**03.07 Navigation at Sea**

**03.07.01 PURPOSE**

The Navigation in accordance with the sea procedure starts when passing the sea buoy and is a direct continuation of the port departure procedure.

This procedure is established to provide proper guidelines for the safe navigation of the Vessel, when en route between ports of call and to ensure that the navigation is executed in compliance with SOLAS, STCW Convention and International Regulations for preventing Collisions at Sea.

**03.07.02 RESPONSIBILITY**

It is the responsibility of the Master to implement the procedure and to instruct and supervise the officers and ratings involved in the navigation of the Vessel.

**03.07.03 WORK PERFORMANCE**

**Navigational Safety**

Navigators must constantly bear in mind that the safety of the crew, the cargo, the safety of other vessels and the environment may be jeopardised by faulty action or lack of action.

Danger may arise suddenly and unexpectedly from any quarter at any time. Officers are warned against a false sense of security at any time, and especially during pilotage, in coastal waters, poor visibility or at night.

Master and officers on duty must be fully conversant with the manoeuvring characteristics of the Vessel, including turning circles and stopping distances, and shall take all necessary actions to prevent any potential hazards to the Vessel, its crew or cargo.

**Composition of Bridge Watches**

Bridge watch arrangements and routines shall be arranged and practised in compliance with the STCW Convention.

**The Master's Responsibilities**

The Master is overall responsible for the navigation. He delegates navigational responsibilities and issues the necessary instructions to the duty officers.

The Master shall monitor the navigation, and by personal participation at appropriate intervals verify that his instructions are adhered to.

**The duty officer's Responsibilities**

The duty officer is the Master's representative, responsible for safe navigation until relieved.

He shall execute his duties in compliance with regulations, such as the International Regulations for Preventing Collisions at Sea, (with amendments) and the STCW Convention with amendments.

The duty officer shall keep his watch on the bridge, which he in no circumstances shall leave until properly relieved. He continues to be responsible for the safe navigation of the ship despite the presence of the Master on the bridge, until the Master informs him specifically that he has assumed command.

**The Lookout**

The duty officer is responsible for the maintenance of an efficient and continuous look out in compliance with STCW Convention.

A proper look-out is maintained at all times and in such a way as to conform to accepted principles and procedures. In certain circumstances of clear daylight conditions the Master may consider that the officer in charge of navigational watch may be the sole look-out. Assistance must be immediately available to be summoned to the bridge when any change in the situation so requires. During the hours of darkness, or when visibility is reduced, or for other reasons such as dense traffic the additional look-out should be posted.

The lookout, as an important function to ensure safe navigation, shall be executed as follows:

* An alert all-round visual and aural lookout to ensure a full view of the current situation including the presence of vessels and landmarks in the vicinity.
* Close observation of the movements and compass bearings of approaching vessels.
* Identification of vessels and shore lights.
* Observation of changes in the weather, especially the visibility.

**Helmsman/Automatic Pilot**

The duty officer of the watch must bear in mind the need to station the helmsman and change to manual control in good time to allow potentially hazardous situations to be dealt with efficiently.

When on automatic steering it is highly dangerous to allow a situation to develop to the point where the officer is without assistance and has to break the continuity of the lookout in order to take emergency action.

The changeover from automatic to manual steering and vice versa shall be made or supervised by the duty officer.

**Gyro and Magnetic Compass incl. Failure**

It is recommended that the gyrocompass run continuously. Should it stop for any reason, it should be restarted and subsequently checked before use to ensure that it has settled and is reading correctly.

A designated officer shall apply latitude and speed corrections to the gyrocompass. Repeaters shall be synchronised with the gyro at least once every watch. The gyro alarm shall be checked daily. Care

should be taken to monitor errors included by the ships manoeuvring as such errors can reach 5 degree or more.

As far as practicable, compass error shall be checked and recorded each watch using either azimuth or transit bearing.

Magnetic Compasses shall be adjusted on the following occasions:

* First time installation or replacement.
* They become unreliable.
* The ship undergoes structural repairs or alterations that could affect its permanent and induced magnetism.
* Electrical magnetic equipment close to the compasses is added, removed or altered.
* Deviation exceeds five (5) degrees taking into account the variation of the place and the method of use.
* A maximum period of one (1) year has elapsed since the date of the last adjustment and record of compass deviations has not been properly maintained or the record of deviations are excessive or when the compass shows physical defects.
* All liquid magnetic compasses shall frequently be checked for air bubbles.

In case of gyro compass failure following must be carried out:

* Change over to manual steering.
* Magnetic compass or any alternative means to be used as heading.
* Master to be informed
* Person responsible for gyro maintenance to be informed.
* Engine room to be informed
* Effect of failure on other navigational aids to be considered.

