# Contents

# RULES FOR SAFETY EQUIPMENT

## Chapter 1 GENERAL

### 1.1 General

#### 1.1.1 Scope

**1** The Rules for Safety Equipment (hereinafter referred to as "the Rules") apply to the survey and construction of safety equipment of ships classed with NIPPON KAIJI KYOKAI (hereinafter referred to as "the Society") and intended to be registered under **Chapter 3 of the Regulations for the Classification and Registry of Ships**.

**2** In addition to the relevant requirements in **Part P of the Rules for the Survey and Construction of Steel Ships**, lifesaving appliances in mobile offshore drilling units are to comply with the requirements in Chapter 10 of the "*2009 MODU Code*" defined in **1.2.36, Part P of the Rules for the Survey and Construction of Steel Ships**.

#### 1.1.2 Equivalency

Safety equipment which does not fully comply with the requirements of the Rules may be accepted provided that they are deemed by the Society to be equivalent to those specified in the Rules.

#### 1.1.3 National Requirements

The Society may make special requirements as instructed by the flag-government of ships or the government of sovereign nation in which ships navigate.

#### 1.1.4 Definitions

**1** Safety equipment in the Rules is a general name for the following **(1)** to **(6)** to which Chapters II-1, II-2, III and V of the Annex to the current *International Convention for the Safety of Life at Sea, 1974, as amended* and *Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974* (hereinafter referred to as "the Convention") and the current *International Regulation for preventing Collisions at Sea* apply.

(1) Navigational equipment
(2) Navigation lights
(3) Signaling apparatus
(4) Life saving appliances
(5) Fire fighting appliances
(6) Nautical publications required to be provided with on board

**2** A ship at beginning stage of construction is a ship whose keel is laid or a ship at a similar stage of construction. For this purpose, the term "a similar stage of construction" means the stage at which:

(1) construction identifiable with a specific ship begins; and
(2) assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is less.

# Chapter 2 SURVEYS OF SAFETY EQUIPMENT

## 2.1 General

### 2.1.1 Kinds of Surveys

Safety equipment registered or intended to be registered are to be subjected to the following surveys which are to be carried out to the satisfaction of the Surveyor.

(1) Surveys for registration of safety equipment (hereinafter referred to as "Registration Surveys")

(2) Surveys for maintaining registration of the safety equipment (hereinafter referred to as "Registration Maintenance Surveys") Registration Maintenance Surveys Consist of the following surveys;

(a) Special Surveys

(b) Periodical Surveys

(c) Annual Surveys

(d) Occasional Surveys

(e) Unscheduled Surveys

### 2.1.2 Time of Registration Surveys and Intervals of Registration Maintenance Surveys*

**1** Registration Surveys are to be carried out at the time which the application for registration is made.

**2** Registration Maintenance Surveys are to be carried out at the following intervals:

(1) Special Surveys are to be carried out at intervals specified in **1.1.3-1(3)(a), Part B of the Rules for the Survey and Construction of Steel Ships**.

(2) Periodical Surveys are to be carried out at intervals specified in **1.1.3-1(2)(a), Part B of the Rules for the Survey and Construction of Steel Ships**.

(3) Annual Surveys are to be carried out at intervals specified in **1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships**.

(4) Notwithstanding **(1)** to **(3)** above, Occasional Surveys are to be carried out independently of Special Surveys, Periodical Surveys and Annual Surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate.

(a) main parts of the equipment have been damaged, repaired or renewed,

(b) the equipment is modified or altered, in cases where a ship applies for alteration, it is to comply with **2.4** in addition to the above requirement; or

(c) it is considered necessary by the Society.

(5) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of installations by survey is deemed necessary in cases where the Society considers the installations to be subject to **1.4-3 of the Conditions of Service for Classification of Ships and Registration of Installations**.

### 2.1.3 Registration Maintenance Surveys Carried Out in Advance

The requirements for Registration Maintenance Surveys carried out in advance are to be in accordance with the provisions specified in **1.1.4, Part B of the Rules for the Survey and Construction of Steel Ships**.

### 2.1.4 Postponement of Special Surveys

The requirements for postponement of Special Surveys are to be in accordance with the provisions specified in **1.1.5-1(1)** or **1.1.5-1(2), Part B of the Rules for the Survey and Construction of Steel Ships**.

### 2.1.5 Preparation for Surveys and Others

**1** All such preparations as required for the survey to be carried out as well as those which may be required by the Surveyor as necessary in accordance with the requirements in the Rules are to be made by the applicant of the survey. The preparations are to include provisions of an easy and safe access, necessary facilities and necessary records for the execution of the survey. Inspection, measuring and test equipment, which Surveyors rely on to make decisions affecting classification are to be individually identified and calibrated to a standard deemed appropriate by the Society. However, the Surveyor may accept simple measuring equipment (*e.g.* rulers,

measuring tapes, weld gauges, micrometers) without individual identification or confirmation of calibration, provided they are of standard commercial design, properly maintained and periodically compared with other similar equipment or test pieces. The Surveyor may also accept equipment fitted on board a ship and used in examination of shipboard equipment (*e.g.* pressure, temperature or rpm gauges and meters) based either on calibration records or comparison of readings with multiple instruments.

**2** The applicant for survey is to arrange a supervisor who is well conversant with the survey items intended for the preparation of the survey to provide the necessary assistance to the Surveyor according to his requests during the survey.

**3** The survey may be suspended where necessary preparations have not been made, any appropriate attendant mentioned in the previous **-2** is not present, or the Surveyor considers that the safety for execution of the survey is not ensured.

**4** Where repairs are deemed necessary as a result of the survey, the Surveyor will notify his recommendations to the applicant of the survey. Upon this notification, the repair is to be made to the satisfaction of the Surveyor.

**5** In cases where it is necessary to replace any fittings, equipment, parts, etc. used on board, replacements are not to use any materials which contain asbestos.

**2.1.6 Laid-up Ships**

**1** Laid-up ships are not subject to Registration Maintenance Surveys. However, Occasional Surveys may be carried out at the request of owners.

**2** When laid-up ships are about to be re-entering service, the following surveys and surveys for specific matters which have been postponed due to being laid-up, if any, are to be carried out.

(1) If the due dates for Registration Maintenance Surveys have not transpired while the ship was laid-up, then an equivalent to the Annual Surveys specified in **2.3.3** is to be carried out.

(2) If the due dates for Registration Maintenance Surveys have transpired while the ship was laid-up, then these Registration Maintenance Surveys are, in principle, to be carried out. However, in cases where two or more kinds of Registration Maintenance Surveys are due, only the superlative survey may be carried out.

