

## Bridge Navigational Watch Alarm System (BNWAS) required for older ships

22 August 2013 | IMO | all Shiptypes | Owners

*A new SOLAS Amendment clarifies installation of BNWAS for ships built before 1 July 2002.*

The Maritime Safety Committee at its 92<sup>nd</sup> session adopted Resolution [MSC.350\(92\)](#) with amendments to SOLAS coming into force on 1 January 2015. The amendments to SOLAS Chapter V now set a clear time schedule for the implementation of a BNWAS for ships built before 1 July 2002 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.

Administrations may exempt ships from the requirement when such ships will be taken permanently out of service within two years after the implementation date.

\*The term "first survey" means the first annual survey, the first periodical survey or the first renewal survey whichever is due first after the date specified or any other survey if the Administration deems it to be reasonable and practicable, taking into account the extent of repairs and alterations being undertaken.

An actual FaQ regarding the BNWAS may be found [here](#).

### Contact

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## Bridge Navigational Watch Alarm System (BNWAS) FAQ

Note: Please always observe the requirements which may be given by the Flag State Administration.

**Q: When did the BNWAS come into force?**

A: The performance standards for BNWAS are defined in [MSC.128\(75\)](#) which entered into force on 1 July 2003.  
SOLAS Ch. V, Reg.19, as amended by Resolution [MSC.282\(86\)](#), entered into force on 1 January 2011.  
SOLAS Ch. V, Reg.19, as amended by Resolution [MSC.350\(92\)](#), will enter into force on 1 January 2015.

**Q: When do I need a BNWAS?**

A: 1.) The implementation schedule for the carriage of BNWAS according to SOLAS V, Reg.19.2.2.3, as amended by Resolution [MSC.282\(86\)](#), is as follows:

- cargo ships of 150 gross tonnage and upwards and passenger ships of any size constructed on or after 1 July 2011;
- passenger ships of any size constructed before 1 July 2011, not later than the first survey after 1 July 2012;
- cargo ships of 3,000 gross tonnage and upwards constructed before 1 July 2011, not later than the first survey after 1 July 2012;
- cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage constructed before 1 July 2011, not later than the first survey after 1 July 2013; and
- cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage constructed before 1 July 2011, not later than the first survey after 1 July 2014.

2.) The new Resolution [MSC.350\(92\)](#) now clarifies in SOLAS V, Reg.19.1.2.4, the implementation schedule for the carriage of BNWAS for ships constructed before 1 July 2002 as follows:

- passenger ships irrespective of size, not later than the first survey after 1 January 2016;
- cargo ships of 3,000 gross tonnage and upwards, not later than the first survey after 1 January 2016;
- 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
- cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage, not later than the first survey after 1 January 2018.

Administrations may exempt ships constructed before 1 July 2002 from the requirement when such ships will be taken permanently out of service within two years after the implementation date.

**Q: The vessel is already equipped with a BNWAS. Can I use it?**

A: According to Resolution [MSC.282\(86\)](#), a BNWAS installed prior to 1 July 2011 may subsequently be exempted from full compliance with the standard adopted by IMO at the discretion of the Administration. Special advice or requirements by the Flag State Administration should be observed.

**Q: Where should I install the reset push buttons?**

A: According to the performance standard [MSC.128\(75\)](#), 5.1.4 reset facilities should only be available in positions on the bridge providing proper lookout. 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.

**Q: Is it necessary to install reset facilities on the bridge wings?**

A: Reset facilities on the bridge wings should be installed if the bridge wing is defined as a workstation, i.e. if it is possible to observe all relevant external and internal information and control the manoeuvring of the ship.

**Q: Is it necessary to connect the BNWAS to the VDR?**

A: According to the Code on Alerts and Indicators, Resolution A.1021(26), implemented on 18 January 2010, the BNWAS first-stage audible alarm and the malfunction of, or power supply failure to, the BNWAS are classified as a mandatory alarm. The BNWAS should be connected to the VDR on ships whose keel is laid on or after 18 January 2010.

