



# Türk Loydu Newsletter

DECEMBER 30, 2009

TLN 03/2009

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## NEW SOLAS REQUIREMENTS

*APPLICABLE FROM 01 January 2010*

### MEANS OF EMBARKATION ON AND DISEMBARKATION FROM SHIPS

*SOLAS CH II-1, Reg. 3-9*

*MSC.256 (84)*

Ships constructed on or after 1 January 2010 shall be provided with means of embarkation on and disembarkation from ships for use in port and in port related operations, such as gangways and accommodation ladders, which are constructed and installed based on guidelines [MSC.1/Circ.1331](#), unless the Administration deems that compliance with a particular provision is unreasonable or impractical\*.

*\*Circumstances where compliance may be deemed unreasonable or impractical include when ship:*  
.1 has small freeboards and is provided with boarding ramps; or  
.2 is engaged in voyages between ports where appropriate shore accommodation/embarkation ladders (platforms) are provided.

For all ships the means of embarkation and disembarkation shall be inspected and maintained in accordance to [MSC.1/Circ.1331](#) in suitable condition for their intended purpose, taking into account any restrictions related to safe loading. All wires used to support the means of embarkation and disembarkation shall be maintained as specified in SOLAS Chapter III/Regulation 20.4.

- To be surveyed at periodical SOLAS Safety Construction Survey
- To be tested with the specified load at every five-yearly survey

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### EMERGENCY TOWING ARRANGEMENTS AND PROCEDURES

*SOLAS CH II-1, Reg. 3-4*

*MSC.256 (84)*

Ships shall be provided with a ship-specific emergency towing procedure according to [MSC.1/Circ.1255](#). Such a procedure shall be carried aboard the ship for use in emergency situations and shall be based on existing arrangements and equipment available on board the ship.

- All passenger ships, not later than 1 January 2010;
- Cargo ships constructed on or after 1 January 2010; and
- Cargo ships constructed before 1 January 2010, not later than 1 January 2012.

The procedure shall include :

- .1. Drawings of fore and aft deck showing possible emergency towing arrangements;
- .2. Inventory of equipment on board that can be used for emergency towing;
- .3. Means and methods of communication; and
- .4. Sample procedures to facilitate the preparation for and conducting of emergency towing operations

## **CONTROL SYSTEM FOR FIXED CO2 GAS FIRE EXTINGUISHING SYSTEM** **SOLAS CH II-2, Reg. 10 Paragraph 4.1.5** **MSC.256 (84)**

Recroactive requirement: According to 1994 SOLAS amendment, the CO2 system installed on and after 1 October 1994 must comply with this requirements.

By the first scheduled dry-docking after 1 January 2010, fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces and cargo pump-rooms on ships constructed before 1 July 2002 shall comply with the provisions of paragraph 2.2.2 of chapter 5 of the Fire Safety Systems Code

### ***FSS Code, Chapter 5, Fixed Gas Fire-Extinguishing Systems*** ***2.2.2 CO2 Systems-Controls*** ***MSC.256 (84)***

Carbon dioxide systems shall comply with the following requirements:

- .1. Two separate controls shall be provided for releasing carbon dioxide into a protected space and to ensure the activation of the alarm. One control shall be used for opening the valve of the piping which conveys the gas into the protected space and a second control shall be used to discharge the gas from its storage containers;
- .2. The two controls shall be located inside a release box clearly identified for the particular space. If the box containing the controls is to be locked, a key to the box shall be in a break-glass-type enclosure conspicuously located adjacent to the box.

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## **PROTECTION OF VEHICLE, SPECIAL CATEGORY AND RO-RO SPACES** **SOLAS CH II-2, Reg 20** **MSC.256 (84)**

Applies according to [MSC.1/Circ.1320](#) to "Passenger Ships & Cargo Ships"

- having closed vehicles and ro-ro spaces and special category spaces &
- where fixed pressure water- spraying systems are fitted

### New Ships constructed on or after 1 January 2010

Enhancement of Drainage capacity :

- At least 4 drains in each side
- Min. Capacity of drainage on each side (above BHD deck), or  
Min. Capacity of bilge pump system (below BHD deck)  
≥ [Max Flow Rate of Fire Pump + Flow from 2 Fire Hoses] x 125%  
Min. Required sectional area of scuppers, freeing ports, etc.

