



# TRANSPORT AUTHORITY

Government of the Republic of Maldives

## MARINE CIRCULAR

Marine Circular No: **06/2009**

Date: **27 September 2009**

<b>To:</b>	ALL SHIPOWNERS, OPERATORS, MASTERS AND OFFICERS OF MALDIVES FLAGGED SHIPS
<b>Subject:</b>	Principles of Watchkeeping
<b>References:</b>	(a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) (b) International Regulations for Preventing Collisions at Sea, 1972, (COLREGS) (c) IMO Resolution A.893 (21), Guidelines for Voyage Planning (d) International Ship & Port Facility Security (ISPS) Code and SOLAS Amendments 2002

### PURPOSE:

This Notice promulgates the flag state requirements for watchkeeping at sea. The requirements have been revised in order to comply with the new and amended provisions of International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 1995 and 1997 (STCW Convention)

### APPLICABILITY:

This Notice is applicable to all Maldives flagged vessels and Maldives certified or documented seafarers.

### REQUIREMENTS:

#### 1.0 Standards Regarding Watchkeeping

STCW, COLREGS and SOLAS have a direct impact on watchkeeping practices in all merchant ships and the manning requirements for vessels. The following standards outlines the requirements of STCW. A complete copy of the ANNEX to STCW governing watchkeeping may be found attached to this Marine Notice.

#### 1.1 Watchkeeping at Sea

1.1.1 The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining safe navigational watches.

1.1.2 Under the master's general direction, the officers of the watch are responsible for

navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.

1.1.3 The chief engineer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements adequately maintain safe engineering watches.

1.1.4 The officer in charge of the watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the International Regulations for Preventing Collisions at Sea, 1972.

## **1.2 Fitness for Duty**

1.2.1 All persons who are assigned duty as officer in charge of a watch or as a rating forming part of a watch shall be provided a minimum of 10 hours of rest in any 24 hour period.

1.2.2 The hours of rest may be divided into no more than two (2) periods, one (1) of which shall be at least six (6) hours in length.

1.2.3 During overriding operational conditions, the minimum period of 10 hours may be reduced to not less than six (6) consecutive hours; provided that, any such reduction shall not extend beyond two (2) days, and not less than 70 hours of rest shall be provided in each seven (7) day period.

## **1.3 Protection of Marine Environment**

The master, officers and ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

## **1.4 Look-Outs**

A proper look-out shall be maintained at all times in compliance with Rule 5 of COLREGS and shall serve the purpose of:

- .1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means, with regard to any significant change in the operating environment;
- .2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and
- .3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.

## **2.0 Standards Regarding Number of Ratings Required on Watch**

STCW is not specific as to how many ratings should be included in a navigational or engine room watch. **Therefore, for Maldives flag vessels, the following determinations are made:**

### **2.1 Navigational Watch**

When only one (1) rating forms part of a navigational watch, the watchstander shall be qualified as an Able Seaman. When more than one (1) rating is included in a navigational watch only one (1) need be qualified as an Able Seaman. All watchstanders shall be qualified and hold certification prescribed for navigational rating watchstanders to the standards prescribed in A-II/4 of STCW according to the duties they are required to perform.

### **2.2 Engine Room Watch**

2.2.1 When only one (1) rating forms part of an engine room watch, the watchstander shall be qualified to the standards and hold certification prescribed in Table A-III/4 of STCW, according to the duties required to be performed. When more than one (1) rating is included in an engine room watch, each rating must be qualified in accordance with this paragraph.

2.2.2 all watchstanders shall comply with the standards and hold the certification prescribed for engine room rating watchstanders in A-III/4 of STCW, according to the duties they are required to perform.

## **3.0 Training and Qualifications for Persons on Tankers**

### **3.1 Minimum Training and Qualification Levels**

3.1.1 Chapter V, Section A-V/1, of STCW specifies minimum training and qualification levels for persons on tankers. It requires in oil tankers, chemical tankers and liquefied gas tankers that the Master, Chief Mate, Chief Engineer and First Assistant Engineer possess training and experience appropriate to their duties.

3.1.2 Owners and Masters should ensure that all officers on tankers who are in charge of cargo operations or who have immediate responsibility for cargo handling operations are qualified as Tankerman, Person in Charge in order to comply with STCW and to avoid possible port State interventions.

3.1.3 Ratings who perform cargo handling duties and responsibilities, should be qualified as Tankerman.

## **4.0 Annex to STCW**

The following Annex is a reprint of Chapter VIII, Sections A-VIII/1 and A-VIII/2 Part 1, Part 2 as supplemented by IMO Resolution A.893(21), Part 3 and Part 4, provided here for ready reference.

## ANNEX

### CHAPTER VIII STANDARDS REGARDING WATCHKEEPING

#### Section A-VIII/1

##### Fitness for duty

- 1 All persons who are assigned duty as officer in charge of a watch or as a rating forming part of a watch shall be provided a minimum of 10 hours of rest in any 24-hour period.
- 2 The hours of rest may be divided into no more than two periods, one of which shall be at least 6 hours in length.
- 3 The requirements for rest periods laid down in paragraphs 1 and 2 need not be maintained in the case of an emergency or drill or in other overriding operational conditions.
- 4 Notwithstanding the provisions of paragraphs 1 and 2, the minimum period of ten hours may be reduced to not less than 6 consecutive hours provided that any such reduction shall not extend beyond two days and not less than 70 hours of rest are provided each seven-day period.
- 5 Administrations shall require that watch schedules be posted where they are easily accessible.

