PART 31C Crewing and Watchkeeping

Fishing Vessels

Issue No. 31C-1 October 2001

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AC 31C.1 General advice on purpose of advisory circulars

Maritime Safety Authority advisory circulars are designed to give assistance and explanations about the standards and requirements set out in the rules. However, the notes contained in advisory circulars should not be treated as a substitute for the rules themselves, which are the law.

If advisory circular material advises how a rule requirement can be satisfied, then compliance with that advice ensures compliance with the rule. Other methods of complying with the rule may be possible, however the Maritime Safety Authority would require satisfying that those alternative means of compliance were to an equivalent standard to the advice in the advisory circular. The advisory circular would then be amended to include those equivalents.

This AC 31C supports maritime rules Part 31C.
### AC 31C.2 Summary of Main Part 31 Compliance Requirements

<table>
<thead>
<tr>
<th>Rule 31A.7</th>
<th>Rule 31B.6</th>
<th>Rule 31C.7</th>
<th>Compliance date</th>
</tr>
</thead>
<tbody>
<tr>
<td>STCW Ships</td>
<td>Other Vessels</td>
<td>Fishing Vessels</td>
<td><strong>IN FORCE</strong> February 2001</td>
</tr>
<tr>
<td>Owners and masters of all vessels to assess crew numbers and qualifications necessary to operate safely and must ensure those numbers and qualifications are on board. This must then be monitored</td>
<td></td>
<td>Tables of total crew numbers and qualifications to be complied with</td>
<td><strong>IN FORCE</strong> February 2001 Except 1 February 2003 for vessels 6m and under</td>
</tr>
<tr>
<td>Tables of watchkeeping numbers and qualifications to be complied with PLUS necessary non-watchkeeping crew</td>
<td>Must hold Minimum Safe Crewing Document issued by Director on basis of minimum safe crewing assessment EXCEPT vessels that are not listed as high risk or special cases may choose to comply with tables of minimum numbers and qualifications</td>
<td></td>
<td><strong>1 February 2002</strong></td>
</tr>
</tbody>
</table>

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AC 31C.3 Engineering System Requirements

Rule 31C.2 - Definitions - states that "System” means any system for which an engineer is responsible, other than the main propulsion machinery. "Systems” are then referred to in the flowcharts that were developed with industry for determining engineer qualifications. Examples include—

(a) Bilge system with oily water separator:
Where the bilges are normally and routinely pumped overboard through the oily water separator when it is legal to do so. If, because of the vessel’s normal operational pattern, bilge water is pumped into a holding tank and thence ashore – even though an oily water separator may be fitted – this shall not count as a system.

(b) Purifiers and oil fuel transfer systems:
The fuel is stored in two or more storage tanks and there is pipework and pumping capacity to enable fuel to be transferred between storage tanks for reasons of stability; for consumption the fuel is pumped from the storage tanks to a settling tank, and thence through a purifier to a daily service tank (or tanks) which supplies the main and auxiliary engines.

(c) Boiler and any associated heating system:
an oil-fired boiler supplying steam under pressure for tank or accommodation heating, or for process work in an on-board factory area.

(d) Automatic sprinkler system:
a fire-fighting sprinkler system protecting the passenger or crew accommodation or cargo spaces which is set off automatically by fire/smoke detectors in the event of fire occurring in the area.

(e) Cold chambers with separate refrigerating plant:
cargo spaces for the carriage of chilled or frozen cargo, with a central refrigeration plant supplying all spaces. Does not include chambers or plant solely for carriage of supplies for crew and passengers.

(f) Water ballast and transfer system:
two or more tanks and associated pipework and pumping systems enabling ballast water to be routinely pumped into or out of any tank or tanks, or transferred between tanks, as a means of controlling the vessel’s stability.

(g) Computer-controlled machinery:
main and auxiliary machinery so arranged that all functions (starting, controlling, and stopping engines, pumps and other machinery) can be set up to occur automatically under the control of a central computerised system.

(h) Auxiliary generators capable of operating in parallel:
where two or more generators or alternators can be connected in parallel to run the electrical systems through a central switchboard. Does not apply if two or more generators each supply an electrically-separate part of the system, or if it is not possible to connect more than one generator to the switchboard at a time.
(i) **Reticulated hydraulic system:**
where one or more hydraulic pumps supply more than one hydraulic motors from
a central location by way of an hydraulic ring-main;

(j) **Transverse thrusters:**
transverse thrusters driven by mechanical, electrical or hydraulic means. Does not
include azimuthing or Voith-Schneider main propulsion machinery.