**Q: Is it necessary to connect the status "activated" from autopilot to the BNWAS?**

A: According to Resolutions [MSC.282\(86\)](#) and [MSC.350\(92\)](#), the BNWAS should be operational whenever the ship is underway at sea. A status from the autopilot is not required. A connection to the GPS or speed log is not allowed.

**Q: May I combine the second and third stage alarm?**

A: According to [MSC.128\(75\)](#), 4.1.2.6 in vessels other than passenger vessels, the second and third stage remote audible alarms may sound in all the locations mentioned in 4.1.2.4 and 4.1.2.5 at the same time. If the second stage audible alarm is sounded in this way, the third stage alarm may be omitted.

**Q: Can I use the general alarm system for sounding the third alarm?**

A: The audible alarm for the third stage should be easily identifiable by its sound and should indicate urgency. The sound should clearly differ from the fire alarm, general alarm, etc.

**Q: Does GL accept motion sensors as a reset facility?**

A: According to the test standard IEC62616, 3.1.3.2 to initiate the reset function, an input representing a single operator action by the officer on watch (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. A motion sensor would be acceptable only in addition to the manual reset buttons installed on the bridge. The motion sensor should only cover areas on the bridge capable of registering operator actions in positions providing proper lookout. Project-related drawings should be provided for approval.

**Q: Is it necessary to submit drawings to GL HO for approval?**

A: For new buildings and retrofits, cable diagrams and a bridge layout including locations of reset buttons, buzzers and power supply to the BNWAS should be provided for approval.

**Q: When should the BNWAS fulfil the test standard IEC62616?**

A: The BNWAS should be in accordance with IEC62616 installed on ships whose keel is laid on or after 1 July 2011.

**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\*.

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\* 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 .

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\* 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.

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\* 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."

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**ANNEX 1**

**RESOLUTION MSC.282(86)  
(adopted on 5 June 2009)**

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

THE MARITIME SAFETY COMMITTEE,

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

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

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

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2010, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world’s merchant fleet, have notified their objections to the amendments;
3. INVITES SOLAS Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2011 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;
5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.



ANNEX

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

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

**Part A-1  
Structure of ships**

**Regulation 3-5 – New installation of materials containing asbestos**

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

“From 1 January 2011, for all ships, new installation of materials which contain asbestos shall be prohibited.”

**Part C  
Machinery installations**

**Regulation 35-1 – Bilge pumping arrangements**

2 The following new paragraph 2.6.3 is added after the existing paragraph 2.6.2:

“2.6.3 Provisions for the drainage of closed vehicle and ro-ro spaces and special category spaces shall also comply with regulations II-2/20.6.1.4 and II-2/20.6.1.5.”

**CHAPTER V  
SAFETY OF NAVIGATION**

**Regulation 19 – Carriage requirements for shipborne navigational systems and equipment**

3 In paragraph 2.1, the existing subparagraph .4 is replaced by the following:

“.4 nautical charts and nautical publications to plan and display the ship’s route for the intended voyage and to plot and monitor positions throughout the voyage. An electronic chart display and information system (ECDIS) is also accepted as meeting the chart carriage requirements of this subparagraph. Ships to which paragraph 2.10 applies shall comply with the carriage requirements for ECDIS detailed therein;”.

4 In paragraph 2.2, the new subparagraphs .3 and .4 are added after the existing subparagraph .2 as follows:

- “.3 a bridge navigational watch alarm system (BNWAS), as follows:
- .1 cargo ships of 150 gross tonnage and upwards and passenger ships irrespective of size constructed on or after 1 July 2011;
  - .2 passenger ships irrespective of size constructed before 1 July 2011, not later than the first survey\* after 1 July 2012;
  - .3 cargo ships of 3,000 gross tonnage and upwards constructed before 1 July 2011, not later than the first survey\* after 1 July 2012;
  - .4 cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage constructed before 1 July 2011, not later than the first survey\* after 1 July 2013; and
  - .5 cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage constructed before 1 July 2011, not later than the first survey\* after 1 July 2014.