**2.1.7 Firms Engaged In Inspecting, Testing, Maintaining and Servicing, etc.**

Unless otherwise specified, the following **(1)** to **(4)** are to apply:

(1) Third parties engaged in the inspecting, performance testing or maintaining of automatic identification systems (*AIS*), if used, are to be any of the following: firms complying with **Chapter 4, Part 3 of the Rules for Approval of Manufacturers and Service Suppliers** and approved by the Society; firms approved by the Administration; firms approved by duly authorized organizations acting on behalf of the Administration; or firms approved by other organizations which are acceptable to the Administration.

(2) Third parties engaged in the testing or servicing of voyage data recorders (*VDR*), including simplified voyage data recorders (*S-VDR*), if used, are to be any of the following: firms complying with **Chapter 5, Part 3 of the Rules for Approval of Manufacturers and Service Suppliers** and approved by the Society; firms approved by the Administration; firms approved by duly authorized organizations acting on behalf of the Administration; or firms approved by other organizations which are acceptable to the Administration.

(3) Third parties engaged in the servicing of inflatable liferafts, inflatable lifejackets, hydrostatic release units or marine evacuation systems, if used, are to be any of the following: firms complying with **Chapter 7, Part 3 of the Rules for Approval of Manufacturers and Service Suppliers** and approved by the Society; firms approved by the Administration; firms approved by duly authorised organisations acting on behalf of the Administration; or firms approved by other organisations which are acceptable to the Administration.

(4) Third parties engaged in maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear, if used, are to be any of the following: firms complying with **Chapter 10, Part 3 of the Rules for Approval of Manufacturers and Service Suppliers** and approved by the Society; firms authorized by the Administration; firms approved by duly authorized organizations acting on behalf of the Administration; or firms approved by other organizations which are acceptable to the Administration.

**2.2 Registration Surveys**

**2.2.1 Registration Surveys**

**1** At Registration Survey, the safety equipment in the respects of its arrangements and performance is to be examined for the

confirmation of compliance with the requirements of **Chapter 3**.

**2** For the tests specified in **-1**, the applicant is to prepare test plans for review by the Society prior to testing. In addition, test records and/or measurement records are to be submitted to the Society as required.

**3** Surveyors are to confirms that materials which contain asbestos are not being used.

**2.2.2 Submission of Plans and Documents**

**1** At Registration Survey, the following plans and documents are to be submitted for the approval by the Society.

(1) The plans and documents, or a list, of Equipment or Installations listed in **Chapter 3**.

(2) The plans and documents showing the arrangements of Equipment or Installations specified in **(1)** above.

(3) The plans and documents deemed necessary by the Society.

**2** The following plans and documents are to be submitted to the Society for reference in addition to the approval plans and documents specified in the preceding **-1**.

Asbestos-free declarations and supporting documents

**2.2.3 Documents to be Maintained On Board***

**1** At the completion of a registration survey, the Surveyor confirms that the following drawings, plans, manuals, lists, etc., as applicable are on board.

(1) Instructions for on-board maintenance of life-saving appliances and maintenance programme (*SOLAS* regulation III/20 & 36)

(2) Training manuals on the life-saving appliances (*SOLAS* regulation III/35)

(3) Plans and Procedures for Recovery of Persons from the Water (*SOLAS* regulation III/17-1)

(4) Nautical charts and nautical publications (*SOLAS* regulation V/27)

(5) International Code of Signals and International Aeronautical and Maritime Search and Rescue (*IAMSAR*) Manual (*SOLAS* regulation V/21 & 29)

(6) Finished plans specified in **2.2.4**

**2** Where deemed necessary by the Society considering the purpose, characteristics, etc. of the ship, the submission of additional documents may be required.

**3** For ships of not less than 500 *gross tonnage* engaged on international voyages, it is recommended that all documents listed in **-1(1)** to **(3)** and **(6)** above are marked with the *IMO* ship identification number.

**4** At the completion of registration surveys, Surveyors confirm that certificates showing that the following devices have passed all required examinations or tests are maintained on board (certificates having a validity date are to be of valid when registration surveys are carried out).

(1) Lifeboats, rescue boats, liferafts (including attachments such as engine) and marine evacuation systems

(2) Launching and recovery arrangements for **(1)**

(3) Lifeboat and liferaft embarkation arrangements

(4) Hand flares and line-throwing appliances

(5) Lifebuoys (including self-igniting lights and self-activating smoke signals)

(6) Life jackets

(7) Immersion suits

(8) Anti-exposure suits

(9) Navigation lights

(10) Shapes

(11) Sound signals (whistles, bells and gongs)

(12) Magnetic compasses

(13) Gyro compasses (including gyro repeaters)

(14) Electronic chart display and information systems (ECDIS)

(15) Global positioning system receivers

(16) Sound reception systems

(17) Daylight signalling lamps

(18) Echo sounding devices

(19) Radar reflectors

(20) Electronic plotting aids (EPA)
(21) Automatic tracking aids (ATA)
(22) Automatic radar plotting aids (ARPA)
(23) Speed and distance measuring devices
(24) Transmitting heading devices
(25) Automatic identification systems
(26) Rudder angle indicators
(27) Propeller revolution rate indicators
(28) Thrust indicators
(29) Rate-of-turn indicators
(30) Heading control systems or track control systems
(31) Voyage data recorders
(32) Pilot transfer arrangements
(33) Long-range identification and tracking systems

**2.2.4 Finished Plans**

At the completion of a registration survey, an applicant of the registration of the ship is to prepare finished plans regarding the following drawings, etc., and submit to the Society.

(1) Life-saving appliances arrangement

## 2.3 Registration Maintenance Surveys

**2.3.1 Special Surveys***

At each Special Survey, the safety equipment in the respects of its arrangements and performance is to be thoroughly examined.

**2.3.2 Periodical Surveys***

At Periodical Surveys, examinations and tests are to be carried out according to the requirements for Special Surveys.

**2.3.3 Annual Surveys***

At each Annual Survey, the safety equipment is to be generally examined.

**2.3.4 Occasional Surveys**

At Occasional Survey, a part of the safety equipment for which the application is made to the Society is to be examined.

## 2.4 Alterations

**2.4.1 Examinations of Altered Parts***

In cases where any alterations are intended to be made to safety equipment which affects any of the ship registration details, the requirements on registration surveys apply.

# Chapter 3 ARRANGEMENTS AND PERFORMANCE

## 3.1 General

### 3.1.1 General*

**1** Arrangements and performance of the safety equipment are to comply with the requirements of Chapters II-1, II-2, III and V of the Annex to the Convention and the *International Regulations for Preventing Collisions at Sea*.

**2** Equipment or Installations listed below are to be approved by the Society. However, equipment or installations approved by the Government of the State whose flag the ship is entitled to fly, other Contracting Governments of the Convention or the party approved by the Government mentioned above may be exempted from the requirement provided that it is deemed appropriate by the Society.

