



Fleet in Service, Technical Support (Section MCTDE665)

## Checklist for Maintenance of Safety Equipment

Hamburg, January 2014

## Introduction

This overview by Germanischer Lloyd provides requirements and recommendations for maintenance and inspection of safety equipment in a compact and practical tool for ship owners, operators and Surveyors. New maintenance requirements for such equipment are published irregularly and in various IMO documents and chapters which makes it cumbersome and time consuming to keep track of all changes. This list includes also requirements and recommendations by Germanischer Lloyd.

Additional or more stringent requirements of manufacturers and the competent Administration are to be observed.

## Procedure

Certain maintenance procedures and inspections may be performed by competent crew members, while others shall be performed by specially trained persons. Which parts of the inspections and maintenance shall be completed by competent crew members or specially trained persons is indicated in the list.

## Precautions

As a general rule all inspections shall be carried out in accordance with the system manufacturer's instructions and safety precautions. If equipment is undergoing maintenance or testing then suitable arrangements shall be made to ensure safety is not diminished through the provision of alternate equipment or other measures.

## Records

Records of the inspections shall be carried on board of the ship, or may be computer-based. In cases where the inspections and maintenance are carried out by specially trained persons other than the ship's crew, inspection reports shall be provided upon the completion of the inspections. Some inspections required by SOLAS shall be entered in the log-book.

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## Contact

If you have any questions about this list or if you would like to have more details, please contact Germanischer Lloyd: [maintenance-safeq@dnvgl.com](mailto:maintenance-safeq@dnvgl.com)

## Disclaimer

The Use of this "Checklist for Maintenance of Safety Equipment" is subject to the terms and conditions stated on page 20.

# 1 Life Saving Appliances

Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Means of <b>Embarkation on and Disembarkation from ships</b> (Gangways, accommodation ladders incl. winch and fittings as well as use for pilot transfer)	Maintenance and inspection	SOLAS II-1/3-9.3 SOLAS III/20.4 SOLAS III/20.7.2 MSC.1/Circ.1331, Annex, para. 4	All	Monthly	Crew	In accordance with manufacturer's instructions. Maintenance of wires acc. to SOLAS III/20.4.
	Examination	SOLAS II-1/3-9.3 MSC.1/Circ.1331, Annex, para. 5	All	Annually	Crew + GL	
	Examination and operational test with specified max. operational load	SOLAS II-1/3-9.3 MSC.1/Circ.1331, Annex, para. 5	All	5-yearly	Crew + GL	Suitable test weights are to be provided.
<b>Emergency escape breathing devices</b> (EEBDs)	Examine cylinder gauges to confirm they are in the correct pressure range	MSC.1/Circ.1432, para. 4.5	All	Weekly	Crew	
	Check according to maker's instructions	MSC.1/Circ.1432, para. 7.8.3	All	Annually	Crew	
	Hydrostatic test and internal inspection of cylinders	IACS Rec. No.88	All	As specified by the manufacturer	SER or ALS	Intervals specified in recognized international standards (e.g. ISO, EN) are to be observed.
Testing of <b>emergency lighting</b>		SOLAS III/19.3.3.9	All	At each abandon ship drill	Crew	
<b>Falls</b> used in launching appliances	Maintenance	SOLAS III/20.4 MSC.1/Circ.1206/Rev.1	All	Weekly Monthly Annually	SER (or Crew)	Inspections according to makers maintenance guidelines; Special concern to hidden areas and areas of end terminations; Ships crew only if properly trained and familiar with these works.
	Renewal	SOLAS III/20.4	All	Latest after 5 years or earlier when necessary due to deterioration	Maker or MTP or SPF or SP + GL	
Replacement of <b>first-aid outfit</b> and anti-seasickness medicine of lifeboat equipment		LSA Code, para. 1.2.3	All	Maker's expiry date	Crew	
Replacement of <b>food rations</b> of lifeboat equipment		LSA Code, para. 1.2.3	All	Maker's expiry date	Crew	

Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Maintenance of <b>hydrostatic release units</b> (non-disposable)		SOLAS III/20.9.1	All	Annually	SER	Administration may extend this period to 17 months.
<b>Immersion suits and anti-exposure Suits</b>	Inspection	SOLAS III/20.7.2 SOLAS III/36.1 MSC/Circ.1047	All	Monthly	Crew	
	Air pressure test (seams and closures)	MSC/Circ.1114	All	3-yearly	SBM or Crew	By crew provided suitable equipment is available on board. Tests more frequently for suits older than 10 years.
Maintenance of <b>inflatable liferafts, lifejackets</b>		SOLAS III/20.8.1.1	All	Annually	SER	Administration may extend this period to 17 months. <b>Inflatable liferafts:</b> Administration can accept specific liferafts for extended service intervals acc. to SOLAS III/20.8.3 and MSC.1/Circ.1328.
<b>Launching appliances</b>	Launching appliance annual thorough examination	SOLAS III/20.11.1.2 MSC.1/Circ.1206/Rev.1/Appendix of Annex 1, para. 2.8 and 2.9 as applicable	All	Annually	Maker or MTP or SPF or SP + GL	
	Dynamic test of the winch brake	SOLAS III/20.11.1.3 MSC.1/Circ.1206/Rev.1/Appendix of Annex 1, para. 3.1 and 3.3 as applicable				Applicable load: Weight of survival craft without persons on board.
	On-load release gear/automatic release hooks thorough examination and operational test incl. free-fall lifeboat release system	SOLAS III/20.11.2..2 + 20.11.3.2 MSC.1/Circ.1206/Rev.1/Appendix of Annex 1, para. 2.4 / 2.5 / 2.6 and 2.7				
	Dynamic test of the winch brake	SOLAS III/20.11.1.3 MSC.1/Circ.1206/Rev.1/Appendix of Annex 1, para. 3.2 and 3.3 as applicable	All	5-yearly	Maker + GL or MTP + GL or SP + GL or SPF	Applicable load: 1.1 x Weight of fully equipped survival craft with equivalent weight of max. permitted number of persons. To be performed in connection with the annually required thorough examination.
	On-load release gear/automatic release hooks five yearly overhaul and operational test incl. free-fall lifeboat release system.	SOLAS III/20.11.2.3 + 20.11.3.3 MSC.1/Circ.1206/Rev.1/Appendix of Annex 1, para. 4				

Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Examination of <b>lifeboats</b>		MSC.1/Circ.1206/Rev.1	All	Yearly	Crew + Maker	Engine, propulsion, manoeuvring and power supply system.
<b>Lifeboats</b> (except free-fall lifeboats)	Moving from stowed position	SOLAS III/20.6.3	All	Weekly	Crew	
	Turning out from stowed position	SOLAS III/20.7.1	All	Monthly	Crew	
Inspection of <b>lifeboat</b> equipment		SOLAS III/20.7.2	All	Monthly	Crew	
Test run of <b>life- and rescue boat engines</b>		SOLAS III/20.6.2 MSC.1/Circ.1206/Rev.1	All	Weekly	Crew	
<b>Lifeboats with self-contained air support system</b>	Examination	MSC.1/Circ.1206/Rev.1	Tanker (chem/gas)	Yearly	Crew + Maker	Incl. external inspection of air cylinders.
	Hydrostatic test of air cylinders	IACS Rec. No.88	Tanker (chem/gas)	5-yearly	SER or ALS	
Examination of <b>lifeboats with sprinkler system</b>		MSC.1/Circ.1206/Rev.1	Tanker (oil)	Yearly	Crew + Maker	
Battery replacement of <b>lifebuoy lights</b>		LSA Code, para. 1.2.3	All	Maker's expiry date	Crew	Annually, if not marked with expiration date.
<b>Marine evacuation systems (MES)</b>	Service	SOLAS III/20.8.1.1	Passenger ships	Annually	SER	Administration may extend this period to 17 months.
	Test	SOLAS III/20.8.2	Passenger ships	6-yearly	SER	Deployment on rotational basis at intervals to be agreed by Administration, however each system to be deployed at least once every six years.
Testing of <b>public address systems</b> and <b>general alarm systems</b>		SOLAS III/20.6.4 MSC.1/Circ.1432, para. 4.4	All	Weekly	Crew	
Replacement of <b>rocket parachute flares</b> and <b>rockets line throwing appliances</b>		LSA Code, para. 1.2.3	All	Maker's expiry date	Crew	
Replacement of <b>smoke signals</b>		LSA Code, para. 1.2.3	All	Maker's expiry date	Crew	
Visual inspection of <b>survival craft, rescue boats</b> and <b>launching appliances</b>		SOLAS III/20.6.1	All	Weekly	Crew	

## 2 Fire Protection and Fire Fighting Equipment

Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
<b>Air recharging system for SCBAs</b>	The compressed air equipment shall be inspected.	BCH Code, para. 3.16.8	Tanker (chem/gas)	Monthly	Crew	By a responsible officer.
	The equipment shall be inspected and tested.	IGC Code, para. 14.2.6		Annually	Maker	
	Check breathing apparatus air recharging systems, if fitted, for air quality.	MSC.1/Circ.1432, para. 7.8.1	All	Annually	ALS or Crew	By crew provided a suitable measurement device is available on board. The test device is to be agreed with the maker of the air recharging system.
<b>Self-contained breathing apparatuses (SCBAs)</b>	Examine cylinder gauges to confirm they are in the correct pressure range	MSC.1/Circ.1432, para. 4.5	All	Weekly	Crew	
	The breathing apparatus shall be inspected.	BCH Code, para. 3.16.8	Tanker (chem/gas)	Monthly	Crew	By a responsible officer.
	The equipment shall be inspected and tested.	IBC Code, para. 14.2.6 IGC Code, para. 14.2.6		Annually	SER or Maker	
	Check all breathing apparatus face masks and air demand valves are in serviceable condition.	MSC.1/Circ.1432, para. 7.8.2	All	Annually	Crew	
	Perform hydrostatic testing of all self-contained breathing apparatus cylinders.	MSC.1/Circ.1432, para. 9.4	All	5-yearly	SER or ALS	Aluminium and composite cylinders shall be tested to the satisfaction of the Administration.
<b>Fixed fire detection and alarm systems</b>	Verify all fire detection and fire alarm control panel indicators are functional by operating the lamp/indicator test switch.	MSC.1/Circ.1432, para. 4.1	All	Weekly	Crew	
	Test a sample of detectors and manual call points so that all devices have been tested within five years.	MSC.1/Circ.1432, para. 5.10	All	Monthly	Crew	For very large systems the sample size shall be determined by the Administration.
	Test all fire detection systems and fire detection systems used to automatically release fire-extinguishing systems for proper operation, as appropriate.	MSC.1/Circ.1432, para. 7.2.1	All	Annually	Crew	
	Visually inspect all accessible detectors for evidence of tampering obstruction, etc., so that all detectors are inspected within one year	MSC.1/Circ.1432, para. 7.2.2				
	Test emergency power supply switchover.	MSC.1/Circ.1432, para. 7.2.3				
<b>Fire dampers</b>	Test all fire dampers for local operation.	MSC.1/Circ.1432, para. 6.3	All	Quarterly	Crew	

Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
	Test all fire dampers for remote operation.	MSC.1/Circ.1432, para. 7.6	All	Annually	Crew	
Fire doors	Verify that all fire door control panel indicators, if provided, are functional by operating the lamp/indicator switch.	MSC.1/Circ.1432, para. 4.3	All	Weekly	Crew	
	Test all fire doors located in main vertical zone bulkheads for local operation.	MSC.1/Circ.1432, para. 6.4	Passenger ships	Quarterly	Crew	
	Test all remotely controlled fire doors for proper release.	MSC.1/Circ.1432, para. 7.7	All	Annually	Crew	
Portable fire extinguishers	Inspection in accordance with the manufacturer's instruction and based on inspection guide in Res.A.951(23), table 9.1.3.	Res.A.951 (23), para. 9.1	All	Annually	Crew or SER	By, or under supervision of, a person with demonstrable competence (e.g. advanced fire-fighting training course according to STCW Code, para. A-VI/3).
	At least one fire extinguisher of each type manufactured in the same year and kept on board a ship shall be test discharged as part of a fire drill.	Res.A.951 (23), para. 9.1.1	All	5-yearly	Crew	
	All fire extinguishers together with propellant cartridges shall be hydraulically tested in accordance with the recognized standard or the manufacturer's instruction.	Res.A.951 (23), para. 9.1.2	All	10-yearly	SER or ALS	
Wheeled (mobile) fire extinguishers	Verify that all are in place, properly arranged, and are in proper condition.	MSC.1/Circ.1432, para. 5.9	All	Monthly	Crew	
	Inspection in accordance with the manufacturer's instructions.	MSC.1/Circ.1432, para. 7.12.1	All	Annually	Crew	
	Wheeled (mobile) fire extinguishers shall be visually inspected to check that all accessible components are in proper condition.	MSC.1/Circ.1432, para. 7.12.2				
	The hydrostatic test date of each cylinder is to be checked.	MSC.1/Circ.1432, para. 7.12.3				
	Dry powder wheeled (mobile) fire extinguishers are to be inverted to ensure that the powder is agitated.	MSC.1/Circ.1432, para. 7.12.4				
	Visually examination of at least one wheeled (mobile) extinguisher of each type manufactured in the same year and kept on board.	MSC.1/Circ.1432, para. 9.6	All	5-yearly	Crew	

Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
	All fire extinguishers together with propellant cartridges shall be hydraulically tested in accordance with the recognized standard or the manufacturer's instruction.	MSC.1/Circ.1432, para. 10.5	All	10-yearly	SER or ALS	
<b>Fire-fighter's outfits</b>	Verify lockers providing storage for fire-fighting equipment contain their full inventory and equipment is in serviceable condition.	MSC.1/Circ.1432, para. 5.5	All	Monthly	Crew	
<b>Fire mains, fire pumps, hydrants, hoses and nozzles</b>	Verify that all fire hydrants, hose and nozzles are in place, properly arranged, and are in serviceable condition.	MSC.1/Circ.1432, para. 5.1.1	All	Monthly	Crew	
	Operate all fire pumps to confirm that they continue to supply adequate pressure.	MSC.1/Circ.1432, para. 5.1.2				
	Verify that emergency fire pump fuel supply is adequate and heating system in satisfactory condition, if applicable.	MSC.1/Circ.1432, para. 5.1.3				
	Verify that international shore connection(s) is/are in serviceable condition.	MSC.1/Circ.1432, para. 6.1	All	Quarterly	Crew	
	Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, para. 7.1.1	All	Annually	Crew	
	Flow test all fire pumps for proper pressure and capacity. Test emergency fire pump with isolation valves closed	MSC.1/Circ.1432, para. 7.1.2				
	Test all hydrant valves for proper operation.	MSC.1/Circ.1432, para. 7.1.3				
	Pressure test a sample of fire hoses at the maximum fire main pressure, so that all fire hoses are tested within five years.	MSC.1/Circ.1432, para. 7.1.4				
	Verify all fire pump relief valves, if provided, are properly set.	MSC.1/Circ.1432, para. 7.1.5				
	Examine all filters/strainers to verify they are free of debris and contamination.	MSC.1/Circ.1432, para. 7.1.6				
	Verify that the nozzle size/type is correct, maintained and working.	MSC.1/Circ.1432, para. 7.1.7				



Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Galley exhaust ducts	Verify galley exhaust ducts and filters are free of grease build-up.	MSC.1/Circ.1432, para. 7.6.2	All	Annually	Crew	
Portable foam applicator units	Verify all portable foam applicators are in place, properly arranged, and are in proper condition.	MSC.1/Circ.1432, para. 5.8	All	Monthly	Crew	Foam control tests are to be conducted by an approved service supplier or an accredited laboratory.
	Verify that all portable foam applicators are set to the correct proportioning ratio for the foam concentrate supplied and the equipment is in proper order.	MSC.1/Circ.1432, para. 7.11.1				
	Verify that all portable containers or portable tanks containing foam concentrate remain factory sealed, and the manufacturer's recommended service life interval has not been exceeded.	MSC.1/Circ.1432, para. 7.11.2				
	Portable containers or portable tanks containing foam concentrate, excluding protein based concentrates, less than 10 years old, that remain factory sealed can normally be accepted without the periodical foam control tests required in MSC.1/Circ.1312 being carried out.	MSC.1/Circ.1432, para. 7.11.3				
	Protein based foam concentrate portable containers and portable tanks shall be thoroughly checked and, if more than five years old, the foam concentrate shall be subjected to the periodical foam control tests required in MSC.1/Circ.1312, or renewed.	MSC.1/Circ.1432, para. 7.11.4				
	The foam concentrates of any non-sealed portable containers and portable tanks, and portable containers and portable tanks where production data is not documented, shall be subjected to the periodical foam control tests required in MSC.1/Circ.1312.	MSC.1/Circ.1432, para. 7.11.5				
Ventilation systems	Test all ventilation controls interconnected with fire-protection systems for proper operation.	MSC.1/Circ.1432, para. 7.6.3	All	Annually	Crew	

Foam control tests are to be conducted by an approved service supplier or an accredited laboratory.

### 3 Fixed Fire Fighting Systems

Aerosol fire-extinguishing systems	Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Verify that all electrical connections and/or manual operating stations are properly arranged, and are in proper condition.	MSC.1/Circ.1432, para. 5.7	All	Monthly	Crew	
Verify that the actuation system/control panel circuits are within manufacturer's specifications.		All			
Verify that condensed or dispersed aerosol generators have not exceeded their mandatory replacement date. Pneumatic or electric actuators shall be demonstrated working, as far as practicable.	MSC.1/Circ.1432, para. 7.10	All	Annually	Crew	
Maintenance by approved service supplier.	Rules I-0, Sect. 3, C.1.1.4.2	All	2-yearly	SER	
Condensed or dispersed aerosol generators are to be renewed in accordance with manufacturer's recommendations.	MSC.1/Circ.1432, para. 10.4	All	10-yearly	SER	

Alternative gas fire-extinguishing systems <small>(e.g. FM 200, NOVEC 1230 or Halon)</small>	Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Verify that all fixed fire-extinguishing system control panel indicators are functional by operating the lamp/indicator test switch.	MSC.1/Circ.1432, para. 4.2.1	All	Weekly	Crew	
Verify that all control/section valves are in the correct position.	MSC.1/Circ.1432, para. 4.2.1				
Verify containers/cylinders fitted with pressure gauges are in the proper range and the installation free from leakage.	MSC.1/Circ.1432, para. 5.2	All	Monthly	Crew	
Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, para. 7.3	All	Annually	Crew	
Externally examine all high pressure cylinders for evidence of damage or corrosion.					
Check the hydrostatic test date of all storage containers.					
Functionally test all fixed system audible and visual alarms.					
Verify all control/section valves are in the correct position.					
Check the connections of all pilot release piping and tubing for tightness.					
Examine all flexible hoses in accordance with manufacturer's recommendations.					

Alternative gas fire-extinguishing systems (e.g. FM 200, NOVEC 1230 or Halon)	Regulation	Ship Type	Interval	By (see page 19)	Remark
Test all fuel shut-off controls connected to fire-protection systems for proper operation.					
The boundaries of the protected space shall be visually inspected to confirm that no modifications have been made to the enclosure that have created uncloseable openings that would render the system ineffective.					
If cylinders are installed inside the protected space, verify the integrity of the double release lines inside the protected space, and check low pressure or circuit integrity monitors on release cabinet, as applicable.					
Maintenance by approved service supplier.	Rules I-0, Sect. 3, C.1.1.4.2	All	2-yearly	SER	
All high pressure extinguishing agents cylinders and pilot cylinders shall be weighed or have their contents verified by other reliable means to confirm that the available charge in each is above 95 per cent of the nominal charge. Cylinders containing less than 95 per cent of the nominal charge shall be refilled.	MSC.1/Circ.1432, para. 8.1.1	All	2-yearly	Crew or SER	
Blow dry compressed air or nitrogen through the discharge piping or otherwise confirm the pipe work and nozzles are clear of any obstructions. This may require the removal of nozzles, if applicable.	MSC.1/Circ.1432, para. 8.1.2				
Perform internal inspection of all control valves.	MSC.1/Circ.1432, para. 9.1	All	5-yearly	SER	
Perform a hydrostatic test and internal examination of 10 per cent of the system's extinguishing agent and pilot cylinders. If one or more cylinders fail, a total of 50 per cent of the onboard cylinders shall be tested. If further cylinders fail, all cylinders shall be tested.	MSC.1/Circ.1432, para. 10.1 Rules I-0, Sect. 3, B.1.5.5.3	All	10-yearly	SER + GL	If permitted by the Administration, visual inspection and NDT (non-destructive testing) of halon cylinders may be performed in lieu of hydrostatic testing. GL HO is to be contacted prior to the NDT.
Flexible hoses shall be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years.	MSC.1/Circ.1318, para. 6.1.2 Rules I-0, Sect. 3, C.1.3.3.10.1	All	At least 10-yearly	Crew or SER	Hose Assemblies are to be delivered on board with a GL test certificate.

