

Subject

Carriage requirements for Bridge Navigational Watch Alarm System (BNWAS)
(Excluding Japanese-flagged ships)

ClassNK

Technical Information

No. TEC-0975

Date 29 November 2013

To whom it may concern

This is to notify that the amendment of the SOLAS, Chapter V/19 regarding the carriage requirements for Bridge Navigational Watch Alarm System (BNWAS) was adopted as IMO Resolution MSC.350(92) at the 92nd session of the IMO Maritime Safety Committee (MSC92) held in June 2013 and the carriage requirements for the ships constructed before 1 July 2002 were added as follows.

This Technical Information supersedes ClassNK Technical Information No. TEC-0838 issued on 8 December 2010.

1. Applicable ships

These new requirements shall apply to the following types of ships:

- (1) All cargo ships of 150GT and upwards; and
- (2) Passenger ships irrespective of size.

2. Application due date

The due dates for ships to be fitted with a BNWAS are as follows:

- (1) Ships constructed on or after 1 July 2011, not later than the initial Safety Equipment Survey (SE survey);
- (2) Passenger ships constructed before 1 July 2002, not later than the first survey after 1 January 2016;
- (3) Cargo ships of 3,000 GT and upwards constructed before 1 July 2002, not later than the first SE survey after 1 January 2016;
- (4) Cargo ships of 500 GT and upwards constructed before 1 July 2002, not later than the first SE survey after 1 January 2017;
- (5) Cargo ships of 150 GT and upwards constructed before 1 July 2002, not later than the first SE survey after 1 January 2018;
- (6) Passenger ships constructed before 1 July 2011, not later than the first survey after 1 July 2012;
- (7) Cargo ships of 3,000 GT and upwards constructed before 1 July 2011, not later than the first SE survey after 1 July 2012;
- (8) Cargo ships of 500 GT and upwards constructed before 1 July 2011, not later than the first SE survey after 1 July 2013;
- (9) Cargo ships of 150 GT and upwards constructed before 1 July 2011, not later than the first SE survey after 1 July 2014; and

(To be continued)

NOTES:

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- (10) Ships constructed before 1 July 2011 but delivered after the due dates of (6) to (9) above, not later than the initial SE Survey.
- (11) Administrations may exempt ships from the application of the requirement specified in (2) to (5) above when such ships will be taken permanently out of service within two years after the implementation date specified in (2) to (5) above.
3. Performance standards and type-approval for BNWAS
- (1) Summary of IMO Performance Standards MSC.128(75):
- (i) The system shall comply with environmental test requirements;
 - (ii) The system should incorporate the following operational modes: Automatic, Manual On and Manual Off;
 - (iii) The dormant period, visual indication, first stage audible alarm, second stage remote audible alarm and third stage remote audible alarm should follow the operational sequence of IMO standards.
 - (iv) The electric power required by the system should be supplied from both an AC source and a DC source.
 - (v) Initiation of the reset function may be generated by means other than a reset button.
- (2) Type approval of BNWAS
A BNWAS is to be of a type approved by the Administration.
4. Guidelines for BNWAS Installation
- (1) Reset devices:
- (i) At least one reset device should be provided near each conning position in the wheelhouse.
More reset devices may be provided to the workstations for navigation, manoeuvring and monitoring in order for safe and effective operation, if desired.
A reset function may be initiated by motion sensors and navigational equipment such as radar, auto-pilot, ECDIS, INS, etc.
 - (ii) One reset device should be provided to each bridge wing.
Where it is easy to reset a first stage alarm by a reset device located nearby in the wheelhouse, reset devices are not required to be fitted at bridge wings.
- (2) Visual indicators and First stage audible alarms
- (i) A visual indicator and first stage audible alarm are to be provided in the wheelhouse.
When they are combined with a reset device, individual visual indicators and first stage alarms are not required.
 - (ii) A visual indicator and first stage audible alarm are to be provided in the bridge wings.
Where a reset device is not provided in the case of 1(ii) above, the following functions are required:
 - Flashing indicator in the wheelhouse should be visible from an operational position on the bridge wing; and
 - First audible alarm in the wheelhouse should be audible from an operational position on the bridge wing.

