Office of
Deputy Commissioner
of Maritime Affairs

THE REPUBLIC OF LIBERIA
LIBERIA MARITIME AUTHORITY

22980 Indian Creek Drive Suite 200
Dulles, Virginia 20166, USA
Tel: +1 703 790 3434
Fax: +1 703 790 5655
Email: prevention@liscr.com
Web: www.liscr.com

11 February 2026

Marine Advisory: 02/2026

SUBJECT: **Actuating Heads of Fixed CO2 Fire-Extinguishing System Cylinders**

Reference: **Marine Notice FIR-001**

Dear Shipowners/Operators/Inspectors/Masters/Crew:

Purpose

The purpose of this Marine Advisory is to draw the attention of shipowners, operators, inspectors, masters and crew to the investigation findings after a fire, requiring activation of a fixed CO2 fire-extinguishing system, and the related maintenance and inspection items for these systems.

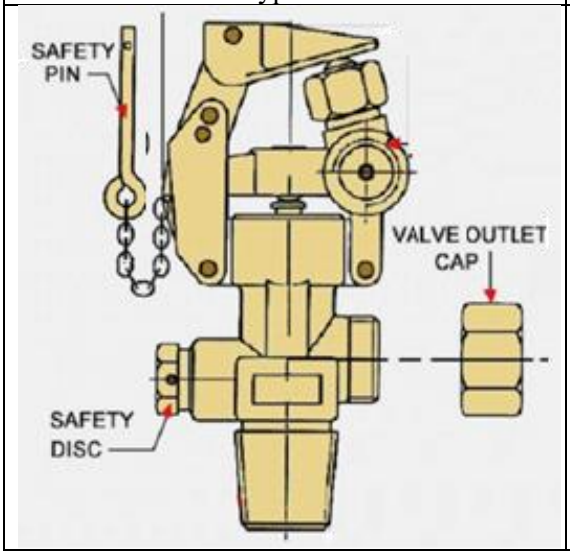
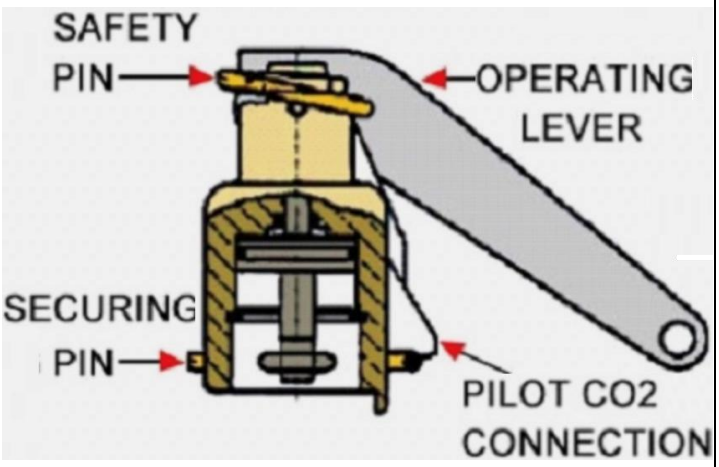
Background

A vessel recently suffered an engine room fire involving the No. 2 diesel generator, which caught fire when fuel sprayed from a high-pressure pump onto the exhaust. Once the crew were out of the engine room and accounted for, the shore side fire team along with the ship's Master and Chief Engineer decided it was safe to activate the fixed CO2 fire-extinguishing system. The system was operated and the fire was successfully extinguished.

However, during the investigation after the fire, it was noticed that of the 118 bottles dedicated to the vessel's engine room, only 109 bottles were released. Further inspection revealed that not all the bottles had their safety pins removed from their actuating heads, which for this type of head was required for them to open.