(1) Navigational equipment
  (a) Magnetic compasses
  (b) Gyro compasses
  (c) Echo sounding devices
  (d) Speed and distance measuring devices
  (e) Rudder angle indicators
  (f) Propeller revolution rate indicators
  (g) Pitch and operational mode indicator for variable pitch propellers or lateral thrust propellers
  (h) Rate-of-turn indicators
  (i) Radars
  (j) Automatic radar plotting aids
  (k) Auto-pilots
  (l) Heading control systems or Track control systems
  (m) Sound reception systems
  (n) Global positioning system receivers
  (o) Electronic plotting aids
  (p) Radar reflectors
  (q) Automatic tracking aids
  (r) Transmitting heading devices
  (s) Automatic identification systems
  (t) Voyage data recorders
  (u) Electronic chart display and information systems
  (v) Long-range identification and tracking systems
  (w) Bridge navigational watch alarm systems
(2) Navigation lights
  (a) Masthead lights
  (b) Sidelights
  (c) Sternlights
  (d) Towing lights
  (e) All-round white lights
  (f) All-round red lights
(3) Signalling apparatus
  (a) Daylight signalling lamps
  (b) Forecastle bells
  (c) Ship’s whistles
  (d) Gongs

(e) Shapes

(4) Life saving appliances

(a) Radiotelegraph installations for lifeboats

(b) Portable radio apparatus for survival craft

(c) Survival craft emergency position-indicating radio beacons

(d) Rocket parachute flares

(e) Line-throwing appliances

(f) Lifeboats

(g) Release mechanisms of lifeboats or rescue boats launched by falls other than free-fall lifeboats

(h) Liferafts

(i) Rescue boats

(j) Survival craft embarkation and launching arrangements

(k) Lifebuoys

(l) Lifejackets

(m) Immersion suits

(n) Pilot ladders

(o) Radio direction finders

(5) Fire fighting appliances

(a) Fixed fire-extinguishing systems

(b) Portable fire extinguishers

(c) Fixed fire detection and fire alarm systems

(d) Fireman's outfits

(e) International shore connections

(6) Other equipment or installations deemed necessary by the Society.

**3.1.2 Additional Requirements Concerning Ships Operating in Polar Waters***

**1** Ships operating in polar waters and to which the requirements of Chapter I of the Annex to the Convention are applied are to comply with Chapters 8 and 9, Part 1-A of *IMO* Resolution *MSC*.385(94) "*International Code for Ships Operating in Polar Waters* (*Polar Code*)", as amended. However, some requirements in the aforementioned Chapters 8 and 9 may be modified in cases where deemed appropriate by the Society when the ship in question is either owned or operated by the flag administration, and is used for non-commercial purpose.

**2** Ships operating in the polar waters specified in **-1** are to comply with **1.1.1-2, Part I of the Rules for the Survey and Construction of Steel Ships**.

**3** The equipment in ships operating in the polar waters specified in **-1** which does not fall under Chapter 8, Part 1-A of IMO Resolution *MSC*.385(94) "*International Code for Ships Operating in Polar Waters* (*Polar Code*)", as amended, but which is considered to be equivalent to that required by Chapter 8 in accordance with Regulation 4, Chapter XIV of the Annex to the Convention will be accepted by the Society.

## Contents

# GUIDANCE FOR SAFETY EQUIPMENT

## Chapter 2 SURVEYS OF SAFETY EQUIPMENT

### 2.1 General

#### 2.1.2 Time of Registration Surveys and Intervals of Registration Maintenance Surveys

**1** In accordance with **2.1.2(4)(c) of the Rules**, ships already constructed are to be subject to Occasional Surveys for the verifications as listed below.

(1) Ships operating in polar waters

For ships operating in the polar waters defined in **1.1.1-2**, **Part I of the Rules for the Survey and Construction of Steel Ships** which had been at the beginning stage of construction before 1 January 2017, a survey is to be carried out to verify compliance with the relevant requirements of **Chapter 3 of the Rules** by the first special survey after 1 January 2018.

(2) Plans and Procedures for Recovery of Persons from the Water

For ships which had been at the beginning stage of construction before 1 July 2014, it is to be verified that the ship is in compliance with Regulation 17-1, Chapter III of the Annex to the Convention.

(3) Release mechanisms of lifeboats launched by falls other than free-fall lifeboats

Notwithstanding Regulation 1.4.2 Chapter III of the Annex to the Convention, for all ships with lifeboat release mechanisms not complying with LSA Code 4.4.7.6.4 to 4.4.7.6.6, it is to be verified that lifeboat release mechanisms complying with LSA Code 4.4.7.6 are fitted by the first scheduled dry-docking after 1 July 2014 (however, not later than 1 July 2019).

(4) Electric Chart Display and Information System

For tankers not less than 3,000 *gross tonnage* which had been at the beginning stage of their construction before 1 July 2012 and cargo ships, other than tankers, not less than 10,000 *gross tonnage* which had been at the beginning stage of their construction before 1 July 2013, the verification of compliance with Regulation 19.2.10 or 19.2.11 Chapter V of the Annex to the Convention relating to electric chart display and information system.

(5) Bridge navigational watch alarm systems

For ships not less than 150 *gross tonnage* which had been at beginning stage of construction before 1 July 2011, the verification of compliance with Regulation 19.1.2.4, 19.1.3, 19.2.2.3 or 19.2.2.4 Chapter V of the Annex to the Convention relating to bridge navigational watch alarm systems.

**2** In the requirement given in **-1(4)** and **(5)** above, the term "first survey" which is referenced by a regulation in SOLAS means the Registration Survey or the first Registration Maintenance Survey.

**3** For ships specified in **-1(4)** above, in cases where tankers not less than 3,000 *gross tonnage* which had been at the beginning stage of their construction before 1 July 2012 and cargo ships, other than tankers, not less than 10,000 *gross tonnage* which had been at the beginning stage of their construction before 1 July 2013 are delivered on or after the dates specified in Regulations 19.2.10.6, 19.2.10.7, 19.2.10.8 and 19.2.10.9 Chapter V of the Annex to the Convention respectively, it is to be verified that electric chart display and information system are fitted during Registration Surveys notwithstanding the requirements given in **-1(4)**.

**4** For ships specified in **-1(5)** above, in cases where the ship is delivered after the dates specified in Regulations 19.2.2.3.3, 19.2.2.3.4 and 19,2.2.3.5 Chapter V of the Annex to the Convention respectively, it is to be verified that bridge navigational watch alarm systems are fitted during Registration Surveys notwithstanding the requirements given in **-1(5)**.

**5** The wording "the Society may approve the survey methods which it considers to be appropriate." in **2.1.2-2(4) of the Rules** means survey methods which the Society considers to be able to obtain information equivalent to that obtained through traditional ordinary surveys where a surveyor is in attendance.

#### 2.1.5 Procedure for Tests, Wear and Tear, etc.

With respect to **2.1.5-5 of the Rules**, surveyors are to confirm at periodical surveys that asbestos-free declarations and

supporting documents are provided for any replaced or newly installed fittings, equipment, parts, etc.