(To be continued)

- (3) Second stage remote audible alarms and third stage remote audible alarms
- (i) Second stage remote audible alarms should be located in the Captain's room and Deck officer's cabins.
In cases where there are three deck officers on board, one deck officer for duty may be selected from the main panel and the alarm in the Captain's room may be changed to a third stage one.
 - (ii) Third stage remote audible alarms should be located in public spaces where deck officers use normally, such as Officer's Mess room, Saloon/Smoking room, Recreation room* and Ship's office. (*If provided.) However, in case where third stage remote audible alarms located outside can be heard clearly in a room of the above spaces, installation of a third stage remote alarm in the room is not required.
 - (iii) The volume of second and third stage remote audible alarm is required to have a sufficient level which can wake up sleeping person.
- (4) BNWAS should be supplied by both an AC source (Main and Emergency source) and a DC source (ship's batteries or batteries contained within the device).
- (5) BNWAS for ships constructed on or after 1 July 2011 are to be connected with the following mandatory equipment required by SOLAS.
- (i) Heading Control System and Track Control System
 - (ii) Voyage Data Recorder (VDR)
- (6) With respect to small ships, BNWAS installations may be designed according to relaxed requirements in cases where such requirements are specified by the Flag State.
- (7) An emergency call facility may be provided.
5. BNWAS installed before 1 July 2011
- (1) The BNWAS should be any of the following (i) to (iv):
 - (i) Type-approved equipment or equipment providing equivalent performance possessing a Declaration of Conformity issued by the product maker stating such.
 - (ii) Alarm and warning transfer systems which include a dormant period sequence for ships of one-man bridge operations already plan-approved by ClassNK.
 - (iii) Equipment exempted by the Flag State in accordance with SOLAS V/19 2.2.4.
 - (iv) Equipment approved for non-convention ships by the Flag State.
 - (2) Existing BNWAS installations
The Guidelines in 4 above are intended to be applied in cases where no Flag State instructions exist. However, this need not apply to relaxed requirements specified by Flag States.
In addition, drawings for existing BNWAS installations are not required to be submitted to ClassNK.
- Ship owners / Ship builders should be aware that the requirements related to existing BNWAS may be changed at Administration discretion and remain up to date on current BNWAS information.

(To be continued)

6. BNWAS surveys

- (1) A BNWAS survey is carried out at the due date of a first SE survey on or after 1 July 2011 for ascertainment of the following:
 - (i) Type-approval by Authorities or approval by the Flag State.
 - (ii) Proper operation with appropriate power supply, reset function, visual indication, first audible alarm, remote audible alarm, etc.
 - (iii) Conformance with special requirements of the Flag State.
- (2) After satisfactory completion of the SE survey, a SE certificate is issued with BNWAS added to the Form-E.

7. Further information on BNWAS will be posted on ClassNK website (<http://www.classnk.or.jp>) as it is made available.

For any questions about the above, please contact:

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Attachment:

1. IMO Resolution MSC.128(75) Performance Standards for BNWAS
2. IMO Resolution MSC.350 (92) Amendments to the International Convention for the Safety of Life at Sea, 1974, as amended

ANNEX 11

**RESOLUTION MSC.128(75)
(adopted on 20 May 2002)**

**PERFORMANCE STANDARDS FOR A BRIDGE NAVIGATIONAL
WATCH ALARM SYSTEM (BNWAS)**

THE MARITIME SAFETY COMMITTEE,

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

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the function of adopting performance standards and technical specifications, as well as amendments thereto shall be performed by the Maritime Safety Committee and/or the Marine Environment Protection Committee, as appropriate, on behalf of the Organization,

RECOGNIZING that, many operational bridge-related marine accidents could be averted if an effective and operational bridge navigational watch alarm system (BNWAS) was fitted to vessels,

