DNV·GL

CLASS GUIDELINE

DNVGL-CG-0058 Edition July 2019

Maintenance of safety equipment

DNV GL AS

FOREWORD

DNV GL class guidelines contain methods, technical requirements, principles and acceptance criteria related to classed objects as referred to from the rules.

Any comments may be sent by e-mail to *rules@dnvgl.com*

CHANGES – CURRENT

This document supersedes the April 2016 edition of DNVGL-CG-0058.

Changes in this document are highlighted in red colour. However, if the changes involve a whole chapter, section or subsection, normally only the title will be in red colour.

Changes July 2019

Topic	*Reference*	*Description*
List of safety equipment and their maintenance requirements	Sec.2	Appendix A has been replaced by section 2.
New IMO Resolution MSC.402(96)	Sec.1 [7]	Added reference to the new IMO Resolution MSC.402(96).
	Sec.1 [8]	Authorization and certification requirements of crew and service providers as per IMO Resolution MSC.402(96) added.
	Sec.2 [1]	Requirements from IMO Resolution MSC.402(96) for maintenance, examination and test of lifeboats, rescue boats, launching appliances and on-load release gears added.
Requirement clarification	Sec.1 [8]	Meaning of the term 'annually' clarified.
	Sec.2 [1]	5-yearly test of free-fall lifeboat release gear clarified.
	Sec.2 [3]	Testing intervals for CO2 fire extinguishing systems, in line with MSC.1/Circ.1318.
		Foam concentrates: clarification for intervals of chemical stability tests and periodical controls.
		Recommendations on sprinkler systems and clarifications of requirements on ro-ro spaces.
		Annually and 5-yearly test of fixed local-application fire-extinguishing system added.
	Sec.2 [4]	Clarifications by IACS UI SC279 for navigation equipment added.
	Sec.2 [5]	Portable atmosphere testing instrument requirements added.

Editorial corrections

In addition to the above stated changes, editorial corrections may have been made.

CONTENTS

SECTION 1 GENERAL

1 Introduction

The requirements for inspection and maintenance of vessels' safety equipment can be found in a large number of statutory instruments. Establishing an easy, user-friendly and practical overview of such requirements has proven to be challenging. This overview can now be found in the present document.

2 Objective

The objective of this guideline is to provide a compact and practical tool that gives ship owners and operators an overview of all applicable requirements for the inspection and maintenance of vessels' safety equipment.

3 Scope

The guideline is written in a table format, see Sec.2, listing all equipment and systems for which SOLAS and other statutory instruments require periodical inspections and maintenance. The tables in Sec.2 also includes the ship type which the requirements are applicable to, the intervals between subsequent inspections and maintenance and indicate which parts of the inspections and maintenance shall be completed by competent crew members or specially trained persons or attended by surveyor. The guideline includes also requirements and recommendations by DNV GL and IACS.

The document does not replace the original equipment manufacturer’s instructions and maintenance requirements and does not address additional or more stringent requirements from flag administrations. Users shall take these requirements into account.

The document does not replace or overrule any existing rules, regulations, statutory requirements or technical standards.

Finally, the document does not replace users’ individual responsibility to know the applicable requirements and ensure compliance at all points in time.

4 Application

Inspection and maintenance requirements apply to all vessels for which SOLAS apply.

Users may use this document to establish or validate inspection and maintenance routines in their planned maintenance systems. When establishing the maintenance and inspection procedures it should be noted that certain jobs may be performed by competent crew members, while others shall be performed by specially trained persons. It should also be noted that certain jobs shall be scheduled to coincide with a relevant safety equipment survey.

5 Precautions

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.

It should be stated in the ship’s quality system who is considered competent to carry out service/ maintenance of certain equipment.

DNV GL reserves the right to amend the content of the document at any time.

6 Records

Records of the inspections shall be carried on board of the ship, or be accessible in digital format on board. 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 logbook.

7 New requirements for survival crafts, launching appliances and release gears - IMO Resolution MSC.402(96)

From 1st of January 2020, IMO Resolution MSC.402(96) establishes a uniform, safe and documented standard for maintenance, thorough examination, operational testing, overhaul and repair of lifeboats (including free-fall lifeboats), rescue boats (including fast rescue boats), launching appliances and on-load and off-load release gears.

Crew members carrying out annual through examinations and operational tests of survival crafts, launching appliances and on-load and off-load release gears shall be certified by the manufacturer or authorized service provider, for each make and type of the equipment in accordance with Res. MSC.402(96).

Service providers carrying out thorough examination, operational testing, repair and overhaul of survival crafts, launching appliances and on-load and off-load release gears shall be authorized by the relevant flag administration (that may accept other administrations or their Recognized Organizations) in accordance with Res. MSC.402(96).

8 Definitions

Table 1 Definitions

Term/ Abbreviation	*Definition*
SI	DNV GL statutory interpretations. These can be found under DNV GL Rules and standards.
Crew	Crew members and/or senior ship's officers qualified and competent in accordance with relevant circulars (See also [5] and [7]).
By DNV GL	In presence of or by DNV GL surveyor.
Maker	Manufacturer of the equipment or service company approved by the manufacturer.
SER	Service supplier for the type of equipment/service approved by DNV GL or flag state administration, accredited laboratory/service company, shore-based maintenance provider (See also [7]).
Annually	Unless specified otherwise, "Annually" in the table means a 12 months interval and does not necessarily coincide with the safety equipment annual survey (i.e no survey windows).

