# M.V. SILVER SHADOW

**PLANNED MAINTENANCE INSTRUCTIONS**

**FOR**

**FIRE FIGHTING APPLIANCES AND SYSTEMS**

**(SOLAS Chapter II-2, Part E, Regulation 14, IMO MSC.Circ. 1318, 1432**

**as amended by MSC.1 Circ.1516 and Res.A.951(23))**

**PLANNED MAINTENANCE RECORD CHART**

**PLANNED MAINTENANCE INSTRUCTIONS**

The Planned maintenance Instructions for Fire Fighting Appliances and Systems are designed to run in one year cycle for most equipment.

The date on which a planned maintenance item is completed should be entered in the appropriate box.

The Planned Maintenance record Chart dully filled in will show which maintenance schedules have been completed.

The frequency at which planned maintenance must be carried out is indicated on the chart by the non-shaded areas.

The maintenance and inspection checks of multiple pieces of the same equipment (ie fire extinguishers, fire hydrants, hoses, smoke detectors, fire doors, fire dampers/flaps etc) may be undertaken on a continuous basis, ie one 12th of the total number every month for an annually required maintenance/inspection checks or one third of the total number every month for a quarterly required maintenance/inspection checks, or one fourth/weekly portion for a monthly required items maintenance/inspection checks etc provided accurate records are kept and each such piece of equipment can be individually identified.

Unless otherwise specified, all maintenance will be carried by a “competent person” as defined in **Fleet Ops** > **9.0 Safety Management** > 9.7 Fire, Fire Prevention and Fire Fighting Appliances.

The “Original” Planned maintenance record Chart is to be retained on board in the Ship’s safety File.

A copy of the Planned maintenance Record Chart for the previous year is to be sent to the Safety & Quality department on the 1st of January each year.

**FIRE FIGHTING APPLIANCE SYSTEM**

| **WEEKLY ITEMS** | Year | | | | | | | | | | | | | | | | | | | | | | | | | REMARKS |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| J | | F | | M | | A | | M | | J | | J | | A | | S | | O | | N | | D | | |
| 1 Fixed fire detection and alarm systems – operate lamp/ indicator test switch to verify control panel indicators are functional |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 Fixed gas fire-extinguishing systems – operate lamp/ indicator test switch to verify control panel indicators are functional and verify control/ section valves are in correct position |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 BA cylinders (min 2 spares for each SCBA) and EEBD – general examination and confirm maintain charged pressure |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 One Fire Pump (fire drill) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1st.Eng. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 One Fire extinguisher discharged (fire drill) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Record type of extinguisher | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 Low location lighting – electrical and photo luminescent strips (switch off normal lighting in selected areas) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 Fire Dampers and main inlets and outlets of the ventilation systems (during the fire drill in the area of the drill) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 Emergency generator local test and inspection (fire drill) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Chief Eng. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 Alarms: public address system, general alarm system, engine room, CO2, fridge, lift, hospital |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Chief Eng. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 Fireman’s outfit and other personal rescue and communication equipment (fire drill) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 All valves the operation of which is necessary to make a compartment watertight and all valves the closing of which is necessary for damage control cross connections incl. Bilge valves, levelling valves, bulkhead valves, flooding valves |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Make entry in (official) log book with an explicit record of any defects | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 Watertight doors, sidescuttles, valves and closing mechanisms of scuppers, ash-chutes and rubbish-chutes operation drill |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Make entry in (official) log book with an explicit record of any defects; Also all WTDs shall be operated daily | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 All watertight doors and all mechanisms and indicators connected therewith |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Make entry in (official) log book with an explicit record of any defects | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 Water mist, water spray and sprinkler systems – control panel indicators and alarms; visual inspection of pump unit and fittings, check pump unit valves positions (if valves are not locked) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1st.Eng. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 Fire and WT doors during fire drill in the area of the drill – operate properly |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 Watertight doors (and Garbage chute if fitted) testing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 All Fire and watertight doors onboard – verify control panel indicators are functional by the lamp/ indicator switch |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
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**FIRE FIGHTING APPLIANCES AND SYSTEMS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BI WEEKLY ITEMS | Year: | | | | | | | | | | | | | | | | | | | | | | | | REMARKS |
|  | J | | F | | M | | A | | M | | J | | J | | A | | S | | O | | N | | D | |  |
| 1 Galley hoods and laundry hoods |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Crew (cleaning)  Safety Officer (inspection) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**FIRE FIGHTING APPLIANCE SYSTEM**