RECOGNIZING FURTHER that, by the use of a Bridge Navigational Watch Alarm System (BNWAS) warnings will be given in case of the incapacity of the watchkeeping officer due to accident, sickness or in the event of a security breach, e.g. piracy and/or hijacking,

NOTING that the installation of such equipment is a relatively low-cost and an effective means of avoiding operational navigational accidents,

RECOGNIZING the need to prepare appropriate performance standards for BNWASs,

HAVING CONSIDERED the recommendation on the performance standards for BNWASs made by the Sub-Committee on Safety of Navigation at its forty-seventh session,

1. ADOPTS the Recommendation on Performance Standards for a Bridge Navigational Watch Alarm System, set out in the Annex to the present resolution;
2. RECOMMENDS Governments to ensure that BNWASs installed on or after 1 July 2003, conform to performance standards not inferior to those specified in the Annex to the present resolution.

ANNEX

RECOMMENDATION ON PERFORMANCE STANDARDS FOR A BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM (BNWAS)

1 SCOPE

The purpose of a bridge navigational watch alarm system (BNWAS) is to monitor bridge activity and detect operator disability which could lead to marine accidents. The system monitors the awareness of the Officer of the Watch (OOW) and automatically alerts the Master or another qualified OOW if for any reason the OOW becomes incapable of performing the OOW's duties. This purpose is achieved by a series of indications and alarms to alert first the OOW and, if he is not responding, then to alert the Master or another qualified OOW. Additionally, the BNWAS may provide the OOW with a means of calling for immediate assistance if required. The BNWAS should be operational whenever the ship's heading or track control system is engaged, unless inhibited by the Master.

2 REFERENCES

- IMO resolution A.830(19) Code on alarms and indicators
- IMO MSC/Circ.982 Guidelines on Ergonomic Criteria for Bridge Equipment and Layout
- IMO resolution A.694(17) General Requirements¹ for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids

3 DEFINITIONS

Bridge – Wheelhouse and bridge wings

4 OPERATIONAL REQUIREMENTS

4.1 Functionality

4.1.1 Operational modes

4.1.1.1 The BNWAS should incorporate the following operational modes:

- Automatic (Automatically brought into operation whenever the ship's heading or track control system is activated and inhibited when this system is not activated)
- Manual ON (In operation constantly)
- Manual OFF (Does not operate under any circumstances)

¹ IEC Publication 60945

4.1.2 Operational sequence of indications and alarms

4.1.2.1 Once operational, the alarm system should remain dormant for a period of between 3 and 12 min (Td).

4.1.2.2 At the end of this dormant period, the alarm system should initiate a visual indication on the bridge.

4.1.2.3 If not reset, the BNWAS should additionally sound a first stage audible alarm on the bridge 15 s after the visual indication is initiated.

4.1.2.4 If not reset, the BNWAS should additionally sound a second stage remote audible alarm in the back-up officer's and/or Master's location 15 s after the first stage audible alarm is initiated.

4.1.2.5 If not reset, the BNWAS should additionally sound a third stage remote audible alarm at the locations of further crew members capable of taking corrective actions 90 s after the second stage remote audible alarm is initiated.

4.1.2.6 In vessels other than passenger vessels, the second or third stage remote audible alarms may sound in all the above locations at the same time. If the second stage audible alarm is sounded in this way, the third stage alarm may be omitted.

4.1.2.7 In larger vessels, the delay between the second and third stage alarms may be set to a longer value on installation, up to a maximum of 3 min, to allow sufficient time for the back-up officer and/or Master to reach the bridge.

4.1.3 Reset function

4.1.3.1 It should not be possible to initiate the reset function or cancel any audible alarm from any device, equipment or system not physically located in areas of the bridge providing proper look out.

4.1.3.2 The reset function should, by a single operator action, cancel the visual indication and all audible alarms and initiate a further dormant period. If the reset function is activated before the end of the dormant period, the period should be re-initiated to run for its full duration from the time of the reset.

4.1.3.3 To initiate the reset function, an input representing a single operator action by the OOW is required. This input may be generated by reset devices forming an integral part of the BNWAS or by external inputs from other equipment capable of registering physical activity and mental alertness of the OOW.