#### Section A - VIII/2

##### Watchkeeping arrangements and principles to be observed

#### PART I - CERTIFICATION

- 1 The officer in charge of the navigational or deck watch shall be duly qualified in accordance with the provisions of chapter II, or chapter VII appropriate to the duties related to navigational or deck watchkeeping.
- 2 The officer in charge of the engineering watch shall be duly qualified in accordance with the provisions of chapter III, or chapter VII appropriate to the duties related to engineering watchkeeping.

**PART 2 - VOYAGE PLANNING**  
[IMO Resolution A.893(21)]

**3 Objectives**

- 3.1 The development of a plan for voyage or passage, as well as the close and continuous monitoring of the vessel's progress and position during the execution of such a plan, are of essential importance for safety of life at sea, safety and efficiency of navigation and protection of the marine environment.
- 3.2 The need for voyage and passage planning applies to all vessels. There are several factors that may impede the safe navigation of all vessels and additional factors that may impede the navigation of large vessels or vessels carrying hazardous cargoes. These factors will need to be taken into account in the preparation of the plan and in the subsequent monitoring of the execution of the plan.
- 3.3 Voyage and passage planning includes appraisal, i.e. gathering all information relevant to the contemplated voyage or passage; detailed planning of the whole voyage or passage from berth to berth, including those areas necessitating the presence of a pilot; execution of the plan; and the monitoring of the progress of the vessel in the implementation of the plan. These components of voyage/passage planning are analyzed below.

**4 Appraisal**

- 4.1 All information relevant to the contemplated voyage or passage should be considered. The following items should be taken into account in voyage and passage planning:
  - 4.1.1 the condition and state of the vessel, its stability, and its equipment; any operational limitations; its permissible draught at sea in fairways and in ports; its manoeuvring data, including any restrictions;
  - 4.1.2 any special characteristics of the cargo (especially if hazardous), and its distribution, stowage and securing on board the vessel;
  - 4.1.3 the provision of a competent and well-rested crew to undertake the voyage or passage;
  - 4.1.4 requirements for up-to-date certificates and documents concerning the vessel, its equipment, crew, passengers or cargo;
  - 4.1.5 appropriate scale, accurate and up-to-date charts to be used for the intended voyage or passage, as well as any relevant permanent or temporary notices to mariners and existing radio navigational warnings;
  - 4.1.6 accurate and up-to-date sailing directions, lists of lights and lists of radio aids to navigation; and
  - 4.1.7 any relevant up-to-date additional information, including:
    - .1 mariners' routing guides and passage planning charts, published by competent authorities;

- .2 current and tidal atlases and tide tables;
  - .3 climatological, hydrographical, and oceanographic data as well as other appropriate meteorological information;
  - .4 availability of services for weather routeing (such as that contained in Volume D of the World Meteorological Organization's Publication No. 9);
  - .5 existing ships' routeing and reporting systems, vessel traffic services, and marine environmental protection measures;
  - .6 volume of traffic likely to be encountered throughout the voyage or passage;
  - .7 if a pilot is to be used, information relating to pilotage and embarkation and disembarkation including the exchange of information between master and pilot;
  - .8 available port information, including information pertaining to the availability of shore-based emergency response arrangements and equipment; and
  - .9 any additional items pertinent to the type of the vessel or its cargo, the particular areas the vessel will traverse, and the type of voyage or passage to be undertaken.
- 4.2 On the basis of the above information, an overall appraisal of the intended voyage or passage should be made. This appraisal should provide a clear indication of all areas of danger; those areas where it will be possible to navigate safely, including any existing, routeing or reporting systems and vessel traffic services; and any areas where marine environmental protection considerations apply.

## **5 Planning**

- 5.1 On the basis of the fullest possible appraisal, a detailed voyage or passage plan should be prepared which should cover the entire voyage or passage from berth to berth, including those areas where the services of a pilot will be used.
- 5.2 The detailed voyage or passage plan should include the following factors:
- 5.2.1 the plotting of the intended route or track of the voyage or passage on appropriate scale charts: the true direction of the planned route or track should be indicated, as well as all areas of danger, existing ships' routeing and reporting systems, vessel traffic services, and any areas where marine environmental protection considerations apply;
  - 5.2.2 the main elements to ensure safety of life at sea, safety and efficiency of navigation, and protection of the marine environment during the intended voyage or passage; such elements should include, but not be limited to:
    - .1 safe speed, having regard to the proximity of navigational hazards along the intended route or track, the manoeuvring characteristics of the vessel and its draught in relation to the available water depth;

- .2 necessary speed alterations en route, e.g. where there may be limitations because of night passage, tidal restrictions, or allowance for the increase of draught due to squat and heel effect when turning;
  - .3 minimum clearance required under the keel in critical areas with restricted water depth;
  - .4 positions where a change in machinery status is required;
  - .5 course alteration points, taking into account the vessel's turning circle at the planned speed and any expected effect of tidal streams and currents;
  - .6 the method and frequency of position fixing, including primary and secondary options, and the indication of areas where accuracy of position fixing is critical and where maximum reliability must be obtained;
  - .7 use of ships' routeing and reporting systems and vessel traffic services;
  - .8 considerations relating to the protection of the marine environment; and
  - .9 contingency plans for alternative action to place the vessel in deep water or proceed to a port of refuge or safe anchorage in the event of any emergency necessitating abandonment of the plan, taking into account existing shore-based emergency response arrangements and equipment and the nature of the cargo and of the emergency itself.
- 5.3 The details of the voyage or passage plan should be clearly marked and recorded, as appropriate, on charts and in a voyage plan notebook or computer disk.
- 5.4 Each voyage or passage plan as well as the details of the plan, should be approved by the ships' master prior to the commencement of the voyage or passage.

