
Firefighting Equipment

Notice to ship owners, managers, Masters, Approved Nautical Inspectors, Recognised Organisations and surveyors

This Notice supersedes BMA Information Bulletin No.97

1. Purpose

- 1.1. This Marine Notice provides instructions for the inspection, maintenance, testing and survey requirements for firefighting installations and portable fire extinguishers, and is intended to supplement Regulations 7.3 and 14.2.1.2 of Chapter II-2 of the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS Chapter II-2), and manufacturer's maintenance instructions.
- 1.2. This Notice should be read in conjunction with:
 - i. International Maritime Organization (IMO) Assembly Resolutions [A.655\(16\) Use of Halons as Fire Extinguishing Media on Board Ships](#), [A.719\(17\) Prevention of Air Pollution from Ships](#) and [A.951\(23\) Improved Guidelines for Marine Portable Fire Extinguishers](#);
 - ii. IMO Maritime Safety Committee (MSC) Circulars MSC/Circ.600 *Annual Leakage Check of Halon Fire Extinguishing Systems*, MSC/Circ.775 *Ships with Reduced Halon Quantities*, [MSC.1/Circ.1275 Unified Interpretation of SOLAS Chapter II-2 on the Number and Arrangement of Portable Fire Extinguishers on board Ships](#), as amended
 - iii. [MSC.1/Circ.1318/Rev.1 Revised Guidelines for the Maintenance and Inspections of Fixed Carbon Dioxide Fire Extinguishing Systems](#)
 - iv. and [MSC.1/Circ.1432 Revised Guidelines for the Maintenance and Inspection of Fire Protection Systems and Appliances](#) as amended by [MSC.1/Circ.1516](#).
 - v. IMO Sub-Committee on Ship Systems and Equipment (SSE) Circular [SSE.1/Circ.2/Rev.2 Halon Banking and Reception Facilities](#).

2. Application

- 2.1. This Notice applies to all Bahamian ships, except pleasure craft.

3. Background

- 3.1. IMO MSC Circular MSC.1/Circ.1432, as amended by MSC.1/Circ.1516, provides a minimum recommended level of maintenance and inspections for fire protection systems and appliances.
- 3.2. The Bahamas Maritime Authority (BMA) recommends compliance with MSC.1/Circ.1432, as amended, and encourages all Companies¹ operating Bahamian ships to review the circular and implement changes to their safety management system and procedures where necessary.

4. Inspection, maintenance, testing and survey requirements.

- 4.1. Notwithstanding the requirements of this Notice and the IMO Resolutions and Circulars referred to herein, all inspection, maintenance, testing and survey shall take the relevant manufacturer's guidelines into account.
- 4.2. Certain maintenance procedures and inspections may be performed by competent crewmembers, whilst others should be performed only by persons specially trained in the maintenance of such systems. Any aspect of the testing and maintenance of the system which is assessed by the Company to be beyond the competence of the Company's and ship's personnel shall be carried out by a competent specialist maintenance firm. Further guidance on "competent persons" is provided in [BMA Marine Notice 89](#)².
- 4.3. The Company shall ensure that the inspection and maintenance of the whole system meets the requirements of the Recognised Organisation and any recommendations of the installation manufacturer or supplier.
- 4.4. The requirements for portable fire extinguishers are contained within IMO Resolution [A.951\(23\)](#), and section 9 of this Notice.
- 4.5. The requirements for fixed CO₂ fire extinguishing systems are contained within [MSC.1/Circ.-1318/Rev.1](#), and section 6 of this Notice.
- 4.6. The requirements for the following fire safety systems are contained within [MSC.1/Circ.1432](#), as amended.
 - Fixed fire detection & alarm systems
 - Fixed gas fire extinguishing systems (*except fixed CO₂ systems*)

¹ The "Company" is the entity responsible for the management of the ship in accordance with the ISM Code. For ships which the ISM Code is not applicable, the Company is the Managing Owner in accordance with Section 52 of the Bahamas Merchant Shipping Act.