SECTION 2 LIST OF SAFETY EQUIPMENT AND THEIR MAINTENANCE REQUIREMENTS

1 Life-saving appliances

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
1.1 Means of embarkation on and disembarkation from ships (gangways, accommodation ladders, incl. winch and fittings, as well as use for pilot transfer)	1.1.1 Maintenance and inspection	SOLAS II-1/3-9.3 SOLAS III/20.4 SOLAS III/20.7.2 MSC.1/Circ.1331, Annex, par. 4	All	Monthly	Crew	In accordance with manufacturer's instructions.
						Maintenance of wires acc. to SOLAS III/20.4.
	1.1.2 Examination	SOLAS II-1/3-9.3 MSC.1/Circ.1331, Annex, par. 5	All	Annually	Crew + DNV GL	Concurrently with annual/periodical/ renewal surveys required by SOLAS I/7 and I/8
	1.1.3 Examination and operational test with specified max. operational load	SOLAS II-1/3-9.3 MSC.1/Circ.1331, Annex, par. 5	All	5-yearly	Crew + DNV GL	
1.2 Emergency escape breathing devices (EEBDs)	1.2.1 Examine cylinder gauges to confirm they are in the correct pressure range	MSC.1/Circ.1432, par. 4.5	All	Weekly	Crew	
	1.2.2 Check according to maker's instructions	MSC.1/Circ.1432, par. 7.8.3	All	Annually	Crew	
	1.2.3 Hydrostatic test and internal inspection of cylinders	IACS Rec. No.88 SI II-2/14.2 item 13.1.1 g5)	All	As specified by the manufacturer (or every 5 years if not specified)	SER	Intervals specified in recognized international standards (e.g. ISO, EN) are to be observed.
1.3 Testing of emergency lighting		SOLAS III/19.3.3.9	All	At each abandon ship drill	Crew	
1.4 Falls used in launching appliances	1.4.1 Maintenance	SOLAS III/20.4 MSC.1/Circ.1206/ Rev.1 Res. MSC.402(96) - 6.2.9	All	Weekly	Crew	Inspections according to maker's maintenance guidelines. Special concern for hidden areas and areas of end terminations. Concurrently with annual/periodical/ renewal surveys required by SOLAS I/7 and I/8
				Monthly	Crew	
				Annually	SER or Crew SER (after 1st of Jan 2020)	

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	1.4.2 Renewal	SOLAS III/20.4	All	After 5 years at the latest, or earlier if necessary due to deterioration	SER or Crew	
1.5 Replacement of first-aid outfit and anti-seasickness medicine of lifeboat equipment		LSA Code, par. 1.2.3	All	Maker's expiry date	Crew	
1.6 Replacement of food rations of lifeboat equipment		LSA Code, par. 1.2.3	All	Maker's expiry date	Crew	
1.7 Maintenance of hydrostatic release units (non-disposable)		SOLAS III/20.9.1	All	Annually	SER	Every 12 months. May be extended to 17 months. Some flag administrations require to be consulted for acceptance.
1.8 Immersion suits and anti-exposure suits	1.8.1 Inspection	SOLAS III/20.7.2 SOLAS III/36.1 MSC/Circ.1047	All	Monthly	Crew	
	1.8.2 Air pressure test (seams and closures)	MSC/Circ.1114	All	3-yearly	SER or Crew	By crew provided suitable equipment is available on board.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
1.9 Maintenance of inflatable liferafts, lifejackets		SOLAS III/20.8.1.1 RES. A.761(18) (inflatable liferafts)	All	Annually	SER	Every 12 months. May be extended to 17 months. Some flag administrations require to be consulted for acceptance. *Inflatable liferafts:* Administration can accept specific liferafts for extended service intervals acc. to SOLAS III/20.8.3 and MSC.1/ Circ.1328.
1.10 Launching appliances and on-load release gears	1.10.1 Launching appliance annual thorough examination	SOLAS III/20.11.1.2	All	Annually	SER or Crew SER (after 1st of Jan 2020)	Concurrently with annual/periodical/ renewal surveys required by SOLAS I/7 and I/8
		MSC.1/Circ.1206/ Rev.1/ Appendix of Annex 1, par. 2.8 and 2.9 as applicable Res. MSC.402(96) - 6.2.9				
	1.10.2 Dynamic test of the winch brake	SOLAS III/20.11.1.3				
		MSC.1/Circ.1206/ Rev.1/ Appendix of Annex 1, par. 3.1 and 3.3 as applicable Res. MSC.402(96) - 6.2.10				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	1.10.3 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, par. 2.4/2.5/2.6 and 2.7 Res. MSC.402(96) - 6.2.4 and 6.2.5				
	1.10.4 Dynamic test of the winch brake	SOLAS III/20.11.1.3 MSC.1/Circ.1206/ Rev.1/ Appendix of Annex 1, par. 3.2 and 3.3 as applicable Res. MSC.402(96) - 6.3.1 IACS UI SC144	All	5-yearly	Crew + DNV GL SER + DNV GL (after 1st of Jan 2020)	Concurrently with annual/periodical/ renewal surveys required by SOLAS I/7 and I/8
	1.10.5 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, 20.11.2.4 + 20.11.3.3 MSC.1/Circ.1206/ Rev.1/ Appendix of Annex 1, par. 4 Res. MSC.402(96) - 6.3.3 IACS UI SC144	All	5-yearly	Crew + DNV GL SER + DNV GL (after 1st of Jan 2020)	Free-fall lifeboats can be operationally tested by a simulated launching if fitted with an approved simulated launching device. From 2020-01-01 the 10 % overload test is required in connection with 5-yearly overload also for free-fall lifeboats with simulated launching.
1.11 Examination of lifeboats		MSC.1/Circ.1206/ Rev.1 Res. MSC.402(96) - 6.2.3	All	Annually	SER or Crew SER (after 1st of Jan 2020)	Engine, propulsion, manoeuvring and power supply system.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
1.12 Lifeboats (except free-fall lifeboats)	1.12.1 Moving from stowed position	SOLAS III/20.6.3	All	Weekly	Crew	
	1.12.2 Turning out from stowed position	SOLAS III/20.7.1	All	Monthly	Crew	
	1.12.3 Launched and manoeuvred in the water (abandon ship drill)	SOLAS III/19.3.4.3	All	3-monthly	Crew	
1.13 Free-fall lifeboats abandon ship drill		SOLAS III/19.3.4.4	All	3-monthly	Crew	Free-fall or simulated launching every 6 months.
1.14 Inspection of lifeboat equipment		SOLAS III/20.7.2	All	Monthly	Crew	
1.15 Test run of lifeboat and rescue boat engines		SOLAS III/20.6.2 MSC.1/Circ.1206/ Rev.1	All	Weekly	Crew	
1.16 Lifeboats with self-contained air-support system	1.16.1 Examination (incl. external inspection of air cylinders)	MSC.1/Circ.1206/ Rev.1 Res. MSC.402(96) - 6.2.3	Tanker (chem/ gas)	Annually	SER or Crew SER (after 1st of Jan 2020)	Incl. external inspection of air cylinders.
	1.16.2 Hydrostatic test of air cylinders	IACS Rec. No.88	Tanker (chem/ gas)	5-yearly	SER	
1.17 Examination of lifeboats with sprinkler system		MSC.1/Circ.1206/ Rev.1 Res. MSC.402(96) - 6.2.3	Tanker (oil)	Annually	SER or Crew SER (after 1st of Jan 2020)	
1.18 Rescue boat launching and manoeuvring in the water		SOLAS III/19.3.3.6	All	3-monthly (as far as practical monthly)	Crew	
1.19 Battery replacement of lifebuoy lights		LSA Code, par. 1.2.3	All	Maker's expiry date	Crew	Annually, if not marked with expiry date.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
1.20 Marine evacuation systems (MES)	1.20.1 Service	SOLAS III/20.8.1	All (where applicable)	Annually (12 months)	SER	Administration may extend this period to 17 months.
	1.20.2 Test	SOLAS III/20.8.2	All (where applicable)	6-yearly	SER	Deployment on rotational basis at intervals to be agreed by flag administration, however each system to be deployed at least once every six years.
1.21 Testing of public address systems and general alarm systems		SOLAS III/20.6.4 MSC.1/Circ.1432, par. 4.4	All	Weekly	Crew	
1.22 Replacement of rocket parachute flares and rocket line- throwing appliances		LSA Code, par. 1.2.3	All	Maker's expiry date	Crew	
1.23 Replacement of smoke signals		LSA Code, par. 1.2.3	All	Maker's expiry date	Crew	
1.24 Visual inspection of survival craft, rescue boats and launching appliances		SOLAS III/20.6.1	All	Weekly	Crew	

