



# ST. VINCENT AND THE GRENADINES

## MARITIME ADMINISTRATION

### CIRCULAR N° SOL 006 Rev. 5

#### **Fire protection System and Appliances and Compressed Gas Cylinders Periodic Maintenance, Inspection and Testing**

**TO: SHIPOWNERS & SHIPS' OPERATORS & MANAGERS  
SURVEYORS TO FLAG STATE ADMINISTRATION  
CLASSIFICATION SOCIETIES**

**ENTRY INTO FORCE:** Date of present Circular

Monaco, 24<sup>th</sup> November 2009

The Administration requirements, which have been developed in line with the applicable IMO Circulars and Guidelines, are intended to establish the periodicity and extent of maintenance, inspection and testing required by the International Convention for the Safety of the Life at Sea, 1974 as amended.

These requirements will apply to all St Vincent and the Grenadines registered vessels and will enter into force no later than the date of the first safety survey (annual, periodical or renewal) on or after 1<sup>st</sup> January 2007.

These requirements revoke all previously issued requirements.

#### **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 to the satisfaction of the Recognized Organization should be made to ensure that safety is not diminished.

#### **Maintenance, Testing and Inspection**

The maintenance, testing and inspection should conform to the requirements as stated herein and, unless expressly stipulated otherwise, the inspection schedule as provided in IMO's MSC/Circ. 850.

#### **PORTABLE FIRE EXTINGUISHERS**

##### **Servicing**

All portable fire extinguishers should be serviced annually at an approved shore-based servicing station or by the ship's crew if the equipment is designed to be recharged on board or easily checked by the Safety Officer

##### Replacement of Extinguishing Medium

<b>Type of Portable Fire Extinguisher</b>	<b>Periodicity</b>
Water	12 months
Foam	12 months
Dry Chemical (Non-permanently pressurized)	5 years
Dry Chemical (Permanently pressurized)	2 years

## **Hydrostatic Pressure Test and Test Pressure**

All non-permanently pressurized portable fire extinguishers should be hydrostatically pressure tested when shown rusty but at least once in 10 years.

All permanently pressurized portable fire extinguishers and propellant cartridges should be hydrostatically pressure tested at intervals not exceeding 5 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 should be hydrostatically pressure tested before being recharged.

Portable fire extinguishers and propellant cartridges should be tested to the pressures indicated below.

<b>Portable Fire Extinguishers And Propellant Cartridges</b>	<b>Test Pressure</b>
<ul style="list-style-type: none"><li>• Water</li><li>• Foam</li><li>• Dry Chemical</li><li>• Halon</li></ul>	At least 1.5 x working pressure (or 2 N/mm <sup>2</sup> if the working pressure is unknown)
<ul style="list-style-type: none"><li>• Carbon Dioxide</li></ul>	At least 25 N/mm <sup>2</sup>
Propellant Cartridges	At least 2 x working pressure
<ul style="list-style-type: none"><li>• CO<sub>2</sub> type with safety devices</li><li>• CO<sub>2</sub> type without safety devices</li></ul>	25 N/mm <sup>2</sup> 35 N/mm <sup>2</sup>

## **Spare charges**

For portable fire extinguishers of the same type capable of being recharged on board, spare charges should be provided for 100% of the first ten (10) portable extinguishers and for 50% of the remaining portable fire extinguishers. No more than a total of 60 spare charges need to be provided.

For portable fire extinguishers which cannot be recharged on board, additional portable fire extinguishers of the same quantity, type and capacity should be provided for 100% of the first 10 portable extinguishers and for 50% of the remaining portable fire extinguishers.

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

The minimum recommended level of maintenance and inspections for fixed carbon dioxide fire-extinguishing system on all ships should be carried out according to MSC.1/Circ.1318 dated 11<sup>th</sup> June 2009.

**Monthly Inspections** mentioned by MSC.1/Circ.1318 may be carried out by the crew

**Annual Inspections** mentioned by MSC.1/Circ.1318 may be carried out by the crew in accordance with the system manufacturer's instructions and safety precautions.

**Biennially Inspections** (every two years ± 3 months) mentioned by MSC.1/Circ.1318 should be carried out by service technicians/specialists trained to standards accepted by this Administration

Paragraph 6.2 of MSC.1/Circ.1318 "...accepted by the Administration" should be read as "...accepted, authorized, checked or inspected by the Recognized Organizations (recognized by St Vincent and The Grenadines Maritime Administration) or by other SOLAS Contracting Governments.

MSC.1/Circ.1318 dated 11<sup>th</sup> June 2009 is annexed to this Circular.

## **HALON FIRE-EXTINGUISHING SYSTEM**

It should be reminded that:

- Halon is not accepted as fire-extinguishing means on board any ship applying for registration under the St Vincent and the Grenadines Flag by 1<sup>st</sup> January 2002.
- Portable Halon Fire-Extinguishing Systems have been requested to be replaced either by CO<sup>2</sup> or other suitable fire-extinguishing system by 1<sup>st</sup> January 2002.