4.1.3.4 A continuous activation of any reset device should not prolong the dormant period or cause a suppression of the sequence of indications and alarms.

4.1.4 Emergency call facility

Means may be provided on the bridge to immediately activate the second, and subsequently third, stage remote audible alarms by means of an “Emergency Call” push button or similar.

4.2 Accuracy

The alarm system should be capable of achieving the timings stated in section 4.1.2 with an accuracy of 5% or 5 s, whichever is less, under all environmental conditions.

4.3 Security

The means of selecting the Operational Mode and the duration of the Dormant Period (Td) should be security protected so that access to these controls should be restricted to the Master only.

4.4 Malfunctions, alarms and indications

4.4.1 Malfunction

If a malfunction of, or power supply failure to, the BNWAS is detected, this should be indicated. Means shall be provided to allow the repeat of this indication on a central alarm panel if fitted.

5 ERGONOMIC CRITERIA

5.1 Operational controls

5.1.1 A protected means of selecting the operational mode of the BNWAS.

5.1.2 A protected means of selecting the duration of the dormant period of the BNWAS.

5.1.3 A means of activating the “Emergency Call” function if this facility is incorporated within the BNWAS.

5.1.4 Reset facilities

Means of activating the reset function should only be available in positions on the bridge giving proper look out and preferably adjacent to visual indications. Means of activating the reset function should be easily accessible from the conning position, the workstation for navigating and manoeuvring, the workstation for monitoring and the bridge wings.

5.2 Presentation of information

5.2.1 Operational mode

The operational mode of the equipment should be indicated to the OOW.

5.2.2 Visual indications

The visual indication initiated at the end of the dormant period should take the form of a flashing indication. Flashing indications should be visible from all operational positions on the bridge where the OOW may reasonably be expected to be stationed. The colour of the indication(s) should be chosen so as not to impair night vision and dimming facilities (although not to extinction) should be incorporated.

5.2.3 First stage bridge audible alarm

The first stage audible alarm which sounds on the bridge at the end of the visual indication period should have its own characteristic tone or modulation intended to alert, but not to startle, the OOW. This alarm should be audible from all operational positions on the bridge where the OOW may reasonably be expected to be stationed. This function may be engineered using one or more sounding devices. Tone/modulation characteristics and volume level should be selectable during commissioning of the system.

5.2.4 Second and third stage remote audible alarm

The remote audible alarm which sounds in the locations of the Master, officers and further crew members capable of taking corrective action at the end of the bridge audible alarm period should be easily identifiable by its sound and should indicate urgency. The volume of this alarm should be sufficient for it to be heard throughout the locations above and to wake sleeping persons.²

6 DESIGN AND INSTALLATION

6.1 General

The equipment should comply with IMO resolutions A.694(17), A.813(19), their associated international standards³ and MSC/Circ.982 regarding Guidelines for Ergonomic Criteria for Bridge Equipment and Layout.

6.2 Specific requirements

6.2.1 System physical integrity

All items of equipment forming part of the BNWAS should be tamper-proof so that no member of the crew may interfere with the system's operation.

6.2.2 Reset devices

Reset devices should be designed and installed so as to minimise the possibility of their operation by any means other than activation by the OOW. Reset devices should all be of a uniform design and should be illuminated for identification at night.

² IMO Resolution A.830(19)

³ IEC Publication 60945

6.2.3 Alternative reset arrangements may be incorporated to initiate the reset function from other equipment on the bridge capable of registering operator actions in positions giving proper look out.

6.3 Power supply

The BNWAS should be powered from the ship's main power supply. The malfunction indication, and all elements of the Emergency Call facility, if incorporated, should be powered from a battery maintained supply.

