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发本社船舶验船师、审核员，有关船公司

关于巴拿马旗船舶消防系统和设备的维护和检查新的规定

巴拿马海事主管机关发布海事通函MMC. No. 226，旨在对挂巴拿马旗船舶固定和手提灭火器和其它消防设备的维护和检查提供最新的指南：特定的维护保养和检查项目可由适任的船员承担，而其它的项目则需由经特别培训的人员完成；船上维护保养计划应明确那些项目需由经培训的人员承担。主管机关强调，该通函给出的总体要求并未涵盖船上消防系统/设备的所有维护保养和检查项目，而特殊要求也只是列出了主管机关认为有必要进一步澄清的内容。本社验船师在检验过程中应核查船上消防系统和设备的维护和检查是否满足主管机关的新要求。

一、巴拿马旗船舶消防系统和设备的维护和检查新的规定

1、船舶消防系统和设备的维护和检查的总体要求

1.1 即刻可用性

a. 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。

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。

b. 如果本社认为船舶消防系统和设备的维护和检查不能满足船旗国主管机关的相关强制要求，本社应在船舶开航前获得 SEGUAR office 的授权签发条件证书。

1.2 维护和试验

每一系统和设备的船上维护和试验说明书应尽可能包括以下项目：

- a. 维护保养和修理手册；
- b. 定期维护保养计划；
- c. 可更换部件清单；
- d. 日志，用于记载检查和维护、标识不合格项及其预定的完成日期

1.3 每周试验和检查

- a. 公共广播系统和通用报警系统处于正常状态
- b. 呼吸装置钢瓶没有泄漏情况

1.4 每月试验和检查

- a. 所有消防员装备、灭火器、消防栓、消防水龙带和喷嘴妥善存放且状况正常
- b. 所有固定灭火系统的停止阀处于正常的开启或关闭状态；干管喷淋系统在压力表上显示有适当的压力
- c. 所有消防泵操作试验

1.5 每季度试验和检查

- a. 国际通岸接头状况正常
- b. 存放灭火设备的处所内列有存放设备的详细清单，存放的消防设备状况正常
- c. 所有的防火门和挡火闸就地操作试验

1.6 年度试验和检查

- a. 尽可能对探火系统的功能进行试验
- b. 对所有防火门和挡火闸进行遥控操作试验

- c. 对固定灭火系统所有可见部件做目视检查
- d. 所有消防栓操作试验
- e. 所有防冻系统溶剂试验
- f. 所有消防水龙带压力试验
- g. 所有固定灭火系统的控制阀检查

1.7 五年度检修

- a. 所有固定灭火系统的控制阀每5年至少内部检查一次

2、灭火器的维护保养和检查（包括所有型式的手提灭火器和移动式灭火器）的特殊要求

2.1 年度维护

- a. 按照防火控制图核查所有灭火器存放的位置、填料压力和使用状况
- b. 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，在维护保养过程中应拆除可能遮盖灭火器瓶体泄漏情况的塑料牌等
- c. 应按照决议案A 915（23）中表9.1.3 的检查指南，由具备资质的人员对灭火器进行检修。
- d. 所有灭火器应有标记显示其已检查并应标记已进行了喷射试验的灭火器。
- e. 应填写维护检查记录，包括检查日期、维护种类、是否进行了水压试验
- f. 制造商提供的灭火器充装说明书应保存在船上
- g. 手提灭火器的灭火剂在检查时发现容量有减少时，灭火剂应换新。但无论如何，灭火剂充装5年后应换新。
- h. 对CO₂灭火器和驱动气瓶，当气体重量减少超过原重量的10%时，应重新充装气体或换新气体
- i. 每年至少抽1个干粉灭火器进行喷射试验，若有结块重量达15%时，应予以更换并对其他干粉灭火器进行喷射试验以确定是否有结块情况

j. 任何严重锈蚀的灭火器或瓶体必须更新

2.2 两年度检修

~~a. 每两年一次，应由检修代理或经生产厂家认可的机构对手提灭火器进行核查，并需得到本社认可。在其他年头里也应进行这些检查，执行人员可以是检修代理或认可机构，也可是经过培训并指定负有这些职责的甲板或轮机高级船员~~

2.23 五年度检修

a. 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。

2.34 十年度检修

a. 所有手提式灭火器和驱动气瓶的瓶体（永久性受压和非永久性受压）应根据公认标准或制造商说明书的要求进行水压试验，试验间隔期不应超过 10 年；

b. 水压试验应由认可的检测机构进行。试验压力、试验日期应清晰的标识在每个灭火器上（打钢印的标识方式只适用于CO₂灭火器和驱动气瓶）。水压试验不允许在船上进行。

c. 水压试验后，应对瓶体进行全面检查和内部检查，方可进行重新充装

d. 水压试验记录或证书应保存在船上以备检查

3. 备用灭火剂、附加配备的灭火器和灭火器的重新充装

a. 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%；充装说明书应保存在船上。

b. 对于不能在船上重新充灌的手提灭火器要求为：应提供 100% 数量的相同类型和容量的备用灭火器。

c. 瓶体的定期充装应按照制造商的说明书进行。只有允许重新充装的灭火器才能充罐。部分空的灭火器也应充装。

d. 对于2009年1月1日及以后安放龙骨的船舶，应在本通函颁布之日起满足

MSC.1/Circ.1275 的要求

- e. 对较小处所需的手提灭火器可放置在离该处所入口最近的地方
- f. 如果驾驶室与海图室相邻，且开有一道直接通往海图室的门，则海图室不需要配备灭火器。对于客船上与驾驶室周界处于同一安全中心的处所，此条也适用。
- g. 两具容量不小于6公斤的手提干粉灭火器应存放在装运危险品货物的露天甲板、开敞的滚装处所和车辆处所。两具合适容量的手提灭火器应存放在油船的露天甲板上。
- h. 对于集装箱船，如果油箱有油的汽车装运在开敞处所或装运在封闭的集装箱内，货舱内不需要配备手提灭火器。