**AC 31C.4  Fitness for Duty and Fatigue**

Rule 31C.14 requires

(1) The owner and the master of a fishing vessel to establish and implement
procedures in respect of the vessel’s crew to ensure that all crew are fit for
duty when keeping a watch; and

(2) The master and the crew of a fishing vessel to ensure that they are fit for duty
at all times when keeping a watch; and

Rule 31C.15 requires

(1) The owner and the master of a fishing vessel to establish and implement
procedures for ensuring a seafarer’s fitness for duty; and

(2) A seafarer on a fishing vesse to consider whether they are fit for duty.

Those rules can not prescribe actual hours of work or rest because there is such a
range of vessels in this Part, from single crew owner/operated boats up to factory
trawlers, that no tables can cover the range of operations.

The following table gives some guidance on the effects of fatigue and asociated signs
and symptoms—
<table>
<thead>
<tr>
<th>PERFORMANCE IMPAIRMENT</th>
<th>SIGNS and SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired attention, loss of concentration, and diminished</td>
<td>• Overlook or incorrectly order sequential task element</td>
</tr>
<tr>
<td>decision-making power</td>
<td>• Preoccupation with single tasks or elements</td>
</tr>
<tr>
<td></td>
<td>• Exhibit lack of awareness or poor performance</td>
</tr>
<tr>
<td></td>
<td>• Failure to appreciate the gravity of a situation</td>
</tr>
<tr>
<td></td>
<td>• Failure to anticipate danger</td>
</tr>
<tr>
<td></td>
<td>• Failure to observe and obey warning signs</td>
</tr>
<tr>
<td>Diminished memory</td>
<td>• Overlook a task or elements of a task</td>
</tr>
<tr>
<td></td>
<td>• Fail to remember the sequence of task or task elements</td>
</tr>
<tr>
<td></td>
<td>• Inaccurate recall of operational events</td>
</tr>
<tr>
<td>Delayed reaction time</td>
<td>• Respond slowly or fail to respond altogether to normal, abnormal, or emergency stimuli</td>
</tr>
<tr>
<td></td>
<td>• Reduced attention span</td>
</tr>
<tr>
<td>Diminished problem solving ability</td>
<td>• Display poor judgement of distance, speed, and/or time</td>
</tr>
<tr>
<td></td>
<td>• Inaccurate interpretation of a situation</td>
</tr>
<tr>
<td></td>
<td>• Display problems with such things as arithmetic and geometry</td>
</tr>
<tr>
<td>Mood change</td>
<td>• Less conversant then normal</td>
</tr>
<tr>
<td></td>
<td>• Irritability, tiredness, depression</td>
</tr>
<tr>
<td></td>
<td>• Distracted by discomfort</td>
</tr>
<tr>
<td>Attitude change</td>
<td>• Display willingness to take risks</td>
</tr>
<tr>
<td></td>
<td>• Ignore normal checks and procedures</td>
</tr>
<tr>
<td></td>
<td>• Display a “don’t care” attitude</td>
</tr>
<tr>
<td>Adverse physiological effects</td>
<td>• Exhibit speech effects – slur, rate, content</td>
</tr>
<tr>
<td></td>
<td>• Impaired co-ordination of control skills – key punch entry errors, switch selection</td>
</tr>
<tr>
<td>Impaired alertness</td>
<td>• Succumb to uncontrollable sleep – nap, long sleep episode</td>
</tr>
<tr>
<td></td>
<td>• Display automatic behaviour syndrome</td>
</tr>
</tbody>
</table>

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AC 31C.5 Navigational Watchkeeping at Sea

Rule 31C.16 requires the owner and the master of a fishing vessel to establish and implement watchkeeping procedures, and the crew to comply with those procedures. In addition, the holder of an STCW-F certificate is required to comply with the watchkeeping standards in the Document for Guidance on the Training and Certification of Fishing Vessel Personnel produced by IMO. Those standards are copied below and owners, masters, and crew of smaller vessels should focus on those underlying principles and adapt the detail as necessary for their own vessels noting that:

- the term watchkeeper means the officer in charge of the navigational or engine room watch as appropriate. In a small vessel with no navigational or engine-room officers, the term means the master; and

- the term wheelhouse includes the steering position on a small vessel without a wheelhouse.

Basic principles to be observed in keeping a navigational watch on board fishing vessels

1 Administrations should direct the attention of owners and operators of fishing vessels, skippers and watchkeeping personnel to the following principles, which shall be observed to ensure that a safe navigational watch is maintained at all times.

2 The skipper of every fishing vessel should ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch. Under the skipper’s general direction, the officers of the watch are responsible for navigating the vessel safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.