² <https://www.bahamasmaritime.com/wp-content/uploads/2021/03/MN089-Competent-Persons-v1.0-ID-116229.pdf>

- Fire doors
- Public address & general alarm systems
- Breathing apparatus, 5 year hydrostatic test on bottles.
- Low location lighting
- Water mist, water spray & sprinkler systems
- Fire mains, fire pumps, hydrants, hoses and nozzles
- Foam fire extinguishing systems
- Firefighters' outfits
- Fixed aerosol extinguishing systems
- Portable foam applicators
- Wheeled (mobile) fire extinguishers
- Ventilation systems & fire dampers
- Galley & deep fat cooking fire extinguishing systems
- Fixed dry chemical powder systems

5. Specific requirements for fire detection systems

- 5.1. The requirements for inspection and maintenance of fire detection systems are outlined in Regulation 7.3 of SOLAS Chapter II-2 and further expanded in IMO Circular [MSC.1/Circ.1432](#).

A sample of fire detectors and manual call points should be tested monthly, so that all devices have been tested at least once every 5 years.

- 5.2. The monthly testing schedule should be prepared such that alternative detectors are physically tested at every monthly test. Remaining detectors may be accepted as operational on the basis of visual examination and/or internal electronic self-test function, where provided.
- 5.3. For very large systems (1,000+ detectors), at least one detector should be physically tested in each large compartment, or one detector tested within several smaller compartments in the same locality within the same fire zone (e.g., multiple sleeping rooms on the same side of the ship located on the same deck and within the same fire zone). Whilst undertaking testing, all accessible detectors should be visually inspected for evidence of tampering, obstruction, etc.
- 5.4. At least one detector located along each cable line of the fire detection system and within each fire zone should be tested.
- 5.5. Testing of manual call-points should be conducted at the same time as the detector tests. Manual call-point monthly testing may be arranged such that each manual call-point is tested at least once every 5 years.

- 5.6. Where a fire detection system operating on an atmosphere sample extraction principal is installed the entire system should be physically tested every month. Where a ship fitted with such fire detection system undertakes laden voyages of longer than 1 month, the sample extraction fire detection system covering cargo compartments should be tested before loading cargo.

6. Specific requirements for Fixed CO₂ Systems

- 6.1. At least once in every 5 year period, control valves of fixed CO₂ systems are to be internally examined to ensure they can operate freely.
- 6.2. At least biennially (intervals of 2 years ± 3 months) in passenger ships or at each intermediate, periodical or renewal survey³ in cargo ships, the following maintenance should be carried out (to assist in carrying out the recommended maintenance, examples of service charts are set out in the appendix):
- i. all high-pressure cylinders and pilot cylinders should be weighed or have their contents verified by other reliable means to confirm that the available charge in each is above 90% of the nominal charge. Cylinders containing less than 90% of the nominal charge should be refilled. The liquid level of low pressure storage tanks should be checked to verify that the required amount of carbon dioxide to protect the largest hazard is available;
 - ii. the hydrostatic test date of all storage containers should be checked. High-pressure cylinders and pilot cylinders should be subjected to periodical tests at intervals not exceeding 10 years. At the 10-year inspection, at least 10% of the total number provided should be subjected to an internal inspection and hydrostatic test. If one or more cylinders fail, a total of 50% of the onboard cylinders should be tested. If further cylinders fail, all cylinders should be tested. Before the 20-year anniversary and every 10-year anniversary thereafter, all cylinders should be subjected to a hydrostatic test⁴. Flexible hoses should be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years. When cylinders are removed for testing, the cylinders should be replaced such that the quantity of fire-extinguishing medium continues to satisfy the requirements of 2.2.1 of chapter 5 of the Fire Safety Systems (FSS) Code, subject to SOLAS regulation II-2/14.2; and
 - iii. the discharge piping and nozzles should be tested to verify that they are not blocked. The test should be performed by isolating the discharge piping from the system and flowing dry air or nitrogen from test cylinders or suitable means through the piping.

³ Refer to [A.1156\(32\) Survey Guidelines under the Harmonized System of Survey and Certification \(HSSC\), 2021](#)

⁴ Refer to [standard ISO 18119:2018 – Gas cylinders – Seamless steel and seamless aluminium-alloy gas cylinders and tubes – Periodic inspection and testing.](#)

