***Technical Information***

No. TEC-1303

Date 16 August 2023

To whom it may concern

The 107th session of the Maritime Safety Committee (MSC 107) was held from 31 May to 9 June 2023. Since the minutes, resolutions and circulars of the meeting were recently released from the IMO, a summary of the decisions taken at MSC 107 is provided below for your information.

### 1. Adopted mandatory requirements

Mandatory requirements adopted at MSC 107 are as follows:

- (1) Amendments to SOLAS Chapter II-1 on safety requirements for lifting appliances and anchor handling winches (See attachment 1)

Amendments to SOLAS chapter II-1 to provide safety requirements on lifting appliances and anchor handling winches were adopted. Accordingly, thorough examination and load test in compliance with the guidelines introduced in item 3.2(1) would be required for those equipment installed to new and existing ships.

Applied: on or after 1 January 2026.

- (2) Amendments to SOLAS chapter II-2, etc. on the prohibition of perfluorooctane sulfonic acid (PFOS) (See attachment 1, 5, 6)

Amendments to SOLAS chapter II-2, and the 1994 and 2000 HSC Codes to prohibit the use of fire-fighting foams containing PFOS, were adopted.

Applied: on or after 1 January 2026.

- (3) Amendments to SOLAS chapter V and format of SE Certificate on carriage of electronic inclinometers (See attachment 1, 2, 3)

Amendments to SOLAS chapter V to require carriage of electronic inclinometers on container ships and bulk carriers of 3,000 gross tonnage and upwards were adopted. Accordingly, format of SE Certificate was also amended to add new entry of "Container ship" in Particulars of ship. The requirement would be applied to new bulk carriers defined under SOLAS XII and ships which are intended primarily to carry containers.

Applied: on or after 1 January 2026.

(To be continued)

#### NOTES:

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(4) Amendments to LSA Code (See attachment 4, 7)

Amendments to LSA Code to add new ventilation requirements applied to totally enclosed lifeboats, in conjunction with the amendments to the recommendation on testing of life-saving appliances (resolution MSC.81(70)) which newly stipulates the relevant operation tests, were adopted.

Applied: on or after 1 January 2029.

(5) Amendments to IMSBC Code

The 7th amendments to IMSBC Code (AMENDMENT 07-23) were adopted, including addition of new cargoes.

Applied: on or after 1 January 2025 (Administrations may apply it on a voluntary basis as from 1 January 2024).

2. Approved mandatory requirements

The following mandatory requirements were approved at this session and are expected to be adopted at MSC 108 held in May 2024.

(1) Amendments to IGF Code (See attachment 10)

Amendments to IGF Code were approved as a part of the task for amendments to the IGF Code and development of guidelines for alternative fuels and related technologies. It was also agreed to issue an MSC circular on the early implementation of the draft amendments to paragraphs 4.2.2 and 8.4.1 to 8.4.3 of the Code.

(2) Amendments to International Code for the Safe Carriage of Grain in Bulk (Grain Code) (resolution MSC.23(59)) (See attachment 11)

Amendments to Grain Code, to add new loading condition of specially suitable compartments partly filled in way of the hatch opening with ends untrimmed, were approved.

(3) Amendments to SOLAS regulation II-1/3-4 (See attachment 12)

Amendments to SOLAS regulation II-1/3-4 to require emergency towing arrangements fitted on ships other than tankers of not less than 20,000GT were approved. The detailed requirements would be considered based on the existing guidelines (Res. MSC.35(63)) at SDC Sub-Committee.

(To be continued)

(4) Amendments to LSA Code (See attachment 13, 14)

The following amendments to LSA Code and the recommendation on testing of life-saving appliances (resolution MSC.81(70)) were approved;

1. In-water performance requirements for lifejackets;
2. Requirements for single fall and hook systems with on-load release capability which is used for lifeboat launched by a fall or falls, except a free-fall lifeboat; and
3. Requirements for lifeboats to limit the minimum and maximum lowering speed of fully loaded survival craft and rescue boats.

(5) Amendments to SOLAS chapter II-2 and FSS Code (See attachment 15, 16)

The following amendments to SOLAS chapter II-2 and FSS Code on fire safety of ro-ro passenger ships, etc. were approved;

1. Fire safety requirements on new/existing ro-ro passenger ships mainly shown as below;
  - Fixed fire detection and fire alarm systems;
  - Video monitoring in ro-ro spaces;
  - Arrangement of openings in ro-ro and special category spaces;
  - Arrangement of weather decks;
  - Water monitors for protection of weather deck;
  - Linear heat detectors; and
  - Visual and audible fire signals
2. Amendments to SOLAS regulation II-2/7.5.5 concerning fire detection within control stations and cargo control rooms of cargo ships.

3. Approved unified interpretations, etc.

The following unified interpretations (UIs), guidelines, guidance and etc. were approved during MSC 107. IACS UIs referred to as below are available on IACS website (<http://www.iacs.org.uk/>).

3.1 Unified interpretations

(1) Unified interpretation of IGF Code (See attachment 21, 24)

1. Unified interpretation of 5.8 to clarify applicability of requirements on arrangements and bilge well of fuel preparation rooms not located on open deck.
2. Unified interpretation of 9.2.2 to restrict the use of single common flange in the piping system for fuel transfer to the consumers.

(2) Unified interpretation of IGC Code (See attachment 22, 23)

1. Unified interpretation to clarify that cargo transfer equipment installed on LNG bunkering ships should comply with 11.3.1.4, 11.3.1.5, 11.4.1, 11.4.3 and 18.10.3.2 for fire detection and fire protection in the cargo area.
2. Unified interpretation on the conduct of verifications and examinations required during the first full loading and unloading of the cargo under 4.20.3.5, 4.20.3.6, 4.20.3.7, 5.13.2.5 and 13.3.5.

(To be continued)

- (3) Amendments to unified interpretation of 2008 IS Code (MSC.1/Circ.1537/Rev.1) (See attachment 33)  
Amendments to unified interpretation of 2008 IS Code (MSC.1/Circ.1537/Rev.1) to make specific down-flooding points (ventilators fitted with weathertight closing appliances, serving at machinery spaces that are required to remain open, are regarded as unprotected openings), which were formerly applied only to weather criterion, applied to the entirety of the 2008 IS Code.
- (4) Amendments to unified interpretation of SOLAS chapter II-1 (MSC.1/Circ.1362/Rev.1) (See attachment 31)  
Amendments to unified interpretation of SOLAS chapter II-1 (MSC.1/Circ.1362/Rev.1) to include the following new interpretations.
1. Unified interpretation of regulation II-1/3-8 on mooring arrangement and equipment to clarify the documentation which was necessary to support an Administration or an RO in verifying compliance with regulation II-1/3-8; and
  2. Unified interpretation of regulation II-1/13.2.3 to provide clarification for pressure testing of penetrations in watertight divisions after a fire test for passenger ships.
- (5) Unified interpretation of LSA Code and 1994/2000 HSC Code (See attachment 27)  
Unified interpretation of LSA Code and 1994/2000 HSC Code to accept multiple light source LED torch as an alternative to "one spare bulb" equipped for liferaft, lifeboat and rescue boat, provided that the failure of any one of LED does not prevent the fully functioning of other LED's.
- (6) Amendments to unified interpretation of SOLAS chapter II-2 (MSC.1/Circ.1276) (See attachment 30)  
Amendments to unified interpretation (MSC.1/Circ.1276) in line with the application to the generalized "ducts", not only to galley ducts in SOLAS regulation II-2/9.7.2.5. The amended interpretation applies to fire protection construction, installation, arrangements and equipment to be installed on board ships of which the building contract is placed on or after the date of approval.
- 3.2 Guidelines and guidance etc.
- (1) Guidelines on lifting appliances and anchor handling winches (See attachment 18, 19)  
In conjunction with the amendments to SOLAS as shown in above 1.(1), the relevant two (2) guidelines on lifting appliances and anchor handling winches were approved.
  - (2) Interim guidelines for the safety of ships using LPG fuels (See attachment 20)  
Interim guidelines for the safety of ships using LPG fuels, as a part of the task for amendments to the IGF Code and development of guidelines for alternative fuels and related technologies.

(To be continued)

- (3) Interim guidelines on onshore power supply (OPS) (See attachment 28)  
Interim guidelines on safe operation of onshore power supply (OPS) service in port for ships engaged on international voyages.
  - (4) Amendments to performance standards for water level detectors on ships subject to SOLAS regulations II-1/25, II-1/25-1 and XII/12 (resolution MSC.188(79)/Rev.1) (See attachment 8)  
Amendments to performance standards for water level detectors on ships subject to SOLAS regulations II-1/25, II-1/25-1 and XII/12 (resolution MSC.188(79)/Rev.1) to clarify that the measurement of height from the bottom of a bilge well is applied to bilge level sensors in regulation II-1/25-1.3.
  - (5) Amendments to Hazardous area classification (application of SOLAS regulation II-1/45.11) (MSC.1/Circ.1557)  
Amendments to Hazardous area classification (application of SOLAS regulation II-1/45.11) (MSC.1/Circ.1557) in order to address inconsistencies between the standard IEC 60092-502. (related to IACS UI SC274)
4. Postponement of application of a part of performance standard of GMDSS equipment in relation to resolutions MSC.511(105), MSC.512(105) and MSC.513(105) (See attachment 29, 32)  
As modernization of the Global Maritime Distress and Safety System (GMDSS), the relevant performance standards, guidelines and guidance have been approved at MSC 105 with entry into force on 1 January 2024.  
However, noting the relevant new IEC standards are not yet developed, concerns were expressed that shipborne VHF, MF and MF/HF radio installations and Inmarsat-C ship earth stations meeting the new performance standards approved at MSC 105 may not be supplied by the effective date.  
To address this situation, MSC 107 agreed to permit continued installation of radio installations that comply with the existing standards (i.e. resolutions A.803(19), as amended, A.804(19), as amended, A.806(19), as amended and A.807(19), as amended) until 1 January 2028.  
Accordingly, MSC circular on Delays affecting the availability of new GMDSS equipment compliant with the revised performance standards, set out in resolutions MSC.511(105), MSC.512(105) and MSC.513(105) and the revision of MSC.1/Circ.1460/Rev.3 on Guidance on the validity of radiocommunications equipment installed and used on ships were approved at this session.

(To be continued)

5. Consideration of requirements for Maritime Autonomous Surface Ships (MASS)

In the recent development of MASS, it has been discussed at MSC on an international instrument of MASS (MASS Code).

At this session, based on the report by the Correspondence Group (CG) and the meeting outcome arranged by the related working group such as the second Joint MSC-LEG-FAL Working Group (JWG2), non-mandatory MASS Code has been discussed and agreed on further consideration. In addition, the road map for developing the MASS Code was discussed, which resulted in the re-establishment of the CG, and establishment of Intersessional MASS Working Group (ISWG) in the coming October. Consequently, it was also agreed to postpone the third Joint Working Group (JWG 3), scheduled in September this year, to spring of 2024. Given the updated road map, changing the planned adoption of the mandatory code from MSC 110 (in 2025) to MSC 111 (in 2026) was agreed, while keeping the date of entry into force of the mandatory MASS Code as 1 January 2028.

6. Measures to enhance the safety of ships relating to the use of fuel oil (See attachment 17)

Triggered by the global 0.50% sulphur limit, which has entered into force on 1 January 2020, further measures to enhance the safety of ships relating to the use of fuel oil have been discussed. MSC 106 adopted amendments to SOLAS Chapter II-2 to require that a bunker delivery note for the fuel delivered to the ship shall contain the flashpoint information.

At this session, the amendments to SOLAS Chapter II-2 to specify similar general provisions on fuel oil safety as set out in 18.3.1.1.3 of MARPOL Annex VI were approved. Also, joint MSC-MEPC guidelines for taking fuel oil samples during bunkering based on the existing guidelines (resolution MEPC.182(59)) was approved in order to establish a single sampling regime under both the SOLAS and MARPOL Conventions. The draft revised guidelines will be approved by subsequent MEPC and published as an MSC-MEPC Circular.

For any questions about the above, please contact:

NIPPON KAIJI KYOKAI (ClassNK)

External Affairs Department, Administration Center Annex, Head Office

Address: 3-3 Kioi-cho, Chiyoda-ku, Tokyo 102-0094, Japan

Tel.: +81-3-5226-2038

Fax: +81-3-5226-2734

E-mail: xad@classnk.or.jp

(To be continued)

## Attachment:

1. RESOLUTION MSC.532(107)
2. RESOLUTION MSC.533(107)
3. RESOLUTION MSC.534(107)
4. RESOLUTION MSC.535(107)
5. RESOLUTION MSC.536(107)
6. RESOLUTION MSC.537(107)
7. RESOLUTION MSC.544(107)
8. RESOLUTION MSC.188(79)/REV.2
9. DRAFT AMENDMENTS TO SOLAS REGULATION II-2/4 RELATED TO OIL FUEL PARAMETERS OTHER THAN FLASHPOINT
10. DRAFT AMENDMENTS TO THE IGF CODE
11. DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR THE SAFE CARRIAGE OF GRAIN IN BULK (RESOLUTION MSC.23(59))
12. DRAFT AMENDMENTS TO SOLAS REGULATION II-1/3-4
13. DRAFT AMENDMENTS TO THE LSA CODE
14. DRAFT MSC RESOLUTION ON AMENDMENTS TO THE REVISED RECOMMENDATION ON TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))
15. DRAFT AMENDMENTS TO SOLAS CHAPTER II-2
16. DRAFT AMENDMENTS TO THE FSS CODE
17. DRAFT MSC-MEPC CIRCULAR ON GUIDELINES FOR THE SAMPLING OF [OIL FUEL] FOR DETERMINATION OF COMPLIANCE WITH THE REVISED MARPOL ANNEX VI AND SOLAS CHAPTER II-2
18. MSC.1/Circ.1662 Guidelines for anchor handling winches
19. MSC.1/Circ.1663 Guidelines for lifting appliances
20. MSC.1/Circ.1666 Interim guidelines for the safety of ships using LPG fuels
21. MSC.1/Circ.1667 Unified interpretation of requirements in the IGF Code for fuel preparation rooms not located on an open deck
22. MSC.1/Circ.1668 Unified interpretation of bunkering manifold arrangements fitted on LNG bunkering ships in the IGC Code (as amended by resolution MSC.370(93))
23. MSC.1/Circ.1669 Unified interpretation of the IGC Code (as amended by resolution MSC.370(93))
24. MSC.1/Circ.1670 Unified interpretation of the IGF Code
25. MSC.1/Circ.1671 Unified interpretation on implementation of regulation 2.10.3 of the 2009 MODU Code, regulation 2.8.2 of the 1989 MODU Code and regulation 2.7.2 of the 1979 MODU Code
26. MSC.1/Circ.1673 Unified interpretation of SOLAS regulation II-1/1.1.3
27. MSC.1/Circ.1674 Unified interpretations of the LSA Code, the 1994 and 2000 HSC Codes
28. MSC.1/Circ.1675 Interim guidelines on safe operation of onshore power supply (OPS) service in port for ships engaged on international voyages
29. MSC.1/Circ.1676 Delays affecting the availability of new GMDSS equipment compliant with the revised performance standards set out in resolutions MSC.511(105), MSC.512(105) and MSC.513(105)

(To be continued)

30. MSC.1/Circ.1276/Rev.1 Revised unified interpretations of SOLAS chapter II-2
31. MSC.1/Circ.1362/Rev.2 Unified interpretation of SOLAS chapter II-1
32. MSC.1/Circ.1460/Rev.4 Guidance on the validity of radiocommunications equipment installed and used on ships
33. MSC.1/Circ.1537/Rev.2 Unified interpretations of the 2008 IS Code



**ANNEX 2**

**RESOLUTION MSC.532(107)  
(adopted on 8 June 2023)**

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

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I,

HAVING CONSIDERED, at its 107th session, amendments to the Convention 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 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 July 2025, 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 the Secretary-General of their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of 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 ALSO 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**

**CHAPTER II-1  
CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY,  
MACHINERY AND ELECTRICAL INSTALLATIONS**

**Part A  
General**

**Regulation 2**

*Definitions*

1 The following new paragraphs are added after existing paragraph 29:

"30 *Lifting appliance* means any load-handling ship's equipment:

- .1 used for cargo loading, transfer, or discharge;
- .2 used for raising and lowering hold hatch covers or moveable bulkheads;
- .3 used as engine-room cranes;
- .4 used as stores cranes;
- .5 used as hose handling cranes;
- .6 used for launch and recovery of tender boats and similar applications;  
and
- .7 used as personnel handling cranes.

31 *Anchor handling winch* means any winch for the purpose of deploying, recovering and repositioning anchors and mooring lines in subsea operations.

32 *Loose gear* means an article of ships equipment by means of which a load can be attached to a lifting appliance or an anchor handling winch but which does not form an integral part of the appliance or load.

33 The expression *installed on or after 1 January 2026*, as provided in regulation 3-13, means:

- .1 for ships the keel of which is laid or which is at a similar stage of construction on or after 1 January 2026, any installation date on the ship; or
- .2 for ships other than those specified in .1, including those constructed before 1 January 2009, a contractual delivery date for lifting appliance or anchor handling winches, or in the absence of a contractual delivery date, the actual delivery date of the lifting appliance or anchor handling winches to the ship on or after 1 January 2026."

## **Part A-1**

### **Structure of ships**

2 The following new regulation is added after existing regulation II-1/3-12, together with the associated footnotes:

#### **"Regulation 3-13**

*Lifting appliances and anchor handling winches*

#### **1 Application**

1.1 Unless expressly provided otherwise, this regulation shall apply to lifting appliances and anchor handling winches, and loose gear utilized with the lifting appliances and the anchor handling winches.

1.2 Notwithstanding the above, this regulation does not apply to:

- .1 lifting appliances on ships certified as MODUs;<sup>1</sup>
- .2 lifting appliances used on offshore construction ships, such as pipe/cable laying/repair or offshore installation vessels, including ships for decommissioning work, which comply with standards acceptable to the Administration;
- .3 integrated mechanical equipment for opening and closing hold hatch covers; and
- .4 life-saving launching appliances complying with the International Life-Saving Appliance (LSA) Code.

1.3 The Administration shall determine to what extent the provisions of paragraphs 2.1 and 2.4 do not apply to lifting appliances which have a safe working load below 1,000 kg.

#### **2 Design, construction and installation**

2.1 Lifting appliances installed on or after 1 January 2026 shall be:

- .1 designed, constructed and installed in accordance with the requirements of a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1 or standards acceptable to the Administration which provide an equivalent level of safety; and
- .2 load tested and thoroughly examined after installation and before being taken into use for the first time and after repairs, modifications or alterations of major character.

2.2 Anchor handling winches installed on or after 1 January 2026 shall be designed, constructed, installed and tested to the satisfaction of the Administration, based on the Guidelines developed by the Organization.<sup>2</sup>

2.3 Lifting appliances installed on or after 1 January 2026 shall be permanently marked and provided with documentary evidence for the safe working load (SWL).

2.4 Lifting appliances installed before 1 January 2026 shall be tested and thoroughly examined, based on the Guidelines developed by the Organization<sup>3</sup> and comply with paragraph 2.3 no later than the date of the first renewal survey on or after 1 January 2026.

2.5 Anchor handling winches installed before 1 January 2026 shall be tested and thoroughly examined, based on the Guidelines developed by the Organization<sup>2</sup> no later than the date of the first renewal survey on or after 1 January 2026.

### **3 Maintenance, operation, inspection and testing**

All lifting appliances and anchor handling winches, regardless of installation date, and all loose gear utilized with any lifting appliances and anchor handling winches, shall be operationally tested, thoroughly examined, inspected, operated and maintained, based on the Guidelines developed by the Organization.<sup>2,3</sup>

### **4 Inoperative lifting appliances and anchor handling winches**

Except as provided in regulation I/11(c), while all reasonable steps shall be taken to maintain lifting appliances, anchor handling winches and loose gear to which this regulation applies in working order, malfunctions of that equipment shall not be assumed as making the ship unseaworthy or as a reason for delaying the ship in ports, provided that action has been taken by the master to take the inoperative lifting appliance or anchor handling winch into account in planning and executing a safe voyage.<sup>2, 3</sup>

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<sup>1</sup> Ships certified as MODUs are those subject to the MODU Code and which carry a MODU Code Certificate on board issued by the Administration or a recognized organization. The carriage of this certificate includes authorized electronic versions available on board.

<sup>2</sup> Refer to the *Guidelines for anchor handling winches* (MSC.1/Circ.1662).

<sup>3</sup> Refer to the *Guidelines for lifting appliances* (MSC.1/Circ.1663)."

## **CHAPTER II-2 CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION**

### **Part A General**

#### **Regulation 1 Application**

#### **2 Applicable requirements to existing ships**

3 The following new paragraph 2.10 is added after existing paragraph 2.9, together with the associated footnote:

"2.10 Ships constructed before 1 January 2026 shall comply with regulation 10.11.2, as adopted by resolution MSC.532(107), not later than the date of the first survey\* on or after 1 January 2026.

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\* Refer to the *Unified interpretation of the term "first survey" referred to in SOLAS regulations* (MSC.1/Circ.1290)."

## Part C Suppression of fire

### Regulation 10 *Fire fighting*

4 The following new paragraph 11 is added after existing section 10:

#### "11 Fire-extinguishing media restrictions

The purpose of this paragraph is to protect persons on board against exposure to dangerous substances used in firefighting, as well as to minimize the impact of fire-extinguishing media that are deemed detrimental to the environment.

##### 11.1 Application

This regulation applies to ships constructed on or after 1 January 2026.

##### 11.2 General

11.2.1 The prohibited substances in this regulation shall be delivered to appropriate shore-based reception facilities when removed from the ship.

11.2.2 Use or storage of extinguishing media containing perfluorooctane sulfonic acid (PFOS) shall be prohibited."

## CHAPTER V SAFETY OF NAVIGATION

### Regulation 2 *Definitions*

5 The following new paragraphs are added after existing paragraph 7, together with the associated footnotes:

"8 *Bulk carrier* means a bulk carrier as defined in regulation XII/1.1.<sup>1</sup>

9 *Containership* means a ship which is intended primarily to carry containers.<sup>2</sup>

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1 Refer to *Clarification of the term 'bulk carrier' and guidance for application of regulations in SOLAS to ships which occasionally carry dry cargoes in bulk and are not determined as bulk carriers in accordance with regulation XII/1.1 and chapter II-1 (resolution MSC.277(85))*.

2 Refer to the term 'container' as defined in article II of the International Convention for Safe Containers (CSC), 1972."

### Regulation 18

*Approval, surveys and performance standards of navigational systems and equipment and voyage data recorder*

6 The following reference is added to the footnote corresponding to paragraph 2:

"*Performance standards for electronic inclinometers (resolution MSC.363(92))*"

## **Regulation 19**

*Carriage requirements for shipborne navigational systems and equipment*

7 The following new paragraph 2.12 is added after existing paragraph 2.11:

"2.12 Containerships and bulk carriers of 3,000 gross tonnage and upwards constructed on or after 1 January 2026 shall be fitted with an electronic inclinometer, or other means, to determine, display and record the ship's roll motion."

## **CHAPTER XIV SAFETY MEASURES FOR SHIPS OPERATING IN POLAR WATERS**

### **Regulation 2**

*Application*

8 Regulation 2 is replaced by the following:

#### **"Regulation 2**

*Application*

1 Unless expressly provided otherwise, this chapter applies to the following ships operating in polar waters:<sup>1</sup>

- .1 ships certified in accordance with chapter I;
- .2 fishing vessels of 24 metres in length overall and above;
- .3 pleasure yachts of 300 gross tonnage and upwards not engaged in trade; and
- .4 cargo ships of 300 gross tonnage and upwards but below 500 gross tonnage.

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<sup>1</sup> Refer to the *Interim safety measures for ships not certified under the SOLAS Convention operating in polar waters* (resolution A.1137(31)).

2 Ships subject to paragraph 1.1 constructed before 1 January 2017 shall meet the relevant requirements of the Polar Code by the first intermediate or renewal survey, whichever occurs first, after 1 January 2018.

3 Ships subject to paragraphs 1.2, 1.3 or 1.4 constructed before 1 January 2026 shall meet the relevant requirements of chapters 9-1 and 11-1 in part I-A of the Polar Code by 1 January 2027.

4 In applying part I-A of the Polar Code, consideration should be given to the additional guidance in part I-B of the Polar Code.

5 This chapter shall not apply to ships owned or operated by a Contracting Government and used, for the time being, only in government non-commercial service. However, ships owned or operated by a Contracting Government and used, for the time being, only in government non-commercial service are encouraged to act in a manner consistent, so far as reasonable and practicable, with this chapter.

6 Nothing in this chapter shall prejudice the rights or obligations of States under international law."

### **Regulation 3**

*Requirements for ships to which this chapter applies*

9 Regulation 3 is replaced by the following:

#### **"Regulation 3**

*Requirements for ships certified in accordance with chapter I*

1 Ships subject to regulation 2.1.1 above shall comply with the requirements of the safety-related provision of the introduction and with part I-A of the Polar Code and shall, in addition to the requirements of regulations I/7, I/8, I/9 and I/10, as applicable, be surveyed and certified, as provided for in that Code.

2 Ships subject to regulation 2.1.1 above holding a certificate issued pursuant to the provisions of paragraph 1 shall be subject to the control established in regulations I/19 and XI-1/4. For this purpose, such certificates shall be treated as a certificate issued under regulation I/12 or I/13."

10 The following new regulation is inserted after existing regulation 3:

#### **"Regulation 3-1**

*Requirements for fishing vessels of 24 metres in length overall and above, pleasure yachts of 300 gross tonnage and upwards not engaged in trade and cargo ships of 300 gross tonnage and upwards but below 500 gross tonnage*

1 Ships subject to regulations 2.1.2, 2.1.3 or 2.1.4 on all voyages in the Antarctic area and voyages in Arctic waters beyond the outer limit of the territorial sea of the Contracting Government whose flag the ship is entitled to fly shall comply with the provisions of chapters 9-1 and 11-1 of part I-A of the Polar Code, taking into account the introduction and the safety-related provisions of paragraphs 1.2, 1.4 and 1.5 of chapter 1 of part I-A of the Polar Code.

2 Notwithstanding paragraph 1 above, the Administration shall determine to what extent the provisions of regulations 9-1.3.1 and 9-1.3.2 of chapter 9-1 of part I-A of the Polar Code do not apply to:

- .1 fishing vessels of 24 metres in length overall and above; and
- .2 ships of 300 gross tonnage and upwards but below 500 gross tonnage not engaged in international voyages."

**APPENDIX**  
**CERTIFICATES**

**Record of equipment for passenger ship safety (Form P)**

**2 Details of life-saving appliances**

11 In the table for "Details of life-saving appliances", entries 10 to 10.2 are replaced by the following:

10	Number of immersion suits
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**Form of Safety Equipment Certificate for Cargo Ships**

***Cargo Ship Safety Equipment Certificate***

**Type of ship**

12 The following new entry is added after "Gas carrier":

"Containership"

**Record of equipment for cargo ship safety (Form E)**

**2 Details of life-saving appliances**

13 In the table for "Details of life-saving appliances", entries 9 to 9.2 are replaced by the following:

9	Number of immersion suits
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**3 Details of navigational systems and equipment**

14 In the table for "Details of navigational systems and equipment", the following new entry is added after existing entry 15 (Bridge navigational watch alarm system (BNWAS)):

"16 Electronic inclinometer"

**Form of Safety Certificate for Nuclear Cargo Ships**

***Nuclear Cargo Ship Safety Certificate***

**Type of Ship**

15 The following new entry is added after "Gas carrier":

"Containership"



## Record of equipment for cargo ship safety (Form C)

### 2 Details of life-saving appliances

16 In the table for "Details of life-saving appliances", entries 9 to 9.2 are replaced by the following:

9	Number of immersion suits
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### 5 Details of navigational systems and equipment

17 In the table for "Details of navigational systems and equipment", the following new entry is added after existing entry 15 (Bridge navigational watch alarm system (BNWAS)):

"16 Electronic inclinometer"

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**ANNEX 3**

**RESOLUTION MSC.533(107)  
(adopted on 8 June 2023)**

**AMENDMENTS TO THE PROTOCOL OF 1978 RELATING TO THE  
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea, 1974 ("the Convention") and article II of the Protocol of 1978 relating to the Convention ("the 1978 SOLAS Protocol") concerning the procedure for amending the 1978 SOLAS Protocol,

HAVING CONSIDERED, at its 107th session, amendments to the 1978 SOLAS Protocol proposed and circulated in accordance with article VIII(b)(i) of the Convention and article II of the 1978 SOLAS Protocol,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention and article II of the 1978 SOLAS Protocol, amendments to the appendix to the annex to the 1978 SOLAS Protocol, 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 and article II of the 1978 SOLAS Protocol, that the said amendments shall be deemed to have been accepted on 1 July 2025, unless, prior to that date, more than one third of the Parties to the 1978 SOLAS Protocol or Parties, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified the Secretary-General of their objections to the amendments;

3 INVITES the Parties concerned to note that, in accordance with article VIII(b)(vii)(2) of the Convention and article II of the 1978 SOLAS Protocol, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention and article II of the 1978 SOLAS Protocol, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1978 SOLAS Protocol;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Parties to the 1978 SOLAS Protocol.

ANNEX

**AMENDMENTS TO THE PROTOCOL OF 1978 RELATING TO THE  
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

ANNEX

**MODIFICATIONS AND ADDITIONS TO THE ANNEX TO THE INTERNATIONAL  
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

**APPENDIX**

**FORM OF SAFETY EQUIPMENT CERTIFICATE FOR CARGO SHIPS**

**Type of ship**

- 1 The following new entry is added after "Gas carrier":  
"Containership"

\*\*\*

**ANNEX 4**

**RESOLUTION MSC.534(107)  
(adopted on 8 June 2023)**

**AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO THE  
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea (SOLAS), 1974 ("the Convention") and article VI of the Protocol of 1988 relating to the Convention ("the 1988 SOLAS Protocol") concerning the procedure for amending the 1988 SOLAS Protocol,

HAVING CONSIDERED, at its 107th session, amendments to the 1988 SOLAS Protocol proposed and circulated in accordance with article VIII(b)(i) of the Convention and article VI of the 1988 SOLAS Protocol,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention and article VI of the 1988 SOLAS Protocol, amendments to the appendix to the annex to the 1988 SOLAS Protocol, 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 and article VI of the 1988 SOLAS Protocol, that the said amendments shall be deemed to have been accepted on 1 July 2025, unless, prior to that date, more than one third of the Parties to the 1988 SOLAS Protocol or Parties, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified the Secretary-General of their objections to the amendments;

3 INVITES the Parties concerned to note that, in accordance with article VIII(b)(vii)(2) of the Convention and article VI of the 1988 SOLAS Protocol, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention and article VI of the 1988 SOLAS Protocol, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1988 SOLAS Protocol;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Parties to the 1988 SOLAS Protocol.

ANNEX

**AMENDMENTS TO THE PROTOCOL OF 1988 RELATING TO THE  
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

ANNEX

**MODIFICATIONS AND ADDITIONS TO THE ANNEX TO THE INTERNATIONAL  
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

**APPENDIX**

**FORM OF SAFETY EQUIPMENT CERTIFICATE FOR CARGO SHIPS**

**Type of ship**

- 1 The following new entry is added after "Gas carrier":  
"Containership"

**FORM OF SAFETY CERTIFICATE FOR CARGO SHIPS**

**Type of ship**

- 2 The following new entry is added after "Gas carrier":  
"Containership"

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**ANNEX 5**  
**RESOLUTION MSC.535(107)**  
**(adopted on 8 June 2023)**

**AMENDMENTS TO THE INTERNATIONAL LIFE-SAVING APPLIANCE CODE**  
**(LSA CODE)**

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 MSC.48(66), by which it adopted the International Life-Saving Appliance (LSA) Code ("the LSA Code"), which has become mandatory under chapter III of the International Convention for the Safety of Life at Sea (SOLAS), 1974 ("the Convention"),

RECALLING FURTHER article VIII(b) and regulation III/3.10 of the Convention concerning the procedure for amending the LSA Code,

HAVING CONSIDERED, at its 107th session, amendments to the LSA 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 LSA 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 July 2025 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 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 ALSO INVITES Contracting Government to note that the provisions in the annex are to be applied to totally enclosed lifeboats installed on or after 1 January 2029 where the expression *installed on or after 1 January 2029* means:

- (a) for ships for which the building contract is placed on or after 1 January 2029, or in the absence of the contract, constructed on or after 1 January 2029, any installation date on the ship; or
- (b) for ships other than those ships prescribed in (a) above, a contractual delivery date for the equipment or, in the absence of a contractual delivery date, the actual delivery date of the equipment to the ship on or after 1 January 2029.

5 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;

6 ALSO 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 LIFE-SAVING APPLIANCE CODE  
(LSA CODE)**

**CHAPTER IV  
SURVIVAL CRAFT**

**4.6 Totally enclosed lifeboats**

The following new paragraphs 4.6.6 and 4.6.7 are added after existing paragraph 4.6.5:

**"4.6.6 Ventilation means**

4.6.6.1 A totally enclosed lifeboat shall be provided with means to achieve a ventilation rate of at least 5 m<sup>3</sup>/h per person for the number of persons which the lifeboat is permitted to accommodate and for a period of not less than 24 hours. The ventilation means shall be operable from inside the lifeboat and shall be arranged to ensure that the lifeboat is ventilated without stratification or formation of unventilated pockets.

4.6.6.2 Where the means of ventilation is powered, the source shall not be the radio batteries referred to in paragraph 4.4.6.11; and where dependent on the lifeboat engine, sufficient fuel shall be provided to comply with paragraph 4.4.6.8.

**4.6.7 Openings of the ventilation system and their means of closing**

4.6.7.1 Each opening of the ventilation means required in paragraph 4.6.6 shall be provided with means of closing. The means of closing shall be operable by a person from inside the lifeboat. Means shall be provided to ensure that the openings can be kept closed before, i.e. while in the stowed position, and during the launching of the lifeboat.

4.6.7.2 Inlet and outlet openings of the ventilation means and their external fittings shall be located and designed in order to minimize the ingress of water through the openings, without using the means of closing required in paragraph 4.6.7.1 and taking into consideration the requirements provided in paragraph 4.6.3.2.

4.6.7.3 For a free-fall lifeboat complying with the requirements of section 4.7, the openings and their means of closing shall be designed to withstand the loads and to prevent ingress of water under the anticipated submerged condition of the lifeboat at the time of free-fall launching.

4.6.7.4 For a lifeboat with a self-contained air support system complying with the requirements of section 4.8, the openings and their means of closing shall be designed to maintain the pressure required by section 4.8.

4.6.7.5 For a fire-protected lifeboat complying with the requirements of section 4.9, the openings and their means of closing shall be designed to ensure that the capability of protecting persons in the lifeboat is not impaired, under the conditions specified in paragraph 4.9.1."

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**ANNEX 6**

**RESOLUTION MSC.536(107)  
(adopted on 8 June 2023)**

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY  
FOR HIGH-SPEED CRAFT, 1994 (1994 HSC 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.36(63), by which it adopted the International Code of Safety for High-Speed Craft ("the 1994 HSC Code") which has become mandatory under chapter X of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

NOTING ALSO article VIII(b) and regulation X/1.1 of the Convention concerning the procedure for amending the 1994 HSC Code,

HAVING CONSIDERED, at its 107th session, amendments to the 1994 HSC 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 1994 HSC 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 said amendments shall be deemed to have been accepted on 1 July 2025, 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 the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of 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 ALSO 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 OF SAFETY  
FOR HIGH-SPEED CRAFT, 1994 (1994 HSC CODE)**

**CHAPTER 7  
FIRE SAFETY**

**Part A  
General**

**7.9 Miscellaneous**

1 The following new paragraph 7.9.4 is added after existing paragraph 7.9.3.4, together with the associated footnote:

**"7.9.4 Fire-extinguishing media restrictions**

7.9.4.1 The following restrictions should apply for the use, storage or disposal of perfluorooctane sulfonic acid (PFOS):

- .1 on all craft, use or storage of extinguishing media containing perfluorooctane sulfonic acid (PFOS) should be prohibited no later than the date of the first survey\* on or after 1 January 2026; and
- .2 the substances prohibited by the requirements of 7.9.4.1.1 should be delivered to appropriate shore-based reception facilities when removed from the craft.