## **6 Execution**

- 6.1 Having finalized the voyage or passage plan, as soon as time of departure and estimated time of arrival can be determined with reasonable accuracy, the voyage or passage should be executed in accordance with the plan or any changes made thereto.
- 6.2 Factors which should be taken into account when executing the plan, or deciding on any departure therefrom include:
- 6.2.1 the reliability and condition of the vessel's navigational equipment;
  - 6.2.2 estimated times of arrival at critical points for tide heights and flow;
  - 6.2.3 meteorological conditions, (particularly in areas known to be affected by frequent periods of low visibility) as well as weather routeing information;
  - 6.2.4 daytime versus night-time passing of danger points, and any effect this may have on position fixing accuracy; and
  - 6.2.5 traffic conditions, especially at navigational focal points.

- 6.3 It is important for the master to consider whether any particular circumstance, such as the forecast of restricted visibility in an area where position fixing by visual means at a critical point is an essential feature of the voyage or passage plan, introduces an unacceptable hazard to the safe conduct of the passage; and thus whether that section of the passage should be attempted under the conditions prevailing or likely to prevail. The master should also consider at which specific points of the voyage or passage there may be a need to utilize additional deck or engine room personnel.

## **7 Monitoring**

- 7.1 The plan should be available at all times on the bridge to allow officers of the navigational watch immediate access and reference to the details of the plan.
- 7.2 The progress of the vessel in accordance with the voyage and passage plan should be closely and continuously monitored. Any changes made to the plan should be made consistent with these Guidelines and clearly marked and recorded.

## **PART 3 - WATCHKEEPING AT SEA**

### **Principles applying to watchkeeping generally**

- 8 Parties shall direct the attention of companies, masters, chief engineer officers and watchkeeping personnel to the following principles, which shall be observed to ensure that safe watches are maintained at all times.
- 9 The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the master's general direction, the officers of the watch are responsible for navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.
- 10 The chief engineer officer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

### **Protection of marine environment**

- 11 The master, officers and ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and local port regulations.

## **PART 3-1 - PRINCIPLES TO BE OBSERVED IN KEEPING A NAVIGATIONAL WATCH**

- 12 The officer in charge of the watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the International Regulations for Preventing Collisions at Sea, 1972.

## **Look-out**

- 13 A proper look-out shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972 and shall serve the purpose of:
  - 13.1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means, with regard to any significant change in the operating environment;
  - 13.2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and
  - 13.3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.
- 14 The look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned which could interfere with that task.
- 15 The duties of the look-out and helmsman are separate, and the helmsman shall not be considered to be the look-out while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out. The officer in charge of the watch may be the sole look-out in daylight provided that on each such occasion:
  - 15.1 the situation has been carefully assessed and it has been established without doubt that it is safe to do so;
  - 15.2 full account has been taken of all relevant factors including, but not limited to:
    - state of weather,
    - visibility,
    - traffic density,
    - proximity of dangers to navigation, and
    - the attention necessary when navigating in or near traffic separation schemes; and
  - 15.3 assistance is immediately available to be summoned to the bridge when any change in the situation so requires.
- 16 In determining that the composition of the navigational watch is adequate to ensure that a proper look-out can continuously be maintained, the master shall take into account all relevant factors, including those described in this section of the Code, as well as the following factors:
  - 16.1 visibility, state of weather and sea;
  - 16.2 traffic density, and other activities occurring in the area in which the vessel is navigating;
  - 16.3 the attention necessary when navigating in or near traffic separation schemes or other routing measures;

- 16.4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated maneuvers;
- 16.5 the fitness for duty of any crew members on call who are assigned as members of the watch;
- 16.6 knowledge of and confidence in the professional competence of the ship's officers and crew;
- 16.7 the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and maneuvering capability;
- 16.8 activities taking place on board the ship at any particular time, including radio communication activities, and the availability of assistance to be summoned immediately to the bridge when necessary;
- 16.9 the operational status of bridge instrumentation and controls, including alarm systems;
- 16.10 rudder and propeller control and ship maneuvering characteristics;
- 16.11 the size of the ship and the field of vision available from the conning position;
- 16.12 the configuration of the bridge, to the extent such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and
- 16.13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the International Maritime Organization (IMO).

### **Watch arrangements**

- 17 When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, *inter alia*, shall be taken into account:
  - 17.1 at no time shall the bridge be left unattended;
  - 17.2 weather conditions, visibility and whether there is daylight or darkness;
  - 17.3 proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;
  - 17.4 use and operational condition of navigational aids such as radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;
  - 17.5 whether the ship is fitted with automatic steering;
  - 17.6 whether there are radio duties to be performed;

- 17.7 unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and limitations; and
- 17.8 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

**Taking over the watch**

- 18 The officer in charge of the navigational watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.
- 19 The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.
- 20 Prior to taking over the watch, relieving officers shall satisfy themselves:
  - as to the ship's estimated or true position;
  - confirm its intended track, course and speed;
- 20.3 UMS controls, alarms and indicators are functioning properly;
- 20.4 safe speed, having regard to the proximity of navigational hazards along the intended route or track, the maneuvering characteristics of the vessel and its draught in relation to the available water depth;
- 20.5 necessary speed alterations en route, e.g., where there may be limitations because of night passage, tidal restrictions, or allowance for the increase of draught due to squat and heel effect when turning;
- 20.6 minimum clearance required under the keel in critical areas with restricted water depth;
- 20.7 positions where a change in machinery status is required;
- 20.8 course alteration points, taking into account the vessel's turning circle at the planned speed and any expected effect of tidal streams and currents;
- 20.9 the method and frequency of position fixing, including primary and secondary options, and the indication of areas where accuracy of position fixing is critical and where maximum reliability must be obtained;
- 20.10 use of ships' routing and reporting systems and vessel traffic services;
- 20.11 considerations relating to the protection of the marine environment; and
- 20.12 contingency plans for alternative action to place the vessel in deep water or controls as appropriate and shall note any dangers to navigation expected to be encountered during the next watch.