- 6.3. Following the adoption of MSC.1/Circ.1318/Rev.1, the BMA has been made aware of some ambiguity concerning the application of the revised hydrostatic testing requirements to existing ships of over 20 years of age.
- 6.4. The BMA interprets MSC.1/Circ.1318/Rev.1 as follows:
- i. at the 10 year anniversary of the initial hydrotest⁵, 10% of all CO₂ cylinders are to be hydrotested. If one or more cylinders fail, a total of 50% of the onboard cylinders should be tested. If further cylinders fail, all cylinders should be tested;
 - ii. prior to the 20 year anniversary of the initial hydrotest, all CO₂ cylinders are to be hydrotested, however cylinders tested satisfactorily at the 10 year anniversary need not be tested;
 - iii. at every 10 year anniversary thereafter, all CO₂ cylinders are to be hydrotested.
- 6.5. For ships aged between 20 and 30 years as of May 2021, all CO₂ cylinders should have been hydrotested at least once on the basis of the amended MSC.1/Circ.1318/Rev.1.
- 6.6. For example, for a hypothetical ship of 21 years of age in May 2021:
- 6.6.1. Assuming that 10% of all CO₂ cylinders were tested at the 10th anniversary and a further 10% at the 20th anniversary:
- i. after May 2021 the balance of CO₂ cylinders (80% of all CO₂ cylinders on board) is due for hydrotesting. If not already done, the exact testing schedule and any extension shall be agreed with the BMA;
 - ii. the next hydrotest of all CO₂ cylinders should then be completed after 10 years from the date of the latest hydrotest;
- 6.7. For any ship of over 30 years of age in May 2021, any CO₂ cylinders with the last hydrotest date of more than 10 years ago should be hydrotested at the earliest opportunity.
- 6.8. The Company may request an extension from the BMA to allow all hydrotests to be completed at the same time. Applications for extension should be submitted to the BMA by the Recognised Organisation in accordance with Marine Notice 08 and include:
- The reason for not completing the hydrotest at 20 years;
 - The proposed testing schedule, which should ensure that all cylinders are hydrotested at the earliest opportunity, taking into account the ship's operations;
 - Most recent service reports for the untested cylinders, including content check (by weighing or ultrasonic level detection);

⁵ The "anniversary date" is taken as the time lapsed from the moment of the initial, or any subsequent, hydrotest of a CO₂ cylinder, not the ship's age nor Safety Certificate renewal cycle.

- A statement from the Master or Chief Engineer Officer attesting to the condition of the untested CO₂ cylinders.
- 6.9. The above provisions apply equally to ships using a low-pressure high volume refrigerated vessel for liquified CO₂ storage.
- 6.10. At least biennially (intervals of 2 years ± 3 months) in passenger ships or at each renewal survey in cargo ships, the following maintenance should be carried out by service technicians/ specialists:
- i. where possible, all activating heads should be removed from the cylinder valves and tested for correct functioning by applying full working pressure through the pilot lines. In cases where this is not possible, pilot lines should be disconnected from the cylinder valves and blanked off or connected together and tested with full working pressure from the release station and checked for leakage. In both cases this should be carried out from one or more release stations when installed. If manual pull cables operate the remote release controls, they should be checked to verify the cables and corner pulleys are in good condition and freely move and do not require an excessive amount of travel to activate the system;
 - ii. all cable components should be cleaned and adjusted as necessary, and the cable connectors should be properly tightened. If the remote release controls are operated by pneumatic pressure, the tubing should be checked for leakage, and the proper charge of the remote releasing station pilot gas cylinders should be verified. All controls and warning devices should function normally, and the time delay, if fitted should prevent the discharge of gas for the required time period; and
 - iii. after completion of the work, the system should be returned to service. All releasing controls should be verified in the proper position and connected to the correct control valves. All pressure switch interlocks should be reset and returned to service. All stop valves should be in the closed position.

7. Specific requirements for Halon gas systems

7.1. *New installations*

- 7.1.1. In accordance with Regulation 10.4.1.3 of SOLAS Chapter II-2, fire extinguishing systems using Halon 1211, Halon 1301, Halon 2402 and perfluorocarbons are prohibited on all new buildings and on new installations on existing vessels.

7.2. ***Discharge or loss of pressure of existing Halon gas cylinders***

- 7.2.1. In the event of the discharge or loss of pressure of Halon gas cylinder(s) in an existing installation, the BMA will accept the replenishment of the discharged cylinder(s), if they remain in satisfactory condition.
- 7.2.2. The safety of the vessel and its crew remains paramount and if Halon gas is not readily available, the Company will be required to ensure that the affected space has adequate temporary firefighting capability prior to departure from port.
- 7.2.3. The adequacy of any temporary arrangements and procedures shall be assessed by the Recognised Organisation prior to application for acceptance by the BMA.
- 7.2.4. Application for acceptance of any temporary arrangements shall be made to the BMA by the Recognised Organisation, in accordance with BMA Information Bulletin No.8, and shall include the items specified in MSC/Circ.775.

