

Engine Watch

Poster
005

CHIEF ENGINEER

- The Chief Engineer Officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into consideration the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.
- The Chief Engineer Officer shall, in consultation with the master, ensure that a safe watchkeeping system is kept at all times.
- The Watch systems should be such that the efficiency of the Watchkeepers is not impaired by fatigue.
- Under the direction of the Chief Engineer, the Engineer Officers of the watch or on duty are responsible for the required inspections, operation and testing of all equipment within their area of responsibility.

ENGINEER OFFICER

- Shall ensure that the watchkeeping arrangements are complied with and that under direction, engine-room ratings, assist in the safe and efficient operation of the propulsion machinery and auxiliary equipment.
- At the beginning of a watch, the required operational parameters and condition of all machinery should be confirmed.
- Shall make sure that alarm and safety arrangements are in operation when the engine-room is unmanned.
- Shall continue to be responsible for machinery-space operations, despite the presence of the Chief Engineer Officer in the machinery spaces, until specifically informed that the Chief Engineer Officer has assumed that responsibility and this is mutually understood.
- Shall not hesitate to take any actions needed for maintaining the safe operation of the ship.

Shall besides this notify the Chief Engineer Officer

- When engine damage or malfunction occurs which may be such as to endanger the safe operation of the ship.
- When any malfunction occurs which, it is believed, may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing system.
- In any emergency or if in any doubt as to what decision or measures to take.

WATCHKEEPING

- The composition of the watch shall, at all times, be adequate to ensure the safe operation of all machinery affecting the operation of the ship, in either automated or manual mode, and be appropriate to the prevailing circumstances and conditions.
- All members of the watch shall be familiar with their assigned watchkeeping duties.
- Engineer Officers in charge of a watch shall not be assigned or undertake any duties which would interfere with their supervisory duties in respect of the main propulsion system and ancillary equipment.

In addition every member shall have knowledge of:

- The use of appropriate internal communication systems.
- The escape routes from machinery spaces.
- The engine-room alarm systems.
- The location and the use of fire-fighting equipment.

TAKING OVER THE WATCH

- The Engineer Officer in charge of the watch shall not hand over the watch to the relieving officer if there is a reason to believe that the latter is obviously not capable of carrying out the watchkeeping duties effectively, in which case the Chief Engineer Officer shall be notified.

- The relieving Engineer Officer of the watch shall ensure that the members of the relieving watch are apparently fully capable of performing their duties effectively.
- Before going off duty, the Engineer Officer in charge of the watch shall ensure that all events related to the main and auxiliary machinery which have occurred during the watch are suitably recorded.

Relieving Engineer Officer shall be informed of:

- The standing orders and special instructions of the Chief Engineer Officer relating to the operation of the ship's systems and machinery.
- The nature of all work being performed on machinery and systems, the personnel involved and potential hazards.
- Condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system.
- The condition of monitoring and control equipment.
- Any potentially adverse conditions resulting from bad weather, ice, contaminated or shallow water.
- Any special modes of operation dictated by equipment failure or adverse ship conditions.
- The reports of engine-room ratings relating to their assigned duties.
- The availability of fire-fighting appliances.
- The state of completion of engine-room log.

OPERATION

- Any machinery not functioning properly or expected to malfunction or requiring special service should be noted in the engine-room log.
- The Engineer Officer in charge should ensure that periodic checks are made of the propulsion machinery and the auxiliary equipment and that immediate remedial steps are taken in the event of any malfunction.
- Appropriate attention should be paid to the maintenance work of the entire machinery equipment.
- All Bridge orders should be promptly executed, changes in propulsion machinery speed and direction of rotation should be noted, unless recording is logged by special automatic equipment.
- Immediately inform the Bridge in the event of fire, of impending actions that may cause reduction in the speed, imminent steerage failure, stoppage of the propulsion system, changes in the electrical generating system and similar hazardous situations.
- When "Stand By" mode is requested, ensure that all machinery equipment involved with the manoeuvring of the ship can be placed in manual modes of operation and ensure that an adequate reserve of power is available for steering and other requirements.
- When the machinery spaces are in the manned condition, the Engineer Officer in charge of the Watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed.
- When the machinery spaces are in the periodic unmanned condition, the designated duty Engineer Officer in charge of the watch shall be immediately available and on call attend the machinery spaces.
- Adequate rounds of the machinery and steering gear spaces shall be made for the purpose of observing and reporting equipment malfunctions or breakdowns.

CHECK POINTS FOR SAFER OPERATION

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| Engines | |
| Incorrect assembly | -all parts should be marked for identification during disassembly |

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| Locking devices | -hammer tests and lock devices should be checked |
| Lub Oil | -regular condition analysis should be made and the separators operated effectively |
| Spare Parts | -always use original manufacturers' spares approved by Class |
| Wear | -do not exceed maximum wear limits |
| Crank pins | -always check for fractures, at serrations, for ovality in big-end boring, correct tightening torques and for allowable stretch of bolts. |
| Crankshaft Bearings | -take deflections regularly, monitor bearing clearances and carefully check wear of thin shell bearings |
| Turbochargers | |
| Rotor | -ensure protection grids are in place and intact |
| Nozzle Ring | |
| Boilers | |
| Corrosion | -maintain water treatment, feed water temp 85-95 °C |
| Water levels | -maintain and test level alarms and shut downs |
| Soot fires | -carry out frequent soot-blowing and inspections, clean/wash regularly |
| Bunker | |
| Inadequate specification | -correct sampling method. Analyse before use (DNV, Lloyd's fuel test) |
| Separators | |
| Incorrect adjustment | -check gravity disc, temperature and throughput capacity |
| Electric systems | |
| Fire | -clean regularly switchboards, generators |
| Short circuit | and motors
-check and re-tighten main switchboard at every drydocking |

FIRE

- Remember fires often start from simple incidents and are frequently caused by minor events e.g. leakages, open sounding pipes, unprotected exhaust pipes etc.
- Everyone is obliged to know where the fire-fighting equipment is placed and how to use it.
- The earlier the fire-fighting effort is started, the better the result.
- A clean Engine Room is a safe engine room.
- Regular checks of the fire-detectors should be made.
- Regular checks of the safety system of the machinery should be made.
- Always follow the manufacturer's instructions for maintenance and repair.
- Clean and protect metal surfaces and electrical parts immediately if there has been a fire affecting PVC-cables.

PROTECTION OF THE MARINE ENVIRONMENT

- Be aware of the serious effects that operational or accidental pollution has on the marine environment.
- Take all possible precautions to prevent such pollution.
- Read and follow national and international regulations regarding the use of toxic products.