

# INSTRUCTIONS FOR ENGINE ROOM OFFICERS

Based on IMO STCW-95 ch.VIII with 2010 Manila Amendments, COLREG and SOLAS ch. V and its supplementary requirements for INS (Integrated Navigation System) on route planning and on MRM (Maritime Resource Management) recommendations.

In order to ensure safe and effective operations in the control and engine rooms, the personnel must be well acquainted with applicable regulations, codes and standards.

The crew shall follow the instructions in the ship's operation manual and standing rules, taking into consideration prevalent conditions and available resources.

The procedures explained here are only indicative, not exhaustive in nature and one must always be guided by practices of good seamanship.

Reference is also made to IMO STCW-95 ch.VIII with 2010 Manila Amendments, MARPOL with SOPEP and SOLAS regulation II-2/14.2.2.1 and ISM code clauses 7 and 10.

## THE CHIEF ENGINEER

is directly subordinate to the Master and responsible for technical operations on board.

The chief engineer shall make sure that

- the vessel is technically approved and in order
- s/he has been informed by the Master regarding the itinerary of the intended voyage
- the supply of fuel, lubricating oils, spare parts, water and other supplies are sufficient
- the engine room officers and the personnel of the watch are well acquainted with the vessel's machinery, the engine manufacturers' instructions and the safe working routines applied on board
- the vessel's fire-extinguishing systems are in order
- standing orders are observed so that prompt action can be taken in emergencies and the bridge personnel can be informed
- the engineering watch is appropriately organised with watch rotation allowing necessary rest periods for all, including him/herself.

*It is of utmost importance that cooperation in the engine room works and that any disturbances that may threaten the safe operation of the ship or cause danger are promptly reported to the Master.*

## COMPOSITION OF ENGINE WATCH

To ensure reliable operation of all machinery vital for safe operation of the vessel, the composition of the watch shall be appropriate to the prevailing circumstances and conditions.

In planning the composition of the watch the following shall be observed

- international, national and local rules and regulations
- special operating conditions: weather, ice, polluted water, shallow water, narrow fairways, emergency situations, departures and arrivals
- safety of life, vessel, cargo and port and prevention of damage and pollution.

## OPERATION

The officer in charge of the engine watch is the chief engineer's representative and is primarily responsible, at all times, for the safe and efficient operation of the machinery.

The engine room officers of the watch shall ensure that established watch keeping routines are maintained and

before departure

- prepare engines for start in accordance with the manufacturers' instructions
- ensure that the engine room is ready and fit for departure before giving up the manoeuvring to the bridge

during manoeuvring

- ensure that the power resources required for safe manoeuvring is monitored and maintained
- continually monitor the operation values of the engines

in open waters

- make sure that the daily duties assigned by the Chief Engineer and the shipping company are performed, i.e. that the operation values of the engines and the quantities of fuel, oils and water are recorded
- make sure that normal and periodical maintenance work is carried out, provided that it does not interfere with operations.

When transferring to unmanned engine room operation, the engineer on duty shall

- check that fuel and lube oils are available and day tank drained from water

- ensure that the engine room is in good order, that bilges are empty and that equipment is running normally
- make a check round on a regular basis
- make sure that alarms are switched "on" to duty engineer.

The engine room officers of the watch shall before arrival in port

- man the engine room well before the pilot's arrival or before an estimated manoeuvre command
- take the action included in the section "during manoeuvring"

when stopping the engines

- stop the engines in accordance with manufacturers' instructions
- keep such engines on stand-by that the safety of the vessel or the harbour authorities demand
- register the need for service or repairs.

## TAKING OVER THE WATCH

The departing watch shall inform the relieving watch in full of all matters that may affect the vessel's safe navigation and seaworthiness.

Before taking over the watch, the relieving watch shall be fully acquainted with the prevailing circumstances.

The relieving watch shall pay particular attention to

restrictions that may affect normal operations

- the updating of the engine room log
- work in progress
- hot work in progress
- any special requirements relating to sanitary system disposals
- appliances and equipment that must not be started while work is in progress
- availability of fire-fighting appliances
- standing orders and special instructions

The watch must not be handed over to anyone presumed to be incapable of performing watch duties.

Winter operation

In conditions with a risk of temperature drop below zero °C and risk of freezing:

- water piping exposed to cold air to be particularly well monitored
- fire lines to be drained
- fresh water lines with outlets to outside to be drained
- air inlets to the engine room and in particular to the main engine shall be under supervision
- radiators in the air conditioning system shall be under supervision
- hydraulic oil in mooring winches, hatch cover systems, stern ramp systems and cargo handling systems shall be circulated where applicable.

When navigating in ice cooling water intakes shall be frequently and carefully inspected.