7.3. ***Phase out of Halon gas***

- 7.3.1. There is currently no internationally agreed date for the phasing out of Halon gas in existing installations, however there may be local or regional regulations that impose restrictions on the use and/or phase out of Halon. The BMA recommends that Companies operating affected Bahamian ships make themselves aware of any restrictions that may be applied by the country or region in which the ship is trading.
- 7.3.2. Companies operating ships with existing Halon systems should note that the worldwide stock of Halon is diminishing, and it is strongly recommended that a plan is implemented for the replacement the Halon system on board. See IMO Circular SSE.1/Circ.2/Rev.2 for details of the available facilities.
- 7.3.3. It should be further noted that where Halon replenishment is not permitted by the country or region in which the ship is operating, the ship may be detained and/or prohibited from leaving port until a new fixed firefighting system is installed.
- 7.3.4. Details of any proposed replacement of a system containing Halon must be forwarded to the BMA for review by the Recognised Organisation.

8. Alternative fixed gas firefighting media

- 8.1. Alternative firefighting systems referred to in SOLAS Chapter II-2 and the IGC Code⁶ for protection of machinery and accommodation spaces, pump rooms and cargo spaces may be fitted on board ships, subject to the approval, including any attached conditions,

⁶ The International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk

of a Bahamas Recognised Organisation or SOLAS contracting Government. The BMA shall receive prior notification of intention to fit an alternative system which has not been previously accepted by the BMA.

- 8.2. The BMA accepts the use of (non-asphyxiating) fire extinguishing agents in machinery spaces for which no specific provisions for fire-extinguishing appliances are prescribed under the provisions of SOLAS Chapter II-2, such as "**Novtec 1230**" and "**FM 200**" (HFC-227ea). Acceptance of such agents is subject to conditions, agreed on a case-by-case basis, appropriate to the space in question and provided that the space is not connected to an accommodation space.

9. Number of portable fire extinguishers and spare charges

- 9.1. The number of portable fire extinguishers on board should be determined as follows:
- 9.1.1. **Ships built prior to 01 January 2009** - the number of portable fire extinguishers provided is to satisfy the requirements of the relevant Classification Society. In accommodation spaces, service spaces and control stations on ships of 1,000 gross tonnage and upwards, no less than five (5) portable fire extinguishers are to be provided. Companies are encouraged to apply the provisions of [MSC.1/Circ.1275](#) where practicable.
- 9.1.2. **Ships built on or after 01 January 2009** - the number of portable fire extinguishers to be provided should be determined in accordance with [MSC.1/Circ.1275](#). In accommodation spaces, service spaces and control stations on ships of 1,000 gross tonnage and upwards, no less than five (5) portable fire extinguishers are to be provided.
- 9.2. The minimum number of spare charges carried on board for portable & semi-portable extinguishers shall be in accordance with SOLAS Chapter II-2, namely:
- i. 100% for the first ten (10) extinguishers; and
 - ii. 50% for the remaining extinguishers up to a maximum of sixty (60).
- 9.3. Additional extinguishers of the same type and capacity shall be carried in lieu of spare charges for any extinguishers which cannot be charged on board.

10. Additional Survey Requirements

- 10.1. In surveying the safety equipment on a vessel, Recognised Organisations shall verify that:

- i. all firefighting equipment has been inspected and maintained in accordance with the manufacturer's instructions and the foregoing requirements
 - ii. the manufacturer's maintenance instructions are on board
 - iii. records of inspections, maintenance and pressure tests are maintained, and
 - iv. spare charges or extinguishers are provided in accordance with paragraphs 8.2 and 8.3.
- 10.2. Recognised Organisations shall refer to the BMA, with relevant recommendations, any cases where a Bahamian ship does not satisfy the foregoing requirements, prior to the issue or endorsement of a Cargo Ship Safety Equipment Certificate, Passenger Ship Safety Certificate or any other statutory certificate that relates to safety equipment (e.g., MODU/MOU certificates).

11. Records

- 11.1. Records shall be maintained on board of the following inspections & testing:
- i. Weekly
 - ii. Monthly
 - iii. Quarterly
 - iv. Annual
 - v. Two yearly
 - vi. Five yearly
 - vii. Ten yearly service
 - viii. Other maintenance and testing
 - ix. Deficiencies identified and corrective actions performed.

12. Queries

- 12.1. Any queries on this Notice may be addressed to tech@bahamasmaritime.com or any BMA office.