3 The basic principles, including but not limited to the following, shall be taken into account on all fishing vessels. However, an Administration may exclude very small fishing vessels operating in limited waters from fully observing the basic principles.

4 **En route to or from fishing grounds**

4.1 *Arrangements of the navigational watch*

4.1.1 The composition of the watch should at all times be adequate and appropriate to the prevailing circumstances and conditions, and should take into account the need for maintaining a proper lookout.

4.1.2 When deciding the composition of the watch the following factors, *inter alia*, should be taken into account:
at no time shall the wheelhouse be left unattended;

2 weather conditions, visibility and whether there is daylight or darkness;

3 proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;

4 use and operational condition of navigational aids such as radar or electronic position-indicating devices and of any other equipment affecting the safe navigation of the fishing vessel;

5 whether the vessel is fitted with automatic steering;

6 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

4.2 Fitness for duty

The watch system should be such that the efficiency of watchkeeping personnel is not impaired by fatigue. Duties should be so organized that the first watch at the commencement of a voyage and the subsequent relieving watches are sufficiently rested and otherwise fit for duty.

4.3 Navigation

4.3.1 The intended voyage should, as far as practicable, be planned in advance taking into consideration all pertinent information, and any course laid down should be checked before the voyage commences.

4.3.2 During the watch the course steered, position, and speed should be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the vessel follows the planned course.

4.3.3 The officer in charge of the watch should have full knowledge of the location and operation of all safety and navigational equipment on board the vessel, and shall be aware and take account of the operating limitations of such equipment.

4.3.4 The officer in charge of a navigational watch should not be assigned or undertake any duties which would interfere with the safe navigation of the vessel.

4.4 Navigational equipment

4.4.1 The officers in charge of the watch should make the most effective use of all navigational equipment at their disposal.

4.4.2 When using radar the officer in charge of the watch should bear in mind the necessity to comply at all times with the provisions on the
use of radar contained in the applicable regulations for preventing collisions at sea.

4.4.3 In cases of need the officer of the watch should not hesitate to use the helm, engines, and sound and light signalling apparatus.

4.5 Navigational duties and responsibilities

4.5.1 The officer in charge of the watch should:

.1 keep watch in the wheelhouse;
.2 in no circumstances leave the wheelhouse until properly relieved;
.3 continue to be responsible for the safe navigation of the vessel despite the presence of the skipper in the wheelhouse until informed specifically that the skipper has assumed that responsibility and this is mutually understood;
.4 notify the skipper when in doubt as to what action to take in the interest of safety; and
.5 not hand over the watch to a 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 skipper should be notified.

4.5.2 On taking over the watch the relieving officer should confirm and be satisfied as to the vessel’s estimated or true position and confirm its intended track, course and speed; and should note any dangers to navigation expected to be encountered during the watch.

4.5.3 Whenever practicable a proper record should be kept of the movements and activities during the watch relating to the navigation of the vessel.

4.6 Look-out

4.6.1 A proper look-out should be maintained in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972. It should 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 changes 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, and debris.

4.6.2 In determining that the composition of the navigational watch is adequate to ensure that a proper look-out can continuously be
maintained, the skipper should take into account all relevant factors, including those described under paragraph 4.1, as well as the following factors:

1. visibility, state of weather and sea;
2. traffic density, and other activities occurring in the area in which the vessel is navigating;
3. the attention necessary when navigating in or near traffic separation schemes and other routeing measures;
4. the additional workload caused by the nature of the vessel's functions, immediate operating requirements, and anticipated manoeuvres;
5. rudder and propeller control and vessel manoeuvring characteristics;
6. the fitness for duty of any personnel on call who may be assigned as members of the watch;
7. knowledge of and confidence in the professional competence of the vessel's officers and personnel;
8. the experience of the officer of the navigational watch and the familiarity of that officer with the vessel's equipment, procedures, and manoeuvring capability;
9. activities taking place on board at any particular time, and the availability of assistance to be summoned immediately to the wheelhouse when necessary;
10. the operational status of instrumentation in the wheelhouse and controls, including alarm systems;
11. the size of the vessel and the field of vision available from the conning position;
12. the configuration of the wheelhouse, to the extent such configuration might inhibit a member of the watch from detecting by sight or hearing any external developments; and
13. any relevant standards, procedures and guidelines relating to watchkeeping arrangements and fitness for duty which have been adopted by the Organisation.

4.7 Protection of the marine environment

The skipper and the officer in charge of the watch should be aware of the serious effects of operational or accidental pollution of the marine environment; and should take all possible precautions to prevent such pollution of the marine environment.
4.8 Weather conditions

The officer in charge of the watch should take relevant measures and notify the skipper when adverse changes in the weather could affect the safety of the vessel, including conditions leading to ice accretion.

