

# CCS 通函 Circular

中国船级社

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发本社船舶验船师、有关船公司、检测机构

## 马耳他主管当局关于船舶消防系统/设备和压缩气瓶 定期维护保养、检查和试验的有关要求

马耳他主管机关于 2008 年 8 月 28 日颁布了新版**主管机关要求 (ARI 1.17.1)** “Fire Protection Systems and Appliances and Compresses Gas Cylinders Periodic Maintenance, Inspection and Testing”, 此要求更新并替代原 2003 年 6 月 23 日发布的相同标题要求 (ARI 1.17) —也即本社现行验船师须知 (Rev.200801) III—K 船旗国特殊要求部分相关内容。

主管机关根据有关 IMO 通函和导则的要求制订前述**主管机关要求**, 旨在按 SOLAS 1974 及其修正案要求对船舶消防系统/设备和压缩气瓶定期维护保养、检查和试验的周期及范围给出了具体的实施要求。现给出本社执行主管机关前述要求的具体规定如下:

本通函有关定义及缩写规定如下:

**船舶:** 本社级悬挂马耳他旗、从事国际航行的船舶。

**主管机关:** 指马耳他海事主管当局。

**批准:** 经主管机关和/或船级社批准。

### 1. 即刻可用性

1.1 船舶正常营运时, 船舶消防系统、设备应保持良好工作状态, 并即刻可用。

1.2 当船舶消防系统进行修理时, 应做适当的安排并使得船级社和主管机关满意, 以保证不降低船舶的安全性。

### 2. 维护保养、试验和检验

船舶消防系统、设备应满足下述要求进行维护保养、试验和检验, 其检测计划应满足海安会通函 MSC/Circ.850 的要求 (除非另有特别规定)。

#### 2.1 手提式灭火器

##### 2.1.1.维护保养和检查

2.1.1.1 所有手提灭火器应按制造商说明书的要求并以不超过 1 年期限为周期进行维护保养。

2.1.1.2 作为消防演习的一部分，应在不超过 5 年的间隔期内对船上存放的每同一类型、同年制造的手提灭火器各至少选取一具进行喷射试验。

2.1.1.3 非永久受压的手提灭火器的年度维护保养和检查可由公司指派的高级船员按照船舶安全管理体系文件所规定的维护保养计划来完成，船上的维护保养计划应参照表 2.1.1.3 检查指南和制造商说明书；永久受压的手提灭火器应由本社或 IACS 船级社认可的岸基检测机构承担。

表 2.1.1.3 检测指南

年度检测检查项目	
保险夹、指示器	检测确认灭火器是否使用过。
压力指示器	如设有压力表，检查压力值是否在限定范围内。检查压力指示器和释放阀表面的灰尘状况以判断维护保养情况。
外观检查	检查是否有腐蚀、凹陷、损坏等可能影响灭火器使用安全的缺陷。
称重	称重，与完全充灌时重量进行比较。
喷射软管、喷筒/喷嘴	检查清洁、无损坏
操作手册	张贴到位、清晰完好
重新充灌	
水及泡沫灭火剂	如果灭火剂拟重复使用，应转移至干净的容器中，并应检查确认是否适合继续使用。应检查所有贮存灭火剂的容器。
干粉灭火剂	检查拟重复使用的干粉，确保其可自由流动、无结块及异物。
气体灭火剂气罐	检查腐蚀、损坏情况。

5 年度和 10 年度检查项目	
喷射试验后检查项目	
喷射通道及操作机械装置	通过吹通方式确认器头的喷射通道通畅，检查喷筒、喷管过滤网、喷射软管、呼吸阀（适用时）。检查操作及喷射控制。必要时予以清洁及润滑。
操作机械装置	检查安全销可移动、控制杆完好无损
气罐	检查损坏、锈蚀情况。对气罐称重以确认其在规定限值内。
O 环、垫圈、膜片	检查 O 环、更换膜片（如有）
水及泡沫灭火器筒体	内部检查，检查腐蚀、衬砌材质劣化。检查各容器无渗漏及损坏。
干粉灭火器筒体	检查筒体外部、内部无锈蚀和衬砌材质劣化。

重新充灌后检查项目	
水及泡沫灭火剂	根据制造商说明书要求更换灭火剂
重新组装灭火器	根据制造商说明书要求重新组装灭火器
维护记录标签	填写维护记录标签所有项目，包括总重
灭火器固定	检查用以固定灭火器的支架、支撑
报告	完成说明灭火器维护保养状况的检查报告

