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Subject: China MSA announces a special campaign on prevention of vessel mechanical and electrical failures in Chinese waters from Apr 7th to Oct 31st 2024

Following the tightened control by Shanghai MSA and Shandong MSA on main engine failures last year, China MSA issued a notice recently announcing a nationwide campaign focusing on prevention of vessel mechanical and electrical failures in Chinese waters from Apr 7th to Oct 31st 2024. The main requirements are summarized as follows:

Self-check requirement

1. Chinese flag vessels should enhance maintenance of vessels' mechanical and electrical equipment. Shipping companies should formulate a key-items check list that is applicable to their vessels, by refer to the attached "Guide on Special Self-Check to Prevent Vessel Mechanical and Electrical Failures" ("The Guide"). Vessels should conduct self-check before sailing and rectify potential problems identified during the self-check.
2. Local ship agents should alert the foreign vessels that are about to enter into Chinese waters, asking them to conduct self-check on maintenance of the mechanical and electrical equipment.
3. Ship classification societies as well as domestic and international ship survey firms should strengthen the checking and testing of vessels including new building, modification, equipment maintenance and upgrading, etc., in order to reduce the possibility of mechanical and electrical failures.

Reporting requirement

In case of mechanical and electrical failures, vessels should voluntarily report to local

MSA and accept the special safety check by MSA if required. Vessels that don't voluntarily report will be dealt with severely according to the law.

MSA special check on vessel mechanical and electrical equipment

Local MSA should conduct detailed check on vessel mechanical and electrical equipment during routine safety check. If a vessel is found to have had mechanical and electrical failure, in principle local MSA should conduct special check. For vessels that have had two or more mechanical or electrical failures within the last 12 months, MSA will invite the shipping company and ship inspection firm to conduct joint inspection and require the vessel to submit failure analysis report and prevention plan of mechanical and electrical failures.

Suggestions

1. **Keep the vessel in good condition and conduct self-check before entering into Chinese waters:** Ship owners or managers are recommended to conduct self-check on the mechanical and electrical system according to the Guide, including but not limited to the main engine, propeller, shaft system, rudder, aux engine, lubricants, filters, etc.

Crew members shall strengthen the daily inspection and maintenance of the vessel's electromechanical equipment and eliminate the potential defects in a timely manner to ensure safe navigation.

2. **Emergency plan and drills:** Crew members should be aware of the possible mechanical or electrical system failures that they may encounter in different scenarios, such as in narrow waterways, in the anchorage, within port area, and in the open sea but with other vessels' sailing nearby. Regular drills and crew training are recommended. If the crew members cannot rectify the deficiency by themselves, technical experts shall be dispatched to assist as soon as possible.

In case a mechanical or electrical failure happens

When a vessel encounters mechanical or electrical failure, according to the relevant laws, the crew members shall voluntarily report to local MSA or vessel traffic service center (VTS) immediately via VHF or other possible means with detailed information including the vessel's name, position, the need of rescue, and other emergency situations so that measures can be taken by the local authorities accordingly.

According to our experience in handling such cases, the vessel will usually be detained by MSA for investigation. It would be advisable for the crew members to prepare a Statement of Fact (SOF) by introducing the cause of mechanical and electrical failure,

the actions taken to rectify the deficiency, and the good condition of vessel's mechanical and electrical equipment after being rectified to ensure the same failure will not occur in the future. MSA usually need to be convinced that the same failure will not occur again before giving green light to the vessel's departure.

Besides, some MSA offices may order tugboat(s) to escort the vessel for the sake of navigation safety and oil pollution prevention, therefore tugboat fee will be incurred, which may need to be settled before the vessel is allowed to sail.

We hope the above is of assistance. If there is any query, please feel free to contact us at oasis@oasispandi.com anytime.

Best regards,

Oasis P&I Services Company Limited

Attachment: "Guide on Special Self-Check to Prevent Vessel Mechanical and Electrical Failures" published by China MSA in Chinese and our free English translation.

Attachment

Guide on Special Self-Check to Prevent Vessel Mechanical and Electrical Failures

Vessels shall carry out self-check on the safety and technical conditions of vessels and their mechanical and electrical equipment in accordance with international conventions, domestic laws and regulations, and implement the main responsibility for production safety.

I. Whether the main propulsion equipment (main engine) is in normal condition

Preventing main propulsion failure requires self-check on oil, air, water and electricity, mainly on the fuel oil system, lub oil system, air system, cooling water system and main engine control system.