**Control of Main Engine**

The duty officer shall bear in mind that the engine is at his disposal and he shall not hesitate to use it in case of need, however, observing the engine operating instructions.

**Position Fixes**

On ocean passages when no other reliable means of obtaining a fix is available celestial observations shall be made whenever possible. Position fix shall be made at least every hour.

The electronic navigational aids shall be used to their best advantage and traditional navigation methods shall be used to verify their correctness.

**Checks of Navigational Equipment**

The duty officer shall perform regular checks to ensure that:

* The helmsman or the automatic pilot is steering the correct course.
* The standard compass error is established at least once a watch and when possible, upon major alternations of course. Deviation observations shall be logged in the official Deviation Logbook, or in the Deck Logbook where Deviation Logbook is not available.
* The navigation and signal lights and other navigational equipment are functioning properly.

**Traffic Separation**

The current list of IMO adopted schemes is published in the Annual Summary of the Admiralty Notices to Mariners. Further details of these schemes and of other voluntary schemes are found in the IMO Ships Routeing publications. Navigators are reminded that it is only in the IMO adopted schemes that Regulation 10 of the International Regulations for Preventing Collisions at Sea applies.

Traffic separation schemes established by other authorities are to be adhered to in accordance with the appropriate local rules and regulations. The voluntary schemes are to be followed at the Masters discretion.

**Restricted Visibility**

When restricted visibility is encountered or suspected, the duty officer shall without delay:

* Inform the Master
* Proceed at safe speed
* Sound fog signals
* Exhibit navigation lights
* Inform engine room
* Post lookout(s) and helmsman if applicable, and in congested waters revert to hand steering immediately.
* Operate and use the radar and perform target plotting.
* Complete **Restricted Visibility Checklist**

The above actions shall, time permitting, be executed before the visibility deteriorates.

**Changing over Watch**

The relieving duty officer shall ensure that members of his watch are fully capable of performing their duties and at night, in particular that their eyes are adjusted to night vision. He shall not take over the watch until his vision is fully adjusted to the light conditions, and until he has personally satisfied himself regarding:

* Standing orders and other special instructions relating to the navigation of the Vessel.
* The position, course, speed and draught of the Vessel.
* Visibility
* Predicted tides and currents, weather-conditions, visibility and the effect of these factors upon course and speed.
* The navigational situation including:
  + The operational condition of all navigational and safety equipment.
  + Errors of gyro and magnetic compasses.
  + Conditions and hazards likely to be encountered during the watch.
  + The possible effects of heel, trim, squat and under keel clearance.

If at the time of the relief a manoeuvre or other action to avoid any hazard is taking place, the relief should be deferred until such action is completed.

The duty officer shall not hand over to the relieving officer if he has any reasons to believe that the latter is under any disability which would preclude him from carrying out his duties effectively. If in doubt, he shall inform the Master.

**Calling the Master**

The duty officer shall notify the Master immediately under the following circumstances:

* If visibility is deteriorating.
* If the movements of other vessels are causing concern.
* If difficulty is experienced in maintaining course, on failure to sight land or a navigation mark or to obtain soundings by the expected time.
* If either land or a navigation mark is sighted or a marked change in sounding occurs unexpectedly.
* On the breakdown of the engines, steering gear or any essential navigational equipment.
* If in any doubt about the possibility of weather damage being caused to the Vessel.
* In any other situation in which he is in doubt.

Until the Master has assumed direct command, the duty officer shall not hesitate to take such actions as the circumstances may require, reporting same to the Master, when present.

**03.07.04 DOCUMENTATION AND FILING**

**Documentation**

The safe navigation of the ship is documented in the Deck Log Book in compliance with the instructions on the inside cover.

* All entries pertaining to the navigation of the Vessel shall be entered in ink by the duty officer.
* All columns in the Logbook shall be completed where applicable.
* In addition, pertinent comments and times should be made in the "remarks" column on the following subjects (as applicable):
  + Weather and visibility
  + State of sea and swell
  + Emergency steering test
  + Occurrence of any navigational accident
  + Course alterations
  + Clock changes
  + Passing of salient points, light buoys etc.
  + Principle manoeuvring details
  + Anchor positions
  + Pilot's name(s)
  + Tug name(s)
  + Master or other assuming control of navigation
  + All other important occurrences e.g. fire fighting- and lifeboat drills, etc.

Master shall ensure that following checklists are duly completed as applicable:

* **Navigation, Coastal waters and TSS Checklist**
* **Changing over watch, En Route Checklist**
* **Restricted Visibility Checklist**
* **Daily test and checks at noon Checklist**
* **Navigation in ice Checklist**
* **Navigation in heavy weather or tropical storm Checklist**