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SHIPPING NOTICE NO. MACI 002/2007

MAINTENANCE AND INSPECTION OF FIRE PROTECTION SYSTEMS, APPLIANCES AND EMERGENCY EQUIPMENT

THIS SHIPPING NOTICE SUPERSEDES SHIPPING NOTICE 10A/2004

THIS NOTICE IS APPLICABLE TO ALL CAYMAN FLAG SHIPS AND YACHTS IRRESPECTIVE OF GT; AND IS DIRECTED PRIMARILY AT:

- OWNERS,
- MANAGERS,
- MASTERS AND OFFICERS,
- SURVEYORS AND;
- CLASSIFICATION SOCIETIES,

APPLICABLE TO ALL CAYMAN FLAG SHIPS AND YACHTS IRRESPECTIVE OF GT.

NOTE: This Shipping Notice was originally issued in 2005 and amended in June 2006. This amendment of March 2007 aligns the requirements for testing of Emergency Escape Breathing Devices (EEBD's) and other safety equipment taking due cognisance of the recommendations and guidance from the IMO.

1. Background

This Notice contains general guidelines applicable to maintenance and inspection of all fire protection systems and appliances and specific guidelines applicable to maintenance, testing and examination of fire extinguishers (portable and semi-portable), fixed fire extinguishing systems (gas, foam, dry-powder), self-contained breathing apparatus (SCBA), emergency escape breathing devices (EEBDs) and compressed air cylinders for survival craft air systems. Reference should also be made to IMO Resolution A.951 (23), MSC Circular 847 (Paragraph 6) and MSC Circular 850.

2. General Guidelines for Maintenance and Inspection:

Operational Readiness:

All fire protection systems and appliances should at all times be in good order and available for immediate use while the ship is in service. If fire protection systems are under repair, then suitable arrangements should be made to ensure safety is not diminished.

Weekly Testing and Inspection:-

- All public address systems and general alarm systems are functioning properly
- Breathing apparatus cylinders maintain charged pressure

Monthly Testing and Inspection:-

- All firemen's outfits, fire extinguishers, fire hydrants, hose and nozzles are in place, properly arranged, in good condition and all pressure gauges checked
- All fixed fire-fighting system stop valves are in the correct open or closed position and sprinkler systems have appropriate pressures as indicated by gauges
- Sprinkler system pressure tanks have correct levels of water as indicated by glass gauges
- All sprinkler system pumps automatically operate on reduction of pressure in the system
- All fire pumps are operated
- All fixed fire-extinguishing installations using extinguishing gas are inspected for leakage

Quarterly Examinations and Inspections:

- All automatic alarms for the sprinkler systems are tested using the test valves for each section
- The international shore connection is in good condition
- Lockers providing storage for fire-fighting equipment contain proper inventory and equipment is in proper condition
- All fire doors and fire dampers are tested for local operation
- On fixed fire-extinguishing installations all CO₂ cylinders are secure and connections for cable operating system clips are checked for tightness.

Annual Testing and Inspections:

- All fire extinguishers are checked for proper location, charging pressure and condition
- Fire detection systems are tested for proper operation
- All fire doors and dampers are tested for remote operation
- All foam-water and water-spray fixed fire-fighting systems are tested for operation
- All accessible components of fixed fire-fighting systems are visually inspected for proper condition
- All fire pumps, including sprinkler system pumps, are flow tested for proper pressures and flows
- All hydrants are tested for operation
- All antifreeze systems are tested for proper solutions
- Sprinkler system connections from the ship's fire main are tested for operation
- All fire hoses are hydrostatically tested
- Breathing apparatus air-recharging systems are checked for air quality
- Control valves of fixed fire-extinguishing systems are inspected.

Five-year service

- Hydrostatic testing for all SCBAs' cylinders should be carried out
- Control valves of fixed fire-fighting systems should be internally inspected.

3. Specific Guidelines for Maintenance and Inspection of Fire Extinguishers (includes Portable and Semi-Portable Units of all types):**Annual Maintenance:**

- The extinguishers should be examined annually by a competent person. During these examinations plastic collars etc. which may conceal the condition of steel underneath should be removed
- The competent person may be either a member of the ship's crew who is trained and assigned to carry out this work or an accredited service company
- Each extinguisher should be provided with a sign indicating it has examined

- Test Certificates, test records, deficiencies and corrective actions must be provided and retained on board for inspection
- Charges of portable fire extinguishers should be renewed if, on checking, there is any indication of deterioration in the contents, but in any case after five years
- Carbon dioxide extinguishers and gas expellant cartridges should be recharged or renewed if gas loss by weight exceeds 10% of original charge
- Dry powder extinguishers may suffer from compaction when subject to vibration. At least one should be discharged annually and the retention of contents checked. When the retention is found to be in excess of 15% of the initial charge further extinguishers should be discharged to determine if compaction is occurring.

