Subject

Maintenance, inspection and test of Fire-Protection Systems and Appliances on board the Bahamas-registered ships

ClassNK
Technical Information

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To whom it may concern

The Bahamas Maritime Authority (hereinafter mentioned as "BMA") has informed ClassNK of BMA Information Bulletin No.29 "Emergency Escape Breathing Devices (EEBD)" and No. 97 Rev.1 "Fire Fighting Equipment", which are in reference to maintenance, inspection and test of Fire-Protection System and Appliances on board the Bahamas-registered ships. The essential points of the Guidelines are shown below. The previous ClassNK Technical Information No.TEC-0711 is now superseded. The requirements only are shown below. As necessary, please refer to the original text of the Guideline which is available on BMA Internet Homepage (http://www.bahamasmaritime.com).

Main points of changes are as follows:

1. Fixed CO_2 Fire-Extinguishing Systems
   - Hydrostatic testing of high pressure cylinders
     [Old] All cylinders before 20 years
     [New] 10% cylinders at 10 years interval
   - Flexible hoses
     To be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years
   - Expansion of Monthly, Quarterly, Annual, two/five/ten yearly inspections

2. EEBD
   The requirement of Hydrostatic testing for EEBD with a small capacity oxygen cartridge is partially relaxed.

The requirements of BMA information are as follows:

1. Fixed Carbon Dioxide (CO_2) and Halon Gas Installations
   (1) Monthly inspections:
   A general visual inspection should be made of the overall system condition for obvious signs of damage, and should include verification that:
   (i) all releasing controls are in the proper position and readily accessible for immediate use;
   (ii) all discharge piping and pneumatic tubing is intact and has not been damaged;
   (iii) the alarm devices are in place and do not appear damaged; and
   (iv) all stop valves are in the closed position.

(To be continued)

In addition, on low pressure systems the inspections should verify that:

(i) the pressure gauge is reading in the normal range;
(ii) the liquid level indicator is reading within the proper level;
(iii) the manually operated storage tank main service valve is secured in the open position; and
(iv) the vapor supply line valve is secured in the open position.

(2) Quarterly inspections:

(i) all CO_2 bottle connections for cable operating system clips should be checked for tightness on fixed fire-extinguishing installations.

(3) Annual inspections:

The following minimum level of maintenance and inspections should be carried out in accordance with the system manufacturer's instructions and safety precautions:

(i) the boundaries of the protected space should be visually inspected to confirm that no modifications have been made to the enclosure that has created uncloseable openings that would render the system ineffective;
(ii) all storage containers should be visually inspected for any signs of damage, rust or loose mounting hardware. Cylinders that are leaking, corroded, dented or bulging should be hydrostatically retested or replaced;
(iii) system piping should be visually inspected to check for damage, loose supports and corrosion. Nozzles should be inspected to ensure they have not been obstructed by the storage of spare parts or a new installation of structure or machinery;
(iv) the manifold should be inspected to verify that all flexible discharge hoses and fittings are properly tightened;
(v) all entrance doors to the protected space should close properly and should have warning signs, which indicate that the space is protected by a fixed carbon dioxide system and that personnel should evacuate immediately if the alarms sound. All remote releasing controls should be checked for clear operating instructions and indication as to the space served;
(vi) control valves of fixed fire-fighting systems should be inspected; and
(vii) air should be blown through the piping of extinguishing gas systems.

(4) Two Yearly Inspections:

At least biennially (intervals of 2 years ± 3 months) in passenger ships or at each intermediate, periodical or renewal survey in cargo ships, the following maintenance should be carried out:

(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; and

(To be continued)

(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.

In addition, 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 a competent specialist maintenance firm. For passenger ships consideration may be given to harmonizing these activities with the requirements of Res.A997(25):

(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.

(5) Five Year Service:

(i) Control valves of fixed fire-fighting systems should be internally inspected.

