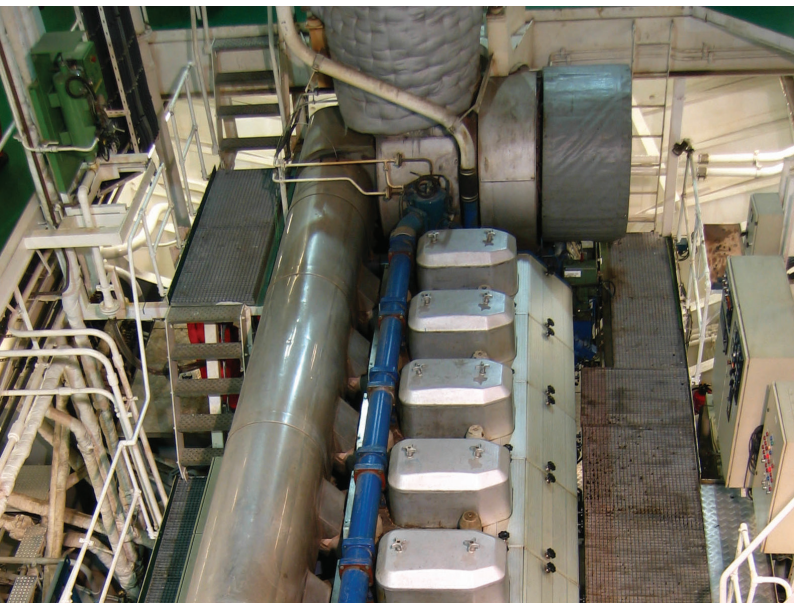


# Engine Room Instructions





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The Swedish Club 2012, Edition 2

The Engine Room Instructions are based in accordance with IMO's International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 2010 as per the Manila amendments (STCW-Convention).



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# 1. Chief Engineer

- 1.1 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, expendables, spare parts, tools, supplies and any other requirements.
- 1.2 shall follow all relevant international regulations, flag state, port state, local and SMS requirements.
- 1.3 shall be responsible for the maintenance of all equipment which is under the responsibility of the engineering department.
- 1.4 shall report to the vessel's superintendent any difficulties regarding the planned maintenance system (PMS).
- 1.5 shall ensure that the PMS is updated and that it includes requirements of international regulations, flag state, port state, local, manufacturers', class and SMS requirements.
- 1.6 shall ensure that the engineering officer of the watch (EOOW) is informed about all required maintenance, damage control or repairs, which will be performed during the engineering watch.
- 1.7 shall ensure that any machinery not functioning properly, expected to malfunction or requiring special service shall be noted along with any action already taken. Plans shall be made and communicated regarding required action.

- 1.8 shall ensure that if engine checks are carried out in an Unattended Machinery System (UMS) that SMS procedures are followed and all crew are aware of the procedures.
- 1.9 shall ensure that environmental procedures are complied with as per MARPOL regulations, port state regulations, e.g. SECA (Sulphur Emissions Control Areas) or other local regulations, to be aware when discharge is allowed or not, and any other special regulations for the current trading area.
- 1.10 shall ensure that the EOOW follows manufacturer's suggestions when changing between different fuel types in SECA regions.
- 1.11 shall ensure that all engine room crew are aware of the serious effects of operational or accidental pollution of the environment and shall take all possible precautions to prevent such pollution.



- 1.12 shall ensure that the Oily Water Separator (OWS) is working correctly and all concerned engine room crew are aware of the SMS procedures and regulations regarding the OWS. This is imperative as the OWS is one of the most critical items of equipment onboard.
- The PMS should include inspection and cleaning of the OWS unit and all associated piping.
  - All engineers operating the OWS should receive appropriate familiarization training.
  - Operating instructions and operating diagram should be posted on the OWS unit.
  - When sailing from port the vessel should have a functioning OWS unit on board and sufficient spares to maintain it in good condition.
- 1.13 shall ensure that all critical communication is done by closed loop.
- 1.14 shall organise the watchkeeping, ensuring that the bridge team members (himself included) are allowed sufficient rest periods in accordance with the STCW convention and flag state regulations.
- 1.15 shall issue written standing orders and special instructions as necessary.
- 1.16 shall ensure that there is a climate for encouraging challenges and assertiveness.
- 1.17 shall ensure that risk assessments and work permits are issued and followed.



## 2. The Engineer of the Watch (EOW)

- 2.1 is the chief engineer's representative and is primarily responsible, at all times, for the safe and efficient operation of all machinery and equipment under the responsibility of the engineering department.
- 2.2 is responsible for inspections, operation, and testing of all machinery and equipment. Complying with the PMS, following weekly routines, greasing routines, alarm tests and analyses.
- 2.3 is in charge of the watch and is only relieved if the chief engineer clearly states this.
- 2.4 shall promptly execute bridge orders.
- 2.5 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.
- 2.6 shall keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved.
- 2.7 shall ensure that all critical communication is done by closed loop.
- 2.8 shall ensure that adequate rounds of the machinery and steering gear spaces are made for observing and reporting equipment malfunctions or breakdowns, performing or directing routine adjustments, required upkeep and any other necessary tasks.

- 2.9 shall direct any other engine room crew and inform them of potentially hazardous conditions which may adversely affect the machinery or jeopardise safety or the environment.
- 2.10 shall take the necessary precautions to contain the effects of damage resulting from equipment breakdown, fire, flooding, rupture, collision, stranding, or any other emergency.
- 2.11 shall have sufficient knowledge about all emergency duties and emergency equipment.
- 2.12 shall bear in mind that changes in speed, resulting from machinery malfunction, or any loss of steering, may affect safety. The bridge shall be immediately notified, in the event of fire and of any impending action in machinery spaces that may cause reduction in the vessel's speed. This notification, where possible, shall be done before changes are made, in order to afford the bridge the maximum available time to take whatever action is possible to avoid a potential marine casualty.
- 2.13 shall follow risk assessments and work permits.
- 2.14 shall give all engine room crew appropriate instructions and information which will ensure the keeping of a safe engineering watch.
- 2.15 shall be involved in the planning of detailed repair maintenance involving repairs to electrical, mechanical, hydraulic, pneumatic or applicable electronic equipment.

