

Subject:

Guidance on SOLAS chapter II-2 as amended in 2000

ClassNK

Technical Information

No. TEC-0453

Date 22 April 2002

To whom it may concern

As stated in ClassNK Technical Information No. 406, SOLAS as amended in 2000 is entering into force on 1 July 2002. In its chapter II-2 (fire protection, fire detection and fire extinction), there are a number of new and revised provisions to be interpreted. Regarding such provisions, following are shown in Attachment (1):

- (1) ClassNK provisional interpretations,
- (2) development of unified interpretations at IMO, and
- (3) instructions on emergency escape breathing devices (EEBDs) which ClassNK received from the administrations of Bahamas, Cyprus, Isle of Man, Liberia, Malta, Marshall Islands, Singapore and Greece.

The whole texts of their instructions on EEBDs are reproduced in Attachment (2).

For any questions about the above, please contact:

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Attachment:

- (1) Guidance on SOLAS chapter II-2 as amended in 2000
- (2) Letters on emergency escape breathing devices from flag administrations

NOTES:

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Attachment (1) to
ClassNK Technical Information No. TEC-0453

Guidance on SOLAS Chapter II-2 as amended in 2000

In SOLAS chapter II-2 as amended in 2000, there are a number of new and revised provisions to be interpreted. Regarding such provisions, following are shown in this Attachment:

- (1) ClassNK provisional interpretations,
- (2) development of unified interpretations at IMO, and
- (3) instructions on emergency escape breathing devices from the administrations of Bahamas, Cyprus, Isle of Man, Liberia, Malta, Marshall Islands, Singapore and Greece.

ClassNK intends to incorporate the above-mentioned ClassNK provisional interpretations into the *Guidance for the Survey and Construction of Steel Ships* with modifications as considered necessary. Until such amendments to the *Guidance* are established, surveys of ships classed with ClassNK for SOLAS chapter II-2 as amended in 2000 should be carried out applying the provisional interpretations, and, if any, interpretations and special requirements of the flag administration. In principle, ClassNK does not intend to retroactively apply provisions of the revised *Guidance* to constructions, equipment, etc. once accepted as complying with the relevant requirements based on the provisional interpretations. However, as for emergency escape breathing devices, some additional ones may be required so as to meet IMO unified interpretations expected to be established in the future. For ships to which SOLAS chapter II-2 as amended in 2000 is not applicable, class requirements are expected to be provided in the ClassNK's *Guidance for the Survey and Construction of Steel Ships*.

(In this document, ships the keels of which are laid or which are at a similar stage of construction on or after 1 July 2002 are referred to as “new ship” and other ships are referred to as “existing ship”.)

1. Emergency escape breathing device, EEBD (II-2/13.3.4, 13.4.3)

These regulations are applied to new ships and existing ships. Existing ships are required to comply with the requirements not later than the date of first survey after 1 July 2002 by regulation II-2/1.2.2.2. (Refer to the item (2).) However, the requirement of regulation 13.3.4.1 for the provision of spare EEBDs is not applied to existing ships.

- (1) The number and location

ClassNK provisional interpretations

- (a) II-2/13.3.4

EEBDs should be provided in accommodation spaces as stated below.

- (i) For cargo ships, 2 sets and 1 set of spare.
- (ii) For passenger ships carrying not more than 36 passengers, 2 sets for each main

vertical zone except those defined in the regulation 13.3.4.5, and a total of 2 sets of spare.

- (iii) For passenger ships carrying more than 36 passengers, 4 sets for each main vertical zone except those defined in the regulation 13.3.4.5, and a total of 2 sets of spare.

(b) II-2/13.4.3.1

EEBDs should be provided in machinery spaces of category A where crew is normally or periodically employed as stated below.

- (i) Machinery spaces containing internal combustion machinery used for main propulsion:

Each 1 set for the engine control room and the work shop. 1 set, in principle, near the escape routes (other than escape routes protected by trunk or a watertight access door to safe space) at each deck or platform level of the spaces. In case where the engine control room and the work shop are close, one of the EEBDs for them, or in case where the engine control room and/or the work shop and the escape routes are close, the EEBD(s) for the engine control room and/or the work shop, may be dispensed with. However, the total number of the EEBDs in the spaces should be at least 3.

- (ii) Machinery spaces of category A other than the above (i):

1 set, in principle, near the escape routes (other than escape routes protected by trunk or a watertight access door to safe space) at each deck or platform level of the spaces. Where easy escape to a safe space is surely expected, EEBD is not required.

Development of IMO unified interpretations

A proposal for IMO unified interpretations on EEBDs is expected to be submitted and discussed at MSC 75 to be held in coming May.

Instructions from flag administrations

Instructions on interpretations /on special requirements for EEBDs have been received from each government of Bahamas, Cyprus, Isle of Man, Liberia, Malta, Marshall Islands, Singapore and Greece. Main differences between the above ClassNK provisional interpretations and those of each flag administration for cargo ships are shown below. For details, the attached texts of the instructions should be referred to.

Bahamas

- (a) The number of spares should be 50% of the total number carried.

Cyprus

- (a) The number of EEBD to be fitted in the machinery spaces should be equal to the number of crew stipulated in the Document of Safe Manning for the Engine Department. However, the maximum number need not exceed eight devices.
- (b) Two additional devices should be kept on board as spare.

Isle of Man

- (a) EEBDs for use in the accommodation spaces should be stored in the same compartment as the fireman's outfits.
- (b) 50% spares are required for each required in the accommodation spaces and machinery spaces with a maximum of four for each space.