- 21 Relieving officers shall personally satisfy themselves regarding the:
- 21.1 standing orders and other special instructions of the master relating to navigation of the ship;
  - 21.2 position, course, speed and draught of the ship;
  - 21.3 prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;
  - 21.4 procedures for the use of main engines to maneuver when the main engines are on bridge control; and
  - 21.5 navigational situation, including but not limited to:
    - .1 the operational condition of all navigational and safety equipment being used or likely to be used during the watch,
    - .2 the errors of gyro and magnetic compasses,
    - .3 the presence and movement of ships in sight or known to be in the vicinity,
    - .4 the conditions and hazards likely to be encountered during the watch, and
    - .5 the possible effects of heel, trim, water density and squat on under keel clearance.
22. If at any time the officer in charge of the navigational watch is to be relieved when a maneuver or other action to avoid any hazard is taking place, the relief of that officer shall be deferred until such action has been completed.

### **Performing the navigational watch**

- 23 The officer in charge of the navigational watch shall:
- 23.1 keep the watch on the bridge;
  - 23.2 in no circumstances leave the bridge until properly relieved;
  - 23.3 continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood; and
  - 23.4 notify the master when in any doubt as to what action to take in the interest of safety or security.
- 24 During the watch the course steered, position and speed shall be checked at sufficiently frequent intervals using any available navigational aids necessary to ensure that the ship follows the planned course.
- 25 The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety, security and navigational equipment on board the

- ship and shall be aware and take account of the operating limitations of such equipment.
- 26 The officer in charge of the navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.
- 27 Officers of the navigational watch shall make the most effective use of all navigational equipment at their disposal.
- 28 When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the International Regulations for Preventing Collisions at Sea (COLREGS), 1972, in force.
- 29 In cases of need, the officer in charge of the navigational watch shall not hesitate to use the helm, engines and sound signaling apparatus. However, timely notice of intended variations of engine speed shall be given where possible or effective use made of UMS engine controls provided on the bridge in accordance with the applicable procedures.
- 30 Officers of the navigational watch shall know the handling characteristics of their ship, including its stopping distances, and should appreciate that other ships may have different handling characteristics.
- 31 A proper record shall be kept during the watch of the movements and activities relating to the navigation of the ship.
- 32 It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper lookout is maintained. In a ship with a separate chart room, the officer in charge of the watch may visit the chart room, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that proper look-out is maintained.
- 33 Operational tests of shipboard navigational equipment shall be carried out at sea as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected. Whenever appropriate, these tests shall be recorded. Such tests shall also be carried out prior to port arrival and departure.
- 34 The officer in charge of the navigational watch shall make regular checks to ensure that:
- 34.1 the person steering the ship or the automatic pilot is steering the correct course;
- 34.2 the standard compass error is determined at least once a watch, and when possible, after any major alteration of course; the standard and gyro-compasses are frequently compared and repeaters are synchronized with their master compass;
- 34.3 the automatic pilot is tested manually at least once a watch;
- 34.4 the navigation and signal lights and other navigational equipment are functioning properly;

- 34.5 the radio equipment is functioning properly in accordance with paragraph 88 of this section; and
- 34.6 the UMS controls, alarms and indicators are functioning properly.
- 35 The officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the current requirements of the International Convention for the Safety of Life at Sea (SOLAS), 1974\*. The officer of the watch shall take into account:
- 35.1 the need to station a person to steer the ship and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner; and
- 35.2 that with a ship under automatic steering, it is highly dangerous to allow a situation to develop to the point where the officer in charge of the watch is without assistance and has to break the continuity of the look-out in order to take emergency action.
- 36 All officers of the navigational watch shall be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and shall use each of these aids when appropriate and shall bear in mind that the echo-sounder is a valuable navigational aid.
- 37 The officer in charge of the navigational watch shall use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters having due regard to its limitations.
- 38 The officer in charge of the navigational watch shall ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible. It shall be borne in mind that small or poor echoes may escape detection.
- 39 Whenever radar is in use, the officer in charge of the navigational watch shall select an appropriate range scale and observe the display carefully, and shall ensure that plotting or systematic analysis is commenced in ample time.
- 40 The officer in charge of the navigational watch shall notify the master immediately:
- 40.1 if restricted visibility is encountered or expected;
- 40.2 if the traffic conditions or the movements of other ships are causing concern;
- 40.3 if difficulty is experienced in maintaining course;
- 40.4 on failure to sight land, a navigation mark or to obtain soundings by the expected time;
- 40.5 if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs;

---

\*Refer to Regulations V/19, V/19-1 and V/19-2.

- 40.6 on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;
  - 40.7 if the radio equipment malfunctions;
  - 40.8 in heavy weather, if in any doubt about the possibility of weather damage;
  - 40.9 if the ship meets any hazard to navigation, such as ice or a derelict; and
  - 40.10 in any other emergency or if in any doubt.
- 41 Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch shall, in addition, not hesitate to take immediate action for the safety or security of the ship where circumstances so require.
- 42 The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch, including a proper look-out.

### **Watchkeeping under different conditions and in different areas**

#### **Clear weather**

- 43 The officer in charge of the navigational watch shall take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. The officer in charge of the navigational watch shall also take early and positive action in compliance with the applicable International Regulations for Preventing Collisions at Sea, 1972 and subsequently check that such action is having the desired effect.
- 44 In clear weather, whenever possible, the officer in charge of the navigational watch shall carry out radar practice.