### All Ships by the first survey after 1 January 2010

Prevention of Blockage of Drain Openings :

- Opening area to be 6 times of area of attached drain pipe
- Max. Grating of Opening 25 mm
- Grating to be raised or installed at an angle
- A clearly visible sign or marking

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## **SEARCH AND RESCUE LOCATING DEVICES** **SOLAS CH III, Reg 6.2.2 / SOLAS CH IV, Reg 7.1.3** **MSC.256 (84)**

SOLAS Ch III / Reg. 6.2.2 "Radar transponders" and Reg. 26.2.5 "Additional requirements for ro-ro passenger ships" are amended to change the term "radar transponder" into "search and rescue locating device" that can be either a radar transponder (SART) or an AIS search and rescue transmitter (AIS-SART) and should be capable of operating either in the 9 GHz band or on frequencies dedicated to AIS.

The search and rescue locating devices installed on board on or after 1 January 2010 shall conform to the applicable standards not inferior to those in Resolution A.802(19) as amended by Resolution MSC.247(83) (Performance standards for survival craft radar transponders for use in search and rescue operations) and in Resolution MSC.246(83) (Performance standards for survival craft AIS search and rescue transmitters (AIS-SART) for use in search and rescue operations.

The records of the Safety Certificates (Form P, Form E and Form R) will be revised to include latest amendments.

New certificates will be issued at first renewal survey on or after 1 January 2010.

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Ref. T4/4.01

MSC.1/Circ.1320  
11 June 2009

**GUIDELINES FOR THE DRAINAGE OF FIRE-FIGHTING WATER FROM  
CLOSED VEHICLE AND RO-RO SPACES AND SPECIAL CATEGORY  
SPACES OF PASSENGER AND CARGO SHIPS**

1 The Committee, at its eighty-sixth session (27 May to 5 June 2009), having considered the proposal by the Sub-Committee on Fire Protection, at its the fifty-third session, with regard to the amendments to SOLAS regulation II-2/20 adopted by resolution MSC.256(84), approved Guidelines for the drainage of fire-fighting water from closed vehicle and ro-ro spaces and special category spaces of passenger and cargo ships, as set out in the annex.

2 Member Governments are invited to apply the annexed Guidelines when approving the drainage systems of fire-fighting water from closed vehicle and ro-ro spaces and special category spaces of passenger and cargo ships, in accordance with paragraphs 6.1.4 and 6.1.5 of SOLAS regulation II-2/20 (resolution MSC.256(84)), and bring them to the attention of ship designers, shipowners, equipment manufacturers, test laboratories and other parties concerned.

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## ANNEX

### GUIDELINES FOR THE DRAINAGE OF FIRE-FIGHTING WATER FROM CLOSED VEHICLE AND RO-RO SPACES AND SPECIAL CATEGORY SPACES OF PASSENGER AND CARGO SHIPS

#### 1 GENERAL

##### 1.1 Purpose

1.1.1 When fixed water-based fire-extinguishing systems are provided for the protection of closed vehicle and ro-ro spaces and special category spaces, adequate drainage facilities, as required by SOLAS regulation II-2/20.6.1.4, should be provided to prevent the accumulation of significant quantities of water on decks and the build-up of free surfaces. In addition, SOLAS regulation II-2/20.6.1.5 requires effective measures to be taken to ensure that floating debris does not cause blockage of the drains.

1.1.2 When the direct overboard discharge provisions or the bilge system required by SOLAS regulation II-1/35-1 have a capacity sufficient for the additional flow from the fixed fire-extinguishing system and the required number of fire hoses, as determined by these Guidelines, additional drainage facilities are not required.

1.1.3 Scuppers, freeing ports, discharges and bilge systems should be installed in accordance with SOLAS regulation II-1/35-1, the relevant regulations of the International Convention on Load Lines, 1966 (ICLL 66), and these Guidelines.

1.1.4 *In lieu* of the above, the Administration, after having given consideration to the ship's arrangement and equipment, may accept other fixed installations if they afford equivalent protection. Any equivalent protection should demonstrate the capability to rapidly drain fire-fighting water from the affected decks and prevent the build-up of free surfaces under expected conditions of trim and list, for as long as the fire-extinguishing system is in operation.