Liberia

- (a) If the ship has a sprit house, the minimum two EEBDs per house should be provided.
- (b) A minimum of four EEBDs including two in the control room and one for each escape ladder should be placed in the machinery spaces.
- (c) Additional EEBDs should be made available for individual carriage for the maximum number of persons who may enter the pump room during normal operations or a minimum of two EEBDs should be installed in the pump room.
- (d) At least one EEBD training device should be provided.
- (e) Spares equal to at least 10% of the total EEBDs kept on board but no more than 4 spares should be provided.

Malta

- (a) At least two spares should be provided onboard.
- (b) At least one EEBD solely for training purpose should be provided onboard and should be marked accordingly.

Marshall Islands

- (a) There should be, as a minimum, two EEBDs on each level (at each deck or platform level) of the machinery space.

Singapore

- (a) While at least 2 sets of the EEBD are required to be fitted in accommodation spaces by the regulation, placement of additional EEBDs in work spaces (control stations, service spaces) should be considered where there are a number of crew spending a considerable amount of time in them.
- (b) The various factors (refer to the attached instruction) should be taken into account when considering placement and number of EEBDs in machinery spaces.
- (c) A minimum of two spares, one for accommodation spaces and another for engine room should be provided.
- (d) EEBDs for training should be provided.

Greece

- (a) The number of EEBD to be provided in the machinery spaces should be as follows.
 - (i) One set for each emergency exit.
 - (ii) One set for each control space.
 - (iii) One set for each work shop.
 - (iv) The totally number of EEBD should not be less than the number of crew normally on duty in these spaces.

- (b) The above mentioned EEBDs should be located in clearly visible locations near emergency exits.
- (c) The spare EEBD to be provided in accommodation should be located in a safe, accessible area (bridge, fire stations, control stations).

(2) Interpretation of “first survey”

- (a) Ships during construction delivered on or after 1 July 2002 are required to comply with the above requirements not later than the delivery date, if initial surveys for SE are regarded as the first survey, otherwise the date of first SE survey after the delivery.
- (b) IACS thought that the IMO unified interpretations of the above matter should be established and then submitted the paper to IMO FSI. This matter is going to be discussed at IMO FSI to be held in this April and is expected to be agreed at MSC to be held in May.

(3) Approval of EEBD

- (a) EEBDs should be, in principle, of approved and verified individually by ClassNK. They should also be of meeting requirements of the flag administration, if specially provided.
- (b) For Japanese flag ships, EEBDs should be of certified by the Japanese Government/the Ship Equipment Inspection Society of Japan.
- (c) EEBDs certified by the Japanese Government/the Ship Equipment Inspection Society of Japan may be accepted as meeting the ClassNK requirements. EEBDs certified by another member Government of SOLAS or an authorized party may be accepted based on review of the technical standard applied and results of testing.

(4) Indication in the fire control plans

Locations of EEBDs should be marked by an appropriate symbol in the fire control plan giving its legend. For verification of fire control plans, refer to section 3.

2. Maintenance plans/training manuals/fire safety operational booklets (II-2/14, 15, 16)

This regulations are applied to new ships and existing ships. Existing ships are required by regulation II-2/1.2.2.2 to comply with them not later than the date of first survey after 1 July 2002. For the interpretation of “first survey”, refer to section 1.(2).

(1) Contents of each document

- (a) At least the following items of information should be contained in each of the above document.
 - (i) Maintenance plans: items listed in regulations II-2/14.2.2.3, 14.3 and 14.4.
 - (ii) Training manuals: items listed in regulation II-2/15.2.3.4.
 - (iii) Fire safety operational booklets: items listed in regulations II-2/16.2.1 and 16.3.1.
- (b) The required items of information should include methods and intervals of maintenance, methods and intervals of training, and method of operation of all items of equipment and systems provided on board the ship for fire safety and easy to understand. For methods and intervals of maintenance, methods of training, and method of operation, reference to the relevant manual supplied by the manufacturer

and provided on board the ship may be made from each of the document.

- (c) Maintenance plans should be prepared based on the IMO guideline given the annex to MSC/Circ.850. Methods and intervals of maintenance, inspections and tests, should satisfy the relevant requirements, if any, of Part B of ClassNK's *Rules for Construction and the Survey of Steel Ships* and of the flag administration.
- (d) As for safety operation of oil tankers, chemical tankers, gas carriers, bulk carriers intended for the carriage of cargoes listed in Appendix B of BC Code and ships intended for the carriage of dangerous goods, the texts of SOLAS as amended in 2000 (regulation II-2/19), IBC Code, IGC Code, BC Code, IMDG Code should be provided onboard the ship as appropriate, and reference should be made to them from the fire safety operational booklets. Reference may be also made to appropriate safety guidelines issued by such organizations as ICS and OCIMF.

(2) Verification of contents of each document

- (a) The shipowner or the shipbuilder should submit at least one copy of each document, which is to be provided onboard the ship, to ClassNK office who is expected to carry out the survey of the matter.
- (b) ClassNK surveyor in charge should check that required items of information are provided appropriately in each document and that they are consistent with actual condition of the ship. Upon completion of the survey with satisfactory results, the surveyor should make endorsement on each document by:
 - (i) putting statement reading "Verified that this document contains the item of information required by SOLAS Chapter II-2 as amended in 2000" together with the date and place of the survey; and
 - (ii) signing and putting the round NK stamp.

3. Fire Control Plan (II-2/15.2.4)

For existing ships, fire control plan should be revised accompanying to the provision of EEBD. (refer to section 1.(4).) ClassNK will, at request, check that the required items of information are contained in the fire control plan and make endorsement on the plan as shown below. This procedure is also applied to new ships.