#### **Restricted visibility**

- 45 When restricted visibility is encountered or expected, the first responsibility of the officer of the navigational watch is to comply with the relevant rules of the International Regulations for Preventing Collisions at Sea, 1972 with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate maneuver. In addition, the officer in charge of the navigational watch shall:
- 45.1 inform the master,
  - 45.2 post a proper lookout,
  - 45.3 exhibit navigation lights, and
  - 45.4 operate and use the radar.

### **In hours of darkness**

- 46 The master and the officer in charge of the navigational watch, when arranging look-out duty, shall have due regard to the bridge equipment and navigational aids available for use, their limitations, procedures and safeguards implemented.

### **Coastal and congested waters**

- 47 The largest scale chart on board, suitable for the area and corrected with the latest available information, shall be used. Fixes shall be taken at frequent intervals, and shall be carried out by more than one method whenever circumstances allow.
- 48 The officer in charge of the navigational watch shall positively identify all relevant navigation marks.

### **Navigation with pilot on board**

- 49 Despite the duties and obligations of pilots, their presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and/or the officer in charge of the navigational watch shall co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.
- 50 If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

### **Ship at anchor**

- 51 If the master considers it necessary, a continuous navigational watch shall be maintained at anchor. While at anchor, the officer in charge of the watch shall:
- 51.1 determine and plot the ship's position on the appropriate chart as soon as practicable;
  - 51.2 when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;
  - 51.3 ensure that proper look-out is maintained;
  - 51.4 ensure that inspection rounds of the ship are made periodically and that all provisions of the Ship Security Plan (SSP) are observed;
  - 51.5 observe meteorological and tidal conditions and the state of the sea;
  - 51.6 notify the master and undertake all necessary measures if the ship drags anchor;
  - 51.7 ensure that the state of readiness of the main engines and other machinery is in

- accordance with the master's instructions;
- 51.8 if visibility deteriorates, notify the master;
- 51.9 ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations; and
- 51.10 take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations.

### **PART 3-2 - PRINCIPLES TO BE OBSERVED IN KEEPING AN ENGINEERING WATCH**

- 52 The term "engineering watch" as used in parts 3-2, 4-2 and 4-4 of this section means either a person or a group of personnel comprising the watch or a period of responsibility for an engineer officer during which the physical presence in machinery spaces of that officer may or may not be required.
- 53 The officer in charge of the engineering watch is the chief engineer officer's representative and is primarily responsible, at all times, for the safe and efficient operation and upkeep of machinery affecting the safety of the ship and is responsible for the inspection, operation and testing, as required, of all machinery and equipment under the responsibility of the engineering watch.

#### **Watch arrangements**

- 54 The composition of the engineering 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.
- 55 When deciding the composition of the engineering watch, which may include appropriately qualified ratings, the following criteria, *inter alia*, shall be taken into account:
- 55.1 the type of ship and the type and condition of the machinery;
- 55.2 the adequate supervision, at all times, of machinery affecting the safe operation of the ship;
- 55.3 any special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;
- 55.4 the qualifications and experience of the engineering watch;
- 55.5 the safety and security of life, ship, cargo and port, and protection of the environment;
- 55.6 the observance of international, national and local regulations; and
- 55.7 maintaining the normal operations of the ship.

## **Taking over the watch**

- 56 The officer in charge of the engineering watch shall not hand over the watch to the relieving officer 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 officer shall be notified.
- 57 The relieving officer of the engineering watch shall ensure that the members of the relieving watch are apparently fully capable of performing their duties effectively.
- 58 Prior to taking over the engineering watch, relieving officers shall satisfy themselves regarding at least the following:
- 58.1 the standing orders and special instructions of the chief engineer officer relating to the operation of the ship's systems and machinery;
  - 58.2 the nature of all work being performed on machinery and systems, the personnel involved and potential hazards.
  - 58.3 the level and, where applicable, the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for use or disposal of the contents thereof,
  - 58.4 the condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities;
  - 58.5 any special requirements relating to sanitary system disposals;
  - 58.6 condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system;
  - 58.7 Where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually;
  - 58.8 where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control systems, limit control systems, combustion control systems, fuel-supply control systems and other equipment related to the operation of steam boilers;
  - 58.9 any potentially adverse conditions resulting from bad weather, ice, contaminated or shallow water;
  - 58.10 any special modes of operation dictated by equipment failure or adverse ship conditions;
  - 58.11 the reports of engine room ratings relating to their assigned duties;
  - 58.12 the availability of fire-fighting appliances; and
  - 58.13 the state of completion of engine room log.

## **Performing the engineering watch**

- 59 The officer in charge of the engineering watch shall ensure that the established watchkeeping arrangements are maintained and that under direction, engine room ratings, if forming part of the watch, assist in the safe and efficient operation of the propulsion machinery and auxiliary equipment.
- 60 The officer in charge of the engineering watch 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.
- 61 All members of the engineering watch shall be familiar with their assigned watchkeeping duties. In addition, every member shall with respect to the ship they are serving in have knowledge of:
- 61.1 the use of appropriate internal communication systems;
  - 61.2 the escape routes from machinery spaces;
  - 61.3 the engine room alarm systems and be able to distinguish between the various alarms, with special reference to the fire extinguishing media alarm; and
  - 61.4 the number, location and types of fire-fighting equipment and damage control gear in the machinery spaces, together with their use and the various safety precautions to be observed.
- 62 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 for any further action if required.
- 63 When the machinery spaces are in the manned condition, the officer in charge of the engineering watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed.
- 64 When the machinery spaces are in the periodic unmanned condition, the designated duty officer in charge of the engineering watch shall be immediately available and on call to attend the machinery spaces.
- 65 All bridge orders shall be promptly executed. Changes in direction or speed of the main propulsion units shall be recorded, except where an Administration has determined that the size or characteristics of a particular ship make such recording impracticable. The officer in charge of the engineering watch shall ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under stand-by or maneuvering conditions.
- 66 Due attention shall be paid to the ongoing maintenance and support of all machinery, including mechanical, electrical, electronic, hydraulic and pneumatic systems, their control apparatus and associated safety equipment, all accommodation service systems equipment and the recording of stores and spare gear usage.
- 67 The chief engineer officer shall ensure that the officer in charge of the engineering watch is informed of all preventive maintenance, damage control, or repair operations