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\* Refer to the *Unified interpretation of the term "first survey" referred to in SOLAS regulations (MSC.1/Circ.1290).*"

**ANNEX 1**

**FORM OF SAFETY CERTIFICATE FOR HIGH-SPEED CRAFT**

**Record of Equipment for High-Speed Craft Safety Certificate**

2 In the table for "Details of life-saving appliances", entries 9 to 10.2 are replaced by the following:

9	Number of immersion suits	.....
10	Number of anti-exposure suits	.....

\*\*\*

**ANNEX 7**

**RESOLUTION MSC.537(107)  
(adopted on 8 June 2023)**

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY  
FOR HIGH-SPEED CRAFT, 2000 (2000 HSC 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.97(73), by which it adopted the International Code of Safety for High-Speed Craft, 2000 ("the 2000 HSC Code") which has become mandatory under chapter X of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

NOTING ALSO article VIII(b) and regulation X/1.2 of the Convention concerning the procedure for amending the 2000 HSC Code,

HAVING CONSIDERED, at its 107th session, amendments to the 2000 HSC 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 2000 HSC 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 said amendments shall be deemed to have been accepted on 1 July 2025, 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 the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of 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 ALSO 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 OF SAFETY  
FOR HIGH-SPEED CRAFT, 2000 (2000 HSC CODE)**

**CHAPTER 7  
FIRE SAFETY**

**Part A  
General**

**7.9 Miscellaneous**

1 The following new paragraph 7.9.4 is added after existing paragraph 7.9.3.5, together with the associated footnote:

**"7.9.4 Fire-extinguishing media restrictions**

7.9.4.1 The following restrictions shall apply for the use, storage or disposal of perfluorooctane sulfonic acid (PFOS):

- .1 on craft constructed on or after 1 January 2026, use or storage of extinguishing media containing perfluorooctane sulfonic acid (PFOS) shall be prohibited;
- .2 craft constructed before 1 January 2026 shall comply with the requirements of 7.9.4.1.1 no later than the date of the first survey\* on or after 1 January 2026; and
- .3 the substances prohibited by the requirements of 7.9.4.1.1 or 7.9.4.1.2 shall be delivered to appropriate shore-based reception facilities when removed from the craft.

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\* Refer to the *Unified interpretation of the term "first survey" referred to in SOLAS regulations (MSC.1/Circ.1290).*"

**ANNEX 1**

**FORM OF HIGH-SPEED CRAFT SAFETY CERTIFICATE AND RECORD OF EQUIPMENT**

**Record of Equipment for High-Speed Craft Safety Certificate**

2 In the table for "Details of life-saving appliances", entries 9 to 10.2 are replaced by the following:

9	Number of immersion suits	.....
10	Number of anti-exposure suits	.....

\*\*\*

**ANNEX 14**

**RESOLUTION MSC.544(107)  
(adopted on 8 June 2023)**

**AMENDMENTS TO THE REVISED RECOMMENDATION ON  
TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))**

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 the Assembly, when adopting resolution A.689(17) on *Testing of life-saving appliances*, authorized the Committee to keep the annexed Recommendation on testing of life-saving appliances under review and to adopt, when appropriate, amendments thereto,

RECALLING FURTHER that, since the adoption of resolution A.689(17), the Committee has amended the Recommendation annexed thereto by resolutions MSC.54(66) and MSC.81(70), and by circulars MSC/Circ.596, MSC/Circ.615 and MSC/Circ.809,

RECOGNIZING the need to ensure that the references in the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)) are kept up to date,

- 1 ADOPTS the Amendments to the Revised recommendation on testing of life-saving appliances (resolution MSC.81(70)), set out in the annex to the present resolution;
- 2 RECOMMENDS Governments to ensure that life-saving appliances installed on or after 1 January 2029 conform to the amended prototype tests in sections 6 (Lifeboats) and 7 (Rescue boats and fast rescue boats), as set out in the annex to the present resolution;
- 3 INVITES Contracting Governments to the SOLAS Convention to bring the above amendments to the attention of all parties concerned.

ANNEX

**AMENDMENTS TO THE REVISED RECOMMENDATION ON  
TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))**

**PART 1 – PROTOTYPE TESTS FOR LIFE-SAVING APPLIANCES**

**2 LIFEJACKETS**

**2.4 Tests of components other than buoyancy materials**

1 The footnote to paragraph 2.4 is replaced by the following:

"\* Refer to the recommendations of the International Organization for Standardization, in particular publication ISO 12402-7:2020 Personal flotation devices. Part 7: Materials and components. Safety requirements and test methods."

**2.6 Tests for lifejacket buoyancy material**

***Tensile strength test***

2 The footnote to paragraph 2.6.8 is replaced by the following:

" \* Refer to the recommendations of the International Organization for Standardization, in particular publication ISO 12402-7:2020, Personal flotation devices. Part 7: Materials and components. Safety requirements and test methods."

**3 IMMERSION SUITS**

**3.2 Thermal protective tests**

**General**

3 Paragraph 3.2.3 is replaced by the following:

"3.2.3 Where human subjects are used, the tests should always be conducted under the supervision of a physician. Emergency resuscitation equipment should be available during all tests. For safety reasons, ECG should be monitored during every test. Testing should be stopped at the wish of the test subjects, if the falling rate of the core temperature is more than 1.5°C per hour after the first half hour, if the skin temperature of the hand, foot or lumbar region should fall below 10°C for more than 15 minutes, or if the attending physician considers it advisable."

## **6 LIFEBOATS**

### **6.10 Lifeboat operational test**

#### ***Operation of engine and fuel consumption test***

4 Paragraph 6.10.1 is replaced by the following:

"6.10.1 The lifeboat should be loaded with weights equal to the mass of its equipment and the number of persons for which the lifeboat is to be approved. The engine should be started and the lifeboat manoeuvred for a period of at least four hours to demonstrate satisfactory operation. The lifeboat should be run at a speed of not less than 6 knots and, with the powered means of ventilation in operation if fitted, for a period which is sufficient to ascertain the fuel consumption and to establish that the fuel tank has the required capacity. The maximum towing force of the lifeboat should be determined. This information should be used to determine the largest fully loaded liferaft the lifeboat can tow at 2 knots. The fitting designated for towing other craft should be secured to a stationary object by a tow rope. The engine should be operated ahead at full speed for a period of at least two minutes, and the towing force measured and recorded. There should be no damage to the towing fitting or its supporting structure. The maximum towing force of the lifeboat should be recorded on the type approval certificate."

### **6.14 Additional tests for totally enclosed lifeboats**

5 Paragraph 6.14.1 is replaced by the following:

"6.14.1 A suitable means should be provided to rotate the lifeboat about a longitudinal axis to any angle of heel and then release it. The lifeboat, in the enclosed condition, should be incrementally rotated to angles of heel up to and including 180° and should be released. After release, the lifeboat should always return to the upright position without the assistance of the occupants. The ventilation system of either powered or passive type while in operation should not compromise the ability of the lifeboat to self-right under any circumstance. These tests should be conducted in the following conditions of load:"

6 The following new paragraph 6.14.9 is added after existing paragraph 6.14.8:

#### ***Ventilation performance test***

6.14.9 The ventilation rate required by paragraph 4.6.6.1 of the LSA Code should be measured under moored conditions. The test should be carried out with only the persons necessary on board to perform the test. All entrances and hatches should be kept closed. Ventilation openings should stay open. The measured ventilation rate should not be less than 5 m<sup>3</sup>/hour per person for the total number of persons which the lifeboat is permitted to accommodate."

## **7 RESCUE BOATS AND FAST RESCUE BOATS**

### **7.4 Rigid fast rescue boats**

7 Paragraph 7.4.1 is replaced by the following:

"7.4.1 Rigid fast rescue boats should be subjected to the tests prescribed in 6.2 to 6.12 (except 6.3, 6.4.2, 6.5, 6.6.2, 6.7.1, 6.9.6, 6.9.7, 6.10.1), 6.14.1 to 6.14.8 (if a rigid fast rescue boat is self-righting), 7.1.2 to 7.1.4, 7.1.6, 7.1.7 (if a rigid fast rescue boat is not self-righting), 7.1.8, 7.1.9 and 7.2.4.2. In the case of open fast rescue boats, the self-righting test should only be done in the light condition, and 6.14.1.1, 6.14.3, 6.14.4, 6.14.5 and 6.14.9 are not applicable. With regard to 6.14.2, a boat fitted with a helmsman's emergency release switch should be considered to be arranged to stop automatically when inverted."

### **7.5 Inflated fast rescue boats**

8 Paragraph 7.5 is replaced by the following:

"Inflated fast rescue boats should be subjected to the tests prescribed in 6.4.1, 6.6.1, 6.7.2, 6.9.1 to 6.9.5, 6.10 (except 6.10.1), 6.11, 6.12, 6.14.1 to 6.14.8 (if inflated fast rescue boat is self-righting), 7.1.2, 7.1.3, 7.1.6 (if inflated fast rescue boat is equipped with outboard motor), 7.1.7 (if inflated fast rescue boat is not self-righting), 7.1.8, 7.2.2 to 7.2.16 and 7.4.2."

### **7.6 Rigid/inflated fast rescue boats**

9 Paragraph 7.6 is replaced by the following:

"Rigid/inflated fast rescue boats should be subjected to the tests prescribed in 6.2 (for hull), 7.2.14 (for inflated part), 6.4.1, 6.6.1, 6.7.2, 6.9.1 to 6.9.5, 6.10 (except 6.10.1) to 6.12, 6.14.1 to 6.14.8 (if rigid/inflated fast rescue boat it self-righting), 7.1.2 to 7.1.4, 7.1.6 (if rigid/inflated rescue boat is equipped with outboard motor), 7.1.7 (if rigid/inflated fast rescue boat is not self-righting), 7.1.8, 7.2.2 to 7.2.11, 7.2.15, 7.2.16, 7.3.2 and 7.4.2."

## **APPENDIX 1**

### **ADULT REFERENCE TEST DEVICE (RTD) DESIGN AND CONSTRUCTION**

10 Paragraph 2 is replaced by the following:

#### **"2 MATERIALS**

All materials used should comply with ISO 12402-7:2020."

## **APPENDIX 2**

### **CHILD REFERENCE TEST DEVICE (RTD) DESIGN AND CONSTRUCTION**

11 Paragraph 2 is replaced by the following:

**"2 MATERIALS**

All materials used should comply with ISO 12402-7:2020."

## **APPENDIX 3**

### **INFANT REFERENCE TEST DEVICE (RTD) DESIGN AND CONSTRUCTION**

12 Paragraph 2 is replaced by the following:

**"2 MATERIALS**

All materials used should comply with ISO 12402-7:2020."

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**ANNEX 26**

**RESOLUTION MSC.188(79)/Rev.2  
(adopted on 8 June 2023)**

**REVISED PERFORMANCE STANDARDS FOR WATER LEVEL DETECTORS  
ON SHIPS SUBJECT TO SOLAS REGULATIONS II-1/25, II-1/25-1 AND XII/12**

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 MSC.134(76), by which it, at its seventy-sixth session, adopted amendments to chapter XII of the International Convention for the Safety of Life at Sea (SOLAS), 1974, inter alia introducing new regulation 12 requiring the installation of water level detectors for hold, ballast and dry spaces,

RECALLING FURTHER resolution MSC.194(80), by which it, at its eightieth session, adopted amendments to chapter II-1 of the 1974 SOLAS Convention, introducing new regulation 23-3 requiring the installation of water level detectors on single hold cargo ships other than bulk carriers,

RECALLING resolution MSC.482(103), by which it, at its 103rd session, adopted amendments to chapter II-1 of the 1974 SOLAS Convention, introducing new regulation 25-1 requiring the installation of water level detectors on multiple hold cargo ships other than bulk carriers and tankers, which is expected to enter into force on 1 January 2024,

RECOGNIZING that performance standards against which the operation and efficiency of water level detectors can be measured should be made available in good time before the above entry-into-force date,

RECOGNIZING ALSO the need to ensure that the required water level detectors operate reliably and that, to that extent, they are appropriately tested and installed,

HAVING CONSIDERED, at its 105th session, the recommendations made by the Sub-Committee on Ship Design and Construction, at its eighth session,

HAVING ALSO CONSIDERED, at its 107th session, the recommendations made by the Sub-Committee on Ship Design and Construction, at its ninth session,

1 ADOPTS the Revised performance standards for water level detectors on ships subject to SOLAS regulations II-1/25, II-1/25-1 and XII/12 and the appended *Guidelines on installation and testing of water level detection systems for ships subject to SOLAS regulations II-1/25, II-1/25-1 and XII/12*, as set out in the annex to the present resolution;

2 URGES Governments to ensure that the annexed Revised performance standards and appended Guidelines are applied when water level detectors are installed on ships flying their flags, in compliance with SOLAS regulations II-1/25, II-1/25-1 and XII/12, as appropriate;

3 RECOMMENDS Governments to ensure that water level detectors:

.1 conform to performance standards not inferior to those specified in the annex to the present resolution if the detectors are installed on:

- (a) new ships for which the building contract is placed on or after 1 January 2024, or in the absence of the contract, the keel of which is laid or which are at a similar stage of construction on or after 1 January 2024; or
  - (b) ships other than those ships prescribed in (a), with a contractual delivery date for the equipment to the ship on or after 1 January 2024, or in the absence of a contractual delivery date to the ship, actually delivered to the ship on or after 1 January 2024; or
- .2 conform to performance standards not inferior to those specified in the annex to resolution MSC.188(79) if the detectors are installed on ships other than those prescribed in .1 above.
- 4 DETERMINES that the present resolution revokes resolution MSC.188(79)/Rev.1.

## ANNEX

### PERFORMANCE STANDARDS FOR WATER LEVEL DETECTORS ON SHIPS SUBJECT TO SOLAS REGULATIONS II-1/25, II-1/25-1 AND XII/12

#### 1 PURPOSE

1.1 These standards provide technical functional requirements for water level detection and alarm arrangements installed in:

- .1 bulk carriers for compliance with SOLAS regulation XII/12;
- .2 single hold cargo ships other than bulk carriers for compliance with SOLAS regulation II-1/25; and
- .3 multiple hold cargo ships other than bulk carriers and tankers for compliance with SOLAS regulation II-1/25-1.

1.2 They also provide technical functional requirements for bilge alarms used as water level detectors in multiple hold cargo ships for compliance with SOLAS regulation II-1/25-1.

#### 2 DEFINITIONS

2.1 *Water level detector* means a system comprising sensors and alarms that detect and warn of water ingress in cargo holds and other spaces as required in SOLAS regulations II-1/25, II-1/25-1 or XII/12.1.

2.2 *Sensor* means a unit fitted at the location being monitored that activates a signal to identify the presence of water at the location.

2.3 *Pre-alarm level* means the lower level at which the sensor(s) in the cargo hold space will operate.

2.4 *Main alarm level* means the higher level at which the sensor(s) in the cargo hold space will operate or the sole level in spaces other than cargo holds.

2.5 *Visual indication* means indication by activation of a light or other device that is visible to the human eye in all levels of light or dark at the location where it is situated.

2.6 *Audible indication* means an audible signal that is detectable at the location where it is signalled.

#### 3 FUNCTIONAL REQUIREMENTS

##### 3.1 Means of detecting the water level

3.1.1 The method of detecting the water level may be by direct or indirect means as defined below:

- .1 A direct means of detection determines the presence of water by physical contact of the water with the detection device.
- .2 Indirect means of detection include devices without physical contact with the water.

3.1.2 The sensors should be capable of being located in the aft part of the hold or above its lowest point in such ships having an inner bottom not parallel to the designed waterline, or, in the case of bulk carriers complying with SOLAS regulation XII/12, in the aft part of each cargo hold or in the lowest part of the spaces other than cargo holds to which that regulation applies.

3.1.3 The systems of detecting the water level should be capable of continuous operation while the ship is at sea.

### **3.2 Detector system requirements**

3.2.1 Detector systems should provide a reliable indication of water reaching a preset level.

3.2.2 The system should be capable of the following:

For cargo holds:

- .1 An alarm, both visual and audible, activated when the depth of water reaches the pre-alarm level in the space being monitored. The indication should identify the space.
- .2 An alarm, both visual and audible, activated when the depth of water reaches the main alarm level, indicating increasing water level in a cargo hold. The indication should identify the space and the visual and audible alarm should not be the same as that for the pre-alarm level.

For compartments other than cargo holds:

- .3 An alarm, both visual and audible, indicating the presence of water in a compartment other than a cargo hold when the level of water in the space being monitored reaches the sensor. The visual and audible characteristics of the alarm indication should be the same as those for the main alarm level in a hold space.

3.2.3 Detection equipment should be suitably corrosion resistant for all intended cargoes.

3.2.4 The detector indicating the water level should be capable of activating to an accuracy of  $\pm 100$  mm.

3.2.5 Detection equipment should be of certified safe type appropriate for the intended cargoes. The part of the system which has circuitry in the cargo area should be intrinsically safe or explosion proof with appropriate apparatus group and temperature class which is to be determined depending on the cargo carried.

### **3.3 Alarm system requirements**

3.3.1 The visual and audible alarms should be suitable for location on the navigation bridge.\*

3.3.2 Visual and audible alarms should conform to the Code on Alerts and Indicators, 2009, as may be amended, as applicable to a primary alarm for the preservation or safety of the ship.

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\* Reference is made to the requirements of SOLAS regulations V/17 and V/18.

3.3.3 The visual and audible alarms should be capable of the following:

- .1 Visual indication using a light of a distinct colour, or digital display that is clearly visible in all expected light levels, which does not seriously interfere with other activities necessary for the safe operation of the ship. The visual indication should be capable of remaining visible until the condition activating it has returned below the level of the relevant sensor. The visual indication should not be capable of being extinguished by the operator.
- .2 In conjunction with the visual indication for the same sensor, the system should be capable of providing audible indication and alarms in the space in which the indicator is situated. The audible indication should be capable of being muted by the operator.

3.3.4 Time delays may be incorporated into the alarm system to prevent spurious alarms due to sloshing effects associated with ship motions.

3.3.5 An alarm overriding device may be installed for water level detectors in cargo holds or tanks which can be used for water ballast (SOLAS regulations II-1/25-1 and XII/12.1). An override visual indication capability should be provided throughout deactivation of the water level detector for such holds or tanks. Where such an override capability is provided, cancellation of the override condition and reactivation of the alarm should automatically occur after the hold or tank has been de-ballasted to a level below the lowest alarm indicator level.

3.3.6 Requirements for malfunctions, alarms and indications should include a facility for continuous monitoring of the system which, on detecting a fault, activates a visual and audible alarm. The audible alarm should be capable of being muted, but the visual indication should remain active until the malfunction is cleared.

3.3.7 The water level detector system should be capable of being supplied with electrical power from two independent electrical supplies. Failure of any of the two electrical power supplies should be indicated by an alarm.

### **3.4 Testing**

3.4.1 Water level detector systems should be type tested to demonstrate their robustness and suitability under the appropriate internationally recognized conditions and for their continued functioning under the expected service temperature.\*

3.4.2 Detectors serving a cargo hold should be capable of being functionally tested, in situ, when the hold is empty using either direct or indirect methods.

### **3.5 Manuals**

Documented operating and maintenance procedures for the water level detection system should be kept on board and be readily accessible.

## **4 INSTALLATION AND TESTING**

Guidelines on installation and testing of water level detection systems for ships subject to SOLAS regulations II-1/25, II-1/25-1 and XII/12 are set out in the appendix.

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\* With regard to testing, reference is made to IEC 60092-504 and IEC 60529. Electrical components installed in cargo holds, ballast tanks and dry spaces should satisfy the requirements of IP68 in accordance with IEC 60529.

## **5 BILGE ALARMS USED AS WATER LEVEL DETECTORS**

5.1 Bilge alarms may be used as water level detectors provided that they meet the functional requirements and installation and testing requirements set out in sections 3 and 4.

5.2 Some cargoes require the bilge pumping system to be protected to prevent the spread of contaminated or potentially dangerous fluids.

5.3 Where the cargo hold bilge well will be completely sealed when specific cargoes are carried, and the bilge well therefore cannot be used for the entry of ingress water to the detector(s), a suitable alternative detection point or points are to be provided.

5.4 If the bilge well is used for when specific cargoes are carried, the bilge well is not to be completely sealed in order to allow water ingress for activating the detectors.

## **6 PERIODIC TESTING**

Water level detectors should be periodically tested on board to the same extent as specified in section 3.3 of the appendix and records of the periodic testing should be retained on board.

## APPENDIX

### **GUIDELINES ON INSTALLATION AND TESTING OF WATER LEVEL DETECTION SYSTEMS ON SHIPS SUBJECT TO SOLAS REGULATIONS II-1/25, II-1/25-1 AND XII/12**

#### **1 PURPOSE**

1.1 These Guidelines provide procedures for installation and testing of water level detection and alarm systems installed in:

- .1 bulk carriers for compliance with SOLAS regulation XII/12;
- .2 single hold cargo ships other than bulk carriers for compliance with SOLAS regulation II-1/25; and
- .3 multiple hold cargo ships other than bulk carriers and tankers for compliance with SOLAS regulation II-1/25-1.

1.2 They also provide procedures for installation and testing of bilge alarms used as water level detectors in multiple hold cargo ships other than bulk carriers and tankers for compliance with SOLAS regulation II-1/25-1.

#### **2 EQUIPMENT**

##### **2.1 Detector equipment type test requirements**

2.1.1 Detector equipment should provide a reliable indication of water reaching a preset level and should be type tested to demonstrate their robustness and suitability under the appropriate conditions of IEC 60092-504 and the following:

- .1 Protection of the enclosures of electrical components installed in the cargo holds, ballast tanks and dry spaces should satisfy the requirements of IP68 in accordance with IEC 60529. The water pressure testing of the enclosure should be based on a pressure head held for a period depending on the application. For detectors to be fitted in holds intended for the carriage of water ballast or ballast tanks the application head should be the hold or tank depth and the hold period should be 20 days. For detectors to be fitted in spaces intended to be dry the application head should be the depth of the space and the hold period should be 24 h.
- .2 Operation in cargo/water mixture for a selected range of cargo groups such as iron ore dust, coal dust, grains and oils using seawater with a suspension of representative fine material for each cargo group. For type test purposes an agitated suspension of representative fine materials in seawater, with a concentration of 50% by weight, should be used with the complete detector assembly including any filtration fitted. The functioning of the detection assembly with any filtration arrangements should be verified in the cargo/water mixture with immersion repeated 10 times without cleaning any filtration arrangements.

2.1.2 Protection of the enclosures of electrical equipment located on the deck above ballast and cargo spaces should satisfy the requirements of IP56 in accordance with IEC 60529.

2.1.3 Equipment which is to be used in refrigerated cargo spaces should satisfy the requirements of a suitable industry standard covering the relevant service temperatures.

## **2.2 Detector equipment installation requirements**

2.2.1 The sensors should be located in a protected position that is in communication with the specified part of the cargo hold (usually the aft part) such that the position of the sensor detects the level that is representative of the levels in the actual hold space. These sensors should be located:

- .1 either as close to the centreline as practicable, or
- .2 at both the port and starboard sides of the cargo hold.

2.2.2 The sensors should be located at the height specified in the regulations. These heights are to be measured from the upper surface of the inner bottom.

2.2.2.1 For bilge level sensors in SOLAS regulation II-1/25-1.3, if the bottom of the bilge well is below the upper surface of the inner bottom, the heights of those sensors are to be measured from the bottom of the bilge well.

2.2.3 When a lining or insulation is fitted, if the lining or insulation is not constructed to a watertight standard, then the height is to be measured from the upper surface of the inner bottom. If the lining or insulation is tested as watertight, then the heights may be measured from the upper surface of the lining/insulation.

2.2.4 The detector installation should not inhibit the use of any sounding pipe or other water level gauging device for cargo holds or other spaces.

2.2.5 Detectors and equipment should be installed where they are accessible for survey, maintenance and repair.

2.2.6 Any filter element fitted to detectors should be capable of being cleaned before loading.

2.2.7 Sensors, electrical cables and any associated equipment installed in cargo holds should be protected from damage by cargoes or mechanical handling equipment associated with bulk carrier operations, such as in tubes of robust construction or in similar protected locations.

2.2.8 Any changes/modifications to the ship's structure, electrical systems or piping systems that involves cutting and/or welding should be approved by the classification society before work is carried out.

## **3 SYSTEMS**

### **3.1 Alarm system requirements**

3.1.1 Alarm systems should be type tested in accordance with IEC 60092-504, as appropriate.

3.1.2 A switch for testing audible and visual alarms should be provided at the alarm panel and the switch should return to the off position when not operated.



### **3.2 Alarm system testing requirements**

The visual and audible alarms should be tested to demonstrate the following:

- .1 the visual indication may not be extinguished by the operator;
- .2 they should be set at a level that alerts operators but does not interfere with the safe operation of the ship; and
- .3 they should be distinguishable from other alarms.

### **3.3 System test requirements**

3.3.1 After installation, a functionality test should be carried out. The test should represent the presence of water at the detectors for every level monitored. Simulation methods may be used where the direct use of water is impracticable.

3.3.2 Each detector alarm should be tested to verify that the pre-alarm and main alarm levels operate for every space where they are installed and indicate correctly. Also, the fault monitoring arrangements should be tested as far as practicable.

3.3.3 Records of testing of alarm systems should be retained on board.

## **4 MANUALS**

4.1 Manuals should be provided on board and should contain the following information and operational instructions:

- .1 a description of the equipment for detection and alarm arrangements together with a listing of procedures for checking that, as far as practicable, each item of equipment is working properly during any stage of ship operation;
- .2 evidence that the equipment has been type tested to the requirements of 2.1 above;
- .3 line diagrams of the detection and alarm system showing the positions of equipment;
- .4 installation instructions for orientation, setting, securing, protecting and testing;
- .5 list of cargo groups for which the detector is suitable for operating in a 50% seawater slurry mixture (see 2.1.1.2);
- .6 temperature range for which the equipment is suitable;
- .7 procedures to be followed in the event of equipment not functioning correctly; and
- .8 maintenance requirements for equipment and system.

4.2 Manuals for bilge alarm systems used as water level detection systems are to contain the following information in addition to that in 4.1 (see paragraph 5.3 of these performance standards):

- .1 procedure for switching to the alternative arrangements provided for occasions when the bilge alarm system cannot be used as a water level detection system; and
- .2 list of cargoes for which alternative provisions are to be used.

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**ANNEX 17**

**DRAFT AMENDMENTS TO SOLAS REGULATION II-2/4  
RELATED TO OIL FUEL PARAMETERS OTHER THAN FLASHPOINT**

**CHAPTER II-2  
CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION**

**Part B  
Prevention of fire and explosion**

**Regulation 4 - *Probability of ignition***

- 1 At the end of paragraph 2.1.8, the word "and" is deleted and at the end of paragraph 2.1.8, "." is replaced by ";".
- 2 The following new sub-paragraph is added after existing paragraph 2.1.8:
  - ".9 Oil fuel delivered to and used on board ships shall not jeopardize the safety of ships or adversely affect the performance of the machinery or be harmful to personnel."

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## ANNEX 18<sup>1</sup>

### DRAFT AMENDMENTS TO THE IGF CODE

- 1 The following new paragraph 2.2.43 is added after existing paragraph 2.2.42:  
"2.2.43 *Ship constructed on or after 1 January 2026* means:
  - .1 for which the building contract is placed on or after 1 January 2026; or
  - .2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2026; or
  - .3 the delivery of which is on or after 1 January 2030."
- 2 The existing paragraph 4.2.2 is amended as follows:  
"4.2.2 For ships to which part A-1 applies, the risk assessment required by 4.2.1 need only be conducted where explicitly required by paragraphs 5.10.5, 5.12.3, 6.4.1.1, 6.4.15.4.7.2, 8.3.1.1, 8.4.2, 13.4.1, 13.7 and 15.8.1.10 as well as by paragraphs 4.4 and 6.8 of the annex."
- 3 The existing paragraph 5.3.3.3 is amended as follows:  
"5.3.3.3 For independent tanks the protective distance shall be measured to the tank shell (the primary barrier of the fuel tank containment system). For membrane tanks the distance shall be measured to the bulkheads surrounding the tank insulation."
- 4 The existing paragraph 5.3.4.4 is amended as follows:  
"5.3.4.4 For independent tanks the protective distance shall be measured to the tank shell (the primary barrier of the fuel tank containment system). For membrane tanks the distance shall be measured to the bulkheads surrounding the tank insulation."
- 5 The existing paragraph 5.12.1 is amended as follows:  
"5.12.1 For ships constructed on or after 1 January 2026, An air lock is a space enclosed by gastight bulkheads with two substantially gastight doors spaced at least 1.5 m and not more than 2.5 m apart. Unless subject to the requirements of the International Convention on Load Line, the door sill height of the door leading to the hazardous area shall not be less than 300 mm in height. The doors shall be self-closing without any holding back arrangements."
- 6 The existing paragraph 6.4.15.3.1.2 is amended as follows:  
"6.4.15.3.1.2 The design vapour pressure shall not be less than:  
$$P_0 = 0.2 + AC(\rho_r)^{1.5} \text{ (MPa)}$$

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<sup>1</sup> Tracked changes are created using "strikeout" for deleted text and "grey shading" to highlight all modifications and new insertions, including deleted text, based on resolution MSC.391(95).

where:

$$A = 0.00185 (\sigma_m / \Delta\sigma_A)^2$$

with:

$\sigma_m$  = design primary membrane stress;

$\Delta\sigma_A$  = allowable dynamic membrane stress (double amplitude at probability level  $Q = 10^{-8}$ ) and equal to:

- 55 N/mm<sup>2</sup> for ferritic-perlitic, martensitic and austenitic steel;
- 25 N/mm<sup>2</sup> for aluminium alloy (5083-O);

$C$  = a characteristic tank dimension to be taken as the greatest of the following:

$$h, 0.75b \text{ or } 0.45\ell,$$

with:

$h$  = height of tank (dimension in ship's vertical direction) (m);

$b$  = width of tank (dimension in ship's transverse direction) (m);

$\ell$  = length of tank (dimension in ship's longitudinal direction) (m);

$\rho_r$  = the relative density of the fuel ~~charge~~ ( $\rho_r = 1$  for fresh water) at the design temperature."

7 The existing paragraph 6.7.3.1.1 is amended as follows:

"6.7.3.1.1 ~~PRVs shall have a combined relieving capacity for each liquefied gas fuel tank to discharge the greater of the following, with not more than a 20% rise in liquefied gas fuel tank pressure above the MARVS.~~ For ships constructed on or after 1 January 2026, the pressure relief system for each liquefied gas fuel tank shall be designed so that, regardless of the state of any one PRV, the capacity of the residual PRVs meets the combined relieving capacity requirements of the system. The combined relieving capacity shall be the greater of the following, with no more than 20% rise in liquefied gas fuel tank pressure above the MARVS. The tank shall not be loaded until the full relieving capacity is restored."

8 The existing paragraph 6.7.3.1.1.2 is amended as follows:

"6.7.3.1.1.2 Vapours generated under fire exposure computed using the following formula:

$$Q = FGA^{0.82} \text{ (m}^3\text{/s)}$$

where:

$Q$  = minimum required rate of discharge of air at standard conditions of 273.15 Kelvin (K) and 0.1013 MPa.

$F$  = fire exposure factor for different liquefied gas fuel tank types:

$F = 1.0$  for tanks without insulation located on deck; (...)"

9 The existing paragraph 6.9.1.1 is amended as follows:

"6.9.1.1 For ships constructed on or after 1 January 2026, ~~W~~with the exception of liquefied gas fuel tanks designed to withstand the full gauge vapour pressure of the fuel under conditions of the upper ambient design temperature, liquefied gas fuel tanks' pressure and temperature shall be maintained at all times within their design range by means acceptable to the Administration, e.g. by one or more of the following methods: "

10 The existing paragraph 7.3.2.1 is amended as follows:

"7.3.2.1 For ships constructed on or after 1 January 2026, ~~T~~the minimum wall thickness shall be calculated as follows:

$$t = (t_0 + b + c) / (1 - |a|/100) \text{ (mm)}$$

where:

$t_0$  = theoretical thickness

$t_0 = PD / (2.0Ke + P)$  (mm)

with:

$P$  = design pressure (MPa) referred to in 7.3.3;

$D$  = outside diameter (mm);

$K$  = allowable stress (N/mm<sup>2</sup>) referred to in 7.3.4; and

$e$  = efficiency factor equal to 1.0 for seamless pipes and for longitudinally or spirally welded pipes, delivered by approved manufacturers of welded pipes, that are considered equivalent to seamless pipes when non-destructive testing on welds is carried out in accordance with recognized standards. In other cases an efficiency factor of less than 1.0, in accordance with recognized standards, may be required depending on the manufacturing process;

$b$  = allowance for bending (mm). The value of  $b$  shall be chosen so that the calculated stress in the bend, due to internal pressure only, does not exceed the allowable stress. Where such justification is not given,  $b$  shall be:

$$b = D \cdot t_0 / 2.5r \text{ (mm)}$$

with:

$r$  = mean radius of the bend (mm);

$c$  = corrosion allowance (mm). If corrosion or erosion is expected the wall thickness of the piping shall be increased over that required by other design regulations. This allowance shall be consistent with the expected life of the piping; and

$a$  = negative manufacturing tolerance for thickness (%) i.e. where  $a$  is the manufacturing tolerance of -5%, i.e.  $|a|$  is equal to 5 and shall be entered into the formula as  $1 - (5/100)$ ."

11 The existing paragraph 8.4.1 is amended as follows:

"8.4.1 The bunkering manifold shall be designed to withstand the external loads during bunkering. The connections at the bunkering station shall be arranged in order to achieve a dry-disconnect operation in one of the followings ways: ~~of dry-disconnect type equipped with additional safety dry break-away coupling/ self-sealing quick release. The couplings shall be of a standard type.~~

.1 a Dry-Disconnect/Connect Coupling in accordance with a standard at least equivalent to those acceptable to the Organization;<sup>1</sup> or

.2 a manual connect coupler or hydraulic connect coupler, used to connect the bunker system to the receiving vessel bunkering manifold presentation flange;<sup>2</sup> or

.3 a bolted flange to flange assembly<sup>2</sup>

12 In paragraph 8.4, the following new sub-paragraphs are added:

"8.4.2 When intended to use either of the connections specified in paragraphs 8.4.1.2 and 8.4.1.3, these shall be combined with operating procedures that ensure a dry-disconnect is achieved. The arrangement shall be subject to special consideration informed by a bunkering arrangement risk assessment<sup>2</sup> conducted at the design stage and considering dynamic loads at the bunkering manifold connection to a recognized standard acceptable to the Administration, the safe operation of the ship and other hazards that may be relevant to the ship during bunkering operation. The fuel handling manual required by 18.2.3 shall include documentation that the bunkering arrangement risk assessment was conducted, and that special consideration was granted under this requirement."

"8.4.3 An Emergency Release Coupler (ERC)/Emergency Release System (ERS) or equivalent means shall be provided, unless installed on the bunkering supply side of the bunkering line, and said means shall be in accordance with a standard equivalent to those acceptable to the Organization;<sup>2</sup> it shall enable a quick physical disconnection "dry break-away" of the bunker system in an emergency event."

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1 Refer to the recommendations by the International Organization for Standardization, in particular publication: ISO 21593:2019, Ships and marine technology — Technical requirements for dry-disconnect/connect couplings for bunkering liquefied natural gas.

2 Refer to the recommendations by the International Organization for Standardization, in particular publication: ISO 20519:2017/2021 - Ships and Marine Technology - Specification for Bunkering of Liquefied Natural Gas Fuelled Vessels.

13 The existing paragraph 9.3.1 is amended as follows:

"9.3.1 For ships constructed on or after 1 January 2026, For single fuel installations the fuel supply system shall be arranged with full redundancy and segregation all the way from the fuel tanks to the consumer, so that a leakage in one system, or failure of one of the fuel supply essential auxiliaries, does not lead to an unacceptable loss of power. In the event of a leakage or failure, and in accordance with SOLAS regulation II-1/26.3, the Administration, having regard to overall safety considerations, may accept a partial reduction in propulsion capability from normal operation."

14 The existing paragraph 9.4.7 is amended as follows:

"9.4.7 For ships constructed on or after 1 January 2026, In cases where the master gas fuel valve is automatically shut down when the safety system as required in 15.2.2 is activated, the complete gas supply branch downstream of the double block and bleed valve shall be automatically ventilated assuming reverse flow from the engine to the pipe. pipe between this master gas fuel valve and the double block and bleed valves and between the double block and bleed valves and the consumer shall be automatically vented."

15 The existing paragraph 9.4.8 is amended as follows:

"9.4.8 For ships constructed on or after 1 January 2026, There shall be one manually operated shutdown valve in the gas supply line to each engine gas consumer upstream of the double block and bleed valves to assure safe isolation during maintenance on the engine gas consumer."