5-Yearly Maintenance:

- At least one extinguisher of each type manufactured in the same year and kept onboard may be test discharged at five intervals (as part of a fire drill)

Hydrostatic Testing:

- Containers of permanently and non-permanently pressurised fire extinguishers should be hydrostatically pressure-tested every 10 years.
- Hydrostatic testing must be carried out by an accredited service company or test facility
- Following the hydrostatic testing, a thorough inspection and internal examination must be carried out prior to recharging
- The test pressure and test date must be marked clearly on each extinguisher (hard-stamping" is only acceptable for CO₂ extinguishers and propellant bottles)
- Test Certificates or test records must be provided and retained on board for inspection

4. Spare Charges, Additional Fire Extinguishers and Refilling of Extinguishers:

- For fire extinguishers of the same type, capable of being recharged on board, the spare charges should be provided as follows:
 - a) 100% for the first 10 extinguishers and 50% for the remaining extinguishers but not more than 60
 - b) For extinguishers which cannot be recharged by the crew, additional portable fire extinguishers of the same quantity, type, capacity and number as determined in paragraph above should be provided in lieu of spare charges.
- Instructions for recharging the extinguishers should be carried on board.
- Periodic refilling of the cylinders should be in accordance with the manufacturer's recommendations. Only refills approved for the extinguisher may be used for recharging.

5. Specific Guidelines for Maintenance and Inspection of Fixed Gas Fire-Extinguishing Systems:

Two Yearly Inspection:

- The cylinders and system should be subject to an inspection by an accredited service agent ashore. This inspection should be conducted in conjunction with the service for the entire system and will include:
 - Visual inspection of each cylinder, fitting and securing arrangements;
 - Accurate determination of the contents and comparison with original readings e.g. liquid level gauging, test weighing etc
 - Any cylinders showing signs of mechanical damage, excessive corrosion, or loss of contents exceeding 10% of installed quantity for CO₂ should be withdrawn from service and sent ashore for pressure testing and full periodic service and inspection
 - Blow-through with air to ensure associated pipes and nozzles are clear;
 - Operation test of local and remote controls and section valves

Hydrostatic Testing:

- The Hydrostatic Pressure test period for these high-pressure cylinders is as follows:
 - First pressure test within **20 years** of initial pressure test at manufacture, provided annual tests have been carried out with satisfactory results;
 - Subsequent pressure tests of 25% of the storage cylinders every **5 years** thereafter; if any one cylinder fails whilst under test all remaining cylinders are to be tested
 - If annual visual inspections are not carried out or there is no record, all cylinders are to be hydraulically tested after **ten (10) years** and **twenty (20) years** from date of manufacture and every **5 years** thereafter.
- Each cylinder is to be marked with a unique number and referenced on the pressure test certificate.
- In order to extend the cylinder test period beyond 20 years, this Administration requires an accredited service company to carry out a thorough examination of all cylinders. Where storage rooms are found in good condition and each cylinder is found to be in a satisfactory condition with no significant signs of pitting, corrosion, fretting or cracking this Administration may permit the hydrostatic test of all the cylinders to be postponed for a further 5 years, i.e. 25 years from the initial test date.

Halon Systems – Additional Requirements:

- Halon systems must be inspected and tested annually by an accredited service company. During inspection a leak test must be completed and any cylinders showing signs of leakage, loss of contents exceeding 5% from installed quantity,

signs of mechanical damage or excessive corrosion must be withdrawn from service.

6. Specific Guidelines for Maintenance and Inspection of Fixed Foam Fire-Extinguishing Systems:

- **2-yearly inspection**

Fixed Foam extinguishing systems should be inspected every two years by an accredited service company.

Foam Analysis:

- The first periodical test and analysis of foam concentrates stored on board should be performed after a period of three (3) years and after that every year. Reference should be also made to MSC Circulars 582, 670 and 798. The surveyor may require test and analysis at other times if there is cause to question the suitability of the foam or condition of the storage tank. A record of the age of the foam concentrates and of subsequent tests should be kept on board. (This requirement applies to portable units as well).

7. Specific Guidelines for Maintenance and Inspection of Fixed Dry-Powder Fire-Extinguishing Systems:

Annual Inspection:

- The system should be inspected and the dry powder charge should be agitated with moisture free Nitrogen, using “bubbling” connections where provided.

2-Yearly Inspection:

- At least once every 2 years in addition to the regular shipboard inspections, the systems should be inspected by an accredited service company. This inspection should include
 - Blow-through with air to ensure associated pipes and nozzles are clear;
 - Operation test of local and remote controls and section valves; and
 - Verification of contents of propellant gas cylinders containing Nitrogen.
Note: The replenishment and test regime for these high-pressure Nitrogen cylinders is identical to that for CO₂ cylinders for fixed-gas fire extinguishing systems.
- Sample dry powder test for moisture absorption should be carried out by an accredited company ashore.