- (1) The shipowner or the shipbuilder should submit necessary number of copies of the fire control plan, at least those to be provided onboard, to ClassNK office who is expected to carry out the survey.
- (2) ClassNK surveyor in charge should check that the required items of information are shown appropriately and that they are consistent with the actual condition of the ship. For existing ships, particular attention should be paid to EEBDs and check that they are located in compliance with the requirements of SOLAS chapter II-2 as amended in 2000, the interpretation stated in section 1 above and the requirements of the flag administration.
- (3) Upon the confirmation, ClassNK surveyor should make endorsement on the plan by:
 - i) putting statement reading "Verified that this plan contains the items of information required by SOLAS Chapter II-2 as amended in 2000" together with the date and place of the survey; and

- ii) signing and putting the round NK stamp.

IMO resolution A.654(16) providing guidelines on symbols used on fire control plan is expected to be revised based on ISO17631:2002 “Ships and marine technology – Shipboard plans for fire protection, life-saving appliances and means of escape” at the next assembly. Taking this into account, it is recommended to use symbols given in the ISO standard when newly preparing or revising a fire control plan unless otherwise instructed by the flag administration.

4. Protection of cargo pump-rooms (II-2/4.5.10)

Existing ships (tankers) are required to be fitted with systems required by the regulations 4.5.10.1.1 and 4.5.10.1.4, and a system for continuous monitoring of the concentration of hydrocarbon gases by the date of the first scheduled dry-docking after 1 July 2002, but not later than 1 July 2005.

(1) II-2/4.5.1.1

Pump-rooms intended solely for ballast transfer need not comply with the requirements of regulation 4.5.10. They are applicable only to the pump-rooms where pumps for cargo, such as cargo pumps, stripping pumps, pumps for slop tanks, pumps for COW or similar pumps are provided.

(2) II-2/4.5.10.1.2

Where the lighting in cargo pump rooms can be commonly used as the emergency lighting, this lighting should be interlocked with the ventilation systems. However, this interlock should not prevent operation of the emergency lighting in case of the loss of the main source of electric power.

(3) II-2/4.5.10.1.4

Bilge high level alarms are acceptable as an alternative means for the level monitoring devices.

5. Fixed local application fire-fighting system (II-2/10.5.6, MSC/Circ. 913)

Passenger ships of 500 gross tonnage and above and cargo ships of 2000 gross tonnage and above are required to be fitted with a fixed water-based or equivalent local application fire-fighting system to protect the fire hazard portions in machinery spaces of category A above 500 m³ in volume. This system is required to be of approved based on the guidelines developed by IMO (MSC/Circ. 913). ClassNK provisional interpretations of the requirements of the above regulation and MSC/Circ. 913 are stated below.

(1) II-2/10.5.6.2

The automatic release should be, in general, achieved by two detectors of the different type of the following (a) and (b) to ensure an accurate activation for the specific fired area and to prevent unexpected activation. When either of them detects a fire it should give a fire alarm (in case of the detector (a), the alarm should be of identifying the specific protected area), and when both detect the fire they should activate the system.

(a) Flame type fire detector installed in each protected area.

(b) Smoke type fire detector (originally required for periodically unattended machinery

spaces, etc.).

(2) II-2/10.5.6.3.1

“The fire hazard portions of internal combustion machinery” means hot surfaces such as exhaust pipes without insulation or with insulation likely to be removed frequently for maintenance and high pressure fuel oil systems installed nearby the hot surfaces. For typical diesel engines, the area on top of the engine, fuel oil injection pumps and turbo chargers are applied to.

(3) II-2/10.5.6.3.2 and 10.5.6.3.3

“Boiler fronts” and “the fire hazard portions of incinerators” mean the part around burners without insulation or with insulation likely to be removed frequently for maintenance. Oil-fired inert gas generators are regarded as this boiler.

(4) MSC/Circ. 913 Annex 3.2

(a) Items of electrical equipment installed in any area that they are supposed to be affected by water mist when the fire-fighting system is operated should be of IP44 or higher grade except where:

- (i) for combinations of the specific fire-fighting system and electrical equipment, it has been proved through an appropriate test that there are no risk of causing either any electric shock or short circuit; or
- (ii) the electrical equipment is sheltered by a fixed means from water mist.

(b) The words “area that they are supposed to be affected by water mist ” in the above (a) mean, in principle:

- (i) horizontally, within radiuses of S (maximum allowable spacing between nozzles determined as one of the design criteria of the fire-extinguishing system) of the nozzles.
- (ii) vertically, from the level of nozzles down to the nearest deck or similar construction.

(c) The test mentioned in above (a) (i) should be conducted in the following manner.

- (i) Nozzles should be fitted in 2x2 grid and be directed vertically downward. The spacing of nozzles should be the maximum allowable space.
- (ii) The electrical equipment should be placed at the position that is horizontally centre of the nozzle grid and vertically at the distant of D (the minimum allowable distant determined as one of the design criteria of the fire-extinguishing system) from the nozzles.
- (iii) The fire-extinguishing system should be operated with maximum allowable pressure determined as one its design criteria) for 20 minutes while the electrical equipment also being operated.

Upon completion of the above test, it should be checked that the electrical are not actually affected by the water mist.

(5) MSC/Circ. 913 Annex 3.13

The operation controls should be located at a safe position from the local fire. Means for the indication of the local fire position are recommended at the control position outside the space. The controls inside the space should be located nearby the positions isolating the fuel oil supply required by regulation II-2/4.2.2.5.5 of SOLAS as amended in 2000.