## BUNKERING

Bunkering is a cooperation process involving many parties.

- The bunkering operation to be performed in accordance with bunkering instructions and international rules.
- Before and after bunkering, make sure that the quantity and quality of the supplier's fuel conform to the order placed.
- Take fuel samples in accordance with valid international rules and store the sample bottles (min. 2 bottles) in accordance with the company's instructions.
- Proper communication to be established between the vessel and the fuel supplier.
- Engine room and bunker station to be manned.
- Do not mix new and old fuel unless their compatibility has been verified.

- Verify that red signal flag is hoisted and/or bunker light is switched on.
- Start bunkering cautiously and increase the flow slowly until the desired flow has been reached.
- Test the communication between the bunker station and the engine control room now and then.
- Hot works are prohibited when fuel or other inflammable liquids are bunkered.
- Bunkering to be registered in the oil record book.
- Test the bunker before use.

## ENVIRONMENTAL PROTECTION

International conventions shall be followed in accordance with applicable law, such as MARPOL including SOPEP, BWM etc.

The shipping company's environmental policy shall be observed.

Make sure that the bilge water separator and the exhaust gas cleaning system work optimally.

Primarily use chemicals which

- are environmentally friendly
- repel oils
- do not interrupt the biological process in the waste water system.

Sewage management log, oil record- and BWM record books must be kept.

## FIRE PROTECTION

Updated vessel drawings and fire control plan to be kept available.

Emergency fire response plan to be considered.

Guidelines for the maintenance and inspection of fire protection systems and appliances to be considered.

Special attention to:

- Cleanliness in machinery spaces
- Fire pumps and pipes tested
- Automatic fire alarms, emergency quick-closing valves and shutdowns regular tests
- Piping system for high pressure fuel lines and oil leakage alarm
- Hot surfaces adequate insulation and protection
- Emergency escapes to be free from obstructions

Hot Work

- Hot Work instructions to be followed
- Hot work permit shall be issued
- Ensure adequate fire protection before, during and after hot works
- Fire watch to be appointed

*Fire drills shall be held in accordance with international rules and the ship's manual.*

## BLACK-OUT

Black-out may be prevented by regular service and testing of overload protection systems, stand-by systems or spare and emergency systems.

Further preventive measures:

- Pay attention to the quality of fuel and lubricating oils and ensure that separators and filters etc. work optimally.
- Make sure that the day tank is full and regularly drained from water.
- Do not overload the generator.
- Drain the fuel tank of the emergency diesel unit in connection with test runs.
- Make sure that electric appliances, electricity lockers and boxes are adequately enclosed and/or protected.

*In the event of Black-out, follow the vessel specific routines and check-list.*

## SAFETY

The engine room personnel shall be well acquainted with the Safety Management System (SMS) onboard).

- Assess and minimize risks!
- Recognize and prevent error situations!
- Maintain and test safety systems!
- Secure sufficient resources for each work!
- Uphold safety during maintenance and repairs as well!

Leakage in the engine room

- Treat small leakages as big risks!
- In the case of heavy leakage
- Block the leakage
- Take prompt protective action to reduce damage to engines and equipment.

Test the function of emergency bilge suction valves!

Fuel and oil leakage

- Fire risk – look out!
- Slippery – be careful!

Gas leakage

- Evacuate – stop the gas from spreading – danger of explosion!

At discharge or risk of discharge

- Stop further discharges
- Inform the Master and the Chief Engineer
- Follow the SOPEP manual and use SOPEP equipment

Safety at work

- Follow the safety at work instructions!
- Cleanliness reduces risks!
- Use protective equipment (PPE)!
- Always be prepared for heavy weather – lash, fasten and secure properly!
- Keep the hot surface insulation in good condition!

Cargo-related risks

Locate and identify the hazardous cargo.

Inform crew about risks and measures in case of emergency.

## AT ANCHOR

At an unsheltered anchorage the chief engineer shall consult with the master whether or not to maintain the same engine watch as when under way.

At anchor the engineer officer in charge shall ensure that

- an efficient engineering watch is kept;
- periodic inspection is made of all operating and stand-by machinery;
- main and auxiliary machinery is maintained in a state of readiness in accordance with or orders from the bridge;
- measures are taken to protect the environment from pollution by the vessel, and that applicable pollution-prevention regulations are complied with;
- all damage-control and fire-fighting systems are in readiness.

## DRY DOCKING

Follow the dry-docking manual!

Dry-docking is a situation when your vessel is exposed to increased risk.

Plan your dry-docking carefully.

Agree on safety measures with vessel and shipyard

Hot work needs special attention.

Safety first. Communicate and coordinate.

The crew is always responsible for the safety of the vessel!