## 2.2 Registration Surveys

### 2.2.1 Registration Surveys

With respect to **2.2.1-3 of the Rules**, surveyors are to confirm the asbestos-free declarations and supporting documents specified in **2.2.2-2 of the Rules**.

### 2.2.3 Documents to be Maintained On Board

The certificates specified in **2.2.3-4 of the Rules** are those such as the ones issued for each piece of equipment, device, etc., type approval certificates valid at the time of the Registration Survey, or others applicable. In addition, unless equipment or devices on board are renewed after the ship has entered service, these certificates need not be updated.

## 2.3 Registration Maintenance Surveys

### 2.3.1 Special Surveys

**1** With respect to **2.3.1 of the Rules**, it is to be verified that the annual performance tests specified in **(1)** and **(2)** are carried out within three (3) months before the date of expiry of the relevant certificate, but ending no later than the date of completion of the Special Survey for said certificate. However, special considerations will be given in case where the Special Survey is carried out in advance in accordance with the requirements specified in **2.1.3 of the Rules**.

(1) Annual performance tests suitable for automatic identification systems (*AIS*) carried out by firms specified in **2.1.7(1) of the Rules**.

(2) Annual performance tests suitable for voyage data recorders (*VDR*), including simplified voyage data recorders (*S-VDR*), carried out by firms specified in **2.1.7(2) of the Rules**.

**2** With respect to **2.3.1 of the Rules**, thorough examinations, overhauls and operational tests carried out at intervals of at least once every five years, as stipulated by Regulation III/20.11 of *SOLAS*, are to be performed in the presence of the Surveyor.

### 2.3.2 Periodical Surveys

**1** With respect to **2.3.2 of the Rules**, it is to be verified that the annual performance tests specified in **2.3.1(1)** and **(2)** are carried out within three (3) months before or after the nearest anniversary date (i.e., a day corresponding to the expiry date of the relevant certificate, but excluding the expiry date of the certificate), but ending no later than the date of completion of the Periodical Survey for said certificate. However, special considerations will be given in case where the Periodical Survey is carried out in advance in accordance with the requirements specified in **2.1.3 of the Rules**.

**2** With respect to **2.3.2 of the Rules**, thorough examinations, overhauls and operational tests carried out at intervals of at least once every five years, as stipulated by Regulation III/20.11 of *SOLAS*, are to be performed in the presence of the Surveyor.

### 2.3.3 Annual Surveys

**1** With respect to **2.3.3 of the Rules**, it is to be verified that the annual performance tests specified in **2.3.1(1)** and **(2)** are carried out within three (3) months before or after the nearest anniversary date (i.e., a day corresponding to the expiry date of the relevant certificate, but excluding the expiry date of the certificate), but ending no later than the date of completion of the Annual Survey for said certificate. However, special considerations will be given in case where the Annual Survey is carried out in advance in accordance with the requirements specified in **2.1.3 of the Rules**.

**2** With respect to **2.3.3 of the Rules**, thorough examinations, overhauls and operational tests carried out at intervals of at least once every five years, as stipulated by Regulation III/20.11 of *SOLAS*, are to be performed in the presence of the Surveyor.

## 2.4 Alterations

### 2.4.1 Examinations of Altered Parts

**1** In applying the requirements specified in **2.4.1 of the Rules**, the requirement on alterations of safety equipment are to comply with all requirements in force at the time of the alterations. "Requirements in force at the time of alterations", are those requirements, unless otherwise specified, which apply to a ship constructed after either of the following dates. However, in the case of a ship constructed before 1 July 1998, if a survival craft other than an inflatable liferaft is replaced without replacing its launching appliance,

or vice versa, the survival craft or launching appliance may be of the same type as that replaced:

(1) the date on which the contract is placed for the conversion; or

(2) in the absence of a contract, the date on which the work identifiable with the specific conversion begins.

**2** In applying the requirements specified in **2.4.1 of the Rules**, in the case of the conversion of a single-hull oil tanker to a bulk carrier, the requirements on free fall lifeboats, etc. specified in **Regulation 31.1.2, Chapter III of the Annex to the Convention** are required to be satisfied, except in case where the space available for fitting or launching free-fall lifeboats is not adequate, and the Administration agrees to waive the aforementioned requirements.

# Chapter 3 ARRANGEMENTS AND PERFORMANCE

## 3.1 General

### 3.1.1 General

**1** Welding procedure of principal components of life boats, rescue boats or their launching appliances is to comply with the requirements in **Part M of the Rules for the Survey and Construction of Steel Ships**.

**2** Following free-fall test of free-fall life boat with its own launching appliance is to be carried out after installation on board.

(1) Free-fall test of on board free-fall lifeboat loaded 1.1 times of full load mass is to be performed with the condition of the least draught among planed draught of ship. The least draught among planed draught of ship means the least aft draught with ballast condition required on **Part U of the Rules for the Survey and Construction of Steel Ships**.

(2) Launching and release of free-fall lifeboat are to be smooth and as soon as such boat reach down on the sea, it is to be run. Also no damage on the body of such boat is to be confirmed and propulsion engine is to be operated without abnormal.

**3** Following test and inspection of Launching appliances using falls and winches are to be carried out after on board installation.

(1) Loaded test

Lifeboat, rescue boat or liferaft, loaded with its normal equipment or an equivalent mass and distributed mass equivalent to that of the number of persons, each weighing 75*kg* for a lifeboat intended for a passenger ship or 82.5*kg* for a lifeboat intended for a cargo ship, a liferaft and a rescue boat, it is permitted to accommodate, is to be released by operation of the launching control on deck. The speed at which lifeboat, rescue boat and liferaft is lowered into the water is to be not less than that obtained from the following formula. However the maximum lowering speed is to be not more than 1.3*m/s*.

$S=0.4+(0.02H)$

where

$S$ = speed of lowering (*m/s*)

$H$ = height form davit head to the waterline with the least draught among planed draught of ship which means the least aft draught with ballast condition required on **Part U of the Rules for the Survey and Construction of Steel Ships**.(*m*)

(2) Light loaded test

The lifeboat, rescue boat or liferaft loaded with its normal equipment or an equivalent mass is to be released by operation of the launching control on deck to demonstrate that the lifeboat's mass is sufficient to overcome the frictional resistance of the winch, falls, blocks and associated gear. The lowering speed of lifeboat or rescue boat is to be 70% of the speed that is mentioned in formula described in **(1)** above. The lowering speed of liferaft is to be as established by the Administration of ship installed launching appliance. If the launching gear is controlled from within the lifeboat, rescue boat or liferaft, a test of the launching operation is to be performed by a person who is then aboard the lifeboat, rescue boat or liferaft.

(3) Free-fall lifeboat

The requirements in **(1)** and **(2)** above do not apply to free-fall lifeboat.