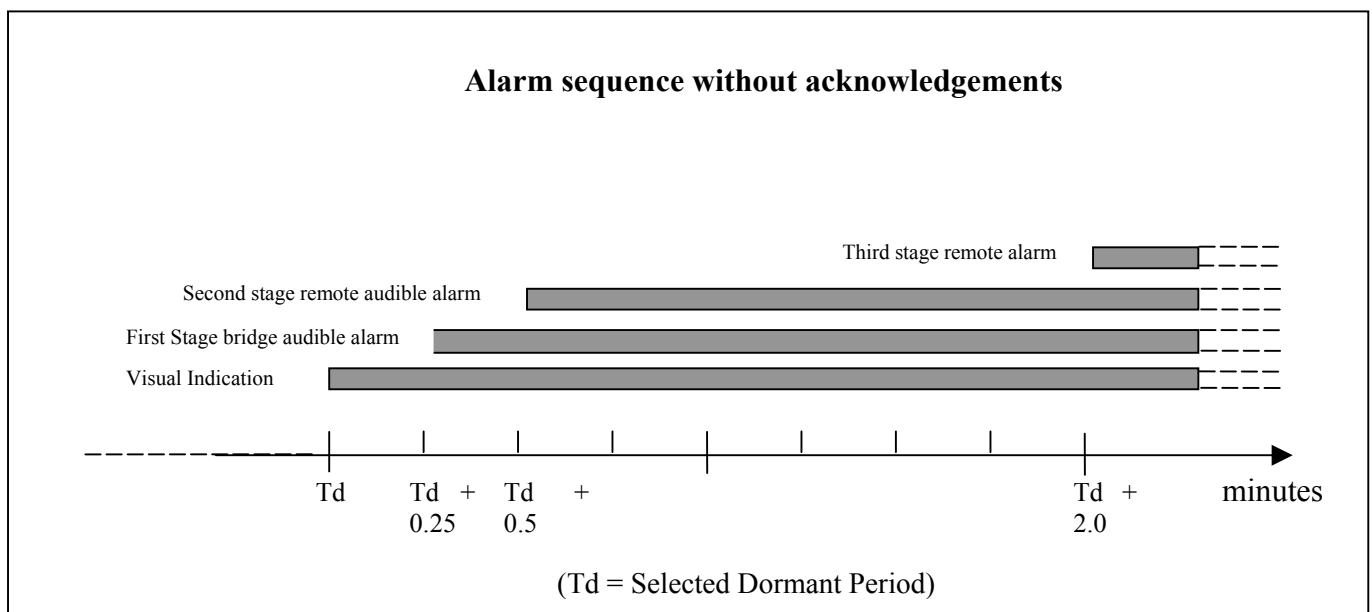
7 INTERFACING

7.1 Inputs

Inputs should be available for additional reset devices or for connection to bridge equipment capable of generating a reset signal by contacts, equivalent circuits or serial data.⁴

7.2 Outputs

Output(s) should be available for connection of additional bridge visual indications and audible alarms and remote audible alarms.



⁴ IEC Publication 61162

ANNEX 2

**RESOLUTION MSC.350(92)
(Adopted on 21 June 2013)**

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

THE MARITIME SAFETY COMMITTEE,

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

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

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

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2014, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES SOLAS Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2015 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;
5. ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

* * *

ANNEX

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

**CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS**

**Part B
Requirements for ships and life-saving appliances**

Regulation 19 – Emergency training and drills

1 The existing text of paragraphs 2.2 and 2.3 is replaced with the following:

"2.2 On a ship engaged on a voyage where passengers are scheduled to be on board for more than 24 h, musters of newly-embarked passengers shall take place prior to or immediately upon departure. Passengers shall be instructed in the use of the lifejackets and the action to take in an emergency.

2.3 Whenever new passengers embark, a passenger safety briefing shall be given immediately before departure, or immediately after departure. The briefing shall include the instructions required by regulations 8.2 and 8.4, and shall be made by means of an announcement, in one or more languages likely to be understood by the passengers. The announcement shall be made on the ship's public address system, or by other equivalent means likely to be heard at least by the passengers who have not yet heard it during the voyage. The briefing may be included in the muster required by paragraph 2.2. Information cards or posters or video programmes displayed on ships video displays may be used to supplement the briefing, but may not be used to replace the announcement."