## 2.1.2 备用灭火剂

2.1.2.1 对于可在船上重新充灌的手提灭火器要求为：对相同型号的前 10 只灭火器提供 100% 备用灭火剂，其余提供 50% 备用灭火剂，但备用灭火剂总数不必超过 60 份。

2.1.2.2 对于不能在船上重新充灌的手提灭火器要求为：对前 10 只灭火器提供 100% 数量的相同类型和容量的备用灭火器，其余提供 50% 数量的相同类型和容量的备用灭火器，但备用灭火器总数不必超过 60 套。

## 2.1.3 液压试验及试验压力

2.1.3.1 所有手提式灭火器和驱动气瓶应根据公认标准或制造商说明书的要求进行液压试验，试验间隔期不应超过 10 年；

2.1.3.2 除上述所述要求以外，对永久性受压灭火器，当气瓶压力降低超过标定压力的 10% 时，在充灌前应进行液压试验；

2.1.3.3 船级社验船师在船舶进行安全设备证书有关检验时，如基于手提灭火器的状况认为必要时可要求进行液压试验。

2.1.3.4 手提灭火器和驱动气瓶液压试验的压力要求见表 2.1.3.4

表 2.1.3.4

手提灭火器和驱动气瓶	试验压力
水	至少 1.5 倍工作压力 (如工作压力不明, 取 $2\text{N/mm}^2$ )
泡沫	
干式化学	
卤代烷和永久受压型干粉	
非永久受压型干粉	
二氧化碳	至少 $25\text{N/mm}^2$
驱动气瓶: ● 装有安全装置的 CO <sub>2</sub> 型 ● 未装有安全装置的 CO <sub>2</sub> 型	至少 2 倍工作压力 $25\text{N/mm}^2$ $35\text{N/mm}^2$

## 2.1.4 说明书和记录的保存

2.1.4.1 制造商应提供灭火器的充灌说明书，该说明书应保存在船上供查阅；

2.1.4.2 船舶应妥善保管灭火器的检查、维护保养、压力试验等记录。该记录应包含检查日期、维护保养方法、是否进行了压力试验等内容。

## 2.2 固定式高压 CO<sub>2</sub> 灭火系统

### 2.2.1 检测

2.2.1.1 船员应每 3 个月检查气瓶的存放、每个气瓶活动扳手 (Activating Lever) 的排列、紧固装置是否完好。船员应在进入 CO<sub>2</sub> 间前熟知并遵守所有相关安全操作程序。

### 2.2.2 液压试验

2.2.2.1 在每 10 年间隔期内至少 50% 的 CO<sub>2</sub> 钢瓶应由认可的岸上检修机构进行液压试验。

2.2.2.2 除此以外，验船师在进行法定检验时，如对钢瓶状况存在疑问，也可要求进行附加的液压试验。

## 2.3 固定式低压 CO<sub>2</sub> 灭火系统

### 2.3.1 检测

2.3.1.1 验船师在进行法定设备检验时，应每年对固定 CO<sub>2</sub> 储藏罐进行检查，包括：

- (1) 对所有管接头进行近观检验，必要时可拆除部分隔离层。
- (2) 当储藏罐存在普遍腐蚀或状况变坏时，应拆除连接管或排放管，并进行检查，必要时进行试验，以便确定罐壁的实际厚度。
- (3) 为了确认罐壳的状况，对位于隔离层下面的罐壳进行选择检查。必要时，采用适宜的方法确定罐壳厚度。
- (4) 当通过表面色泽或其它迹象判定储油罐存在腐蚀时，应拆除所有的隔离层，并检查下部钢结构的所有区域。