##### 1.2 Application

These Guidelines apply to the design of drainage systems in closed vehicle and ro-ro spaces and special category spaces required by SOLAS regulation II-2/20.6.1.4, and to the protection of drain openings required by SOLAS regulation II-2/20.6.1.5.

#### 2 DEFINITIONS

2.1 *Bilge wells* are recessed areas where water accumulates before entering the bilges.

2.2 *Bulkhead deck* in a passenger ship means the uppermost deck at any point in the subdivision length ( $L_s$ ) to which the main bulkheads and the ship's shell are carried watertight and the lowermost deck from which passenger and crew evacuation will not be impeded by water in any stage of flooding for damage cases defined in regulation 8 and in part B-2 of SOLAS chapter II-1. The bulkhead deck may be a stepped deck. In a cargo ship the freeboard deck may be taken as the bulkhead deck.

2.3 *Drains*, as used in these Guidelines, refer to either scupper wells and scuppers, freeing ports, or bilge wells and drain pipes.

2.4 *Freeing ports* are openings in the bulwarks on the open deck to allow water to drain directly overboard.

2.5 *Scuppers* are a system of gravity deck drains and connected piping leading from scupper wells to the sideshell of the ship or to the bilge system.

2.6 *Scupper wells* are recessed areas in the deck where water accumulates before entering the scuppers.

### 3 DRAINAGE ARRANGEMENTS FOR PASSENGER SHIPS

#### 3.1 Arrangements above the bulkhead deck

3.1.1 Above the bulkhead deck, except as provided in paragraph 1.1.2 above, an adequate number of properly-sized drains should be provided on each deck to ensure that the combined water flow from the fixed fire-extinguishing system and the required number of fire hoses can be rapidly discharged overboard or drain to a bilge system with a reservoir tank fitted with a high water level alarm.

3.1.2 At least four drains should be located on each side of the protected space, uniformly distributed fore and aft. Freeing ports should not be installed in enclosed superstructures, as defined by regulation 3.10 of the ICLL 66.

3.1.3 The drainage system on each side of the deck should have an aggregate capacity of not less than 125% of the maximum flow rate of the fixed fire-extinguishing system water pumps plus the flow from two fire hoses (four if required by SOLAS regulation II-2/19.3.1.2). In case an automatic deep well or submersible pumping system is installed, the bilge pump capacity can be subtracted from the required drainage capacity.

##### 3.1.4 *Minimum capacity of drains*

The minimum capacity of scuppers, freeing ports or a combination thereof should be determined in accordance with the provisions of paragraphs 3.1.4.1 or 3.1.4.2, respectively.

3.1.4.1 The minimum required area of scuppers and connected piping should be determined by the following formula:

$$A = \frac{Q}{0.5\sqrt{19.62(h - \sum h_i)}}$$

where:

$A$  is the total required sectional area of the drains on each side of the deck in m<sup>2</sup>;

$Q$  is the combined waterflow from the fixed fire-extinguishing system and the required number of fire hoses in m<sup>3</sup>/s;

$h$  is the elevation head difference between the bottom of the scupper well or suction level and the overboard discharge opening or highest approved load line in m; and

$\sum h_l$  is the summation of head losses corresponding to scupper piping, fittings and valves in m.

In no case should the area of each individual drain be less than 0.0078 m<sup>2</sup> or 125 mm diameter piping.

3.1.4.2 The minimum required area of freeing ports should be determined by the following formula:

$$A = \frac{Q}{0.5\sqrt{19.62(h_1 - h_2)}}$$

where:

$A$  is the total required sectional area of freeing ports on each side of the ship in m<sup>2</sup>;

$Q$  is the combined waterflow from the fixed fire-extinguishing system and the required number of fire hoses in m<sup>3</sup>/s; and

$h_1-h_2$  is the depth of water on the deck determined in accordance with paragraph 4.2.

If the cross-sectional area of freeing ports required by the ICLL 66 is equal to or greater than determined above, additional freeing ports are not required.

## 3.2 Arrangements below the bulkhead deck

3.2.1 Below the bulkhead deck, except as provided in paragraph 1.1.2 above, an efficient bilge pumping system should be provided to ensure that the combined waterflow from the fixed fire-extinguishing system and the required number of fire hoses can be rapidly collected and led to suitable arrangements for discharge overboard. The bilge system capacity should be not less than that required by paragraph 3.2.3.