- 2.16 shall ensure that environmental areas are complied with as per MARPOL, SECA, flag state, port state, or other local regulations, to be aware when discharge is allowed or not and any other applicable regulations for the current trading area.
- 2.17 shall follow manufacturer's suggestions when changing between different fuel types in SECA regions.
- 2.18 shall ensure that the bridge is informed when the engine control will be operating under UMS and which EOOW is responsible.
- 2.19 shall ensure that all crew members are aware that only authorized personnel are allowed to enter the control room, or an unattended machinery space, when operating under UMS.
- 2.20 shall ensure that the dead man alarm is used when working in the engine room operating under UMS.
- 2.21 shall ensure that SMS procedures regarding UMS are followed.

- 2.22 shall cooperate with any engineer carrying out maintenance work or repairs. This shall include, but not necessarily be limited to:
- isolating and bypassing machinery to be worked on
  - adjusting the remaining plant to function adequately and safely during the maintenance period
  - recording, in the engine room log or other suitable document, the equipment worked on and the personnel involved, which safety steps have been taken and by whom, testing of the equipment, when the equipment was repaired.
- 2.23 shall notify the chief engineer without delay but not limited to:
- when engine damage or malfunction occurs which may affect safety or the environment
  - when any malfunction occurs which may cause damage or breakdown of critical machinery
  - in any emergency situation or if there is any doubt as to what decisions or measures to take in accordance with the chief engineer's standing orders or SMS.
- 2.24 shall not hesitate to take immediate action for the safety of the vessel, its machinery, crew and the environment where circumstances require, despite the requirement to notify the chief engineer.

## 3. Engine Room Ratings

- 3.1 shall follow the daily work orders.
- 3.2 should be briefed about what to expect during the watch.
- 3.3 shall follow the instructions of the EOOW regarding maintenance duties and assist in the manual operation of the machinery in the event of equipment failure.
- 3.4 shall follow risk assessments and work permits.
- 3.5 shall have sufficient knowledge of the SMS.
- 3.6 shall do all critical communication in closed loop.





## 4. Engine Room Crew

- 4.1 All members of the engine room crew shall be familiar with their assigned duties. In addition, every member shall at least have knowledge of:
- the use of appropriate internal communication systems
  - the escape routes from machinery spaces
  - the location and use of all types of fire-fighting equipment
  - the engine room alarms
  - the damage control gear in the machinery spaces, together with their use and the various safety precautions to be observed.
- 4.2 All members:
- shall ensure that all communication is carried out in closed loop
  - shall always comply with the chief engineer's standing and special orders
  - shall ensure that the bridge and other team members are informed and updated on occurrences during the watch that are of significance regarding safety of the vessel
  - shall always comply with the vessel's Safety Management System (SMS)
  - shall only use SMS approved checklists
  - shall before arrival or departure be part of a pre-arrival and pre-departure meeting. During the meeting the operation is discussed and tasks/duties are assigned
  - shall update the PMS when required or inform EOOW when a job is completed
  - shall have required knowledge about the PMS requirements and how the system operates.



## 5. Watch Arrangements

- 5.1 The EOOW shall ensure that established watchkeeping arrangements are maintained and is responsible, at all time, for the safe and efficient operation of the vessel and protection of the environment.
- 5.2 The EOOW shall ensure that any engine room ratings carrying out maintenance duties are available to assist in the manual operation of the machinery in the event of equipment failure.
- 5.3 When deciding the composition of the engineering watch, the following, but not limited to, shall be taken into account:
- the type of vessel and condition of the machinery
  - the adequate supervision, at all times, of machinery affecting the safe operation of the vessel
  - any special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution
  - the qualifications and experience of the engineering team
  - the safety, vessel, cargo, port and protection of the environment
  - follow the PMS and updating the system with required jobs
  - the observance of international, national and local regulations
  - maintaining the normal operation of the vessel.



## 6. Relieving the Watch

- 6.1 The EOOW shall not hand over the watch to the relieving EOOW if there is reason to believe that the latter is obviously not capable of carrying out the watchkeeping duties effectively, in which case the chief engineer shall be notified.
- 6.2 The EOOW must supply information to the relieving EOOW about important developments during the watch and chief engineer's special orders.
- 6.3 Prior to taking over the engineering watch the relieving EOOW shall satisfy themselves regarding following but not limited to:
- standing orders and special instructions from the chief engineer
  - the nature of all work being performed on machinery and other systems
  - the level and condition of all tanks
  - the condition and level of fuel in the different tanks
  - any special Environmental requirements
  - condition and mode of various machinery and systems
  - which mode different machinery and equipment is operated in and which equipment is being operated manually.

- any issues which can arise from bad weather, ice, contaminated water, shallow water, or any other adverse condition
- any special modes of operation dictated by equipment failure or adverse vessel conditions
- the reports of engine room ratings relating to their assigned duties
- the condition of safety equipment
- the state of completion of the different engine room log books.

## 7. Checkpoints for Safer Operation

Extensive checklist and PMS jobs should be available for:

- Main engine
- Diesel engines
- Alternators
- Electrical systems
- Separators
- Instrumentation
- Boilers
- Heat exchangers
- Pumps and motors
- Pipe system and valves
- Compressors and air systems

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