2.3.1.2 上述年度检查项目应有计划性，以使各次年度检查尽可能包含灭火系统的不同区域。

2.3.1.3 如检验发现管子或罐壳存在缺陷时，应确认缺陷的程度，必要时进行内部检查，并根据本社的要求进行相应的修理和换新。

2.3.1.4 如每年进行了上述的检验，并且显示状况良好和即刻可用，那么对于这类大型固定 CO<sub>2</sub> 储藏罐只需每 20 年进行一次内部检验。

## 2.4 固定式卤代烷灭火系统

### 2.4.1 液压试验或厚度测量

2.4.1.1 如用于储存和充灌卤代烷的回收装置即刻可用，至少应对 50% 的卤代烷气瓶每 10 年由认可的岸上检修站进行液压试验。

2.4.1.2 如没有回收装置时，可用测厚来代替上述的液压试验，至少应对 50% 的卤代烷气瓶每 10 年进行测厚。

2.4.1.3 除此以外，验船师在进行法定检验时，如对气瓶状况存在疑问时可要求进行临时的液压试验或测厚。

（注：关于马耳他船舶上卤代烷有关要求，应注意欧盟法规(EC) 2037/2000 有关规定：现有固定式卤代烷灭火系统应自 2002 年 1 月 1 日起停止使用，如在此日期之前进行了重大改建，则应在改建时停止使用。机舱和泵舱的固定式卤代烷灭火系统应更换成满足经 MSC/Circ.728 修订的 MSC/Circ.668 要求的固定灭火系统。

以及马耳他主管机关 MSD.Notice 61 如下规定：

2003.12.31 日以前，淘汰船上所有灭火系统和灭火器内的 halon，以下极端情况除外：

- (1) 现有货船上用于惰化可燃液体或气体可能泄漏的处所的 halon2402 和 1301；和

(2) 用于消防队初期灭火的, 对人本质安全的 2402 和 1211 灭火器。

2004.05.01 以后, 适用于上述情况的船舶如果还有 halon, 应以 MSD. Notice 61 所附表格格式向委员会提交申请和 halon 数量汇报, 由委员会签发 EC2037/2000 免除证书。)

## 2.5 固定干粉灭火系统

2.5.1 检修: 应每 2 年由认可的岸上检修站根据制造商说明书要求进行检修, 干粉试样的吸湿力测试也应每 2 年进行。

## 2.6 水喷淋、固定式压力水雾和细水雾灭火系统

2.6.1 检修: 应按照制造商说明书和船级社的要求进行。

## 2.7 固定式泡沫灭火系统

2.7.1 泡沫试验分析: 应于充灌后满 3 年在认可的独立机构/制造商的实验室进行一次, 以后每年进行一次。除此以外, 验船师在进行法定检验时, 如对泡沫有效性存在怀疑时, 可要求进行临时的泡沫试验分析。

## 2.8 自给式呼吸器 (SCBA) 气瓶

2.8.1 检查: 船员应每 2 周对自给式呼吸器进行总体性检查包括检查气瓶的压力/渗漏。如船上有气瓶的充灌系统, 应每 12 个月在认可的独立机构/制造商的实验室进行气体质量的检查。

2.8.2 维护保养: 船员应根据制造商说明书的要求进行维护保养。

2.8.3 液压试验和试验压力:

2.8.3.1 对轻型 (Lightweight Type) 气瓶, 应由认可的岸上检修站进行液压试验, 液压试验周期和压力根据制造商和船级社的要求;

2.8.3.2 对非轻型气瓶, 应由认可的岸上检修站每 5 年进行液压试验, 试验压力为 1.5 倍工作压力。

### 2.8.4 备用气瓶

2.8.4.1 为每具呼吸器配备的备用气瓶数量见表 2.8.4.1

表 2.8.4.1

船舶类型	备用气瓶
未配备专用充气设备的货船	2
配备专用充气设备的货船	1
载客小于 36 人的客船	1
载客大于 36 人的客船	至少 2

## 2.9 应急逃生呼吸装置 (EEBD) 气瓶

### 2.9.1 检查:

船员每 3 个月应进行总体检查, 尽实际可能检查气瓶压力, 并保存相关检查记录。

### 2.9.2 维护保养:

船员根据制造商的说明书要求进行维护保养。

### 2.9.3 备用装置:

所有船舶应配置至少两套备用装置。

## 2.10 救生艇自备空气补给系统气瓶

### 2.10.1 检查:

船员应每两周对系统做总体检查并检查气瓶压力, 检查记录应妥善保管。

### 2.10.2 液压试验及试验压力

对轻型 (Lightweight Type) 气瓶, 应由认可的岸上检修站进行液压试验, 液压试验周期和压力根据制造商和船级社的要求;

对非轻型气瓶, 应由认可的岸上检修站每 5 年进行液压试验, 试验压力为 1.5 倍工作压力。

## 2.11 医用氧气瓶

### 2.11.1 检查:

船员应每月对气瓶做总体检查并检查压力, 检查记录应妥善保管。

### 2.11.2 液压试验:

应由认可的岸上检修站进行液压试验, 液压试验周期和压力根据制造商和/或船级社的要求。

3. 附表“马耳他旗船舶消防系统/设备和压缩气瓶定期维护保养、检查和测试要求汇总表”, 供验船师及船公司参考。

根据主管机关上述要求, 本社马耳他旗法定附加检验报告 Form SFC(MLT)已经进行了更新 (版本号为 Ver.3.0 200811)。自本通函生效日起, 对马耳他旗船舶进行的安全设备年度/定期/换证/初次检验时, 验船师应按本通函要求执行检验, 取代现行验船师须知 (200801 版) III-K 部分有关内容。