3.2.2 The bilge piping system should be arranged in accordance with SOLAS chapter II-1. At least four bilge wells should be located on each side of the protected space, uniformly distributed fore and aft.

3.2.3 The bilge pumping system on each side of the ship should have an aggregate capacity of not less than 125% of the maximum flow rate of the fixed fire-extinguishing system water pumps plus the flow from two fire hoses (four, if required by SOLAS regulation II-2/19.3.1.2).

3.2.4 The required area of the main and branch bilge pipes for the protected space should be adequate to ensure a maximum waterflow of 2 m/s in each section of piping in accordance with paragraphs 3.2.4.1 to 3.2.4.3.



3.2.4.1 If the drainage system is a bilge pumping system, the following three criteria should be satisfied:

$$\sum Q_{bpump} \geq 1,25Q$$

$$A_M \geq 0,625Q \text{ \&}$$

$$\sum A_B \geq 0,625Q$$

where:

$Q_{bpump}$  is the combined capacity of all power bilge pumps except the emergency bilge pump in m<sup>3</sup>/s;

$Q$  is the combined waterflow from the fixed fire-extinguishing system and the required number of fire hoses in m<sup>3</sup>/s;

$A_M$  is the sectional area of the main bilge pipe of the protected space in m<sup>2</sup>;

$\sum A_B$  is the total sectional area of branched bilge pipes for each side in m<sup>2</sup>.

3.2.4.2 If the drainage system is based on gravity drains leading to a reservoir tank, the minimum required area of drains and connected piping should be determined by paragraph 3.1.4.

3.2.4.3 If the drainage system is a combined system, the relevant dimensioning for each part of the system should be determined using paragraphs 3.2.4.1 and 3.2.4.2.

3.2.5 The required capacity of each bilge well should be at least 0.15 m<sup>3</sup>.

3.2.6 If the system includes a reservoir tank, the tank should have adequate capacity for at least 20 min of operation at the required drainage capacity for the affected space.

#### **4 DRAINAGE ARRANGEMENTS FOR CARGO SHIPS**

4.1 In cargo ships, the drainage and pumping arrangements should be such as to prevent the build-up of free surfaces in accordance with paragraph 3.1 or 3.2, as appropriate.

4.2 If the abovementioned pumping arrangement is not possible, the adverse affect upon stability of the added weight and free surface of water should be taken into account according to the International Code on Intact Stability, 2008, chapter 3.

For that purpose, the depth of water ( $h_1 - h_2$ ) on each deck should be calculated by multiplying the maximum flow rate of the installed fire-extinguishing system water pumps plus the flow from two fire hoses (four if required by SOLAS regulation II-2/19.3.1.2) by an operating time of 30 min. This volume of water should be divided by the area of the affected deck.

## **5 PROTECTION OF DRAIN OPENINGS**

5.1 An easily removable grating, screen or other means should be installed over each drain opening in the protected spaces to prevent debris from blocking the drain. The total open area ratio of the grating to the attached drain pipe should be at least 6 to 1. The grating should be raised above the deck or installed at an angle to prevent large objects from blocking the drain. No dimension of the individual openings in the grating should be more than 25 mm.

5.2 No grating or screen is required when a fixed mechanical system is provided to unblock the drainage system, or when other than a gravity drain system is provided with its own filter.

5.3 A clearly visible sign or marking should be provided not less than 1,500 mm above each drain opening stating, "Drain opening – do not cover or obstruct". The marking should be in letters at least 50 mm in height.

## **6 TESTING**

The drainage facilities on ro-ro passenger ships should be functionally tested before the ship enters service to verify that the capacity of the system is adequate. The drainage facilities on all ships should be periodically visually examined for blockage or other damage and should be flushed with fire hoses or similar means to verify that the system is functional, if obstructions are noted.

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Ref.: T4/3.01

MSC.1/Circ.1255  
27 May 2008

## **GUIDELINES FOR OWNERS/OPERATORS ON PREPARING EMERGENCY TOWING PROCEDURES**

1 The Maritime Safety Committee, at its eighty-fourth session (7 to 16 May 2008), following a recommendation of the fiftieth session of the Sub-Committee on Ship Design and Equipment, approved Guidelines for owners/operators on preparing emergency towing procedures, set out in the annex, aimed at assisting owners/operators in preparing ship-specific emergency towing procedures for ships subject to SOLAS regulation II-1/3-4.