(6) MSC/Circ. 913 Annex 3.19

Nozzles and piping should not prevent routine maintenance of engine and machinery and therefore, in principle, be located outside of the ceiling crane operation area. For this purpose or other, the nozzles can be installed with their directions not vertically downward. In this case, tests which verify the fire-extinguishing capabilities equivalent to that specified in MSC/Circ. 913 in the conditions of actual direction of nozzles should be conducted in addition to the approval test in accordance with MSC/Circ. 913.

6. Other NK provisional interpretations

(1) II-2/4.2.2.3.4

The wording “separate location” does not mean separate spaces.

(2) II-2/4.2.4

The second sentence of the regulation is not applicable to hydraulic valves and cylinders located on weather decks, in tanks, cofferdams or void spaces.

(3) II-2/9.4.1.1.2

Watertight doors constructed in accordance with SOLAS as amended in 2000 (regulation II-2/15) and fitted below the bulkhead deck that are required to be watertight need not be tested to the Fire Test Procedures Code provided that the doors meet requirements for water tightness in regulation II-1/18.

(4) II-2/10.4.3

The requirements in aft part of first sentence, 3rd sentence, 4th sentence and 5th sentence in the regulation are applicable only to the storage rooms for fire-extinguishing media of fixed gas fire-extinguishing systems.

* * * * *

Attachment (2) to

ClassNK Technical Information No.0453

HELLENIC REPUBLIC
MINISTRY OF MERCHANTILE MARINE
PLAN APPROVAL DEPT
FIRE SAFETY SECTION
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Piraeus 21-02-02
Ref. No. 4231/21/2002
TO: As per relevant list :

SUBJECT: Emergency Escape Breathing Devices (E.E.B.D)

REF. Circular ΚΕΕΠ/ΔΜΚ No. 4231/102/2001/30-10-2001

Further to the above relevant circular please find attached here below tables regarding No and location of emergency escape breathing devices required on board vessels performing international voyages according to SOLAS until the first scheduled survey after 1/7/2002 according to modified chapter II-2 of SOLAS [IMO resolution MSC 99(73)]:

1. Existing Ships (constructed before 1/7/2002)

Passenger Vessels	Number	Location
Accommodation and service spaces	< 36 pass. : 2 (two) for each main vertical zone > 36 pass. : 4 (four) for each main vertical zone	In clearly visible locations near emergency exits
Machinery spaces (Cat. A and other engine spaces where crew work)	1 for each emergency exit 1 for each control space 1 for each workshop Totally not less than the number of crew normally on duty in these spaces	In clearly visible locations near emergency exits from machinery spaces, control spaces and workshops (if available)
Spare devices	-	-
Indication of devices on Fire Plan	Only machinery space devices are indicated	

Non passenger Vessels	Number	Location
Accommodation and service spaces	2 (two)	In clearly visible locations near emergency exits
Machinery spaces (Cat. A and other engine spaces where crew work)	1 for each emergency exit 1 for each control space 1 for each workshop Totally not less than the no of crew normally on duty in these spaces	In clearly visible locations near emergency exits from machinery spaces, control spaces and workshops (if available)
Spare devices	-	-
Indication of devices on Fire Plan	Only machinery space devices are indicated	

2. New Ships (constructed on or after 1/7/2002)

Passenger Vessels	Number	Location
Accommodation and service spaces	< 36 pass. : 2 (two) for each main vertical zone > 36 pass. : 4 (four) for each main vertical zone	In clearly visible locations near emergency exits
Machinery spaces (Cat. A and other engine spaces where crew work)	1 for each emergency exit 1 for each control space 1 for each workshop Totally not less than the no of crew normally on duty in these spaces	In clearly visible locations near emergency exits from machinery spaces, control spaces and workshops (if available)
Spare devices	2 (two) for accommodation and service areas	In a safe, accessible area (bridge, fire stations, control stations)
Indication of devices on Fire Plan	Only machinery space devices are indicated	

Non passenger Vessels	Number	Location
Accommodation and service spaces	2 (two)	In clearly visible locations near emergency exits
Machinery spaces (Cat. A and other engine spaces where crew work)	1 for each emergency exit 1 for each control space 1 for each workshop Totally not less than the no of crew normally on duty in these spaces	In clearly visible locations near emergency exits from machinery spaces, control spaces and workshops (if available)
Spare devices	1 (one) for accommodation and service areas	In a safe, accessible area (bridge, fire stations, control stations)
Indication of devices on Fire Plan	Only machinery space devices are indicated	

The Branch Manager
Commodore (GC) Yomelakis N





Government of the Isle of Man.
Department of Trade and Industry

Notice to Surveyors, Shipowners, Managers and Classification Societies

Emergency Escape Breathing Devices (EEBD)s

Recent amendments to SOLAS Chapter II-2 will require ships to carry "Emergency Escape Breathing Apparatus" (EEBDs). The new requirements come into force from 1st July 2002. The wording of the amendments is ambiguous in places and this circular sets out the requirements of the Isle of Man Marine Administration for Isle of Man ships.

Cargo Ships (including all tanker types) - Accommodation Spaces

Existing Cargo Ships (Constructed before 1st July 2002)

Existing cargo ships are required to comply with the requirements for EEBDs not later than the first safety survey, whether periodical, annual or renewal after 1st July 2002.

Existing cargo ships are not required to comply with Regulation 13.3.4.1 which requires spare EEBDs to be carried.

New Cargo Ships (Constructed after 1st July 2002)

New cargo ships, are required to comply with Regulation 13.3.4.1 and 13.3.4.2 which require at least two EEBDs to be carried in the accommodation spaces. Spare EEBDs are required. The Isle of Man Marine Administration requires 50% spares to be carried up to a maximum of four. It is strongly recommended that the spare EEBDs be carried ready for use, but be marked as spare.