4. 固定气体灭火系统的维护保养指南的特殊要求

应按照船舶安全管理体系和制造商的要求指定船上固定灭火系统维护保养计划。

除灭火系统和设备维护保养通用要求外，还应按下述要求进行维护保养：

4.1 月度检查：

至少每30天对整个系统进行一次全面目视检查以发现明显的损坏，并确保以下设备处于正常状态。

- a. 所有释放阀处于正常位置并处于即刻可用状态
- b. 所有释放管路和充满气体的管路完整无损
- c. 所有高压气瓶瓶体存放正常并已妥善固定
- d. 报警装置完整无损
- e. 所有使用灭火气体的设施没有泄漏
- f. 所有截止阀处于关闭位置

此外，对低压灭火系统还应检查：

- 1) 压力表读数处于正常范围

- 2) 液位指示器读数处于正常水平
- 3) 手动操作的储存柜的主操作阀处于开启状态
- 4) 蒸气供应管路上的阀件处于开启状态

4.2 季度检查:

- a. 每3个月检查所有CO₂钢瓶与总管之间的连接和密性。

4.3 年度检查:

应按照制造商的要求对下述项目进行维护和检查

- a. 对被保护处所的围壁目视检查，以确保没有改装留下的不可关闭的开口
- b. 所有存放灭火剂的容器应目视检查以发现任何损坏、锈蚀或松动。气瓶一发现泄漏、腐蚀、凹陷，就应重新进行水压试验或更换。
- c. 系统管路应目视检查以发现损坏、松动和锈蚀。喷嘴应保持畅通，不应被备品或新加结构或机器堵塞
- d. 检查总管确保所有释放软管及其附件有效的固定
- e. 所有被保护处所的门有效关闭，且门上标有警告标识表明该处所为固定CO₂系统保护区域，一旦发出撤离警报，所有处于被保护处所的人员必需立即撤离该处所。所有遥控释放装置必需有清晰的操作说明，并标明遥控释放装置所指向的保护处所。

4.4 两年度检查:

下列检查和试验至少应每两年（前后3个月）进行一次

- a. 所有高压气瓶和驱动瓶称重或液面测量
- b. 检查钢瓶上的水压试验日期
- c. 释放管路和喷嘴畅通试验

此外，下述项目应由主管机关认可的检修人员进行维护保养

- 1) 尽可能将所有启动阀芯从瓶头阀拆出，通过启动管路在额定工作压力下对启动阀芯进行效用试验。
- 2) 所有管路组件应清洁、调试，管路连接件妥当紧固。
- 3) 上述维护保养完成后，整个系统应予恢复以保持正常状况。

4.5 十年度检修

- a. 高压气瓶应在不超过10年内进行水压试验。在10年度检修中，至少抽取总数10%的气瓶进行瓶体内部检查和水压试验（参照ISO6406标准），如果发现一个或多个气瓶不满足要求，则50%的气瓶进行瓶体内部检查和水压试验，如果还有气瓶不满足要求，则所有气瓶进行瓶体内部检查和水压试验。瓶头阀软管应根据制造商的要求换新，但每次换新期限不得超过10年。
- b. 水压试验应由认可的检测机构进行。试验压力、试验日期应以打钢印的方式标识在每个瓶体上。水压试验不允许在船上进行。
- c. 在随后的10年度检修中，应分期分批完成气瓶的水压试验
- d. 船龄超过10年的船舶在开始悬挂巴拿马旗后的第1个计划坞内检验时进行固定CO₂系统的10年度检修

4.6 固定卤代烷灭火系统的补充要求:

- a. 1994年10月及以后安放龙骨的船舶，其灭火系统禁止使用卤代烷灭火系统。此外，从1992年1月起禁止船上卤代烷灭火系统的全面试验。然而，每年应进行泄漏试验。轮机长可以执行这项试验，只要提供适合的设备和训练。
- b. 在进行年度泄漏试验时，如发现瓶体泄漏量超过安装时总量的5%或发现瓶体有损坏或严重锈蚀现象，则该系统应停止使用。

5 固定泡沫灭火系统的维护保养指南的特殊要求

- a. 泡沫灭火系统和船上存储的泡沫液应在不超过3年内（自原始安装日期）进行第一次检查，其后每年进行一次。
- b. 对于蛋白型泡沫液，应在供船前对其进行化学稳定性试验；此后每年应进行