to be performed during the engineering watch. The officer in charge of the engineering watch shall be responsible for the isolation, by-passing and adjustment of all machinery under the responsibility of the engineering watch that is to be worked on, and shall record all work carried out.

- 68 When the engine room is put in a stand-by condition, the officer in charge of the engineering watch shall ensure that all machinery and equipment which may be used during maneuvering is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.
- 69 Officers in charge of an engineering 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. They shall keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved, and shall periodically inspect the machinery in their charge. They shall also ensure that adequate rounds of the machinery and steering gear spaces are made for the purpose of observing and reporting equipment malfunctions or breakdowns, performing or directing routine adjustments, required upkeep and any other necessary tasks.
- 70 Officers in charge of an engineering watch shall direct any other member of the engineering watch to inform them of potentially hazardous conditions, which may adversely affect the machinery or jeopardize the safety of life or of the ship.
- 71 The officer in charge of the engineering watch shall ensure that the machinery space watch is supervised, and shall arrange for substitute personnel in the event of the incapacity of any watch personnel. The watch shall not leave the machinery spaces unsupervised in a manner that would prevent the manual operation of the engine room plant or throttles.
- 72 The officer in charge of the engineering watch shall take the action necessary to contain the effects of damage resulting from equipment breakdown, fire, flooding, rupture, collision, stranding, or other cause.
- 73 Before going off duty, the officer in charge of the engineering watch shall ensure that all events related to the main and auxiliary machinery which have occurred during the watch are suitably recorded.
- 74 The officer in charge of the engineering watch shall co-operate with any engineer officer in charge of maintenance work during all preventive maintenance, damage control or repairs. This shall include but not necessarily be limited to:
- 74.1 isolating machinery to be worked on;
  - 74.2 adjusting the remaining plant to function adequately and safely during the maintenance period;
  - 74.3 recording, in the engine room log or other suitable document, the equipment worked on and the personnel involved, and which safety steps have been taken and by whom, for the benefit of relieving officers and for record purposes; and
  - 74.4 testing and putting into service, when necessary, the repaired machinery or equipment.

- 75 The officer in charge of the engineering watch shall ensure that any engine room ratings who perform maintenance duties are available to assist in the manual operation of machinery in the event of automatic equipment failure.
- 76 The officer in charge of the engineering watch shall bear in mind that changes in speed, resulting from machinery malfunction, or any loss of steering, may imperil the safety of the ship and life at sea. 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 ship's speed, imminent steering failure, stoppage of the ship's propulsion system or any alteration in the generation of electric power or similar threat to safety. This notification, where possible, shall be accomplished 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.
- 77 The officer in charge of the engineering watch shall notify the chief engineer officer without delay:
- 77.1 when engine damage or a malfunction occurs which may be such as to endanger the safe operation of the ship;
- 77.2 when any malfunction occurs which, it is believed, may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing systems; and,
- 77.3 in any emergency or if in any doubt as to what decision or measures to take.
- 78 Despite the requirement to notify the chief engineer officer in the foregoing circumstances, the officer in charge of the engineering watch shall not hesitate to take immediate action for the safety and security of the ship, its machinery and crew where circumstances require.
- 79 The officer in charge of the engineering watch shall give the watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe engineering watch. Routine machinery upkeep, performed as incidental tasks as a part of keeping a safe watch, shall be set up as an integral part of the watch routine. Detailed repair maintenance involving repairs to electrical, mechanical, hydraulic, pneumatic or applicable electronic equipment throughout the ship shall be performed with the cognizance of the officer in charge of the engineering watch and chief engineer officer. These repairs shall be recorded.

## **Engineering watchkeeping under different conditions and in different areas**

### **Restricted visibility**

- 80 The officer in charge of the engineering watch shall ensure that a permanent air or steam pressure is available for sound signals and that at all times bridge orders relating to changes in speed or direction of operation are immediately implemented and, in addition, that auxiliary machinery used for maneuvering is readily available.

## **Coastal and congested waters**

- 81 The officer in charge of the engineering watch shall ensure that all machinery involved with the maneuvering of the ship can immediately be placed in the manual mode of operation when notified that the ship is in congested waters. The officer in charge of the engineering watch shall also ensure that an adequate reserve of power is available for steering and other maneuvering requirements. Emergency steering and other auxiliary equipment shall be ready for immediate operation.

## **Ship at anchor**

- 82 At an unsheltered anchorage, the chief engineer officer shall consult with the master whether or not to maintain the same watch as when underway.
- 83 When a ship is at anchor in an open roadstead or any other virtually “at sea” condition, the officer in charge of the engineering watch shall ensure that:
- 83.1 an efficient engineering watch is kept and that all provisions of the Ship Security Plan (SSP) are observed;
  - 83.2 periodic inspection is made of all operating and stand-by machinery;
  - 83.3 main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge;
  - 83.4 measures are taken to protect the environment from pollution by the ship, and that applicable pollution prevention regulations are complied with; and
  - 83.5 all damage control and fire-fighting systems are in readiness.