- Fixed Halon Fire-Extinguishing System have been requested to be phased out by 1<sup>st</sup> January 2002 or earlier, if a major refit is/was undertaken. Alternative arrangements for Halon Fire-Extinguishing System in machinery spaces and pump room (MSC/Circ. 668) have to be fitted.

### **Hydrostatic Pressure Test or Thickness Measurement for existing fixed Halon fire-extinguishing system.**

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

Over a maximum period of twenty (20) years, 100% of the Halon bottles should be tested by hydraulic pressure at an approved shore-based servicing station.

However, when Halon Banking facilities are unavailable. Halon cylinders should be subject to thickness measurement in lieu of the hydrostatic pressure test as required above. At least 50% of the cylinders should be thickness measured over a period of ten (10) years.

Over a maximum period of twenty (20) years, 100% of the Halon bottles should be thickness measured.

Notwithstanding the above-mentioned, 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 evidence exists to cause concern on the condition of the cylinders.

### **FIXED DRY POWDER FIRE-EXTINGUISHING SYSTEM**

#### **Servicing**

Servicing should be carried out every two years at an approved shore-based servicing station. Testing of dry powder sample for moisture absorption should be carried out at the same interval.

### **SPRINKLER, FIXED PRESSURE WATER-SPRY AND WATER-MIST SYSTEM**

#### **Servicing**

Servicing should be in conformity with the manufacturer's and the Recognized Organization's instructions.

### **FIXED FOAM FIRE-EXTINGUISHING SYSTEM**

#### **Foam sample Analysis**

Foam sample analysis should be carried out after a period of three years and thereafter every year at an approved independent/manufacture's laboratory. Notwithstanding the above-mentioned, occasional foam 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**

A general examination of the SCBA, including check for air cylinder pressure/leakage, should be carried out at fortnightly intervals by the ship's crew.

- Servicing by approved shore-based station should be carried out every two years.
- On ship provided with recharging system for air cylinders, a check for air quality shall be carried out every twelve (12) months at an approved independent/manufacture's laboratory.

#### **Maintenance**

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

## **Hydrostatic Pressure Testing and Test Pressure**

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

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

### **Spare charges**

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

<b>Ship type</b>	<b>Spare charges</b>
Cargo Ship without dedicated cylinder recharging facility	2
Cargo Ship with dedicated cylinder recharging facility	1
Passenger ship carrying less than 36 passengers	1
Passenger ship carrying more than 36 passengers	At least 2

## **CYLINDERS FOR EMERGENCY ESCAPE BREATHING DEVICE (EEBD)**

### **Inspection**

A general examination and check of cylinder pressure, as applicable, should be carried out every three months by the ship's crew and records of checks should be maintained.

### **Maintenance**

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

### **Distribution**

Please see our circular SOL 035.

### **EEBD Training Units**

<b>Ship type</b>	<b>No of Training units</b>
Cargo Ship	1
Passenger ship carrying less than 36 passengers	1
Passenger ship carrying more than 36 passengers	1

EEBD training units should be clearly marked.

## **MEDICAL OXYGEN**

### **Inspection**

- Medical oxygen has a limited shelf life of three years and should be landed ashore for re-charging at the expiry date.

### **Testing**

- Oxygen pressure regulators should be serviced at least every five years.
- Medical oxygen cylinders have a maximum interval between tests of five years.
- Hydrostatic pressure testing of cylinders must be carried out at an approved shore-based service station.

### PORTABLE FIRE EXTINGUISHERS

System or Appliance	Inspections		Medium Replacement	Hydrostatic Pressure Test	Spare Charges/Devices	
	Ship board	Shore				
Water Foam	As per Administration requirement and MSC/Circ. 850	Annually if not done on board	12 months	10 years (non permanently pressurized)	<u>Rechargeable on board type:</u> 100% spare charges for the first ten units 50% spare charges for the remaining units No more than 60 total spare charges are required.  <u>Non-Rechargeable on board type:</u> 100% additional extinguishers for the first ten units. 50% additional extinguishers for the remaining units	
Dry Chemical			2 years permanently pressurized)			5 years (non permanently pressurized)
				Halon CO <sub>2</sub>		
Propellant Cartridges						5 Years

### FIXED - FIRE EXTINGUISHERS SYSTEMS

System	Inspections		Hydrostatic Pressure Test
	Shipboard	Shore	
High Pressure CO <sub>2</sub>	Monthly, annually	Biennially	As per MSC.1/Circ.1318
Halon			When banking facilities available: 50% of cylinders to hydro test every 10 years. When banking facilities unavailable: 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	