16 The existing paragraph 9.6 is amended as follows:

"9.6 Gas fuel piping in gas-safe machinery spaces shall be completely enclosed by a double pipe or duct fulfilling one of the following conditions:

.1 the gas fuel piping shall be a double wall piping system with the gas fuel contained in the inner pipe. The space between the concentric pipes shall be pressurized with inert gas at a pressure greater than the gas fuel pressure. Suitable alarms shall be provided to indicate a loss of inert gas pressure between the pipes. When the inner pipe contains high pressure gas, the system shall be so arranged that the pipe between the master gas valve and the engine is automatically purged with inert gas when the master gas valve is closed; or"

17 The existing paragraph 9.8.1 is amended as follows:

"9.8.1 For ships constructed on or after 1 January 2026, The design pressure of the outer pipe or duct of fuel systems shall not be less than the maximum working pressure of the inner pipe. Alternatively for fuel piping systems with a working pressure greater than 1.0 MPa, the design pressure of the outer pipe or duct may be calculated in accordance with 9.8.2. shall not be less than the maximum built-up pressure arising in the annular space considering the local instantaneous peak pressure in way of any rupture and the ventilation arrangements."



18 The existing paragraph 9.8.2 is amended as follows:

"9.8.2 ~~For high-pressure fuel piping~~ For ships constructed on or after 1 January 2026, alternatively to 9.8.1, the design pressure of the ducting shall be taken as the higher of the following:(...)"

19 The existing paragraph 9.8.4 is amended as follows:

"9.8.4 ~~For low pressure fuel piping the duct shall be dimensioned for a design pressure not less than the maximum working pressure of the fuel pipes.~~ For ships constructed on or after 1 January 2026, ~~the duct shall be pressure tested to show that it can withstand the expected maximum pressure at fuel pipe rupture.~~"

20 The existing paragraph 11.3.1 is amended as follows:

"11.3.1 For ships constructed on or after 1 January 2026, fuel preparation rooms ~~Any space containing equipment such as pumps, compressors, heat exchangers, vaporizers and pressure vessels shall, for the purpose of the application of SOLAS regulation II-2/9, be regarded as a machinery space of category A for fire protection purposes.~~"

21 The existing paragraph 11.6.2 is amended as follows:

"11.6.2 In addition to any other portable fire extinguishers that may be required elsewhere in IMO instruments, one portable dry powder extinguisher of at least 5 kg capacity shall be located near the bunkering station ~~and in the fuel preparation room.~~"

22 The existing paragraph 12.5.1 is amended as follows:

"12.5.1 Hazardous area zone 0

For ships constructed on or after 1 January 2026, ~~this zone includes, but is not limited to, the interiors of fuel tanks, any pipework for pressure-relief or other venting systems for fuel tanks, pipes and equipment containing fuel, and interbarrier spaces as defined by paragraph 2.2.15.2.~~"

23 The existing paragraph 12.5.2 is amended as follows:

"12.5.2 Hazardous area zone 1

12.5.2.1 ~~for ships constructed on or after 1 January 2026, tank connection spaces, and fuel storage hold spaces;<sup>2</sup>and interbarrier spaces ...~~

<sup>2</sup> Fuel storage hold spaces for type C tanks are normally not considered as zone 1.

24 The existing paragraph 15.4.1.3 is amended as follows:

"15.4.1.3 For ships constructed on or after 1 January 2026, Liquefied gas fuel tank liquid level gauges may be of the following types:

- .1 indirect devices, which determine the amount of fuel by means such as weighing or in-line flow metering; ~~or~~

- .2 closed devices, which do not penetrate the liquefied gas fuel tank, such as devices using radioisotopes or ultrasonic devices; or
- .3 closed devices which penetrate the liquefied gas fuel tank, but which form part of a closed system and keep the gas fuel from being released. Such devices shall be considered as tank connections. If the closed gauging device is not mounted directly onto the tank, it shall be provided with a shutoff valve located as close as possible to the tank."

25 The existing paragraph 16.3.5.1 is amended as follows:

"16.3.5.1 For all fuel tanks and process pressure vessels except membrane tanks, production weld tests shall generally be performed for approximately each 50 m of butt-weld joints and shall be representative of each welding position. For secondary barriers, the same type production tests as required for primary barriers tanks shall be performed, except that the number of tests may be reduced subject to agreement with the Administration. Tests, other than those specified in 16.3.5.2 to 16.3.5.5 may be required for fuel tanks or secondary barriers."

26 The existing paragraph 18.4.1.1 is amended as follows:

"18.4.1.1 Before any bunkering operation commences, the master of the receiving ship or his or her representative and the representative of the bunkering source (Persons In Charge, PIC) shall:

- .1 agree in writing the transfer procedure, including cooling down and if necessary, gassing up; the maximum transfer rate at all stages, minimum and maximum limiting transfer pressure and temperature, bunkering line PRVs settings, and volume to be transferred;"

APPENDIX

**CHECK/MONITORING SHEET FOR THE PROCESS OF AMENDING  
THE CONVENTION AND RELATED MANDATORY INSTRUMENTS  
(PROPOSAL/DEVELOPMENT)**

**Part III** – Process monitoring to be completed during the work process at the Sub-Committee and checked as part of the final approval process by the Committee (refer to paragraph 3.2.1.3)\*\*

1	The Sub-Committee, at an initial engagement, has allocated sufficient time for technical research and discussion before the target completion date, especially on issues needing to be addressed by more than one Sub-Committee and for which the timing of relevant sub-committees meetings and exchanges of the result of consideration needed to be carefully examined.	Yes
2	The scope of application agreed at the proposal stage was not changed without the approval of the Committee.	Yes
3	The technical base document/draft amendment addresses the proposal's issue(s) through the suggested instrument(s); where it does not, the Sub-Committee offers the Committee an alternative method of addressing the problem raised by the proposal.	Yes
4	Due attention is to be paid to the <i>Interim guidelines for the systematic application of the grandfather clause (MSC/Circ.765)</i> .	Yes
5	All references have been examined against the text that will be valid if the proposed amendment enters into force.	Yes
6	The location of the insertion or modified text is correct for the text that will be valid when the proposed text enters into force on a four-year cycle of entry into force, as other relevant amendments adopted might enter into force on the same date.	Yes
7	There are no inconsistencies in respect of scope of application between the technical regulation and the application statement contained in regulation 1 or 2 of the relevant chapter, and application is specifically addressed for existing and/or new ships, as necessary.	Yes
8	Where a new term has been introduced into a regulation and a clear definition is necessary, the definition is given in the article of the Convention or at the beginning of the chapter.	Yes
9	Where any of the terms "fitted", "provided", "installed" or "installation" are used, consideration has been given to clarifying the intended meaning of the term.	Yes
10	All necessary related and consequential amendments to other existing instruments, including non-mandatory instruments, in particular to the forms of certificates and records of equipment required in the instrument being amended, have been examined and included as part of the proposed amendment(s).	Yes

11	The forms of certificates and records of equipment have been harmonized, where appropriate, between the Convention and its Protocols.	n/a
12	It is confirmed that the amendment is being made to a currently valid text and that no other bodies are concurrently proposing changes to the same text.	Yes
13	All entry-into-force criteria (building contract, keel laying and delivery) have been considered and addressed.	Yes
14	Other impacts of the implementation of the proposed/approved amendment have been fully analysed, including consequential amendments to the "application" and "definition" regulations of the chapter.	Yes
15	The amendments presented for adoption clearly indicate changes made with respect to the original text, so as to facilitate their consideration.	Yes
16	For amendments to mandatory instruments, the relationship between the Convention and the related instrument has been observed and addressed, as appropriate.	n/a
17	The related record format has been completed or updated, as appropriate.	n/a

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## ANNEX 19

### DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR THE SAFE CARRIAGE OF GRAIN IN BULK (RESOLUTION MSC.23(59))

#### PART A - Specific requirements

## 2 Definitions

1 Add the following definition at the end of the section:

"2.8 The term "specially suitable compartment, partly filled in way of the hatch opening, with ends untrimmed" refers to a specially suitable compartment which is not filled to the maximum extent possible in way of the hatch opening but is filled to a level equal with or above the bottom edge of the hatch end beams and has not been trimmed outside the periphery of the hatch opening by the provisions of A 10.4."

## 10 Stowage of bulk grain

2 Amend the existing subparagraph 10.3.1 to refer to B 7 instead of B 6.

3 Add a new paragraph following the existing paragraph 10.3:

"10.4 In any "specially suitable compartment, partly filled in way of the hatch opening, with ends untrimmed", the bulk grain shall be filled to a level equal with or above the bottom edge of the hatch end beams but may be at its natural angle of repose outside the periphery of the hatch opening. A compartment may qualify for this classification if it is "specially suitable" as defined in A 2.7, in which case dispensation may be granted from trimming the ends of that compartment."

4 Renumber existing paragraphs 10.4 to 10.9.

5 Amend renumbered paragraph 10.7 (existing 10.6) as follows:

"10.7 After loading, all free grain surfaces in partly filled compartments shall be level unless the compartment is partly filled in accordance with the provisions of A 10.4, in which case the free grain surface in way of the hatch opening only shall be level."

6 Amend the renumbered subparagraph 10.10.3 (existing 10.9.3) to refer to B 6.2 instead of B 5.2.

## 12 Divisions loaded on both sides

7 Amend the existing subparagraph 12.3.3 to refer to A 12.1.2 instead of A 12.1.3.<sup>1</sup>

## 14 Saucers

8 Amend the existing paragraph 14.1 to refer to A 10.10 instead of A 10.9.

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<sup>1</sup> This editorial modification only applies to the authentic text, but not the publication.

## **PART B - Calculation of assumed heeling moments and general assumptions**

### **1 General assumptions**

9 Add new paragraph 1.1.5:

"5 In a "specially suitable compartment, partly filled in way of the hatch opening, with ends untrimmed" which is exempted from trimming under the provisions of A 10.4, it shall be assumed that the surface of the grain after loading will slope in all directions away from the filling area at an angle of 30° from the lower edge of the hatch end beam. However, if feeding holes are provided in the hatch end beams in accordance with table B 1-2 and the free grain surface in way of the hatch opening is above the level of the feeding holes, then the surface of the grain after loading shall be assumed to slope in all directions, at an angle of 30° from a line on the hatch end beam which is the mean of the peaks and valleys of the actual grain surface as shown in figure B-1."

10 Amend paragraph 1.2 to refer to B 6 instead of B 5.

11 Amend paragraph 1.5 as follows:

"1.5 In "partly filled compartments" and "specially suitable compartments, partly filled in way of the hatch opening, with ends untrimmed", the adverse effect of the vertical shift of grain surfaces shall be taken into account as follows:

Total heeling moment = 1.12 x calculated transverse heeling moment."

### **2 Assumed volumetric heeling moment of a filled compartment, trimmed**

12 Amend the existing paragraph 2.6 to refer to A 10.10 instead of A 10.9.

13 Amend the existing paragraph 2.8, Notes on figure B 2-1, (2) to refer to A 10.10 instead of A 10.9.

14 Amend the existing paragraph 2.9, Notes on figure B 2-3, (3) to refer to A 10.10 instead of A 10.9.

### **3 Assumed volumetric heeling moment of a filled compartment, untrimmed**

15 Amend the existing paragraph 3.1 to replace the word "provision" with "provisions".

16 Add new section 4 following the existing section 3 (Assumed Volumetric Heeling Moment of a Filled Compartment, Untrimmed):

**"4 Assumed volumetric heeling moment of a specially suitable compartment, partly filled in way of the hatch opening, with ends untrimmed**

4.1 All the provisions for "filled compartments, trimmed" set forth in B 2 shall also apply to "specially suitable compartments, partly filled in way of the hatch opening, with ends untrimmed" except as noted below.

4.2 In a "specially suitable compartment, partly filled in way of the hatch opening, with ends untrimmed" which is exempted from trimming under the provisions of A 10.4, the resulting grain surface in way of the hatch opening and the resulting grain surface in the ends, forward and aft of the hatchway, after shifting shall be assumed to be at an angle of 25° to the horizontal."

- 17 Renumber existing section 4 (Assumed Volumetric Heeling Moments in Trunks) as 5.
- 18 Amend the renumbered section 5 (Assumed Volumetric Heeling Moments in Trunks) to refer to figure B 5 instead of figure B 4.
- 19 Renumber existing figure B 4 as figure B 5.
- 20 Renumber existing sections 5 (Assumed Volumetric Heeling Moment of a Partly Filled Compartment) and 6 (Other Assumptions) as sections 6 and 7, respectively.

APPENDIX

**CHECK/MONITORING SHEET FOR THE PROCESS OF AMENDING  
THE CONVENTION AND RELATED MANDATORY INSTRUMENTS  
(PROPOSAL/DEVELOPMENT)**

**Part I – Submitter of proposal (refer to paragraph 3.2.1.1)**

1 Submitted by Canada and the United States
2 Meeting session: MSC 101
3 Date: 5 to 14 June 2019

**Part II – Details of proposed amendment(s) or new mandatory instrument (refer to paragraphs 3.2.1.1 and 3.2.1.2)\***

1 Strategic direction
7.25
2 Title of the output
Amendments to the <i>International Code for the Safe Carriage of Grain in Bulk</i> (resolution MSC.23(59)) to introduce a new class of loading conditions for special compartments
3 Recommended type of amendments (MSC.1/Circ.1481) (delete as appropriate)
Exceptional circumstance (Ad hoc midterm amendment cycle, MSC 104/18, paragraph 3.16.1)
4 Instruments intended for amendment (SOLAS, LSA Code, etc.) or developed (new code, new version of a code, etc.)
International Grain Code adopted by resolution MSC.23(59)
5 Intended application (scope, size, type, tonnage/length restriction, service (International/non-international), activity, etc.)
All ships to which International Grain Code applies
6 Application to new/existing ships
New and existing ships
7 Proposed coordinating Sub-Committee
CCC Sub-Committee
8 Anticipated supporting Sub-Committees
-
9 Time scale for completion
One session
10 Expected date(s) for entry into force and implementation/application
1 January 2026
11 Any relevant decision taken or instruction given by the Committee
N/A



**Part III – Process monitoring to be completed during the work process at the Sub-Committee and checked as part of the final approval process by the Committee (refer to paragraph 3.2.1.3)**

1	The Sub-Committee, at an initial engagement, has allocated sufficient time for technical research and discussion before the target completion date, especially on issues needing to be addressed by more than one Sub-Committee and for which the timing of relevant Sub-Committee meetings and exchanges of the result of consideration needed to be carefully examined.	Yes
2	The scope of application agreed at the proposal stage was not changed without the approval of the Committee.	Yes
3	The technical base document/draft amendment addresses the proposal's issue(s) through the suggested instrument(s); where it does not, the Sub-Committee offers the Committee an alternative method of addressing the problem raised by the proposal.	N/A
4	Due attention has been paid to the <i>Interim guidelines for the systematic application of the grandfather clauses</i> (MSC/Circ.765-MEPC/Circ.315).	Yes
5	All references have been examined against the text that will be valid if the proposed amendment enters into force.	Yes
6	The location of the insertion or modified text is correct for the text that will be valid when the proposed text enters into force on a four-year cycle of entry into force, as other relevant amendments adopted might enter into force on the same date.	Yes
7	There are no inconsistencies in respect of scope of application between the technical regulation and the application statement contained in regulation 1 or 2 of the relevant chapter, and application is specifically addressed for existing and/or new ships, as necessary.	Yes
8	Where a new term has been introduced into a regulation and a clear definition is necessary, the definition is given in the article of the Convention or at the beginning of the chapter.	Yes
9	Where any of the terms "fitted", "provided", "installed" or "installation" are used, consideration has been given to clarifying the intended meaning of the term.	N/A
10	All necessary related and consequential amendments to other existing instruments, including non-mandatory instruments, in particular to the forms of certificates and records of equipment required in the instrument being amended, have been examined and included as part of the proposed amendment(s).	N/A
11	The forms of certificates and records of equipment have been harmonized, where appropriate, between the Convention and its Protocols.	N/A
12	It is confirmed that the amendment is being made to a currently valid text and that no other bodies are concurrently proposing changes to the same text.	Yes
13	All entry-into-force criteria (building contract, keel laying and delivery) have been considered and addressed.	Yes

14	Other impacts of the implementation of the proposed/approved amendment have been fully analysed, including consequential amendments to the "application" and "definition" regulations of the chapter.	Yes
15	The amendments presented for adoption clearly indicate changes made with respect to the original text, so as to facilitate their consideration.	Yes
16	For amendments to mandatory instruments, the relationship between the Convention and the related instrument has been observed and addressed, as appropriate.	Yes
17	The related record format has been completed or updated, as appropriate.	Yes

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**ANNEX 25**

**DRAFT AMENDMENTS TO SOLAS REGULATION II-1/3-4**

**CHAPTER II-1**

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

**PART A-1  
STRUCTURE OF SHIPS**

**Regulation II-1/3-4 – Emergency towing arrangements and procedures**

1 The following new section 2 is added after existing section 1:

**"2 Emergency towing arrangements on ships other than tankers**

2.1 Emergency towing arrangements shall be fitted on ships other than tankers of not less than 20,000 gross tonnage, constructed on or after [entry-into-force date].

2.2 For ships other than tankers constructed on or after [entry-into-force date]:

- .1 the arrangements shall, at all times, be capable of rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing ship; and
- .2 emergency towing arrangements shall be of adequate strength taking into account the size of the ship, and the expected forces during bad weather conditions. The design and construction and prototype testing of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organization.\*

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\* Refer to Guidelines on emergency towing arrangements for ships other than tankers ([to be developed])."

2 Renumber subsequent paragraphs in the existing section 2 under renumbered section 3.

**CHECK/MONITORING SHEET FOR THE PROCESS OF AMENDING  
THE CONVENTION AND RELATED MANDATORY INSTRUMENTS  
(PROPOSAL/DEVELOPMENT)**

**Part III – Process monitoring to be completed during the work process at the sub-committee and checked as part of the final approval process by the Committee (refer to paragraph 3.2.1.3)**

1	The sub-committee, at an initial engagement, has allocated sufficient time for technical research and discussion before the target completion date, especially on issues needing to be addressed by more than one sub-committee and for which the timing of relevant sub-committees meetings and exchanges of the result of consideration needed to be carefully examined.	Yes
2	The scope of application agreed at the proposal stage was not changed without the approval of the Committee.	Yes
3	The technical base document/draft amendment addresses the proposal's issue(s) through the suggested instrument(s); where it does not, the sub-committee offers the Committee an alternative method of addressing the problem raised by the proposal.	Yes
4	Due attention has been paid to the <i>Interim guidelines for the systematic application of the grandfather clauses</i> (MSC/Circ.765-MEPC/Circ.315).	N/A
5	All references have been examined against the text that will be valid if the proposed amendment enters into force.	Yes
6	The location of the insertion or modified text is correct for the text that will be valid when the proposed text enters into force on a four-year cycle of entry into force, as other relevant amendments adopted might enter into force on the same date.	Yes
7	There are no inconsistencies in respect of scope of application between the technical regulation and the application statement contained in regulation 1 or 2 of the relevant chapter, and application is specifically addressed for existing and/or new ships, as necessary.	Yes
8	Where a new term has been introduced into a regulation and a clear definition is necessary, the definition is given in the article of the Convention or at the beginning of the chapter.	N/A
9	Where any of the terms "fitted", "provided", "installed" or "installation" are used, consideration has been given to clarifying the intended meaning of the term.	Yes
10	All necessary related and consequential amendments to other existing instruments, including non-mandatory instruments, in particular to the forms of certificates and records of equipment required in the instrument being amended, have been examined and included as part of the proposed amendment(s).	No (to be completed)
11	The forms of certificates and records of equipment have been harmonized, where appropriate, between the Convention and its Protocols.	N/A

12	It is confirmed that the amendment is being made to a currently valid text and that no other bodies are concurrently proposing changes to the same text.	Yes
13	All entry-into-force criteria (building contract, keel laying and delivery) have been considered and addressed.	Yes
14	Other impacts of the implementation of the proposed/approved amendment have been fully analysed, including consequential amendments to the "application" and "definition" regulations of the chapter.	No (to be completed)
15	The amendments presented for adoption clearly indicate changes made with respect to the original text, so as to facilitate their consideration.	Yes
16	For amendments to mandatory instruments, the relationship between the Convention and the related instrument has been observed and addressed, as appropriate.	Yes
17	The related record format has been completed or updated, as appropriate.	Yes

#### RECORD FORMAT

<b>1</b>	<b>Title (number and title of regulation(s))</b>
	SOLAS regulation II-1/3-4
<b>2</b>	<b>Origin of the requirement (original proposal document)</b>
	MSC 102/21/5 and Corr.1 (France et al.)
<b>3</b>	<b>Main reason for the development (extract from the proposal document)</b>
	MSC 102/21/5 and Corr.1 (France et al.) proposing an extension of the requirements for emergency towing arrangements in SOLAS regulation II-1/3-4, applicable to tankers of not less than 20,000 tonnes deadweight, to all types of large new ships.
<b>4</b>	<b>Related output</b>
	Development of amendments to SOLAS regulation II-1/3-4 to apply requirements for emergency towing equipment for tankers to other types of ships.
<b>5</b>	<b>History of the discussion (approval of work programmes, sessions of sub-committees, including CG/DG/WG arrangements)</b>
	MSC 103 agreed to include in the biennial agenda of the SDC Sub-Committee for 2022-2023 and the provisional agenda for SDC 8 an output on "Development of amendments to SOLAS regulation II-1/3-4 to apply requirements for emergency towing equipment for tankers to other types of ships", with a target completion year of 2023.
<b>6</b>	<b>Impact on other instruments (codes, performance standards, guidance circulars, certificates/records format, etc.)</b>
	A new set of guidelines for emergency towing arrangements on ships other than tankers to be developed as a consequence of the SOLAS amendments.
<b>7</b>	<b>Technical background</b>
<b>7.1</b>	<b>Scope and objective (to cross check with items 4 and 5 in part II of the checklist)</b>

Amendments to SOLAS applicable to new ships other than tankers of not less than 20,000 GT (and to which SOLAS chapter I applies)	
<b>7.2</b>	<b><i>Technical/operational background and rationale (e.g. summary of FSA study, if available, or engineering challenge posed)</i></b>
Application of similar requirements to all kind of ships other than tankers meets challenges in developing new requirements and associated guidelines, for which an extension of output is requested.	
<b>7.3</b>	<b><i>Source/derivation of requirement (non-mandatory instrument, industry standard, national/regional requirement)</i></b>
Experiences gained and feedback received	
<b>7.4</b>	<b><i>Short summary of requirement (what is the new requirement – in short and lay terms)</i></b>
Extension of requirement for emergency towing arrangements to new ships of not less than 20,000 GT	
<b>7.5</b>	<b><i>Points of discussions (controversial points and conclusion)</i></b>
New design and operational requirements for ships other than tankers should be carefully considered taking into account differences in ship design and operational profiles. Need for further consideration of associated guidelines.	

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## ANNEX 31<sup>1</sup>

### DRAFT AMENDMENTS TO THE LSA CODE

#### CHAPTER II PERSONAL LIFE-SAVING APPLIANCES

#### 2.2 Lifejackets

##### 2.2.1 *General requirements for lifejackets*

1 The existing paragraph 2.2.1.6.2 is modified, as follows:

"2.2.1.6 When tested according to the recommendations of the Organization on at least 12 persons, adult lifejackets shall have sufficient buoyancy and stability in calm fresh water to:

- .1 lift the mouth of exhausted or unconscious persons by an average height of not less than the average provided by the adult RTD minus 10 mm;
- .2 turn the body of unconscious, face-down persons in the water to a face-up position where the nose and mouth are clear of the water in an average time not exceeding that of the RTD plus 1 s;
- .3 incline the body backwards from the vertical position for an average torso angle of not less than that of the RTD minus 10°;
- .4 lift the head above horizontal for an average faceplane angle of not less than that of the RTD minus 10°; and
- .5 return at least as many wearers to a stable face-up position after being destabilized when floating in the flexed foetal position<sup>2</sup> as with the RTD when tested on the wearers in the same manner."

#### CHAPTER IV SURVIVAL CRAFT

#### 4.4 General requirements for lifeboats

##### 4.4.7 *Lifeboat fittings*

2 The existing paragraph 4.4.7.6.8 is modified, as follows:

- ".8 to prevent an accidental release during recovery of the boat, the hook shall not be able to support any load unless the hook is completely reset, ~~either the hook shall not be able to support any load, or~~ In the case of a hook which is capable of releasing the lifeboat or rescue boat with a load on the hook when it is not fully waterborne, the handle or safety pins shall not be able to be returned to the reset (closed) position, and any indicators shall not

<sup>1</sup> Modifications are indicated in grey shading.

<sup>2</sup> Refer to the illustration on page 9 of the *IMO Pocket Guide for Cold Water Survival*, 2010 Edition, and to the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70), as amended).

indicate the release mechanism is reset, unless the hook is completely reset. Additional danger signs shall be posted at each hook station to alert crew members to the proper method of resetting;"

3 The existing paragraph 4.4.7.6.17 is modified, as follows:

".17 where a single fall and hook system is used for launching a lifeboat or rescue boat in combination with a suitable painter, the requirements of paragraphs 4.4.7.6.7, 4.4.7.6.8 and 4.4.7.6.15 need not be applicable, in such an arrangement a single capability to release the lifeboat or rescue boat, only when it is fully waterborne, will be adequate provided that the single fall and hook system does not have the capability to release the lifeboat or rescue boat with a load on the hook when it is not fully waterborne.

## CHAPTER VI LAUNCHING AND EMBARKATION APPLIANCES

### 6.1.2 Launching appliances using falls and a winch

4 The existing paragraph 6.1.2.8 is modified, as follows:

"6.1.2.8 The speed at which the fully loaded survival craft or rescue boat is lowered to the water shall not be less than that obtained from the formula:

$$S = 0.4 + 0.02H, \text{ or } 1.0, \text{ whichever is less}$$

where:

*S* is the lowering speed in metres per second and

*H* is the height in metres from the davit head to the waterline with the ship at the lightest sea-going condition."

5 The existing paragraph 6.1.2.10 is modified, as follows:

"6.1.2.10 The maximum lowering speed shall be established by the Administration 1.3 m/s. The Administration may accept a maximum lowering speed other than 1.3 m/s, having regard to the design of the survival craft or rescue boat, the protection of its occupants from excessive forces, and the strength of the launching arrangements taking into account inertia forces during an emergency stop. Means shall be incorporated in the appliance to ensure that this speed is not exceeded."

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**ANNEX 32\***

**DRAFT MSC RESOLUTION ON AMENDMENTS TO THE REVISED RECOMMENDATION  
ON TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))**

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 the Assembly, when adopting resolution A.689(17) on *Testing of life-saving appliances*, authorized the Committee to keep the annexed Recommendation on testing of life-saving appliances under review and to adopt, when appropriate, amendments thereto,

RECALLING FURTHER that, since the adoption of resolution A.689(17), the Committee has amended the Recommendation annexed thereto by resolutions MSC.54(66) and MSC.81(70), and by circulars MSC/Circ.596, MSC/Circ.615 and MSC/Circ.809,

RECOGNIZING the need to ensure that the references in the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)) are kept up to date,

- 1 ADOPTS the Amendments to the Revised recommendation on testing of life-saving appliances (MSC.81(70)), set out in the annex to the present resolution;
- 2 RECOMMENDS Governments to apply the amendments when testing life-saving appliances, as set out in the annex to the present resolution;
- 3 INVITES Contracting Governments to the SOLAS Convention to bring the above amendments to the attention of all parties concerned.

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\* Modifications are indicated in grey shading.

## ANNEX

### AMENDMENTS TO THE REVISED RECOMMENDATION ON TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))

#### PART 1 - PROTOTYPE TEST FOR LIFE-SAVING APPLIANCES

##### 2.8 Water performance tests

###### *Test subjects*

- 1 Add the following new paragraph 2.8.2.1 after existing paragraph 2.8.2:

"2.8.2.1 If a "no turn" is recorded for a test subject wearing the RTD during the righting tests in 2.8.5, the test subject may be replaced with one additional test subject from the same height and weight category and in accordance with 2.7.2."

###### *Assessment*

- 2 Existing paragraph 2.8.7.1 is modified, as follows:

"2.8.7 After the water tests described in 2.8.5 and .6 above:

- .1 *Turning time:* The average turn time for all subjects in the candidate lifejacket should not exceed the average time in the RTD plus 1 s, and the number of "no turns", if any, should not exceed the number in the RTD and at the end of each righting test, each test subject should attain a face-up position where the nose and mouth are clear of the water;
- .2 *Freeboard:* The average freeboard of all the subjects should not be less than the average for the RTD minus 10 mm;
- .3 *Torso angles:* The average of all subjects' torso angles should be not less than the average for the RTD minus 10°;
- .4 *Faceplane (head) angles:* The average of all subjects' faceplane angles should be not less than the average for the RTD minus 10°; and
- .5 *Lifejacket light location:* The position of the lifejacket light should permit it to be visible over as great a segment of the upper hemisphere as is practicable."

#### PART 2 - PRODUCTION AND INSTALLATION TESTS

##### 6.1 Launching appliances using falls and winches

###### *Installation tests*

###### *Loaded test*

- 3 Existing paragraph 6.1.2 is modified, as follows:

"6.1.2 The survival craft or rescue boat, loaded with its normal equipment or an equivalent mass and a distributed mass equivalent to that of the number of persons, each weighing 75 kg or 82.5 kg, as applicable, it is permitted to accommodate, should be released by operation of the launching control on deck. The speed at which the survival craft or rescue boat is lowered into the water should be not less than that obtained from the formula:

$$S = 0.4 + (0.02H), \text{ or } 1.0, \text{ whichever is less}$$

where:  $S$  = speed of lowering (m/s)

$H$  = height from davit head to the waterline at the lightest seagoing condition (m).

The maximum lowering speed shall be 1.3 m/s or as decided by the Administration in accordance with paragraph 6.1.2.10 of the LSA Code ~~established by the Administration should not be exceeded.~~";

#### **Loaded lowering test (brake test only)**

4 Existing paragraph 6.1.5 is modified, as follows:

"6.1.5 The survival craft or rescue boat loaded with its normal equipment or an equivalent mass and a distributed mass equal to that of the number of persons, each weighing 75 kg or 82.5 kg, it is permitted to accommodate +10% of the working load, should be released by the operation of the launching controls on deck. When the craft has reached its maximum lowering speed, the brake should be abruptly applied to demonstrate that the attachments of the davits and winches to the ship's structure are satisfactory. The maximum lowering speed shall be 1.3 m/s or as decided by the Administration in accordance with paragraph 6.1.2.10 of the LSA Code ~~established by the Administration should not be exceeded.~~".

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**ANNEX 33\***

**DRAFT AMENDMENTS TO SOLAS CHAPTER II-2**

**CHAPTER II-2  
CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION**

**Part C  
Suppression of fire**

**Regulation 7 – Detection and alarm**

**5 Protection of accommodation and service spaces and control stations**

1 The existing paragraph 5.2 is amended, as follows:

**"5.2 Requirements for passenger ships carrying more than 36 passengers**

A fixed fire detection and fire alarm system shall be so installed and arranged as to provide smoke detection in-service spaces, control stations and accommodation spaces, including corridors, stairways and escape routes within accommodation spaces. Smoke detectors need not be fitted in private bathrooms and galleys. Spaces having little or no fire risk such as voids, public toilets, carbon dioxide rooms and similar spaces need not be fitted with a fixed fire detection and fire alarm system. Detectors fitted in cabins, when activated, shall also be capable of emitting, or cause to be emitted, an audible alarm within the space where they are located."

2 The existing section 5.5 (Cargo ships) is amended, as follows:

**"5.5 Cargo ships**

(The requirements of paragraph 5.5 shall apply to ships constructed on or after 1 January 2026. Ships constructed before 1 January 2026 shall comply with the previously applicable requirements of paragraph 5.5.)

Accommodation and service spaces and control stations of cargo ships shall be protected by a fixed fire detection and fire alarm system and/or an automatic sprinkler, fire detection and fire alarm system as follows depending on a protection method adopted in accordance with regulation 9.2.3.1.

**5.5.1 Method IC**

A fixed fire detection and fire alarm system shall be so installed and arranged as to provide smoke detection in all corridors, stairways, and escape routes within accommodation spaces and in all control stations and cargo control rooms.

**5.5.2 Method IIC**

An automatic sprinkler, fire detection and fire alarm system of an approved type complying with the relevant requirements of the Fire Safety Systems Code shall be so installed and arranged as to protect accommodation spaces, galleys and other service spaces, except spaces which afford no substantial fire risk such as void spaces, sanitary spaces, etc. In addition, a fixed fire detection and fire alarm system shall be so installed and arranged as to provide smoke detection in all corridors,

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\* Modifications are indicated in grey shading.

stairways, and escape routes within accommodation spaces and in all control stations and cargo control rooms.

#### 5.5.3 Method IIIC

A fixed fire detection and fire alarm system shall be so installed and arranged as to detect the presence of fire in all accommodation spaces and service spaces providing smoke detection in corridors, stairways and escape routes within accommodation spaces, except spaces which afford no substantial fire risk such as void spaces, sanitary spaces, etc. In addition, a fixed fire detection and fire alarm system shall be so installed and arranged as to provide smoke detection in all corridors, stairways, and escape routes within accommodation spaces and in all control stations and cargo control rooms."

### Regulation 9 – Containment of fire

#### 6 Protection of cargo space boundaries

3 The existing paragraph 6.1 is deleted and the subsequent paragraphs are renumbered accordingly:

~~"6.1 In passenger ships carrying more than 36 passengers, the boundary bulkheads and decks of special category and ro-ro spaces shall be insulated to "A-60" class standard. However, where a category (5), (9) and (10) space, as defined in paragraph 2.2.3, is on one side of the division the standard may be reduced to "A-0". Where fuel oil tanks are below a special category space, the integrity of the deck between such spaces may be reduced to "A-0" standard."~~

### Part G Special requirements

#### Regulation 20 – Protection of vehicle, special category and ro-ro spaces

4 The existing title of regulation 20 is amended, as follows:

**"Regulation 20 Protection of vehicle, special category and ro-ro spaces, open and closed ro-ro spaces, and weather decks intended for the carriage of vehicles"**

#### 1 Purpose

5 The existing paragraph 1.1 is amended, as follows:

#### "1 Purpose

The purpose of this regulation is to provide additional safety measures in order to address the fire safety objectives of this chapter for ships fitted with vehicle, special category and ro-ro spaces. For this purpose, the following functional requirements shall be met:

.1 fire protection systems shall be provided to adequately protect the ship from the fire hazards associated with vehicle, special category and ro-ro spaces, and weather deck intended for the carriage of vehicles;"

## 2 General requirements

### 2.1 Application

6 The following new paragraph 2.1.3 is added after existing paragraph 2.1.2:

"2.1.3 Ships constructed before 1 January 2026 shall also comply with regulations 20.4.1.6, 20.4.4 and 20.6.2.3, as adopted by resolution MSC.[...]."

### 3 Precaution against ignition of flammable vapours in closed vehicle spaces, closed ro-ro spaces and special category spaces

7 The existing paragraph 3.1.5 is amended, as follows:

#### "3.1.5 Permanent openings

In cargo ships, Ppermanent openings in the side plating, the ends or deckhead of the space shall be so situated that a fire in the cargo space does not endanger stowage areas and embarkation stations for survival craft and accommodation spaces, service spaces and control stations in superstructures and deckhouses above the cargo spaces."

### 4 Detection and alarm

8 The following new paragraph is added under the existing title of section 4 (Detection and alarm):

"Ships constructed before 1 January 2026 shall comply with the requirements of paragraph 4.1.6 not later than the first survey after 1 January 2028."

#### 4.1 Fixed fire detection and fire alarm systems

9 The existing section 4.1 (Fixed fire detection and fire alarm systems) is amended, as follows:

##### "4.1 Fixed fire detection and fire alarm systems

~~Except as provided in paragraph 4.3.1, there shall be provided a fixed fire detection and fire alarm system complying with the requirements of the Fire Safety Systems Code. The fixed fire detection system shall be capable of rapidly detecting the onset of fire. The type of detectors and their spacing and location shall be to the satisfaction of the Administration taking into account the effects of ventilation and other relevant factors. After being installed the system shall be tested under normal ventilation conditions and shall give an overall response time to the satisfaction of the Administration.~~

The requirements of paragraphs 4.1.1 through 4.1.4 shall only apply to passenger ships constructed on or after 1 January 2026. Passenger ships constructed before 1 January 2026 shall comply with the previously applicable requirements of paragraph 4.1, as amended by resolution MSC.108(...) and paragraph 4.1.6.

**4.1.1** In vehicle, special category and ro-ro spaces, there shall be provided an individually identifiable fixed fire detection and fire alarm system. The system shall comply with the requirements of the Fire Safety Systems Code.

**4.1.1.1** The fixed fire detection and fire alarm system shall provide smoke and heat detection throughout vehicle, special category and ro-ro spaces. The Administration may accept linear heat detectors as the required system for heat detection. The system shall be capable of rapidly detecting the onset of fire. The location of detectors shall be to the satisfaction of the Administration, taking into account the effects of ventilation and other relevant factors. After being installed, the system shall be tested under normal ventilation conditions and shall give an overall response time to the satisfaction of the Administration.