请各检验单位负责将主管机关有关要求向所属辖区相关船公司进行宣贯。

附件:

1. 马耳他主管机关要求 (ARI 1.17.1) (共 10 页)
2. MSC/Circ.850 “船舶消防系统、设备维护保养和检测指南” (共 2 页)

附表:

马耳他旗船舶消防系统/设备和压缩气瓶定期维护保养、检查和试验要求汇总表

表一：手提灭火器

系统或设施	检查		液压试验	备用药剂/装置
	船上	岸上		
水	每年 根据主管机关 要求和 MSC/Circ. 850	每 5 年	每 10 年, 或 对永久受压 型压力下降 超过 10%时	对于可在船上重新充灌的手提灭火器: 对同型号的前 10 只灭火器提供 100%备用灭火剂, 其余提供 50%备用灭火剂, 但备用灭火剂总数不必超过 60。 对于不能在船上重新充灌的手提灭火器: 对前 10 只灭火器提供 100%数量的同类型和容量的备用灭火器, 其余提供 50%数量的同类型和容量的备用灭火器, 但备用灭火器总数不必超过 60。
泡沫				
干式化学				
卤代烷				
C02				
驱动气瓶				

表二：固定灭火系统

系统	检查	液压试验
高压 C02	每 3 个月检查气瓶的堆放、气瓶活动扳手的排列、紧固装置等	每 10 年 50%的 C02 钢瓶进行液压试验
大型固定 C02	年度外部检查和每 20 年内部检查	
卤代烷		如用于储存和充罐卤代烷的回收装置即刻可用; 50%的卤代烷气瓶每 10 年由进行液压试验; 如没有回收装置时: 50%的卤代烷气瓶每 10 年进行测厚。
干粉	每 2 年 (包括吸湿力测试)	
水喷淋 压力水雾 细水雾	根据制造商说明书	
泡沫	首次满 3 年试验分析, 然后每年一次	

表三：自给式呼吸器 (SCBA)

检查	液压试验	备用气瓶
每 15 天总体检查和气瓶压力检查	对轻型气瓶, 根据制造商和船级社的要求; 对非轻型气瓶, 每 5 年进行, 试验压力为 1.5 倍工作压力	未配备专用充气设备的货船: 2 个 配备专用充气设备的货船: 1 个 载客小于 36 人的客船: 1 个 载客大于 36 人的客船: 至少 2 个

表四：应急逃生呼吸器

船上检查	备用装置
每 3 个月应进行总体检查和气瓶压力检查	所有船舶应配置 2 套备用装置

表五：救生艇自备空气补给系统气瓶

船上检查	液压试验
每 15 天应进行总体检查和气瓶压力检查	对轻型气瓶, 根据制造商和船级社的要求; 对非轻型气瓶, 每 5 年进行, 试验压力为 1.5 倍工作压力

表六：医用氧气瓶

船上检查	液压试验
每月应进行总体检查和气瓶压力检查	根据制造商要求



<b>Fire Protection Systems and Appliances and Compressed Gas Cylinders Periodic Maintenance, Inspection and Testing</b>			
<i>Date Issued</i>	23 June 2003	<i>Section</i>	1
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This Administration Requirement supersedes Administration Requirement Item 1.17 dated 23 June 2003 titled 'Fire Protection Systems and Appliances, and Compressed Gas Cylinders - Periodic Maintenance, Inspection and Testing'

This Administration Requirement, developed in line with the applicable IMO Circulars and Guidelines, is intended to establish the interval and extent of maintenance, inspection and testing required by the International Convention for the Safety of Life at Sea, 1974, as amended.

#### Application

These requirements shall apply to all Maltese registered ships engaged on international voyages.

#### Definitions

<i>Administration</i>	Malta Maritime Authority
<i>Approved</i>	Approved by the Administration and/or Recognized Organization.
<i>Recognized Organization</i>	A Classification Society recognized by the Administration.
<i>Organization</i>	International Maritime Organization (IMO)

#### Operational readiness

All fire protection systems and appliances shall at all times be in good order and available for immediate use while the ship is in service. If a fire protection system is under repair, then suitable arrangements to the satisfaction of the Recognized Organization and Administration shall be made to ensure that safety is not diminished.