## **PART 3-3 - PRINCIPLES TO BE OBSERVED IN KEEPING A RADIO WATCH**

### **General provisions**

- 84 Administrations shall direct the attention of companies, masters and radio watchkeeping personnel to comply with the following provisions to ensure that an adequate safety radio watch is maintained while a ship is at sea. In complying with this Code, account shall be taken of the Radio Regulations.

### **Watch arrangements**

- 85 In deciding the arrangements for the radio watch, the master of every seagoing ship shall:
- 85.1 ensure that the radio watch is maintained in accordance with the relevant provisions of the Radio Regulations and the SOLAS Convention;
  - 85.2 ensure that the primary duties for radio watchkeeping are not adversely affected by attending to radio traffic not relevant to the safe movement of the ship and safety of navigation; and

85.3 take into account the radio equipment fitted on board and its operational status.

### **Performing the radio watch**

86 The radio operator performing radio watchkeeping duties shall:

86.1 ensure that watch is maintained on the frequencies specified in the Radio Regulations and the SOLAS Convention; and

86.2 while on duty, regularly check the operation of the radio equipment and its sources of energy and report to the master any observed failure of this equipment.

87 The requirements of the Radio Regulations and the SOLAS Convention on keeping a radiotelegraph or radio log, as appropriate, shall be complied with.

88 The maintenance of radio records, in compliance with the requirements of the Radio Regulations and the SOLAS Convention, is the responsibility of the radio operator designated as having primary responsibility for radio communications during distress incidents. The following shall be recorded, together with the times at which they occur:

88.1 a summary of distress, urgency and safety radio communications;

88.2 important incidents relating to the radio service;

88.3 where appropriate, the position of the ship at least once per day; and

88.4 a summary of the condition of the radio equipment, including the sources of energy.

89 The radio records shall be kept at the distress communications operating position, and shall be made available:

89.1 for inspection by the master, and

89.2 for inspection by any authorized official of the Administration and by any duly authorized officer exercising control under article X of the Convention.

## **PART 4 - WATCHKEEPING IN PORT**

### **Principles applying to all watchkeeping**

#### **General**

90 On any ship safely moored or safely at anchor under normal circumstances in port, the master shall arrange for an appropriate and effective watch to be maintained for the purpose of safety. Special requirements may be necessary for special types of ships' propulsion systems or ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly inflammable materials or other special types of cargo.

#### **Watch arrangements**

91 Arrangements for keeping a deck watch when the ship is in port shall at all times be

adequate to:

- 91.1 ensure the safety and security of life, of the ship, the port and the environment, and the safe operation of all machinery related to cargo operation;
  - 91.2 observe international, national and local rules and assure the security of the vessel in accordance with ISPS requirements; and
  - 91.3 maintain order and the normal routine of the ship.
- 92 The master shall decide the composition and duration of the deck watch depending on the conditions of mooring, type of the ship, and Security level of the port.
- 93 If the master considers it necessary, a qualified officer shall be in charge of the deck watch.
- 94 The necessary equipment shall be so arranged as to provide for efficient watchkeeping.
- 95 The chief engineer officer, in consultation with the master, shall ensure that engineering watchkeeping arrangements are adequate to maintain a safe engineering watch while in port. When deciding the composition of the engineering watch, which may include appropriate engine room ratings, the following points are among those to be taken into account:  
on all ships of 3,000 kW propulsion power and over, there shall always be an officer in charge of the engineering watch;
- 95.2 on ships of less than 3,000 kW propulsion power there may be, at the master's discretion and in consultation with the chief engineer officer, no officer in charge of the engineering watch; and
- 95.3 officers, while in charge of an engineering watch, shall not be assigned or undertake any task or duty which would interfere with their supervisory duty in respect of the ship's machinery system.

#### **Taking over the watch**

- 96 Officers in charge of the deck or engineering watch shall not hand over the watch to their relieving officer if they have any reason to believe that the latter is obviously not capable of carrying out watchkeeping duties effectively, in which case the master or chief engineer shall be notified accordingly. Relieving officers of the deck or engineering watch shall ensure that all members of their watch are apparently fully capable of performing their duties effectively.
- 97 If, at the moment of handing over the deck or engineering watch, an important operation is being performed it shall be concluded by the officer being relieved, except when ordered otherwise by the master or chief engineer officer.

### **PART 4-1 - TAKING OVER THE DECK WATCH**

- 98 Prior to taking over the deck watch, the relieving officer shall be informed of the

following by the officer in charge of the deck watch as to:

- 98.1 the depth of the water at the berth, the ship's draught, the level and time of high and low waters, the securing of the moorings, the arrangement of anchors and the scope of the anchor chain, and other mooring features important to the safety of the ship; the state of main engines and their availability for emergency use;
  - 98.2 all work to be performed on board the ship; the nature, amount and disposition of cargo loaded or remaining, and any residue on board after unloading the ship;
  - 98.3 the level of water in bilges and ballast tanks;
  - 98.4 the signals or lights being exhibited or sounded;
  - 98.5 the number of crewmembers required to be on board and the presence of any other persons on board;
  - 98.6 the state of fire-fighting appliances;
  - 98.7 any special port regulations and Security level in effect;
  - 98.8 the master's standing and special orders;
  - 98.9 the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required;
  - 98.10 any other circumstances of importance to the safety and security of the ship, its crew, cargo or protection of the environment from pollution; and
  - 98.11 the procedures for notifying the appropriate authority of any environmental pollution resulting from ship activities.
- 99 Relieving officers, before assuming charge of the deck watch, shall verify that:
- 99.1 the securing of moorings and anchor chain are adequate;
  - 99.2 the appropriate signals or lights are properly exhibited or sounded;
  - 99.3 safety and security measures and fire protection regulations are being maintained;
  - 99.4 they are aware of the nature of any hazardous or dangerous cargo being loaded or discharged and the appropriate action to be taken in the event of any spillage or fire;
  - 99.5 no external conditions or circumstances imperil the ship and that it does not imperil others.