**4.1.2** If a fixed water-based deluge system is used for vehicle, special category and ro-ro spaces, then a fire detection and fire alarm system identifiable to the same sections of the deluge system shall be arranged.

**4.1.3** The fire detection and fire alarm system shall be designed with a system interface which provides logical and unambiguous presentation of the information, to allow a quick and correct understanding and decision-making. In particular, the alarm system section numbering shall coincide with the sections of other systems, such as a fixed water-based fire-extinguishing system or video monitoring system, if available.

**4.1.4** There shall be provided a fixed fire detection and fire alarm system for the area on the weather deck intended for the carriage of vehicles. The fixed fire detection system shall be capable of rapidly detecting the onset of the fire anywhere on the area. The type of detectors and their spacing and location shall be to the satisfaction of the Administration, taking into account the effects of weather conditions, cargo obstruction and other relevant factors. Different settings may be used for specific operation sequences, such as during loading or unloading and during voyage, in order to reduce the false alarms.

**4.1.5** In cargo ships, vehicle spaces, special category spaces and ro-ro spaces shall be provided with a fixed fire detection and fire alarm system complying with the requirements of the Fire Safety Systems Code. The fixed fire detection system shall be capable of rapidly detecting the onset of fire. The type of detectors and their spacing and location shall be to the satisfaction of the Administration, taking into account the effects of ventilation and other relevant factors. After being installed, the system shall be tested under normal ventilation conditions and shall give an overall response time to the satisfaction of the Administration.

**4.1.6** For passenger ships constructed before 1 January 2026, a fixed fire detection and fire alarm system complying with the requirements of the Fire Safety Systems Code shall be provided in special category spaces, open and closed ro-ro and vehicle spaces. The fixed fire detection system shall be capable of rapidly detecting the onset of fire. The fixed fire detection and fire alarm system shall provide smoke and heat detection throughout vehicle, special category and ro-ro spaces. In this context, heat detectors shall comply with the spacing and coverage area requirements as applicable for smoke detectors. Heat detectors are only required where there is already a smoke detector."

### **4.3 Special category spaces**

10 The existing paragraph 4.3.1 is amended, as follows:

"4.3.1 An efficient fire patrol system shall be maintained in special category spaces. ~~If an efficient fire patrol system is maintained by a continuous fire watch at all times during the voyage, a fixed fire detection and fire alarm system is not required.~~"

- 11 The following new section 4.4 is added after existing section 4.3 (Special category spaces):

#### **"4.4 Video monitoring**

The requirements of paragraphs 4.4.1 and 4.4.2 apply to ships constructed on or after 1 January 2026. Passenger ships with vehicle, special category or ro-ro spaces constructed before 1 January 2026 shall comply with the requirements of paragraphs 4.4.1 and 4.4.2 not later than the first survey after 1 January 2028.

**4.4.1** For passenger ships, an effective video monitoring system shall be arranged in vehicle, special category and ro-ro spaces for continuous monitoring of these spaces. The system shall be provided with immediate playback capability to allow for quick identification of fire location, as far as practicable. Cameras shall be installed to cover the whole space, high enough to see over cargo and vehicles after loading.

**4.4.2** The videos recorded by this monitoring system shall be available for replay at a continuously manned control station or at the safety centre for at least seven days for installation on ro-ro passenger ships constructed on or after 1 January 2026 and 24 hours for existing ro-ro passenger ships constructed before 1 January 2026 and the correspondence between any one video camera and the section of the fixed water-based fire-extinguishing system it is covering shall be clearly displayed close to the video monitor. Continuous monitoring of the video image by the crew is not required."

## **5 Structural fire protection**

- 12 The existing section 5 (Structural fire protection) is amended, as follows, together with the associated footnotes:

### **"5 Structural fire protection and arrangement of openings**

~~"Notwithstanding the provisions of regulation 9.2.2, in passenger ships carrying more than 36 passengers, the boundary bulkheads and decks of special category spaces and ro-ro spaces shall be insulated to "A-60" class standard. However, where a category (5), (9) or (10) space, as defined in regulation 9.2.2.3, is on one side of the division, the standard may be reduced to "A-0". Where fuel oil tanks are below a special category space or a ro-ro space, the integrity of the deck between such spaces may be reduced to "A-0" standard.~~

This paragraph applies to passenger ships constructed on or after 1 January 2026.

#### **5.1 Structural fire protection**

**5.1.1** In passenger ships carrying more than 36 passengers, the boundary bulkheads and decks of special category and ro-ro spaces shall be insulated to "A-60" class standard. However, where a category (5), (9) and (10) space, as defined in regulation 9.2.2.3, is on one side of the division, the standard may be reduced to "A-0". Where fuel oil tanks are below a special category space, the integrity of the deck between such spaces may be reduced to "A-0" standard.

**5.1.2** Where a special category space or ro-ro space is sub-divided with internal decks, the fire rating of these decks shall be determined based on the capacity and arrangement of the fixed water-based fire-extinguishing system. If the fixed water-based fire-extinguishing system cannot simultaneously cover the applicable area above and below a given deck, this deck shall be of "A-30" standard while any



ramps and doors between decks shall be made of steel and of a design being as tight as practical.

## **5.2 Arrangement of openings in ro-ro spaces and special category spaces**

**5.2.1** Openings in the side plating, the ends or deckhead of the ro-ro space shall be situated and arranged so that a fire in the ro-ro space does not endanger:

- .1 stowage areas for survival craft;
- .2 embarkation stations and assembly stations, including access to such stations; and
- .3 accommodation spaces, control stations and normally occupied service spaces in superstructures and deckhouses above the ro-ro space.

Openings are not permitted for all decks directly below these objects and within a safety distance of minimum 6.0 m measured horizontally.

**5.2.2** This requirement does not apply to openings fitted with closing arrangements, such as ramps and doors. Ramps and doors shall be of steel for all decks directly below accommodation spaces, control stations and normally occupied service spaces, and minimum "A-0" for all decks directly below survival craft, embarkation stations and assembly stations.

**5.2.3** Openings are, however, accepted in ro-ro spaces below accommodation spaces, control stations and normally occupied service spaces, when the fire integrity of the ship's side, including windows and doors, is "A-60" on boundaries in a rectangular area measured 6.0 m horizontally forward and aft of the openings and vertically minimum two deck levels above the deck level with the opening. "A-0" windows protected by a water-based system with an application rate of at least 5.0 L/min per square metre may be accepted as equivalent to "A-60" windows. Ventilation inlets shall be designed to minimize the risk of contamination.\*

\* Refer to regulations II-2/5.2, II-2/8.2, II-2/9.7.1.5 and II-2/20.3.1.4.

**5.2.4** Openings for mechanical ventilation of ro-ro and special category spaces are permitted below accommodation spaces, service spaces and control stations in superstructures, if the opening is protected by a closing device, with a closing arrangement not likely to be cut off in case of a fire in the ro-ro spaces, capable of being closed from a readily accessible position. The closing device shall be made of steel or other fire-resistant material. Such openings are not permitted below survival craft, the emergency generator and air intakes for the engine-room(s).

**5.2.5** Notwithstanding the above, air intakes serving machinery used for the ship's main propulsion, power generation and emergency power generation shall be in a position minimizing the risk of being contaminated by a fire in the ro-ro space or special category space.

## **5.3 Arrangement of weather deck intended for the carriage of vehicles**

**5.3.1** Appropriate arrangements shall be made so that a fully developed fire on weather decks intended for the carriage of vehicles does not endanger:

- .1 stowage areas for survival craft;
- .2 embarkation stations and assembly stations including access to these; and
- .3 accommodation spaces, control stations and normally occupied service spaces in superstructures and deckhouses adjacent to the weather deck.

**5.3.2** Appropriate arrangements shall be made providing a safety distance, measured horizontally, from the designated vehicle lanes of more than 6.0 m to accommodation spaces, control stations and normally occupied service spaces in superstructures and deckhouses adjacent to the weather deck.

**5.3.3** The safety distance can be reduced to 3.0 m when boundaries, including windows and doors, within 6.0 m are of "A-60" integrity. Alternatively, "A-0" boundaries protected by a water-based system with an application rate of at least 5.0 L/min per square metre may be accepted as equivalent.

**5.3.4** Survival craft and embarkation stations, including access to these, shall be protected with a safety distance of more than 12.0 m. Safety distances shall be measured horizontally.

**5.3.5** Notwithstanding the above, air intakes serving machinery used for the ship's main propulsion, power generation and emergency power generation shall be in a position minimizing the risk of being contaminated by a fire on the weather deck intended for carriage of vehicles.

## **6 Fire extinction**

### **6.1 Fixed fire-extinguishing systems**

13 The existing explanatory paragraph under the title of section 6.1 (Fixed fire-extinguishing systems) is amended, as follows:

"(The requirements of paragraphs 6.1.1 and 6.1.2 shall apply to ships constructed on or after 1 July 2014. Ships constructed before 1 July 2014 shall comply with the previously applicable requirements of paragraphs 6.1.1 and 6.1.2. The requirements of paragraph 6.2 shall apply to ro-ro passenger ships constructed on or after 1 January 2026. Passenger ships with vehicle, special category or ro-ro spaces constructed before 1 January 2026 shall comply with the requirements of paragraph 6.2.3 not later than the first survey after 1 January 2028.)"

14 The following new section 6.2 is inserted after existing section 6.1 and the subsequent paragraph is renumbered accordingly:

#### **6.2 Fixed water-based fire-extinguishing on weather decks intended for carriage of vehicles**

**6.2.1** In passenger ships, a fixed water-based fire-extinguishing system based on monitor(s) shall be installed in order to cover weather decks intended for the carriage of vehicles. The monitor(s) shall comply with the provisions of the Fire Safety Systems Code.

**6.2.2** In passenger ships, drainage shall be provided where a fixed water-based fire-extinguishing system is installed to cover weather decks intended for carriage of

vehicles. The system shall be sized to remove no less than 125% of the combined capacity of both the monitor(s) and the required number of fire hose nozzles.

6.2.3 For passenger ships built before 1 January 2026, a fixed water-based fire-extinguishing system based on monitor(s) shall be installed in order to protect areas on weather decks intended for the carriage of vehicles. Monitors shall be located in positions which ensure unobstructed protection of vehicles in the area on the weather deck intended for carriage for vehicles, as far as practicable. Operation of monitors shall be ensured by safe access ways or remote control not to be impaired by a fire in the area protected by that monitor. Capacity of each monitor shall be at least 1,250 L/min. The Administration may permit lower flow rates when the required rate is not practical given the size and arrangement of the ship. The Administration may also permit alternative arrangements for ships that have already installed a fixed water-based fire-extinguishing system based on monitor(s) prior to 1 January 2026."

15 The following new section 7 is added after existing section 6 (Fire extinction) with the associated footnotes:

**"7 Decision-making**

In passenger ships, vehicle, special category and ro-ro spaces, where fixed pressure water-spraying systems are fitted, shall be provided with suitable signage and marking on deckhead and bulkhead and on the vertical boundaries allowing easy identification of the sections of the fixed fire-extinguishing system. Suitable signage and markings shall be adapted to typical patterns of crew movement taking into consideration obstruction by cargo or fixed installations. Section number signs shall be of photoluminescent material.\* The section numbering indicated inside the space shall be same as section valve identification and section identification at the safety centre or continuously manned control station.

\* Refer to chapter 11 of the FSS Code for the evaluation and testing of photoluminescent material.

**Regulation 23 – Safety centre on passenger ships**

**6 Control and monitoring of safety systems**

16 The existing paragraph 6.10 is amended, as follows:

"Notwithstanding the requirements set out elsewhere in the Convention, the full functionality (operation, control, monitoring or any combination thereof, as required) of the safety systems listed below shall be available from the safety centre:

.10 fire detection and fire alarm system;"

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**ANNEX 34\***

**DRAFT AMENDMENTS TO THE FSS CODE**

**CHAPTER 7**

**Fixed pressure water-spraying and  
water mist fire-extinguishing systems**

**2 Engineering specifications**

1 The following new section 2.5 is added after existing section 2.4 (Fixed water-based fire-fighting systems for ro-ro spaces, vehicle spaces and special category spaces):

**"2.5 Fixed water-based fire-extinguishing on ro-ro passenger ships' weather decks intended for the carriage of vehicles**

This chapter details the specification of fixed water-based fire-extinguishing on ro-ro passenger ships having weather decks intended for the carriage of vehicles as required by chapter II-2 of the Convention. The requirements of this chapter shall apply to ro-ro passenger ships constructed on or after 1 January 2026.

**2.5.1** The protected area shall be the entire length and width of the weather deck intended for the carriage of vehicles. The fixed monitor(s) shall be capable of delivering water to:

- .1 the area of weather decks intended for carriage of vehicles; and
- .2 the area, including superstructure boundaries located up to 8.0 m, measured horizontally, from the area intended for vehicle storage, or the next vertical boundaries, whichever is less.

**2.5.2** The combined capacity of all fixed monitors shall be minimum 2.0 L/min per square metre of the protected area, but in no case shall the output of any monitor be less than 1,250 L/min. Even distribution of water shall be ensured.

**2.5.3** The distance from the monitor to the farthest extremity of the protected area forward of that monitor shall not be more than 75% of the monitor throw in still air conditions.

**2.5.4** Each monitor shall be located outside the area which it protects, in a safe position, with access not likely to be cut off in case of fire.

Monitors shall be installed in positions which allow for unobstructed water coverage with vehicles stowed to maximum capacity of the weather deck. However, areas that cannot be covered by water monitors shall be protected by water nozzles. Nozzles shall be designed and installed taking into account weather conditions and provide 5.0 L/min per square metre for the area they cover and have release controls in a position being accessible in case of a fire.

**2.5.5** The system shall be available for immediate use and capable of continuously supplying water. The water supply shall be capable of simultaneously supplying water at the required rate for the entire width of the weather deck intended for carriage of vehicles and a length of 40 m, or the entire length of the weather deck if this is less

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\* Modifications are indicated in grey shading.

than 40 m. In no case shall the supply capacity be less than that required for the largest monitor.

**2.5.6** The system may be supplied by the fire main, the pump(s) serving other fixed water-based fire-fighting systems or a dedicated pump providing a continuous supply of seawater.

Where the ship's fire pumps are used to feed the monitor(s):

- .1 it shall be possible to segregate the ship's fire main from the monitor(s) by means of a valve in order to operate both systems separately or simultaneously; and
- .2 the capacity of the pumps shall be sufficient to serve both systems simultaneously, including two jets of water at the required pressure from the fire main system. In case the weather deck shall also carry dangerous goods, capacity for four jets of water at the required pressure shall be provided.

Where another fixed water-based fire-fighting system is used to feed the monitor(s):

- .3 it shall be possible to segregate the other fixed water-based fire-fighting system from the monitor(s) by means of a valve in order to operate both systems separately or simultaneously; and
- .4 the capacity of the pump(s) shall, in case of open ro-ro spaces, be sufficient to serve both systems simultaneously, minimum two sections of the fixed water-based fire-fighting system being close to the openings facing weather deck and one monitor serving the weather deck. For closed ro-ro spaces and special category spaces, simultaneous operation is not required."

## **CHAPTER 9**

### **Fixed fire detection and fire alarm systems**

#### **1 Application**

2 The existing paragraph 1.1 is amended, as follows:

"1.1 This chapter details the specification of fixed fire detection and fire alarm systems as required by chapter II-2 of the Convention. Unless expressly provided otherwise, the requirements of this chapter shall apply to ships constructed on or after 1 July 2012. The requirements of 2.3.1.5 and 2.4.2.2 of this chapter shall apply to ships constructed on or after 1 January 2026."

#### **2 Engineering specifications**

##### **2.3 Component requirements**

3 The existing paragraphs 2.3.1.3 and 2.3.1.4 are amended to read as follows:

"2.3.1.3 Heat detectors and linear heat detectors shall be certified to operate before the temperature exceeds 78°C but not until the temperature exceeds 54°C, when the temperature is raised to those limits at a rate less than 1°C per min, when tested

according to standards EN 54:2001 and IEC 60092-504. Alternative testing standards may be used as determined by the Administration. At higher rates of temperature rise, the heat detector and linear heat detector shall operate within temperature limits to the satisfaction of the Administration having regard to the avoidance of detector insensitivity or oversensitivity.

2.3.1.4 The operation temperature of heat detectors and linear heat detectors in drying rooms and similar spaces of a normal high ambient temperature may be up to 130°C, and up to 140°C in saunas."

4 The following new paragraph 2.3.1.5 is inserted after the existing paragraph 2.3.1.4 and subsequent paragraphs are renumbered accordingly:

"2.3.1.5 Linear heat detectors shall be tested according to standards EN 54-22:2015 and IEC 60092-504. Alternative testing standards may be used as determined by the Administration."

## 2.4 Installation requirements

### 2.4.2 Positioning of detectors

5 The existing paragraph 2.4.2.2 and table 9.1 (Spacing of detectors) therein are amended, as follows:

"2.4.2.2 The maximum spacing of detectors shall be in accordance with the table below:

**Table 9.1 – Spacing of detectors**

Type of detector	Maximum floor area per detector (m <sup>2</sup> )	Maximum distance apart between centres (m)	Maximum distance away from bulkheads (m)
Heat	37	9	4.5
Smoke	74	11	5.5
Combined smoke and heat	74	9	4.5

2.4.2.2.1 The Administration may require or permit other spacing based upon test data which demonstrate the characteristics of the detectors. Detectors located below movable ro-ro decks shall be in accordance with the above.

2.4.2.2.2 The distance between two sensor cables of the linear heat detection system shall not be more than 9.0 m, while the distance between such cables and bulkheads shall not be more than 4.5 m."

## 2.5 System control requirements

### 2.5.1 Visual and audible fire signals

6 The following new paragraphs 2.5.1.2, 2.5.1.3 and 2.5.1.4 are inserted after existing paragraph 2.5.1.1 and the subsequent paragraphs are renumbered accordingly:

"2.5.1.2 On ro-ro passenger ships constructed on or after 1 January 2026, alarm notifications shall follow a consistent alarm presentation scheme (wording, vocabulary, colour and position). Alarms shall be immediately recognizable on the navigation bridge and shall not be compromised by noise or poor placing.

**2.5.1.3** On ro-ro passenger ships constructed on or after 1 January 2026, the interface shall provide alarm addressability, allow the crew to identify the alarm history, the most recent alarm and the means to suppress alarms while ensuring the alarms with ongoing trigger conditions are still clearly visible.

**2.5.1.4** On ro-ro passenger ships constructed on or after 1 January 2026, the smoke detector function in special category and ro-ro spaces may be disconnected during loading and unloading of vehicles. The time of disconnection shall be adapted to the time of loading/unloading and be automatically reset after this predetermined time. The central unit shall indicate whether the detector sections are disconnected or not. Disconnection of the heat detection function or manual call points shall not be permitted."

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**ANNEX 16**

**DRAFT MSC-MEPC CIRCULAR**

**GUIDELINES FOR THE SAMPLING OF [OIL FUEL] FOR DETERMINATION OF  
COMPLIANCE WITH THE REVISED MARPOL ANNEX VI AND SOLAS CHAPTER II-2**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), and the Marine Environment Protection Committee, at its [...] session ([...]), approved the Guidelines for the sampling of [oil fuel] for determination of compliance with the revised MARPOL Annex VI and SOLAS chapter II-2, as set out in the annex.

2 Member States are invited to use the annexed Guidelines and bring them to the attention of all parties concerned.

\* \* \*



## ANNEX

### **GUIDELINES FOR THE SAMPLING OF [OIL FUEL] FOR DETERMINATION OF COMPLIANCE WITH THE REVISED MARPOL ANNEX VI AND SOLAS CHAPTER II-2**

*Note: The draft guidelines are based on resolution MEPC.182(59) and changes are highlighted with ~~deletions~~ and additions.*

**Title:** ~~2009~~ GUIDELINES FOR THE SAMPLING OF [OIL FUEL] ~~OR~~ FOR DETERMINATION OF COMPLIANCE WITH THE REVISED MARPOL ANNEX VI AND SOLAS CHAPTER II-2

#### **1 Preface**

The primary objective of these Guidelines is to establish an agreed method to obtain a representative sample of the oil fuel ~~oil for combustion purposes~~ delivered for use on board ships for combustion purposes. Samples should be taken in a safe manner under all circumstances.

#### **2 Introduction:**

The basis for these Guidelines is regulation 18.5 of Annex VI to MARPOL 73/78, as amended by resolution MEPC.176(58), which provides that for each ship subject to regulations 5 and 6 of that Annex, details of fuel oil for combustion purposes delivered to, and used on board the ship, shall be recorded by means of a bunker delivery note which shall contain at least the information specified in appendix V to that Annex. In accordance with regulation 18.8.1 of Annex VI, the bunker delivery note shall be accompanied by a representative sample of the fuel oil delivered.

In addition, these guidelines are intended to assist in the implementation of the flashpoint related regulations in SOLAS II-2 regulation 4, especially for confirming cases where oil fuel not complying with SOLAS II-2/4.2.1 was delivered.

This sample is to be used solely for determination of compliance with Annex VI of MARPOL 73/78 and of compliance with SOLAS chapter II-2.

#### **3 Definitions**

For the purpose of these Guidelines:

3.1 Supplier's representative is the individual from the bunker tanker who is responsible for the delivery and documentation or, in the case of deliveries direct from the shore to the ship, the person who is responsible for the delivery and documentation.

3.2 Ship's representative is the ship's master or officer in charge who is responsible for receiving bunkers and documentation.

3.3 Representative sample is a product specimen having its physical and chemical characteristics identical to the average characteristics of the total volume being sampled.

3.4 Primary sample is the representative sample of the fuel delivered to the ship collected throughout the bunkering period obtained by the sampling equipment positioned at the bunker manifold of the receiving ship.

3.5 Retained sample is the representative sample in accordance with regulation 18.8.1 of Annex VI to MARPOL 73/78, of the fuel delivered to the ship derived from the primary sample.

3.6 Oil fuel is defined in regulation 1 of Annex 1 of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto.

#### **4 Sampling methods**

4.1 The primary sample should be obtained by one of the following methods:

- .1 manual valve-setting continuous-drip sampler; or
- .2 time-proportional automatic sampler; or
- .3 flow-proportional automatic sampler.

4.2 Sampling equipment should be used in accordance with manufacturer's instructions, or guidelines, as appropriate.

4.3 The personnel taking the primary sample should be familiar with the guidelines and sampling equipment.

4.4 The primary sample should be drawn at the bunker manifold of the receiving ship witnessed by representatives for the receiving ship and supplier or by a surveyor acting on their behalf.

~~4.5 After all parties, including the ship's and supplier's representatives, are satisfied with the primary sample collected as being the representative sample, the sample should be properly shaken to promote homogeneity and then poured in equal portions into sample bottles (according to the need) making three or four passes to fill each bottle in turn. The sample bottles should be sealed in the presence of all parties with uniquely numbered security seals. One of these bottles will be the designated retained sample as required by regulation 18 of Annex VI of MARPOL 73/78. The unique seal number of the retained statutory sample bottle should be recorded in the bunker delivery note.~~

#### **5 Sampling and sample integrity**

5.1 A means should be provided to seal the sampling equipment throughout the period of supply.

5.2 Attention should be given to:

- .1 the form of set up of the sampler;
- .2 the form of the primary sample container;
- .3 the cleanliness and dryness of the sampler and the primary sample container prior to use, there should be no traces of low-flashpoint solvents used to clean the equipment as this can contaminate the sample;
- .4 the setting of the means used to control the flow to the primary sample container; and

- .5 the method to be used to secure the sample from tampering or contamination during the bunker operation.

5.3 The primary sample receiving container should be attached to the sampling equipment and sealed so as to prevent tampering or contamination of the sample throughout the bunker delivery period.

## 6 Sampling location

For the purpose of these Guidelines, a sample of the fuel delivered to the ship should be obtained at the receiving ship's inlet bunker manifold and should be drawn continuously throughout the bunker delivery period.\*

- \* The phrase "be drawn continuously throughout the bunker delivery period" in paragraph 6 of the Guidelines should be taken to mean continuous collection of drip sample throughout the delivery of bunker fuel covering each bunker delivery note. In case of receiving an amount of bunker fuel necessitating two or more delivery notes, the sampling work may be temporarily stopped to change primary sample container and then resumed as necessary.

## 7 Retained sample handling

7.1 The retained sample container should be clean and dry.

7.2 Immediately prior to filling the retained sample container, the primary sample quantity should be thoroughly agitated to ensure that it is homogeneous.

7.3 The retained sample should be of sufficient quantity to perform the tests required but should not be less than 600 ml. The container should be filled to 90% ± 5% capacity and sealed.

## 8 Sealing of the retained sample

8.1 Immediately following collection of the retained sample, a tamper proof security seal with a unique means of identification should be installed by the supplier's representative in the presence of the ship's representative. A label containing the following information should be secured to the retained sample container:

- .1 location at which, and the method by which, the sample was drawn;
- .2 date of commencement of delivery;
- .3 name of bunker tanker/bunker installation;
- .4 name and IMO number of the receiving ship;
- .5 signatures and names of the supplier's representative and the ship's representative;
- .6 details of seal identification; and
- .7 bunker grade.

8.2 To facilitate cross-reference details of the seal, identification **should** also be recorded on the bunker delivery note.

## **9 Retained sample storage**

9.1 The retained sample should be kept in a safe storage location, outside the ship's accommodation, where personnel would not be exposed to vapours which may be released from the sample. Care should be exercised when entering a sample storage location.

9.2 The retained sample should be stored in a sheltered location where it will not be subject to elevated temperatures, preferably at a cool/ambient temperature, and where it will not be exposed to direct sunlight.

9.3 Pursuant to regulation 18.8.1 of Annex VI of MARPOL 73/78, the retained sample should be retained under the ship's control until the fuel oil is substantially consumed, but in any case for a period of not less than 12 months from the time of delivery.

9.4 The Company should develop and maintain a process to keep track of the retained samples.

## **10 Procedures and documentation following testing of retained sample**

10.1 If the retained sample has been sent for testing, the laboratory should take a sub-sample enabling the tests to be carried out and immediately reseal the remaining retained sample container with a new tamper proof security seal with a unique means of identification in the presence of a representative for the authority that has ordered the test. A label containing the following information should be secured to the retained sample container:

- .1 name and address of laboratory;
- .2 date when the sample was resealed;
- .3 volume remaining in the retained sample container when resealed;
- .4 names and signatures of the person resealing the sample and the authority's representative witnessing the process;
- .5 details of the new unique seal identification;
- .6 a declaration that no other material has been added to the sample; and
- .7 relevant information from previous label, including details of original seal identification; name and IMO number of the receiving ship and bunker grade.

10.2 The laboratory should issue a test record with copies to all relevant parties, i.e. the authority that requested the testing, and the ship. Copies may also be sent to the supplier and the authority under whose jurisdiction the supplier operates. The test record should include the test result(s) and the test method(s), and the seal number of the ship's retained sample which the testing was carried out on.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1662  
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### **GUIDELINES FOR ANCHOR HANDLING WINCHES**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), having considered a proposal by the Sub-Committee on Ship Systems and Equipment, at its eighth session, with a view to ensuring a uniform approach towards the application of SOLAS regulation II-1/3-13, adopted by resolution MSC.532(107), approved *Guidelines for anchor handling winches*, as set out in the annex.

2 Member States are invited to use the annexed Guidelines when applying SOLAS regulation II-1/3-13 and to bring them to the attention of ship designers, shipyards, shipowners, equipment manufacturers and other organizations and parties concerned.

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## ANNEX

### GUIDELINES FOR ANCHOR HANDLING WINCHES

#### 1 Application

These Guidelines support the application of SOLAS regulation II-1/3-13 for anchor handling winches, associated equipment and loose gear used in association with anchor handling winches.

#### 2 Definitions

For the purpose of these Guidelines, the following definitions apply:

- .1 *Brake holding force* is the maximum force for which the winch brake is designed.
- .2 *Brake holding capacity* is the maximum line pull that the winch brake can withstand without slipping of the brake.
- .3 *Maximum line pull* is the maximum sustained force the winch is capable of pulling.
- .4 *Static bollard pull* is the maximum sustained pulling force a vessel is capable of generating at maximum power (i.e. 100% maximum continuous rating (MCR)) and zero forward speed.
- .5 A *wire* means a dedicated line (wire rope, synthetic rope or chain cable) used for the handling of anchors by means of an anchor handling winch. The wire may include connecting loose gear.
- .6 *Chain stopper* is a device used for securing and holding a section of wire, thereby relieving the load on the winch drum.
- .7 *Competent person* means a person possessing the knowledge and experience required for the performance of duties specified in these guidelines and acceptable as such to the Administration.
- .8 *Inspection* means an assessment carried out by a responsible person to ascertain if the anchor handling winches or associated loose gear are in good working condition for continued safe use.
- .9 *Responsible person* means a person appointed by the master or company as defined in SOLAS regulation IX/1, as appropriate, possessing the knowledge and experience required for the performance of duties specified in these Guidelines.
- .10 *Thorough examination* means a detailed assessment carried out by a competent person in order to determine whether or not the anchor handling winches or associated loose gear are in compliance with the applicable requirements of the Administration.

- .11 *Certified* means that the anchor handling winches or associated loose gear have been verified and documented as compliant to the satisfaction of the Administration or recognized organization acting on its behalf.
- .12 *Maintenance* means any activity carried out by a responsible person to keep the anchor handling winches or associated loose gear in good working condition for continued safe use.
- .13 *Operational testing* means a test carried out by a responsible person to verify the correct functioning of a component or operation of the anchor handling winches and/or associated loose gear.
- .14 *Load test* means a test in excess of the maximum line pull, carried out in the presence of a competent person in order to check the structural integrity of the anchor handling winches and their attachment to and adequacy of their supporting structure.

### **3 Anchor handling winches**

#### **3.1 Design, construction and installation**

##### *3.1.1 General*

Anchor handling winches and associated equipment should be designed, constructed and installed in accordance with the requirements of a classification society which is recognized by the Administration in accordance with the provisions of SOLAS regulation XI-1/1 or standards acceptable to the Administration which provide an equivalent level of safety. In addition to the above, anchor handling winches that fall under the scope of SOLAS regulation II-1/3-13.2.2 should also comply with the additional guidance specified under paragraphs 3.1.2 to 3.1.8 below.

##### *3.1.2 Speed control and handling*

3.1.2.1 The anchor handling winches should be capable of hoisting and lowering in a controlled manner, and should be provided with adjustable speed control between the minimum and maximum speeds.

3.1.2.2 The winch operating controls should be designed to pay out the wire by moving the control lever away from the winch operator and heave in by pulling the control lever towards the operator. All operating controls should be permanently marked with signs indicating their purpose and the operating direction.

3.1.2.3 The winch operating controls should be of the "hold-to run" type, which will cause the hoisting or lowering motion to automatically stop when the control lever is released by the operator.

##### *3.1.3 Tension control*

Anchor handling winches should be equipped with tension control to ensure that the system is not overloaded in the event that the anchor being handled gets stuck, entangled or is exposed to similar situations.



### 3.1.4 *Overload alarm and monitoring*

3.1.4.1 Winches should be provided with continuous load monitors and an audible and visual overload alarm.

3.1.4.2 The overload alarm should be programmable for lower levels of load.

### 3.1.5 *Control stations*

3.1.5.1 The main control station should be placed in a position on the bridge which has a clear view of the deck area. Operators should be able to visually monitor anchor handling winches and associated equipment and, if the view is obstructed, cameras or video monitoring devices may be used for this purpose.

3.1.5.2 The anchor handling winch may be controlled from more than one position provided that an arrangement to prevent more than one position from exercising control at any one time is fitted.

3.1.5.3 Each control station should be provided with:

- .1 means for two-way communication with the main control station;
- .2 an arrangement to prevent inadvertent actuation;
- .3 adequate protection of personnel; and
- .4 sufficient illumination.\*

### 3.1.6 *Spooling device*

Anchor handling winches should be equipped with remotely operated spooling devices.

### 3.1.7 *Emergency release*

3.1.7.1 Anchor handling winches should be designed to facilitate emergency release of the load on the wire in a safe and controlled manner, both under normal as well as dead-ship conditions.

3.1.7.2 The controls for actuation of the emergency release should be placed at the main control station. Emergency release function may also be available at the local control station.

3.1.7.3 Emergency release control should be protected against unintentional activation.

3.1.7.4 The design and operation of the emergency release should take into consideration restrictions on the pay-out speed of the wire due to inertia and any restrictions due to onboard arrangements.

3.1.7.5 Instructions for the operation of the emergency release should be clearly displayed at the navigation bridge and locally at the winch.

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\* The minimum lighting level is at least 320 Lux.

3.1.7.6 After an emergency release, the complete anchor handling winch system should be inspected for signs of damage or deterioration. Any identified damage or deterioration should be rectified before the anchor handling winch is put back into service.

### 3.1.8 *Associated anchor handling equipment*

#### 3.1.8.1 Chain stopper

3.1.8.1.1 Anchor handling vessels should be equipped with chain or wire stoppers (hereafter referred to as chain stoppers).

3.1.8.1.2 A chain stopper should be equipped with an audible alarm which is activated when the stopper is either being engaged or disengaged.

3.1.8.1.3 A chain stopper should be equipped with an emergency release that is functional in all conditions, including dead-ship situations.

3.1.8.1.4 Emergency release of chain stopper should include disengaging of pins and other equipment that may prevent releasing the wire or cause the wire to get stuck/entangled during release.

3.1.8.1.5 Emergency release of the chain stopper should be designed for remote operation in order to minimize the risk of injury to personnel.

3.1.8.1.6 The emergency release mechanism of the chain stopper should be protected against unintentional activation.

3.1.8.1.7 Instructions for the operation of the emergency release should be clearly displayed at the navigation bridge and locally at the emergency release control mechanism.

3.1.8.1.8 After an emergency release, the chain stopper system should be inspected for signs of damage or deterioration. Any identified damage or deterioration should be rectified before the chain stopper is put back into service.

## **3.2 *Testing and thorough examination***

### 3.2.1 *Commissioning test*

3.2.1.1 For anchor handling winches to which SOLAS regulation II-1/3-13.2.2 applies, a commissioning test should be carried out according to the manufacturer's instructions and the requirements of a classification society which is recognized by the Administration in accordance with SOLAS regulation XI-1/1, or with applicable national or international standards acceptable to the Administration and which provide an equivalent level of safety. The commissioning test should include the following:

- .1 Function tests at light load to verify the correct working of the winch and its controls over the full operating range.
- .2 An overload test to verify the capacity and integrity of the anchor handling winch, the attachment of the winch to ship and the adequacy of the ship's supporting structure.
- .3 Test of emergency release and residual holding force in the wire. The test should be performed with the wire attached to an onshore strong point, or an anchor on the seabed or a similar arrangement.

- .4 Residual brake holding force after emergency release should be verified by test.
- .5 Function test of the whole winch system including static bollard pull test and brake holding capacity test. Where it is not practicable to verify the brake holding capacity by testing, the same may be demonstrated through calculations.

3.2.1.2 After repairs, modifications or alterations of a major character, anchor handling winches are to be tested in accordance with 3.2.1.1.1, 3.2.1.1.2 and 3.2.1.1.5. If the emergency release system is affected by these repairs, modifications or alterations of a major character, the anchor handling winches are to be additionally tested in accordance with 3.2.1.1.3 and 3.2.1.1.4.

3.2.1.3 Repairs, modifications or alterations of a major character are those which:

- .1 change the rated wire pull of the anchor handling winch;
- .2 affect the strength, stability or service life of the anchor handling winch;
- .3 affect the primary load bearing structure of the anchor handling winch; or
- .4 modify the functionality of the anchor handling winch or any part thereof which may affect its strength or safety or structural integrity.

3.2.1.4 Anchor handling winches that are not designed for towing do not need to undergo the bollard pull test in 3.2.1.1.5. Functional testing other than the static bollard pull test is still required.

### 3.2.2 *Periodical testing*

Anchor handling winches and associated equipment should be operationally tested annually and five-yearly according to the manufacturer's recommendation and the requirements or recommendations of a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1. The annual test should include function tests of all equipment. The Administration or recognized organization should witness the five-yearly test.

### 3.2.3 *Thorough examination*

3.2.3.1 Anchor handling winches and associated equipment should be subject to a thorough examination to the satisfaction of the Administration during annual surveys required by SOLAS regulations I/7 for passenger ships and I/10 for cargo ships, before re-entering service after any structural repairs or modifications of major character and after load testing.