Machinery Spaces - All Ships

The Isle of Man Marine Administration recommends the following:

New Cargo Ships

The minimum number of EEBDs in each separate machinery space shall be two, with a maximum of four with 50% spare. Spare EEBDs should be carried ready for use, but be marked as spare.

Existing Cargo Ships

Existing ships should carry the same number of EEBDs as new cargo ships, but are not required to carry spare EEBDs for use in the machinery spaces.

Passenger Ships

Crew Accommodation spaces

In crew accommodation spaces, at least two EEBDs are to be carried as per the requirements for new and existing cargo ships as applicable.

Passenger Spaces

In all passenger ships, at least two EEBDs are to be carried in each main vertical zone.

In all passenger ships carrying more than 36 passengers, two EEBDs shall be carried in addition to the those required in the previous paragraph, in each vertical zone, making a total of four.

Machinery Spaces

The requirements for the carriage of EEBDs is the same as for cargo ships.

Spare EEBDs

Spare EEBDs should be carried ready for use, but marked as spare, and should be serviced when the other EEBDs are serviced.

Approval of EEBDs

EEBDs shall comply with the Fire Safety Systems Code (FSS Code).

Only SOLAS approved EEBDs will be acceptable for use on Isle of Man registered ships.

ELSA sets commonly carried on ships, in particular chemical tankers and gas carriers, may be acceptable as meeting the requirements for EEBDs in Isle of Man ships provided that they comply with the requirements of the IGC Code or IBC Code as applicable. The ELSA sets to be carried under EEBD requirements are in addition to the IGC and IBC ELSA sets.

Storage of EEBDs

Accommodation Spaces

EEBDs for use in the accommodation spaces of ships required to carry them, should be stored in the same compartment as the Fireman's outfits, ready for use so that they may be carried by the Fire Party to be given to persons who may be trapped in a smoke filled atmosphere, or who may have to be escorted through a smoke filled atmosphere to safety.

Machinery Spaces

EEBDs shall be situated ready for use at easily visible places, which can be reached quickly and easily at any time in the event of fire. The location of EEBDs shall take into account the layout of the machinery spaces and the number of persons normally working in the spaces.

The number and positioning of EEBDs in the machinery spaces is to be decided by each Company taking into account the above requirements.

Fire Control Plans

The number and locations of EEBDs shall be indicated in the Fire Control Plan required in SOLAS Ch. II-2 Regulation 15.2.4



REPUBLIC



OF CYPRUS

**MINISTRY OF COMMUNICATIONS AND WORKS
DEPARTMENT OF MERCHANT SHIPPING
LEMESOS**

Circular No: 7/2002

TEN 1/5
TEN 32/4/7/1

5 March 2002

All Recognized and Authorized Classification Societies
All Owners, Manager
And Representation of ships
Under The Cyprus Flag

Subject: Emergency Escape Breathing Devices (EEBD)

I wish to refer to the above subject and to inform you that the Requirements of the Regulations II-2 13.3.4 and 13.4.3 of the SOLAS AMENDMENTS 2000 in respect to the fitting of EEBD will apply to Cyprus ships.

In addition, the following requirements for the number of EEBD will be henceforth applicable:

(1) Irrespective of type of ship in machinery spaces

The number of EEBD to be fitted in the machinery spaces will be equal to the number of crew stipulated in the Document of Safe Manning for the Engine Department, which is in force but the maximum number will not exceed eight (8) devices.

(2) Spare EEBD

Irrespective of number of EEBD in place, two (2) additional devices shall be kept on board as spare.

J. Karitzis
For Director
Department of Merchant Shipping

cc: Permanent Secretary, Ministry of Communications and Works
Permanent Secretary, Ministry of Foreign Affairs
Maritime Offices of the Department of Merchant Shipping abroad
Diplomatic and Consular Missions of the Republic
Honorary Consular Officers of the Republic
Cyprus Shipping Council
Union of Cypriot Shipowners
Cyprus Bar Association

THE/OE

MARITIME AND PORT AUTHORITY OF SINGAPORE

MARINE CIRCULAR TO SHIPOWNERS
NO. 4 OF 2002

Date: 25/2/02

EMERGENCY ESCAPE BREATHING DEVICES (EEBDs)

Applicable to: This circular should be brought to the attention to all ship owners and managers, shipmasters, ship's officers and crew and all parties concerned.

At the 73rd session of the Maritime Safety Committee in December 2000, amendments to SOLAS 74 were adopted. The amendments included a revised SOLAS Chapter II-2(Construction – Fire protection, fire detection and fire extinction). The amendments will enter into force on 1 July 2002.

2 A new requirement is the carriage of Emergency Escape Breathing Devices (EEBDs) on board all ships. The regulations for EEBDs apply to ships constructed on or after 1 July 2002. Ships constructed before 1 July 2002 are to comply with the regulations not later than the date of the first survey after 1 July 2002.

3 The new regulations do not specify the number of EEBDs to be carried in machinery spaces of ships nor their location. Hence the Annex to this circular serves to clarify the requirements and recommendations for Singapore-flag ships.

4 MSC/Circ.849 "Guidelines for the performance, location, use and care of EEBDs", dated 8 June 1998, is attached for further information.