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

- .4 a bridge navigational watch alarm system (BNWAS) installed prior to 1 July 2011 may subsequently be exempted from full compliance with the standards adopted by the Organization, at the discretion of the Administration.”

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

5 After the existing paragraph 2.9, the new paragraphs 2.10 and 2.11 are added as follows:

“2.10 Ships engaged on international voyages shall be fitted with an Electronic Chart Display and Information System (ECDIS) as follows:

- .1 passenger ships of 500 gross tonnage and upwards constructed on or after 1 July 2012;
- .2 tankers of 3,000 gross tonnage and upwards constructed on or after 1 July 2012;
- .3 cargo ships, other than tankers, of 10,000 gross tonnage and upwards constructed on or after 1 July 2013;
- .4 cargo ships, other than tankers, of 3,000 gross tonnage and upwards but less than 10,000 gross tonnage constructed on or after 1 July 2014;
- .5 passenger ships of 500 gross tonnage and upwards constructed before 1 July 2012, not later than the first survey\* on or after 1 July 2014;

- .6 tankers of 3,000 gross tonnage and upwards constructed before 1 July 2012, not later than the first survey\* on or after 1 July 2015;
- .7 cargo ships, other than tankers, of 50,000 gross tonnage and upwards constructed before 1 July 2013, not later than the first survey\* on or after 1 July 2016;
- .8 cargo ships, other than tankers, of 20,000 gross tonnage and upwards but less than 50,000 gross tonnage constructed before 1 July 2013, not later than the first survey\* on or after 1 July 2017; and
- .9 cargo ships, other than tankers, of 10,000 gross tonnage and upwards but less than 20,000 gross tonnage constructed before 1 July 2013, not later than the first survey\* on or after 1 July 2018.

2.11 Administrations may exempt ships from the application of the requirements of paragraph 2.10 when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs .5 to .9 of paragraph 2.10.”

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

## **CHAPTER VI CARRIAGE OF CARGOES**

6 The title of chapter VI is replaced by the following:

### **“CARRIAGE OF CARGOES AND OIL FUELS”**

#### **Regulation 1 – Application**

7 At the beginning of paragraph 1, the words “Unless expressly provided otherwise,” are added and the existing word “This” is replaced by the word “this”.

#### **Regulation 5-1 – Material safety data sheets**

8 The existing text of the regulation is replaced by the following:

“Ships carrying oil or oil fuel, as defined in regulation 1 of Annex 1 of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, shall be provided with material safety data sheets, based on the recommendations developed by the Organization\*, prior to the loading of such oil as cargo in bulk or bunkering of oil fuel.”

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\* Refer to the Recommendations for material safety data sheets (MSDS) for MARPOL Annex I oil cargo and oil fuel, adopted by the Organization by resolution MSC.286(86), as may be amended.

## **APPENDIX CERTIFICATES**

### **Record of Equipment for the Passenger Ship Safety Certificate (Form P)**

9 In the Record of Equipment for the Passenger Ship Safety Certificate (Form P), in section 5, a new item 14 is inserted as follows:

“14 Bridge navigational watch alarm system (BNWAS)”.

### **Record of Equipment for the Cargo Ship Safety Equipment Certificate (Form E)**

10 In the Record of Equipment for the Cargo Ship Safety Equipment Certificate (Form E), in section 3, a new item 14 is inserted as follows:

“14 Bridge navigational watch alarm system (BNWAS)”.

### **Record of Equipment for the Nuclear Passenger Ship Safety Certificate (Form PNUC)**

11 In the Record of Equipment for Nuclear Passenger Ship Safety Certificate (Form PNUC), in section 5, a new item 15 is inserted as follows:

“15 Bridge navigational watch alarm system (BNWAS)”.