该项试验

c.泡沫液的年头和随后的检查记录应保存在船上供随时检查

c. 周期检查或分析应由独立的试验室或生产厂试验室执行，这些执行机构还应得到本社的认可。

6 固定干粉灭火系统维护保养指南的特别要求

6.1 年度检查

a. 系统应全面检查，干粉充剂应由不含水分的氮气予以搅动。

6.2 两年度检查

a. 除了船上的日常维护检查，系统还应至少每两年由指定的检修机构对下述项目进行检修

- 用氮气对管路和喷嘴吹通，确保其保持顺畅
- 对阀件进行就地和遥控操作试验
- 测量氮气驱动瓶中氮气的重量（包括遥控释放站的氮气驱动瓶）

b.由岸上指定的检修机构对干粉试样进行吸湿力测试

c.干粉容器的安全阀和释放管路应在额定工作压力下每两年进行一次压力试验

6.3 十年度检查

a. 干粉容器和与其相连管路由指定机构每10年进行一次压力试验

7. 自动喷淋系统和压力水雾系统维护保养指南的特别要求

系统应定期检查以确保：所有的阀位置正确、保持常压的储存柜的压力和液位正常、阀和柜无泄漏。还应由一个适任人员根据制造商的指南进行一下检查和试验

7.1 每月检查和试验

- a. 泵的效用试验，确认其在系统压力降低时能自动启动
- b. 压力水柜内的水位正常，且水位能在玻璃压力计上正确显示
- c. 所有泵在系统压力降低时能自动启动

7.2 每季度试验

用试验阀对各区域的自动报警系统和控制装置进行试验

7.3 年度试验

- a. 水雾系统试验
- b. 所有消防泵（包括自动喷淋系统的泵浦）试验
- c. 喷淋系统和船舶消防总管连接试验
- d. 报警、压力开关和控制装置检查
- e. 所有泄放阀试验

7.4 五年度试验

- a. 除年度试验项目外，所有压力柜和控制阀应内部检查。所有释放管路也应没有腐蚀和堵塞现象

8 自给式呼吸器、应急逃生呼吸器

应每周进行检查确保气瓶保持充气压力

8.1 年度检查

- a. 每年一次，应由岸上有资质的检修机构对所有SCBA（包括救生艇上的SCBA）检查，并核查空气重新充装系统空气的品质。
- b. 每年一次，应由岸上有资质的检修机构或有资质的船员对所有EEBD检查

~~8.2 两年度检查:~~

- ~~a. 每两年一次，应由岸上有资质的检修机构对所有SCBA（包括救生艇上的SCBA）钢瓶检查，在其他年头里也应进行这些检查，执行人员可以是检修代理~~

~~或认可机构，也可是经过培训并指定负有这些职责的甲板或轮机高级船员~~

8.23 五年度检测:

a. 所有 SCBA（包括救生艇上的 SCBA）钢瓶应进行水压试验，试验间隔期不应超过 5 年；水压试验应由认可的检测机构进行。

b.EEBD应按照制造厂的说明进行维护，备用的EEBD应保存在船上，维护要求、制造厂的上标与序列号、保质期与生产日期和批准当局的名称应印在每个EEBD上。

~~c~~. 水压试验记录或证书应保存在船上以备检查

试验压力、试验日期应清晰的标识在每个钢瓶上（贴标签或打钢印）。水压试验不允许在船上进行。

9 油漆间防火

9.1 油漆间应由以下系统保护

a. 固定CO₂灭火系统,其设计释放的自由气体体积应不小于被保护处所总容积的40%

b. 固定干粉灭火系统，其设计最少为每立方米有0.5公斤干粉保护

c. 水雾系统或洒水系统，每分钟每平方米有5升水灭火，系统应与船上消防总管连接

d. 在油漆间入口处存放手提灭火器，其处于即刻可用状态。灭火器配备的数量应经本社同意。

10 应急消防泵

对于2000总吨以下的船舶，巴拿马当局接受由汽油机驱动的便携式应急消防泵，便携式应急消防泵应配备足够长度的吸管以保证船舶在最不利轻载状态下满足预定功能，并对应急消防泵的存放及汽油的处理应注意采取安全预防措施。

11 机器处所内EEBD的最低配备数量

- .1 应配备不少于日常每天在机舱值班和工作人数的数量的EEBD。如果该数量超过6人，则机舱内至少配备6套EEBD。

备注：对于海安会通函MSC.1/Circ. 1275的适用性以及海安会通函MSC.1/Circ. 1275中所列的表格的使用时间问题，巴拿马当局要求自通函MMC.No.226发布之日起，在2009年4月15日及以前签订建造合同的所有现有船舶应在最近计划进行的第一次设备安全证书的换证检验或定期检验满足海安会MSC.1/Circ. 1275的相关要求

二、设备安全证书、客船安全证书和特种用途船舶安全证书检验中应注意的问题

- 1、对2009年1月1日及以后建造的船舶，根据我社1105版《验船师须知》第III-C2-2的要求，入本社船级、悬挂任何船旗的船舶都已经满足海安会通函MSC.1/Circ. 1275的要求。
- 2、对2009年1月1日以前建造的现已悬挂巴拿马旗的船舶，要求其在最近计划进行的第一次设备安全证书、客船安全证书和特种用途船舶安全证书的换证检验或定期检验满足巴拿马通函MMC-226及海安会MSC.1/Circ. 1275的相关要求。我社将对这些巴拿马旗船舶统一给出相应的法定备忘：**First thorough examination to the number and arrangement of portable fire extinguishers required under Chapter II-2 of the SOLAS 1974 as amended, should be carried out in compliance with Panama Circular MMC-226 and MSC.1/Circ. 1275 at next coming surveys (SE PS/RS or PSS PS/RS or CSP PS/RS). For more details, please refer to CCS Circular No. 54(2011).**

经检验确认船上的手提灭火器的数量和布置满足巴拿马通函MMC-226及海安会MSC.1/Circ. 1275的相关要求后，应删除此备忘，并在RA报告中说明：**Thorough examination to the number and arrangement of portable fire extinguishers required under Chapter II-2 of the SOLAS 1974 as amended carried out and found to be in compliance with Panama Circular MMC-226 and MSC.1/Circ. 1275. MG No.XXX (Job No.XXX) stated in SSMIS deleted.**