3.2.3.2 If on completion of a thorough examination, the competent person considers the anchor handling winch to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then that anchor handling winch should be taken out of service until any deficiency is rectified to the satisfaction of a competent person. The anchor handling winch should be clearly marked "not to be used" and the status should be recorded as outlined in 3.2.4. While out of service, the relevant actions for inoperative anchor handling winches as outlined under section 5 of these Guidelines should be followed.

### 3.2.4 *Records of testing and thorough examination*

Records of thorough examination and testing may be documented in any convenient form, provided each entry includes the necessary information, is clearly legible and is authenticated by the competent person. The relevant classification society or equivalent forms for documenting the thorough examination and testing should be considered for use.

### **3.3 *Demonstration of compliance***

3.3.1 Before being put into use for the first time, anchor handling winches installed on or after 1 January 2026 should be certified by the Administration or a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1 as compliant with SOLAS regulations II-1/3-13.2.2 with the recommended scope for demonstration of compliance of anchor handling winches comprising the following:

- .1 a plan appraisal of the anchor handling winch and foundation connections;
- .2 verification of materials;
- .3 survey, testing and examination during fabrication;
- .4 verification of component certificates including its loose gear; and
- .5 testing and thorough examination when installed on board.

3.3.2 Anchor handling winches installed before 1 January 2026 should be certified by the Administration or a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1 as compliant with SOLAS regulation II-1/3-13.2.5 no later than the date of the first renewal survey on or after 1 January 2026.

3.3.3 Existing anchor handling winches with valid certificates under another international instrument acceptable to the Administration and issued prior to the entry into force of SOLAS regulation II-1/3-13 should be considered compliant with SOLAS regulation II-1/3-13.2.5.

3.3.4 Demonstration of compliance certified as per paragraphs 3.3.1 and 3.3.2 should be recorded in accordance with paragraph 3.2.4.

### **3.4 *Nameplate***

3.4.1 Anchor handling winches should be provided with a permanently affixed name plate which should include at least the following information:

- .1 details of the manufacturer (name, address);
- .2 model name/number;
- .3 serial number;
- .4 date of manufacture and date of installation;
- .5 details of power supply;
- .6 details of wire (e.g. length, diameter);
- .7 maximum brake holding capacity, metric tons;

- .8 maximum line pull, metric tons;
- .9 maximum static bollard pull, metric tons;
- .10 placeholder for the classification society's surveyor's stamp;
- .11 drum size; and
- .12 winch speed.

3.4.2 Detailed specifications of anchor handling winches, such as the following information, can be included in other documentation, e.g. anchor handling winches' operation/maintenance manual on board:

- .1 date of manufacture and date of installation;
- .2 details of power supply;
- .3 details of wire (e.g. length, diameter);
- .4 maximum brake holding capacity, metric tons;
- .5 maximum line pull, metric tons;
- .6 maximum static bollard pull, metric tons;
- .7 placeholder for the classification society's surveyor's stamp;
- .8 drum size; and
- .9 winch speed.

3.4.3 It should be ensured that the documentation on board can be unambiguously related to the actual winch, i.e. by referring to the unique serial number.

### **3.5 *Maintenance, inspection and operational testing***

#### **3.5.1 *General***

3.5.1.1 Maintenance, inspection, operational testing and their respective intervals should be in accordance with the manufacturer's recommendations, industry standards and guidelines or classification society requirements and recommendations acceptable to the Administration, considering factors such as the operational profile of the ship and the anchor handling winch.

3.5.1.2 All anchor handling winches and associated equipment should be considered vulnerable to marine environmental conditions which may lead to significant and accelerated deterioration and corrosion, and the inspection and maintenance regime should be implemented accordingly.

3.5.1.3 The inspection and maintenance of anchor handling winches and associated equipment may involve working at height, enclosed space entry and other hazards. These hazards should be considered when developing the relevant procedures for undertaking such tasks, including safe access.

3.5.1.4 Examples of items requiring particular attention may include:

- .1 corrosion and damage of primary structural members, such as winch frames and bedplates, drums, foundations and foundation connections, including welds and bolts;
- .2 wear, corrosion and damage of mechanical components including hydraulic/pneumatic cylinders, pins, winch drums, chain wheels, wire-spooling and guide systems, clutches, bearings, rollers, shafts, gears, bearings and brakes;
- .3 correct setting and functioning of safety, protection and limiting devices;
- .4 condition and correct functioning of the anchor handling winch as a whole and, in particular, the piping/hoses, hydraulic arrangements, spooling devices, motors, and electrical and control systems;
- .5 corrosion and damage to all means of safe access to the anchor handling winch, including attached maintenance platforms and extensions, with particular attention to support brackets and welds; and
- .6 certification and identification of all wires.

3.5.1.5 Damaged, broken, worn or corroded wires, including their terminations connecting loose gear, should be inspected and discarded according to manufacturers' recommendations, relevant industry standards, international standards or requirements of classification societies acceptable to the Administration.

3.5.1.6 If on the completion of an inspection, the responsible person considers the anchor handling winch to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then that anchor handling winch should be taken out of service until any deficiency is rectified to the satisfaction of a competent person. The anchor handling winch should be clearly marked not to be used and the status should be recorded in accordance with 3.2.4. While out of service, the relevant actions for inoperative anchor handling winches as outlined under section 5 of these Guidelines should be followed.

3.5.2 *Maintenance manual*

3.5.2.1 A maintenance manual for an anchor handling winch should be provided by the manufacturer. Where maintenance manuals for existing anchor handling winches are not available from the manufacturer, these may be provided by competent third parties.

3.5.2.2 The maintenance manual should, as a minimum, include the following for each anchor handling winch:

- .1 description of the required inspection regime and maintenance schedules specific to the anchor handling winch, checklists and a list of key tools or other items for use when carrying out inspections and maintenance;
- .2 instructions for routine repairs/maintenance;
- .3 technical maintenance information;
- .4 information on recommended lubricants, oil and filter change;
- .5 information on bearing maintenance, if applicable;

- .6 lists of replaceable parts/components, as well as the inspection/maintenance/replacement procedures for these parts/components;
- .7 lists of sources of spare parts;
- .8 model forms for records of inspections and maintenance;
- .9 operational test procedures, as well as the pre/post-operational test inspection procedures;
- .10 list of components requiring particular attention during inspections, as well as the inspection/maintenance procedures for these components;
- .11 recommended intervals for replacement and overhaul of components and equipment;
- .12 information on the preservation of the coating and corrosion protection system; and
- .13 information regarding special inspection and maintenance in cases where the anchor handling winch is not operated for long periods of time.

### *3.5.3 Records of maintenance and inspection*

3.5.3.1 Records of the routine inspection and maintenance of anchor handling winches or their components or parts should be maintained and kept on board.

3.5.3.2 The records and particulars of inspection and maintenance may be documented in any convenient form, provided each entry contains the necessary information, is clearly legible and is authenticated by a responsible person. Any recommendations of the manufacturer for such inspection and maintenance records should be used.

## **3.6 Operations**

### *3.6.1 General*

3.6.1.1 Personnel operating anchor handling winches and their associated equipment should be qualified, familiarized with the equipment and be authorized by the master.

3.6.1.2 All personnel involved in an anchor handling winch operation should understand their role during the operation and, in particular, the signals that may be required to commence, coordinate or stop the operation.

3.6.1.3 Personnel involved in anchor handling winch operations should be equipped with appropriate personal protective equipment for the task.

3.6.1.4 Anchor handling winch operations should be planned, supervised and carried out so that any identified risks are minimized.

3.6.1.5 Procedures and instructions should relate to the specific type of anchor handling winch and should be provided in the operations manual.

3.6.1.6 Due consideration should be given to any limiting operational conditions, such as the ship's motion/inclination, environmental conditions including sea state, maximum wind speeds including wind gusts, ice and snow accretion, as well as limitations of the anchor handling winch, such as maximum line pull, maximum brake holding capacity, etc.

3.6.1.7 Effective communication should be established among ship's personnel as well as other ships/offshore units involved in the anchor handling winch operation.

3.6.1.8 Safe means of access to anchor handling winches and the work area should be established. Safe areas for the personnel involved should be available.

3.6.1.9 When developing plans and procedures for anchor handling winch operations, consideration should be given to prevention of accidents or incidents due to the wires striking any person or other structures in close proximity.

3.6.1.10 Procedures and measures for the safe operation of anchor handling winches should take account of applicable international and national instruments and best practices for occupational safety and health.

3.6.1.11 Personnel operating the anchor handling winch should consult the operations manual for any specific instructions related to the anchor handling operations.

3.6.1.12 Periodic drills for emergency release and emergency brake operation should form part of the planned maintenance schedule.

### 3.6.2 *Operations manual*

3.6.2.1 An operations manual for the anchor handling winches should be provided by the manufacturer. Where operations manuals for existing anchor handling winches are not available from the manufacturer, these may be provided by competent third parties.

3.6.2.2 The operations manual should, as a minimum, include the following for each anchor handling winch:

- .1 design, operational and environmental limitations;
- .2 compatible loose gear, if any;
- .3 safety instructions; and
- .4 operating procedures, including emergency procedures, if any.

3.6.2.3 For anchor handling winches installed before 1 January 2026, their operations manual should be developed with original manufacture, design and build data, and take into account any modifications since installation. Where original data or modification data is not available, the operations manuals should be developed on the current operational procedures and practices.

## **4 Loose gear**

### **4.1 *Design and manufacturing***

Loose gear utilized with anchor handling winches to which SOLAS regulations II-1/3-13.2.2 and II-1/3-13.2.5 apply should be designed and manufactured in accordance with requirements acceptable to the Administration or a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1.



## **4.2 Proof test and thorough examination**

### **4.2.1 Proof test**

All loose gear in use with anchor handling winches and associated equipment to which SOLAS regulation II-1/3-13 applies should have documentary evidence of a proof test and be retested after repairs, modifications or alterations of major character acceptable to the Administration.

### **4.2.2 Thorough examination**

4.2.2.1 Loose gear should be subject to thorough examination to the satisfaction of the Administration:

- .1 after any proof test; and
- .2 annually.

4.2.2.2 If on completion of a thorough examination, the competent person considers the item(s) of loose gear to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then that loose gear should be taken out of service until any deficiency is rectified to the satisfaction of a competent person. The loose gear should be clearly marked "not to be used" and the status should be recorded as detailed in sub-section 4.7. While out of service, the relevant actions for inoperative loose gear as outlined under section 5 of these Guidelines should be followed.

## **4.3 Demonstration of compliance**

4.3.1 Before being put into use for the first time, the loose gear utilized with anchor handling winches which comply with SOLAS regulations II-1/3-13.2.2 and 3-13.2.5 should be certified to meet the provisions in section 4.

4.3.2 The existing loose gear utilized with anchor handling winches and associated equipment to which SOLAS regulations II-1/3-13.2.2 and II-1/3-13.2.5 apply, with valid certificates under another international instrument acceptable to the Administration and issued prior to the entry into force of SOLAS regulation II-1/3-13, should be considered compliant with SOLAS regulation II-1/3-13.5.

## **4.4 Marking**

4.4.1 Loose gear should be clearly and permanently marked with its unique identification (serial no.), safe working load (SWL) and any additional marks required for safe use.

4.4.2 If there is insufficient space for the marking on the loose gear other than the SWL, the omitted information should be included in the certificate or be provided by other suitable means.

## **4.5 Operation**

The personnel involved in anchor handling winch operations which utilize loose gear should be qualified, familiarized with the equipment and be authorized by the master.

#### **4.6 Maintenance and inspection**

4.6.1 Maintenance and inspections at respective intervals should be in accordance with the manufacturer's recommendations, industry standards and guidelines or classification society requirements and recommendations acceptable to the Administration, considering factors such as the operational profile of the ship, anchor handling winch and the loose gear.

4.6.2 All loose gear should be considered vulnerable to marine environmental conditions which may lead to significant and accelerated deterioration and corrosion, and the inspection and maintenance regime should be implemented accordingly.

4.6.3 Hazards particular to the inspection and maintenance of loose gear should be considered when developing the relevant procedures for undertaking such tasks.

4.6.4 Loose gear should be inspected by a responsible person before each use.

4.6.5 Examples of aspects requiring particular attention may include:

- .1 wear, corrosion, damage and correct functioning of the loose gear;
- .2 damaged, worn or corroded chains, including their terminations;
- .3 certification, identification and marking of loose gear; and
- .4 physical or chemical degradation, including degradation due to the exposure to the environment.

4.6.6 If on completion of an inspection the responsible person considers the loose gear to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then the loose gear should not be used until any deficiency is rectified to the satisfaction of a competent person. The loose gear should be clearly marked "not to be used" and the status should be recorded. While out of service, the relevant actions for inoperative loose gear as outlined in section 5 should be followed.

#### **4.7 Records of inspection, maintenance, testing and thorough examination**

##### **4.7.1 Records of thorough examination and testing**

4.7.1.1 A record of thorough examination and evidence of proof testing of loose gear should be maintained and kept on board.

4.7.1.2 Records of thorough examination and testing may be documented in any convenient form, provided each entry includes the necessary information, is clearly legible and is authenticated by the competent person. Forms issued by the relevant classification society recognized by the Administration or any equivalent forms for documenting the thorough examination and testing should be considered for use.

##### **4.7.2 Records of inspection and maintenance**

4.7.2.1 Records of the routine inspection and maintenance of loose gear should be maintained and kept on board.

4.7.2.2 The records and particulars of inspection and maintenance may be documented in any convenient form, provided each entry contains the necessary information, is clearly legible and is authenticated by a responsible person. Any recommendations of the manufacturer for such inspection and maintenance records should be used.

## **5 Inoperative anchor handling winches, associated equipment and loose gear**

For the implementation of SOLAS regulation II-1/3-13.4, the following actions should be taken by the master to mitigate risks posed by inoperative anchor handling winches and associated loose gear and wire:

- .1 take the inoperative anchor handling winches, associated equipment and wire into account in planning and executing a safe voyage;
- .2 prevent the operation of inoperative anchor handling winches and associated loose gear and equipment;
- .3 prevent uncontrolled movement of inoperative anchor handling winches or associated loose gear and equipment using appropriate restraining and preventing arrangements, if required;
- .4 store inoperative wires and loose gear separately from in-service wires and loose gear and mark it as being inoperative; and
- .5 record the particulars of anchor handling winches or loose gear, associated equipment and wire that is inoperative as detailed in paragraph 3.2.4 and/or 4.7.1 until necessary repairs have been completed and it has been tested or proof tested, as necessary, and thoroughly examined.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1663  
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### **GUIDELINES FOR LIFTING APPLIANCES**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), having considered a proposal by the Sub-Committee on Ship Systems and Equipment (SSE), at its eighth session, with a view to ensuring a uniform approach towards the application of the provisions of SOLAS regulation II-1/3-13, adopted by resolution MSC.532(107), approved the *Guidelines for lifting appliances*, as set out in the annex.

2 Member States are invited to use the annexed Guidelines when applying SOLAS regulation II-1/3-13 and to bring it to the attention of ship designers, shipyards, shipowners, equipment manufacturers, other organizations and parties concerned.

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## ANNEX

### GUIDELINES FOR LIFTING APPLIANCES

#### 1 Application

These Guidelines support the application of SOLAS regulation II-1/3-13 for lifting appliances and loose gear used in association with lifting appliances.

#### 2 Definitions

For the purpose of these Guidelines, the following definitions apply:

- .1 *Competent person* means a person possessing the knowledge and experience required for the performance of duties specified in these Guidelines and acceptable as such to the Administration.
- .2 *Inspection* means an assessment carried out by a responsible person to ascertain if the lifting appliance or loose gear is in good working condition for continued safe use.
- .3 *Responsible person* means a person appointed by the master or company as defined in SOLAS regulation IX/1, as appropriate, possessing the knowledge and experience required for the performance of duties specified in these Guidelines.
- .4 *Thorough examination* means a detailed assessment carried out by a competent person in order to determine whether or not the lifting appliance or loose gear is in compliance with the applicable requirements of the Administration.
- .5 *Certified* means that the lifting appliance or loose gear has been verified and documented as compliant to the satisfaction of the Administration or recognized organization acting on its behalf.
- .6 *Maintenance* means any activity carried out by a responsible person to keep the lifting appliance or loose gear in good working condition for continued safe use.
- .7 *Operational testing* means a test carried out by a responsible person to verify the correct functioning of a component or operation of the lifting appliance and/or associated loose gear.
- .8 *Load test* means a test in excess of the SWL, carried out in the presence of a competent person in order to check the structural integrity of the lifting appliance and its attachment to and adequacy of its supporting structure.
- .9 *Safe working load (SWL)* is the maximum static load at a specified radius which a lifting appliance or item of loose gear is certified to lift for a specified operating condition.
- .10 *Certificate of test and thorough examination* means a certificate issued by a competent person upon satisfactory completion of the test and thorough examination of the lifting appliance and/or loose gear.

### 3 Lifting appliances

#### 3.1 Design, construction and installation

As required by SOLAS regulation II-1/3-13.2.1.1, lifting appliances installed on or after 1 January 2026 should be designed, constructed and installed in accordance with the requirements of a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1 or standards acceptable to the Administration which provide an equivalent level of safety.

#### 3.2 Load testing and thorough examination

##### 3.2.1 Load test

3.2.1.1 Lifting appliances to which SOLAS regulation II-1/3-13.2.1 applies should be load tested to the satisfaction of the Administration after installation and before being taken into use for the first time and after repairs, modifications or alterations of a major character.

3.2.1.2 Lifting appliances to which SOLAS regulation 3-13.2.4 applies should be load tested to the satisfaction of the Administration no later than the date of the first renewal survey on or after 1 January 2026 or after repairs, modifications or alterations of a major character.

3.2.1.3 *Repairs, modifications or alterations of a major character* are those which:

- .1 change the safe working load of the lifting appliance; or
- .2 affect the strength, stability or service life of the lifting appliance; or
- .3 affect the primary load bearing structure of the lifting appliance; or
- .4 modify the functionality of the lifting appliance or any part thereof which may affect its strength or safety or structural integrity.

3.2.1.4 Lifting appliances to which SOLAS regulations II-1/3-13.2.1 and 3-13.2.4 apply should be retested at least once in every five years.

3.2.1.5 For load testing of lifting appliances intended for use while the ship is in port or sheltered waters, the test load, as set out in table 1 below, should be established using the SWL. For lifting appliances intended for open-sea operations, the test loads should be to the satisfaction of the Administration or a classification society which is recognized by it, taking into account the applicable dynamic loads.

**Table 1: Lifting appliances minimum test loads**

SWL of the lifting appliance, in tonnes	Test load, in tonnes
SWL ≤ 20 t	1.25 x SWL
20 t < SWL ≤ 50 t	SWL + 5 t
SWL > 50 t	1.10 x SWL

3.2.1.6 Where the safe working load of the lifting appliances is undocumented and design information is not available, e.g. for lifting appliances which are installed on board before 1 January 2026 and the manufacturer no longer exists, the test load should be calculated using table 1, based on a safe working load nominated by the company, to the satisfaction of the Administration.

### 3.2.2 *Thorough examination*

3.2.2.1 Lifting appliances should be subject to thorough examination to the satisfaction of the Administration:

- .1 upon completion of any load test; and
- .2 annually.

3.2.2.2 Where thorough examination does not form part of the renewal survey or annual survey, verification that thorough examination of lifting appliances has been conducted/completed to the satisfaction of the Administration should take place during the renewal survey under SOLAS regulation I/7 or the annual survey under SOLAS regulation I/10, as applicable.

3.2.2.3 If on completion of a thorough examination, the competent person considers the lifting appliance to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then that lifting appliance should be taken out of service until any deficiency is rectified to the satisfaction of a competent person. The lifting appliance should be clearly marked "not to be used" and the status should be recorded in a register of lifting appliances. While out of service, the relevant actions for inoperative lifting appliances as outlined under section 5 of these Guidelines should be followed.

### 3.2.3 *Records of thorough examination and testing*

3.2.3.1 A record of thorough examination and load testing should be maintained in a register of lifting appliances and should be available on board.

3.2.3.2 Load testing and thorough examination may be documented in any convenient form, provided each entry contains the necessary information, is clearly legible and is authenticated by a competent person. The minimum information to be included in the *Certificate of test and thorough examination*, as set out in the appendix 1, should be used. Alternatively, other formats may be used which are acceptable to the Administration, such as those of a classification society recognized by the Administration.

## 3.3 ***Demonstration of compliance***

3.3.1 Before being put into use for the first time, lifting appliances installed on or after 1 January 2026 should be certified as compliant with SOLAS regulations II-1/3-13.2.1 and II-1/3-13.2.3 with the recommended scope for demonstration of compliance of lifting appliances comprising the following:

- .1 a plan appraisal of the lifting appliance and foundation connections;
- .2 verification of materials;
- .3 survey, testing and examination during fabrication;
- .4 verification of component certificates including its loose gear; and
- .5 testing and thorough examination when installed on board.

3.3.2 Lifting appliances installed before 1 January 2026 should be certified as compliant with SOLAS regulation II-1/3-13.2.4 no later than the date of the first renewal survey on or after 1 January 2026.



3.3.3 Existing lifting appliances with valid certificates of test and thorough examination under another international instrument acceptable to the Administration and issued prior to the entry into force of SOLAS regulation II-1/3-13 should be considered compliant with SOLAS regulation II-1/3-13.2.4.

3.3.4 All certified lifting appliances on board a ship should be recorded in the *Register of Ship's Lifting Appliances and Cargo Handling Gear*, as set out in appendix 3, with the *Certificate of test and thorough examination* attached to it (see paragraph 3.2.3.2).

3.3.5 A rigging plan and block list showing the correct reeving and rigging arrangements for the lifting appliance and the associated loose gear positions is to be kept on board, if applicable.

### **3.4 Marking**

3.4.1 The safe working load (SWL) and other information essential for the safe operation of the lifting appliance (e.g. maximum or minimum slewing radius or boom angle) should be permanently and clearly marked in a conspicuous place on the lifting appliance and should be available to the operator.

3.4.2 In all cases where the lifting appliance has a variable load radius rating, the SWLs corresponding to the minimum and maximum radius should be clearly marked in a conspicuous place on the lifting appliance and, in addition, a diagram of the permissible maximum loads over the entire range of use should be displayed in a position clearly visible to the operator.

3.4.3 If the safe working load is established in accordance with paragraph 3.2.1.6, this safe working load should be used for the purpose of compliance with SOLAS regulation II-1/3-13.2.3.

### **3.5 Maintenance, inspection and operational testing**

#### **3.5.1 General**

3.5.1.1 Maintenance, inspection, operational testing and their respective intervals should be in accordance with the manufacturer's recommendations, industry standards and guidelines or classification society requirements and recommendations acceptable to the Administration, considering factors such as the operational profile of the ship and the lifting appliance.

3.5.1.2 All lifting appliances should be considered vulnerable to marine environmental conditions which may lead to significant and accelerated deterioration and corrosion, and the inspection and maintenance regime should be implemented accordingly.

3.5.1.3 The inspection and maintenance of lifting appliances may involve working at height, enclosed space entry and other hazards. These hazards should be considered when developing the relevant procedures for undertaking such tasks, including safe access.

3.5.1.4 Examples of items requiring particular attention may include:

- .1 corrosion and damage of primary structural members, including crane jibs, crane housings (slewing column), pedestals and foundations/foundation connections, including welds and bolts;
- .2 wear, corrosion and damage of mechanical components including winches, hydraulic cylinders, slew bearings, sheaves and pins;
- .3 correct setting and functioning of safety, protection and limitation devices;

- .4 condition and correct functioning of the lifting appliance as a whole and, in particular, hydraulic or pneumatic arrangements, hydraulic/pneumatic cylinders, motors, hoses, piping, winches, brakes and drums;
- .5 corrosion and damage to all means of safe access to the lifting appliances including attached maintenance platforms and extensions, with particular attention to support brackets and welds; and
- .6 certification and identification of ropes.

3.5.1.5 Damaged, broken, worn or corroded ropes, including their terminations, should be inspected and discarded according to manufacturers' recommendations, relevant industry standards, international standards (e.g. ISO 4309:2017 on Cranes – Wire ropes – Care and maintenance, inspection and discard) or requirements of classification societies acceptable to the Administration.

3.5.1.6 If, on completion of an inspection, the responsible person considers the lifting appliance to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then that lifting appliance should be taken out of service until any deficiency is rectified to the satisfaction of a competent person. The lifting appliance should be clearly marked "not to be used" and the status should be recorded in a register of lifting appliances. While out of service, the relevant actions for inoperative lifting appliances as outlined under section 5 of these Guidelines should be followed.

### 3.5.2 *Maintenance manual*

3.5.2.1 A maintenance manual for a lifting appliance should be provided by the manufacturer. Where maintenance manuals for existing lifting appliances are not available from the manufacturer, these may be provided by competent third parties.

3.5.2.2 The maintenance manual should, as a minimum, include the following for each lifting appliance:

- .1 description of the required inspection regime and maintenance schedules specific to the lifting appliance, checklists and a list of key tools or other items for use when carrying out inspections and maintenance;
- .2 instructions for routine repairs/maintenance;
- .3 technical maintenance information;
- .4 information on recommended lubricants, oil and filter change;
- .5 information on slewing bearing maintenance, if applicable;
- .6 lists of replaceable parts/components, as well as the inspection/maintenance/replacement procedures for these parts/components;
- .7 lists of sources of spare parts;
- .8 model forms for records of inspections and maintenance;
- .9 operational test procedures, as well as the pre/post-operational test inspection procedures;

- .10 list of components requiring particular attention during inspections, as well as the inspection/maintenance procedures for these components;
- .11 recommended intervals for replacement and overhaul of components and equipment;
- .12 information on the preservation of the coating and corrosion protection system; and
- .13 information regarding special inspection and maintenance in cases where the lifting appliance is not operated for long periods of time.

### 3.5.3 *Records of inspections and maintenance*

3.5.3.1 Records of the routine inspection and maintenance of lifting appliances or their components or parts should be maintained and kept on board.

3.5.3.2 The records and particulars of inspection and maintenance may be documented in any convenient form, provided each entry contains the necessary information, is clearly legible and is authenticated by a responsible person. Any recommendations of the manufacturer for such inspection and maintenance records should be used.

## **3.6 Operations**

### 3.6.1 *General*

3.6.1.1 Personnel operating lifting appliances should be qualified, familiarized with the equipment and be authorized by the master.

3.6.1.2 All personnel involved in a lifting operation should understand their role during the operation and, in particular, the signals that may be required to commence, coordinate or stop the operation.

3.6.1.3 Personnel involved in lifting operations should be equipped with appropriate personal protective equipment for the task.

3.6.1.4 Lifting operations should be planned, supervised and carried out so that any identified risks are minimized.

3.6.1.5 Procedures and instructions should relate to the specific type of lifting appliance and should be provided in the operations manual.

3.6.1.6 Due consideration should be given to any limiting conditions such as ship's motion/inclination, wind speeds including wind gusts, environmental conditions such as ice and snow, limitations of the lifting appliance such as SWL and slew radius, etc. of the lifting appliance.

3.6.1.7 Effective communication should be established between ship's personnel and shore-based personnel involved in the lifting operation.

3.6.1.8 Safe means of access to lifting appliances and loads requiring attachment/detachment should be established. Safe areas for the signaller and slinger should be available.

3.6.1.9 When developing plans and procedures for lifting operations, consideration should be given to avoiding any part of the lifting appliances striking any person or other structures in close proximity.

3.6.1.10 Procedures and measures for the safe operation of lifting appliances should take account of applicable international and national instruments and best practices for occupational safety and health.

3.6.1.11 Lifting appliances should be restrained and stowed in order to avoid uncontrolled movement during sea voyages. The stowage and restraining arrangements should be as required by the manufacturer.

3.6.1.12 Personnel operating the lifting appliance should consult the operations manual for any specific instructions related to the lifting operations.

### **3.6.2 Operations manual**

3.6.2.1 An operations manual for a lifting appliance should be provided by the manufacturer. Where operations manuals for existing lifting appliances are not available from the manufacturer, these may be provided by competent third parties.

3.6.2.2 An operations manual should, as a minimum, include the following for each lifting appliance:

- .1 design, operational and environmental limitations;
- .2 compatible loose gear;
- .3 safety instructions; and
- .4 operating procedures, including special procedures, if any.

3.6.2.3 For lifting appliances installed before the date of entry into force of SOLAS regulation II-1/3-13 operation manuals should be developed with original manufacture, design and build data and take into account any modifications since installation. Where original data or modification data is not available, operations manual should be developed on the current operational procedures and practices.

## **4 Loose gear**

### **4.1 Design and manufacturing**

Loose gear utilized with lifting appliances to which SOLAS regulations II-1/3-13.2.1 and II-1/3-13.2.4 apply should be designed and manufactured in accordance with requirements acceptable to the Administration or a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1.

### **4.2 Proof test and thorough examination**

#### **4.2.1 Proof test**

All loose gear in use with lifting appliances to which SOLAS regulation II-1/3-13 applies should have documentary evidence of a proof test and be retested after repairs, modifications or alterations of a major character to the satisfaction of the Administration. Where an item of loose gear is tested, minimum test loads should be to the satisfaction of the Administration, based on table 2 below.

**Table 2: Loose gear minimum test loads**

Item	Test load, in tonnes
Single sheave block	4 x SWL
Multi-sheave blocks and hook blocks: SWL ≤ 25 t 25 t < SWL ≤ 160 t 160 t < SWL	2 x SWL (0.993 x SWL) + 27 1.1 x SWL
Hooks, shackles, chains, rings, swivels, etc.: SWL ≤ 25 t 25 t < SWL	2 x SWL (1.22 x SWL) + 20
Lifting beams, spreaders, frames, grabs: SWL ≤ 10 t 10 t < SWL ≤ 160 t 160 t < SWL	2 x SWL (1.04 x SWL) + 9.6 1.1 x SWL
<p>Note 1. Sheave blocks that are permanently attached to, or are integral with the hook, are called hook blocks. Hook blocks are to be tested with the load for multi-sheave blocks. The hook of the hook block is to be tested with the loads for hooks.</p> <p>Note 2. The SWL for a single sheave block, including single sheave blocks with becketts, is to be taken as one half of the resultant load on the head fitting.</p> <p>Note 3. The SWL of a multi-sheave block is to be taken as the resultant load on the head fitting.</p>	

#### 4.2.2 Thorough examination

4.2.2.1 Loose gear should be subject to thorough examination to the satisfaction of the Administration:

- .1 upon completion of any proof test; and
- .2 annually.

4.2.2.2 Where thorough examination does not form part of the renewal survey or annual survey, verification that thorough examination of loose gear has been conducted/completed to the satisfaction of the Administration should take place during the renewal survey under SOLAS regulation I/7 or the annual survey under SOLAS regulation I/10, as applicable.

4.2.2.3 If, on completion of a thorough examination, the competent person considers the item(s) of loose gear to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then that loose gear should be taken out of service until any deficiency is rectified to the satisfaction of a competent person. The loose gear should be clearly marked "not to be used" and the status should be recorded in a register of lifting appliances. While out of service, the relevant actions for inoperative loose gear as outlined under section 5 of these Guidelines should be followed.

### **4.3 Demonstration of compliance**

4.3.1 Before being put into use for the first time, loose gear utilized with lifting appliances which comply with SOLAS regulations II-1/3-13.2.1 and 3-13.2.4 should be certified to meet the provisions in section 4.

4.3.2 Certificates of test and thorough examination of certified loose gear should be attached to the *Register of ship's lifting appliances and cargo handling gear* (see paragraph 4.7.1.2).

### **4.4 Marking**

4.4.1 Loose gear should be clearly and permanently marked with its unique identification (serial no.), the SWL and any additional marks required for safe use.

4.4.2 In addition, specific types of loose gear should be marked with the following minimum information:

- .1 ramshorn hooks: range of sling angle;
- .2 block and hook blocks;
  - .1 rope diameter;
  - .2 rigging plan identification mark (for blocks) if any;
- .3 lifting beams, spreaders, frames;
  - .1 tare weight;
  - .2 allowable sling angles;
  - .3 details of the safe application of the SWL in case of complex equipment which can be utilized in different ways;
- .4 grabs;
  - .1 tare weight; and
- .5 other equipment as per the requirements of the classification society or industry standards acceptable to the Administration.

4.4.3 If there is insufficient space for the marking on the loose gear other than the SWL, the omitted information should be included in the certificate or be provided by other suitable means.

### **4.5 Operation**

Personnel involved in lifting operations which utilize loose gear should be qualified, familiarized with the equipment and be authorized by the master.

### **4.6 Maintenance and inspection**

4.6.1 Maintenance and inspections at respective intervals should be in accordance with the manufacturer's recommendations, industry standards and guidelines or classification society requirements and recommendations acceptable to the Administration considering factors such as the operational profile of the ship and the loose gear.

4.6.2 All loose gear should be considered vulnerable to marine environmental conditions which may lead to significant and accelerated deterioration and corrosion and the inspection and maintenance regime should be implemented accordingly.

4.6.3 The inspection and maintenance of loose gear may involve working at height, enclosed space entry and other hazards. These hazards should be considered when developing the relevant procedures for undertaking such tasks, including safe access.

4.6.4 Loose gear should be inspected by a responsible person before each use.

4.6.5 Examples of aspects requiring particular attention may include:

- .1 wear, corrosion, damage and correct functioning of the loose gear;
- .2 damaged, worn or corroded chains, including their terminations;
- .3 certification and identification of loose gear; and
- .4 physical or chemical degradation, including degradation due to the exposure to the environment.

4.6.6 If on completion of an inspection the responsible person considers the loose gear to be unsafe for operation or not in compliance with the applicable requirements of the Administration, then the loose gear should not be used until any deficiency is rectified to the satisfaction of a competent person. The loose gear should be clearly marked "not to be used" and the status should be recorded in a register of lifting appliances. While out of service, the relevant actions for inoperative loose gear as outlined in section 5 should be followed.

#### **4.7 *Records of inspection, maintenance, testing and thorough examination***

##### **4.7.1 *Records of thorough examination and testing***

4.7.1.1 A record of thorough examination and evidence of proof testing of loose gear should be maintained in a register of lifting appliances and kept on board.

4.7.1.2 Records of thorough examination may be documented in any convenient form, provided each entry contains the necessary information, is clearly legible and is authenticated by a competent person. The minimum information to be included in the *Certificate of test and thorough examination of loose gear*, as set out in appendix 2, should be used. Alternatively, other formats may be used which are acceptable to the Administration, such as those of a classification society recognized by the Administration.

##### **4.7.2 *Records of inspection and maintenance***

4.7.2.1 Records of the routine inspection and maintenance of loose gear should be maintained and kept on board.

4.7.2.2 The records and particulars of inspection and maintenance may be documented in any convenient form, provided each entry contains the necessary information, is clearly legible and is authenticated by a responsible person. Any recommendations of the manufacturer for such inspection and maintenance records should be used.

## **5 Inoperative lifting appliances and loose gear**

For the implementation of SOLAS regulation II-1/3-13.4, the following actions should be taken by the master to mitigate risks posed by inoperative lifting appliances:

- .1 take the inoperative lifting appliance into account in planning and executing a safe voyage;
- .2 prevent operation of inoperative lifting appliances;
- .3 prevent uncontrolled movement of inoperative lifting appliances or their components using appropriate restraining and preventing arrangements, if required;
- .4 store inoperative loose gear separately from in-service loose gear and mark it as being inoperative; and
- .5 record a particular lifting appliance or loose gear that is inoperative in the register of ship's lifting appliances until necessary repairs have been completed and it has been load tested or proof tested, as necessary, and thoroughly examined.



**APPENDIX 1**

**SAMPLE CERTIFICATE  
OF TEST AND THOROUGH EXAMINATION OF LIFTING APPLIANCES**

*(Official seal)*

Certificate No. \_\_\_\_\_

Name of Ship:

IMO Number:

Call Sign:

Port of Registry:

Name of Owner:

This is to certify that the lifting appliances listed below have been tested and thoroughly examined as required by SOLAS regulation II-1/3-13.

Situation and description of lifting appliance (with distinguishing number or mark, if any) which has been tested and thoroughly examined	Angle to the horizontal or radius at which test load is applied		Test load (tonnes)	Safe working load at angle or radius shown (tonnes)
	Angle (degrees)	Radius (metres)		

This certificate is valid until ..... *(dd/mm/yyyy)*

Completion date of the testing and thorough examination on which this certificate is based:

Issued at ..... *(place of issue of the certificate)*

Date of issue ..... *(dd/mm/yyyy)*

Signature of competent person issuing the certificate .....

*(Seal or stamp of the issuing authority)*

**APPENDIX 2**

**SAMPLE CERTIFICATE  
OF TEST AND THOROUGH EXAMINATION OF LOOSE GEAR**

*(Official seal)*

Certificate No. \_\_\_\_\_

Name of Ship:

IMO Number:

Call Sign:

Port of Registry:

Name of Owner:

This is to certify that the loose gear listed below have been tested and thoroughly examined as required by SOLAS regulation II-1/3-13.