2 Fire protection and fire-fighting equipment

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
2.1 Air-recharging system for SCBAs	2.1.1 The compressed-air equipment shall be inspected.	BCH Code, par. 3.16.8	Tanker (chem/ gas)	Monthly	Crew	
	2.1.2 The equipment shall be inspected and tested.	IGC Code, par. 14.2.6		Annually	SER or Maker	
	2.1.3 Check breathing apparatus air recharging systems, if fitted, for air quality.	MSC.1/Circ.1432, par. 7.8.1 SI II-2/14.2.2 item 13.1.1 g4)	All	Annually	SER or Maker 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.
2.2 Self-contained breathing apparatuses (SCBAs)	2.2.1 Examine cylinder gauges to confirm they are in the correct pressure range.	MSC.1/Circ.1432, par. 4.5	All	Weekly	Crew	
	2.2.2 The breathing apparatus shall be inspected.	BCH Code, par. 3.16.8 IBC Code, par. 14.2.6 IGC Code, par. 14.2.6	Tanker (chem/ gas)	Monthly	Crew	
	2.2.3 The equipment shall be inspected and tested.			Annually	SER or Maker	
	2.2.4 Check that all breathing apparatus face masks and air demand valves are in serviceable condition.	MSC.1/Circ.1432, par. 7.8.2	All	Annually	Crew	
	2.2.5 Perform hydrostatic testing of all self-contained breathing apparatus cylinders.	MSC.1/Circ.1432, par. 9.4 SI II-2/14.2.2 item 13.1.1 g4)	All	5-yearly	SER	Aluminium and composite cylinders shall be tested to the satisfaction of the administration.
2.3 Fixed fire-detection and alarm systems	2.3.1 Verify that all fire detection and fire alarm control panel indicators are functional by operating the lamp/indicator test switch.	MSC.1/Circ.1432, par. 4.1	All	Weekly	Crew	

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	2.3.2 Test a sample of detectors and manual call points so that all devices have been tested within five years.	MSC.1/Circ.1432, par. 5.10	All	Monthly	Crew	
	2.3.3 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, par. 7.2.1	All	Annually	Crew	
	2.3.4 Visually inspect all accessible detectors for evidence of tampering, obstruction, etc., so that all detectors are inspected within one year.	MSC.1/Circ.1432, par. 7.2.2				
	2.3.5 Test emergency power supply switchover.	MSC.1/Circ.1432, par. 7.2.3				
2.4 Fire dampers	2.4.1 Test all fire dampers for local operation.	MSC.1/Circ.1432, par. 6.3	All	Quarterly	Crew	
	2.4.2 Test all fire dampers for remote operation.	MSC.1/Circ.1432, par. 7.6	All	Annually	Crew	
2.5 Fire doors	2.5.1 Verify that all fire door control panel indicators, if provided, are functional by operating the lamp/ indicator switch.	MSC.1/Circ.1432, par. 4.3	All	Weekly	Crew	
	2.5.2 Test all fire doors located in main vertical zone bulkheads for local operation.	MSC.1/Circ.1432, par. 6.4	Passenger ships	Quarterly	Crew	
	2.5.3 Test all remotely controlled fire doors for proper release.	MSC.1/Circ.1432, par. 7.7	All	Annually	Crew	
2.6 Portable fire extinguishers	2.6.1 Inspection in accordance with the manufacturer's instructions and based on inspection guide in Res.A.951 (23), table 9.1.3.	Res.A.951 (23), par. 9.1	All	Annually	Crew	