1. Whether the main propulsion fuel oil system is in normal condition (fuel oil supply units, high pressure pumps, fuel oil line, oil leakage monitoring, fuel oil heating, automatic switching of fuel oil pumps, if any, etc.).
2. The communication facilities such as telegraph between the console and the bridge are in normal condition, and the instruments such as the nearby tachometer are in normal condition.
3. Whether the main propulsion starting air system works properly (main starting air bottle pressure, main air compressors, main starting valves, cylinder starting valves, air distributor, etc.).
4. Whether the main engine lubrication system is in normal condition (whether any leaking trace on pipelines, filter joints, whether the pressure gauge displays normal, whether sensor connector secured, whether the lub oil pump switches automatically, if any, etc.).
5. Whether the cooling water system of the main engine is in normal condition (whether any leaking trace on the pipelines and coolers, whether the pressure gauge displays normal, whether the sensor connectors secured, and whether the cooling water pump switches automatically, if any, etc.).
6. Whether the main engine control air system is functioning properly (control the air pressure, whether any water in control air, etc.).
7. Main engine running astern measures (blade pitch control system for controllable pitch propellers, clutches).

II. Whether the security, monitoring remote control and other auxiliary equipment of vessel's main propulsion are in normal condition

Preventing failures of the main propulsion security system requires self-check of the oil mist detector, the lub oil loss of pressure protection, and the reliability of the overspeed protection function.

1. Whether the main diesel engine overspeed alarm and emergency stop device are in normal condition.
2. Whether the main diesel engine lub oil low pressure, cylinder liner water high temperature alarm and main engine automatic stop protection device are in normal condition.
3. Whether the main diesel engine oil mist concentration detector and main bearing temperature detector are in normal condition (only applicable for sea going vessels with unattended machinery space engine room for diesel engine power greater than 2250KW or cylinder bore greater than 300mm).
4. Whether the centralized monitoring system has any alarm records related to the main propulsion system security, automatic stopping devices (for sea going vessels only).
5. Whether the lub oil low pressure alarm device for gear box is in normal condition, and whether the lub oil high temperature alarm device for gear box with input power greater than 1470KW is in normal condition (for sea going vessels).
6. If the input power of gear box is more than 370KW, whether the lub oil low pressure alarm device is in normal condition. If the input power of gear box is more than 1470KW, whether the lub oil high temperature alarm device is in normal condition (for inland river vessels only).

III. Whether the vessel's steam boiler is in order

The boiler can regulate the temperature of the oil and water through steam heating to ensure that the diesel engine operates within normal operating conditions. To prevent boiler failure, it is recommended to carry out self-check on the feedwater system, combustion system, and safety precautions etc.

1. Whether the feedwater system is in order (number of feedwater pumps, feed water quality, water level indicators, etc.).
2. Whether the combustion system is in order (ignition, oil supply, air supply, etc.).

3. Whether safety systems are functioning properly (safety valves, air supply, flame out, low water alarm, etc.).

IV. Whether the vessel's main power is in order

Preventing main power failures requires preventive self-check of the prime engines, generators, and main switchboard.

1. Whether the main power capacity is adequate (focusing on single or multiple generator failures and vessels equipped with thrusters, EGCS (Exhaust Gas Cleaning System), ballast water treatment plants, etc.).
2. Whether the prime engine starts and runs properly (fuel oil, lub oil, cooling water, etc.).
3. Whether the prime engine security system function is in order (overspeed protection, lub oil low pressure, cooling water high temperature, etc.).
4. Whether the main switchboard and A/E control panels are in normal condition (automatic start, stop, paralleling, de-paralleling, load distribution, load discharge control of A/Es, etc.).
5. Whether the insulation monitoring function of the main switchboard is in order.

V. Whether the emergency power supply is in order

The vessel's emergency power supply (mainly the emergency generator) can be used as an independent energy source to provide power for important equipment such as the steering gear when the vessel encounters main power failure. The self-check of the vessel's emergency power supply can be carried out in terms of the emergency generator, emergency switchboard and emergency battery packs.

1. Whether the emergency generator starts and operates properly (fuel oil, lub oil, cooling water, etc.).
2. Whether the emergency generator starting device meets the requirements (for sea going vessels only).
3. Whether the fuel oil reserved for emergency generator is sufficient.
4. Whether the emergency generator mode switch for automatic start is placed in the auto position.

5. In the event of main power failure, whether power can be supplied to the emergency equipment within 45s (30s for inland river vessels).
6. Whether the insulation monitoring function of the emergency switchboard is in normal condition.
7. Whether the emergency battery pack function is proper.
8. Whether the quick closing valve of the emergency generator fuel oil tank is working properly.
9. Whether units of the emergency generator switchboard are in the on position.
10. Whether the supply line of emergency generator compressed air receiver (in the emergency generator room) is a non-return valve.
11. Whether the fuel oil leak alarm on the high pressure fuel line of the emergency generator is in normal condition.