Distinguishing number or mark	Description of loose gear	Number tested	Date of test	Test load applied (tonnes)	Safe working load (tonnes)
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Name and address of makers or suppliers: .....

Name and address of the company of competent person who witnessed testing and carried out thorough examination: .....

Name of the competent person and position in public service, association, company: .....

Completion date of the testing and thorough examination on which this certificate is based:

Issued at ..... (*place of issue of the certificate*)

Date of issue ..... (*dd/mm/yyyy*)

Signature of competent person issuing the certificate .....

*(Seal or stamp of the issuing authority)*

**APPENDIX 3**

**SAMPLE FORM  
OF REGISTER OF LIFTING APPLIANCES AND CARGO HANDLING GEAR**

Name of Ship

Official Number

Call Sign

Port of Registry

Name of Owner

Thorough examination of lifting appliances and loose gear

(1) Situation and description of lifting appliances and loose gear (with distinguishing numbers or marks, if any) which have been thoroughly examined (see note 1).	(2) Certificate nos.	(3) I certify that on the date to which I have appended by signature, the gear shown in column (1) was thoroughly examined and no defects affecting its safe working condition were found other than those shown in column (4) date and signature (see note 2).	(4) Remarks

**Note 1:**

If all the lifting appliances are thoroughly examined on the same date it will be sufficient to enter in column (1) 'All lifting appliances and loose gear'. If not, the parts which have been thoroughly examined on the dates stated must be clearly indicated.

**Note 2:**

The thorough examinations to be indicated in column (3) include:

- (a) Initial
- (b) 12-monthly
- (c) Five-yearly
- (d) Repair/damage
- (e) Other thorough examinations including those associated with heat treatment

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1666  
30 June 2023

### **INTERIM GUIDELINES FOR THE SAFETY OF SHIPS USING LPG FUELS**

- 1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), having considered a proposal by the Sub-Committee on Carriage of Cargoes and Containers, at its eighth session, recognizing the importance of providing criteria for the use of LPG fuels on board ships so as to provide at least the same level of safety and reliability as new and comparable conventional oil-fuelled main and auxiliary machinery installations, approved the *Interim guidelines for the safety of ships using LPG fuels*, as set out in the annex.
- 2 Member States are invited to bring the Interim Guidelines to the attention of shipbuilders, manufacturers, shipowners, ship managers, masters and ship crews, bareboat charterers and all other parties concerned.
- 3 Member States are also invited to recount their experience gained through the use of these Interim Guidelines to the Organization, for the Committee to keep them under review.

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## ANNEX

### INTERIM GUIDELINES FOR THE SAFETY OF SHIPS USING LPG FUELS

#### 1 INTRODUCTION

1.1 The purpose of these *Interim guidelines for the safety of ships using LPG fuels* (Interim Guidelines) is to provide an international standard for ships using LPG as fuel.

1.2 The basic philosophy of these Interim Guidelines is to provide provisions for the arrangement, installation, control and monitoring of machinery, equipment and systems using LPG as fuel to minimize the risk to the ship, its crew and the environment, having regard to the nature of the fuels involved.

1.3 Throughout the development of these Interim Guidelines it was recognized that the provisions therein must be based on sound naval architectural and engineering principles and the best understanding available of current operational experience, field data and research and development. These Interim Guidelines address all areas that need special consideration for the use of LPG as fuel.

1.4 These Interim Guidelines follow the *Generic guidelines for developing IMO goal-based standards* (MSC.1/Circ.1394/Rev.2) by specifying goals and functional requirements for each section forming the basis for the design, construction and operation of ships using LPG as fuel.

1.5 The current version of these Interim Guidelines includes provisions to meet the functional requirements for LPG as fuel.

1.6 These Interim Guidelines have been closely aligned with the International Code of Safety for Ships Using Gases or Other Low-flashpoint Fuels (IGF Code), adopted by resolution MSC 391(95), as amended, in particular section 3 which is mainly text taken from chapter 3 of the IGF Code, albeit modified to reflect the recommendatory nature of these Interim Guidelines.

1.7 Wherever in these Interim Guidelines reference is made to "gas supply" as contained in the IGF Code, it should be read as "LPG supply".

#### 2 GENERAL

##### 2.1 Application

Unless expressly provided otherwise, these Interim Guidelines apply to ships using LPG as fuel to which part G of SOLAS chapter II-1 applies.

##### 2.2 Definitions

For the purpose of these Interim Guidelines, the terms used have the meanings defined in the following paragraphs. Terms not defined have the same meaning as in SOLAS chapter II-2 and the IGF Code.

2.2.1 *LPG* means liquefied petroleum gas. It is mainly composed of a mixture of propane (C<sub>3</sub>H<sub>8</sub>) and butane (C<sub>4</sub>H<sub>10</sub>) and may contain small amounts of other hydrocarbons and impurities. In these Interim Guidelines, petroleum gas either in its liquefied or gaseous state is referred to as LPG. When it is necessary to distinguish between the liquefied state and the gas state, LPG in the liquefied state is referred to as LPG liquid, and LPG in the gaseous state is referred to as LPG gas.

2.2.2 *Fuel* in these Interim Guidelines means LPG.

2.2.3 *Auto-ignition temperature* means the lowest temperature at which the fuel spontaneously ignites in normal atmosphere without an external source of ignition, such as a flame or spark.

2.2.4 *Gas dispersion analysis* means the analysis of the dispersion behaviour of gases using appropriate modelling techniques such as computational fluid dynamics (CFD) analysis.

2.2.5 *Ventilation analysis* means the analysis of the ventilation efficiency of a space using appropriate modelling techniques such as CFD analysis.

2.2.6 *Effectiveness of ventilation* refers to the effect of ventilation to control the diffusion and persistence of an explosive gas atmosphere due to gas leakage, depending on the degree and efficiency of ventilation (refer to IEC 60079-10-1).

2.2.7 *Degree of dilution* means a measure of the ability of ventilation or atmospheric conditions to dilute a release to a safe level. The degree of dilution is defined as high, medium and low (refer to IEC 60079-10-1, 6.5.4).

### **2.3 Alternative design**

2.3.1 These Interim Guidelines contain functional requirements for all appliances and arrangements related to the usage of LPG fuels.

2.3.2 Appliances and arrangements of LPG fuel systems may deviate from those set out in these Interim Guidelines, provided such appliances and arrangements meet the intent of the goal and functional requirements concerned and provide an equivalent level of safety to the relevant sections.

2.3.3 The equivalence of the alternative design should be demonstrated as specified in SOLAS regulation II-1/55 and approved by the Administration. However, the Administration should not allow operational methods or procedures to be applied as an alternative to a particular fitting, material, appliance, apparatus, item of equipment or type thereof which is prescribed by these Interim Guidelines.

## **3 GOAL AND FUNCTIONAL REQUIREMENTS**

### **3.1 Goal**

The goal of these Interim Guidelines is to provide for safe and environmentally friendly design, construction and operation of ships and in particular their installations of systems for propulsion machinery, auxiliary power generation machinery and/or other purpose machinery using LPG as fuel.

### **3.2 Functional requirements**

3.2.1 The safety, reliability and dependability of the systems should be equivalent to that achieved with new and comparable conventional oil-fuelled main and auxiliary machinery.

3.2.2 The probability and consequences of fuel-related hazards should be limited to a minimum through arrangement and system design, such as ventilation, detection and safety actions. In the event of gas leakage or failure of the risk-reducing measures, necessary safety actions should be initiated.

- 3.2.3 The design philosophy should ensure that risk-reducing measures and safety actions for the gas fuel installation do not lead to an unacceptable loss of power.
- 3.2.4 Hazardous areas should be restricted, as far as practicable, to minimize the potential risks that might affect the safety of the ship, persons on board and equipment.
- 3.2.5 Equipment installed in hazardous areas should be minimized to that required for operational purposes and should be suitably and appropriately certified.
- 3.2.6 Unintended accumulation of explosive, flammable or toxic gas concentrations should be prevented.
- 3.2.7 System components should be protected against external damage.
- 3.2.8 Sources of ignition in hazardous areas should be minimized to reduce the probability of explosions.
- 3.2.9 Safe and suitable fuel supply, storage and bunkering arrangements should be made capable of receiving and containing the fuel in the required state without leakage. Other than when necessary for safety reasons, the system should be designed to prevent venting under all normal operating conditions including idle periods.
- 3.2.10 Piping systems, containment and over-pressure relief arrangements that are of suitable design, construction and installation for their intended application should be provided.
- 3.2.11 Machinery, systems and components should be designed, constructed, installed, operated, maintained and protected to ensure safe and reliable operation.
- 3.2.12 Fuel containment system and machinery spaces containing source that might release gas into the space should be arranged and located such that a fire or explosion in either will not lead to an unacceptable loss of power or render equipment in other compartments inoperable.
- 3.2.13 Suitable control, alarm, monitoring and shutdown systems should be provided to ensure safe and reliable operation.
- 3.2.14 Fixed gas detection suitable for all spaces and areas concerned should be arranged.
- 3.2.15 Fire detection, protection and extinction measures appropriate to the hazards concerned should be provided.
- 3.2.16 Commissioning, trials and maintenance of fuel systems and gas utilization machinery should satisfy the goal in terms of safety, availability and reliability.
- 3.2.17 The technical documentation should permit an assessment of the compliance of the system and its components with the applicable rules, guidelines, design standards used and the principles related to safety, availability, maintainability and reliability.
- 3.2.18 A single failure in a technical system or component should not lead to an unsafe or unreliable situation.



## **4 GENERAL PROVISIONS**

### **4.1 Goal**

The goal of this section is to ensure that the necessary assessments of the risks involved are carried out in order to eliminate or mitigate any adverse effect on the persons on board, the environment or the ship.

### **4.2 Risk assessment**

4.2.1 Unless expressly provided otherwise, the requirements of 4.2 of the IGF Code apply.

4.2.2 In addition to the requirements listed in 4.2.2 of the IGF Code, risk assessment should also address paragraphs 5.3.6, 6.3.3, 10.3.2, 13.3.4 and 15.2.2 of these Interim Guidelines.

### **4.3 Limitation of explosion consequences**

An explosion in any space containing any potential sources of release<sup>1</sup> and potential ignition sources should not:

- .1 cause damage to or disrupt the proper functioning of equipment/systems located in any space other than that in which the incident occurs;
- .2 damage the ship in such a way that flooding of water below the main deck or any progressive flooding occur;
- .3 damage work areas or accommodation in such a way that persons who stay in such areas under normal operating conditions are injured;
- .4 disrupt the proper functioning of control stations and switchboard rooms necessary for power distribution;
- .5 damage life-saving equipment or associated launching arrangements;
- .6 disrupt the proper functioning of fire-fighting equipment located outside the explosion-damaged space;
- .7 affect other areas of the ship in such a way that chain reactions involving, inter alia, cargo, gas and bunker oil may arise; or
- .8 prevent persons access to life-saving appliances or impede escape routes.

## **5 SHIP DESIGN AND ARRANGEMENT**

### **5.1 Goal**

The goal of this section is to provide for safe location, space arrangements and mechanical protection of power generation equipment, fuel storage systems, fuel supply equipment and refuelling systems.

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<sup>1</sup> Double wall fuel pipes are not considered as potential sources of release.

## 5.2 Functional requirements

This chapter is related to functional requirements in 3.2.1 to 3.2.3, 3.2.5, 3.2.6, 3.2.8, 3.2.12 to 3.2.15 and 3.2.17. In particular, the following applies:

- .1 the fuel tank(s) should be located in such a way that the probability for the tank(s) to be damaged following a collision or grounding is reduced to a minimum taking into account the safe operation of the ship and other hazards that may be relevant to the ship;
- .2 fuel containment systems, fuel piping and other fuel sources of release should be so located and arranged that released gas is led to a safe location in the open air. Locations of the release should be determined taking into consideration the surrounding arrangement so as to minimize the possibility of accumulation of the gas released on the open space and to facilitate dispersion into the atmosphere;
- .3 the access or other openings to spaces containing fuel sources of release should be so arranged that flammable, asphyxiating or toxic gas cannot escape to spaces that are not designed for the presence of such gases taking into account the specific gravity and dispersion characteristics of LPG gas;
- .4 fuel piping should be protected against mechanical damage;
- .5 the propulsion and fuel supply system should be so designed that safety actions after any LPG leakage do not lead to an unacceptable loss of power; and
- .6 the probability of a gas explosion in a machinery space with gas or low-flashpoint fuelled machinery should be minimized.

## 5.3 General provisions

5.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 5 apply.

5.3.2 In addition to 5.4 of the IGF Code, a single failure of fuel systems should not lead to a gas release in the machinery space, i.e. only gas-safe machinery space concept in accordance with the IGF Code should be accepted.

5.3.3 The requirements of 5.6 of the IGF Code do not apply to ships using LPG as fuel. ESD-protected machinery spaces may be permitted, provided that the requirements of alternative design (SOLAS II-1/55) are met to the satisfaction of the Administration.

5.3.4 In addition to the requirements in 5.7 of the IGF Code, double barrier around fuel piping systems should be continuous and not have openings in machinery spaces.<sup>2</sup>

5.3.5 In addition to the requirements in 5.9 of the IGF Code, the bilge systems in the hazardous area should be arranged separately for each space and discharged overboard or to an enclosed tank fitted with a gas detector. Where bilge piping of two or more hazardous areas is connected, means should be provided to prevent the gas in one area from entering into other areas through the connected bilge pipes.

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<sup>2</sup> Refer to IGF Code paragraph 5.5.

5.3.6 In addition to the requirements in 5.10.1 of the IGF Code, drip trays identified by the risk assessment in accordance with 4.2 should be equipped with means to detect leakage and shut off the fuel if required. However, 5.10.3 of the IGF Code does not apply to ships using LPG as fuel.

5.3.7 In addition to the requirements of chapter 5 of the IGF Code, the following provisions on pipe vents and pressure relief devices apply:

- .1 LPG gas line from the following should be led to a vent mast:
  - .1 the pressure relief valve of the tank; and
  - .2 vent lines and bleed lines for gas fuel systems; and
- .2 LPG liquid line from the following should be led to a fuel tank. Where it is not practicable, the line may be led to a vent mast but liquid release from the outlet of vent is not acceptable:
  - .1 the pressure relief valve of the liquid fuel supply pipe;
  - .2 vent line and bleed line of liquid fuel supply piping; and
  - .3 pressure relief valve in bunkering line.

## **6 FUEL CONTAINMENT SYSTEM**

### **6.1 Goal**

The goal of this section is to provide that LPG storage is adequate so as to minimize the risk to personnel, the ship and the environment to a level that is equivalent to a conventional oil-fuelled ship.

### **6.2 Functional requirements**

This section relates to functional requirements 3.2.1, 3.2.2, 3.2.5 and 3.2.8 to 3.2.17. In particular, the following applies:

- .1 the fuel containment system should be so designed that a leak from the tank or its connections does not endanger the ship, persons on board or the environment. Potential dangers to be avoided include:
  - .1 exposure of ship materials to temperatures below acceptable limits;
  - .2 flammable fuels spreading to locations with ignition sources;
  - .3 toxicity potential and risk of oxygen deficiency due to fuels and inert gases;
  - .4 restriction of access to muster stations, escape routes and life-saving appliances (LSA);
  - .5 reduction in availability of LSA; and

- .2 the pressure and temperature in the fuel tank should be kept within the design limits of the containment system and possible carriage requirements of the fuel;
- .3 the fuel containment arrangement should be so designed that safety actions after any LPG leakage do not lead to an unacceptable loss of power;
- .4 if portable tanks are used for fuel storage, the design of the fuel containment system should be equivalent to permanent installed tanks as described in this section; and
- .5 the fuel containment system should be designed considering various characteristics of all possible compositions of the LPG.

### **6.3 GENERAL PROVISIONS**

6.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 6 apply.

6.3.2 The provision of 6.3.1 of the IGF Code does not apply to ships using LPG as fuel.

6.3.3 In addition to 6.3.4 of the IGF Code, the following applies: For the fuel tank located in enclosed space, a tank connection space should be provided separately from fuel storage hold space. For the fuel tank located on an open deck, a tank connection space should also be provided where escaped gas may accumulate on the open deck or enter in non-hazardous space such as accommodation space and machinery space based on the risk assessment.

6.3.4 In addition to 6.4.2.1 of the IGF Code, no secondary barrier should be required where the fuel temperature at atmospheric pressure is at or above -10°C. Where the fuel temperature at atmospheric pressure is not below -55°C, the hull structure may act as a secondary barrier.

6.3.5 The provision of 6.6 of the IGF Code does not apply to ships using LPG as fuel.

6.3.6 In addition to 6.7.2.7 of the IGF Code, vent exits should be so located that the following are ensured:<sup>3</sup>

- .1 escaped LPG gas does not escape to non-hazardous areas through the opening around the vent exit;
- .2 escaped LPG gas is not trapped by any structure on an open deck; and
- .3 escaped LPG gas does not form a flammable atmosphere in the way of exhaust gas outlets and other ignition sources.

6.3.7 In addition to 6.7.2 of the IGF Code, the vent piping system should be fitted with an inert gas purging interface.

## **7 MATERIAL AND GENERAL PIPE DESIGN**

Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 7 apply.

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<sup>3</sup> According to a gas dispersion analysis, if required by the risk assessment.

## **8 BUNKERING**

### **8.1 Goal**

The goal of this section is to provide for suitable systems on board the ship to ensure that bunkering can be conducted without causing danger to persons, the environment or the ship.

### **8.2 Functional requirements**

8.2.1 This section relates to functional requirements 3.2.1 to 3.2.11 and 3.2.13 to 3.2.17. In particular, the following applies:

8.2.2 The piping system for transfer of fuel to the storage tank should be designed such that any leakage from the piping system cannot cause danger to personnel, the environment or the ship.

8.2.3 Bunkering systems should be suitable for temperature, pressure and all compositions of LPG used on board.

8.2.4 Means should be provided to manage vapour generated in the tank during bunker transfer. Where means of vapour managements are not provided on ship, vapour return connection should be fitted at bunkering manifold.

### **8.3 Provisions**

8.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 8 apply.

8.3.2 For ships using LPG as fuel, 8.3.1.6 of the IGF Code is not applicable.

## **9 FUEL SUPPLY TO CONSUMERS**

### **9.1 Goal**

The goal of this section is to ensure safe and reliable distribution of fuel to the consumers.

### **9.2 Functional requirements**

This section is related to functional requirements 3.2.1 to 3.2.6, 3.2.8 to 3.2.11 and 3.2.13 to 3.2.17. In particular, the following applies:

- .1 the fuel supply system should be so arranged that the consequences of any release of fuel will be minimized, while providing safe access for operation and inspection;
- .2 the piping system for fuel transfer to the consumers should be designed in a way that a failure of one barrier cannot lead to a leak from the piping system into the surrounding area causing danger to the persons on board, the environment or the ship;
- .3 fuel lines outside the machinery spaces should be installed and protected so as to minimize the risk of injury to personnel and damage to the ship in case of leakage;

- .4 fuel supply systems should be able to supply fuel at the required pressure, temperature and flow rate; and
- .5 where fuel supply systems supply LPG in the liquid state, purging, drain, vent and leakage should be subject to special consideration to provide an equivalent level of safety of fuel in the gas state.

### **9.3 Provisions**

9.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 9 apply.

9.3.2 Notwithstanding 9.4.4 of the IGF Code, where fuel supply systems supply LPG in the liquid state, relevant bleed lines should be led to the fuel tank or gas-liquid separator or similar device to prevent LPG liquid from being released to the atmosphere.

9.3.3 In addition to 9.4.7 of the IGF Code, where fuel supply systems supply LPG in the liquid state, vent lines should be led to the fuel tank or gas-liquid separator or similar device.

9.3.4 The provision of 9.4.10 of the IGF Code does not apply to ships using LPG as fuel.

9.3.5 The provision of 9.7 of the IGF Code does not apply to ships using LPG as fuel.

9.3.6 In addition to 9.8.2 of the IGF Code, the most conservative value of  $k$  should be selected for considering expected composition of fuel (propane: 1.13, butane: 1.096)

## **10 POWER GENERATION INCLUDING PROPULSION AND OTHER GAS CONSUMERS**

### **10.1 Goal**

The goal of this section is to provide safe and reliable delivery of mechanical, electrical or thermal energy.

### **10.2 Functional requirements**

This section is related to functional requirements 3.2.1, 3.2.11, 3.2.13, 3.2.16 and 3.2.17. In particular, the following applies:

- .1 the exhaust systems should be configured to prevent any accumulation of unburnt gaseous fuel;
- .2 unless designed with the strength to withstand the worst case over pressure due to ignited gas leaks, engine components or systems containing or likely to contain an ignitable gas and air mixture should be fitted with suitable pressure relief systems. Dependent on the particular engine design, this may include the air inlet manifolds and scavenge spaces;
- .3 the explosion venting should be led away from where personnel may normally be present;
- .4 all gas consumers should have a separate exhaust system; and
- .5 fuel consumers should be suitably designed for operation with possible compositions of LPG fuel.

### **10.3 Provisions**

10.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 10 apply.

10.3.2 Notwithstanding 10.5.2 of the IGF Code, the gas turbine should be fitted in a gastight enclosure arranged in accordance with 10.5.3 of the IGF Code. Gas leakage in the gastight enclosure and the consequence should be evaluated based on the risk assessment in accordance with 4.2 and to the satisfaction of the Administration.

10.3.4 Notwithstanding 10.3.1.7 of the IGF Code, if combustion has not been detected by the engine monitoring system within an engine-specific time after the opening of the fuel supply valve, the fuel supply valve should be automatically shut off. Means to ensure that any unburnt fuel mixture is purged away from the exhaust system should be provided.

## **11 FIRE SAFETY**

### **11.1 Goal**

The goal of this section is to provide for fire protection, detection and fighting for all system components related to the storage, conditioning, transfer and use of LPG as ship fuel.

### **11.2 Functional requirements**

This section is related to functional requirements 3.2.2, 3.2.4, 3.2.5, 3.2.7, 3.2.12, 3.2.14, 3.2.15 and 3.2.17.

### **11.3 Provisions**

11.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 11 apply.

11.3.2 In addition to 11.3.1 of the IGF Code, the fuel preparation room should be separated from a machinery space of category A and rooms with high fire risks. The separation is to be done by a cofferdam of at least 900 mm with insulation of A-60 class.

11.3.3 In addition to the requirements of IGF Code chapter 11, a fuel preparation room should be provided with a fixed fire-extinguishing system complying with the provisions of the FSS Code and taking into account the necessary concentrations/application rate required for extinguishing LPG gas fires.

## **12 EXPLOSION PREVENTION**

### **12.1 Goal**

The goal of this section is to provide for fire protection, detection and fighting for all system components related to the storage, conditioning, transfer and use of LPG as ship fuel.

### **12.2 Functional requirements**

This section is related to functional requirements 3.2.2 to 3.2.5, 3.2.7, 3.2.8, 3.2.12 to 3.2.14 and 3.2.17. In particular, the following applies:

The probability of explosions should be reduced to a minimum by:

- .1 reducing number of sources of ignition; and
- .2 reducing the probability of formation of ignitable mixtures.

### **12.3 Provisions**

12.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 12 apply.

12.3.2 The classification of a hazardous area should be subject to special consideration to characteristics of LPG (e.g. density, LEL). IEC 60079-10-1 may be referred, if necessary, to determine hazardous areas.

## **13 VENTILATION**

### **13.1 Goal**

The goal of this section is to provide for the ventilation required for safe operation of LPG-fuelled machinery and equipment.

### **13.2 Functional requirements**

This section is related to functional requirements 3.2.2, 3.2.5, 3.2.8, 3.2.10, 3.2.12 to 3.2.14 and 3.2.17. In particular, the capacity and layout of ventilation system should be so designed that efficiency of ventilation is ensured considering the density of LPG gas.

### **13.3 Provisions**

13.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 13 apply.

13.3.2 In addition to 13.3.5 of the IGF Code, air outlets and air inlets for hazardous enclosed spaces should be arranged to prevent exhausted gas from re-entering the space through air inlets, based on the risk assessment in accordance with 4.2 and to the satisfaction of the Administration.

13.3.3 In addition to 13.3.8 of the IGF Code, when determining the required ventilation capacity, special consideration should be given to the density and lower explosion limit (LEL) of LPG gas, which should be supported by numerical calculations such as CFD analysis.

13.3.4 In addition to 13.4.2 of the IGF Code, approved automatic fail-safe fire dampers should be fitted in the ventilation trunk for the tank connection space, fuel preparation room or any other space as deemed necessary by a risk assessment in accordance with 4.2 and to the satisfaction of the Administration.

13.3.5 The number and location of the extraction points of the ventilation in each space should be considered taking into account the size and layout of the space. Where bottom arrangements are complicated, it should be demonstrated based on ventilation analysis that capacity and duct arrangements of ventilation are adequate for the space.

13.3.6 The provisions in 13.5.2, 13.5.3 and 13.5.4 of the IGF Code do not apply to ships using LPG as fuel.



13.3.7 Notwithstanding 13.8.3 of the IGF Code, the ventilation inlet for the double wall piping or duct should always be located in an open area away from ignition sources. The inlet opening should be fitted with a suitable wire mesh guard and protected from ingress of water.

## **14 ELECTRICAL INSTALLATIONS**

### **14.1 Goal**

The goal of this section is to provide for electrical installations that minimize the risk of ignition in the presence of a flammable atmosphere.

### **14.2 Functional requirements**

This section is related to functional requirements 3.2.1, 3.2.2, 3.2.4, 3.2.7, 3.2.8, 3.2.11, 3.2.13 and 3.2.16 to 3.2.18. In particular, the following applies:

Electrical generation and distribution systems, and associated control systems, should be designed such that a single fault will not result in the loss of ability to maintain fuel tank pressures and hull structure temperature within normal operating limits.

### **14.3 Provisions**

14.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 14 apply.

14.3.2 In addition to 14.3.3 of the IGF Code, equipment for hazardous areas should be of a certified safe type appropriate for compositions of LPG in accordance with IEC 60079-20. IEC 60079-20 classifies the temperature class and equipment groups for propane and butane as the following:

	Temperature class	Equipment group
Propane	T2	IIA
Butane	T2	IIA

Equipment should be certified to IEC temperature class T2 and equipment group IIA.

## **15 CONTROL, MONITORING AND SAFETY SYSTEMS**

### **15.1 Goal**

15.1.1 The goal of this section is to provide for the arrangement of control, monitoring and safety systems that support an efficient and safe operation of the LPG-fuelled installation as covered in the other sections of these Interim Guidelines.

### **15.2 Functional requirements**

This section is related to functional requirements 3.2.1, 3.2.2, 3.2.11, 3.2.13 to 3.2.15, 3.2.17 and 3.2.18. In particular, the following applies:

- .1 the control, monitoring and safety systems of the LPG-fuelled installation should be so arranged that the remaining power for propulsion and power generation is in accordance with 9.3.1 of the IGF Code in the event of single failure;

- .2 a safety system should be arranged to close down the fuel supply system automatically, upon failure in systems as described in table 1 (Monitoring of gas supply system to engines) in chapter 15 of the IGF Code and upon other fault conditions which may develop too fast for manual intervention;
- .3 for ESD protected machinery configurations, where allowed by alternative design, the safety system should shut down LPG supply upon LPG leakage and, in addition, disconnect all non-certified safe type electrical equipment in the machinery space;
- .4 the safety functions should be arranged in a dedicated safety system that is independent of the control system in order to avoid possible common cause failures. This includes the power supply and input and output signal;
- .5 the safety systems including the field instrumentation should be arranged to avoid spurious shutdown, e.g. as a result of a faulty gas detector or a wire break in a sensor loop; and
- .6 where two or more fuel supply systems are required to meet the provisions, each system should be fitted with its own set of independent control and safety systems.

### **15.3 Provisions**

15.3.1 Unless expressly provided otherwise, the requirements of IGF Code part A-1 chapter 15 apply.

15.3.2 In addition to 15.8.1 of the IGF Code, permanently installed gas detectors should be fitted at ventilation inlets of accommodation and machinery spaces and other rooms with high fire risk,<sup>4</sup> unless an Administration deems it unnecessary based on a risk assessment in accordance with 4.2, as well as at the bunkering station as required in section 8 of these Interim Guidelines.

15.3.3 In addition to 8.3.1 of the IGF Code, bunkering manifolds should be continuously monitored by the ship's crew from a safe area in direct line of sight of the manifold or by CCTV during bunker transfer.

## **16 ADDITIONAL PROVISIONS**

Unless expressly provided otherwise, the IGF Code parts B-1, C-1 and D apply to ships using LPG as fuel.

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<sup>4</sup> Other rooms with high fire risk, as defined in section 2 of the annex to MSC.1/Circ.1591.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1667  
27 June 2023

**UNIFIED INTERPRETATION OF REQUIREMENTS IN THE IGF CODE  
FOR FUEL PREPARATION ROOMS NOT LOCATED ON AN OPEN DECK**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), with a view to providing more specific guidance for the application of the relevant requirements of the *International Code of Safety for Ships Using Gases or Other Low-flashpoint Fuels* (IGF Code), approved unified interpretations of the IGF Code, prepared by the Sub-Committee on Carriage of Cargoes and Containers, at its eighth session, as set out in the annex.

2 Member States are invited to use the annexed unified interpretation as guidance when applying the relevant provisions of the IGF Code and to bring them to the attention of all parties concerned.

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## ANNEX

### UNIFIED INTERPRETATION OF THE IGF CODE

#### **Design of fuel preparation rooms not located on an open deck (section 5.8)**

1 The following interpretation provides clarification on applying certain tank connection space requirements to the design of a fuel preparation room not located on an open deck in compliance with the IGF Code, section 5.8.

2 Access Arrangements and Associated Hazardous Areas (sections 5.11.3 and 12.5.3.2):

- .1 The bolted hatch requirement in 5.11.3 and the associated Zone 2 hazardous area requirement in 12.5.3.2 do not apply to a fuel preparation room located below deck unless that space can also be defined as a tank connection space using the definition in 2.2.15.3.
- .2 A fuel preparation room opening into another enclosed space on the ship which is a non-hazardous space is required to be fitted with an airlock according to 5.11.2.
- .3 A fuel preparation room with direct access onto an open deck, or to a semi-enclosed space on deck, does not require an airlock. In the absence of an airlock, the area outside the door will be classified as a hazardous area according to 12.5.2.4 and 12.5.3.1.

3 Bilge Well Requirements (section 15.3.2):

The bilge well requirements in 15.3.2 only apply to a fuel preparation room located below deck if that fuel preparation room handles fuel in its liquid phase.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1668  
27 June 2023

**UNIFIED INTERPRETATION OF BUNKERING MANIFOLD ARRANGEMENTS  
FITTED ON LNG BUNKERING SHIPS IN THE IGC CODE**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), with a view to providing more specific guidance for the application of the relevant requirements of the *International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk* (IGC Code), as amended by resolution MSC.370(93), approved a unified interpretation of the IGC Code, prepared by the Sub-Committee on Carriage of Cargoes and Containers, at its eighth session, as set out in the annex.

2 Member States are invited to use the annexed unified interpretation as guidance when applying the relevant provisions of the IGC Code and to bring them to the attention of all parties concerned.

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## ANNEX

### UNIFIED INTERPRETATION OF BUNKERING MANIFOLD ARRANGEMENTS FITTED ON LNG BUNKERING SHIPS IN THE IGC CODE (AS AMENDED BY RESOLUTION MSC.370(93))

#### Paragraph 11.3.1 of the IGC Code states:

"11.3 Water-spray system

11.3.1 On ships carrying flammable and/or toxic products, a water-spray system, for cooling, fire prevention and crew protection shall be installed to cover:

- .1 exposed cargo tank domes, any exposed parts of cargo tanks and any part of cargo tank covers that may be exposed to heat from fires in adjacent equipment containing cargo such as exposed booster pumps/heaters/re-gasification or re-liquefaction plants, hereafter addressed as gas process units, positioned on weather decks;
- .2 exposed on-deck storage vessels for flammable or toxic products;
- .3 gas process units positioned on deck;
- .4 cargo liquid and vapour discharge and loading connections, including the presentation flange and the area where their control valves are situated, which shall be at least equal to the area of the drip trays provided;
- .5 all exposed emergency shut-down (ESD) valves in the cargo liquid and vapour pipes, including the master valve for supply to gas consumers;
- .6 exposed boundaries facing the cargo area, such as bulkheads of superstructures and deckhouses normally manned, cargo machinery spaces, storerooms containing high fire-risk items and cargo control rooms. Exposed horizontal boundaries of these areas do not require protection unless detachable cargo piping connections are arranged above or below. Boundaries of unmanned forecastle structures not containing high fire-risk items or equipment do not require water-spray protection;
- .7 exposed lifeboats, liferafts and muster stations facing the cargo area, regardless of distance to cargo area; and
- .8 any semi-enclosed cargo machinery spaces and semi-enclosed cargo motor room.

Ships intended for operation as listed in 1.1.10 shall be subject to special consideration (see 11.3.3.2)."

**Paragraph 11.4.1 of the IGC Code states:**

"11.4 Dry chemical powder fire-extinguishing systems

11.4.1 Ships in which the carriage of flammable products is intended shall be fitted with fixed dry chemical powder fire-extinguishing systems, approved by the Administration based on the guidelines developed by the Organization,\* for the purpose of fire fighting on the deck in the cargo area, including any cargo liquid and vapour discharge and loading connections on deck and bow or stern cargo handling areas, as applicable.

\*Refer to the Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ships carrying liquefied gases in bulk (MSC.1/Circ.1315).

11.4.3 The dry chemical powder fire-extinguishing system shall be designed with not less than two independent units. Any part required to be protected by 11.4.2 shall be capable of being reached from not less than two independent units with associated controls, pressurizing medium fixed piping, monitors or hand hose lines. For ships with a cargo capacity of less than 1,000 m<sup>3</sup>, only one such unit need be fitted. A monitor shall be arranged to protect any load/unload connection area and be capable of actuation and discharge both locally and remotely. The monitor is not required to be remotely aimed, if it can deliver the necessary powder to all required areas of coverage from a single position. One hose line shall be provided at both port- and starboard side at the end of the cargo area facing the accommodation and readily available from the accommodation."

**Paragraph 18.10.3.2 of the IGC Code states:**

"18.10.3.2 The ESD system shall be automatically activated on detection of a fire on the weather decks of the cargo area and/or cargo machinery spaces. As a minimum, the method of detection used on the weather decks shall cover the liquid and vapour domes of the cargo tanks, the cargo manifolds and areas where liquid piping is dismantled regularly. Detection may be by means of fusible elements designed to melt at temperatures between 98°C and 104°C, or by area fire detection methods."

**Interpretation**

1 Due to the specifics of liquefied gas bunkering ships, some of these vessels may be provided with additional cargo transfer equipment including transfer loading arms, bunkering booms, transfer hoses, reducers, spool pieces and transfer hose reels. This additional equipment can be installed in different locations around the ship.

2 When in use, this additional cargo transfer equipment should comply, where appropriate, with the requirements of paragraphs 11.3.1.4, 11.3.1.5, 11.4.1, 11.4.3 and 18.10.3.2 of the IGC Code for fire detection and fire protection in the cargo area (such as fusible elements, ESD functionality, water spray system protection, dry chemical powder fire-extinguishing systems and drip trays), including hull protection from low temperatures.



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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1669  
31 May 2023

### **UNIFIED INTERPRETATION OF THE IGC CODE**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), with a view to providing more specific guidance for the application of the relevant requirements of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), as amended by resolution MSC.370(93), approved the unified interpretation of the IGC Code, prepared by the Sub-Committee on Carriage of Cargoes and Containers, at its eighth session, as set out in the annex.

2 Member States are invited to use the annexed unified interpretation as guidance when applying the relevant provisions of the IGC Code and to bring them to the attention of all parties concerned.