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	2.6.2 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), par. 9.1.1	All	5-yearly	Crew	
	2.6.3 All fire extinguishers together with propellant cartridges shall be hydraulically tested in accordance with the recognized standard or the manufacturer's instructions.	Res.A.951 (23), par. 9.1.2 SI II-2/14.2.2 item 13.1.1 a3)	All	10-yearly	SER	
2.7 Wheeled (mobile) fire extinguishers	2.7.1 Verify that all are in place, properly arranged, and are in proper condition.	MSC.1/Circ.1432, par. 5.9	All	Monthly	Crew	
	2.7.2 Inspection in accordance with the manufacturer's instructions.	MSC.1/Circ.1432, par. 7.12.1	All	Annually	Crew	
	2.7.3 Wheeled (mobile) fire extinguishers shall be visually inspected to check that all accessible components are in proper condition.	MSC.1/Circ.1432, par. 7.12.2				
	2.7.4 The hydrostatic test date of each cylinder is to be checked.	MSC.1/Circ.1432, par. 7.12.3				
	2.7.5 Dry powder wheeled (mobile) fire extinguishers are to be inverted to ensure that the powder is agitated.	MSC.1/Circ.1432, par. 7.12.4				
	2.7.6 Visual examination of at least one wheeled (mobile) extinguisher of each type manufactured in the same year and kept on board.	MSC.1/Circ.1432, par. 9.6	All	5-yearly	Crew	
	2.7.7 All fire extinguishers together with propellant cartridges shall be hydraulically tested in accordance with the recognized standard or the manufacturer's instructions.	MSC.1/Circ.1432, par. 10.5 SI II-2/14.2.2 item 13.1.1 a3)	All	10-yearly	SER	

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
2.8 Firefighter's outfits	Verify that lockers providing storage for fire fighting equipment contain their full inventory and that equipment is in serviceable condition.	MSC.1/Circ.1432, par. 5.5	All	Monthly	Crew	
2.9 Fire mains, fire pumps, hydrants, hoses and nozzles	2.9.1 Verify that all fire hydrants, hoses and nozzles are in place, properly arranged, and are in serviceable condition.	MSC.1/Circ.1432, par. 5.1.1	All	Monthly	Crew	
	2.9.2 Operate all fire pumps to confirm that they continue to supply adequate pressure.	MSC.1/Circ.1432, par. 5.1.2				
	2.9.3 Verify that emergency fire pump fuel supply is adequate and heating system is in satisfactory condition, if applicable.	MSC.1/Circ.1432, par. 5.1.3				
	2.9.4 Verify that international shore connection(s) is/are in serviceable condition.	MSC.1/Circ.1432, par. 6.1	All	Quarterly	Crew	
	2.9.5 Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, par. 7.1.1	All	Annually	Crew	
	2.9.6 Flow test all fire pumps for proper pressure and capacity. Test emergency fire pump with isolation valves closed.	MSC.1/Circ.1432, par. 7.1.2	All	Annually	Crew	
	2.9.7 Test all hydrant valves for proper operation.	MSC.1/Circ.1432, par. 7.1.3				
	2.9.8 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, par. 7.1.4				
	2.9.9 Verify that all fire pump relief valves, if provided, are properly set.	MSC.1/Circ.1432, par. 7.1.5				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	2.9.10 Examine all filters/strainers to verify that they are free of debris and contamination.	MSC.1/Circ.1432, par. 7.1.6				
	2.9.11 Verify that the nozzle size/ type is correct, maintained and working.	MSC.1/Circ.1432, par. 7.1.7				
2.10 Galley exhaust ducts	Verify that galley exhaust ducts and filters are free of grease build-up.	MSC.1/Circ.1432, par. 7.6.2	All	Annually	Crew	
2.11 Portable foam applicator units	2.11.1 Verify that all portable foam applicators are in place, properly arranged, and are in proper condition.	MSC.1/Circ.1432, par. 5.8	All	Monthly	Crew	
	2.11.2 Verify that all portable foam applicators are set to the correct proportioning ratio for the foam concentrate supplied and that the equipment is in proper order.	MSC.1/Circ.1432, par. 7.11.1	All	Annually	Crew	
	2.11.3 Verify that all portable containers or portable tanks containing foam concentrate remain factory sealed, and that the manufacturer's recommended service life interval has not been exceeded.	MSC.1/Circ.1432, par. 7.11.2				
	2.11.4 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, par. 7.11.3	All	Annually	Crew	The foam control tests are to be conducted by SER or maker.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	2.11.5 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, par. 7.11.4	All	Annually	Crew	
	2.11.6 The foam concentrates of any non-sealed portable containers and portable tanks, and portable containers and portable tanks for which production data is not documented, shall be subjected to the periodical foam control tests required in MSC.1/Circ.1312.	MSC.1/Circ.1432, par. 7.11.5				
2.12 Ventilation systems	Test all ventilation controls interconnected with fire protection systems for proper operation.	MSC.1/Circ.1432, par. 7.6.3	All	Annually	Crew	

3 Fixed fire-fighting systems

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
3.1 Aerosol fire-extinguishing systems	3.1.1 Verify that all electrical connections and/or manual operating stations are properly arranged, and are in proper condition.	MSC.1/Circ.1432, par. 5.7	All	Monthly	Crew	
	3.1.2 Verify that the actuation system/control panel circuits are within manufacturer's specifications.					
	3.1.3 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, par. 7.10	All	Annually	Crew	
	3.1.4 Maintenance by approved service supplier.	Maker's recommendations	All	As per maker's recommendations	SER	
	3.1.5 Condensed or dispersed aerosol generators are to be renewed in accordance with manufacturer's recommendations.	MSC.1/Circ.1432, par. 10.4			2.5-yearly	
3.2 Equivalent gas fire-extinguishing systems (e.g. FM 200, NOVEC 1230 or Halon)	3.2.1 Verify that all fixed fire-extinguishing system control panel indicators are functional by operating the lamp/indicator test switch.	MSC.1/Circ.1432, par. 4.2.1	All	Weekly	Crew	
	3.2.2 Verify that all control/section valves are in the correct position.	MSC.1/Circ.1432, par. 4.2.1				
	3.2.3 Verify that containers/ cylinders fitted with pressure gauges are in the proper range and that the installation is free from leakage.	MSC.1/Circ.1432, par. 5.2	All	Monthly	Crew	
	3.2.4 Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, par. 7.3	All	Annually	Crew	