| **MONTHLY ITEMS** | Year | | | | | | | | | | | | REMARKS |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| J | F | M | A | M | J | J | A | S | O | N | D |
| M.1 Fireman’s outfits – all lockers contain their full inventory and equipment is in place, arranged, good condition |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| M.2 All fire hydrants, hoses, nozzles and tools in place, properly arranged, service-able condition |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| M.3 Resuscitator apparatus |  |  |  |  |  |  |  |  |  |  |  |  | Medical Team |
| M.4 Oxygen analyzer |  |  |  |  |  |  |  |  |  |  |  |  | Staff Captain |
| M.5 Portable Gas detection system |  |  |  |  |  |  |  |  |  |  |  |  | Staff Captain |
| M.6 Sprinkler, water spray and Hi Pressure mist systems – appropriate pressure, isolators in correct position, pumps start automatically, pressure tanks have correct level, test selected sample of section valves for flow and initiation of alarms (all valves to be tested within one year) |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| M.7 All fire pumps are operated and supply adequate pressure; emergency fire pump fuel supply is adequate and heating system in good condition |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| M.8 Fire main isolation valves – in correct position |  |  |  |  |  |  |  |  |  |  |  |  | 1st Eng. |
| M.9 Portable and semi-portable (wheeled) fire extinguishers – in place, arranged, in good condition |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off./1st.Eng |
| M.10 Portable foam applicators in place, properly arranged and in good condition |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M.11 Fixed Foam and Dry Chemical Powder fire-extinguishing systems – control and section valves are in proper open or closed position and pressure gauges in range |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M.12 Fixed aerosol extinguishing systems – electrical connections and/or manual operating stations properly arranged and actuation system/control panel circuits are within manufacturer’s specifications |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M.13 EEBD’s |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| M.14 All gas fixed fire extinguishing installations are inspected for leakage and pressure gauges in range |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off./1st.Eng. |
| M.15 Fixed CO2 and Halon Gas Installations – general overall system inspection for signs of damage incl. but not limited to stop valves in close position, release controls in proper position, discharge piping and pneumatic tubing intact, cylinders in place and secure and alarms do not appear damaged. |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off./1st.Eng. |
| M.16 Low Pressure CO2 system – in addition to above: pressure gauge is in the normal range, the liquid level indicator within the proper level, the manual storage tank main valve is secured in the open position and the vapour supply line valve is secured open |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off./1st.Eng. |
| M.17 Fixed fire detection and alarm systems – a sample of detectors and manual call points to be tested (all to be tested within one year) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M.18 Emergency Diesel Generator simulated blackout test\* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M.19 Galley hoods and laundry hoods areas within reach of dedicated cleaning/ inspection hatches |  |  |  |  |  |  |  |  |  |  |  |  | Crew (cleaning)  Safety Officer (inspection) |
| M.20 Emergency stops and Vent fans tested; Engine casing fire dampers – condition checked and tested |  |  |  |  |  |  |  |  |  |  |  |  | Verify dampers close on site (not only by observing light or other indication) |
| M.21 Watertight doors structure and pumping systems |  |  |  |  |  |  |  |  |  |  |  |  | Safety Officer |
| M.22 Thermo imaging survey of potentially hotspot critical areas in the Engine Room and Funnel where high temperature may present a risk of ignition (especially where heated surfaces > 220°C might get in contact with oil (leakage))  \* When adequate equipment (ie IR Camera capable of thermo-imaging diagnostics and predictive maintenance) is available onboard |  |  |  |  |  |  |  |  |  |  |  |  | By Chief Engineer (entry in ER log book) |

\* Remark: The EDG simulated blackout test shall include:

* + 1. General announcements to prevent anyone trapped into the elevators (message of TEST of Emergency Generator in all areas). Passengers and crew to be advised in order to stay away from all the fire/sliding doors
    2. All sensitive equipment (gyro compasses, PCs etc.) supplied by the EMERGENCY SWITCHBOARD to be in a safe condition or configuration (switched off or provided with uninterruptable power supplies)
    3. The loss of the main source of power to be simulated by opening the interconnector feeder breaker at the MAIN SWITCHBOARD. Alternatively, if an interconnector is not installed, the supply to the emergency generator “auto-start” controller to be switched off from the main source of electrical power
    4. It is to be ensured that the emergency generator prime mover can be satisfactorily started by all the means fitted for this purpose including manual starting where this is provided and also including any cold starting arrangements
    5. Once in simulated EMERGENCY CONDITION (i.e. emergency generator starts and supplies power to the EMERGENCY SWITCHBOARD) ensure all elevators are in emergency mode i.e. all of them go to a specific evacuation deck, open the doors in order to let the users escape and then close the doors automatically
    6. Emergency generator shall be run on load for sufficient time to ensure that normal running pressures and temperatures are achieved. It is recommended that the test run should of not less than 30 min. Duration and that the load should be as near to the capacity of the generator as practicable
    7. Emergency consumers to be put on load to verify their connection to the EMERGENCY SWITCHBOARD, their continued satisfactory performance and in the case of diesel generator sets to minimise the operation of the diesel engine on light loads.
    8. The emergency generator fuel oil tank level to be verified (tank to be refilled if necessary).
    9. After completion of the test, ship electrical system normal configuration to be restored and to be confirmed that EDG is stopped.

**FIRE FIGHTING APPLIANCE SYSTEM**

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| **QUARTERLY ITEMS** | Year | | | | | | | | | | | | REMARKS |
|  | J | F | M | A | M | J | J | A | S | O | N | D |  |
| Q.1 Foam fire-extinguishing systems – check for proper quantity of concentrate in storage tank |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| Q.2 Water mist, water spray and sprinkler systems - assess for water quality in header tank and pump unit against manufacturer’s water quality guidelines addressing as minimum pH, Chloride content and conductivity of the water |  |  |  |  |  |  |  |  |  |  |  |  | Update the dedicated water mist/ spray/ sprinkler system technical file onboard.  Send the relevant test records, including the water analysis report in the required format to the Fleet Management Cell in the office. |
| Q.3 All auto alarms test valves of each section of the sprinkler and hi pressure mist water are tested |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| Q.4 International shore connections in good condition |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| Q.5 All fire doors and fire dampers\* are tested for local operation |  |  |  |  |  |  |  |  |  |  |  |  | Verify dampers close on site (not only by observing light or other indication)  \*Engine casing fire dampers as per the monthly section |
| Q.6 All fire extinguishing installation cylinders – secure, cable operating clips tight |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| Q.7 Emergency lighting |  |  |  |  |  |  |  |  |  |  |  |  | Ch. Electr. |
| Q.8 Spare safety equipment |  |  |  |  |  |  |  |  |  |  |  |  | Safety Off. |
| Q.9 Emergency stops and vent fans – funnel dampers |  |  |  |  |  |  |  |  |  |  |  |  | Verify dampers close on site (not only by observing light or other indication) |
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**FIRE FIGHTING APPLIANCE SYSTEM**

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| **SIX MONTHS ITEMS** | Year | | | | | | | | | | | | REMARKS | |
|  | J | F | M | A | M | J | J | A | S | O | N | D | |  | |
| 1. Foam hoses |  |  |  |  |  |  |  |  |  |  |  |  | | Safety Off. | |
| 2. Vent pipes covers and plugs |  |  |  |  |  |  |  |  |  |  |  |  | | Safety Off. | |
| 3. Plugs and chains |  |  |  |  |  |  |  |  |  |  |  |  | | Safety Off. | |
| 4. Emergency stops |  |  |  |  |  |  |  |  |  |  |  |  | | Safety Off. | |
| 5. Fire blankets |  |  |  |  |  |  |  |  |  |  |  |  | | Safety Off. | |
| 6. Sand boxes |  |  |  |  |  |  |  |  |  |  |  |  | | Safety Off. | |
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**FIRE FIGHTING APPLIANCE SYSTEM**