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## ANNEX

### UNIFIED INTERPRETATION OF THE IGC CODE (AS AMENDED BY RESOLUTION MSC.370(93))

#### CHAPTER 4 CARGO CONTAINMENT

#### 4.20 Construction processes

Paragraph 4.20.3.5 of the IGC Code states:

*"The overall performance of the cargo containment system shall be verified for compliance with the design parameters during the first full loading and discharging of the cargo, in accordance with the survey procedure and requirements in 1.4 and the requirements of the Administration or recognized organization acting on its behalf. Records of the performance of the components and equipment essential to verify the design parameters, shall be maintained and be available to the Administration."*

Paragraph 4.20.3.6 of the IGC Code states:

*"Heating arrangements, if fitted in accordance with 4.19.1.5 and 4.19.1.6, shall be tested for required heat output and heat distribution."*

Paragraph 4.20.3.7 of the IGC Code states:

*"The cargo containment system shall be inspected for cold spots during, or immediately following, the first loaded voyage. Inspection of the integrity of thermal insulation surfaces that cannot be visually checked shall be carried out in accordance with recognized standards."*

Paragraph 5.13.2.5 of the IGC Code states:

*"All piping systems, including valves, fittings and associated equipment for handling cargo or vapours, shall be tested under normal operating conditions not later than at the first loading operation, in accordance with recognized standards."*

Paragraph 13.3.5 of the IGC Code states:

*"The position of the sensors in the tank shall be capable of being verified before commissioning. At the first occasion of full loading after delivery and after each dry-docking, testing of high-level alarms shall be conducted by raising the cargo liquid level in the cargo tank to the alarm point."*

#### **Interpretation:**

1 The verifications and examinations to be carried out as indicated on the above paragraphs of the IGC Code should be interpreted as follows:

#### **Application**

2 This unified interpretation should apply to all ships carrying liquefied gases in bulk.

### **Certification**

3 The following initial certificates should be "conditionally" issued at delivery subject to satisfactory completion of all required verifications and examinations, as applicable:

- .1 Classification Certificate;
- .2 International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.

Note: The conditions may either be stated on the Classification Certificate or issued as a Condition of Class in the ship's Record.

### **Survey requirements**

4 Surveyor attendance should be required at the first cargo loading and first cargo unloading.

5 Surveyor attendance during new building gas trials can be considered to comply with the below applicable verifications and examinations survey requirements, with the exceptions of the survey requirements marked (\*\*).<sup>1</sup>

### **Verifications and examinations at gas trials or first full cargo loading, as applicable to cargo containment system**

Note: When attending at first full cargo loading, priority should be given to latter stages of loading

- verify the satisfactory functionality of the emergency shutdown system during testing;
- satisfactory operation of gas detection system;
- satisfactory operation of cargo tank pressure monitoring system;
- satisfactory operation of inter-barrier space(s) and insulation space(s) pressure monitoring system, as applicable;
- satisfactory operation of cargo tank temperature monitoring system;
- satisfactory operation of cargo tank level indicating system;
- satisfactory operation of inter-barrier space(s) and inner hull temperature monitoring system, as applicable;
- inert gas generator, if operating;
- nitrogen generating plant, if operating;
- nitrogen pressure control system for insulation, inter-barrier, and annular spaces, as applicable;

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<sup>1</sup> The symbol (\*\*) indicates survey requirements only feasible to be carried out at the time of first full cargo loading/unloading.

- reliquefaction plant, if fitted;
- equipment fitted for the burning of cargo vapours such as boilers, engines, gas combustion units, etc., if operating;
- examination of on-deck cargo piping systems including expansion and supporting arrangements;
- verification and examination of all piping systems, including valves, fittings and associated equipment for handling cargo or vapours;<sup>2</sup>
- advise master to carry out cold spot examination of the hull and external insulation during transit voyage to unloading port and record in ship's logbook; and
- advise master to test high-level alarm(s) with liquid cargo during voyage and record in ship's logbook, when loading condition permits.

***Verifications and examinations at gas trials or first full cargo unloading, as applicable***

Note: When attending at first full cargo unloading, priority should be given to the commencement of unloading.

- examination of on-deck cargo piping systems including expansion and supporting arrangements;
- review logbook entry of emergency shutdown system testing prior to commencement of unloading;
- (\*\*) review cargo logs and alarm reports for cargo tank pressure, temperature, and level indicating systems;
- satisfactory operation of cargo compressors;
- satisfactory operation of cargo pumps;
- inert gas generator, if operating;
- nitrogen generating plant, if operating;
- nitrogen pressure control system for insulation, inter-barrier, and annular spaces, as applicable;
- (\*\*) review of records for satisfactory operation of the reliquefaction plant, if fitted;
- review of records for equipment fitted for the burning of cargo vapours such as boilers, engines, gas combustion units, etc.;

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<sup>2</sup> Each Classification Society should ensure that any additional verifications are required to meet own Classification requirements.

- (\*\*) on ships fitted with membrane tanks, review records of the cofferdam and inner hull temperature sensors to verify the readings are not below the allowable temperature for the selected grade of steel;
- (\*\*) cofferdam heating system, if in operation;
- (\*\*) review logbook entries for cold spot examination; and
- (\*\*) review logbook entry for testing of high-level alarm(s) with liquid cargo. If cargo conditions did not permit testing, surveyor to require testing at the first occasion where cargo conditions allow for testing. Master to be advised to record testing in ship's logbook which is to be verified no later than the first annual survey.

***Documentation to be requested to the Master***

To demonstrate satisfactory functionality of the verifications, ship's Master should be required to arrange and provide to the surveyor print outs or screen shots showing:

- trends of cargo tanks pressure and temperature:
  - trends of pressure and temperature distribution of inter-barrier space(s) and insulation space(s), and temperature distribution of inner hull, as applicable;
  - trends record of performance of cofferdam heating system, when fitted;
  - trends record of consumption of nitrogen gas, and whether any abnormality has been observed;
- list of any gas alarms, if occurred:
  - Cargo Tanks Containment System Cold Spot Inspection Statement; and
  - activation of Cargo Tanks High-Level Alarm and Overfill Protection tests.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1670  
27 June 2023

### **UNIFIED INTERPRETATION OF THE IGF CODE**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), with a view to providing more specific guidance for the application of the relevant requirements of the *International Code of Safety for Ships Using Gases or Other Low-flashpoint Fuels* (IGF Code), approved unified interpretations of the IGF Code, prepared by the Sub-Committee on Carriage of Cargoes and Containers, at its eighth session, as set out in the annex.

2 Member States are invited to use the annexed unified interpretation as guidance when applying the relevant provisions of the IGF Code and to bring them to the attention of all parties concerned.

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## ANNEX

### UNIFIED INTERPRETATION OF THE IGF CODE (REGARDING PART A-1, PARAGRAPH 9.2.2)

#### PART A-1 SPECIFIC REQUIREMENTS FOR SHIPS USING NATURAL GAS AS FUEL

#### Chapter 9 Fuel supply to consumers

#### 9.2 Functional requirements

Paragraph 9.2.2 states:

*"the piping system for fuel transfer to the consumers shall be designed in a way that a failure of one barrier cannot lead to a leak from the piping system into the surrounding area causing danger to the persons on board, the environment or the ship"*

#### Interpretation:

To comply with part A-1, paragraphs 9.2.2, 9.6.1 and 7.3.6.3 of the IGF Code, two independent safety barriers should be in place, while, as far as practicable, using a minimum of flange connections. There should be, no single common flange or other component where one single failure itself may overcome both primary and secondary barriers and may result in a gas leak into the surrounding area causing danger to the persons on board, the environment or the ship.

A single common flange (with two sealing systems) may be accepted at the fuel connection to the gas consumers including GCUs, boilers and components on the engine, such as gas regulating units.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1671  
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**UNIFIED INTERPRETATION ON IMPLEMENTATION  
OF REGULATION 2.10.3 OF THE 2009 MODU CODE, REGULATION 2.8.2 OF THE  
1989 MODU CODE AND REGULATION 2.7.2 OF THE 1979 MODU CODE**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), approved the *Unified interpretation on implementation of regulation 2.10.3 of the 2009 MODU Code, regulation 2.8.2 of the 1989 MODU Code and regulation 2.7.2 of the 1979 MODU Code*, prepared by the Sub-Committee on Ship Design and Construction, at its ninth session, as set out in the annex.

2 Member States are invited to apply the annexed unified interpretations and to bring them to the attention of all parties concerned.

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## ANNEX

### UNIFIED INTERPRETATION ON IMPLEMENTATION OF REGULATION 2.10.3 OF THE 2009 MODU CODE, REGULATION 2.8.2 OF THE 1989 MODU CODE and REGULATION 2.7.2 OF THE 1979 MODU CODE

1 In the context of regulation 2.10.3 of the 2009 MODU Code, regulation 2.8.2 of the 1989 MODU Code and regulation 2.7.2 of the 1979 MODU Code, the use of the phrase "new installation of materials which contain asbestos should be prohibited"<sup>1</sup> means that:

On or after 1 January 2024:

- .1 materials containing asbestos should be prohibited from being installed on board; and
- .2 any repairs, replacements, maintenance or additions to working parts<sup>2</sup> of a MODU should be documented with an asbestos-free declaration for the materials used (see appendix).<sup>3</sup>

2 Notwithstanding the above, existing materials stowed on board before 1 January 2024 are not prohibited from being retained on board but should not be installed unless they can be documented to be asbestos-free before use/installation.

3 During surveys required by the 1979, 1989 and 2009 MODU Codes, the Administration or recognized organization acting on their behalf in consultation with the person responsible to control asbestos-containing material on board, should:

- .1 audit available documentation, including asbestos-free declarations and other supporting documentation, based on the *Guidelines for maintenance and monitoring of onboard materials which contain asbestos on board MODUs* (MSC.1/Circ.[...]); and
- .2 verify that materials which are documented to contain asbestos, as prohibited by regulation 2.10.3 of the 2009 MODU Code, regulation 2.8.2 of the 1989 MODU Code and regulation 2.7.2 of the 1979 MODU Code, have not been installed on board after 1 January 2024.

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<sup>1</sup> "Materials which contain asbestos" means that asbestos is present in the product/material above the threshold value stipulated in row A-1 of table A of appendix 1 to resolution MEPC.269(68).

<sup>2</sup> Working parts here means product/material as listed in resolution MEPC.269(68)) in the structure, machinery, electrical installations and equipment covered by the 1979, 1989 and 2009 MODU Codes.

<sup>3</sup> The list of structures and/or equipment in the appendix is intended to show examples and should not be seen as exclusive.

**APPENDIX**

Structure and/or equipment	Component
Propeller shafting	Packing with low pressure hydraulic piping flange Packing with casing Clutch Brake lining Synthetic stern tubes
Diesel engine	Packing with piping flange Lagging material for fuel pipe Lagging material for exhaust pipe Lagging material turbocharger
Turbine engine	Lagging material for casing Packing with flange of piping and valve for steam line, exhaust line and drain line Lagging material for piping and valve of steam line, exhaust line and drain line
Boiler	Insulation in combustion chamber Packing for casing door Lagging material for exhaust pipe Gasket for manhole Gasket for hand hole Gas shield packing for soot blower and other hole Packing with flange of piping and valve for steam line, exhaust line, fuel line and drain line Lagging material for piping and valve of steam line, exhaust line, fuel line and drain line
Exhaust gas economizer	Packing for casing door Packing with manhole Packing with hand hole Gas shield packing for soot blower Packing with flange of piping and valve for steam line, exhaust line, fuel line and drain line Lagging material for piping and valve of steam line, exhaust line, fuel line and drain line
Incinerator	Packing for casing door Packing with manhole Packing with hand hole Lagging material for exhaust pipe
Auxiliary machinery (pump, compressor, oil purifier, crane)	Packing for casing door and valve Gland packing Brake lining
Heat exchanger	Packing with casing Gland packing for valve Lagging material and insulation
Valve	Gland packing with valve, sheet packing with piping flange Gasket with flange of high pressure and/or high temperature
Pipe, duct	Lagging material and insulation

Structure and/or equipment	Component
Tank (fuel tank, hot water, tank, condenser), other equipment (fuel strainer, lubricant oil strainer)	Lagging material and insulation
Electric equipment	Insulation material
Airborne asbestos	Wall, ceiling
Ceiling, floor and wall in accommodation area	Ceiling, floor, wall
Fire door	Packing, construction and insulation of the fire door
Inert gas system	Packing for casing, etc.
Air conditioning system	Sheet packing, lagging material for piping and flexible joint
Miscellaneous	Ropes Thermal insulating materials Fire shields/fire proofing Space/duct insulation Electrical cable materials Brake linings Floor tiles/deck underlay Steam/water/vent flange gaskets Adhesives/mastics/fillers Sound damping Moulded plastic products Sealing putty Shaft/valve packing Electrical bulkhead penetration packing Circuit breaker arc chutes Pipe hanger inserts Weld shop protectors/burn covers Fire-fighting blankets/clothing/equipment Concrete ballast Brake shoes Coating materials Insulation materials Seals

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1673  
14 July 2023

### **UNIFIED INTERPRETATION OF SOLAS REGULATION II-1/1.1.3**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), approved *Unified interpretation of SOLAS regulation II-1/1.1.3*, prepared by the Sub-Committee on Ship Design and Construction, at its ninth session, as set out in the annex.

2 Member States are invited to apply the annexed unified interpretations and to bring them to the attention of all parties concerned.

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## ANNEX

### UNIFIED INTERPRETATION OF SOLAS REGULATION II-1/1.1.3

#### **SOLAS regulation II-1/1.1.1, as amended by resolution MSC.436(99) reads as follows:**

"Unless expressly provided otherwise, parts B, B-1, B-2 and B-4 of this chapter shall only apply to ships:

- .1 for which the building contract is placed on or after 1 January 2020; or
- .2 in the absence of a building contract, the keel of which is laid or which are at a similar stage of construction on or after 1 July 2020; or
- .3 the delivery of which is on or after 1 January 2024."

#### **SOLAS regulation II-1/1.1.2, as amended by resolution MSC.436(99) reads as follows:**

"Unless expressly provided otherwise, for ships not subject to the provisions of sub-paragraph 1.1.1 but constructed on or after 1 January 2009, the Administration shall:

- .1 ensure that the requirements for parts B, B-1, B-2 and B-4 which are applicable under chapter II-1 of the International Convention for the Safety of Life at Sea, 1974, as amended by resolutions MSC.216(82), MSC.269(85) and MSC.325(90) are complied with; and
- .2 ensure that the requirements of regulations 8-1.3 and 19-1 are complied with."

#### **SOLAS regulation II-1/1.1.3, as amended by resolution MSC.474(102) reads as follows:**

"For the purpose of this chapter:

- .1 the expression 'ships constructed' means ships the keels of which are laid or which are at a similar stage of construction;
- .2 the expression 'ships constructed on or after 1 January 2024' means ships:
  - .1 for which the building contract is placed on or after 1 January 2024; or
  - .2 in the absence of a building contract, the keel of which is laid or which are at a similar stage of construction on or after 1 July 2024; or
  - .3 the delivery of which is on or after 1 January 2028.
- .3 the expression 'all ships' means ships constructed before, on or after 1 January 2009;
- .4 a cargo ship, whenever built, which is converted to a passenger ship shall be treated as a passenger ship constructed on the date on which such a conversion commences."



**SOLAS regulation II-1/25-1.1, as amended by resolution MSC.482(103) reads as follows:**

"Multiple hold cargo ships other than bulk carriers and tankers constructed on or after 1 January 2024 shall be fitted with water level detectors in each cargo hold intended for dry cargoes. Water level detectors are not required for cargo holds located entirely above the freeboard deck."

**Interpretation**

1 The expression "ships constructed before 1 January 2024" with respect to ships subject to the provisions of SOLAS regulation II-1/1.1.1.1 should mean:

- .1 ships with a contract for construction date on or after 1 January 2020 but before 1 January 2024 subject to compliance with .3 below; or
- .2 ships without a contract for construction, having a keel laying date, or similar stage of construction date, on or after 1 July 2020 but before 1 July 2024 subject to compliance with .3 below; and
- .3 ships with a date of delivery on or after 1 January 2024 but before 1 January 2028, provided the condition in .1 or .2 above, as applicable, is met.

2 The expression "Multiple hold cargo ships other than bulk carriers and tankers constructed on or after 1 January 2024" as used in SOLAS regulation II-1/25-1 (as amended by resolution MSC.482(103)) should be interpreted as follows:

"Multiple hold cargo ships other than bulk carriers and tankers constructed on or after 1 January 2024" should be subject to the definition of "ships constructed on or after 1 January 2024" in SOLAS regulation II-1/1.1.3.2 (as amended by resolution MSC.474(102))."

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1674  
27 June 2023

**UNIFIED INTERPRETATIONS OF THE LSA CODE  
AND THE 1994 AND 2000 HSC CODES**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), with a view to providing more specific guidance on paragraphs 4.1.5.1.13, 4.4.8.16 and 5.1.2.2.7 of the LSA Code; paragraph 3.8.10 of annex 10 to the 1994 HSC Code; and paragraph 3.8.10 of annex 11 to the 2000 HSC Code, approved unified interpretations of the LSA Code and the 1994 and 2000 HSC Codes, prepared by the Sub-Committee on Ship Systems and Equipment, at its ninth session (27 February to 3 March 2023), as set out in the annex.

2 Member States are invited to use the annexed unified interpretations as guidance when applying paragraphs 4.1.5.1.13, 4.4.8.16 and 5.1.2.2.7 of the LSA Code; paragraph 3.8.10 of annex 10 to the 1994 HSC Code; and paragraph 3.8.10 of annex 11 to the 2000 HSC Code, and to bring them to the attention of all parties concerned.

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**ANNEX**

**UNIFIED INTERPRETATION OF THE LSA CODE  
AND THE 1994 AND 2000 HSC CODES**

**Paragraphs 4.1.5.1.13, 4.4.8.16 and 5.1.2.2.7 of the LSA Code – Equipment of liferaft, lifeboat and rescue boat, respectively**

**Paragraph 3.8.10 of annex 10 to the 1994 HSC Code – Equipment of open reversible liferaft**

**Paragraph 3.8.10 of annex 11 to the 2000 HSC Code – Equipment of open reversible liferaft**

1 One spare bulb should be provided for torches utilizing either a filament bulb or single LED to provide the light source. Where the light source is provided by more than one LED, a spare LED bulb is not required, provided the failure of any one LED does not prevent the other LEDs from fully functioning.

2 Provision of a second ready-for-use waterproof electric torch suitable for Morse signalling can be accepted as an alternative to providing one spare set of batteries and one spare bulb in a waterproof container.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1675  
27 June 2023

**INTERIM GUIDELINES ON SAFE OPERATION OF ONSHORE POWER SUPPLY (OPS)  
SERVICE IN PORT FOR SHIPS ENGAGED ON INTERNATIONAL VOYAGES**

- 1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), having considered a proposal made by the Sub-Committee on Ship Systems and Equipment (SSE) at its ninth session (27 February to 3 March 2023), approved the *Interim guidelines on safe operation of onshore power supply (OPS) service in port for ships engaged on international voyages*, as set out in the annex, with a view to promoting safe operation of OPS service in port on ships.
- 2 The Committee agreed to keep the Interim Guidelines under review and to amend them in view of the experience gained with their application and/or as and when the circumstances so warranted.
- 3 Member States are invited to bring the Interim Guidelines to the attention of all parties concerned.

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## ANNEX

### INTERIM GUIDELINES ON SAFE OPERATION OF ONSHORE POWER SUPPLY (OPS) SERVICE IN PORT FOR SHIPS ENGAGED ON INTERNATIONAL VOYAGES

#### INTRODUCTION

With increasing requirements on marine environmental protection, the application of onboard clean energy solutions has been continuously promoted. The Paris Agreement has set arrangements for a global response to climate change after 2020, in line with which many States have developed specific implementation plans.

IMO has always focused on ship energy conservation and emission reduction. The application of onshore power supply (OPS) (alternative maritime power (AMP), cold ironing, shore-side electricity and onshore power supply, high- or low-voltage shore connection, respectively) is gradually expanding. These Interim Guidelines have been developed to promote safe operation of OPS service in port on ships.

Taking into account that OPS systems in port for ships are installed and applied internationally and recognizing that safe operation of the OPS system requires special consideration, these Interim Guidelines have been developed to facilitate both ship- and shore-side.

Recognizing that standard IEC/IEEE DIS 80005-3, Utility connections in port – Part 3: Low Voltage Shore Connection (LVSC) Systems – General requirements, is under development, and that operational safety for low-voltage OPS systems is equally important as for high-voltage OPS systems, the procedures for low voltage should be revised when an international standard for low-voltage OPS systems has been published.

These Interim Guidelines are not intended to prohibit other measures of onboard clean energy application.

#### 1 GENERAL

##### 1.1 Application

1.1.1 This document is intended to provide Interim Guidelines for the safe operation of OPS service in port on ships engaged on international voyage. For tankers, the provisions in these Interim Guidelines may be specially considered. These Interim Guidelines do not apply to the electrical power supply during docking periods, e.g. dry docking and other out-of-service maintenance and repair.

1.1.2 The application of these Interim Guidelines to semi-automatic and fully automatic OPS processes is subject to further consideration.

##### 1.2 Terms and definitions

1.2.1 *Onshore power supply (OPS) system* is the equipment that supplies onshore power to ships berthing in port, including ship-side installations and shore installations.

1.2.2 *Ship-side installations* are those onboard systems that are designed to accept shore power, typically involving incoming power receptacles and plugs, shore connection switchgear and protections, transformer (if applicable), incoming switchgear and protections at the main switchboard, power cables (hereinafter referred to as cables), automation, cable monitoring system and associated instrumentation.

1.2.3 *Shore installations* are the equipment that is installed at quay or port for OPS, typically involving switchgear and protections, transformers, frequency convertors (if applicable), output power receptacles and plugs, cable management and associated instrumentation.

1.2.4 *Cable management system* is all the equipment designed to control, monitor and handle the flexible power and control cables and their connection devices.

1.2.5 *Emergency shutdown* is manual and/or automatic shutdown in critical situations.

1.2.6 *The first connection* refers to the OPS connection on ship's first call at a shore power supply point.

1.2.7 *Operation* includes all activities necessary to permit the electrical installation to function. These activities include matters such as switching, controlling, monitoring and maintenance, as well as both electrical and non-electrical work.

1.2.8 *Shore-side circuit breaker* is the dedicated switching and protection device on the shore-side which connects and disconnects shore-side power to the ship.

1.2.9 *Ship-side circuit breaker* is the dedicated switching and protection device on the ship-side which connects and disconnects shore-side power on the ship.

### **1.3 General**

1.3.1 Technical design, installation and testing requirements for the OPS system are provided by the standard: IEC/IEEE 80005-1:2019: Utility connections in port – Part 1: High Voltage Shore Connection (HVSC) Systems – General requirements or other equivalent standards.

1.3.2 The safety of ships, personnel and power supply systems should be ensured by the shore- and ship-side during the establishment of a connection of the shore power, during all operations, in the event of a failure, during disconnection and when the systems are not in use.

1.3.3 A compatibility assessment (for high voltage, see standard IEC/IEEE 80005-1:2019) or technical analysis (for low voltage) of the OPS system should be available to verify the possibility of connecting the ship electrical system to the shore installations.

1.3.4 An equipotential bonding between the ship hull and shore grounding electrode should be established.

1.3.5 Both shore- and ship-sides should specify responsibilities and assignments, including the person in charge (PIC) of the operation.

1.3.6 Both shore- and ship-sides should complete a pre-connection checklist (see paragraph 5.2.9) prior to the ship's arrival and connection at a shore supply point.

1.3.7 The PIC should confirm that there are no safety-critical operations on the ship prior to connecting to the shore power supply.

1.3.8 For reliable communication, the following provisions apply:

- .1 a voice communication link, e.g. communication devices or other equivalents should be provided to facilitate the communication between the operational personnel from both shore- and ship-side;

- .2 equipment for voice communication should be functional;
- .3 in case of any VHF or UHF voice communications, the ITU Maritime Mobile Services frequencies should be used;
- .4 voice communications should be carried out in the common working language of the terminal and the ship or in English; and
- .5 the ship should make a public address announcement advising the crew prior to OPS connection or disconnection.

## **2 VERIFICATION AND TESTING**

### **2.1 Tests at the first call at a shore supply point**

2.1.1 Prior to conducting the test referred to in this paragraph, the compatibility assessment or technical analysis, as appropriate, should be performed. Both shore- and ship-sides should cross-review the initial test reports before the tests at the first call at a shore supply point. The initial tests for high voltage should meet standard IEC/IEEE 80005-1:2019 requirements.

2.1.2 The following should be performed as an integration test by both shore- and ship-sides before the OPS connection:

- .1 visual inspection;
- .2 power frequency test for switchgear assemblies and voltage test for cable;
- .3 insulation resistance measurement;
- .4 measurement of the earthing resistance;
- .5 function test of the protection devices;
- .6 function test of the interlocking system;
- .7 function test of the control equipment;
- .8 equipotential bond monitoring test or equivalent;
- .9 phase-sequence test;
- .10 function test of the cable management system;
- .11 integration tests to demonstrate that the shore- and ship-side installations work properly together; and
- .12 function test of the emergency stops.

2.1.3 The tests in paragraphs 2.1.2.2 to 2.1.2.4 should be performed only if either of the installations, shore- or ship-side, has been out of service or not in use for more than 30 months.

2.1.4 There should be a suitable cross-boundary safety system, consisting of physical, operational and communications procedures, that is jointly controlled by both ship- and shore-side PICs. This should include appropriate procedures for ensuring the integrity of any isolations, such as a "lock out/tag out" system.



## **2.2 Tests at repeated calls of a shore supply point**

2.2.1 The tests referred to in this paragraph should meet standard IEC/IEEE 80005-1:2019 requirements.

2.2.2 If the time between port calls (the same shore supply point) does not exceed 12 months and if no modifications have been performed either on the shore- or ship-side installations, the following verification should be conducted:

- .1 visual inspection;
- .2 confirmation that no earth fault is present;
- .3 statement of voltage and frequency;
- .4 an authorized switching and connection procedure; and
- .5 function test of the emergency stops.

2.2.3 There should be a suitable cross-boundary safety system, consisting of physical, operational and communications procedures, that is jointly controlled by both ship- and shore-side PICs. This should include appropriate procedures for ensuring the integrity of any isolations, such as a "lock out/tag out" system.

2.2.4 Taking into account paragraph 2.1.3, if the time between port calls (the same shore supply point) exceeds 12 months, then the tests in paragraphs 2.1.2.1 to 2.1.2.12 should be conducted.

## **3 OPERATION**

### **3.1 Personal protective equipment**

Personnel working on handling, connection and operation of OPS systems should wear the personal protective equipment (PPE) as required by national regulations (shore-side) or as specified in the ship safety management system (ship-side).

### **3.2 High voltage (HV)**

#### **3.2.1 Pre-connection and connection**

The detailed procedures for shore power transfer should include:

- .1 a pre-connection safety inspection, which in turn should include:
  - .1 a visual inspection;
  - .2 the definition of restricted access areas on both ship- and shore-side connection;
  - .3 verification of the locations of the communication devices, i.e. walkie-talkie and telephone, fire-fighting equipment and first aid devices;
  - .4 verification of the PPE of the personnel involved; and
  - .5 confirmation that both shore- and ship-side circuit breakers are open and isolated, and circuits are earthed;

- .2 cross-check of the communication equipment;
- .3 confirmation that there are no safety-critical operations on the ship, prior to connecting to the shore power supply (see paragraph 1.3.7);
- .4 operation of the cable management system:
  - .1 ensure the power cables are de-energized;
  - .2 turn on the cable management system and deploy the cable(s);
  - .3 connect the cable and secure the connection; and
  - .4 activate the cable monitor systems to automatically observe the cable tension and length, and adjust, as necessary; and
- .5 simulation of the "safety circuit pilot loop operation" by both shore- and ship-sides to confirm the appropriate breakers will trip.

### **3.2.2 Supply of power**

3.2.2.1 Where the shipboard generator is intended to run in parallel with the shore power for a period of time specified in the compatibility assessment, the operation procedure may include, but not be limited to, the following:

- .1 confirmation of the sequence of all switching operations;
- .2 both parties should confirm that the connection has been completed, the connection area made safe and earthing circuits have been removed;
- .3 the ship-side should communicate with the PIC indicating that it is safe to close the shore-side circuit breaker; and
- .4 the shore power transfer by the ship-side should be, as follows:
  - .1 ship's generator should synchronize with the shore-side grid;
  - .2 following synchronization, the load should be transferred between the shore supply and the ship source(s) of electrical power;
  - .3 the ship-side should gradually reduce the load for the ship's generators and transfer the load to the shore system; and
  - .4 once the ship's generators have reduced the load sufficiently, the generator breaker should be opened and the generator engine can then be shut down.

3.2.2.2 Where the load transfer is executed via blackout, the operation should follow the procedures in paragraph 3.2.2.1.1 to 3.2.2.1.3.

### **3.2.3 Disconnection**

3.2.3.1 Shore power disconnection via parallel connection from the OPS should include the following detailed procedures:

- .1 a safety inspection, which in turn should include:
  - .1 verification of the locations of communication devices, i.e. walkie-talkie and telephone, fire-fighting equipment and first aid devices; and
  - .2 verification of the PPE of the personnel involved;
- .2 the PIC should confirm that there are no safety-critical operations on the ship prior to disconnecting from the shore power supply (see paragraph 1.3.7);
- .3 the shore power transfer by the ship-side, which should be as follows:
  - .1 the ship-side should start ship generator(s);
  - .2 ship's generator should synchronize with the shore-side grid;
  - .3 following synchronization, the load should be transferred between the shore supply and the ship source(s) of electrical power; and
  - .4 the ship-side should gradually increase the load for the ship's generators;
- .4 the ship-side requires disconnection from the OPS;
- .5 the ship-side may open the ship-side circuit breaker;
- .6 the ship-side should communicate with the PIC indicating that it is safe to open the shore-side circuit breaker;
- .7 both parties should confirm that both ship- and shore-side circuit breakers are isolated, connection area made safe and earthing circuits are completed;
- .8 the power and control cable (if applicable) should be disconnected; and
- .9 when the cable management system is installed on board, it should be operated to collect and store the shore cable as per the applicable procedures.

3.2.3.2 Shore power disconnection via a blackout connection should be in accordance with paragraph 3.2.3.1, except for paragraphs 3.2.3.1.3.2 to 3.2.3.1.3.4.

## **3.3 Low voltage (LV)**

### **3.3.1 Technical analysis**

A technical analysis should be conducted to confirm the suitability of both ship- and shore-side OPS arrangements.

### **3.3.2 Pre-connection and connection**

Shore power transfer via parallel and via a blackout connection should include the following detailed procedures:

- .1 a pre-connection safety inspection, which in turn should include:
  - .1 a visual inspection;
  - .2 the definition of restricted access areas on both ship-side and shore-side connection;
  - .3 verification of the locations of the communication devices, i.e. walkie-talkie and telephone, fire-fighting equipment and first aid devices;
  - .4 verification of the PPE of the personnel involved; and
  - .5 confirmation that both shore- and ship-side circuit breakers are open and power circuits are de-energized;
- .2 cross-check of the communication equipment;
- .3 the PIC should confirm that there are no safety-critical operations on the ship prior to connecting to the shore power supply (see paragraph 1.3.7);
- .4 operation of the cable management system fit for the intended purpose; and
- .5 simulation of the "safety circuit pilot loop operation" by both shore- and ship-sides to confirm the appropriate breakers will trip.

### **3.3.3 Supply of power**

3.3.3.1 Where the shipboard generator is intended to run in parallel with the shore power for a period of time specified in the technical analysis (see paragraph 3.3.1.1), the operation procedure may include, but not be limited to, the following:

- .1 confirmation of the sequence of all switching operations;
- .2 both parties should confirm that the connection has been completed, connection area made safe and, if applicable, earthing circuits have been removed;
- .3 the ship-side should communicate with the PIC indicating that it is safe to close the shore-side circuit breaker; and
- .4 the shore power transfer by the ship-side should be as follows:
  - .1 ship's generator should synchronize with the shore-side grid;
  - .2 following synchronization, the load should be transferred between the shore supply and the ship source(s) of electrical power;
  - .3 the ship-side should gradually reduce the load for the ship's generators and transfer the load to the shore system; and

- .4 once the ship's generators have reduced the load sufficiently, the generator breaker should be opened and the generator engine can then be shut down.

3.3.3.2 Where the load transfer is executed via blackout, operation procedure should be in accordance with paragraphs 3.3.3.1.1 to 3.3.3.1.3.

### **3.3.4 Disconnection**

3.3.4.1 Shore power disconnection via parallel connection from the OPS should include the following detailed procedure:

- .1 a safety inspection, which in turn should include:
  - .1 verification of the locations of communication devices, i.e. walkie-talkie and telephone, fire-fighting equipment and first aid devices; and
  - .2 verification of the PPE of the personnel involved;
- .2 the PIC should confirm that there are no safety-critical operations on the ship prior to disconnecting from the shore power supply (see paragraph 1.3.7);
- .3 the shore power transfer by the ship-side, which should be as follows:
  - .1 the ship-side should start ship generator(s);
  - .2 ship's generator should synchronize with the shore-side grid;
  - .3 following synchronization, the load should be transferred between the shore supply and the ship source(s) of electrical power; and
  - .4 the ship-side should gradually increase the load for the ship's generators;
- .4 the ship-side requires disconnection from OPS;
- .5 the ship-side may open the ship-side circuit breaker;
- .6 the ship-side should communicate with PIC indicating that it is safe to open the shore-side circuit breaker;
- .7 to ensure that the power circuit is de-energized, both parties should confirm that both ship- and shore-side circuit breakers are open, circuits are isolated, and, if applicable, earthed;
- .8 the power and control cable (if applicable) should be disconnected; and
- .9 when the cable management system is installed on board, it should be operated to collect and store the OPS cable as per the applicable procedures.

3.3.4.2 Shore power disconnection via a blackout connection should be in accordance with paragraph 3.3.4.1, except for paragraphs 3.3.4.1.3.2 to 3.2.3.1.3.4.

#### **4 SAFETY PRECAUTIONS BEFORE MAINTENANCE**

The planned maintenance programme for OPS systems should include the following "lock out/tag out" and equipment grounding procedures to ensure personnel safety:

- .1 switch off the circuit breaker;
- .2 lock against reclosure;
- .3 confirm that lines and equipment are de-energized;
- .4 ground and short circuit the phases; and
- .5 cover, partition or screen of adjacent line sections.

#### **5 DOCUMENTATION**

5.1 OPS operation procedures should be included in the ship safety management system.

5.2 The following information should also be available on board:

- .1 a complete system description, including circuit diagrams, operation instructions and specification of set points of protection, monitoring and alarming devices of the ship installations;
- .2 records of completed compatibility assessments, including port-specific information, such as agreed joint switching procedures;
- .3 step-by-step instructions for OPS connection and disconnection, including equipotential bonding and load transfer;
- .4 means to inhibit the starting of equipment which would result in failure, overloading or activation of automatic load reduction (if any) measures when a supply system is connected;
- .5 procedures for setting the transfer time limit, which may be adjustable in order to match the ability for an external source of electrical power to accept and transfer load, if applicable;
- .6 emergency shutdown and ship power restoration procedures;
- .7 appropriate provisions for the storage of OPS equipment when not in use;
- .8 a maintenance plan to establish periodic tests and maintenance procedures for the system; and
- .9 a pre-connection checklist, to include but not limited to berth, OPS supply point, communication method, operational limitations during berthing, contact information for PICs, estimated power consumption and agreed switching procedures.

## **6 PERSONNEL FAMILIARIZATION**

6.1 The company, as defined in SOLAS regulation IX/1.2, should ensure that onboard personnel involved in OPS operation are familiarized with the onboard OPS system for safe operation in accordance with STCW regulation I/14, paragraph 1.5.

6.2 A PIC on board should be in charge of the ship-side installations in service. Only competent personnel who have received familiarization in accordance with paragraph 6.1 above and authorized by the PIC should be involved with the physical connection, power transfer and OPS disconnection procedures.

6.3 PICs of high or low-voltage OPS systems should be:

- .1 electrotechnical officers holding a certificate of competency in accordance with the requirements of regulation III/6 of the 1978 STCW Convention; or
- .2 chief engineer officers and second engineer officers holding a certificate of competency in accordance with the requirements of regulations III/2 or III/3 of the 1978 STCW Convention.

6.4 A PIC or personnel designated by a PIC should be on duty during the OPS service following connection and power transfer.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1676  
30 June 2023

**DELAYS AFFECTING THE AVAILABILITY OF NEW GMDSS EQUIPMENT COMPLIANT  
WITH THE REVISED PERFORMANCE STANDARDS SET OUT IN RESOLUTIONS  
MSC.511(105), MSC.512(105) AND MSC.513(105)**

1 The Maritime Safety Committee, at its 105th session (20 to 29 April 2022), adopted amendments to:

- .1 the International Convention for the Safety of Life at Sea (SOLAS), 1974 (resolution MSC.496(105));
- .2 the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 (1988 SOLAS Protocol) (resolution MSC.497(105));
- .3 the International Code of Safety for High-Speed Craft, 1994 (1994 HSC Code) (resolution MSC.498(105)) and the International Code of Safety for High-Speed Craft, 2000 (2000 HSC Code) (resolution MSC.499(105)); and
- .4 the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1979 (1979 MODU Code) (resolution MSC.504(105)), the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 1989 (1989 MODU Code) (resolution MSC.505(105)) and the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code) (resolution MSC.506(105)),

which will enter into force on 1 January 2024.