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### Maintenance, Testing and Inspection

The maintenance, testing and inspection shall conform to the requirements as laid down herein and, unless expressly stipulated otherwise, the inspection schedule as provided in IMO MSC/Circ.850.

### PORTABLE FIRE EXTINGUISHERS

#### Service and Inspection

Extinguishers shall be subjected to periodical inspections in accordance with the manufacturer's instructions and serviced at intervals not exceeding one year.

At least one extinguisher of each type manufactured in the same year and kept on board a ship should be test discharged at five yearly intervals as part of a fire drill.

Annual service and inspections may be carried out by a ship's officer, appointed by the Company, in accordance with the established and dedicated maintenance schedule of the Safety Management System taking into account the guidance contained in the Inspection Guide Table and manufacturer's instructions. Annual service and inspection on board is restricted to portable fire extinguishers of the non-permanently pressurized type.

The five (5) and ten (10) yearly service and inspections should be carried out by a shore-based servicing facility taking into account the guidance contained in the Inspection Guide Table.



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### INSPECTION GUIDE TABLE

<b>ANNUAL INSPECTION</b>	
Safety clip and indicating devices	Check to see if the extinguisher may have been operated.
Pressure indicating device	Where fitted, check to see that the pressure is within limits. Check that dust covers on pressure indicating devices and relief valves are in place.
External examination	Inspect for corrosion, dents or damage that may effect the safe operation of the extinguisher.
Weight	Weigh the extinguisher and check the mass compared to the fully charged extinguisher.
Hose and nozzle	Check that hoses and nozzles are clear and undamaged.
Operating instructions	Check that they are in place and legible.
<b>INSPECTION AT RECHARGE</b>	
Water and foam charges	Remove the charge to a clean container if to be reused and check if it is still suitable for further use. Check any charge container.
Powder charges	Examine the powder for reuse. Ensure that it is free flowing and that there is no evidence of caking lumps or foreign bodies.
Gas cartridge	Examine for damage and corrosion.
<b>INSPECTION AT 5 AND 10 YEAR INTERVALS INSPECTION AFTER DISCHARGE TEST</b>	
Air passages and operating mechanism	Prove clear passage by blowing through vent holes and vent devices in the cap. Check hose, nozzle strainer, discharge tube and breather valve, as applicable. Check the operating and discharge control. Clean and lubricate as required.
Operating mechanism	Check that the safety pin is removable and that the lever is undamaged.
Gas cartridge	Examine for damage and corrosion. Weigh the cartridge to ascertain that it is within prescribed limits.
O-rings, washers and hose diaphragms	Check o-rings and replace hose diaphragms if fitted.
Water and foam bodies	Inspect the interior, check for corrosion and lining deterioration. Check separate containers for leakage or damage.
Powder body	Examine the body and check internally for corrosion and lining deterioration.
<b>INSPECTION AFTER RECHARGE</b>	
Water and foam	Replace the charge in accordance with the manufacturer's instructions.
Reassemble	Reassemble the extinguisher in accordance with the manufacturer's instructions.
Maintenance label	Fill in entry on maintenance label, including full weight.
Mounting of extinguishers	Check the mounting bracket or stand.
Report	Complete a report on the state of maintenance of the extinguishers.



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Spare Charges

For portable fire extinguishers of the same type that are capable of being recharged on board, spare charges shall be provided for 100% of the first 10 portable fire extinguishers and for 50% of the remaining portable fire extinguishers. Not more than a total of 60 spare charges need to be provided.

For portable fire extinguishers that cannot be recharged on board, additional portable fire extinguishers of the same quantity, type and capacity shall be provided for 100% of the first 10 portable fire extinguishers and for 50% of the remaining portable fire extinguishers. Not more than a total of 60 additional portable fire extinguishers need to be provided.

Hydraulic Pressure Test and Test Pressure

All portable fire extinguishers and propellant cartridges should be hydraulically tested in accordance with the recognized standard or the manufacturer's instructions at intervals not exceeding 10 years.

Notwithstanding the above, whenever the loss in pressure of a permanently pressurized portable fire extinguisher exceeds 10% of the nominal pressure, then the portable fire extinguisher shall be hydraulically pressure tested before being recharged.