| **ANNUAL ITEMS** | **Year** | **REMARKS** |
| --- | --- | --- |
| 1. Portable and semi-portable fire extinguishers – proper location, check safety clip and indicating devices, pressure within limits, external examination for corrosion, dents or damages, weigh and compare mass with fully charged extinguisher, hose and nozzle are clear and undamaged, operating instructions in place, check hydrostatic test date; water and foam charges removed to a clean container; check if suitable for further use; check charge container; check powder charges if free flowing and no caking lumps, foreign bodies; check gas cartridges for damage and corrosion |  | Servicing and inspection of permanently-pressurized extinguishers to be carried out at a shore servicing facility |
| 2. Semi-Portable (wheeled) Fire Extinguishers – proper location, periodical inspection per manufacturer’s instructions; all accessible components in apparent good condition, charging pressure in range; check hydrostatic test date of each cylinder; dry powder extinguishers inverted to agitate powder |  |  |
| 3. All fire detection and fire alarm systems (used to automatically release fire-extinguishing systems) tested for proper operation as appropriate, visually inspect a sample of accessible detectors for evidence of tampering (all to be tested within one year); test emergency power supply switchover |  | Safety Off. |
| 4. All fire doors and fire dampers tested for remote operation; all ventilation controls interconnected with fire protection systems tested for proper operation |  | Verify dampers close on site (not only by observing light or other indication) |
| 5. Fire mains, fire pumps, hydrants, hoses and nozzles – all components in proper condition; all fire pumps flow tested for pressure and capacity; emergency fire pump tested with isolation valves closed; all hydrants valves tested for proper operation; a sample of fire hoses pressure tested at the max. fire main pressure (all to be tested within 5 years); verify fire pump relief valves properly set; all filters/strainers free of debris/contamination; nozzles size/type correct and in good condition |  |  |
| 6. Foam fire-extinguishing systems – all components visually inspected, all fixed audible alarms functionally tested, water and foam pumps flow tested for pressure and capacity (flush with fresh water after service); system cross connections to other sources of water supply tested; all pump relief valves are properly set; all filters/ strainers free of debris/contamination; control/section valves are in correct position; fuel shut-off controls tested |  |  |
| 7. Water mist, water spray and sprinkler systems – all components visually inspected, verify proper operation by each section test valve, examine (externally) cylinders for damage and check hydrostatic test date, test audible and visual alarms, flow test pumps for pressure and capacity, system cross connections to other sources of water supply tested, all pump relief valves are properly set; all filters/strainers free of debris/contamination; control/section valves are in correct position, emergency power supply switchover tested (if applicable); visually inspect all sprinklers focusing in areas of aggressive atmosphere (saunas, spas, kitchens) and subject to physical damage (gyms, luggage handling areas, play rooms) – all to be inspection within one year; sprinklers with obvious external damage incl. paint to be replaced and not included in the number of nozzles required to be tested below; check for any changes affecting proper operation of the system; test min. one section in each open head water mist system by flowing water through the nozzles (all sections to be tested within five years); test automatic sprinklers and water mist nozzles in accordance with the flow chart in **Fleet Ops** > **9.0 Safety Management** > 9.7 Fire, Fire Prevention and Fire Fighting Appliances; additives in water mist system tested at a service supplier / test laboratory after initial testing (typically done on the 3rd year from installation) |  | During basic and extended testing of the automatic nozzles per flow chart in **Fleet Ops** > **9.0 Safety Management** > 9.7 Fire, Fire Prevention and Fire Fighting Appliances (can be done during the PSSC survey) water quality testing should be conducted in each corresponding piping section (NB: If a nozzle fails, this would assist in determining cause of failure)  Update the dedicated water mist/ spray/ sprinkler system technical file onboard and send all info to the Fleet Management Cell for update of the office replicated technical file. |
| 8. Fixed dry chemical powder systems – all accessible components visually inspected, pressure regulators in proper order and within calibration, chemical powder charge agitated with nitrogen (moisture free) |  |  |
| 9. Fixed aerosol extinguishing systems – condensed or dispersed aerosol generators mandatory replacement date is not exceeded; pneumatic or electric actuators demonstrated working as far as practicable |  |  |
| 10. Portable foam applicators – the correct proportional ratio for the supplied foam concentrate is set, and equipment is in good order; portable containers/tanks with concentrate are factory sealed and recommended service life is not exceeded |  |  |
| 11. All antifreeze systems are tested for proper solutions |  | Safety Off. |
| 12. Foam older than three years, annual test of foam properties (not required if portable containers/tanks are factory sealed and foam concentrate is within recommended service life except for protein based concentrates, which are to be tested after the fifth year) |  | IMO MSC.1/Circ.1312 |
| 13. Air quality test of BA recharging system (per BS-EN12021 in a lab accredited to ISO/IEC 17025:2005, BA face masks and air demand valves in serviceable condition; EEBDs checked as per maker’s instructions |  | Safety Off. |
| 14. Air or nitrogen blown through piping of fixed extinguishing systems |  | Safety Off./1st Eng. |
| 15. Fixed CO2 and other fixed gas installations: incl. but not limited to: visual inspection of the boundaries of the protected space for any modifications that could have created un-close-able openings that would render the system ineffective. All storage containers should be visually inspected for any signs of damage, rust or loose mounting hardware, check hydrostatic test date. Cylinders if leaking, corroded, dented or bulging should be hydrostatically re-tested or replaced. The following to be examined: control/section valves are in correct position, condition of piping and supports, nozzles are unobstructed, manifold to be inspected, flexible hoses and fittings are tightened, entrance doors close properly, warning signs are posted in vicinity, operating instructions are posted at remote release control etc., test all audible and visual alarms, all fuel shut-off controls connected to fire protection system tested; for cylinders installed inside the protected space – integrity of double release lines verified, low pressure or circuit integrity monitors on release cabinet checked |  | Safety Off./1st Eng. |
| 16. Fixed local application fire-extinguishing systems in engine room tested and inspected as per makers recommendations and TAC |  |  |
| 17. Galley and deep fat cooking fire-extinguishing systems – checked as per manufacturer’s instructions |  |  |
| 18. Verify galley exhaust ducts and filters are free of grease build-up |  |  |
| 19. Thermo-imaging survey equipment (if provided onboard) – as per manufacturer’s recommendations |  |  |
| 20. Medical oxygen cylinders – inspect annually per manufacturer’s instructions |  |  |