2 The Guidelines are intended to help owners/operators to carry out the necessary steps in establishing emergency towing procedures, provide information on the scope of the emergency towing booklet and give guidance towards creating procedures for towage.

3 The procedures developed by means of these Guidelines aim at supporting the crew in establishing the safest and most efficient course of action to be taken when confronted with an emergency that requires towing.

4 Member Governments are invited to bring the annexed Guidelines to the attention of all parties concerned for application in conjunction with SOLAS regulation II-1/3-4 (Emergency towing arrangements and procedures).

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## ANNEX

### GUIDELINES FOR OWNERS/OPERATORS ON PREPARING EMERGENCY TOWING PROCEDURES

#### 1 PURPOSE

The purpose of these Guidelines is to assist owners/operators in preparing ship-specific emergency towing procedures for ships subject to SOLAS regulation II-1/3-4. The procedures should be considered as part of the emergency preparedness required by paragraph 8 of part A of the International Safety Management (ISM) Code.

#### 2 OBSERVATIONS

2.1 Owners, operators and crews should take into consideration that the nature of an emergency does not allow time for deliberation. Accordingly, the procedures should be practiced beforehand.

2.2 The towing procedures should be maintained on board the ship for ready use by the ship's crew in preparing their ship for towage in an emergency.

2.3 The crew should have good knowledge of equipment stowage location and accessibility. Any identified improvements to stowage arrangements should be implemented.

2.4 Crew dealing with an emergency situation should be aware of power availability required for winches and tools, as well as for deck lighting (for bad/low visibility and night time situations).

2.5 It is recognized that not all ships will have the same degree of shipboard equipment, so that there may be limits to possible towing procedures. Nevertheless, the intention is to predetermine what can be accomplished, and provide this information to the ship's crew in a ready-to-use format (booklet, plans, poster, etc.).

#### 3 SHIP EVALUATION

3.1 The owner/operator should ensure that the ship is inspected and its capability to be towed under emergency situations is evaluated. Both equipment on board and available procedures should be reviewed. Items that need to be inspected are described in the following paragraphs.

3.2 The ability of the ship to be towed from bow and stern should be evaluated, and the following items should be reviewed:

- .1 line handling procedures (passing and receiving messenger lines, towlines, bridles); and
- .2 layout, structural adequacy and safe working loads of connection points (fairleads chocks, winches, bitts, bollards), etc.

3.3 The on-board tools and equipment available for assembling the towing gear and their locations should be identified. These should include but not be limited to:

- .1 chains;
- .2 cables;
- .3 shackles;
- .4 stoppers;
- .5 tools; and
- .6 line throwing apparatus.

3.4 The availability and characteristics of radio equipment on board should be identified, in order to enable communication between deck crew, bridge and the towing/salvage ship.

3.5 Unless the safe working loads of connection points are known, these loads should be determined by an engineering analysis reflecting the on-board conditions of the ship. The Guidance on shipboard towing and mooring equipment (MSC/Circ.1175) may be used for guidance.

3.6 The evaluation should be performed by persons knowledgeable in towing equipment and operations.

#### **4 EMERGENCY TOWING BOOKLET**

4.1 The Emergency Towing Booklet (ETB) should be ship specific and be presented in a clear, concise and ready-to-use format (booklet, plan, poster, etc.).

4.2 Ship-specific data should include but not be limited to:

- .1 ship's name;
- .2 call sign;
- .3 IMO number;
- .4 anchor details (shackle, connection details, weight, type, etc.);
- .5 cable and chain details (lengths, connection details, proof load, etc.);
- .6 height of mooring deck(s) above base;
- .7 draft range; and
- .8 displacement range.

4.3 All procedures developed in accordance with section 5 should be presented in a clear and easy to understand format, which will aid their smooth and swift application in an emergency situation.

4.4 Comprehensive diagrams and sketches should be available and include the following:

- .1 assembly and rigging diagrams;
- .2 towing equipment and strong point locations; and
- .3 equipment and strong point capacities and safe working loads (SWLs).