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.2.5 Externally examine all high pressure cylinders for evidence of damage or corrosion.					
	3.2.6 Check the hydrostatic test date of all storage containers.					
	3.2.7 Functionally test all fixed system audible and visual alarms.					
	3.2.8 Verify that all control/section valves are in the correct position.					
	3.2.9 Check the connections of all pilot release piping and tubing for tightness.					
	3.2.10 Examine all flexible hoses in accordance with manufacturer's recommendations.					
	3.2.11 Test all fuel shut-off controls connected to fire-protection systems for proper operation.					
	3.2.12 The boundaries of the protected space shall be visually inspected to confirm that no modifications have been made to the enclosures that have created uncloseable openings that would render the system ineffective.	MSC.1/Circ.1432, par. 7.3	All	Annually	Crew	
	3.2.13 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.					
	3.2.14 Maintenance by approved service supplier.	SI II-2/14.2.2 item 13.1.1 c3) and c4)	Passenger ships	2-yearly	SER	
			Cargo ships	2.5-yearly	SER	On each renewal survey.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.2.15 All high pressure extinguishing agent 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% of the nominal charge. Cylinders containing less than 95% of the nominal charge shall be refilled.	MSC.1/Circ.1432, par. 8.1.1	All	2-yearly	Crew or SER	
	3.2.16 Blow dry compressed air or nitrogen through the discharge piping or otherwise confirm that the pipework and nozzles are clear of any obstructions. This may require the removal of nozzles, if applicable.	MSC.1/Circ.1432, par. 8.1.2				
	3.2.17 Perform internal inspection of all control valves.	MSC.1/Circ.1432, par. 9.1 SI II-2/14.2.2 item 13.1.1 b2) and e2)	All	5-yearly	SER	For cargo spaces, every 5 years all manifold pipes shall be pressure tested up to the section valves with dry air at 5 bar. Test or record of the test shall be presented to the attending surveyor.
	3.2.18 Perform a hydrostatic test and internal examination of 10% of the system's extinguishing agent and pilot cylinders. If one or more cylinders fail, a total of 50% of the on-board cylinders shall be tested. If further cylinders fail, all cylinders shall be tested.	MSC.1/Circ.1432, par. 10.1 SI II-2/14.2.2 item 13.1.1 c3)	All	10-yearly	SER	If permitted by the flag administration, visual inspection and non-destructive testing (NDT) of halon cylinders may be performed in lieu of hydrostatic testing. DNV GL is to be contacted prior to the NDT.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.2.19 Flexible hoses (replacement)	MSC.1/Circ.1318, par. 6.1.2 SI II-2/14.2.2 item 13.1.1 b2)	All	To be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years	Crew	Hose assemblies are to be delivered on board with a Recognized Organisation certificate.
3.3 CO_2 fire-extinguishing systems	3.3.1 General visual inspection of the overall system condition for obvious signs of damage.	MSC.1/Circ.1318, par. 4.1	All	Monthly	Crew	
	3.3.2 Verify that all stop valves are in the closed position.	MSC.1/Circ.1318, par. 4.1.1				
	3.3.3 Verify that all releasing controls are in the proper position and readily accessible for immediate use.	MSC.1/Circ.1318, par. 4.1.2				
	3.3.4 Verify that all discharge piping and pneumatic tubing is intact and has not been damaged.	MSC.1/Circ.1318, par. 4.1.3				
	3.3.5 Verify that all high pressure cylinders are in place and properly secured.	MSC.1/Circ.1318, par. 4.1.4				
	3.3.6 Verify that the alarm devices are in place and do not appear damaged.	MSC.1/Circ.1318, par. 4.1.5				
	3.3.7 Verify that the pressure gauge is reading in the normal range.	MSC.1/Circ.1318, par. 4.2.1	All	Monthly	Crew	For low pressure systems only.
	3.3.8 Verify that the liquid level indicator is reading at the proper level.	MSC.1/Circ.1318, par. 4.2.2				
	3.3.9 Verify that the manually operated storage tank main service valve is secured in the open position.	MSC.1/Circ.1318, par. 4.2.3				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.3.10 Verify that the vapour supply line valve is secured in the open position.	MSC.1/Circ.1318, par. 4.2.4				
3.3 CO_2 fire-extinguishing systems	3.3.11 The boundaries of the protected space shall be visually inspected to confirm that no modifications have been made to the enclosures that have created uncloseable openings that would render the system ineffective.	MSC.1/Circ.1318, par. 5.1	All	Annually	Crew	
	3.3.12 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, par. 5.2				
	3.3.13 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 structures or machinery.	MSC.1/Circ.1318, par. 5.3				
	3.3.14 The manifold shall be inspected to verify that all flexible discharge hoses and fittings are properly tightened.	MSC.1/Circ.1318, par. 5.4				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.3.15 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, par. 5.5				
	3.3.16 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 blowing dry air or nitrogen from test cylinders or suitable means through the piping.	MSC.1/Circ.1318, par. 6.1.3 SI II-2/14.2.2 item 13.1.1 c1) and c2)				
	3.3.17 Maintenance by approved service supplier.	MSC.1/Circ.1318 SI II-2/14.2.2 item 13.1.1 a3)	All	As per manufacturer's instructions	SER or Maker	Only if requirements from the manufacturer are available in addition to those in this table.
	3.3.18 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 for protection against the largest hazard is available.	MSC.1/Circ.1318, par. 6.1.1 SI II-2/14.2.2 item 13.1.1 c1)1.1 a3)	Passenger ships	2-yearly	Crew	
			Cargo ships	2.5-yearly	Crew	On each intermediate/ periodical and renewal survey.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
3.3 CO_2 fire-extinguishing systems	3.3.19 The hydrostatic test date of all storage containers shall be checked.	MSC.1/Circ.1318, par. 6.1.2 SI II-2/14.2.2 item 13.1.1 c1)	Passenger ships	2-yearly	Crew	
			Cargo ships	2.5-yearly	Crew	On each intermediate/ periodical and renewal survey.
	3.3.20 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. 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. In both cases, this shall be carried out from one or more release stations when installed. If manual pull cables operate the remote release controls, they shall be checked to verify that 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.	MSC.1/Circ.1318, par. 6.2.1	Passenger ships	2-yearly	Crew	At each renewal survey on cargo ships.
			Cargo ships	5-yearly		

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.3.21 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's 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, par. 6.2.2	Passenger ships	2-yearly	SER	At each renewal survey on cargo ships.
			Cargo ships	5-yearly		
3.3 CO_2 fire-extinguishing systems	3.3.22 After completion of the work, the system shall be returned to service. All releasing controls shall be verified as being 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, par. 6.2.3	Passenger ships	2-yearly	SER	At each renewal survey on cargo ships.
			Cargo ships	5-yearly		
	3.3.23 Perform internal inspection of all control valves.	SI II-2/14.2.2 item 13.1.1 b2) and e2)	All	5-yearly	SER	For cargo spaces, every 5 years all manifold pipes shall be pressure tested up to the section valves with dry air at 5 bar. Test or record of the test shall be presented to the attending surveyor.