CO <sub>2</sub> fire-extinguishing systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
General visual inspection of the overall system condition for obvious signs of damage.	MSC.1/Circ.1318, para. 4.1	All	Monthly	Crew	
Verify that all stop valves are in the closed position.	MSC.1/Circ.1318, para. 4.1.1	All			
Verify that all releasing controls are in the proper position and readily accessible for immediate use	MSC.1/Circ.1318, para. 4.1.2	All			

CO <sub>2</sub> fire-extinguishing systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Verify that all discharge piping and pneumatic tubing is intact and has not been damaged.	MSC.1/Circ.1318, para. 4.1.3	All			For low-pressure systems only.
Verify that all high pressure cylinders are in place and properly secured.	MSC.1/Circ.1318, para. 4.1.4	All			
Verify that the alarm devices are in place and do not appear damaged.	MSC.1/Circ.1318, para. 4.1.5	All			
Verify that the pressure gauge is reading in the normal range.	MSC.1/Circ.1318, para. 4.2.1	All			
Verify that the liquid level indicator is reading within the proper level.	MSC.1/Circ.1318, para. 4.2.2	All			
Verify that the manually operated storage tank main service valve is secured in the open position.	MSC.1/Circ.1318, para. 4.2.3	All			
Verify that the vapour supply line valve is secured in the open position.	MSC.1/Circ.1318, para. 4.2.4	All			
The boundaries of the protected space shall be visually inspected to confirm that no modifications have been made to the enclosure that have created uncloseable openings that would render the system ineffective.	MSC.1/Circ.1318, para. 5.1	All	Annually	Crew	
All storage containers shall be visually inspected for any signs of damage, rust or loose mounting hardware. Cylinders that are leaking, corroded, dented or bulging shall be hydrostatically retested or replaced.	MSC.1/Circ.1318, para. 5.2	All			
System piping shall be visually inspected to check for damage, loose supports and corrosion. Nozzles shall be inspected to ensure they have not been obstructed by the storage of spare parts or a new installation of structure or machinery.	MSC.1/Circ.1318, para. 5.3	All			
The manifold shall be inspected to verify that all flexible discharge hoses and fittings are properly tightened.	MSC.1/Circ.1318, para. 5.4	All			
All entrance doors to the protected space shall close properly and shall have warning signs, which indicate that the space is protected by a fixed carbon dioxide system and that personnel shall evacuate immediately if the alarms sound. All remote releasing controls shall be checked for clear operating instructions and indication as to the space served.	MSC.1/Circ.1318, para. 5.5	All			
Maintenance by approved service supplier.	Rules I-0, Sect. 3, C.1.1.4.2	All	2-yearly	SER	
All high pressure cylinders and pilot cylinders shall 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 shall be refilled. The liquid level of low pressure storage tanks shall be checked to verify that the required amount of carbon dioxide to protect the largest hazard is available.	MSC.1/Circ.1318, para. 6.1.1	Passenger ships	2-yearly ± 3 months	Crew or SER	
		Cargo ships	2.5-yearly	Crew or SER	

CO <sub>2</sub> fire-extinguishing systems	Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
The hydrostatic test date of all storage containers shall be checked.	MSC.1/Circ.1318, para. 6.1.2	Passenger ships	2-yearly ± 3 months	Crew or SER	
		Cargo ships	2.5-yearly	Crew or SER	On the occasion of each intermediate, periodical and Class Renewal Survey.
The discharge piping and nozzles shall be tested to verify that they are not blocked. The test shall 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.	MSC.1/Circ.1318, para. 6.1.3	Passenger ships	2-yearly ± 3 months	Crew or SER	
		Cargo ships	2.5-yearly	Crew or SER	On the occasion of each intermediate, periodical and Class Renewal Survey.
<p>Where possible, all activating heads shall be removed from the cylinder valves and tested for correct functioning by applying full working pressure through the pilot lines.</p> <p>In cases where this is not possible, pilot lines shall 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.</p> <p>In both cases this shall be carried out from one or more release stations when installed.</p> <p>If manual pull cables operate the remote release controls, they shall 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.</p>	MSC.1/Circ.1318, para. 6.2.1	Passenger ships	2-yearly ± 3 months	SER	
		Cargo ships	At least 5-yearly		
All cable components should be cleaned and adjusted as necessary, and the cable connectors shall be properly tightened. If the remote release controls are operated by pneumatic pressure, the tubing shall be checked for leakage, and the proper charge of the remote releasing station pilot gas cylinders shall be verified. All controls and warning devices shall function normally, and the time delay, if fitted shall prevent the discharge of gas for the required time period.	MSC.1/Circ.1318, para. 6.2.2	Passenger ships	2-yearly ± 3 months	SER	
		Cargo ships	At least 5-yearly		
After completion of the work, the system shall be returned to service. All releasing controls shall be verified in the proper position and connected to the correct control valves. All pressure switch interlocks shall be reset and returned to service. All stop valves shall be in the closed position.	MSC.1/Circ.1318, para. 6.2.3	Passenger ships	2-yearly ± 3 months	SER	
		Cargo ships	At least 5-yearly		
High pressure cylinders shall be subjected to periodical tests at intervals not exceeding 10 years. At the 10-year inspection, at least 10% of the total number provided shall be subjected to an internal inspection and hydrostatic test. If one or more cylinders fail, a total of 50% of the onboard cylinders shall be tested. If further cylinders fail, all cylinders shall be tested.	MSC.1/Circ.1318, para. 6.1.2 Rules I-0, Sect. 3, B.1.5.5.3	All	10-yearly	SER + GL	
Flexible hoses shall be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years.	MSC.1/Circ.1318, para. 6.1.2 Rules I-0, Sect. 3, C.1.3.3.10.1	All	At least 10-yearly	SER or Crew	Hose Assemblies are to be delivered on board with a GL test certificate.