4.5 A copy should be kept at hand by the owners/operators in order to facilitate the passing on of information to the towage company as early as possible in the emergency. A copy should also be kept in a common electronic file format, which will allow faster distribution to the concerned parties.

4.6 A minimum of three copies should be kept on board and located in:

- .1 the bridge;
- .2 a forecastle space; and
- .3 the ship's office or cargo control room.

## **5 DEVELOPING PROCEDURES**

5.1 Ship-specific procedures should be identified during the ship's evaluation and entered accordingly in the ETB. The procedures should include, as a minimum, the following:

- .1 a quick-reference decision matrix that summarizes options under various emergency scenarios, such as weather conditions (mild, severe), availability of shipboard power (propulsion, on-deck power), imminent danger of grounding, etc.;
- .2 organization of deck crew (personnel distribution, equipment distribution, including radios, safety equipment, etc.);
- .3 organization of tasks (what needs to be done, how it should be done, what is needed for each task, etc.);
- .4 diagrams for assembling and rigging bridles, tow lines, etc., showing possible emergency towing arrangements for both fore and aft. Rigged lines should be lead such that they avoid sharp corners, edges and other points of stress concentration;
- .5 power shortages and dead ship situations, which must be taken into account, especially for the heaving across of heavy towing lines;

- .6 a communications plan for contacting the salvage/towing ship . This plan should list all information that the ship's master needs to communicate to the salvage/towing ship. This list should include but not be limited to:
    - .1 damage or seaworthiness;
    - .2 status of ship steering;
    - .3 propulsion;
    - .4 on deck power systems;
    - .5 on-board towing equipment;
    - .6 existing emergency rapid disconnection system;
    - .7 forward and aft towing point locations;
    - .8 equipment, connection points, strong points and safe working loads (SWL);
    - .9 towing equipment dimensions and capacities; and
    - .10 ship particulars;
  - .7 evaluation of existing equipment, tools and arrangements on board the ship for possible use in rigging a towing bridle and securing a towline;
  - .8 identification of any minor tools or equipment providing significant improvements to the "towability" of the ship;
  - .9 inventory and location of equipment on board that can be used during an emergency towing situation;
  - .10 other preparations (locking rudder and propeller shaft, ballast and trim, etc.); and
  - .11 other relevant information (limiting sea states, towing speeds, etc.).
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Ref. T4/3.01

MSC.1/Circ.1331  
11 June 2009

**GUIDELINES FOR CONSTRUCTION, INSTALLATION, MAINTENANCE AND  
INSPECTION/SURVEY OF MEANS OF EMBARKATION AND DISEMBARKATION**

1 The Maritime Safety Committee, at its eighty-sixth session (27 May to 5 June 2009), with a view to providing specific guidance on the construction, installation, maintenance and inspection/survey of means of embarkation and disembarkation such as accommodation ladders and gangways required under regulation II-1/3-9 of the 1974 SOLAS Convention, approved the Guidelines for construction, installation, maintenance and inspection/survey of means of embarkation and disembarkation, prepared by the Sub-Committee on Ship Design and Equipment at its fifty-second session, as set out in the annex.

2 Member Governments are invited to bring the attached Guidelines to the attention of shipowners, shipbuilders, designers, manufacturers, port State control authorities and other parties concerned in conjunction with SOLAS regulation II-1/3-9 (Means of embarkation on and disembarkation from ships).

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## ANNEX

# GUIDELINES FOR CONSTRUCTION, INSTALLATION, MAINTENANCE AND INSPECTION/SURVEY OF MEANS OF EMBARKATION AND DISEMBARKATION

## 1 APPLICATION

This document is intended to provide Guidelines for the construction, installation, maintenance and inspection/survey of means of embarkation and disembarkation required under regulation II-1/3-9 of the 1974 SOLAS Convention, adopted by resolution MSC.256(84). Where means of embarkation and disembarkation other than those specifically covered by these Guidelines are fitted, an equivalent level of safety should be provided.

## 2 CONSTRUCTION

2.1 Accommodation ladders and gangways for means of embarkation and disembarkation which are provided on board ships constructed on or after 1 January 2010 should meet applicable international standards such as ISO 5488:1979, *Shipbuilding – accommodation ladders*, ISO 7061:1993, *Shipbuilding – aluminium shore gangways for seagoing vessels* and/or national standards and/or other requirements recognized by the Administration. Such accommodation ladders and gangways fitted on ships constructed before 1 January 2010, which are replaced after that date, should, in so far as is reasonable and practicable, comply with these Guidelines.