5 Navigation with pilot on board

The presence of a pilot on board does not relieve the skipper or officer in charge of the watch from their duties and obligations for the safety of the vessel. The skipper and the pilot should exchange information regarding navigation procedures, local conditions, and the vessel’s characteristics. The skipper and the officer in charge of the watch should co-operate closely with the pilot and maintain an accurate check of the vessel’s position and movement.

6 Vessels engaged in fishing or searching for fish

6.1 In addition to the principles enumerated in paragraph 4, the following factors should be considered and properly acted upon by the officer in charge of the watch:

.1 other vessels engaged in fishing and their gear, own vessel’s manoeuvring characteristics, particularly its stopping distance and the diameter of turning circle at sailing speed and with gear overboard;

.2 safety of the personnel on deck;

.3 adverse effects on the safety of the vessel and its personnel through reduction of stability and freeboard caused by exceptional forces resulting from fishing operations, catch handling and stowage, and unusual sea and weather conditions;

.4 the proximity of offshore structures, with special regard to safety zones; and

.5 wrecks and other underwater obstacles which could be hazardous for fishing gear.

6.2 When stowing the catch, attention should be given to the essential requirements for adequate freeboard, adequate stability, and watertight integrity at all times during the voyage to the landing port, taking into consideration consumption of fuel and stores, risk of adverse weather conditions and, especially in winter, risk of ice accretion on or above exposed decks in areas where ice accretion is likely to occur.
7 Anchor watch

The skipper should ensure, with a view to the safety of the vessel and personnel, that a proper watch is maintained at all times from the wheelhouse or deck on fishing vessels at anchor.

8 Radio watchkeeping

The skipper should ensure that an adequate radio watch is maintained while the vessel is at sea, on appropriate frequencies, taking into account the requirements of the Radio Regulations.

AC 31C.6 Engineering Watchkeeping

Rule 31C.16 requires the owner and the master of a fishing vessel to establish and implement watchkeeping procedures, and the crew to comply with those procedures. In addition, the holder of an STCW-F certificate is required to comply with the watchkeeping standards in the Document for Guidance on the Training and Certification of Fishing Vessel Personnel produced by IMO. Those standards are copied below.

The underlying principles also apply to smaller vessels and owners, masters, and crew of smaller vessels should focus on those underlying principles and adapt the detail as necessary for their own vessels.

1.1 The term “engineering watch” as used in this section means either a person or a group of personnel comprising the watch or a period of responsibility for a person during which the physical presence in the machinery spaces of that person may or may not be required.

1.2 The person 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 vessel and is responsible for the inspection, operation and testing, as required, of all machinery and equipment under the responsibility of the engineering watch.

2 Watch arrangements

2.1 The composition of the engineering watch should, 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.

2.2 When deciding the composition of the engineering watch, the following criteria, inter alia, should be taken into account:
.1 the type of fishing vessel and the type and condition of the machinery;
.2 the adequate supervision, at all times, of machinery affecting the safe operation of the fishing vessel;
.3 any special modes of fishing operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;
.4 the qualifications and experience of the engineering watch;
.5 the safety of life, vessel, catch and port, and protection of the environment;
.6 the observance of international, national and local regulations; and
.7 maintaining the normal running operations of the fishing vessel.

3 Taking over the watch

3.1 The person in charge of the engineering watch should not hand over the watch to the relieving person 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 should be notified.

3.2 The relieving person of the engineering watch should ensure that the members of the relieving engineering watch are apparently fully capable of performing their duties effectively.

3.3 Prior to taking over the engineering watch, the relieving person should satisfy themselves regarding at least the following:

.1 the standing orders and special instructions of the chief engineer officer relating to the operation of the fishing vessel's systems and machinery;
.2 the nature of all work being performed on machinery and systems, the personnel involved and potential hazards;
.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;
.4 the condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities;
.5 any special requirements relating to sanitary system disposals;
.6 condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system;
.7 where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually;
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;

9 any potentially adverse conditions resulting from bad weather, ice, or contaminated or shallow water;

10 any special modes of operation dictated by equipment failure or adverse ship conditions;

11 the reports of engine-room ratings relating to their assigned duties;

12 the availability of fire-fighting appliances; and

13 the state of completion of the engine-room log.

4 Performing the engineering watch

4.1 The person in charge of the engineering watch should ensure that the established watchkeeping arrangements are maintained for the safe and efficient operation of the propulsion machinery and auxiliary equipment.