**FIRE FIGHTING APPLIANCE SYSTEM**

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| --- | --- | --- |
| **BI-ANNUAL (+/- 3 months)** | **Year** | **REMARKS** |
| 1. Fixed CO2 and other gas installations:   * all high pressure cylinders and pilot cylinders weighed to confirm above 90% (for CO2) or 95% (for other fixed gas installations) nominal charge * CO2 low pressure storage tanks – liquid level verified for required amount of CO2 to protect the largest hazard. * the hydrostatic test date of all storage containers checked * dry compressed air or nitrogen blow through the discharge piping to confirm pipe work and nozzles are clear of any obstructions |  | Safety Off./ 1st Eng. |
| 2. Fixed CO2 and Halon Gas Installations-by a competent specialist maintenance firm:   * all activating heads tested for correct functioning by applying full working pressure through the pilot lines from one or more release stations. (if above not possible – pilot lines are to be disconnected from the cylinder valves and blanked off or connected together and tested with full working pressure from the release station) * any manual pull cables checked for good condition, free movement without excessive amount of travel, cable components cleaned, connections properly tightened, remote release controls operated by pneumatic pressure - tubing checked for leakage, and proper charge pilot gas cylinders verified. * any controls and warning devices - function normally, including the prescribed time delay |  | By specially trained persons |
| 3. Fixed dry chemical powder systems:   * dry nitrogen blown through the discharge piping to confirm that pipe work and nozzles are clear of obstructions * local and remote control and section valves operationally tested * propeller gas cylinders contents verified * dry chemical powder tested for moisture content * powder containment vessel, safety valve and discharge hoses pressure tested (at full working pressure) |  |  |
| 4. Galley and laundry ducts complete cleaning during drydock |  | Specialized company (cleaning)  Competent Ship’s Officer (inspection) |
| **THREE YEARLY ITEMS** | **Year** | **REMARKS** |
| 1 Fibre-reinforced / ultra light weight SCBA- hydro tested every 3 years (taken out of service 15 years after their manufacturers first test) |  | By specially trained persons |
| 2 Medical oxygen cylinders – landed ashore every three years for re-charging; pressure test the pipes connecting the cylinder to the regulator |  | By specially trained persons |
| 4 Additives in water mist systems tested after 3 years from installation and then annually |  | At a service supplier / test laboratory |
| 3 External thermo-imaging survey for hotspots in ER “hot” areas of oil combustion and exhaust (unless monthly internal check regularly done) and electrical machinery |  | By an external authorized contractor during every drydock |