5 Any enquiries relating to this circular should be directed to Mr Ong Hua Siong at tel: 63756210, or email: Hua_Siong_ONG@mpa.gov.sg

LEE SENG KONG
DIRECTOR OF MARINE
MARITIME AND PORT AUTHORITY OF SINGAPORE

**EMERGENCY ESCAPE BREATHING DEVICE (EEBD)
REQUIREMENTS AND RECOMMENDATIONS
FOR SINGAPORE-FLAG SHIPS
(Chapter II-2 of SOLAS 1974, as amended)**

1. Placement and Number of EEBDs

1.1 All ships shall carry at least two emergency escape breathing devices within accommodation spaces. In passenger ships, at least two emergency escape breathing devices shall be carried in each main vertical zone. In passenger ships carrying more than 36 passengers, two additional emergency escape breathing devices, shall be carried in each main vertical zone (Reg 3.4).

1.2 The following factors should be taken into account when considering placement and number of EEBDs in machinery spaces:

- a. the activities or operations in the various spaces, the normal number of people in them and the amount of time they spend there, including unmanned spaces that are frequently visited, eg stores. Therefore in addition to the number of persons on watch in machinery spaces (usually at least two), the number of persons normally working in the spaces should be taken into account;
- b. the risk of fire hazard in the space and potential for fire development and smoke generation;
- c. the distance of the escape routes or ease of access to an emergency exit or shelter [fresh open air] from the hazardous atmosphere, taking note that the EEBD could have a service duration of only about 10 minutes, and vertical routes may shorten the service duration further;
- d. the criteria of "easily visible places" and "be reached quickly and easily at any time" mentioned in Reg. 13.4.3;
- e. the protection of the stowed EEBD, eg from extreme heat, etc;
- f. the machinery spaces layout, particular attention being paid to any hard-to-exit spaces;
- g. the number of engine room personnel in the engine room work space at any one time and the practical working requirements of the particular vessel. Each and every workshop might not need to have an EEBD; and
- h. any unique configuration or situation of a ship or engine room.

1.3 Since engine room layouts differ from ship to ship, each specific ship proposal should be based on common/practical sense, bearing in mind the purpose of EEBDs, and shall be to the satisfaction of the attending surveyor, taking into consideration the guiding criteria mentioned above. This is comparable to the placement of portable fire extinguishers, which, although the regulations also do not state the required quantities and their location, have always been based on practical considerations, eg. they have to be prominently and strategically placed, easily reached, fire hazard, etc.

1.4 Although the new regulations require a minimum of two EEBDs in the accommodation spaces, placement of additional EEBDs in work spaces [control stations, service spaces] within accommodation spaces should be considered where there are a number of crew spending a considerable amount of time in them.

2. Size and type of ships

The number of EEBDs to be placed on board is not dependent on the size or type of ship.

3. Fire Control Plan



The location and the number of EEBDs shall be indicated in the fire control plan [Reg 13.4.3.2]. The relevant drawing should be endorsed by the attending surveyor after confirming the provision of EEBDs are in accordance with the regulations. The symbol for EEBD (see left) from the International Standard ISO 17631 *Ships and marine technology – Shipboard plans for fire protection, life-saving appliances, and means of escape* may be used, as IMO

Assembly resolution A.654(16) *Graphical Symbols for Fire Control Plans* is currently being revised.

4. UMS and manned engine rooms

The number of engine room personnel performing activities in the engine room at any one time and their access to EEBDs should be the prime considerations, whether the engine room is UMS or manned.

5. Approval of EEBD

Type-approval certificates issued by any of our recognized organizations are acceptable.

6. Spares

6.1 Regulation 13.3.4.1 requires the provision of spare EEBDs. We would consider the provision of a minimum of **two** fully functional spares – one for accommodation spaces and another for engine room as sufficient to meet this requirement.

6.2 The spare for accommodation spaces need not be kept in the “accommodation spaces” as defined in SOLAS, but may be kept in the navigation bridge, fire control station or cargo operations control room.

6.3 EEBDs placed in machinery spaces and accommodation spaces would be considered as operational EEBDs, and cannot be considered as inclusive of spares; and would have been clearly marked as such in the fire control plan. Spare EEBDs would be those kept in store with other LSA or FFA spares, ready to be used as replacement for any operational EEBD which has become unusable. This simplifies the arrangement and will not create confusion.

7. Maintenance and training

7.1 The new regulations contain additional requirements of a maintenance plan and crew training in the use of EEBDs (Regs. 14 and 15).

7.2 On-board safety management manuals under the ISM Code should be modified to reflect these changes.

7.3 Means to identify unauthorized tampering of the devices should be incorporated.

7.4 All training EEBDs should be clearly marked, for example, using special labels or colour. They should be stowed away from operational EEBDs, eg. in the training officer's locker. This is to avoid mistakenly using a training unit during an emergency when darkness or smoke may make seeing the labels or colour difficult. The training units allow personnel to remain proficient in the use of the EEBD without expending an actual EEBD unit. Personnel should receive adequate training prior to use, including the limitations to which the equipment is subject.

7.5 Training EEBDs would include special trainer sets or dummies (non-functional copies), with accompanying spare parts, so that they can be reused.

7.6 Operational EEBDs are "one-time use throw away" devices, and condemned/unusable EEBDs should be promptly and properly disposed of, eg. fully release all air or oxygen; no "recycling" of such EEBDs for training purposes should be attempted.

7.7 The ship's weekly safety appliances and equipment inspection/testing routine should be modified to incorporate training and inspection of EEBDs.

8. Service Life

According to some manufacturers, EEBDs may have a service life of up to 15 years. In any case, EEBDs which have exceeded their service life as indicated by the manufacturer should be discarded. We do not require periodic hydrostatic testing for EEBD cylinders.

9. Conclusion

Although EEBDs are new to SOLAS, the clarifications and recommendations in this annex should enable shipowners to place the optimum number and locate them in the best possible way.