8. Self-contained Breathing apparatus (SCBA), Emergency Escape Breathing Devices (EEBD's) and Compressed Air Cylinders for Survival Craft Air Systems:

Annual Examination:

- All SCBA and compressed air cylinders for survival craft shall be examined at least annually by an accredited company ashore. If applicable, the breathing apparatus air-recharging systems should be checked for air quality as part of the annual statutory survey for the Cargo Ship Safety Equipment Certificate.
- Emergency Escape Breathing Devices shall be examined at least annually by suitably qualified ship' staff¹, or by an accredited service company.

Hydrostatic Testing of SCBA and EEDB Air Cylinders:

- Hydrostatic testing of SCBA and survival craft compressed-air cylinders shall be carried out once every five years or when recommended by the manufacturer if less than five years. The hydrostatic test date must be permanently marked on the bottles. The hydrostatic testing of cylinders of the ultra lightweight type should be carried out at least every five years unless other inspections show evidence of any mechanical damage or corrosion is observed on the bottle. In such cases the bottle should be hydrostatically tested before being returned to service.

Spare Charges and Recharging of Breathing Apparatus Air Cylinders:

- Two spare charges suitable for use with the breathing apparatus should be provided for each SCBA
- If cargo ships are equipped with suitably located means for fully recharging the air cylinders free from contamination, only one spare charge is required for each required SCBA.

¹ "Suitably qualified ship's staff" includes the master, chief officer, chief engineer and second engineer.

Annex 1

SUGGESTED MAINTENANCE PLAN FOR FIRE FIGHTING EQUIPMENT

System or Appliance:	Shipboard Inspection:	Periodic Inspection & Service:	Hydraulic Pressure Test:	Marking & Documentation:
Fire Extinguishers (All types)	Note 1 & 8	Annually by a competent person (see Note 2) At least one extinguisher of each type manufactured in the same year and kept onboard may be test discharged at five intervals (as part of a fire drill)	All extinguishers every 10 years (IMO Res.A.951 (23))	Inspection and pressure test certificates on board for review. Test pressure and date marked on extinguisher
Emergency Escape Breathing Devices	Note 1	Annually by a competent person (see Note 2)	See note 7	Inspection and pressure test certificates on board for review. Test pressure and date marked on extinguisher
SCBA and Medical O ₂ Cylinder	Note 1	Annually by an accredited Service Agent ashore	Cylinders inspected internally and externally and hydraulically tested at intervals not exceeding 5 years.	Pressure Test date to be hard-stamped on cylinder. PT certificates on board
Air Cylinders for Survival Craft	Note 1	Annually by an accredited Service Agent ashore	5 years	Pressure Test date to be hard-stamped on cylinder. PT certificates on board
CO ₂ High Pressure Cylinders – Fixed Installations	Note 1	Inspected at least once every two years by an Accredited Service Agent ashore	All CO ₂ storage cylinders after 20 years and 25 per cent of the storage cylinders every 5 years thereafter (see Notes 3 and 4)	Inspection and pressure test certification to be retained onboard for review. Each cylinder is to be marked with a unique number and referenced on the pressure test certificate
Halon High Pressure Cylinders – Fixed Installations (See Note 6)	Note 1	Inspected at least once every two years by an Accredited Service Agent ashore	After 20 years, possible to extend to 25 years (see Note 3)	Pressure Test date to be hard-stamped on cylinder. Inspection & PT certificates on board
Foam Systems (fixed and portable)	Note 1 & 9	After 3 years and after that every year (see Note 4) Fixed foam systems inspected every two years by an accredited service company	-	Foam sample certificates on board Inspection Certificates on board
Dry Powder Systems	Note 1 Powder charge agitated annually N ₂ blow-through system inspected	Every two years inspection by an accredited service company Sample dry powder, test for moisture absorption every 2 years (see Note 5)	N ₂ Propellant cylinders after 20 years, then 25 per cent of the storage cylinders every 5 years thereafter (see Note 3)	Last sample date marked clearly. Powder sample certificates on board Inspection and PT certificates on board for review.

- Note 1 In accordance with SMS procedures and manufacturers' instructions.
- Note 2 The competent person may be a suitably trained member of the crew or an accredited service company
- Note 3 If any one cylinder fails whilst under test all remaining cylinders are to be tested.
- Note 4 Relaxation from 20 year period may be permitted on case by case basis on application to CISR, subject to thorough examination and NDT by accredited service agent.
- Note 5 Sample analysis carried out by accredited service agent ashore, where there is no facility on the system to take a physical sample alternative means may be considered. The integrity of the system should not be compromised for the sole purpose of obtaining a sample.
- Note 6 See CISR HALON Shipping Notice re phase out of HALON
- Note 7 The hydrostatic testing of cylinders of the ultra lightweight type should be carried out at intervals of less than five years if recommended by the manufacturer or if other inspections show evidence of mechanical damage to the bottle or corrosion on the surface of the bottle.
- Note 8 Due cognisance is to be given to IMO ResA 951 (23)
- Note 9 In this section the requirements refer to foam samples for deck foam systems on Tankers. Where installations are provided for the protection of machinery spaces the system inspection is to be carried out in accordance with the manufacturers recommendations.