3、对2009年1月1日以前建造的悬挂非巴拿马旗船舶的换旗检验

- (1) 若换旗检验按照设备安全证书、客船安全证书和特种用途船舶安全证书换证检验或定期检验范围进行，则换旗检验时应立即满足巴拿马通函MMC-226及海安会MSC.1/Circ. 1275的相关要求。
- (2) 若换旗检验按照设备安全证书、客船安全证书和特种用途船舶安全证书年度检验范围进行，则在换旗检验后第一次设备安全证书、客船安全证书和特种用途船舶安全证书的换证检验或定期检验满足巴拿马通函MMC-226及海安会MSC.1/Circ. 1275的相关要求。完成换旗检验后也应给出相应的法定备忘： First thorough examination to the number and arrangement of portable fire extinguishers required under Chapter II-2 of the SOLAS 1974 as amended, should be carried out in compliance with Panama Circular MMC-226 and MSC.1/Circ. 1275 at next coming surveys (SE PS/RS or PSS PS/RS or CSP PS/RS) which coming after the survey to the change of flags. For more details, please refer to CCS Circular No. 54(2011).

经检验确认船上的手提灭火器的数量和布置满足巴拿马通函MMC-226和海安会MSC.1/Circ. 1275的相关要求后，应删除此备忘，并在RA报告中说明： Thorough examination to the number and arrangement of portable fire extinguishers required under Chapter II-2 of the SOLAS 1974 as amended carried out and found to be in compliance with Panama Circular MMC-226 and MSC.1/Circ. 1275. MG No.XXX (Job No.XXX) stated in SSMIS deleted.

本通函自发布之日起生效实施。

本社验船师在对巴拿马旗船舶进行的安全设备年度/定期/换证/初次检验时，应按本通函要求执行检验；本社审核员在对巴拿马旗船舶进行SMC审核时，应按本通函要求核查船上维护保养计划已按主管机关要求明确需由经培训的人员承担的项目，以及船方应尽的维护、保养职责。

特此通知。

附件:

1. Panama Merchant Marine Circular MMC-226
2. MSC.1/Circ. 1275

本通函在本社网站（www.ccs.org.cn）上发布，并由各分社转发所辖区域内的有关船公司。

本通函在实施过程中如有任何疑问，请与总部船舶综合业务处联系。
电话/Tel: (010) 58112288 传真/Fax: (010) 58112842 E-mail 地址: so@ccs.org.cn



PANAMA MARITIME AUTHORITY
MERCHANT MARINE CIRCULAR MMC-226

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To: Ship-owners/Operators, Company Security Officers, Legal Representatives of Panamanian Flagged Vessels, Panamanian Merchant Marine Consulates and Recognized Organizations (RO's).

Subject: Guidelines for the Maintenance, Inspection of Fire-Protection System and Appliances.

Reference:

- a. IMO Resolution A. 951(23)
- b. MSC.1/Circ. 1275
- c. MSC/Circ. 1318.
- d. MSC/Circ. 850.
- e. MSC/Circ.849
- f. MSC/Circ. 1312, 670 & 798
- g. MSC/Circ. 600

This Merchant Marine Circular supersedes MMC. No.122

1 Purpose

.1 To establish new guidelines applicable to Inspection, maintenance, testing and survey requirements of all fixed and portable fire protection extinguishers, and other fire-fighting appliances. Certain maintenance procedures and inspection may be performed by competent crewmembers, while others should be performed by persons specially trained in maintenance; the onboard maintenance plan should indicate which part of the recommend inspection and maintenance should be completed by trained personnel. It should be noted that the general requirements contained in this Circular are not an all inclusive list of maintenance or inspection items for fire protection systems, fire fighting appliances, and emergency equipment. The specific requirements contained in this Circular address areas where the Administration feels there is need for further clarification.

2 Application

.1 These guidelines apply to all ships including units under MODU code.

3 General Requirements for the Maintenance and Inspection of Fire-protection Systems and Appliances.

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.1 Operational readinesses

- a. All fire protection system and appliances should be, at all times, 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 acceptable to the Recognized Organization that issued the pertinent Safety Certificate shall be made to ensure safety is not diminished.

- b. In cases where the Recognized Organization which has issued the vessel's Statutory Certificate determines that the equipment does not comply with the requirements of the corresponding mandatory regulations, they must request to SEGUMAR Office an authorization for the issuance of the relevant Conditional Statutory Certificate or authorization prior to sail at conditionals@segumar.com, as per the Merchant Marine Circular No.156.

.2 Maintenance and Testing

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

- a. maintenance and repair instructions;
- b. schedule of periodic maintenance;
- c. list of replaceable parts; and
- d. log for records of inspections and maintenance, listing identified non-conformities and their targeted completion dates.

.3 Weekly Testing and Inspections

Weekly testing inspections shall be carried out to ensure that:

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

.4 Monthly testing and inspections

Monthly inspections should be carried out to ensure that:

- a. all fireman's outfits, fire extinguishers, fire hydrants, hose and nozzles are in place, properly arranged, and are in proper condition;
- b. 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; and
- c. all fire pumps are operated.

.5 Quarterly testing and inspections

Quarterly inspections should be carried out to ensure that:

- a. the international shore connection is in proper condition;

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- b. lockers providing storage for fire-fighting equipment contain proper inventory and equipment is in proper condition; and
- c. all fire doors and fire dampers are tested for local operation.

.6 Annual inspections.