(6) Ten Year Service:

(i) High pressure cylinders should be subject 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. Flexible hoses should be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years;

(ii) For existing ships which have to date applied the requirements of Rev.00 of BMA information bulletin No.97 for hydrostatic testing of HP CO_2 cylinders, the application for the above (i) should be confirmed at the renewal or periodical survey.

(7) Additional Requirements for Existing Halon Systems:

(To be continued)

(i) With regard to potential leakage and losses to atmosphere in the course of Halon transfer, and the limited availability of Halon reception facilities, periodical hydrostatic testing of cylinders containing Halon Gas may be waived on application to the BMA. This is subject to a satisfactory alternative inspection, to be proposed by a Bahamas Recognized Organization.

(ii) In the event of the discharge or loss of pressure of the Halon Gas cylinders the BMA will accept the replenishment of the used cylinders which remain in satisfactory condition.

(iii) The safety of the vessel and its crew remains paramount and if Halon Gas is not readily available, the ship will be required to ensure that the affected space has adequate fire fighting capability prior to departure from port. The adequacy of any temporary arrangement shall be to the satisfaction of the Recognized Organization and the BMA, taking into account the relevant guidance in IMO MSC Circular 775.

(8) Additional Requirements for Low Pressure CO_2 Systems:

Low Pressure CO_2 systems may be exempted from hydrostatic pressure testing, subject to the following:

(i) The tank is to be constructed of a material which is not ordinarily prone to corrosion (e.g. Stainless Steel, Aluminum or similar).

(ii) Fittings and inspection of the tank are in accordance with Classification Society requirements.

(iii) Documentary evidence to show that the tank and associated systems have been inspected and serviced annually. Annual inspection should include removal of insulation and sample inspection in way of pipes and fittings. The insulation and vapour barrier is to be properly reinstated.

(iv) The tank shall not be exposed to extremes of temperature or pressure. Such exposure will cause the inspection and testing regime to be reviewed. The BMA is to be notified in such cases.

(9) Under maintenance and inoperable

Where the fixed installation is under maintenance and inoperable, alternative arrangements shall be made for dealing with fires in the protected spaces. Proposals for such alternative arrangements must be agreed with the Recognized Organization and the BMA.

2. Portable Fire Extinguishers

The following requirements for portable fire extinguishers are to be complied with.

(1) The requirements of MSC Circular 850

(i) All fire extinguishers are in place, properly arranged, and are in proper condition.

(ii) All fire extinguishers are checked for proper location, charging pressure and condition.

(2) The requirements of IMO Resolution A.951(23)

(i) Extinguishers should be subject to periodical inspections in accordance with the manufacturer's instructions and serviced at intervals not exceeding one (1) year.

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(ii) At least one extinguisher of each type manufactured in the same year and kept on board a ship should be test discharged at five (5) yearly intervals (as part of a fire drill).
(iii) All extinguishers together with propellant cartridges should be hydraulically tested in accordance with the recognized standard or the manufacturer's instruction at intervals not exceeding ten (10) years.
(iv) Service and inspection should only be undertaken by, or under the supervision of, a person with demonstrable competence, based on the attached inspection guide.
(v) Records of inspections should be maintained. The records should show the date of inspection, the type of maintenance carried out and whether or not a pressure test was performed;
(vi) Extinguishers should be provided with a visual indication of discharge.
(vii) Instructions for recharging extinguishers should be supplied by the manufacturer and be available for use on board.

(3) BMA's specific requirements
(i) All extinguishers shall be examined annually by a qualified and experienced competent person and records of the examinations shall be retained on board.
(ii) The containers of permanently pressurised fire extinguishers, propellant bottles of non-pressurised extinguishers and other extinguishers must be hydraulically pressure tested at intervals of ten (10) years. Containers of non-pressurised extinguishers shall also be tested at interval of ten (10) years.
(iii) If the loss of gas from a carbon dioxide extinguisher or propellant bottle of any other type of extinguisher exceeds by 10% of the original charge as stamped on the extinguisher or bottle, the extinguisher or bottle must be inspected and recharged. Any extinguisher or bottle which has excessive corrosion shall be replaced.