Subject: Emergency Escape Breathing Devices (EEBD)	Regulation: SOLAS 1974 as amended Chapter II-2 Regulations 13.3.4, 13.4.3
Number: 10 Effective Date: 11 th February 2002	Revision: New

General

1. Classification Societies should be guided by the provisions of IMO MSC Circulars 849 and 850.
2. Emergency escape breathing devices (EEBD) shall comply with the Fire Safety System Code; and the number and location of all EEBDs shall be indicated in the fire control plan.
3. This guidance note will be reviewed, if necessary, in the light of experience gained in the application of these Regulations to all the affected spaces.

Carriage requirements

4. In the accommodation spaces, the carriage requirement for EEBD shall be as follows:
 - .1 Cargo ships: Not less than two;
 - .2 Passenger ships: Not less than two in each main vertical zone;
 - .3 Passenger ships carrying more than 36 passengers: In addition to the number specified in 4.2 above, not less than 2 in each main vertical zone.
5. The Convention does not specify the number of EEBDs to be provided in the machinery spaces. Subject to a risk assessment of the threat, the Owner and Classification Society shall agree the number of EEBDs to be provided in the machinery spaces. In the event that the Owner and Class Society cannot reach agreement on this number, this Authority will act as the final arbiter. The risk assessment should take into account the size and layout of the spaces, number of persons normally present, length of the escape routes, the guidance in paragraph 4.6 of the Annex to MSC/Circ. 849 and any other relevant factors.
6. All ships shall carry spare EEBDs that shall be located in a control station. The number of spares carried on board shall be as follows:
 - .1 Cargo ships: 50 % of the total number carried;
 - .2 Passenger ships: 100 % of the total number carried in one main vertical fire zone but not less than two.

Inspections and testing

7. Maintenance shall be in accordance with the manufacturer's instruction and inspection, by a competent person¹, shall be undertaken annually.
8. Hydrostatic testing of the cylinder shall be undertaken at least once every five years or in accordance with the manufacturer's instruction if such testing is required on a more frequent basis. The test pressure and test date shall be clearly and permanently marked on the cylinder.

¹ The Master, Chief Mate, Chief Engineer or Second Engineer and similarly qualified and experienced persons are accepted by the Bahamas Maritime Authority as being competent to carry out these inspections.

Records

9. Records of inspection, maintenance and testing shall be maintained onboard and readily available for inspection. The records should include the test certificates and the inspection status of each cylinder, which shall be clearly identified.

Surveys

10. During the annual survey of the safety equipment, Classification Societies are to verify that:
 - .1 the manufacturer's instructions for EEBD are provided and available onboard,
 - .2 the EEBDs have been inspected and maintained in accordance with the manufacturer's instructions and the foregoing,
 - .3 records of maintenance are being maintained in accordance with 9 above,
 - .4 spares are provided in accordance with 6 above.
11. The Classification Society should notify the Bahamas Maritime Authority, with relevant recommendations, when a Bahamian ship does not satisfy the requirements for the periodical inspections and testing, and carriage of spares, prior to the issuance of a Cargo Ship Safety Equipment Certificate, Passenger Ship Safety Certificate or any other statutory certificate that relates to safety equipment (i.e. MODU certificates).





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Technical Letter 2002-01(Rev.01)
March 15, 2002

Subject: Emergency Escape Breathing Devices (EEBDs)

This technical letter is issued in order to clarify the Liberian Administration's interpretation of the SOLAS requirements regarding emergency escape breathing devices.

SOLAS II-2 Reg. 13.4.3 states that "On all ships, within the machinery spaces, emergency escape breathing devices shall be situated ready for use at easily visible places, which can be reached quickly and easily at any time in the event of fire. The location of emergency escape breathing devices shall take into account the layout of the machinery space and the number of persons normally working in the spaces".

SOLAS II-2 Reg. 13.3.4.2 states that for accommodation spaces on Cargo Ships "All ships shall carry at least two emergency escape breathing devices within the accommodation spaces."

In accordance with the abovementioned SOLAS regulations, the Liberian requirements for the number of EEBDs required on board a Liberian registered ship are as follows:

1. EEBDs for machinery spaces on all Ships

On Liberian flag ships, a minimum of four EEBDs will be required to be placed in the machinery spaces. Two EEBDs should be located in the control room and one located by each escape ladder. For vessel 's without control rooms a minimum of two EEBD shall be required subject to a review by the vessel's classification society of the layout, size and number of persons normally working in the engine room. The location of the EEBDs should be clearly marked, they should be easily accessible, and installed in locations where they will be protected form extreme heat and incidental damage. However, after reviewing the vessel's layout, the activities typically carried out in the machinery spaces, and evaluating the number of persons normally working in the machinery spaces, the vessel's classification society may require additional EEBDs in the machinery spaces to meet the intent of SOLAS II-2 Reg. 13.4.3. MSC Circular 849 (copy attached) provides guidelines regarding the performance, location, use, and care of EEBDs. The principles of MSC Circ.849 should be followed when determining if additional EEBDs are needed for Liberian flag ships. If the class society requires additional EEBDs the class society should notify the Administration with the reasons for this requirement.

For the purposes of this regulation, this Administration defines persons normally employed in the machinery spaces as all watchstanders on watch in the machinery spaces, all persons whose normal duty station is a control room or persons who are routinely employed in a workshop located in the machinery spaces and for unmanned engine rooms, any roving watch that routinely enters the

machinery spaces to monitor the condition of the space and its equipment and persons who may routinely performed activities in the engineroom.

2. EEBDs for accommodation spaces on Cargo Ships

Liberian flag ships will be required to carry at least two EEBDs in the accommodation spaces. If the ship has a split house, then the minimum EEBD requirement for the accommodation spaces will be increased to 4 (two per house). After reviewing the vessel's layout and operations, the vessel's classification society may require additional EEBDs in the accommodation spaces in order to meet the intent of the regulations. If the class society requires additional EEBDs, the class society should notify the Administration with the reasons for this requirement.