Annual inspections should be carried out to ensure that:

- a. fire detection systems are tested for proper operation, as appropriate;
- b. all fire doors and dampers are tested for remote operation;
- c. all accessible components of fixed fire-fighting systems are visually inspected for proper condition;
- d. all hydrants are tested for operation;
- e. all antifreeze systems are tested for proper solutions;
- f. all fire hoses are hydrostatically tested; and
- g. control valves of fixed fire-fighting systems should be inspected.

.7 Five-year service

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

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

4 Specific Requirements for the Maintenance and Inspection of Fire Extinguishers, including portable and semi-portable units of all types

.1 Annual Maintenance:

- a. All fire extinguishers must be checked for proper location, charging pressure, and condition; according to the ship's fire plan.
- b. Extinguishers should be subject to these inspections in accordance with the manufacturer's instructions and serviced at intervals not exceeding one year. During these examinations plastic collars etc. which may conceal the condition of steel underneath should be removed.
- c. These inspections should only be undertaken by, or under the supervision of, a person with demonstrable competence *or an accredited service company*, based on the inspection guide in table 9.1.3 of the Resolution A 951(23).
- d. all the extinguisher should be provided with a sign indicating it has been examined and a visual indication of discharge.
- e. Records of inspections 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.
- f. instructions for recharging extinguishers should be supplied by the manufacturer and be available for use on board, shall be checked.
- g. Charges of portable fire extinguishers should be renewed if, on checking, there is any indication of deterioration in the contents, but in any case after five years.
- h. Carbon dioxide extinguishers and gas expellant cartridges should be recharge or renewed if gas loss by weight exceeds 10 % of original charge.

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- i. Dry powder extinguishers may suffer from compaction when subject to vibration. At least one should be discharged annually and the retention of contents checked. When the retention is found to be in excess of 15% of the initial charge further extinguishers should be discharged to determine the compaction is occurring.
- j. *Any extinguisher or bottle which has excessive corrosion shall be replaced.*

.2 Five year service:

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

.3 Ten year service:

- a. Containers of permanently pressurized and non-permanently pressurized portable fire extinguishers together with propellant cartridges should be hydraulically pressure tested in accordance with the recognized standard or the manufacturer at intervals not exceeding ten (10) years.
- b. The hydrostatic testing shall be carried out by an accredited service company or test facility. Test pressure and test date must be marked clearly on each extinguishers (hard-stamping is only acceptable for CO2 extinguishers and propellant bottles. This test shall not be carried out on board.
- c. Following the hydrostatic testing, a thorough inspection and internal examination must be carried out prior to recharging.
- d. Test records or certificate must be provided and retained on board for Inspection.

5 Spare Charges, Additional Fire Extinguishers and Refilling of Extinguishers

- a. Spare charges shall be provided for 100% of the first 10 extinguishers and 50% of the remaining fire extinguishers capable of being recharged on board. Not more than 60 total spare charges are required. Instructions for recharging shall be carried on board.
- b. For fire extinguishers which cannot be recharged onboard, additional portable fire extinguishers of the same quantity, type, capacity shall be carried in lieu of spare charge.
- c. Periodic refilling of the cylinders should be in accordance with the manufacturer's recommendations. Only refills approved for the extinguisher may be used for recharging. Partially emptied extinguishers should be recharged.
- e. Vessel's constructed on or after 1 January 2009 *should be use the table showed in the MSC.1/Circ. 1275 as reference for the number and arrangement of portable fire extinguishers in accommodation spaces, service spaces, control stations machinery spaces of category A, other machinery spaces, cargo spaces, weather deck and other spaces on board ship. Such table is attached to this Merchant Marine Circular.
- f. A portable fire extinguisher required for a small space may be located outside and near the entrance to that space.
- g. If the wheelhouse is adjacent with the chartroom and has a door giving direct access to chartroom, no additional fire extinguisher is required in the chart room. The same applies to safety centers if they are within the boundaries of the wheelhouse in passenger ships.

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- h. Two portable fire extinguishers, each having a capacity of not less than 6kg of dry powder or equivalent, should be provided when dangerous goods are carried on the weather deck, in open ro-ro spaces and vehicle spaces, and in cargo space as appropriate. Two portable fire extinguishers, each having a suitable capacity, should be provided on weather deck for tankers.
- i. No portable fire extinguisher needs to be provided in cargo holds of containerships if motor vehicles with fuel in their tank for their own propulsion are carried in open or closed containers.

6 Specific Guidelines for Maintenance and Inspection of Fixed Gas Fire-Extinguishing Systems

An onboard maintenance plan should be included in the ship's safety management system and should be based on the system manufacturer's recommendations including the ones listed in paragraph 3.2 above.

In addition to the general requirements for the maintenance and inspection of fire-protection systems and appliances, the fixed gas fire-extinguishing systems must comply with the following inspection plan:

.1 Monthly inspections:

At least every 30 days a general visual inspection should be made of the overall system condition for obvious signs of damage, and should include verification that:

- a. all releasing controls are in the proper position and readily accessible for immediate use;
- b. all discharge piping and pneumatic tubing is intact and has not been damaged;
- c. all high pressure cylinders are in place and properly secured;
- d. the alarm devices are in place and do not appear damaged; and
- e. all the installation using extinguishing gas are free from leakage.
- f. all stop valves are in the closed position.

In addition, on low pressure systems the inspections should verify that:

- a. the pressure gauge is reading in the normal range;
- b. the liquid level indicator is reading within the proper level;
- c. the manually operated storage tank main service valve is secured in the open position; and
- d. the vapour supply line valve is secured in the open position.