CO <sub>2</sub> fire-extinguishing systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Low pressure CO <sub>2</sub> bulk storage containers are subject to internal survey if the content has been released and the container is more than 5 years old but not more frequently than once within five years.	Rules I-0, Sect. 3, B.1.5.5.4	All	If the content has been released.	SER + GL	

Deep fat cooking fire-extinguishing systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Check in accordance with the manufacturer's instructions.	MSC.1/Circ.1432, para. 7.13	All	Annually	Crew	
Maintenance by approved service supplier.	Rules I-0, Sect. 3, C.1.1.4.2	All	2-yearly	SER	

Dry chemical powder systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Verify that all control and section valves are in the proper open or closed position, and all pressure gauges are in the proper range.	MSC.1/Circ.1432, para. 5.6	All	Monthly	Crew	
Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, para. 7.9.1	All	Annually	Crew	Due to the powder's affinity for moisture, any nitrogen gas introduced for agitation must be moisture free.
Verify that the pressure regulators are in proper order and within calibration.	MSC.1/Circ.1432, para. 7.9.2				
Agitate the dry chemical powder charge with nitrogen in accordance with system manufacturer's instructions.	MSC.1/Circ.1432, para. 7.9.3				
Maintenance by approved service supplier.	Rules I-0, Sect. 3, C.1.1.4.2	All	2-yearly	SER	
Blow dry nitrogen through the discharge piping to confirm that the pipe work and nozzles are clear of any obstructions.	MSC.1/Circ.1432, para. 8.2.1	All	2-yearly	SER	
Operationally test local and remote controls and section valves.	MSC.1/Circ.1432, para. 8.2.2				
Verify the contents of propellant gas cylinders (including remote operating stations).	MSC.1/Circ.1432, para. 8.2.3				
Test a sample of dry chemical powder for moisture content.	MSC.1/Circ.1432, para. 8.2.4				
Subject the powder containment vessel, safety valve and discharge hoses to a full working pressure test.	MSC.1/Circ.1432, para. 8.2.5				
Perform hydrostatic test and internal inspection of powder containment vessels.	Rules I-0, Sect. 3, B.1.5.5.1/5	All	5-yearly	(Crew or SER) + GL	Hydrostatic test may be dispensed with, provided that their internal inspection does not reveal any deficiencies.

Dry chemical powder systems	Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Subject all powder containment vessels to hydrostatic or non-destructive testing (NDT) carried out by an accredited service agent.	MSC.1/Circ.1432, para. 10.3	All	10-yearly	SER + GL	In case of NDT contact GL HO prior to the testing.

  

Foam fire-extinguishing systems	Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
Verify that all control and section valves are in the proper open or closed position, and all pressure gauges are in the proper range.	MSC.1/Circ.1432, para. 5.3	All	Monthly	Crew	
Verify that the proper quantity of foam concentrate is provided in the foam system storage tank.	MSC.1/Circ.1432, para. 6.2	All	Quarterly	Crew	
Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, para. 7.4.1	All	Annually	Crew	
Functionally test all fixed system audible alarms.	MSC.1/Circ.1432, para. 7.4.2				
Flow test all water supply and foam pumps for proper pressure and capacity, and confirm flow at the required pressure in each section (Ensure all piping is thoroughly flushed with fresh water after service.).	MSC.1/Circ.1432, para. 7.4.3				
Test all system cross connections to other sources of water supply for proper operation.	MSC.1/Circ.1432, para. 7.4.4				
Verify all pump relief valves, if provided, are properly set.	MSC.1/Circ.1432, para. 7.4.5				
Examine all filters/strainers to verify they are free of debris and contamination.	MSC.1/Circ.1432, para. 7.4.6				
Verify that all control/section valves are in the correct position	MSC.1/Circ.1432, para. 7.4.7				
Blow dry compressed air or nitrogen through the discharge piping or otherwise confirm the pipework and nozzles of high expansion foam systems are clear of any obstructions, debris and contamination.	MSC.1/Circ.1432, para. 7.4.8				
Take samples from all foam concentrates carried on board and subject them to the periodical control tests in MSC.1/Circ.1312, for low expansion foam, or MSC/Circ.670 for high expansion foam.	MSC.1/Circ.1432, para. 7.4.8			SER or ALS	Except for non-alcohol resistant foam, the first test need not be conducted until 3 years after being supplied to the ship.
Test all fuel shut-off controls connected to fire-protection systems for proper operation.	MSC.1/Circ.1432, para. 7.4.8			Crew	
Maintenance by approved service supplier.	Rules I-0, Sect. 3, C.1.1.4.2	All	2-yearly	SER	
Perform internal inspection of all control valves.	MSC.1/Circ.1432, para. 9.2.1	All	5-yearly	SER	