2 After existing paragraph 3.2, a new paragraph 3.3 is inserted as follows:

"3.3 Crew members with enclosed space entry or rescue responsibilities shall participate in an enclosed space entry and rescue drill to be held on board the ship at least once every two months."

3 Existing sections 3.3 and 3.4 are renumbered as 3.4 and 3.5, respectively. In the renumbered paragraph 3.4.2, the reference "paragraph 3.3.1.5" is replaced by the reference "paragraph 3.4.1.5"; and in the renumbered paragraph 3.4.3, the reference "paragraphs 3.3.4 and 3.3.5" is replaced by the reference "paragraphs 3.4.4 and 3.4.5"

4 After the renumbered section 3.5, the following new section is added:

"3.6 Enclosed space entry and rescue drills

3.6.1 Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization*.

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27).

3.6.2 Each enclosed space entry and rescue drill shall include:

- .1 checking and use of personal protective equipment required for entry;
- .2 checking and use of communication equipment and procedures;
- .3 checking and use of instruments for measuring the atmosphere in enclosed spaces;
- .4 checking and use of rescue equipment and procedures; and
- .5 instructions in first aid and resuscitation techniques."

5 In paragraph 4.2, at the end of subparagraph .3, the word "and" is deleted; at the end of subparagraph .4, the period "." is replaced by the word "; and"; and after subparagraph .4, the following new subparagraph is added:

- "5 risks associated with enclosed spaces and onboard procedures for safe entry into such spaces which should take into account, as appropriate, the guidance provided in recommendations developed by the Organization .

* Refer to the *Revised Recommendations for entering enclosed spaces aboard ships*, adopted by the Organization by resolution A.1050(27)."

6 In paragraph 5, after the words "fire drills,", the words "enclosed space entry and rescue drills," are inserted.

CHAPTER V SAFETY OF NAVIGATION

Regulation 19 – Carriage requirements for shipborne navigational systems and equipment

7 In subparagraph 1.2.1, the words "1.2.2 and 1.2.3" are replaced with the words "1.2.2, 1.2.3 and 1.2.4".

8 In subparagraph 1.2.2, the word "and" at the end of the subparagraph is deleted and in subparagraph 1.2.3, the full stop "." is replaced with the word "; and".

9 After the existing subparagraph 1.2.3, the following new subparagraph is added:

- "4 be fitted with the system required in paragraph 2.2.3, as follows:
- .1 passenger ships irrespective of size, not later than the first survey* after 1 January 2016;
 - .2 cargo ships of 3,000 gross tonnage and upwards, not later than the first survey* after 1 January 2016;
 - .3 cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage, not later than the first survey* after 1 January 2017; and

- .4 cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage, not later than the first survey after 1 January 2018.

The bridge navigational watch alarm system shall be in operation whenever the ship is underway at sea.

The provisions of paragraph 2.2.4 shall also apply to ships constructed before 1 July 2002.

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

- 10 After the new subparagraph 1.2.4, the following new paragraph is added:

"1.3 Administrations may exempt ships from the application of the requirement of paragraph 1.2.4 when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs 1.2.4.1 to 1.2.4.4."

CHAPTER XI-1 SPECIAL MEASURES TO ENHANCE MARITIME SAFETY

Regulation 1 – Authorization of recognized organizations

- 11 The existing text of regulation 1 is replaced with the following:

"The Administration shall authorize organizations, referred to in regulation I/6, including classification societies, in accordance with the provisions of the present Convention and with the Code for Recognized Organizations (RO Code), consisting of part 1 and part 2 (the provisions of which shall be treated as mandatory) and part 3 (the provisions of which shall be treated as recommendatory), as adopted by the Organization by resolution MSC.349(92), as may be amended by the Organization, provided that:

- (a) amendments to part 1 and part 2 of the RO Code are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention;
- (b) amendments to part 3 of the RO Code are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure; and
- (c) any amendments adopted by the Maritime Safety Committee and the Marine Environment Protection Committee are identical and come into force or take effect at the same time, as appropriate."