During statutory safety equipment surveys the attending surveyor of the recognized organization may request hydraulic pressure testing if it is determined that the condition of the portable fire extinguisher/s so warrants.

The hydraulic test should be carried out at the test pressures indicated in the following table:

Portable Fire Extinguishers and Propellant Cartridges	Test Pressure
Water	At least 1.5 times w.p. (or 2 N/mm <sup>2</sup> if the w.p. is unknown)
Foam	
Dry Chemical	
Halon and Powder (permanently pressurized)	
Powder (non-permanently pressurized)	
Carbon Dioxide	At least 25 N/mm <sup>2</sup>
Propellant Cartridges	At least 2 times w.p. or 25 N/mm <sup>2</sup> or 35 N/mm <sup>2</sup>
CO <sub>2</sub> type with safety devices	
CO <sub>2</sub> type without safety devices	

w.p. – working pressure



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### Instructions and Record Keeping

Instructions for recharging extinguishers should be supplied by the manufacturer and be available for use on board.

Records of inspections, maintenance and pressure tests should be maintained. The records should show the date of inspection, the type of maintenance carried out and whether or not a pressure test was performed.

### FIXED HIGH PRESSURE CO<sub>2</sub> FIRE-EXTINGUISHING SYSTEMS

#### Inspection

Every 3 months, the ship's crew shall check the CO<sub>2</sub> cylinders for proper stowage, alignment of activating levers on each of the cylinders and tightness of securing/clamping arrangements. Prior to entry into the CO<sub>2</sub> cylinder bank room all safety procedures shall be adhered to.

#### Hydrostatic Pressure Testing

Over a maximum period of 10 years at least 50% of the CO<sub>2</sub> bottles shall be tested by hydraulic pressure at an approved shore-based servicing station.

Notwithstanding the aforementioned, occasional hydrostatic pressure testing may be requested at the discretion of the Surveyor from the Recognized Organization conducting the statutory surveys if there exists evidence to cause concern on the condition of the cylinders.

### FIXED LOW PRESSURE CO<sub>2</sub> FIRE-EXTINGUISHING SYSTEMS

#### Inspection

Annual examination of the bulk CO<sub>2</sub> containment tank during statutory safety equipment surveys shall include:

- close examination of all pipe connections to the tank. Selected areas of insulation are to be removed as necessary;
- where extensive corrosion or other evidence of deterioration exists, connecting pipes or delivery pipes are to be removed for examination and testing, as necessary, to determine actual wall thickness.



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- examination of selected areas of the tank shell under insulation to determine shell condition, and if necessary, make use of appropriate means to ascertain wall thickness;
- removal of insulation and examination of underlying steelwork in any area where there is evidence of corrosion through staining or other signs;

The annual inspections detailed above shall be programmed to examine, in so far as it is possible, different areas of the system at each annual examination.

If the examination reveals evidence of deterioration in the pipework or tank shell this shall be followed up to determine extent of deterioration and if necessary an internal examination shall be conducted. Any repair or replacement shall be carried out to specifications of the Recognized Organization.

Provided that the above inspections are carried out annually and that records confirming satisfactory condition are readily available, then bulk CO<sub>2</sub> systems need only be inspected internally after a maximum period of 20 years.

## FIXED HALON FIRE-EXTINGUISHING SYSTEMS

### Hydrostatic Pressure Test or Thickness Measurement

Subject to the ready availability of Halon Banking Facilities for the purpose of containment and recharging, over a maximum period of 10 years at least 50% of the Halon bottles shall be tested by hydraulic pressure at an approved shore-based servicing station.

However, when Halon Banking Facilities are not available, Halon cylinders shall be subjected to thickness measurement in lieu of the hydrostatic pressure test as required above. At least 50% of the cylinders shall be thickness measured over a maximum period of 10 years.

Notwithstanding the aforementioned, occasional hydrostatic pressure testing or thickness measurement, as applicable, may be requested at the discretion of the attending Class Surveyor conducting the statutory surveys if there exist evidence to cause concern on the condition of the cylinders.



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### FIXED DRY POWDER FIRE-EXTINGUISHING SYSTEMS

#### Servicing

Servicing shall be carried out every 2 years by an approved shore-based servicing station in accordance with manufacturer's instructions. Testing of dry powder sample for moisture absorption shall be carried out at the same interval.

### SPRINKLER, FIXED PRESSURE WATER-SPRAY AND WATER-MIST SYSTEMS

#### Servicing

Servicing shall conform to instructions of the manufacturer and the Recognized Organization.