### SELF-CONTAINED BREATHING APPARATUS

Inspections		Hydrostatic Pressure Test	Spare Charges
Shipboard	Shore		
Every 15 days General examination and cylinder pressure check	2 years <b>or</b> if charging facilities on board 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 x w.p.	<ul style="list-style-type: none"> <li>• 2 spare charges for each SCBA on cargo ships without charging facility</li> <li>• 1 spare charge for each SCBA on cargo ships with charging facility</li> <li>• 1 spare charge for each SCBA on passenger ships carrying less than 36 passengers</li> <li>• At least 2 spare charges for each SCBA on passenger ships carrying more than 36 passengers</li> </ul>

### EMERGENCY ESCAPE BREATHING DEVICES

Ships Type	Shipboard Inspections	Training Units
Cargo	Every 3 months a general examination and cylinder pressure check	1
Passenger less 36 passengers		1
Passenger grater than 36 passengers		1

## ANNEX

### IMO MSC Circ.850

## 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
3. sprinkler systems have appropriate pressures as indicated by gauges;
4. sprinkler system pressure tanks have correct levels of water as indicated by glass gauges;
5. all sprinkler system pumps automatically operate on reduction of pressure in the systems;
6. all fire pumps are operated; and
7. all fixed fire-extinguishing installation using extinguishing gas is 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 bottle connections for cable operating system clips should be checked for tightness
6. 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.



Ref: T4/4.01

MSC.1/Circ.1318  
11 June 2009

**GUIDELINES FOR THE MAINTENANCE AND INSPECTIONS OF  
FIXED CARBON DIOXIDE FIRE-EXTINGUISHING SYSTEMS**

1 The Committee, at its eighty-sixth session (27 May to 5 June 2009), having considered the proposal by the Sub-Committee on Fire Protection, at its fifty-third session, approved Guidelines for the maintenance and inspections of fixed carbon dioxide fire-extinguishing systems, as set out in the annex.

2 Member Governments are invited to apply the annexed Guidelines when inspecting fixed carbon dioxide fire-extinguishing systems on board all ships and bring them to the attention of ship designers, shipowners, equipment manufacturers, and other parties concerned.

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## ANNEX

### GUIDELINES FOR THE MAINTENANCE AND INSPECTIONS OF FIXED CARBON DIOXIDE FIRE-EXTINGUISHING SYSTEMS

#### 1 General

These Guidelines provide the minimum recommended level of maintenance and inspections for fixed carbon dioxide fire-extinguishing systems on all ships, and are intended to demonstrate that the system is kept in good working order as specified in SOLAS regulation II-2/14.2.1.2. These Guidelines are intended to supplement the fire-extinguishing system manufacturer's approved maintenance instructions. Certain maintenance procedures and inspections may be performed by competent crewmembers, while others should be performed by persons specially trained in the maintenance of such systems. The onboard maintenance plan should indicate which parts of the recommended inspections and maintenance should be completed by trained personnel.

#### 2 Safety

Whenever carbon dioxide fire-extinguishing systems are subjected to inspection or maintenance, strict safety precautions should be followed to prevent the possibility that individuals performing or witnessing the activities are placed at risk. Prior to performing any work, a safety plan should be developed to account for all personnel and establish an effective communications system between the inspection personnel and the on-duty crew. Measures to avoid accidental discharges such as locking or removing the operating arms from directional valves, or shutting and locking the system block valve should be taken as the initial procedure for the protection of personnel performing any maintenance or inspections. All personnel should be notified of the impending activities before work is begun.

#### 3 Maintenance and inspection plan

Fixed carbon dioxide fire-extinguishing systems should be kept in good working order and readily available for immediate use. Maintenance and inspections should be carried out in accordance with the ship's maintenance plan having due regard to ensuring the reliability of the system. The onboard maintenance plan should be included in the ship's safety management system and should be based on the system manufacturer's recommendations including:

- .1 maintenance and inspection procedures and instructions;
- .2 required schedules for periodic maintenance and inspections;
- .3 listing of recommended spare parts; and
- .4 records of inspections and maintenance, including corrective actions taken to maintain the system in operable condition.

#### **4 Monthly inspections**

4.1 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:

- .1 all stop valves are in the closed position;
- .2 all releasing controls are in the proper position and readily accessible for immediate use;
- .3 all discharge piping and pneumatic tubing is intact and has not been damaged;
- .4 all high pressure cylinders are in place and properly secured; and
- .5 the alarm devices are in place and do not appear damaged.

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

- .1 the pressure gauge is reading in the normal range;
- .2 the liquid level indicator is reading within the proper level;
- .3 the manually operated storage tank main service valve is secured in the open position; and
- .4 the vapour supply line valve is secured in the open position.

#### **5 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:

- .1 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;
- .2 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;
- .3 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;
- .4 the manifold should be inspected to verify that all flexible discharge hoses and fittings are properly tightened; and

- .5 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.