Types of Actuating Heads

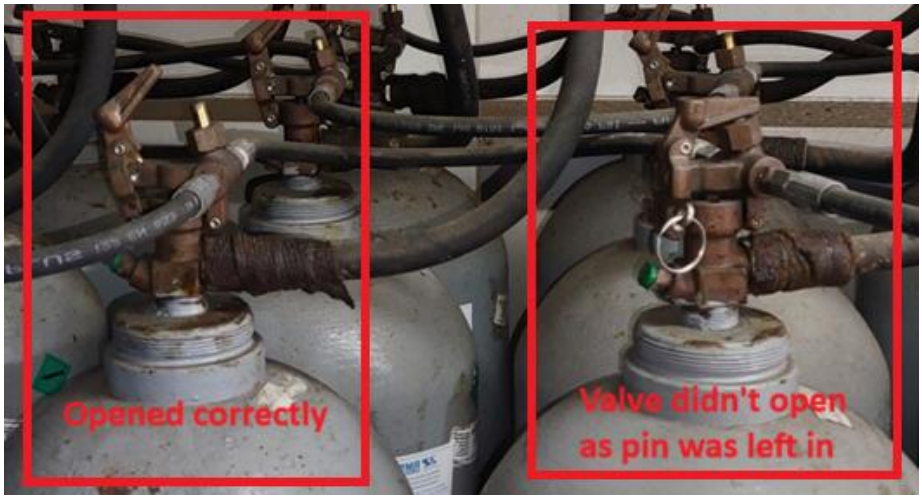
Generally, there are two predominant types of actuating heads, commonly referred to as Type A and Type B, although this may not be consistently used by all manufacturers:

Type A	Type B
	

For **Type A systems**, the safety pin is used solely as a safety device during transportation, installation and maintenance. The safety pin **must be removed** from the actuating heads when the system is in operationally ready status. If left in place, the CO2 will not discharge. The manual for the system may contain a warning that if the safety pins are left installed in the CO2 cylinder actuating heads, the valves will not open and CO2 will not be discharged.

It is noted that this is for a system covering the engine room. For a system with Type A heads that are not connected by a pilot line and are dedicated to a vessel's cargo holds, they can have their safety pins installed as the system would be manually activated with the pins being removed at that time.

The picture below is from the case described in the Background section above. As can be seen for this Type A system, the valves opened as designed where the pins were removed. Where the pin was left in the valve did not open:



For **Type B systems**, the safety pin is designed to prevent accidental discharge due to vibrations. The pin **remains installed** when the system is operationally ready. The system manual for such a system may contain a notice that when the safety pin is installed, the actuating head will still operate when remote activation occurs. It only needs to be removed when local, manual operation is necessary.

Flexible Pilot Lines

Another critical item of fixed CO2 fire-extinguishing systems are the flexible pilot lines, sometimes called pilot loops, which convey CO2 to the actuating valves to open them. The system manual should contain specifications for the pilot loops, including the minimum bending radius, and in general be installed avoiding any sharp bends.

Flexible pilot lines should be inspected in accordance with Marine Notice FIR-001 and maintained in good condition or replaced when there is evidence of distress likely to lead to failure. Any of the following conditions may require replacement of the hose assembly:

.1 leaks at fitting or in flexible hose;
.2 damaged, cut or abraded cover;
.3 kinked, crushed, flattened or twisted flexible hose;
.4 hard or stiff flexible hose;
.5 blistered, soft, degraded or loose cover;
.6 cracked, damaged or badly corroded fittings; and
.7 fitting slippage on flexible hose.

The pilot lines below are clearly in poor/unsatisfactory condition (kinked hoses):

Recommendations

It is recommended that shipowners, operators, masters and crew inspect the fixed CO2 fire-extinguishing system(s) on board their vessel to determine the type of actuator heads the system uses and that the safety pins are either not installed for Type A systems, or are installed for Type B systems, that are operationally ready. Pilot lines should also be inspected to ensure they are installed correctly and are in good condition. These inspections should be noted in the log and records that are kept for the testing, inspections and maintenance of fire-protection systems and appliances.

It is recommended that flag state inspectors, when inspecting fixed CO2 fire-extinguishing system(s) encounter safety pins installed on Type A heads, refer to the onboard maker's manual and/or drawings, to determine if this is correct installation before raising a finding. Inspectors should also check the installation and condition of the pilot lines and where warranted, raise an appropriate finding.

In all cases whenever fixed CO2 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. Measures to avoid accidental discharges such as locking or removing 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. After inspection or maintenance is completed, the system must be brought back to normal operational status in accordance with SOLAS II-2/14 and same recorded in the service chart (Appendix to **MSC.1/Circ.1318, Rev.1 as amended**) and ship's log.

For more information, please contact the Fleet Performance department at prevention@liscr.com or telephone +1 703 790 3434.

****