VI. Whether the steering gear is in normal condition

In order to ensure the effectiveness of the steering gear and to prevent steering gear malfunctions, self-check can be carried out on the electrical system, hydraulic system, alarms, and the operations of the steering gear.

1. Whether the steering gear can be automatically activated after power failure (for sea going vessels only).
2. Whether the steering gear can be supplied with power within 45s in the event of main power failure (for sea going vessels with rudder stock diameters over 230mm).
3. In the event of a single failure of the electronically power controlled steering gear, it shall be switched to the standby power within 10s (for inland river vessels only).
4. Whether the capacity of the steering gear hydraulic oil reservoir is sufficient to refill at least one power actuation system, including the reservoirs.
5. Whether the audible and visual alarms of steering gear hydraulic oil reservoir low level (on the bridge and on the machine space) are in normal condition.
6. Whether the audible and visual alarms (short circuit protection, overload alarm, phase failure alarm) of the steering gear are in normal condition (at the main engine space or in the control room and in the wheel house where the main

engine is normally controlled) (for sea going vessels only).

7. Whether the steering gear performance test is normal.
8. Whether the communication facilities between the bridge and the steering gear room is in order.

VII. The competency and familiarity of crew members with the operation of mechanical and electrical equipment within the scope of their duties

To prevent mechanical and electrical failures of vessels caused by human factors such as improper operation by crew members, it is recommended that self-check be carried out in terms of crew certificates, manning, crew practices and emergency response capabilities.

1. Whether crew members hold valid Certificates of Competency and whether the vessel meets minimum safe manning requirements.
2. Whether the crew members could communicate effectively with each other in the course of their daily work and in emergency situations.
3. Whether the responsible crew member is familiar with the operation, testing and emergency response procedures of the main propulsion (high temperature alarm test of the lub oil system and cooling system, overspeed alarm test, fuel casing failure (leakage) alarm test, emergency stop, emergency response procedures for main engine malfunction, etc.).
4. Whether the responsible crew member is familiar with the operation, testing and emergency response procedures of the vessel's boilers (low water level, flame out, air supply alarms, etc.).
5. Whether the responsible crew member is familiar with the operation, testing and emergency response procedures of the vessel's mains power supply (fuel oil leakage alarm test, paralleling and de-paralleling test, insulation test, ship-wide power failure emergency response procedures, etc.).
6. Whether the responsible crew member is familiar with emergency generator operation, testing and emergency response procedures (emergency generator start-up, paralleling, de-energization testing, etc.).
7. Whether the responsible crew member is familiar with the operation, testing and emergency response procedures of the steering gear (changeover of the steering gear system, check and test of the steering gear before sailing, steering gear alarm test, emergency steering gear maneuver drills, etc.).

VIII. Whether the system documents related to electromechanical equipment are effectively implemented on the vessel

Whether the system documents related to electromechanical equipment are effectively implemented on board is an important part of preventing electromechanical failures. Self-check shall be carried out mainly in terms of shipboard resources and human resources, shipboard operation plans, emergency preparedness, reporting and analysis of accidents and hazards, and maintenance of the vessel and equipment.

1. Whether the shipping company ensures that the master receives the necessary support (records of ship-to-shore communications, records of request and supply of spare parts and materials, reports on system documentation, technical support, etc.).
2. Whether the shipping company has qualified and licensed crew to meet the requirements of various safety operations on board.
3. Whether the shipping company ensures that crew members can communicate effectively when carrying out their responsibilities under the safety management system.
4. Whether the shipping company has procedures, programs, or instructions for the operation of electromechanical equipment.
5. Whether the shipping company has included the electromechanical failure as an emergency, labelled it and established emergency response procedures (main engine, loss of vessel's power, emergency operation of steering gear and drills, etc.).
6. Whether the shipping company has a maintenance program for mechanical and electrical equipment and has it implemented in line with the program.

IX. Other problems that may cause mechanical and electrical failures of vessels

In addition to the inspection of the mechanical and electrical equipment, attention should also be paid to other systems that may cause problems to vessel's mechanical and electrical equipment. For example, malfunctioning of fuel oil quick close valves may result in accidental cut-off of fuel supply to main/auxiliary engines, manual emergency stops due to lack of protection for mechanical and electrical equipment that caused injury to the crew, or flooding in the engine room due to failure of the bilge water system. Additional attention should also be paid to crew fatigue on board, and to vessels leaving the shipyard after repairs.