## 6 Minimum recommended maintenance

6.1 At least biennially (intervals of 2 years  $\pm$  3 months) in passenger ships or at each intermediate, periodical or renewal survey\* in 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):

- .1 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;
- .2 the hydrostatic test date of all storage containers should be checked. 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\*\*. 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; and
- .3 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.

6.2 At least biennially (intervals of 2 years  $\pm$  3 months) in passenger ships or at each renewal survey\* in cargo ships, the following maintenance should be carried out by service technicians/specialists trained to standards accepted by the Administration:

- .1 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.

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\* Refer to Survey guidelines under the Harmonized System of Survey and Certification, 2007 (resolution A.997(25)).

\*\* Refer to standard ISO 6406 – Periodic inspection and testing of seamless steel gas cylinders.

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;

- .2 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 warning devices should function normally, and the time delay, if fitted should prevent the discharge of gas for the required time period; and
- .3 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.

APPENDIX

EXAMPLE SERVICE CHARTS

HIGH PRESSURE CO<sub>2</sub> SYSTEM

Date:	Name of ship/unit:	IMO No.:	
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Technical description

No.	Text	Value
1	Manufacturer	
2	Number of main cylinders	
3	Main cylinders capacity (each)	
4	Number of pilot cylinders	
5	Pilot cylinder capacity (each)	
6	Number of distribution lines	
7	Oldest cylinder pressure test date	
8	Protected space(s)	
9	Date flexible hoses fitted/renewed	

Description of inspection/Tests

No.	Description	Carried out	Not carried out	Not applicable	Comment
1	Release controls and distribution valves secured to prevent accidental discharge				
2	Contents in main cylinders checked by weighing				
3	Contents in main cylinders checked by liquid level indicator				
4	Contents of pilot cylinders checked				
5	All cylinder valves visually inspected				
6	All cylinder clamps and connections checked for tightness				
7	Manifold visually inspected				
8	Manifold tested for leakage, by applying dry working air				
9	Main valve and distribution valves visually inspected				
10	Main valve and distribution valves tested for operation				
11	Time delay devices tested for correct setting*				
12	Remote release system visually inspected				
13	Remote release system tested				
14	Servo tubing/pilot lines pressure tested at maximum working pressure and checked for leakages and blockage				
15	Manual pull cables, pulleys, gang releases tested, serviced and tightened/adjusted as necessary				
16	Release stations visually inspected				
17	Warning alarms (audible/visual) tested				
18	Fan stop tested*				
19	10% of cylinders and pilot cylinder/s pressure tested every 10 years				
20	Distribution lines and nozzles blown through, by applying dry working air				
21	All doors, hinges and locks inspected*				
22	All instruction and warning signs on installation inspected				
23	All flexible hoses renewed and check valves in manifold visually inspected every 10 years				
24	Release controls and distribution valves reconnected and system put back in service				
25	Inspection date tags attached				

\* If fitted as part of the CO<sub>2</sub> system.

LOW PRESSURE CO<sub>2</sub> SYSTEM

Date:	Name of ship/unit:	IMO No.:	
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**Technical description**

No.	Text	Value
1	Manufacturer	
2	No. of tanks	
3	Tanks capacity (tonnes)	
4	Number of pilot cylinders	
5	Pilot cylinder capacity (each)	
6	Number of distribution lines	
7	Protected space(s)	

**Description of inspection/Tests**

No.	Description	Carried out	Not carried out	Not applicable	Comment
1	Tank main service valve closed and secured to prevent accidental discharge				
2	Distribution valves verified closed				
3	Check correct function of level indicator				
4	Contents of CO <sub>2</sub> tank checked by tank level indicator				
5	Contents of CO <sub>2</sub> tank checked by riser tube reading				
6	Contents of CO <sub>2</sub> tank checked by level control valve				
7	Supports of tank inspected				
8	Insulation on tank inspected				
9	Safety valves of tank inspected				
10	Safety valves of tank tested				
11	Contents of pilot cylinders checked				
12	Start/stop function of cooling compressors tested				
13	All connected electrical alarms and indicators tested				
14	Main manifold valve inspected				
15	Main manifold valve tested				
16	Distribution valves inspected				
17	Distribution valves tested				
18	Release stations inspected				
19	Total flooding release mechanism inspected				
20	Total flooding release mechanism tested				
21	Time delay devices tested for correct setting*				
22	Warning alarms tested				
23	Fan stop tested*				
24	Distribution lines and nozzles inspected				
25	Distribution lines and nozzles tested				
26	Distribution lines and nozzles blown through				
27	All doors, hinges and locks inspected*				
28	All instruction plates inspected				
29	Tank main service valve reopened and secured open				
30	System put back in service				
31	Inspection date tags attached				

\* If fitted as part of the CO<sub>2</sub> system.