**FIRE FIGHTING APPLIANCE SYSTEM**

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| **FIVE YEARLY ITEMS** | **Year** | **REMARKS** |
| 1 STEEL SCBA cylinders hydrostatical test at an approved shore station (aluminium or composite cylinders per pressure and interval by manufacturer / RO) |  | By specially trained persons |
| 2 Foam fire-extinguishing systems – flush all high expansion foam system piping with fresh water, drain and purge with air; check all nozzles are clear of debris; test all foam proportioners/mixing devices (mixing ration tolerance within +30 to -10% of the nominal) ; test all connected fuel shut-off controls |  | IMO MSC/Circ.670 and IMO MSC.1/Circ.1312 |
| 3 Foam – test foam properties for protein based concentrate |  | IMO MSC.1/Circ.1312 |
| 4 Water mist, water spray and sprinkler systems – control and section valves internal inspection; water quality testing in all piping sections not tested within the last 5 years during the annually required tests; check condition of any batteries or renew as per manufacturer’s recommendations |  | For each section where water is renewed, water quality should meet manufacturer’s guidelines. The quality of the water renewed should be tested and recorded as baseline reference for future tests |
| 5 Hydrostatic pressure test of EEBD cylinders, unless manufacturer specified fixed service life |  | Safety Off. |
| 6 Control valves of fixed fire extinguishing systems internally examined |  | Safety Off. |
| 7 Fixed local application fire-extinguishing systems in engine room - full flow test of all sections and spot check of fire detection / automatic release system (automatic release N/A for continuously manned engine rooms) |  |  |
| 8 Portable fire extinguishers – at least one extinguisher of each type manufactured in the same year and kept on board a ship should be test discharged (as part of a fire drill) |  |  |
| 9 Portable and semi-portable (wheeled) fire extinguishers – charges renewed and thorough inspection and internal examination by an accredited service company |  | By specially trained persons |
| 10 Low location lighting – luminance of all systems tested (per IMO res. A.752 18) |  | By specially trained persons |
| 11 Hydrostatic test hi-pressure cylinders fixed of fire fighting systems (if already done after the fist 10 years) |  | By specially trained persons |
| 12 All Fire Hoses pressure tested (by annual portion) at the max fire main pressure |  |  |
| 13 Medical Oxygen Cylinders – hydrostatic pressure test ; pressure regulators serviced |  | At an approved shore-based servicing station |
| 14 At least one extinguisher of each type manufactured in the same year and - test discharged at five yearly intervals (as part of a fire drill) |  | record this |
| **TEN YEARLY ITEMS** | **Year** | **REMARKS** |
| 1 Portable and semi-portable fire extinguishers – hydrostatical testing, including propellant cylinders exceeding 600 ml at an approved servicing and testing station |  | By specially trained persons |
| 2 First Hydrostatic test hi-pressure cylinders of fixed gas fire fighting systems (then every five years as above)   * At the 10-year inspection, at least 10% of the total number of high pressure cylinders provided 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. * All flexible hoses must be changed |  | By specially trained persons |
| 3 Water mist, water spray and sprinkler systems – gas and water pressure cylinders hydrostatically tested (as per Flag guidelines or EN 1968:2002+A1) |  | By specially trained persons |
| 4 Fixed dry chemical powder systems – all powder containment vessels hydrostatically or NDT tested |  | By specially trained persons |
| 5 Fixed aerosol extinguishing systems – condensed or dispersed aerosol generators renewed (per manufacturer’s recommendations) |  | By specially trained persons |

**Remarks**:

1. **Low pressure CO2 systems and Halon Gas Cylinders are to be hydrostatically tested after 20 years from the date of manufacture and every 5 years thereafter. Test records to be marked on the cylinders. Low pressure CO2 and Halon gas cylinders may be exempted from periodical hydrostatic testing upon application to Flag based on alternative inspections and conditions.**
2. **Minimum number of spare charges carried onboard for portable and semi-portable extinguishers: 100% for the first 10 extinguishers and 50% for the remaining (max.60). For extinguishers which cannot be charged onboard - additional extinguishers of same type/ capacity in lieu of spare charges.**