#### **PART 4-2 - TAKING OVER THE ENGINEERING WATCH**

- 100 Prior to taking over the engineering watch, the relieving officer shall be informed by the officer in charge of the engineering watch as to:

- 100.1 the standing orders of the day, any special orders relating to the ship operations, maintenance functions, repairs to the ship's machinery or control equipment;
  - 100.2 the nature of all work being performed on machinery and systems on board ship, personnel involved and potential hazards;
  - 100.3 the level and condition, where applicable, of water or residue in bilges, ballast tanks, slop tanks, sewage tanks, reserve tanks and special requirements for the use or disposal of the contents thereof;
  - 100.4 any special requirements relating to sanitary system disposals;
  - 100.5 the condition and state of readiness of portable fire-extinguishing equipment and fixed fire-extinguishing installations and fire detection systems;
  - 100.6 authorized repair personnel on board engaged in engineering activities, their work locations and repair functions, other authorized persons on board and the required crew;
  - 100.7 any port regulations pertaining to ship effluents, fire-fighting requirements, security and ship readiness, particularly during potential bad weather conditions;
  - 100.8 the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required;
  - 100.9 any other circumstance of importance to the safety and security of the ship, its crew cargo or the protection of the environment from pollution; and
  - 100.10 the procedures for notifying the appropriate authority of environmental pollution resulting from engineering activities.
- 101 Relieving officers, before assuming charge of the engineering watch, shall satisfy themselves that they are fully informed by the officer being relieved, as outlined above, and:
- 101.1 be familiar with existing and potential sources of power, heat and lighting and their distribution;
  - 101.2 know the availability and condition of ship's fuel, lubricants and all water supplies; and
  - 101.3 be ready to prepare the ship and its machinery, as far as is possible, for stand-by or emergency conditions as required.

### **PART 4-3 - PERFORMING THE DECK WATCH**

- 102 The officer in charge of the deck watch shall:
- 102.1 make rounds to inspect the ship at appropriate intervals and in accordance with the SSP;
  - 102.2 pay particular attention to:

- .1 the condition and securing of the gangway, anchor chain and moorings, especially at the turn of the tide and in berths with a large rise and fall, if necessary, taking measures to ensure that they are in normal working condition,
  - .2 the draught, under-keel clearance and the general state of the ship, to avoid dangerous listing or trim during cargo handling or ballasting,
  - .3 the weather and sea state,
  - .4 the observance of all regulations concerning safety, security and fire protection,
  - .5 the water level in bilges and tanks,
  - .6 all persons on board and their location, especially those in remote or enclosed spaces, and
  - .7 the exhibition and sounding, where appropriate, of lights and signals;
- 102.3 in bad weather, or on receiving a storm warning, take the necessary measures to protect the ship, persons on board and cargo;
- 102.4 take every precaution to prevent pollution of the environment by the ship;
- 102.5 in an emergency threatening the safety or security of the ship, raise the alarm, inform the master, take all possible measures to prevent any damage to the ship, its cargo and persons on board, and, if necessary, request assistance from the shore authorities or neighboring ships;
- 102.6 be aware of the ship's stability condition so that, in the event of fire, the shore fire-fighting authority may be advised of the approximate quantity of water that can be pumped on board without endangering the ship;
- 102.7 offer assistance to ships or persons in distress;
- 102.8 take necessary precautions to prevent accidents or damage when propellers are to be turned; and
- 102.9 enter in the appropriate logbook all important events affecting the ship.

#### **PART 4-4 - PERFORMING THE ENGINEERING WATCH**

- 103 Officers in charge of the engineering watch shall pay particular attention to:
- 103.1 the observance of all orders, special operating procedures and regulations concerning hazardous conditions and their prevention in all areas in their charge;
  - 103.2 the instrumentation and control systems, monitoring of all power supplies, components and systems in operation;
  - 103.3 the techniques, methods and procedures necessary to prevent violation of the pollution regulations of the local authorities; and

- 103.4 the state of the bilges.
- 104 Officers in charge of the engineering watch shall:
- 104.1 in emergencies, raise the alarm when in their opinion the situation so demands, and take all possible measures to prevent damage to the ship, persons on board and cargo;
- 104.2 be aware of the deck officer's needs relating to the equipment required in the loading or unloading of the cargo and the additional requirements of the ballast and other ship stability control systems;
- 104.3 make frequent rounds of inspection to determine possible equipment malfunction or failure, and take immediate remedial action to ensure the safety and security of the ship, of cargo operations, of the port and the environment;
- 104.4 ensure that the necessary precautions are taken, within their area of responsibility, to prevent accidents or damage to the various electrical, electronic, hydraulic, pneumatic and mechanical systems of the ship; and
- 104.5 ensure that all important events affecting the operation, adjustment or repair of the ship's machinery are satisfactorily recorded.

#### **PART 4-5 - WATCH IN PORT ON SHIPS CARRYING HAZARDOUS CARGO**

##### **General**

- 105 The master of every ship carrying cargo that is hazardous, whether explosive, flammable, toxic, health-threatening or environment-polluting, shall ensure that safe watchkeeping arrangements are maintained. On ships carrying hazardous cargo in bulk, this will be achieved by the ready availability on board of a duly qualified officer or officers, and ratings where appropriate, even when the ship is safely moored or safely at anchor in port.
- 106 On ships carrying hazardous cargo other than in bulk, the master shall take full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions on board, afloat and ashore.