The EEBD storage location should be clearly marked and they should be easily accessible. The EEBDs for the accommodation spaces should not be stored in the emergency gear locker.

3. EEBDs for accommodation spaces on Passenger Ships

Passenger ships shall comply with the requirements of SOLAS II-2 Reg. 13.3.4.3, 13.3.4.4 and 13.3.4.5 regarding the number of EEBDs to be carried in each main vertical zone. At least two EEBDs shall be carried in each main vertical zone. In passenger ships carrying more than 36 passengers, two additional EEBDs shall be carried in each main vertical zone. The EEBD storage location should be clearly marked and they should be easily accessible. The EEBDs for the accommodation spaces should not be stored in the emergency gear locker.

4. EEBDs for Chemical Ships

In addition to the requirements stated above, ships carrying certain chemical cargoes under the provisions of the IBC Code may have to provide additional EEBDs in accordance with the requirements of IBC Code Chapter 14, Regulation 14.2.8.

5. EEBDs for pump rooms and similar spaces

Taking into account the number of persons who may enter the pump room during normal operations, EEBDs should be made available for individual carriage for the maximum number of persons who may enter the pump room during such operations. These EEBDs are in addition to ones installed in the engineroom and the accommodation spaces. Ships may opt to install EEBDs in the pump room in lieu of providing additional EEBDs for individual carriage. If this option is chosen a minimum of two EEBDs should be installed in the pump room.

6. Training Devices

At least one EEBD training devices shall be provided for training purposes. This devices will be in addition to EEBDs required for the machinery and accommodation spaces. The training device should be clearly marked so that they cannot be confused with operational EEBDs. The training device should not be stowed in the same location as the operational EEBDs. The ship's periodic safety drills should be modified to include training on the proper use of EEBDs. The ship training and safety management manuals should be modified to include the training requirements for EEBDs

7. Spares

Ships with ten or less EEBDs on board shall carry at least one spare devices. Ships with 11 to 20 EEBDs on board shall carry at least two spare devices. Ships with more than 20 EEBDs on board shall carry spares equal to at least 10% of the total EEBDs but no more than 4 spares will be required.

8. Maintenance

Servicing and maintenance of EEBDs should be in accordance with the manufacturer's instructions. The ships periodic safety appliance and equipment inspection and testing procedures should be modified to incorporate the inspection of EEBDs. EEBDs, which have exceeded their service life as indicated by the manufacturer, should be discarded. Any unusable or damaged EEBDs should be promptly disposed of in accordance with manufacturers instructions. Liberia does not require periodic hydrostatic testing for EEBD cylinders.

9. Fire Control Plans

The location and the numbers of EEBDs shall be indicated in the ship's fire control plan. Revisions to the fire control plan should be endorsed by the attending class society surveyor after confirming the installation of the EEBDs

10. Approval of EEBDs

EEBDs approved by or acceptable to the vessel's classification society are acceptable for use on the ship. This includes EEBDs that may have been approved by an authority authorized by another flag state if the vessel's classification society deems them acceptable.

11. Riding Crews

It is recommended that riding crews, whose functions or activities will require them to be normally employed in the machinery spaces, be required to bring EEBDs with them for individual carriage during their stay on the vessel.

The above requirements become effective for Liberian flag vessels on 1 July 2002. Please contact us if you have any questions regarding this matter.

Anthony Dupree, Jr.

Anthony Dupree, Jr.
Vice President, Technical and Communications - LISCR
for the Deputy Commissioner of Maritime Affairs
Republic of Liberia

Attachment: (1) MSC. Circular 849



Office of the
Maritime Administrator

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From: D.L. Crede

To: Distribution

Subj: Administration Guidance on the Upcoming SOLAS Chapter II-2 Regulation 13.3.4.2 and 13.4.3.1 EEBD Requirements

Date: 27 February 2002

1. Regulation II-2/13.3.4.2 specifies that a minimum of two EEBDs are required in the accommodations. There is no other guidance on the number of accommodation space EEBDs for cargo ships. We envision that most cargo vessels will be equipped with two EEBDs in the accommodations.
2. Unfortunately, Regulation II-2/13.4.3.1 does not similarly specify a minimum number of EEBDs for the machinery spaces. In applying this regulation, we consider the term machinery spaces to mean Category A Machinery Spaces. The regulation specifies that the number of EEBDs required in the machinery spaces should take into account the layout of the machinery space and the number of persons normally working in the machinery spaces. This is extremely subjective and it will require an analysis of each ship or vessel class. As an Administration, we have found that it is not feasible to develop a simplistic interpretation to determine the required number of machinery space EEBDs. However, we have established that, as a minimum, there should be two EEBDs on each level of the machinery space. This should be considered as a baseline or starting point when evaluating each specific arrangement to determine the acceptable locations and required number of machinery space EEBDs.
3. We feel that the guidance contained in MSC/Circ.849 is mandatory since this circular is directly referenced in both SOLAS II-2/13.3.4 and II-2/13.4.3. In this regard, for compliance with the last sentence of Paragraph 4.6 in MSC/Circ.849, only those control spaces and workshops that are remotely located from the machinery space escape routes need be considered.
4. This Administration policy regarding the number of machinery space EEBDs is also contained in Paragraph 7.0 of Marine Notice No. 2-011-5, Rev. 1/02, Lifesaving Equipment. We are referring our vessel owners with questions regarding the number of machinery space EEBDs to this paragraph.