Foam fire-extinguishing systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Flush all high expansion foam system piping with fresh water, drain and purge with air.	MSC.1/Circ.1432, para. 9.2.2				
Check all nozzles to prove they are clear of debris.	MSC.1/Circ.1432, para. 9.2.3				
Test all foam proportioners or other foam mixing devices to confirm that the mixing ratio tolerance is within +30 to -10% of the nominal mixing ratio defined by the system approval.	MSC.1/Circ.1432, para. 9.2.4				

Water mist, water spray and sprinkler systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Verify that all control panel indicators and alarms are functional.	MSC.1/Circ.1432, para. 4.7.1	All	Weekly	Crew	
Visually inspect pump unit and its fittings.	MSC.1/Circ.1432, para. 4.7.2				
Check the pump unit valve positions, if valves are not locked, as applicable.	MSC.1/Circ.1432, para. 4.7.3				
Verify all control, pump unit and section valves are in the proper open or closed position.	MSC.1/Circ.1432, para. 5.4.1	All	Monthly	Crew	
Verify sprinkler pressure tanks or other means have correct levels of water.	MSC.1/Circ.1432, para. 5.4.2				
Test automatic starting arrangements on all system pumps so designed.	MSC.1/Circ.1432, para. 5.4.3				
Verify that all standby pressure and air/gas pressure gauges are within the proper pressure ranges.	MSC.1/Circ.1432, para. 5.4.3				
Test a selected sample of system section valves for flow and proper initiation of alarms.	MSC.1/Circ.1432, para. 5.4.4	All	Annually	Crew	The valves selected for testing shall be chosen to ensure that all valves are tested within a one-year period.
Verify proper operation of all water mist, water-spray and sprinkler systems using the test valves for each section.	MSC.1/Circ.1432, para. 7.5.1				
Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, para. 7.5.2				
Externally examine all high pressure cylinders for evidence of damage or corrosion.	MSC.1/Circ.1432, para. 7.5.3				
Check the hydrostatic test date of all high pressure cylinders.	MSC.1/Circ.1432, para. 7.5.4				
Functionally test all fixed system audible and visual alarms.	MSC.1/Circ.1432, para. 7.5.5				
Flow test all pumps for proper pressure and capacity.	MSC.1/Circ.1432, para. 7.5.6				



Water mist, water spray and sprinkler systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Test all antifreeze systems for adequate freeze protection.	MSC.1/Circ.1432, para. 7.5.7				
Test all system cross connections to other sources of water supply for proper operation.	MSC.1/Circ.1432, para. 7.5.8				
Verify all pump relief valves, if provided, are properly set.	MSC.1/Circ.1432, para. 7.5.9				
Examine all filters/strainers to verify they are free of debris and contamination.	MSC.1/Circ.1432, para. 7.5.10				
Verify that all control/section valves are in the correct position.	MSC.1/Circ.1432, para. 7.5.11				
Blow dry compressed air or nitrogen through the discharge piping of dry pipe systems, or otherwise confirm the pipework and nozzles are clear of any obstructions.	MSC.1/Circ.1432, para. 7.5.12				This may require the removal of nozzles, if applicable.
Test emergency power supply switchover, where applicable.	MSC.1/Circ.1432, para. 7.5.13				
Visually inspect all sprinklers focusing in areas where sprinklers are subject to aggressive atmosphere (like saunas, spas, kitchen areas) and subject to physical damage (like luggage handling areas, gyms, play rooms, etc.) so that all sprinklers are inspected within one year.	MSC.1/Circ.1432, para. 7.5.14				
Check for any changes that may affect the system such as obstructions by ventilation ducts, pipes, etc.	MSC.1/Circ.1432, para. 7.5.15				
Test a minimum of one section in each open head water mist system by flowing water through the nozzles.	MSC.1/Circ.1432, para. 7.5.16				The sections tested shall be chosen so that all sections are tested within a five-year period.
Test a minimum of two automatic sprinklers or automatic water mist nozzles for proper operation.	MSC.1/Circ.1432, para. 7.5.17				
Maintenance by approved service supplier.	Rules I-0, Sect. 3, C.1.1.4.2	All	2-yearly	SER	Water-spraying systems supplied from the fire main and consisting solely of an isolating valve and open nozzles are exempted from this requirement (e.g. for paint store).
Flush all ro-ro deck deluge system piping with water, drain and purge with air.	MSC.1/Circ.1432, para. 9.3.1	All	5-yearly	SER	
Perform internal inspection of all control/section valves.	MSC.1/Circ.1432, para. 9.3.2				
Check condition of any batteries, or renew in accordance with manufacturer's recommendations.	MSC.1/Circ.1432, para. 9.3.3				
Perform internal examination water pressure cylinders.	Rules I-0, Sect. 3, B.1.5.5.1	All	5-yearly	(Crew or SER) + GL	