(4) Brake test

(a) Lifeboat, rescue boat or liferaft loaded with total mass described in sub-paragraph from **i)** to **iii)** below, it is permitted to accommodated +10% of the working load, is to be released by the operation of the launching controls on deck. When lifeboat, rescue boat or liferaft has reached its maximum lowering speed, the brake is to be abruptly applied to demonstrate that the attachments of the davits and winches to the ship's structure are satisfactory.

i) Normal equipment or equivalent mass

ii) Mass of pulley, loose gear and rope, etc.

iii) A distributed mass equal to that of the number of persons, each weighting 75*kg* for a lifeboat intended for a passenger ship or 82.5*kg* for a lifeboat intended for a cargo ship, a liferaft and a rescue boat

(b) Test for winch brake exposed to the weather

Regarding the winch brake exposed to the weather, the lowering test is to be repeated with the braking surface wetted.

(5) If lowering of the lifeboat is controlled from within the lifeboat by means of a control wire paid off from an auxiliary drum on the winch, the following additional points are to be receive particular consideration after installation of the davits and winches.
  (a) the mass on the control wire is to be sufficient to overcome the friction of the various pulleys on the control wire, when turning out the lifeboat from the stowed to the embarkation position.
  (b) The winch brake is to be possible to be operated from within the lifeboat.
  (c) The winch brake is not to be affected by the mass of the fully extended control wire.
  (d) The length of control wire available at the lifeboat is to be sufficient during all stages of lowering.
  (e) Means is to be provided to retain the free end of the control wire in the lifeboat until the lifeboat is detached from the launching appliance by the operator.

(6) Recovery test
  (a) Recovery test with hand gear
  Demonstration that the davit-launched lifeboat or rescue boat can be recovered to its stowage position by means of operating the hand gear and can be secured safely and properly is to be carried out.
  (b) Recovery test for free-fall lifeboat
  For free-fall life boat, demonstration that the such boat can be recovered to its stowage position and can be secured safely and properly is to be carried out.
  (c) Test for power of davit arms
  Where davits are recovered by power, demonstration that the power is automatically cut off before the davit arms come against the stops is to be carried out.
  (d) Test for rescue boat launching appliances
  In the case of rescue boat launching appliance, demonstration that the fully equipped rescue boat when loaded with a mass equal to that of the number of persons approved to carry can be recovered by means of winch at a rate of not less than 0.3*m/sec* is to be carried out.
  (e) Recovery test for rescue boat with hand gear
  Demonstration that the rescue boat can be recovered by means of the winch stipulated in **(d)** above using a hand gear is to be carried out.

**4** Following test and inspection of launching appliance for free-fall life boat are to be carried out after onboard installation.

(1) Test for launching appliance is to be carried out in accordance with the requirement in **-2(1)** above.

(2) Demonstration that adjustable ramps for free-fall launching can be adjusted satisfactorily with the free-fall lifeboat loaded to 1.2 times its related load is to be carried out.

**5** Following installation tests of liferaft launching appliances are to be carried out afer onboard installation.

(1) Static load test for release arrangements
Each release hook is to be statically proof tested to 2.5 times the safe working load and be provided with an approved testing establishment certificate certifying that it has been so tested. Testing establishment means an establishment accepted by the Society or Organization recognized by the Society having the equipment and the qualifications necessary for the testing and approval of liferaft release hooks.

(2) Operational test for release arrangements
Each release hook is to be submitted to an operational test with a mass equivalent to the safe working load being applied. The release arrangements is to be demonstrated and checked with the liferaft loaded to ensure that the automatic release hook will not release while the load is still applied.

(3) Marking for release arrangements
Each release hook is to be checked to ensure it is permanently marked with :
  (a) the manufacturer's name or the approved name of the release hook;
  (b) the date of manufacture;
  (c) the safe working load;
  (d) the number of the test certificate required by requirement in **(1)** above; and
  (e) clear, concise operating instructions.

(4) Recording of lowering test

The time is to be recorded for the sequence of preparing, loading and launching three liferaft. If so desired, persons may be used only in the preparing and loading operations and ballast substituted for the lowering and launching part of the test. This sequence test need not be carried out on every launching appliance on a ship. However, at least one example of each launching appliance type and arrangement is to be so tested on each ship.

(5) Towing strain test

A moderate towing strain is to be put on the liferaft when waterborne to check that the release arrangements are satisfactory under this condition.

**6** All electrical and electronic appliances installed on the bridge and vicinity of the bridge other than the ones specified in **3.1.1-2(1)** and **(3) of the Rules**, are to be tested on board for electromagnetic compatibility under their working conditions in accordance with the requirements in **Regulation 17, Chapter V of the Annex to the Convention**. In this case, the following manners are to be applied.

(1) The wording "the bridge and vicinity of the bridge" in **Regulation 17.1, Chapter V of the Annex to the Convention** means bridge wings, wheelhouse, enclosed spaces installed in radio communication equipment and areas within a sphere of 5*m* radius from center of the receiving/transmitting antenna.

(2) The wording "all electrical and electronic equipment" in **Regulation 17.1, Chapter V of the Annex to the Convention** generally means the equipment other than mobile equipment supplied by ship builders or ship owners, specified in the Appendix B.2.2 of the standard *IEC* 60533:2015.

(3) The following equipment is not necessary to carry out the above confirmation test on board for electromagnetic compatibility (refer to *IEC* 60945:2002 and *IEC* 60533:2015).

(a) The automatic or remote controlled equipment which passed the shop tests specified in **18.7.1, Part D of the Rules for the Survey and Construction of Steel Ships**

(b) The equipment certified not liable to cause electromagnetic disturbances by manufacturer

(c) The equipment taken internal protection measures for electromagnetic disturbances such as filtering or shielding

**7** As for the stowage of marine evacuation systems specified in **Regulation 15.1, Chapter III of the Annex to the Convention**, in the case of passenger ships, windows and side scuttles of the non-opening type are allowed on the ship's side between the embarkation station and the sea level in the lightest seagoing condition if complying with **Regulation 9.4.1.3.3, Chapter II-2 of the Annex to the Convention**; in the case of cargo ships, windows and side scuttles are allowed between the embarkation station of marine evacuation systems, if installed, and the sea level in the lightest seagoing condition only if they are of the non-opening type.

**8** The public address system required in **Regulation 6, Chapter III of the Annex to the Convention** is to comply with following requirements.

(1) With respect to the application of **LSA Code 7.2.2.1**, the spaces such as under deck passage way, bosun's locker, hospital, pump room may not be included in the spaces where crew members or passengers, or both, are normally present.

(2) The minimum sound pressure levels in interior space specified in **LSA Code 7.2.2.2.1** are to be the levels measured in the cabin or state room, during sea trials.

(3) Where an individual loudspeaker has a device for local silencing, an over-ride arrangement from the control stations, including the navigating bridge, is to be in place.