.2 Quarterly inspections:

- a. all CO2 bottle connections for cable operating system clips should be checked for tightness on fixed fire-extinguishing installations.

.3 Annual inspections:

The following minimum level of maintenance and inspections should be carried out in accordance with the system manufacturer's instructions and safety precautions:

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- a. the boundaries of the protected space should 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;
- b. all storage containers should be visually inspected for any signs of damage, rust or loose mounting hardware. Cylinders that are leaking, corroded, dented or bulging should be hydrostatically retested or replaced;
- c. system piping should be visually inspected to check for damage, loose supports and corrosion. Nozzles should be inspected to ensure they have not been obstructed by the storage of spare parts or a new installation of structure or machinery;
- d. the manifold should be inspected to verify that all flexible discharge hoses and fittings are properly tightened; and
- e. all entrance doors to the protected space should close properly and should have warning signs, which indicate that the space is protected by a fixed carbon dioxide system and that personnel should evacuate immediately if the alarms sound. All remote releasing controls should be checked for clear operating instructions and indication as to the space served.

.4 Two Yearly Inspections:

At least biennially (intervals of 2 years \pm 3 months) in passenger and cargo ships, the following maintenance should be carried out (to assist in carrying out the recommended maintenance, examples of service charts are set out in the appendix of reference) herewith attached to this circular:

- a. all high pressure cylinders and pilot cylinders should 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 should be refilled. The liquid level of low pressure storage tanks should be checked to verify that the required amount of carbon dioxide to protect the largest hazard is available;
- b. the hydrostatic test date of all storage containers should be checked; and
- c. the discharge piping and nozzles should be tested to verify that they are not blocked. The test should 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.

In addition, the following maintenance should be carried out by service technicians/specialists trained to standards accepted by the Administration:

- a. Where possible, all activating heads should 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 should 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 should be carried out from one or more release stations when installed. If manual pull cables operate the remote release controls, they should 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;
- b. all cable components should be cleaned and adjusted as necessary, and the cable connectors should be properly tightened. If the remote release controls are operated by pneumatic pressure, the tubing should be checked for leakage, and the proper charge of the remote releasing station pilot gas cylinders should be verified. All controls and

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- warning devices should function normally, and the time delay, if fitted should prevent the discharge of gas for the required time period; and
- c. after completion of the work, the system should be returned to service. All releasing controls should be verified in the proper position and connected to the correct control valves. All pressure switch interlocks should be reset and returned to service. All stop valves should be in the closed position.

.5 Ten Year Service:

- a. High pressure cylinders should be subjected to periodical tests at intervals not exceeding 10 years. At the 10-year inspection, at least 10% of the total number provided should be subjected to an internal inspection and hydrostatic test. (Refer to standard ISO6406 – Periodic inspection and testing of seamless steel gas cylinders) If one or more cylinders fail, a total of 50% of the onboard cylinders should be tested. If further cylinders fail, all cylinders should be tested. Flexible hoses should be replaced at the intervals recommended by the manufacturer and not exceeding every 10 years;
- b. Hydrostatic testing for the fixed CO₂ system shall be carried out by a servicing facility or agent which has been certified by the manufacturer to perform this type of work and accepted by the Recognized Organization issuing the pertinent safety certificate. Test certificates must be provided and kept on board for inspections. Test date and pressure must be stamped on each bottle. This test shall not be carried on board;
- c. For subsequent 10-year services, alternation of the inspected cylinders must be carried out, i.e. different cylinders must be inspected from those done in the previous services if 100% of them were not inspected; and
- d. Ships of 10 years or older coming into our registry will be required to carry this test at the next scheduled dry-docking.

.6 Additional Requirements for Halon Systems:

- a. Halon installations of fire-extinguishing systems on board ships, which keel was laid or at a similar stage of construction on or after October 1994 are prohibited. Moreover, full-scale tests of Halon fire-extinguishing systems on board ships are prohibited since January 1992 in accordance with Resolution A. 719(17)/2(b). However, an annual leakage check shall be carried out as per as MSC/Circ. 600. The Chief Engineer can carry out this test if provided with the proper equipment and training;
- b. During the annual leakage check, if any cylinder showing signs of leakage, loss of contents exceeding 5% from the installed quantity, signs of mechanical damage or excessive corrosion, must be withdrawn from service.

7 Specific Guidelines for Maintenance and Inspection for Fixed Foam Fire-Extinguishing Systems

- a. The first periodical control of foam concentrates stored on board should be performed not more than 3 years (from the original installation date), after that, every year;
- b. However paragraph a. the chemical stability test for protein-based alcohol-resistant foam concentrate should be performed prior to delivery to the ship and annually thereafter.
- c. a record of the age of the foam concentrates and of subsequent control should be kept on board, readily available for inspection; and
- d. In accordance to MSC/Circ 1312, MSC/Circ 670 and MSC/Circ.798 the tests, control or analysis of foam will be performed by an independent or manufacturer’s laboratory,

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which is accepted by the Recognized Organization issuing the pertinent Safety Certificate.

8 Specific Guidelines for Maintenance and Inspection of Fixed Dry-Powder Fire-Extinguishing Systems

.1 Annual Inspections:

- a. The system should be inspected and the dry powder charge should be agitated with moisture free nitrogen, using “bubbling” connections where provided. *Note: due to the powder’s affinity for moisture, any nitrogen gas introduced for agitation must be moisture free.*

.2 Two Yearly Inspections:

- a. In addition to the regular shipboard inspections, the systems should be inspected at least once every two years by an accredited service agent. This inspection should include:
 - blow-through with nitrogen to ensure associated pipes and nozzles are clear;
 - operation test of local and remote controls and section valves; and
 - contents verification of propellant gas cylinders containing nitrogen (including remote operating stations).
- b. Sample dry powder test for moisture absorption should be carried out by an accredited company ashore.
- c. The powder containment vessels safety valves and discharge hoses should be subjected to a full working pressure test every two (2) years.