2.2 The structure of the accommodation ladders and gangways and their fittings and attachments should be such as to allow regular inspection, maintenance of all parts and, if necessary, lubrication of their pivot pin. Special care should be taken to ensure that the welding connection works are properly performed.

2.3 The construction and test of accommodation ladder winches should be in accordance with applicable international standards such as ISO 7364:1983 *Shipbuilding and marine structures – deck machinery – accommodation ladder winches*.

## 3 INSTALLATION

### 3.1 Location

As far as practicable, the means of embarkation and disembarkation should be sited clear of the working area and should not be placed where cargo or other suspended loads may pass overhead.

### 3.2 Lighting

Adequate lighting should be provided to illuminate the means of embarkation and disembarkation, the position on deck where persons embark or disembark and the controls of the arrangement.

### 3.3 Lifebuoy

A lifebuoy equipped with a self-igniting light and a buoyant lifeline should be available for immediate use in the vicinity of the embarkation and disembarkation arrangement when in use.

### **3.4 Arrangement**

3.4.1 Each accommodation ladder should be of such a length to ensure that, at a maximum design operating angle of inclination, the lowest platform will be not more than 600 mm above the waterline in the lightest seagoing condition, as defined in SOLAS regulation III/3.13.

3.4.2 The arrangement at the head of the accommodation ladder should provide direct access between the ladder and the ship's deck by a platform securely guarded by handrails and adequate handholds. The ladder should be securely attached to the ship to prevent overturning.

3.4.3 For ships on which the height of the embarkation/disembarkation deck exceeds 20 m above the waterline specified in paragraph 3.4.1 and on other ships for which the Administration considers compliance with the provisions of paragraph 3.4.1 impractical, an alternative means of providing safe access to the ship or supplementary means of safe access to the bottom platform of the accommodation ladder may be accepted.

### **3.5 Marking**

Each accommodation ladder or gangway should be clearly marked at each end with a plate showing the restrictions on the safe operation and loading, including the maximum and minimum permitted design angles of inclination, design load, maximum load on bottom end plate, etc. Where the maximum operational load is less than the design load, it should also be shown on the marking plate.

### **3.6 Test**

3.6.1 After installation, the winch and the accommodation ladder should be operationally tested to confirm proper operation and condition of the winch and the ladder after the test.

3.6.2 The winch should be tested as a part of the complete accommodation ladder unit through a minimum of two times hoisting and lowering of the accommodation ladder in accordance with the onboard test requirement specified in applicable international standards such as ISO 7364:1983.

3.6.3 Every new accommodation ladder should be subjected to a static load test of the specified maximum working load upon installation.

### **3.7 Positioning**

3.7.1 Gangways should not be used at an angle of inclination greater than 30° from the horizontal and accommodation ladders should not be used at an angle greater than 55° from the horizontal, unless designed and constructed for use at angles greater than these and marked as such, as required by paragraph 3.5.

3.7.2 Gangways should never be secured to a ship's guardrails unless they have been designed for that purpose. If positioned through an open section of bulwark or railings, any remaining gaps should be adequately fenced.

3.7.3 Adequate lighting for means of embarkation and disembarkation and the immediate approaches should be ensured from the ship and/or the shore in hours of darkness.

### **3.8 Rigging (safety net)**

A safety net should be mounted in way of the accommodation ladders and gangways where it is possible that a person may fall from the means of embarkation and disembarkation or between the ship and quayside.

### **3.9 Verification**

Upon installation, the compliance of the entire arrangement with these Guidelines should be verified.

## **4 MAINTENANCE**

4.1 Accommodation ladders and gangways, including associate winch and fittings, should be properly maintained and inspected at appropriate intervals as required by SOLAS regulation III/20.7.2, in accordance with manufacturers' instructions. Additional checks should be made each time the accommodation ladder and gangway is rigged, looking out for signs of distortion, cracks and corrosion. Close examination for possible corrosion should be carried out, especially when an aluminium accommodation ladder/gangway has fittings made of mild steel.