**9** Where a gyrocompass is fitted as the "other means" specified in **Regulation 19.2.2.1, Chapter V of the Annex to the Convention**, the gyrocompass is to comply with the following requirements.

(1) The gyrocompass is to be other than that required in **Regulation 19.2.5.1, Chapter V of the Annex to the Convention**.

(2) The gyrocompass is to be fed by both main and emergency power supply and, in addition, it is to be provided with a transitional source of power (e.g. a battery).

**10** Additional liferafts as required by **Regulation 31.1.4, Chapter III of the Annex to the Convention** are to be regarded as "remotely located survival craft" with regard to **Regulation 7.2.1.4, Chapter III of the Annex to the Convention**. The followings are to be provided in the areas where these remotely located survival crafts are stowed.

(1) At least 2 lifejackets and 2 immersion suits.

(2) Adequate means of illumination complying with **Regulation 16.7, Chapter III of the Annex to the Convention**, either fixed or portable, which are to be capable of illuminating the liferaft stowage position as well as the area of water into which the liferaft should be launched. Portable lights, when used, are to have brackets to permit their positioning on both sides of the

vessel.

(3) The portable lights required by **(2)** may be self-contained battery-powered lamps. In such cases, the battery-powered lamps are to satisfy the following **(a)** to **(f)**:

(a) The lamps are to be capable of being recharged from the ship's main and emergency sources of electrical power.

(b) The lamps are to be stowed under charge in storage spaces close to the liferaft and the embarkation ladder they are intended to serve except when being used.

(c) The lamps are to give a minimum duration of 3 hours of undiminished performance when disconnected from their power sources.

(d) The lamps are to comply with the requirements in *LSA* Code section 1.2.3.

(e) The degree of protection of the lamps is to be IP55.

(f) The batteries for such lamps are to comply with **2.1.6, Part B of the Rules for the Survey and Construction of Steel Ships** as well as **1.1.8** and **2.11.5, Part H of the Rules for the Survey and Construction of Steel Ships** irrespective of whether they are marked with their expiration dates by their manufacturers.

(4) An embarkation ladder or other means of embarkation enabling descent to the water in a controlled manner as per **Regulation 11.7, Chapter III of the Annex to the Convention**.

**11** Ships as defined in **Regulation 31.1.3, Chapter III of the Annex to the Convention** and which are fitted with non-davit launched liferafts as per **Regulation 16.1, Chapter III of the Annex to the Convention** are to be provided with an embarkation ladder at each side of the ship.

**12** In cases where navigation lights are to apply the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG), they are to comply with the following:

(1) With respect to **Rule 27(b)(i) of COLREG**, in cases where two "Not under command" (NUC) all-round red lights required by **Rule 27(a)(i)** are used as a part of "Restricted ability to manoeuvre" (RAM) all-round white lights, such navigation lights are to comply with the following:

(a) They are to be comply with the vertical and horizontal positions and distances required by **Annex 1 of COLREG**.

(b) All-round white lights (RAM) are to be switched on independently from the two all-round red lights (NUC).

(2) With respect to **Annex 1, Section 3(b) of COLREG**, sidelights are to be fitted at distances of not more than 10% of the breadth of the vessel inboard from the side, up to a maximum of $1m$. In cases where the application of the above requirement is impractical exemptions may be given on the basis of the Flag Authority acceptance.

(3) With respect to **Annex 1, Section 9(a)(i) of COLREG**, the full intensity of sidelights is to be maintained in the forward direction for one degree outside the arc of the horizon of 112.5° defined by **Rule 21(b) of COLREG** (hereinafter this one degree outside the prescribed sector is referred to as "one-degree toe-in sector"). This is needed to enable other vessels to determine whether a "head-on-situation" exists as per **Rule 14 of COLREG**.

(4) With respect to **Annex 1, Section 9(b) of COLREG**, in cases where two all-round lights are arranged, the screened angle of each all-round light is to be determined as follows:

$$\theta_2 \leq 360 - \theta_1$$

where

$\theta_1$ : Screened angle of the light(s)

$\theta_2$ : Screened angle of the other light(s)

Examples of this arrangement are shown in **Fig.3.1.1-1** and **Fig.3.1.1-2**.

(5) With respect to **Annex 1, Section 10(a)(i) of COLREG**, where sidelights are not fully visible at all angles from five degrees above to five degrees below the horizontal in the horizontal plane of 112.5°, including the one-degree toe-in sector (e.g., see Area A described in **Fig. 3.1.1-3**), then that installation is acceptable provided the installed sidelights are visible, when the ship is in all normal conditions of trim corresponding to the lightest seagoing draft in the stability information booklet (**1.2, Part U of the Rules for Survey and Construction of Steel Ships**) approved by the Society, at a minimum distance of 1,000 *m* measured from the stem when viewed from sea level throughout the horizontal plane, including the one-degree toe-in sector.

**13** The exterior of the rigid watertight enclosures of totally enclosed lifeboats and the exterior of the canopies of partially enclosed lifeboats are to be of international or vivid reddish orange, or comparably highly visible colour which will assist in detection at sea. In this requirement, the wording "highly visible colour" only includes colours of strong chromatic content, i.e. pure achromatic colours

such as white and all shades of grey are not to be accepted as comparable colours.

**14** The "greatest launching height" of a free-fall lifeboat as required by **LSA Code 1.1.4** is to be determined based on the lightest seagoing condition as defined in **Regulation 3.13, Chapter III of the Annex to the Convention**.

**15** The "water surface" used in determining the distance referred to in **LSA Code 6.1.4.4** is the waterline typically associated with the lightest seagoing condition as defined in **Regulation 3.13, Chapter III of the Annex to the Convention**.

**16** The trim and heel conditions in **LSA Code 6.1.1.1** and in the phrase "taking into consideration the requirements of **4.7.3**" in **LSA Code 6.1.4.4** are to be used only to determine the ability of the lifeboat to be safely launched within the operational capabilities of the equipment and without contacting the ship under the specified conditions and not in the determination of the "greatest launching height" of said free-fall lifeboat as required by **LSA Code 1.1.4**.

**17** In cases where the Administration requires the fitting of fall preventer devices (FPDs), the following **(1)** to **(3)** are to be complied with. However, in cases where special instructions are required by the Administration, the requirements may be dispensed with.

(1) In cases where locking pins are provided as a fall preventer device, the pins are to be designed so that they have a minimum safety factor of 6 in accordance with **LSA Code 6.1.1.6**. In addition, in cases where existing on-load release hooks are drilled to provide a locking pin insertion point, the strength of the hooks is to continue to satisfy the relevant requirements in the **LSA Code** and is to comply with the requirements of *MSC*.1/*Circ*.1327 paragraph 2.1. Furthermore, any modification of said hook is to be approved by the hook manufacturer.