.3 Ten Yearly Test:

- a. Powder containment vessels and associated piping should be subject to hydraulic testing carried out by an accredited service agent at intervals not exceeding 10 years.

Note: The replenishment and test regime for these high-pressure nitrogen cylinders is identical to that for CO₂ cylinders for fixed-gas fire extinguishing systems.

9 Specific Guidelines for Maintenance and Inspection of Automatic Sprinkler and Fixed Pressure Water Spray Systems

These systems should be regularly inspected to ensure that all valves are in the correct position for operation. Level and pressures should be maintained in pressurized storage tanks and there should be no obvious leakage. It should be tested by a competent person as per the manufacturer’s instructions, and as a minimum should include the following:

.1 Monthly Inspections and Test:

Monthly inspections should be carried out to ensure that:

- a. auto start function of sprinkler system pumps should be tested to ensure they automatically operate on system pressure loss.
- b. sprinkler system pressure tanks have correct levels of water as indicated by glass gauges;
- c. all sprinkler system pumps automatically operate on reduction of pressure in the systems;

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.2 Quarterly Tests:

- a. All automatic alarms and control gear for the sprinkler systems should be tested using the test valves and procedures for each section.

.3 Annual Tests:

- a. water spray fixed fire-fighting systems should be tested for correct operation;
- b. all fire pumps, including sprinkler system pumps should be flow tested to ensure design pressures and flows;
- c. sprinkler system connections from the ship's fire main are tested for operation;
- d. Alarms, pressure switches and control gear settings should be verified; and
- e. All associated relief valves should be tested.

.4 Five Yearly Test:

- a. In addition to the annual tests indicated above, the pressure tank and all check and control valves should be internally inspected. Also checks to be carried out to confirm that distribution pipe work is free from corrosion and blockage.

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

Weekly testing inspections shall be carried out to ensure that breathing apparatus cylinders maintain charged pressure.

.1 Annual inspections:

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

.2 Five yearly tests of SCBA and EEBD Air Cylinders:

- a. Hydrostatic testing for all SCBA's and survival craft compressed-air cylinders shall be carried out by a servicing facility or agent certified by the manufacturer to perform this type of work and accepted by the Recognized Organization issuing the pertinent Safety certificate once every five years or when recommended by the manufacturer if less than five years.
- b. The EEBD should be maintained in accordance with the manufacturer's instructions; spare EEBDs should be kept on board and maintenance requirements, manufacturer's trademark and serial number, shelf life with accompanying manufacture date and name of approving authority should be printed on each EEBD.

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- c. Test certificates must be provided and kept on board for inspections. Test date and pressure must be stamped or tagged on each cylinder. This test shall not be carried on board.

11 Fire Protection - Paint Lockers

.1 Paint lockers shall be protected by:

- a. a carbon dioxide system, designed to give a minimum volume of free gas equal to 40% of the gross volume of the protected space; or
- b. a dry powder system, designed for at least 0.5 kg powder/m³; or
- c. a water spraying or sprinkler system, designed for 5 l/m² min. Water spraying systems may be connected to the fire main of the ship; or
- d. The fitting of a portable fire extinguisher immediately outside the entrance to the paint locker. The number of portable extinguishers is to be adequate to the size of the paint locker as determined by the Recognized Organization.

Note: In any case, the system shall be operable from outside the protected space

12 SOLAS - Emergency Fire Pump

This Administration accepts gasoline engine driven portable emergency fire pumps on board cargo ships less than 2000 GRT. Proper precautions must be observed in the storage and handling of gasoline with this equipment.

13 Minimum Number of EEBD's in Machinery Spaces.

.1 In reference to the item **d** on the Merchant Marine Circular 142, the maximum number of persons (i.e. engineers and ratings) working during a normal day of operation shall be understood as the sum of ratings (from the engine department) and engineers on the ship's Minimum Safe Manning Certificate. If this sum exceeds six persons, then six EEBD's will be the minimum number required in machinery spaces.

* Note: For the applicability of items prescribed under the MSC.1/Circ. 1275 and then the use of the table specify in such MSC.1/Circ. 1275, this Administration considering the large amount of vessel register in Panama Flag decide to make in force the applicability for vessels contracted for construction on or after 15 April 2009. For ships contracted for construction before 15 April 2009 this items prescribed under the MSC.1/Circ. 1275 will be required mandatory by the first renewal or intermediate survey of Safety Equipment certificate coming for ship after the posting of this Merchant Marine Circular.

July, 2012 – Format only.

May, 2012 – Various editorial corrections and elimination of two year service.

July, 2011 – Change in Page 4, point 5, section a.