### FIXED FOAM FIRE-EXTINGUISHING SYSTEMS

#### Foam Sample Analysis

Foam sample analysis shall be carried out after a period of 3 years and thereafter every year at an approved independent/manufacturer's laboratory. Notwithstanding the aforementioned, occasional foam sample analysis may be requested at the discretion of the attending Surveyor from the Recognized Organization during statutory surveys if there is cause to question the suitability of the foam.

### CYLINDERS FOR SELF-CONTAINED BREATHING APPARATUS (SCBA)

#### Inspection

The ship's crew shall carry out a general examination of the Self Contained Breathing Apparatus, including check for air cylinder pressure/leakage, at fortnightly intervals. On ships provided with a recharging system for air cylinders, a check for air quality shall be carried out every 12 months at an approved independent/manufacturer's laboratory.



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Maintenance

Maintenance by the ship's crew shall be carried out in accordance with the manufacturer's instructions.

Hydrostatic Pressure Testing and Test Pressure

Hydrostatic pressure testing of cylinders of lightweight type shall be carried out at an approved shore-based servicing station at intervals and test pressure stipulated by the manufacturer and Recognized Organization.

Hydrostatic pressure testing of cylinders other than of lightweight type shall be carried out every 5 years at an approved shore-based servicing station at a test pressure of 1.5 times the working pressure.

Spare Charges

The following number of spare charges is to be provided for each breathing apparatus:

Ship Type	Spare Charges
Cargo Ships without dedicated cylinder recharging facility	2
Cargo Ships with dedicated cylinder recharging facility	1
Passenger Ships carrying less than 36 passengers	1
Passenger Ships carrying more than 36 passengers	At least 2

CYLINDERS FOR EMERGENCY ESCAPE BREATHING DEVICE (EEBD)

Inspection

The ship's crew shall carry out a general examination and check of cylinder pressure, as applicable, every 3 months and records of checks are to be maintained.

Maintenance

Maintenance by the ship's crew shall be carried out in accordance with the manufacturer's instructions.

Spare Devices

All ships shall carry at least two spare Emergency Escape Breathing Devices.



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## CYLINDERS FOR SURVIVAL CRAFT SELF-CONTAINED AIR SUPPORT SYSTEM

### Inspection

A general examination and check of cylinder pressure is to be carried out at fortnightly intervals by the ship's crew and records of checks are to be maintained.

### Hydrostatic Pressure Testing and Test Pressure

Hydrostatic pressure testing of cylinders of lightweight type shall be carried out at an approved shore-based servicing station at the intervals and test pressure stipulated by the manufacturer and Recognized Organization.

Hydrostatic pressure testing of cylinders other than of lightweight type shall be carried out every 5 years by an approved shore-based servicing station at a test pressure of 1.5 times the working pressure.

## MEDICAL OXYGEN CYLINDERS

### Inspection

A general examination and check of cylinder pressure shall be carried out every month by the ship's crew and records of checks are to be maintained.

### Hydrostatic Pressure Testing

Hydrostatic pressure testing of cylinders shall be carried out at an approved shore-based servicing station at the intervals and test pressure stipulated by the manufacturer and/or Recognized Organization.





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<b>PORTABLE FIRE EXTINGUISHERS</b>				
Appliance	Inspections		Hydrostatic Pressure Test	Spare Charges/Devices
	Ship board	Shore		
Water	Annually as per Administration Requirement and MSC/Circ 850	Every 5 years	Every 10 years or when the pressure loss (for permanently pressurized type) is greater than 10%	Rechargeable type 100% spare charges for first ten 50% spare charges for remainder Non-rechargeable type 100% additional extinguishers for first ten 50% additional extinguishers for remainder
Foam				
Dry Chemical				
Halon				
CO <sub>2</sub>				
Propellant Cartridges				

<b>FIXED FIRE-EXTINGUISHING SYSTEMS</b>		
System	Inspections	Hydrostatic Pressure Test
High Pressure CO <sub>2</sub>	Every 3 months check of stowage, alignment of activating levers and proper stowage	50% of cylinders every 10 years
Bulk CO <sub>2</sub>	Annual external inspections or internal inspection at 20 years	
Halon		When banking facilities available – 50% of cylinders to hydro test every 10 years When banking facilities not available 50% of cylinders thickness measured every 10 years
Dry Powder	2 years (including moisture absorption test)	
Sprinkler Water-Spray Water-Mist	As per manufacturer's instructions	
Foam	Analysis after 3 years and annually thereafter	