2 The Committee also adopted, inter alia, resolutions:

- .1 MSC.511(105) on *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling*;
- .2 MSC.512(105) on *Performance standards for shipborne MF and MF/HF radio installations capable of voice communication, digital selective calling and reception of maritime safety information and search and rescue related information*; and
- .3 MSC.513(105) on *Performance standards for Inmarsat-C ship earth stations capable of transmitting and receiving direct-printing communications*,

which recommend Governments to ensure that shipborne equipment installed on or after 1 January 2024, which will form part of the Global Maritime Distress and Safety System (GMDSS), conform to performance standards not inferior to those adopted at that session.



3 The Committee, at its 107th session (31 May to 9 June 2023), having considered information provided by IEC and CIRM on the availability of GMDSS equipment after 1 January 2024, noted that considerable work had been carried out by the radio manufacturing industry and the standards' organizations to develop the new equipment required. However, some of the performance standards incorporate new features which still require specification from other organizations.

4 The Committee, therefore, concluded that it was unrealistic for new shipborne VHF radio installations, shipborne MF and MF/HF radio installations or Inmarsat-C ship earth stations conforming to performance standards specified in the annex to resolutions MSC.511(105), MSC.512(105) and MSC.513(105), respectively, to be available for installation from 1 January 2024.

5 In this regard, the Committee invited Member States to consider permitting until 1 January 2028 the continued installation of:

- .1 shipborne VHF radio installations conforming to performance standards not inferior to those specified in the annex to resolution A.803(19), as amended;
- .2 shipborne MF and MF/HF radio installations conforming to performance standards not inferior to those specified in the annex to resolutions A.804(19), as amended and A.806(19), as amended; and
- .3 Inmarsat-C ship earth stations conforming to performance standards not inferior to those specified in the annex to resolution A.807(19), as amended.

6 Member States are invited to bring this information to the attention of the appropriate national authorities and all other parties concerned.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1276/Rev.1  
27 June 2023

## REVISED UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2

1 The Maritime Safety Committee, at its eighty-fourth session (7 to 16 May 2008), with a view to providing more specific guidance for application of the relevant requirements of the 1974 SOLAS Convention, approved the *Unified interpretations of SOLAS chapter II-2* prepared by the Sub-Committee on Fire Protection, at its fifty-second session (14 to 18 January 2008).

2 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), approved draft amendments to the unified interpretations of regulations II-2/9.7.2 and 9.7.5 on separation of ducts from spaces, in order to align them with the provisions of the SOLAS Convention, as amended by resolution MSC.365(93), prepared by the Sub-Committee on Ship Systems and Equipment at its ninth session (27 February to 3 March 2023), as set out in the annex.

3 Member Governments are invited to use the annexed revised unified interpretations as guidance when applying relevant provisions of SOLAS chapter II-2 to fire protection construction, installation, arrangements and equipment to be installed on board ships of which the building contract is placed on or after 5 June 2023, and to bring the unified interpretations to the attention of all parties concerned.

4 This circular supersedes MSC.1/Circ.1276.

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ANNEX

REVISED UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2

Regulation II-2/4.3 – Arrangements for gaseous fuel for domestic purposes

1 A portion of open deck, recessed into a deck structure, machinery casing, deck house, etc., utilized for the exclusive storage of gas bottles is considered acceptable for the purpose of regulation II-2/4.3 provided that:

- .1 such a recess has an unobstructed opening, except for small appurtenant structures, such as opening corner radii, small sills, pillars, etc. The opening may be provided with grating walls and door; and
- .2 the depth of such a recess is not greater than 1 m.

2 A portion of open deck meeting the above should be considered as open deck in applying tables 9.1 to 9.8 of SOLAS chapter II-2.

Regulations II-2/9.7.2 and 9.7.5 – Separation of ducts from spaces

1 With respect to the application of SOLAS regulations II-2/9.7.2 and 9.7.5 for determining fire insulation for trunks and ducts which pass through an enclosed space, the term "pass through" pertains to the part of the trunk/duct contiguous to the enclosed space.

2 The following sketches are given as examples:

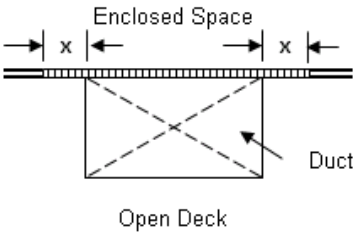


Figure 1

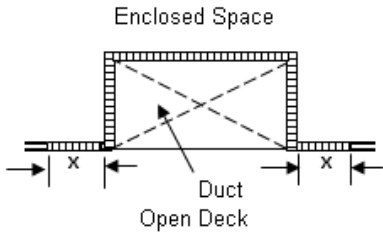


Figure 2

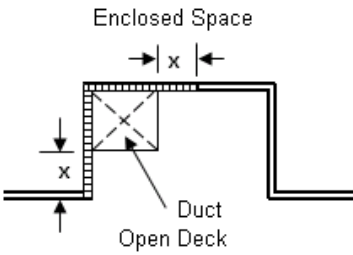


Figure 3

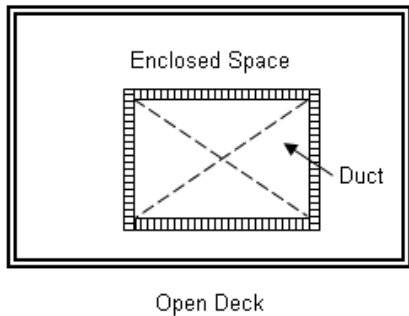



Figure 4

 = fire insulation  
x = 450 mm

Examples of ducts contiguous to enclosed space

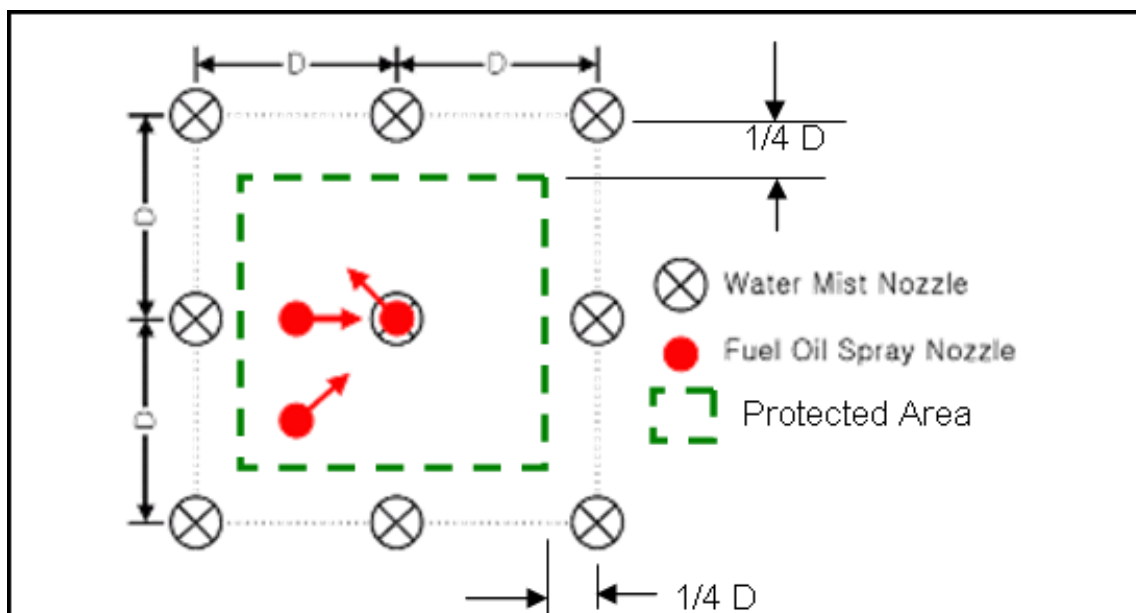
**Regulation II-2/10.5.6 – Fixed local application fire-extinguishing systems\***

- 1 The end nozzles of a single line of nozzles should be positioned:
  - .1 outside the hazard where paragraph 3.4.2.1 of the appendix to the annex to MSC/Circ.913 is applicable, to the distance established in testing; and
  - .2 at the edge or outside of the protected area where paragraph 3.4.2.2 of the appendix to the annex to MSC/Circ.913 is applicable.

A single nozzle should be located above the fire source and at the centre of an area having dimensions  $D/2 \times D/2$ .

Sketches of acceptable arrangements are as follows:

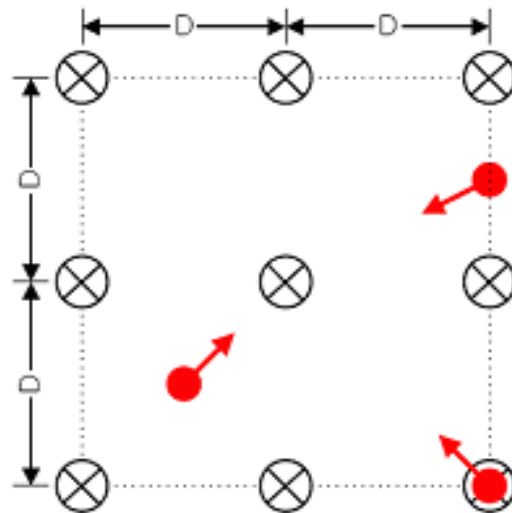
**1.1 System (utilizing a 3 x 3 nozzle grid) that extinguishes fires referred to in paragraphs 3.3.2.1 to 3.3.2.3 of the appendix to the annex to MSC/Circ.913**



For this system, the outer nozzles should be installed outside of the protected area at a distance of at least  $1/4$  of the maximum nozzle spacing.

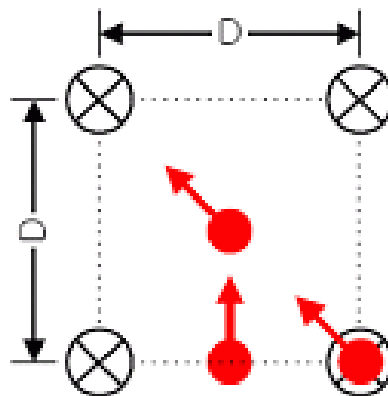
\* The fixed local application fire-fighting systems shall be approved based on the standards contained in the *Guidelines for the approval of fixed water-based local application fire-fighting systems for use in category A machinery spaces* (MSC/Circ.913), as was superseded by MSC.1/Circ.1387.

**1.2 System (utilizing a 3 x 3 nozzle grid) that extinguishes fires referred to in paragraphs 3.3.2.3 to 3.3.2.5 of the appendix to the annex to MSC/Circ.913**



For this system, outer nozzles can be located either at the edge of the protected area or outside of the protected area.

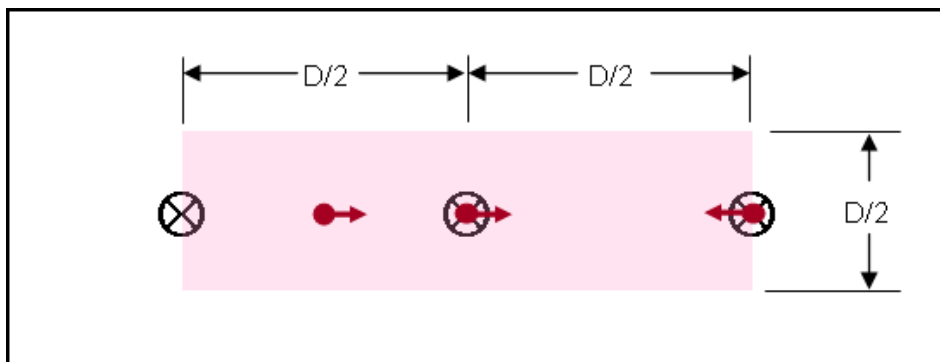
**1.3 System (utilizing a 2 x 2 nozzle grid) that extinguishes fires referred to in paragraphs 3.3.2.3 to 3.3.2.5 of the appendix to the annex to MSC/Circ.913**



For this system, outer nozzles can be located either at the edge of the protected area or outside of the protected area.

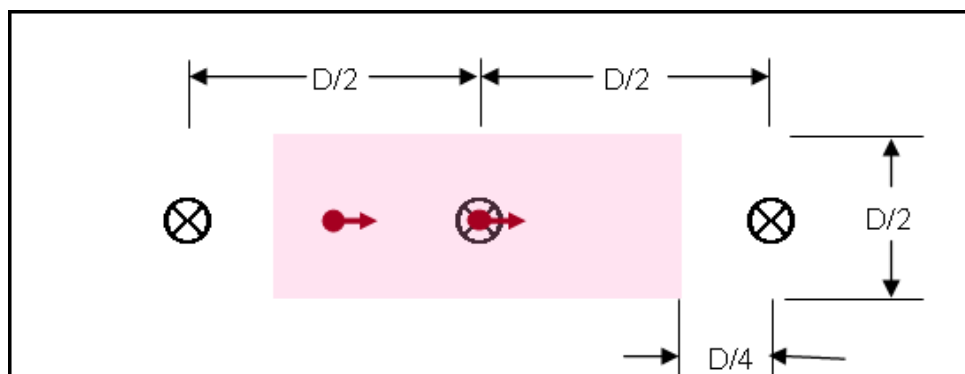
### 1.4 A single row of nozzles

1.4.1 System that extinguishes fires referred to in paragraphs 3.3.2.3 to 3.3.2.5 of the appendix to the annex to MSC/Circ.913



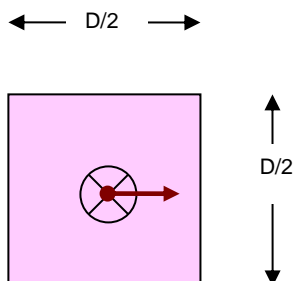
For this system, outer nozzles should be placed at least at the edge of the protected area.

1.4.2 System that extinguishes fires referred to in paragraphs 3.3.2.1 to 3.3.2.3 of the appendix to the annex to MSC/Circ.913



For this system, the outer nozzles should be placed outside of the protected area at a distance of at least 1/4 of the maximum nozzle spacing.

### 1.5 Single nozzle



### **Regulation II-2/10.8.1 – Fixed deck foam fire-extinguishing systems**

Where an enclosed pipe trunk is situated within the cargo tanks deck area, the pipe trunk:

- .1 should be protected by a fixed fire-extinguishing system in accordance with regulation II-2/10.9; and the extinguishing system should be operated from a readily accessible position outside the pipe trunk;
- .2 is not considered part of the cargo tanks deck area;
- .3 the area of the pipe trunk need not be included in the calculation of the foam solution rate of supply for the deck foam system required by regulation II-2/10.8;
- .4 should be adequately ventilated and protected in accordance with regulations II-2/4.5.10.1.2 and II-2/4.5.10.1.3; and
- .5 should contain no flammable gas sources other than pipes and flanges. If the pipe trunk contains any other source of flammable gas, i.e. valves and pumps, it should be regarded as a cargo pump-room.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1362/Rev.2  
14 July 2023

## **UNIFIED INTERPRETATION OF SOLAS CHAPTER II-1**

1 The Maritime Safety Committee, at its eighty-seventh session (12 to 21 May 2010), with a view to providing more specific guidance for application of the relevant requirements of the 1974 SOLAS Convention, approved a unified interpretation of SOLAS regulation II-1/2.14, prepared by the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety, at its fifty-second session.

2 The Maritime Safety Committee, at its 105th session (20 to 29 April 2022), agreed to amend the above unified interpretation by incorporating interpretations for SOLAS regulations II-1/5.4 and II-1/5.5, prepared by the Sub-Committee on Ship Design and Construction, at its eighth session (17 to 21 January 2022).

3 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), in order to clarify the documentation which is necessary to support an Administration or a recognized organization (RO) in verifying compliance with SOLAS regulation II-1/3-8, as well as to provide clarification for pressure testing of penetrations in watertight divisions after a fire test (SOLAS regulation II-1/13.2.3), approved amendments to MSC.1/Circ.1362/Rev.1, prepared by the Sub-Committee on Ship Design and Construction, at its ninth session.

4 Member Governments are invited to use the annexed unified interpretations as guidance when applying relevant provisions of SOLAS chapter II-1 and to bring them to the attention of all parties concerned.

5 This circular revokes MSC.1/Circ.1362/Rev.1.

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## ANNEX

### UNIFIED INTERPRETATION OF SOLAS CHAPTER II-1

#### Regulation 2.14 – Definitions

For ships constructed on or after 21 May 2010: In determining the permeability of a space, the volume of a space should be taken as the moulded volume, i.e. the immersed volume of a space should be the underwater moulded volume of that space multiplied by the permeability.

#### Regulation 3-8

SOLAS regulation II-1/3-8, as amended by resolution MSC.474(102) reads:

#### "Regulation 3-8

##### *Towing and mooring equipment*

1 Paragraphs 4 to 6 of this regulation apply to ships constructed on or after 1 January 2007.

2 Paragraphs 7 and 8 of this regulation only apply to ships:

- .1 for which the building contract is placed on or after 1 January 2024; or
- .2 in the absence of a building contract, the keel of which is laid, or which is at a similar stage of construction on or after 1 July 2024; or
- .3 the delivery of which is on or after 1 January 2027.

3 This regulation does not apply to towing arrangements provided in accordance with regulation 3-4.

4 Ships shall be provided with arrangements, equipment, and fittings of sufficient safe working load to enable the safe conduct of all towing and mooring operations associated with the normal operation of the ship.

5 Arrangements, equipment and fittings provided in accordance with paragraph 4 above shall meet the appropriate requirements of the Administration or an organization recognized by the Administration under regulation I/6.<sup>1</sup>

6 Each fitting or item of equipment provided under this regulation shall be clearly marked with any limitations associated with its safe operation, taking into account the strength of the supporting ship's structure and its attachment to it.

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<sup>1</sup> Refer to the *Guidance on shipboard towing and mooring equipment* (MSC.1/Circ.1175) for ships constructed on or after 1 January 2007 but before 1 January 2024 and the *Guidance on shipboard towing and mooring equipment* (MSC.1/Circ.1175/Rev.1) for ships constructed on or after 1 January 2024.

7 For ships of 3,000 gross tonnage and above, the mooring arrangement shall be designed, and the mooring equipment including lines shall be selected, in order to ensure occupational safety and safe mooring of the ship, based on the guidelines developed by the Organization.<sup>2</sup> Ship-specific information shall be provided and kept on board.<sup>3</sup>

8 Ships of less than 3,000 gross tonnage should comply with the requirement in paragraph 7 above as far as reasonably practicable, or with applicable national standards of the Administration.

9 For all ships, mooring equipment, including lines, shall be inspected and maintained in a suitable condition for their intended purposes.<sup>4</sup>

### Interpretation

1 The expression "all ships" in SOLAS regulation II-1/3-8.9 means ships constructed before, on, or after 1 January 2009 in accordance with SOLAS regulation II-1/3-3.3 II-1/1.1.3.2.

2 Irrespective of the scope of review by the Administration or a recognized organization (RO), as clarified below, for ships covered by the application provisions described in SOLAS regulations II-1/3-8.1 and II-1/3-8.2, as amended by resolution MSC.474(102), owners and designers should comply with the:

- .1 *Revised guidance on shipboard towing and mooring equipment* (MSC.1/Circ.1175/Rev.1);
- .2 *Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring* (MSC.1/Circ.1619); and
- .3 *Guidelines for inspection and maintenance of mooring equipment including lines* (MSC.1/Circ.1620),

footnoted in SOLAS regulation II-1/3-8, in its entirety, and ensure that appropriate measures are taken to mitigate any occupational risks arising from deviations.

3 While applying the requirements of SOLAS regulation II-1/3-8.4 to regulation II-1/3-8.6 and SOLAS regulation II-1/3-8.8, for ships of less than 3,000 gross tonnage, the following is recommended:

- .1 the "Towing and mooring arrangements plan" should be provided for information, where the winch brake holding capacities should be included in addition to the information provided in section 5 (Towing and mooring arrangements plan) of the annex to MSC.1/Circ.1175/Rev.1. A technical specification document of the mooring lines supplied with the ship should be provided for information. The manufacturers' recommended minimum diameter D of each fitting in contact with the mooring lines and the Line Design Break Force (LDBF) of the mooring lines should be included in the document;

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<sup>2</sup> Refer to the *Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring* (MSC.1/Circ.1619).

<sup>3</sup> Refer to towing and mooring arrangement plan in the *Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring* (MSC.1/Circ.1619).

<sup>4</sup> Refer to the *Guidelines for inspection and maintenance of mooring equipment including lines* (MSC.1/Circ.1620).

- .2 for confirmation of the appropriate selection of mooring line, the properties of mooring lines related to LDBF and bend radius (D/d ratio) should be submitted to the Administration or the RO. A warning should be provided that the wear rate of lines may be higher for lower diameter (paragraph 5.6 of MSC.1/Circ.1620); and
- .3 at delivery of the ship, the Administration or the RO should confirm that the towing and mooring arrangements plan is provided on board.

4 While applying the requirements of SOLAS regulation II-1/3-8.4 to regulation II-1/3-8.6 and the SOLAS regulation II-1/3-8.7, for ships of 3,000 gross tonnage and above, the following is recommended in addition to those specified under paragraph 3 of this interpretation:

- .1 a document should be provided by the designer for information and as a supplement to the towing and mooring arrangements plan, confirming that MSC.1/Circ.1619 has been considered. The document should explicitly state that the deviations, if any, were unavoidable;
- .2 deviations should be recorded (paragraph 6.1 of MSC.1/Circ.1619), justification and suitable safety measures should be provided (paragraph 6.2 of MSC.1/Circ.1619) in the supplement to the towing and mooring arrangements plan. A reference to the supplement should be included in the towing and mooring arrangements plan (paragraph 6.3 of MSC.1/Circ.1619);
- .3 if deviations are not found necessary, and the supplement is not needed, then this should be mentioned explicitly in the towing and mooring arrangements plan;
- .4 the mooring winches' brake holding capacities should be less than 100% of the Ship Design Minimum Breaking Load ( $MBL_{SD}$ ) (paragraphs 5.2.3.3 and 5.2.4 of MSC.1/Circ.1619). The winches should be fitted with brakes that allow for the reliable setting of the brake rendering load; and
- .5 at delivery of the ship, the Administration or the RO should confirm that the towing and mooring arrangements plan and the supplement describing deviations and suitable safety measures is provided on board.

5 While applying the requirements of SOLAS regulation II-1/3-8.9, the following should be complied with, and compliance should be confirmed by the surveyor at the initial survey for new ships or at the first annual survey for the issuance of the Cargo Ship Safety Construction Certificate or renewal survey for the issuance of the Passenger Ship Safety Certificate after 1 January 2024 for existing ships:

- .1 procedures for mooring operations, inspection and maintenance of mooring equipment, including mooring lines, should be established and available on board (paragraph 3.1 of MSC.1/Circ.1620), taking into account industry practices (section 7 of MSC.1/Circ.1620);
- .2 procedures to allow the identification and control of mooring lines, tails and associated attachments should be established and available on board (paragraph 3.3 of MSC.1/Circ.1620);

- .3 the periodic inspection of mooring lines, mooring line tails and associated attachments should be included in the onboard maintenance plan or equivalent maintenance management system (paragraph 4.1.1 of MSC.1/Circ.1620);
- .4 manufacturers' criteria for replacement of mooring lines should be available (paragraph 4.3.1 of MSC.1/Circ.1620);
- .5 records of the original design concept, equipment, arrangements and specifications should be available on board (paragraph 4.4.4 of MSC.1/Circ.1620). For ships the keels of which were laid before 1 January 2007 and without appropriate documentation, owners may establish the  $MBL_{SD}$  for mooring based on the safe working load of mooring equipment provided on board. If no safe working load is specified, then owners are advised to check strength of mooring equipment and their supporting hull structure based on MSC.1/Circ.1175/Rev.1 and determine  $MBL_{SD}$  based on actual capacity of the equipment and their supporting hull structure on board. Manufacturers' test certificates for mooring lines, joining shackles and synthetic tails should be kept on board and properly linked back to the equipment, if available (paragraph 6.2 of MSC.1/Circ.1620); and
- .6 a document should be provided on board for gathering the information above and describe how the information listed above is filed and collected.

6 While applying the requirements of SOLAS regulation II-1/3-8.9, the following should be complied with, and the compliance should be confirmed by the surveyor at the periodical survey for endorsement/issue of the Cargo Ship Safety Construction Certificate or the renewal survey for the Passenger Ship Safety Certificate after 1 January 2024 for existing ships:

- .1 the records of inspection and maintenance of mooring equipment and inspection and replacement of mooring lines, since the last periodical survey, should be kept updated and available on board (paragraphs 4.4.3 and 6.1 of MSC.1/Circ.1620).

### **Regulations 5.4 and 5.5**

SOLAS regulations II-1/5.4 and II-1/5.5 read:

#### **"Regulation 5**

##### *Intact stability*

...

4 Where any alterations are made to a ship so as to materially affect the stability information supplied to the master, amended stability information shall be provided. If necessary, the ship shall be re-inclined. The ship shall be re-inclined if anticipated deviations exceed one of the values specified in paragraph 5.

5 At periodical intervals not exceeding five years, a lightweight survey shall be carried out on all passenger ships to verify any changes in lightship displacement and longitudinal centre of gravity. The ship shall be re-inclined whenever, in comparison with the approved stability information, a deviation from the lightship displacement exceeding 2% or a deviation of the longitudinal centre of gravity exceeding 1% of L is found or anticipated."

**Revised Explanatory Notes to SOLAS regulation II-1/5.4 (resolutions MSC.429(98)/Rev.1 and Rev.2) read:**

"Regulation 5.4

1 When alterations are made to a ship in service that result in calculable differences in the lightship properties, a detailed weights and centres of gravity calculation to adjust the lightship properties should be carried out. If the adjusted lightship displacement or longitudinal centre of gravity, when compared to the approved values, exceeds one of the deviation limits specified in regulation 5.5, the ship should be re-inclined. In addition, if the adjusted lightship vertical centre of gravity, when compared to the approved value, exceeds 1%, the ship should be re-inclined. The lightship transverse centre of gravity is not subject to a deviation limit.

2 When a ship does not exceed the deviation limits specified in explanatory note 1 above, amended stability information should be provided to the master using the new calculated lightship properties if any of the following deviations from the approved values are exceeded:

- .1 1% of the lightship displacement; or
- .2 0.5% of L for the longitudinal centre of gravity; or
- .3 0.5% of the vertical centre of gravity.

However, in cases when these deviation limits are not exceeded, it is not necessary to amend the stability information supplied to the master.

3 When multiple alterations are made to a ship in service over a period of time and each alteration is within the deviation limits specified above, the cumulative total changes to the lightship properties from the most recent inclining also should not exceed the deviation limits specified above or the ship should be re-inclined."

## **Interpretation**

### ***Definition of lightweight calculation***

For the purposes of this interpretation, the term "lightweight calculation" means a detailed calculation of weights on and weights off a ship, resulting from all alterations to the ship since the date of the last approved inclining test, to determine the adjusted lightship properties. Lightship properties include weights and the centre of gravity. The documented weights and their centres of gravity should be verified on board/on-site by the attending class surveyor.

When weights are added, removed or relocated, the final cumulative change is to be compared to the last approved inclining test.

"*Lightweight survey*" is defined in the International Code on Intact Stability 2008, paragraph 2.24.

### ***Definition of stability information***

"*Stability information*" includes any document (whether on paper or electronic) or electronic means of calculation of stability which includes lightship properties. This could include, but is not limited to, the approved stability book, computer software for onboard calculation of stability, the approved strength book and the loading instrument.

### ***Amendment of stability information in conjunction with alterations of lightship properties***

1 If the lightweight calculation, regardless of keel laying date, shows a deviation in lightweight mass, or the longitudinal or vertical position of the centre of gravity:

- .1 beyond any of the tolerance limits specified in explanatory note 1 to SOLAS regulation II-1/5.4 (resolutions MSC.429(98)/Rev.1 and Rev.2), then the ship should be re-inclined and the stability information, as defined above, should be updated to reflect the lightship properties derived from the inclining test and should be approved;
- .2 within the tolerance limits specified in the explanatory note 1 and exceeding any of the deviations specified in explanatory note 2 to SOLAS regulation II-1/5.4 (resolutions MSC.429(98)/Rev.1 and Rev.2), then the stability information should be updated to reflect the lightship properties derived from the lightweight calculation and should be approved; or
- .3 within the tolerance limits specified in explanatory note 2 to SOLAS regulation II-1/5.4 (resolutions MSC.429(98)/Rev.1 and Rev.2), then a copy of the endorsed lightweight calculation report should be provided on board for future reference with no further amendments required to the stability information. However, even if addition, removal or relocation of any weight results in lightship particulars being within tolerable limits, that weight should still be noted and the "constant" adjusted for lightweight calculation in the stability information for all future references and calculations.

2 A summary of paragraph 1 of this interpretation is provided in the following table. Where stability information is to be updated, it should be approved and provided to the master with the instruction that it should now be used for all stability calculations.

<b>Scenario, as calculated by lightweight calculation</b>	<b>Requirement for inclining test</b>	<b>Update of stability information</b>
Lightweight change > 2%	Yes	Yes, using new incline result
LCG change > 1% of L (either forward or aft)	Yes	Yes, using new incline result
VCG change > 1%	Yes	Yes, using new incline result
1% < Lightweight change ≤ 2%	No	Yes, using lightweight calculation
0.5% of L < LCG change ≤ 1% of L (either forward or aft)	No	Yes, using lightweight calculation
0.5% < VCG change ≤ 1%	No	Yes, using lightweight calculation
Lightweight change ≤ 1%	No	No
LCG change ≤ 0.5% of L (either forward or aft)	No	No
VCG change ≤ 0.5%	No	No

3 Lightship properties should be consistent in all documents which use them, e.g. loading manual, stability manual and computer data.



4 A change in lightweight will result in a change in deadweight unless there is an associated change in freeboard. The consequences of the change could have an impact on compliance with other regulations, e.g. MARPOL Annex VI.

### **Regulation 13**

SOLAS regulation II-1/13.2.3 reads:

#### **"Regulation 13**

*Openings in watertight bulkheads below the bulkhead deck in passenger ships*

2.3 Lead or other heat-sensitive materials shall not be used in systems which penetrate watertight bulkheads, where deterioration of such systems in the event of fire would impair the watertight integrity of the bulkheads."

### **Interpretation**

1 Any penetration used for the passage of heat-sensitive piping systems through a watertight bulkhead or deck on a passenger ship under SOLAS regulation II-1/13.2.3 should be tested with the heat-sensitive piping and should be type-approved for watertight integrity as per paragraphs 4 and 5 of the explanatory notes to regulation II-1/13.2.3 contained in the annex of resolutions MSC.429(98)/Rev.1 and Rev.2, as applicable, after the fire test.

2 SOLAS regulation II-1/13.2.3 should be applicable to heat-sensitive piping systems and should not be applied to cable penetrations in watertight bulkheads and decks.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1460/Rev.4  
30 June 2023

## **GUIDANCE ON THE VALIDITY OF RADIOCOMMUNICATIONS EQUIPMENT INSTALLED AND USED ON SHIPS**

1 The Maritime Safety Committee, at its 107th session (31 May to 9 June 2023), approved the guidance set out in the following paragraphs, taking into account concerns over the availability of VHF radiocommunication equipment compatible with the frequencies and channelling arrangements set out in Appendix 18 of the ITU Radio Regulations (RR) – Edition 2020. This guidance recognizes that incompatibility may exist between VHF radiocommunication equipment installed on ships and on shore, and the revised frequencies and channelling arrangements in Appendix 18 of the RR.

2 This circular replaces MSC.1/Circ.1460/Rev.3, which indicated the need for updating existing VHF radiocommunication equipment following the first radio survey after 1 January 2024.

3 The ITU World Radiocommunication Conferences in 2012, 2015 and 2019 made extensive changes to Appendix 18 of the RR. While these changes do not affect the Global Maritime Distress and Safety System (GMDSS), they do affect the use of other frequencies used for VHF meteorological, navigational and urgent marine information broadcasts, port operations and Vessel Traffic Service (VTS). According to the *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling* (resolution MSC.511(105)), VHF radiocommunication equipment should comply with the RR.

4 The *Guidance on procedures for updating shipborne navigation and communication equipment* (MSC.1/Circ.1389) notes that updates to application software and firmware to meet changes in IMO and ITU regulatory requirements are needed.

5 To ensure GMDSS communication capability and the availability of appropriate GMDSS radiocommunication equipment, and without prejudice to the arrangements contained in Appendix 18 of the RR, VHF radiocommunication equipment should be updated following the first radio survey after 1 January 2028, at the earliest, so that it meets the arrangements that will be in force by then.

6 Member States are invited to bring this information to the attention of the appropriate national authorities and all other parties concerned.

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4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1535/Rev.2  
9 May 2022

**UNIFIED INTERPRETATIONS RELATING TO THE PROTOCOL OF 1988  
RELATING TO THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966**

1 The Maritime Safety Committee, at its ninety-sixth session (11 to 20 May 2016), in order to facilitate global and consistent implementation of requirements concerning sill and coaming heights for openings on top of deckhouses and companionways of the 1988 Load Lines Protocol, approved *Unified interpretations relating to the Protocol of 1988 relating to the International Convention on Load Lines, 1966* (MSC.1/Circ.1535), prepared by the Sub-Committee on Ship Design and Construction, at its third session.

2 The Maritime Safety Committee, at its 101st session (5 to 14 June 2019), approved amendments to MSC.1/Circ.1535 to include text regarding the unified interpretations of regulation 27(13)(e) of the 1988 Load Lines Protocol, prepared by the Sub-Committee on Ship Design and Construction, at its sixth session (MSC.1/Circ.1535/Rev.1).

3 The Maritime Safety Committee, at its 105th session (20 to 29 April 2022), approved amendments to the unified interpretations set out in MSC.1/Circ.1535/Rev.1, to include text regarding the unified interpretation of regulation 37(3) of the 1988 Load Lines Protocol, prepared by the Sub-Committee on Ship Design and Construction, at its eighth session. The amended text of the Unified Interpretations is set out in the annex.

4 Member States are invited to apply the annexed unified interpretations and to bring them to the attention of all parties concerned.

5 This circular revokes MSC.1/Circ.1535/Rev.1.

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## ANNEX

### UNIFIED INTERPRETATIONS RELATING TO THE PROTOCOL OF 1988 RELATING TO THE INTERNATIONAL CONVENTION ON LOAD LINES, 1966

#### Regulation 13 – Position of hatchways, doorways and ventilators

1 For the purpose of these regulations, two positions of hatchways, doorways and ventilators are defined as follows:

Position 1 – Upon freeboard decks and raised quarterdecks, or other exposed decks\* lower than one standard height of superstructure above the freeboard deck, and upon exposed decks\* situated forward of a point located a quarter of the ship's length from the forward perpendicular that are located lower than two standard heights of superstructure above the freeboard deck.

Position 2 – Upon exposed 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 and lower than two standard heights of superstructure above the freeboard deck.

Upon exposed 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 and lower than three standard heights of superstructure above the freeboard deck.

#### Regulation 20 – Air pipes

2 Where air pipes to ballast and other tanks extend above:

- .1 the freeboard deck; or
- .2 other exposed decks\* lower than two standard heights of superstructure above the freeboard deck,

the exposed parts of the pipes should be of substantial construction, and the height from the deck to the point where water may have access below should be at least:

- .1 760 mm on the freeboard deck or other exposed decks\* lower than one standard height of superstructure above the freeboard deck; and
- .2 450 mm on other exposed decks\* lower than two standard heights of superstructure above freeboard deck.

**Note:** Flush bolted access covers, which are of substantial construction and are secured by gaskets and closely spaced bolts to maintain water tightness, are not subject to the minimum sill height requirements.

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\* "Exposed decks" include top decks of superstructures, deckhouses, companionways and other similar deck structures.

## **Regulation 27 – Types of ships**

### **Regulation 27(13)(e)**

3 Openings include ventilators (complying with regulation 19(4) of the International Convention on Load Lines, 1966) that for operational reasons have to remain open to supply air to the engine-room, emergency generator room or closed ro-ro and vehicle spaces (if the same is considered buoyant in the stability calculation or protecting openings leading below) for the effective operation of the ship. Where it is not technically feasible to treat some closed ro-ro and vehicle space ventilators as unprotected openings, Administrations may allow an alternative arrangement that provides an equivalent level of safety.

## **Regulation 37 – Deduction for superstructures and trunks**

### **Regulation 37(3)**

4 For ships assigned a type "B" freeboard, including reduced type "B", if the effective length of a forecastle is less than  $0.07 L$ , a superstructure deduction cannot be applied to the ship.

For example, if the ship has no forecastle, or the effective length of the forecastle is less than  $0.07 L$ , and has other superstructure, no superstructure deduction is to be applied.

In case the ship has a full superstructure (one that extends from AP to FP, per regulation 3(10)(h) of Annex B of the 1988 Load Lines Protocol), the deduction for a superstructure may be applied in accordance with regulation 37(1) of Annex B of the 1988 Load Lines Protocol.

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