(2) The lifeboat and davit manufacturer is to confirm that the attachment eye is suitable for the use of the proposed fall preventer device. In cases where the lifeboat and/or davit manufacturer is no longer in existence, suitability is to be determined by an independent service provider specified in **Chapter 10, Part 3 of the Rules for Approval of Manufacturers and Service Suppliers**.

(3) Fall preventer devices are to be approved by the Society in accordance with **Chapter 7, Part 2 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.

Fig. 3.1.1-1

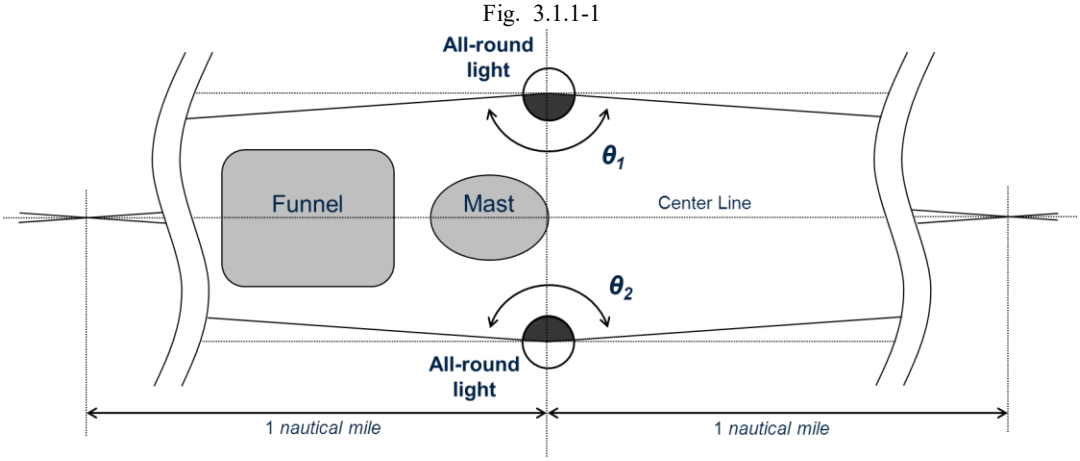


Fig. 3.1.1-2

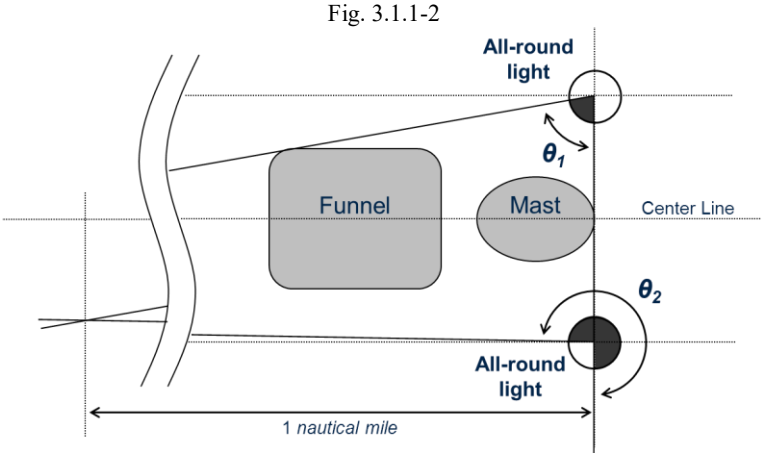
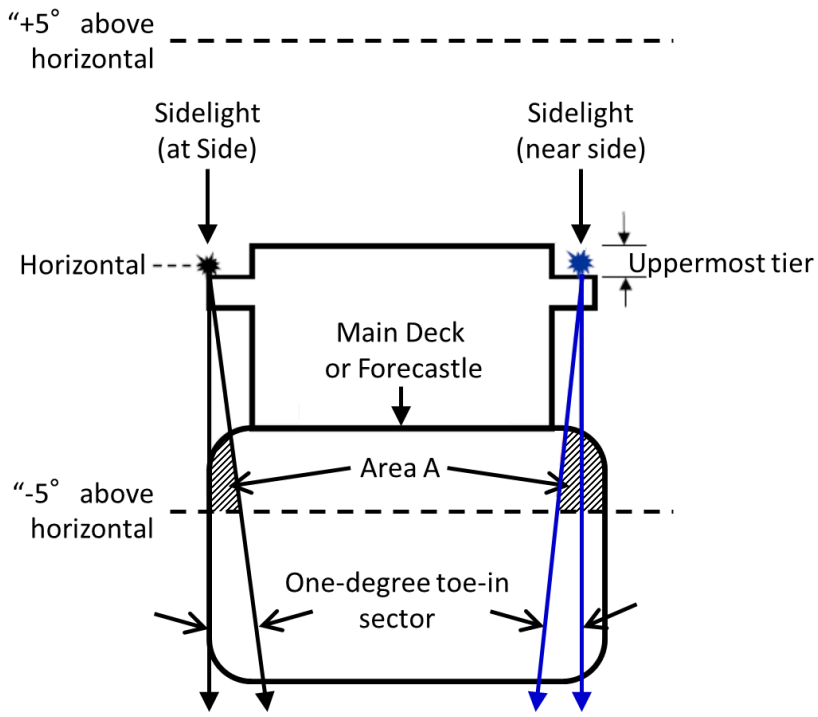
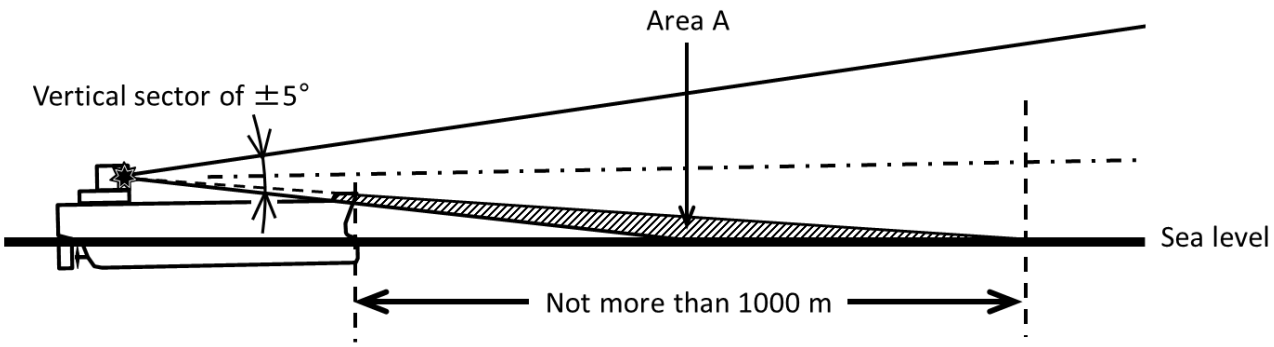



Fig. 3.1.1-3 Example of the non-visible sector (Area A)

(a) Front view




(b) Right side view



**18** With regard to the distance between the embarkation station and stowage location of the additional liferaft as required by **Regulation 31.1.4, Chapter III of the Annex to the Convention**, the embarkation station is to be so arranged that the requirements of **Regulation 13.1.3, Chapter III of the Annex to the Convention** can be satisfied. In such cases, the embarkation station and stowage position of the liferaft are to be located on the same deck so there is no need to use a stairway to carry the liferaft from its stowage location to a different deck.