<b>SELF-CONTAINED BREATHING APPARATUS</b>			
Inspections		Hydrostatic Pressure Test	Spare Charges
Shipboard	Shore		
Every 15 days General examination and cylinder pressure check	Every 12 months air quality check	Cylinders of lightweight type - As per manufacturer's requirements  Cylinders of non-lightweight type - Every 5 years at 1.5 times w.p.	2 spare charges for each SCBA on cargo ships without charging facility 1 spare charge for each SCBA on cargo ships with charging facility 1 spare charge for each SCBA on passenger ships carrying less than 36 passengers At least 2 spare charges for each SCBA on passenger ships carrying more than 36 passengers

<b>EMERGENCY ESCAPE BREATHING DEVICES</b>	
Shipboard Inspections	Spare Devices
Every 3 months a general examination and cylinder pressure check	All ships to carry 2 spare devices

<b>CYLINDERS FOR SURVIVAL CRAFT AIR SUPPORT SYSTEM</b>	
Shipboard Inspections	Hydrostatic Pressure Test
Every 15 days a general examination and cylinder pressure check	Cylinders of lightweight type – As per manufacturer's requirements Cylinders of non-lightweight type – Every 5 years at 1.5 times w.p.

<b>MEDICAL OXYGEN CYLINDER</b>	
Shipboard Inspections	Hydrostatic Pressure Test
Every month a general examination and cylinder pressure check	As per manufacturer's requirements

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Ref. T4/4.03

MSC/Circ.850  
8 June 1998

**GUIDELINES FOR THE MAINTENANCE AND INSPECTION OF  
FIRE-PROTECTION SYSTEMS AND APPLIANCES**

1 The Maritime Safety Committee, at its sixty-ninth session (11 to 20 May 1998), recognizing the importance of proper maintenance and inspection of fire-protection systems and appliances, approved Guidelines for the maintenance and inspection of fire-protection systems and appliances, as set out in the annex.

2 Member Governments are invited to bring the annexed Guidelines to the attention of shipowners, shipmasters, ships' officers and crew and all other parties concerned.

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**ANNEX****GUIDELINES FOR THE MAINTENANCE AND INSPECTION OF  
FIRE-PROTECTION SYSTEMS AND APPLIANCES****1 Application**

These Guidelines apply to all ships, however it does not contain an exhaustive list of maintenance items and should be used as a recommendation only.

**2 Operational readiness**

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

**3 Maintenance and testing**

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

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

**4 Weekly testing and inspections**

Weekly inspections should be carried out to ensure that:

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

**5 Monthly testing and inspections**

Monthly inspections should be carried out to ensure that:

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

- .5 all fire pumps are operated; and
- .6 all fixed fire-extinguishing installation using extinguishing gas are free from leakage.

## **6 Quarterly testing and inspections**

Quarterly inspections should be carried out to ensure that:

- .1 all automatic alarms for the sprinkler systems are tested using the test valves for each section;
- .2 the international shore connection is in proper condition;
- .3 lockers providing storage for fire-fighting equipment contain proper inventory and equipment is in proper condition;
- .4 all fire doors and fire dampers are tested for local operation; and
- .5 all CO<sub>2</sub> bottle connections for cable operating system clips should be checked for tightness on fixed fire-extinguishing installations.

## **7 Annual testing and inspections**

Annual inspections should be carried out to ensure that:

- .1 all fire extinguishers are checked for proper location, charging pressure, and condition;
- .2 fire detection systems are tested for proper operation, as appropriate;
- .3 all fire doors and dampers are tested for remote operation;
- .4 all foam-water and water-spray fixed fire-fighting systems are tested for operation;
- .5 all accessible components of fixed fire-fighting systems are visually inspected for proper condition;
- .6 all fire pumps, including sprinkler system pumps, are flow tested for proper pressures and flows;
- .7 all hydrants are tested for operation;
- .8 all antifreeze systems are tested for proper solutions;
- .9 sprinkler system connections from the ship's fire main are tested for operation;
- .10 all fire hoses are hydrostatically tested;
- .11 breathing apparatus air recharging systems checked for air quality;
- .12 control valves of fixed fire-fighting systems should be inspected; and
- .13 air should be blown through the piping of extinguishing gas systems.

## **8 Five-year service**

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

- .1 hydrostatic testing for all SCBA's cylinders; and
  - .2 control valves of fixed fire-fighting systems should be internally inspected.
-