June, 2011

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海安会通函 MSC.1/Circ.1275

(2008 年 6 月 3 日)

SOLAS 公约第 II-2 章关于船上手提式灭火器的数量和布置的统一解释

1 海上安全委员会在其第 84 届会议(2008 年 5 月 7 日至 16 日) 上,针对“使主管机关满意”等在 IMO 文件中可以有不同解释的模糊表达提供更具体的指导,批准了防火分委会在其第 52 次会议上制定的 SOLAS 公约第 II-2 章关于船上手提式灭火器的数量和布置的统一解释,其文本载于附件。

2 提请各成员国政府在 2009 年 1 月 1 日或以后应用 SOLAS 公约第 II-2 章关于船上手提式灭火器的数量和布置的相关规定时使用附件中的统一解释作为导则,并使所有相关方注意到本统一解释。

附件

SOLAS 公约第 II-2 章关于船上手提式灭火器的数量和布置的统一解释

1 适用范围

1.1 本统一解释为 SOLAS 公约第 II-2/10.3 条、10.5.1.2 条、10.5.2.2 条、10.5.3.2.2 条、10.5.4 条、18.5.1.1 条、18.5.1.2 条、19.3.7 条和 20.6.2.1 条以及国际消防安全系统规则 (FSS 规则) 第 4 章所要求的船上手提式灭火器的数量和布置提供指导。

1.2 本统一解释应用于 2009 年 1 月 1 日或以后建造的船舶。对于 2009 年 1 月 1 日以前建造的船舶, 鼓励船东执行本统一解释。

1.3 SOLAS 公约第 II-2/10.3.2.3 条 (关于在允许的处所布置二氧化碳灭火器) 和 FSS 规则的 4.2.1.1.1 (关于手提式灭火器的灭火剂的数量) 应适用于 2009 年 1 月 1 日或以后建造的船舶。

2 船上不同类型处所的手提式灭火器的数量和布置的统一解释

2.1 下表应适用于船上起居处所、服务处所、控制站、A 类机器处所、其他机器处所、货物处所、露天甲板和其他处所的手提式灭火器的数量和布置。

2.2 SOLAS 公约第 II-2/10.3.2.2 条要求用于任何处所的手提式灭火器, 其中应有 1 具存放在该处所的入口附近。建议在公共处所和工作间其余的手提式灭火器在主要入口和出口处或附近放置。

2.3 当一个处所无人值班而锁闭时, 该处所所需的手提式灭火器可保存在处所内或其外部。

2.4 除 SOLAS 公约第 II-2 章、FSS 规则、FTP 规则和相关耐火试验程序 (海安会通函 MSC/Circ.1120) 或 SOLAS 公约第 II-2/10.5 条的统一解释另有明文规定外, 下表应适用于 A 类机器处所的手提式灭火器的数量和布置。

3 手提式灭火器的选择

手提式灭火器的选择应根据大会 A.951(23)决议通过的船用手提式灭火器指南, 视处所的失火危险而定。表中的手提式灭火器的等级仅供参考。

表 - 船上不同类型处所的手提式灭火器的最低数量和分布

处所的类型		灭火器的最低数量	灭火器的等级
起居处所	公共处所	每 250 m ² 甲板面积 1 具灭火器	A
	走廊	每个甲板或主竖区内步行至灭火器的距离应不超过 25 m	A
	梯道	0	
	盥洗室、居住舱室、办公室、无烹调设备的配膳室	0	
	医务室	1	A
服务处所	洗衣干燥间、设有烹调设备的配膳室	1 ²	A 或 B
	储藏室和物料间 (甲板面积大于等于 4m ²)、邮件和行李室、贵重物品室、工作间 (不是机器处所、厨房的一部分)	1 ²	B
	厨房	对有热油煎锅的厨房, 1 具 B 级灭火器和 1 具附加的 F 级或 K 级灭火器	B,F 或 K

处所的类型		灭火器的最低数量	灭火器的等级
	储藏室和物料间（甲板面积小于 4 m ² ）	0	
	存放易燃液体的其他处所	根据 SOLAS 公约第 II-2/10.6.3 条	
控制站	控制站（非驾驶室）	1	A 或 C
	驾驶室	2, 如驾驶室小于 50 m ² , 仅要求 1 具灭火器 ³	A 或 C
A 类机器处所	推进装置的集中控制站	1, 和当主配电板布置在集中控制站时, 适合电气火灾的 1 具附加灭火器	A 和/或 C
	主配电板附近	2	C
	工作间	1	A 或 B
	带有燃油惰性气体发生器、焚烧炉和废物处置器的围蔽处所	2	B
	带有燃油净化器的单独围蔽舱室	0	
	周期性无人值班的 A 类机器处所	每个入口 1 具 ¹	B
其他处所	形成机器处所一部分的工作间和其他机器处所（辅机处所、电器设备处所、自动电话交换室、空调处所和其他类似处所）	1	B 或 C
	露天甲板	0 ⁴	B
	滚装处所和车辆处所	在每个甲板面, 任何一点到达 1 具灭火器的步行距离不大于 20 m ^{4, 5}	B
	货物处所	0 ⁴	B
	货泵舱	2	B
	直升机甲板	根据 SOLAS 公约第 II-2/18.5.1 条	B

注:

- 1 对小处所要求的手提式灭火器可位于处所入口外及处所入口附近。
- 2 对于服务处所, 位于处所入口外或处所入口附近的对小处所要求的手提式灭火器也可视为对手提式灭火器所在处所的要求的一部分。
- 3 如果驾驶室与海图室相邻并有直接通向海图室的门, 不要求海图室中有附加灭火器。如其位于客船驾驶室限界内的安全中心, 也同样适用。
- 4 如果在露天甲板、开敞滚装处所和车辆处所, 或视情况在货物处所承运危险货物, 应设有 2 具手提式灭火器, 每具灭火器具有容量不少于 6 公斤的干粉或等效物。在液货船的露天甲板上应设有 2 具手提式灭火器, 每具灭火器都有适当的容量。
- 5 如果在开放或封闭的集装箱内装载油箱内备有自用燃料的机动车辆, 在集装箱船的货舱内不需设有手提式灭火器。