4.2 Bent stanchions should be replaced or repaired and guard ropes should be inspected for wear and renewed where necessary.

4.3 Moving parts should be free to turn and should be greased as appropriate.

4.4 The lifting equipment should be inspected, tested and maintained paying careful attention to the condition of the hoist wire. The wires used to support the means of embarkation and disembarkation should be renewed when necessary, as required by SOLAS regulation II-1/3-9.

4.5 Arrangements should also be made to examine the underside of gangways and accommodation ladders at regular intervals.

4.6 All inspections, maintenance work and repairs of accommodation ladders and gangways should be recorded in order to provide an accurate history for each appliance. The information to be recorded appropriately on board should include the date of the most recent inspection, the name of the person or body who carried out that inspection, the due date for the next inspection and the dates of renewal of wires used to support the embarkation and disembarkation arrangement.

## **5 EXAMINATION AND OPERATIONAL TEST DURING SURVEYS REQUIRED BY SOLAS REGULATIONS I/7 AND I/8**

### **5.1 Accommodation ladders/gangways and davits**

#### **5.1.1 Accommodation ladder**

5.1.1.1 The following items should be thoroughly examined during annual surveys required by SOLAS regulations I/7 and I/8 and checked for satisfactory condition of the accommodation ladder:

- .1 steps;
- .2 platforms;

- .3 all support points such as pivots, rollers, etc.;
- .4 all suspension points such as lugs, brackets, etc.;
- .5 stanchions, rigid handrails, hand ropes and turntables;
- .6 davit structure, wire and sheaves, etc.; and
- .7 any other relevant provisions stated in these Guidelines.

5.1.1.2 At every five-yearly survey, upon completion of the examination required by paragraph 5.1.1.1, the accommodation ladder should be operationally tested with the specified maximum operational load of the ladder.

### **5.1.2 Gangway**

5.1.2.1 The following items should be thoroughly examined during annual surveys required by SOLAS regulations I/7 and I/8 and checked for satisfactory condition of the gangway:

- .1 treads;
- .2 side stringers, cross-members, decking, deck plates, etc.;
- .3 all support points such as wheel, roller, etc.;
- .4 stanchions, rigid handrails, hand ropes; and
- .5 any other relevant provisions stated in these Guidelines.

5.1.2.2 At every five-yearly survey, upon completion of the examination required by paragraph 5.1.2.1, the gangway should be operationally tested with the specified maximum operational load of the gangway.

## **5.2 Winch**

5.2.1 During annual surveys required by SOLAS regulations I/7 and I/8, the following items should be examined for satisfactory condition:

- .1 brake mechanism including condition of brake pads and band brake, if fitted;
- .2 remote control system; and
- .3 power supply system (motor).

5.2.2 At every five-yearly survey, upon completion of the examination required by paragraph 5.2.1, the winch should be operationally tested with the specified maximum operational load of the accommodation ladder.

### **5.3 Tests**

5.3.1 The tests specified in sections 5.1 and 5.2 are for the purpose of confirming the proper operation of the accommodation ladder, gangway and/or winch, as appropriate.

5.3.2 The load used for the test should be:

- .1 the design load; or
- .2 the maximum operational load, if this is less than the design load and marked as per paragraph 3.5; or
- .3 the load nominated by the shipowner or operator only in those cases where the design load or maximum operational load is not known (e.g., for accommodation ladders or gangways which are provided on board ships constructed prior to 1 January 2010), in which case that nominated load should be used as the maximum operational load for all purposes within these Guidelines.

5.3.3 The tests should be carried out with the load applied as uniformly as possible along the length of the accommodation ladder or gangway, at an angle of inclination corresponding to the maximum bending moment on the accommodation ladder or gangway.

5.3.4 Following satisfactory completion of the applicable test(s) without permanent deformation or damage to the tested item, the load used for that test should be marked as the maximum operational load in accordance with paragraph 3.5.

### **5.4 Fittings and davits**

During annual surveys required by SOLAS regulations I/7 and I/8, all fittings and davits on the ship's deck associated with accommodation ladders and gangways should be examined for satisfactory condition.

### **5.5 Means of access to deck**

During annual surveys required by SOLAS regulations I/7 and I/8, the fittings or structures for means of access to decks such as handholds in a gateway or bulwark ladder and stanchions should be examined for satisfactory condition.

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