Water mist, water spray and sprinkler systems	Regulation	Ship Type	Interval	By (see page 19)	Remark
Perform hydrostatic test and internal examination for gas and water pressure cylinders.	MSC.1/Circ.1432, para. 10.2 Rules I-0, Sect. 3, B.1.5.5.3	All	10-yearly	SER + GL	

## 4 Radio and Navigational Equipment

Equipment / Requirement		Regulation	Ship Type	Interval	By (see page 19)	Remark
Testing of the <b>automatic identification system</b> (AIS)		SOLAS V/18.9	All	Annually	SER	Test report shall be retained on board the ship.
<b>Long range identification and tracking system</b> (LRIT)		SOLAS V/19-1 SOLAS V/16 MSC.1/Circ.1307	All	Annually	ASP	Conformance Test Report shall be retained on board the ship.
Checking of <b>radio battery</b>		SOLAS IV/13.6.2	All	Annually	SER	
<b>Satellite EPIRBs</b>	Testing according to MSC.1/Circ.1040/Rev.1.	SOLAS IV/15.9.1	All	Annually	SER	
	Testing according to MSC/Circ.1039.	SOLAS IV/15.9.2	All	5-yearly	SER	Certificate of Compliance shall be issued.
<b>Standard magnetic compass</b>	Determination of Magnetic Compass Error	STCW Code/Sec. A-VIII/2.34.2	All	Once a watch	Crew	
	Adjustment incl. Curve of Residual Deviation	Flag State requirements	All	Individual Flag State requirements	Individual Flag State requirements	Table or Curve of residual Deviation to be available at all times and compass deviation book to be properly maintained will be checked annually during safety equipment surveys. Res.A.1053(27), item (EA) 1.2.1.27
<b>Steering gear</b>	Testing	SOLAS V/26.1	All	12 hours before departure	Crew	
	Emergency steering drill	SOLAS V/26.4	All	Quarterly	Crew	
<b>Voyage data recorder</b> (VDR)		SOLAS V/18.8	All	Annually	SER	Certificate of Compliance and maintenance report shall be retained on board the ship.

## 5 Others

Equipment / Requirement		Regulation	Ship Type	Interval	By <small>(see page 19)</small>	Remark
<b>Lightweight survey</b>		SOLAS II-1/5.5 IS Code VIII/8.1.5	Passenger ships	5-yearly	SER or Crew + GL	Provided crew is properly trained.
<b>Low-location lighting systems</b>	Verify that the low-location lighting systems are functional by switching off normal lighting in selected locations.	MSC.1/Circ.1432, para. 4.6	Passenger ships	Weekly	Crew	
	Test the luminance in accordance with the procedures in resolution A.752(18).	MSC.1/Circ.1432, para. 9.5 Res.A.752(18)	Passenger ships	5-yearly	SER	
<b>Medical oxygen</b>	Replacement of oxygen.	National pharmaceutical regulations, if applicable	All	According to national pharmaceutical regulations	Maker	
		GL Recommendation		Maker's expiry date		
	Hydrostatic test and internal inspection of cylinders.	Flag State, if applicable	All	According to Flag State requirements	SER or ALS	Scope of inspection specified by the Flag State and/or recognized international standards (e.g. ISO, EN) are to be observed.
		GL Recommendation		According to maker's instructions and/or international standards (e.g. ISO, EN)		

## Code Letters

### Column “By”

ALS	Accredited laboratory/service company.
ASP	Recognized or approved application service provider according to resolution MSC.263(84).
Crew	Crew members.
GL	In presence of Germanischer Lloyd Surveyor.
Maker	Manufacturer or Service Company approved by the manufacturer.
MTP	Manufacturer Trained Personnel: appropriately trained and certified by the manufacturer for thorough examinations and overhauls of exactly the same launching appliances and release gears.
SBM	Shore-based maintenance provider.
SER	Service supplier approved by GL.
SP	Service Personnel Competent person who has training from at least 3 Launching Appliances Manufacturers or at least one (1) Maker Approval Certificate per Service Technician included confirmed min. 100 Services on this kind (for the same design type) of Launching Appliance and Winches. SP has the necessary tools and spare parts together with the manufacturer's maintenance instruction(s). The competent person is not necessarily a member of a shore based service company and may be Owner's Representative (Superintendent, DPA or similar). If SP attends Launching Appliances for which he holds valid Maker's Certificate, he has to be considered as MTP. GL Surveyor evaluates the technical knowledge/skill of SP and if necessary stops any further progress in the maintenance for Launching Appliances. In no case the attending surveyor takes liability for maintenance works conducted by SP.
SPF	Service Personnel authorized directly from the Flag State Administration of the respective vessel.

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