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.3.24 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 on-board cylinders shall be tested. If further cylinders fail, all cylinders shall be tested.	MSC.1/Circ.1318, par. 6.1.2 SI II-2/14.2.2 item 13.1.1 c1)	All	10-yearly	SER	
	3.3.25 Flexible hoses shall be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years.	MSC.1/Circ.1318, par. 6.1.2 SI II-2/14.2.2 item 13.1.1 b2)	All	At least 10-yearly	Crew	Hose assemblies are to be delivered on board with a Recognized Organisation test certificate.
	3.3.26 Low pressure CO_2 bulk storage containers are subject to internal survey if the content has been released and the container is more than 5 years old.	SI II-2/14.2.2 item 13.1.1 c2)	All	If content has been released and is more than 5 years old	SER + DNV GL	
3.4 Deep fat cooking fire-extinguishing systems	3.4.1 In accordance with the manufacturer's instructions.	MSC.1/Circ.1432, par. 7.13 SI II-2/14.2.2 item 13.1.1 g6)	All	Annually	Crew	
	3.4.2 Overhaul and hydrostatic testing	SI II-2/14.2.2 item 13.1.1 g6)	All	10-yearly (from date of manufacture of pressure vessels) unless stated otherwise in the manufacturer's instructions	SER or Maker	

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
3.5 Dry chemical powder systems (for propellant gas see also 3.2)	3.5.1 Verify that all control and section valves are in the proper open or closed position, and that all pressure gauges are in the proper range.	MSC.1/Circ.1432, par. 5.6	All	Monthly	Crew	
	3.5.2 Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, par. 7.9.1	All	Annually	Crew	
	3.5.3 Verify that the pressure regulators are in proper order and within calibration.	MSC.1/Circ.1432, par. 7.9.2				
	3.5.4 Agitate the dry chemical powder charge with nitrogen in accordance with system manufacturer's instructions.	MSC.1/Circ.1432, par. 7.9.3				Due to the powder's affinity for moisture, any nitrogen gas introduced for agitation shall be moisture-free.
	3.5.5 Maintenance by approved service supplier.	SI II-2/14.2.2 item 13.1.1 e4)	All	As per manufacturer's instructions	SER or Maker	Only if requirements from the manufacturer are available in addition to those in this table.
	3.5.6 Blow dry nitrogen through the discharge piping to confirm that the pipework and nozzles are clear of any obstructions.	MSC.1/Circ.1432, par. 8.2.1	All	2-yearly	SER	If permitted by the flag state administration, the interval can be extended to/harmonized with every intermediate/ periodical and renewal survey according to DNV GL SI II-2/14.2.2 item 3.11.1.1 e4).
	3.5.7 Operationally test local and remote controls and section valves.	MSC.1/Circ.1432, par. 8.2.2				
	3.5.8 Verify the contents of propellant gas cylinders (including remote operating stations).	MSC.1/Circ.1432, par. 8.2.3				
	3.5.9 Test a sample of dry chemical powder for moisture content.	MSC.1/Circ.1432, par. 8.2.4				
	3.5.10 Subject the powder containment vessel, safety valve and discharge hoses to a full working pressure test.	MSC.1/Circ.1432, par. 8.2.5				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.5.11 Subject all powder containment vessels to hydrostatic or non-destructive testing (NDT) carried out by an accredited service agent.	MSC.1/Circ.1432, par. 10.3	All	10-yearly	SER	In case of NDT, contact DNV GL prior to the testing.
3.6 Foam fire-extinguishing systems	3.6.1 Verify that all control and section valves are in the proper open or closed position, and that all pressure gauges are in the proper range.	MSC.1/Circ.1432, par. 5.3	All	Monthly	Crew	
	3.6.2 Verify that the proper quantity of foam concentrate is provided in the foam system storage tank.	MSC.1/Circ.1432, par. 6.2	All	Quarterly	Crew	
	3.6.3 Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, par. 7.4.1	All	Annually	Crew	
	3.6.4 Functionally test all fixed system audible alarms.	MSC.1/Circ.1432, par. 7.4.2				
	3.6.5 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, par. 7.4.3				
	3.6.6 Test all system cross connections to other sources of water supply for proper operation.	MSC.1/Circ.1432, par. 7.4.4				
	3.6.7 Verify that all pump relief valves, if provided, are properly set.	MSC.1/Circ.1432, par. 7.4.5	All	Annually	Crew	
	3.6.8 Examine all filters/strainers to verify that they are free of debris and contamination.	MSC.1/Circ.1432, par. 7.4.6				
	3.6.9 Verify that all control/section valves are in the correct position.	MSC.1/Circ.1432, par. 7.4.7				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.6.10 Blow dry compressed air or nitrogen through the discharge piping or otherwise confirm that the pipework and nozzles of high expansion foam systems are clear of any obstructions, debris and contamination.	MSC.1/Circ.1432, par. 7.4.8				This may require the removal of nozzles, if applicable.
3.6 Foam fire-extinguishing systems	3.6.11 Take samples from all foam concentrates carried on board (including the foam in sealed transport containers more than 10 years old) 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, par. 7.4.9 SI II-2/14.2.2 item 13.1.1 b3) and e1) MSC.1/Circ.1312 MSC/Circ.670	All	Annually	SER + DNV GL	Protein-based alcohol-resistant foam concentrates subjected to a chemical stability test at delivery and then annually. Other foam concentrates subjected to a periodical control within 3 years after supplied to the ship and then annually.
	3.6.12 Alcohol-resistant fluorine-protein-based foam concentrates are subjected to a chemical stability test with acetone before being poured into foam tank, and a new chemical stability test is performed after installation on board (not less than 14 days after installation on board).	DNV GL rules for classification DNVGL-RU-SHIP Pt.7 Ch.1 Sec.2 [3.2.1] MSC.1/Circ.1312	Tanker (chem)			
	3.6.13 Test all fuel shut-off controls connected to fire-protection systems for proper operation.	MSC.1/Circ.1432, par. 7.4.10	All	Annually	Crew	
	3.6.14 Perform internal inspection of all control valves.	MSC.1/Circ.1432, par. 9.2.1	All	5-yearly	Crew	
	3.6.15 Flush all high expansion foam system piping with fresh water, drain and purge with air.	MSC.1/Circ.1432, par. 9.2.2 SI II-2/14.2.2 item 13.1.1 c5)				
	3.6.16 Check all nozzles to prove they are clear of debris.	MSC.1/Circ.1432, par. 9.2.3				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.6.17 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, par. 9.2.4				
3.7 Water mist, water spray and sprinkler systems	3.7.1 Verify that all control panel indicators and alarms are functional.	MSC.1/Circ.1432, par. 4.7.1	All	Weekly	Crew	
	3.7.2 Visually inspect pump unit and its fittings.	MSC.1/Circ.1432, par. 4.7.2				
	3.7.3 Check the pump unit's valve positions if valves are not locked, as applicable.	MSC.1/Circ.1432, par. 4.7.3				
	3.7.4 Verify that all control, pump unit and section valves are in the proper open or closed position.	MSC.1/Circ.1432, par. 5.4.1	All	Monthly	Crew	
	3.7.5 Verify that sprinkler pressure tanks or other means have correct levels of water.	MSC.1/Circ.1432, par. 5.4.2				
	3.7.6 Test automatic starting arrangements on all system pumps so designed.	MSC.1/Circ.1432, par. 5.4.3				
	3.7.7 Verify that all standby pressure and air/gas pressure gauges are within the proper pressure ranges.	MSC.1/Circ.1432, par. 5.4.3				
	3.7.8 Test a selected sample of system section valves for flow and proper initiation of alarms.	MSC.1/Circ.1432, par. 5.4.4	All	Monthly	Crew	The valves selected for testing shall be chosen to ensure that all valves are tested within a one-year period.
3.7 Water mist, water spray and sprinkler systems	3.7.9 Assess system water quality in the header tank and pump unit against the manufacturer's water quality guidelines.	MSC.1/Circ.1432, par. 6.5 (as amended by MSC.1/ Circ.1516)	All	Quarterly	Crew	