3. EEBDs
(1) Inspections and testing
(i) Maintenance shall be in accordance with the manufacturer's instruction and inspection, by a competent person, shall be undertaken annually.
(ii) Hydrostatic testing of the cylinder shall be undertaken at least once every five (5) 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.
(iii) Where EEBDs are fitted with a small capacity oxygen cartridge and manufacturers specify a fixed service life without scheduled hydrostatic testing (e.g. "Ocenco" M-20.2), hydrostatic testing is not required.

(2) Records
Records of inspection, maintenance and testing shall be retained onboard for examination. The records must include the test certificates and the inspection status on each cylinder.

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4. Competent Person
   A competent person is one who has achieved a level of technical skill (incorporating theoretical knowledge and practical experience) to be able to complete a task or activity safely and to the specified standard. The Company with responsibility for management of the ship under the requirements of the ISM Code is responsible for assessing and selecting a suitable "competent person". Documentary evidence of personnel competence must be available on board for verification. Refer to BMA Information Bulletin No.89.

5. Additional Survey Requirements
   (1) During SE Surveys, Recognized Organizations shall verify that:
      (i) The manufacturer's maintenance instructions are on board.
      (ii) All fire fighting equipment and EEBDs have been inspected and maintained in accordance with the manufacturer's instructions and the BMA's requirements.
      (iii) Records of inspections, maintenance and pressure tests are maintained.
      (iv) Spare and spare charges are provided properly.

   (2) Recognized Organizations shall refer, with relevant recommendations, any Bahamian ship which does not satisfy any of the foregoing requirements to the BMA prior to the issue or endorsement of a statutory SE Certificate.

6. Records
   Records shall be maintained onboard of:
   (1) Monthly Inspections
   (2) Annual inspections
   (3) Other maintenance and testing,
   (4) Deficiencies identified and corrective actions performed.

Inspection Guide (Portable Fire Extinguishers)

ANNUAL INSPECTION	
Safety clip and indicating devices	Check to see if the extinguisher may have been operated.
Pressure indicating device	Where fitted, check to see that the pressure is within limits. Check that dust covers on pressure indicating devices and relief valves are in place.
External examination	Inspect for corrosion, dents or damage which may affect the safe operation of the extinguisher.
Weight	Weigh the extinguisher and check the mass compared to the fully charged extinguisher.
Hose and nozzle	Check that hoses and nozzles are clear and undamaged.
Operating instructions	Check that they are in place and legible.

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INSPECTION AT RECHARGE	
Water and foam charges	Remove the charge to a clean container if to be reused and check if it is still suitable for further use. Check any charge container.
Powder charges	Examine the powder for reuse. Ensure that it is free flowing and that there is no evidence of caking lumps or foreign bodies.
Gas cartridge	Examine for damage and corrosion.
INSPECTION AT FIVE AND TEN YEAR INTERVALS	
INSPECTION AFTER DISCHARGE TEST	
Air passages and operating mechanism	Prove clear passage by blowing through vent holes and vent devices in the cap. Check hose, nozzle strainer, discharge tube and breather valve, as applicable. Check the operating and discharge control. Clean and lubricate as required.
Operating mechanism	Check that the safety pin is removable and that the lever is undamaged.
Gas cartridge	Examine for damage and corrosion. Weigh the cartridge to ascertain that it is within prescribed limits.
O-ring washers and hose diaphragms	Check O-rings and replace hose diaphragms if fitted.
Water and foam bodies	Inspect the interior. Check for corrosion and lining deterioration. Check separate containers for leakage or damage.
Powder body	Examine the body and check internally for corrosion and lining deterioration.
INSPECTION AFTER RECHARGE	
Water and foam	Replace the charge in accordance with the manufacturer's instructions.
Reassemble	Reassemble the extinguisher in accordance with the manufacturer's instructions.
Maintenance label	Fill in entry on maintenance label, including full weight.
Mounting of extinguishers	Check the mounting bracket and stand.
Report	Complete a report on the state of maintenance of the extinguisher.

For any questions about the above, please contact:

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