

Subject

Maintenance and Inspection of Fire-Protection Systems and Appliances on board Marshall Islands Flag Vessels (partly amended for the requirement of Fixed Halon System, Fixed Foam System and Emergency Escape Breathing Devices)

ClassNK

Technical Information

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To whom it may concern

With reference to the maintenance and inspection of fire-protection systems and appliances on board Marshall Islands flag vessels, the flag requirements have been informed by ClassNK Technical Information No. TEC-0421 dated 28 September 2001. The Marshall Islands Government has notified ClassNK of the Marine Notice No. 2-011-14 Rev. 2/05 and No. 2-011-11 Rev. 2/05 including the amendments regarding Fixed Halon System, Fixed Foam System and Emergency Escape Breathing Devices (EEBDs).

For your convenience, partial amendments to the original text of the Guidelines are made, which are available on the Marshall Islands Government web site (<http://www.register-iri.com/index.cfm>).

This ClassNK Technical Information supersedes the previous ClassNK Technical Information No. TEC-0421.

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Attachment:

1. Guideline for Maintenance and Inspection of Fire-Protection Systems and Appliances

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Attachment 1. to
ClassNK Technical Information No. TEC-0630

Maintenance and Inspection of Fire-Protection Systems and Appliances

PURPOSE:

This Notice provides Administration guidelines for the proper maintenance and inspection of fire protection systems, appliances, and emergency equipment. General guidelines applicable to all fire protection systems and appliances, and specific guidelines applicable to testing and examination of fixed and portable fire extinguishers, foam systems, and self-contained breathing apparatus are provided. It should be noted that the general guidelines contained in this Notice are not an all inclusive list of maintenance or inspection items for fire protection systems fire fighting appliances, and emergency equipment. The specific guidelines contained in this Notice address areas where the Administration feels there is need for additional guidance or clarification. Vessel owners should be familiar with and follow the equipment manufacturers recommendations, as well as Classification Society requirements and applicable requirements of SOLAS, except where these recommendations or requirements are superseded by this Notice.

APPLICABILITY:

This Notice applies to all ships, MODUs and mobile offshore units (MOUs).

GUIDELINES

1.0 General Guidelines for the Maintenance and Inspection of Fire-Protection Systems and Appliances.

1.1 Operational readiness.

All fire protection systems and appliances should at all times be in good order and available for immediate use while the vessel is in service. If a fire protection system is under repair, then suitable arrangements acceptable to the vessel Classification Society and this Administration should be made to ensure safety is not diminished. Prior to sailing or in the case of MODUs and MOUs engaging in operations with a fire protection system under repairs, a dispensation must be obtained from the Administration.

1.2 Maintenance and testing.

Instructions for on-board maintenance, not necessarily by the ship's crew, and testing of active and passive fire protection systems and appliances should be easily understood, illustrated wherever possible, and, as appropriate, should include the following for each system or appliance:

- .1 maintenance and repair instructions;
- .2 schedule of periodic maintenance;
- .3 list of replaceable parts; and
- .4 log for records of inspections and maintenance, listing identified non-conformities and their

targeted completion dates.

1.3 Weekly testing and inspections.

Weekly inspections should be carried out to ensure that:

- .1 all public address systems and general alarm systems are functioning properly; and
- .2 breathing apparatus cylinders do not present leakages.

1.4 Monthly examinations and inspections.

Ships officers are responsible for performing monthly examinations of firefighting system equipment and recording the examinations in the ship's official log book. Monthly inspections should be carried out to ensure that:

- .1 all fireman's outfits, fire extinguishers, fire hydrants, hoses and nozzles are in place, properly arranged, and are in proper condition;
- .2 all fixed fire-fighting system stop valves are in the proper open or closed position, dry pipe sprinkler systems have appropriate pressures as indicated by gauges;
- .3 sprinkler system pressure tanks have correct levels of water as indicated by glass gauges;
- .4 all sprinkler system pumps automatically operate on reduction of pressure in the systems;
- .5 all fire pumps are operated; and
- .6 all fixed fire-extinguishing installations using extinguishing gas are free from leakage.

1.5 Quarterly examinations and inspections.

Ships officers are responsible for performing quarterly tests and examinations of the following fire fighting system equipment and recording the test and examinations in the ship's official log book. Quarterly inspections should be carried out to ensure that:

- .1 all automatic alarms for the sprinkler systems are tested using the test valves for each section;
- .2 the international shore connection is in proper condition;
- .3 fire stations and lockers providing storage for fire-fighting equipment contain proper inventory and that missing or unserviceable equipment is replaced. The minimum fire hose length is 10 meters. The length should not exceed 15 meters in machinery spaces and 20 meters in other compartments and on open decks (except that hoses of 25 meters in length may be used on open decks when the breadth of the ship is greater than 30 meters);
- .4 all fire doors and fire dampers are tested for local operation; and
- .5 all CO₂ bottle connections for cable operating system clips should be checked for tightness on fixed fire-extinguishing installations.