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.7.10 Water mist, water spray and sprinkler systems operation using test valves	MSC.1/Circ.1432, par. 7.5.1	All	Annually	Crew	
	3.7.11 Visually inspect all accessible components for proper condition.	MSC.1/Circ.1432, par. 7.5.2				
	3.7.12 Externally examine all high pressure cylinders for evidence of damage or corrosion.	MSC.1/Circ.1432, par. 7.5.3				
	3.7.13 Check the hydrostatic test date of all high pressure cylinders.	MSC.1/Circ.1432, par. 7.5.4				
	3.7.14 Functionally test all fixed system audible and visual alarms.	MSC.1/Circ.1432, par. 7.5.5				
	3.7.15 Flow test all pumps for proper pressure and capacity.	MSC.1/Circ.1432, par. 7.5.6				
	3.7.16 Test all antifreeze systems for adequate freeze protection.	MSC.1/Circ.1432, par. 7.5.7				
	3.7.17 Test all system cross connections to other sources of water supply for proper operation.	MSC.1/Circ.1432, par. 7.5.8	All	Annually	Crew Crew + DNV GL (for blow test in ro-ro spaces)	
	3.7.18 Verify that all pump relief valves, if provided, are properly set.	MSC.1/Circ.1432, par. 7.5.9				
	3.7.19 Examine all filters/strainers to verify that they are free of debris and contamination.	MSC.1/Circ.1432, par. 7.5.10				
	3.7.20 Verify that all control/section valves are in the correct position.	MSC.1/Circ.1432, par. 7.5.11				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.7.21 Blow dry compressed air or nitrogen through the discharge piping of dry pipe systems, or otherwise confirm that the pipework and nozzles are clear of any obstructions.	MSC.1/Circ.1432, par. 7.5.12 SI II-2/14.2.2 item 13.1.1 e3)				This may require the removal of nozzles, if applicable. In ro-ro spaces blow test in the presence of DNV GL surveyor. Alternatively the record of the test by an approved service supplier shall be presented.
3.7 Water mist, water spray and sprinkler systems	3.7.22 Test emergency power supply switchover, where applicable.	MSC.1/Circ.1432, par. 7.5.13	All	Annually	Crew	
	3.7.23Visually 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. Sprinklers with obvious external damage, including paint, should be replaced.	MSC.1/Circ.1432, par. 7.5.14 (as amended by MSC.1/Circ.1516)				
	3.7.24 Check for any changes that may affect the system, such as obstructions by ventilation ducts, pipes, etc.	MSC.1/Circ.1432, par. 7.5.15				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.7.25 Test a minimum of one section in each open head water mist system by flowing water through the nozzles.	MSC.1/Circ.1432, par. 7.5.16 SI II-2/14.2.2 item 13.1.1 c7) and d)	All	Annually	Crew	The sections tested shall be chosen so that all sections are tested within a five-year period. Other test and inspections as per maker's recommendations and type approval certificate. Test or record of the test shall be presented to the attending surveyor.
	3.7.26 For automatic sprinkler systems of less than 5 years, test a minimum of two randomly selected sprinkler heads/nozzles of each type. If five years or more, test a minimum of 20 heads/nozzles (2 × 10 sections) for each type.	MSC.1/ Circ.1432, .par. 7.5.17 (as amended by MSC.1/ Circ.1516) SI Appendix A	All	Annually	Crew	Test in accordance with the basic and extended testing (when applicable) in MSC.1/Circ.1516.
	3.7.27 During basic testing, and extended testing when applicable, of automatic sprinkler heads/nozzles as outlined in subparagraph .17, water quality testing should be conducted in each corresponding piping section.	MSC.1/Circ.1432 par. 7.5.18 (as amended by MSC.1/ Circ.1516)	All	Annually	Crew	Should a tested sprinkler fail, assessing the corresponding water quality at that time would assist in determining the cause of failure.
3.7 Water mist, water spray and sprinkler systems	3.7.28 Flush all ro-ro deck deluge system piping with water, drain and purge with air.	MSC.1/Circ.1432, par. 9.3.1	All	5-yearly	Crew or SER	For ro-ro spaces in passenger ships, flushing of distribution pipes shall be carried out concurrently with class renewal.
	3.7.29 Perform internal inspection of all control/section valves. Water quality testing should be conducted in all corresponding piping sections, if not previously tested as outlined in MSC.1/Circ.1432 par. 7.5.18 (as amended by MSC.1/Circ.1516) within the last five years.	MSC.1/Circ.1432, par. 9.3.2 (as amended by MSC.1/ Circ.1516)				