However, the embarkation station and stowage position of a liferaft may be located on different decks in cases where the liferaft can be launched from its stowage deck using an attached painter to relocate it to the embarkation ladder positioned on the other deck. In such cases, notwithstanding the requirements in **-10**, the following **(1)** to **(4)** are to be provided.

(1) The lifejackets and immersion suits required by **-10(1)** may be stowed at the embarkation station.

(2) The adequate means of illumination complying with **-10(2)** is also to be capable of illuminating the liferaft stowage position, embarkation station and area of water where the liferaft is to be embarked.

(3) An embarkation ladder or other means of embarkation, as required by paragraph **-10(4)**, may be stowed at the embarkation station.

(4) The length of the painter is to be either the length specified in the **LSA Code 4.1.3.2** or a length long enough to allow the painter to reach the relevant embarkation station, whichever is longer.

**19** All interlocks (mechanical protection of on load release), which include hydrostatic components in the operating mechanism, are also to be of material corrosion resistant in the marine environment as required by LSA Code 4.4.7.6.9. The material is to be in accordance with the following requirements:

(1) In cases where stainless steel having a Pitting Resistance Equivalent Number (*PREN*) of less than 22, which is given by the following formula, or another corrosion resistant material/alloy is used, the material corrosion resistance is to be verified by corrosion testing according to *ISO*9227:2012 or other equivalent recognized national standards.

$$PREN = 1 \cdot \%Cr + 3.3(\%Mo + 0.5 \cdot \%W) + 16 \cdot \%N$$

(a) In cases where a confirmation of corrosion resistance of the material is made by testing in accordance with *ISO*9227:2012, the testing is to be performed with the procedures specified in the following **i)** to **ii)**:

i) A neutral salt spray (*NSS*) test is to be carried out with 1,000 hours test duration for components outside the lifeboat, and 160 hours for those inside the lifeboat. The tests may be conducted by using round specimens (diameter is 14 *mm*) specified in **Table K2.1 of Part K of the Rules for the Survey and Construction of Steel Ships** instead of the actual components; and

ii) After the test, the release mechanism is to be subjected to the load and release test specified in **1.1.1-4(1) of Annex 2.6, Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use** and confirmed to be in good condition. The load and release is to be repeated 10 times.

(b) In cases where the test is conducted using the round specimens specified in **(a)i)** above, tensile tests are to be conducted in lieu of the load and release test. The results from the tests are to verify that the reduction in the ultimate tensile strength and reduction in the cross sectional area ratio is less than 5% between corrosion tested and non-corrosion tested specimens.

(2) Stainless steels having a *PREN* of 22 or more, as calculated by the formula given in **(1)**, do not require corrosion testing according to *ISO* 9227:2012 or other equivalent recognized national standards.

(3) In cases where austenitic stainless steels (e.g., 316*L* or 316) are used for welded structures, the risk of sensitisation to intergranular corrosion is to be addressed by the component manufacturer's quality control system.

(4) Since austenitic stainless steels 201, 304, 321, 347 are susceptible to pitting and crevice corrosion, they are unsuitable for all components of hook units, release handle units, control cables or mechanical operating links, and the fixed structural connections in lifeboats.

(5) Notwithstanding the requirements specified in **(4)**, for operating cables covered with sheath and installed inside the lifeboat, inner cables made of austenitic stainless steel 304 are acceptable without the corrosion test specified in **(1)**.

**20** With respect to the application of LSA Code 4.4.7.6.6, the reset function is also to apply to the "other means" or "similar device" referred to in LSA Code 4.4.7.6.7.2.

**21** In cases where a safety pin (*FPDs*) is fitted to facilitate compliance with Regulation 1.5, Chapter III of the Annex to the Convention, the safety pin arrangement is to be acceptable to the hook manufacturer (as defined in paragraph 9.9 of the Annex to

*MSC*.1/*Circ*.1392) in accordance with paragraph 4 of the Annex to *MSC*.1/*Circ*.1327.

**22** The hanging off arrangement (including connections to lifeboat release and retrieval systems and davits), as required by LSA Code 4.4.7.6.14, is to be designed with a calculated factor of safety of 6 based on the ultimate strength of the materials used, and the mass of the lifeboat when loaded with its full complement of fuel and equipment plus 1,000 *kg* equally distributed between the falls.

**23** As for pilot transfer arrangements as required by **Regulation 23.3.3, Chapter V of the Annex to the Convention**, the following manners are to be applied.

(1) The consideration of an adverse list is not required in calculating the distance from the surface of the water to the point of access to the ship.

(2) **Regulation 23.3.3.2, Chapter V of the Annex to the Convention**, and section 3 of *Resolution A*.1045(27) apply to a combined arrangement of an accommodation ladder used in conjunction with the pilot ladder for safe and convenient access to, and egress from, the ship. The pilot ladder in the combined arrangement is to comply with **Regulations 23.3.3.1.1** to **23.3.3.1.4, Chapter V of the Annex to the Convention**.

**24** Lifebuoys required by **14.14.1.1-2(10), Part 1, Part C of the Rules for the Survey and Construction of Steel Ships** are not to be taken into account when determining the minimum number and distribution of lifebuoys as required by **Regulation 32.1.1, Chapter III of the Annex to the Convention**.

**25** With respect to the "one waterproof electric torch suitable for Morse signalling, together with one spare set of batteries and one spare bulb in a waterproof container" required by the *LSA* Code 4.1.5.1.13, 4.4.8.16, and 5.1.2.2.7, the following **(1)** or **(2)** are also deemed acceptable.

(1) A single spare bulb shall be provided for torches utilising either a filament bulb or single LED bulb to provide the light source. However, a spare LED bulb is not required in cases where the light source consists of more than one LED bulb on the condition that the failure of a single bulb does not prevent the other bulbs from fully functioning.

(2) Provision of a second ready-for-use waterproof electric torch suitable for Morse signalling, may be accepted as an alternative to providing one spare set of batteries and one spare bulb in a waterproof container.

### 3.1.2 Additional Requirements Concerning Ships Operating in Polar Waters

In applying the requirements of Chapters 8 and 9, Part 1-A of *IMO* Resolution *MSC*.385(94) "*International Code for Ships Operating in Polar Waters* (*Polar Code*)", as amended, in accordance with **3.1.2 of the Rules**, consideration is to also be given to relevant requirements in Part 1-B of the Resolution.