### **Record of Equipment for the Nuclear Cargo Ship Safety Certificate (Form CNUC)**

12 In the Record of Equipment for Nuclear Cargo Ship Safety Certificate (Form CNUC), in section 5, a new item 14 is inserted as follows:

“14 Bridge navigational watch alarm system (BNWAS)”.

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### **FOOTNOTE TO BE ADDED TO SOLAS REGULATION V/18**

In the existing footnote to paragraph 2, the following reference is added after the last reference:

“Performance standards for a bridge navigational watch alarm system (BNWAS) (resolution MSC.128(75))”.

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**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 Requirements<sup>1</sup> 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)

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<sup>1</sup> 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.<sup>2</sup>

## 6 DESIGN AND INSTALLATION

### 6.1 General

The equipment should comply with IMO resolutions A.694(17), A.813(19), their associated international standards<sup>3</sup> 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.

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<sup>2</sup> IMO Resolution A.830(19)

<sup>3</sup> 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.

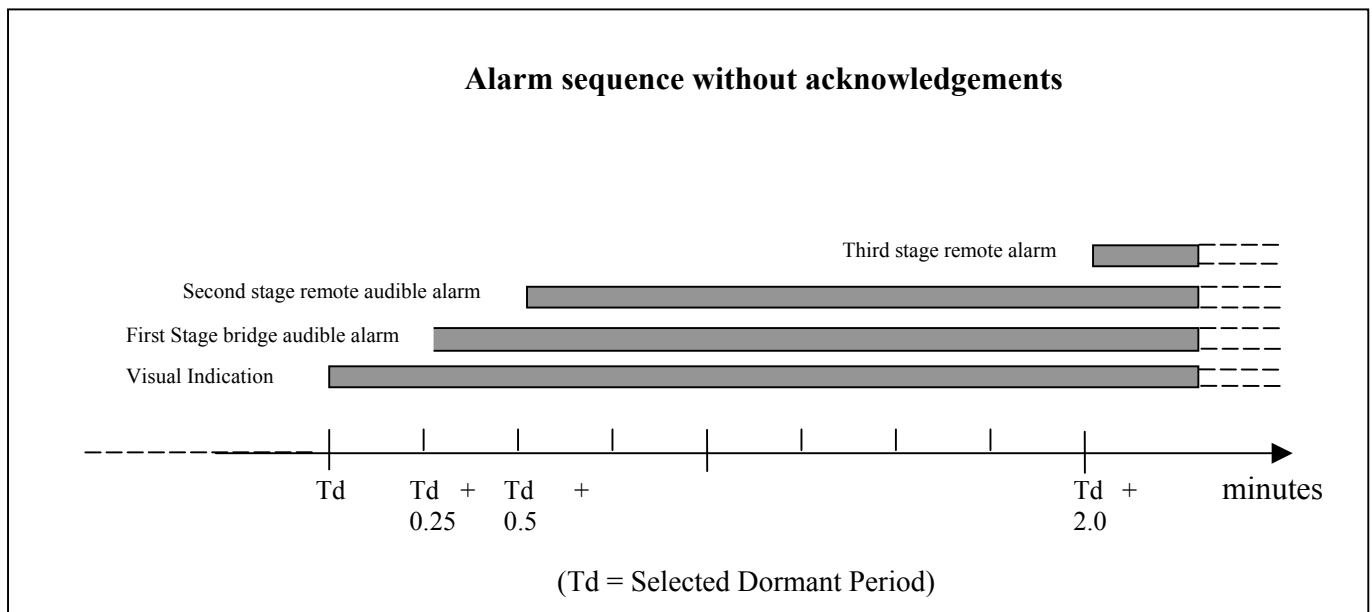
## 7 INTERFACING

### 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.<sup>4</sup>

### 7.2 Outputs

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



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<sup>4</sup> IEC Publication 61162