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
	3.7.30 Check condition of any batteries, or renew in accordance with manufacturer's recommendations.	MSC.1/Circ.1432, par. 9.3.3				
	3.7.31 For each section where the water is refilled after being drained or flushed, water quality should meet manufacturer's guidelines. Testing of the renewed water quality should be conducted and recorded as a new baseline reference to assist future water quality monitoring for each corresponding section.	MSC.1/Circ.1432 par. 9.3.4 (as amended by MSC.1/ Circ.1516)	All	5-yearly	SER	
	3.7.32 Perform internal examination of water pressure cylinders.	SI II-2/14.2.2 item 13.1.1 c7.3)	All	5-yearly	Crew + DNV GL	
	3.7.33 Perform hydrostatic test and internal examination for gas and water pressure cylinders.	MSC.1/Circ.1432, par. 10.2 SI II-2/14.2.2 item 13.1.1c7)	All	10-yearly	SER	
3.8 Fixed local-application fire-extinguishing system	3.8.1 Fixed local-application fire-extinguishing system for engine rooms Tests and inspections as per maker's recommendation and the Society's type approval certificate.	SI II-2/14.2.2 item 13.1.1 c8)	All	As per maker's instructions and type approval certificate	Crew	Competent crew member (with an advanced firefighting training course) or person trained in the maintenance of such system or as per maker's instructions and type approval certificate.
	3.8.2 Fixed local-application fire-extinguishing system for engine rooms full flow test of minimum one section and spot check of fire detection/automatic release system shall be carried out.	SI II-2/14.2.2 item 13.1.1 c8)	Passenger ships	Annually	(Crew or SER) + DNV GL	Automatic release is not applicable for continuously manned engine rooms.
			Cargo ships	5-yearly		

4 Radio and navigational equipment

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
4.1 Testing of the automatic identification system (AIS)		SOLAS V/18.9 IACS UI SC279	All	Annually	SER	Test report shall be retained on board the ship. The test shall be carried out within the time window for annual/ periodical/renewal survey (before or during the survey).
4.2 Checking of radio battery		SOLAS IV/13.6.2	All	Annually	SER	Not by radio surveyor.
4.3 Satellite emergency position-indicating radio beacons (EPIRBs)	Testing according to MSC.1/ Circ.1040/Rev.1.	SOLAS IV/15.9.1 IACS UI SC279	All	Annually	SER	The test shall be carried out within the time window for annual/ periodical/renewal survey (before or during the survey).
	Testing according to MSC/ Circ.1039.	SOLAS IV/15.9.2 IACS UI SC279	All	5-yearly	SER (Shore-based maintenance)	Certificate of compliance or test report shall be issued. The test shall be carried out within the time window for annual/ periodical/renewal survey (before or during the survey).
4.4 Standard magnetic compass	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

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
4.5 Steering gear	Testing	SOLAS V/26.1	All	12 hours before departure	Crew	
	Emergency steering drill	SOLAS V/26.4	All	Quarterly	Crew	
4.6 Voyage data recorder (VDR)		SOLAS V/18.8 IACS UI SC279	All	Annually	SER	Certificate of compliance and maintenance report shall be retained on board the ship. The test shall be carried out within the time window for annual/periodical/ renewal survey (before or during the survey).

5 Others

Equipment/requirement		*Regulation*	*Ship type*	*Interval*	*By (see Sec.1 [8])*	*Remark*
5.1 Lightweight survey		SOLAS II-1/5.5 IS Code VIII/8.1.5	Passenger ships	5-yearly	SER + DNV GL or Crew + DNV GL	
5.2 Low-location lighting systems	Verify that the low-location lighting systems are functional by switching off normal lighting in selected locations.	MSC.1/Circ.1432, par. 4.6	Passenger ships	Weekly	Crew	
	Test the luminance in accordance with the procedures in resolution A.752(18).	MSC.1/Circ.1432, par. 9.5 Res.A.752(18)	Passenger ships	5-yearly	SER	
5.3 Medical oxygen	Replacement of oxygen.	National pharmaceutical regulations, if applicable	All	According to national pharmaceutical regulations or maker's expiry date	Maker	DNV GL Recommendation
	Hydrostatic test and internal inspection of cylinders.	Flag state, if applicable	All	As per maker's instructions and/or international standards (e.g. ISO, EN) and/or flag's requirements	SER	Scope of inspection as specified by the flag administration and/or recognized international standards (e.g. ISO, EN) are to be observed.
5.4 Portable atmosphere testing instrument for enclosed spaces	Calibration	SOLAS XI-1/7 MSC.1/Circ. 1561	All	As per manufacturer's instructions	Crew SER	Calibrated on board or ashore in accordance with the manufacturer's instructions. The pre-operational accuracy tests are not regarded as calibration.

HISTORIC CHANGES

April 2016 edition

This is a new document.

About DNV GL

DNV GL is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. We provide classification, technical assurance, software and independent expert advisory services to the maritime, oil & gas, power and renewables industries. We also provide certification, supply chain and data management services to customers across a wide range of industries. Operating in more than 100 countries, our experts are dedicated to helping customers make the world safer, smarter and greener.

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