1.6 Annual testing and inspections.

As part of the annual statutory survey for Safety Equipment Certification, the following inspections and tests should be carried out to ensure that:

- .1 all fire extinguishers are checked for proper location, charging pressure, and condition;
- .2 fire detection systems are tested for proper operation, as appropriate;
- .3 all fire doors and dampers are tested for remote operation;
- .4 all foam-water and water-spray fixed fire-fighting systems are tested for operation;
- .5 all accessible components of fixed fire-fighting systems are visually inspected for proper

condition;

- .6 all fire pumps, including sprinkler system pumps, are flow tested for proper pressures and flows;
- .7 all hydrants are tested for operation;
- .8 all antifreeze systems are tested for proper solutions;
- .9 sprinkler system connections from the ship's fire main are tested for operation;
- .10 all fire hoses are hydrostatically tested;
- .11 breathing apparatus air recharging systems checked for air quality;
- .12 control valves of fixed fire-fighting systems should be inspected; and
- .13 air should be blown through the piping of extinguishing gas systems.

The verification of the examinations and tests described in Sections 1.2 thru 1.6 above are an integral part of the annual statutory surveys for the SOLAS Safety Equipment Certificate. The inspection and/or verification of the applicable items in Section 1.2 thru 1.7 shall be to the satisfaction of the attending Classification Society surveyor.

1.7 Five-year service.

At least once every five (5) years, the following inspections and tests should be carried out:

- control valves of fixed fire-fighting systems should be internally inspected.

2.0 Fixed CO₂ and Halon Systems.

2.1 Verification of Cylinder Contents.

Every two (2) years the contents of the cylinders are verified by weight or isotropic measurement as part of the survey for issuance of the SOLAS Safety Equipment Certificate. Weigh scales may be used to verify cylinder contents and recharging is required if the loss in charge is 10 percent or more. Generally the weigh scales are included as part of the CO₂ system equipment in order to satisfy FSS Code, Regulation 5.2.1.1.3.

2.2 Hydrostatic Testing.

All fixed CO₂ and Halon cylinders must be hydrostatically tested as follows:

- .1 after each 20 years of service,
- .2 prior to recharging a discharged cylinder,
- .3 or when visual inspection reveals a potential defect.

Hydrostatic test dates must be stamped on the cylinders. Hydrostatic testing must be performed by an authorized servicing facility which has been certified by a government agency, or Classification Society, and by extinguisher manufacturer to perform this type of work. The facility must be acceptable to the attending Classification Society surveyor. The same facility should recharge the cylinders after testing to demonstrate serviceability.

2.3 Relaxation of Fixed Halon System storage cylinder hydrostatic testing requirements

- .1 Due to the phasing out of the production and consumption of Halon 1211, 1301 and 2402 that began on 1 January 2000, there has been increasing difficulty with regard to locating

servicing facilities and suppliers for the testing and maintenance of existing fixed Halon fire suppression systems and components. It is based on the logistical difficulties associated with this situation that the Administration will consider a relaxed maintenance schedule with regard to the hydrostatic testing of the Halon storage cylinders.

- .2 Under the relaxed maintenance schedule, the hydrostatic testing interval of 20 years for the Halon storage cylinders may be extended by five (5) years provided the following conditions are met:
 - (i) A cylinder has not been discharged during its service history;
 - (ii) Cylinder contents are verified by weighing or isotropic measurement;
 - (iii) Cylinder pressure/levels are verified to be acceptable;
 - (iv) A thorough visual inspection of cylinders reveal no potential defects;
 - (v) The thickness of the upper, middle, lower wall and bottom of each cylinder on board should be measured, and the wall thickness readings kept on board for future comparative reference;
 - (vi) In addition, a thorough examination shall be made of all accessible component parts of the Halon system, including control valves and connections, to verify satisfactory condition and freedom from leakage, and,
 - (vii) Selected control valves shall be opened out for internal examination to the extent necessary. If it is impossible to carry out an open-up inspection of cylinder valve without releasing the contents, such inspection is not required.
- .3 Any suspect cylinders that do not meet the provisions stated above must be tested, or taken out of service.
- .4 Annual weighing or isotopic measurement and thickness measurements of Halon cylinders should be carried out by engineer of approved service station or ship's crew (officer or engineer in charge) in the presence of surveyor.
- .5 The cylinder inspection, thickness gauging and thorough examination of Halon system shall than be repeated annually as part of the annual servicing requirement of the system, until the end of the five (5) year period of extension.
- .6 Consideration for the application of the relaxed hydrostatic testing requirements for the fixed Halon system storage cylinders will be given on a case-by-case basis, and must be approved in writing by the Administration.