4.2 The person in charge of the engineering watch should 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.

4.3 All members of the engineering watch should be familiar with their assigned watchkeeping duties. In addition, every member should with respect to the fishing vessel they are serving in have knowledge of:

1 the use of appropriate internal communication systems;

2 the escape routes from machinery spaces;

3 the engine-room alarm systems and be able to distinguish between the various alarms with special reference to the fire-extinguishing media alarm;

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.

4.4 Any machinery not functioning properly, expected to malfunction or requiring special service, should be noted along with any action already taken. Plans should be made for any further action if required.

4.5 When the machinery spaces are in the attended condition, the person in charge of the engineering watch should at all times be readily capable of
operating the propulsion equipment in response to needs for changes in direction or speed.

4.6 When the machinery spaces are in the periodic unattended condition, the person in charge of the engineering watch should be immediately available and on call to attend the machinery spaces.

4.7 All bridge orders should be promptly executed. Changes in direction or speed of the main propulsion units should be recorded, except where an Administration has determined that the size or characteristics of a particular ship make such recording impracticable. The person in charge of the engineering watch should ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under stand-by or manoeuvring conditions.

4.8 Due attention should 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.

4.9 The chief engineer should ensure that the person 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 person in charge of the engineering watch should be responsible for the isolation, bypassing and adjustment of all machinery under the responsibility of the engineering watch that is to be worked on, and should record all work carried out.

4.10 When the engine-room is put in a stand-by condition, the person in charge of the engineering watch should ensure that all machinery and equipment which may be used during manoeuvring is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.

4.11 The person in charge of an engineering watch should not be assigned nor undertake any duties which would interfere with their supervisory duties in respect of the main propulsion system and ancillary equipment. They should keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved, and should periodically inspect the machinery in their charge. They should 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, or performing or directing routine adjustments, required upkeep and any other necessary tasks.

4.12 The person in charge of an engineering watch should 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.

4.13 The person in charge of the engineering watch should ensure that the machinery space watch is supervised, and should arrange for substitute personnel in the event of the incapacity of any engineering watch personnel. The engineering watch should not leave the machinery spaces unsupervised in a manner that would prevent the manual operation of the main engine controls.

4.14 The person in charge of the engineering watch should take the action necessary to contain the effects of damage resulting from equipment breakdown, fire, flooding, rupture, collision, stranding, or other cause.

4.15 Before going off duty, the person in charge of the engineering watch should ensure that all events related to the main and auxiliary machinery which have occurred during the engineering watch are suitably recorded.

4.16 The person in charge of the engineering watch should co-operate with any engineer in charge of maintenance work during all preventive maintenance, damage control or repairs. This should include but not necessarily be limited to:

1. isolating and bypassing machinery to be worked on;
2. adjusting the remaining plant to function adequately and safely during the maintenance period;
3. recording, in the engine-room log or other suitable document, the equipment worked on and the personnel involved, and which safety steps that have been taken and by whom, for the benefit of relieving person/s and for record purposes; and
4. testing and putting into service, when necessary, the repaired machinery or equipment.

4.17 The person in charge of the engineering watch should 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.

4.18 The person in charge of the engineering watch should 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 should 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, should 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.

4.19 The person in charge of the engineering watch should notify the chief engineer officer or skipper, when applicable, without delay:

.1 when engine damage or a malfunction occurs which may be such as to endanger the safe operation of the ship;

.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

.3 in any emergency or if in any doubt as to what decision or measures to take.

4.20 Despite the requirement to notify the chief engineer officer or skipper, where applicable, in the foregoing circumstances, the person in charge of the engineering watch should not hesitate to take immediate action for the safety of the ship, its machinery and personnel where circumstances require.

4.21 The person in charge of the engineering watch should 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, should 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 should be performed with the cognizance of the person in charge of the engineering watch and chief engineer. These repairs should be recorded.

5 Engineering watchkeeping under different conditions and in different areas

5.1 The person in charge of the engineering watch should ensure that permanent power source 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 manoeuvring is readily available.

6 Coastal and congested waters

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

7 Ship at anchor

7.1 At an unsheltered anchorage the chief engineer officer, or person in charge of the engineering watch should consult with the skipper whether or not to maintain the same engineering watch as when underway.

7.2 When a fishing vessel is at anchor in an open roadstead, or any other virtually “at-sea” condition, the person in charge of the engineering watch should ensure that:

.1 an efficient engineering watch is kept;

.2 periodic inspection is made of all operating and stand-by machinery;

.3 main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge;

.4 measures are taken to protect the environment from pollution by the ship, and that applicable pollution prevention regulations are complied with; and

.5 all damage-control and fire-fighting systems are in readiness.