3.0 Portable Fire Extinguishers.

3.1 Annual Survey.

The examination of the fire extinguishers is an integral part of the annual statutory surveys for the SOLAS Safety Equipment Certification. The fire extinguishers should be examined and, if necessary, serviced annually. The annual servicing/examination of the portable fire extinguishers can be carried out by the crew, if the crew is properly trained and such servicing is acceptable to the vessel's Classification Society, or by an authorized service facility. The Classification Society surveyor must be satisfied with the condition of the extinguishers.

3.2 Servicing of Fire Extinguishers by the Crew of a Vessel.

A vessel crew may service powder, foam, or water type portable fire extinguishers subject to the following:

- .1 The equipment required to test, examine, and service the extinguishers is obtained and maintained in a calibrated and serviceable condition.
- .2 The crew is properly trained in the testing and examination, and servicing of fire extinguishers and the extinguisher manufacturer's servicing instructions are followed.
- .3 The testing and inspection is carried out to the satisfaction of the attending Classification Society surveyor, and if required by the surveyor, in the presence of the surveyor.

3.3 Verification of Fire Extinguishers Contents.

Every two (2) years in conjunction with the issuance of the SOLAS Safety Equipment Certificate the contents of the cylinders must be verified. Weighing of the portable CO₂ cylinders in the presence of the Classification Society surveyor is an acceptable method of verification. Other methods of determining contents of the cylinders, such as isotropic measurement, may also be accepted provided the equipment is properly calibrated, the operator of the device is trained and qualified in its use, and the Classification Society surveyor is satisfied with the measurements. If an alternative method is used, spot checks of cylinder contents by weighing may be required to verify the accuracy and consistency of the measurement device.

3.4 Spare Charges, Additional Fire Extinguishers, and Refilling of Extinguishers.

- .1 For fire extinguishers of the same type, capable of being recharged on board, the spare charges should be provided as follows:
100% for the first 10 extinguishers and 50% for the remaining extinguishers but not more than 60 (fractions to be rounded off to next whole number).
- .2 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 a above should be provided in lieu of spare charges.
- .3 Instructions for recharging the extinguishers should be carried on board. Periodic refilling of the cylinders should be in accordance with the manufacturer's recommendations. Lacking same, refill is required when the extinguishing media starts to lose effectiveness. Partially emptied extinguishers should also be recharged. Only refills approved for the fire extinguisher in question may be used for recharging.

3.5 Authorized Servicing Facilities.

The Classification Society surveyor may also accept a servicing certificate from an authorized servicing facility acceptable to the society for both annual and biannual examination, servicing and verification of the portable fire extinguishers.

3.6 Hydrostatic Testing of Portable Fire Extinguishers

All portable extinguishers shall be hydrostatically tested every 10 years; however, a hydrostatic test may also be required by the Classification Society surveyor or Marshall Islands Nautical Inspector if visual examination indicates a potential defect in the cylinder. The hydrostatic test date must be permanently marked on the bottles.

3.7 Hydrostatic Testing Facilities.

Hydrostatic testing must be performed by a servicing facility which has been certified by a

government agency or Classification Society, and by the extinguisher manufacturer to perform this type of work. The facility must be acceptable to the attending Classification Society surveyor. This same facility should recharge the cylinder after testing to demonstrate serviceability.

4.0 Fixed Foam System.

4.1 Foam Analysis

The first periodical control of foam concentrates stored on board should be performed after a period of three (3) years and annually thereafter. A record of the age of the foam concentrates and of subsequent controls should be kept on board.

5.0 Self-Contained Breathing Apparatus (SCBA)

5.1 Annual Examination.

All SCBAs shall be examined at least annually as part of the annual statutory survey for the Safety Equipment Certificate (SEC) or MODU Code certificate. If applicable, the breathing apparatus air recharging systems should be checked for air quality as part of the annual statutory survey for the SEC or MODU Code certificate.

5.2 Hydrostatic Testing of Self-contained Breathing Apparatus Cylinders.

Hydrostatic testing of SCBA cylinders shall be carried out once every five (5) years. The hydrostatic test date must be permanently marked on the bottles. Intervals for hydrostatically testing cylinders of the ultra lightweight type may vary and will depend upon the requirements of the cylinder manufacturer and the vessel's Classification Society. Servicing of the cylinders must be performed to the satisfaction of the Classification Society surveyor.

5.3 Spare Charges and Recharging of Breathing Apparatus Air Cylinders.

- .1 Two spare charges suitable for use with the breathing apparatus should be provided for each required apparatus.
- .2 If passenger ships carrying not more than 36 passengers and cargo ships are equipped with suitable located means for fully recharging the air cylinders free from contamination, only one spare charge is required for each required apparatus.

6.0 Emergency Escape Breathing Devices (EEBDs)

6.1 Maintenance and Care

- .1 The EEBD should be examined and maintained in accordance with the manufacturer's instructions.
- .2 Maintenance requirements, manufacturer's trademark and serial number, shelf life with accompanying manufacture date and name of approving authority should be printed on each EEBD.