

**PHILIPPINE SHIP SAFETY  
RULES AND REGULATIONS**

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**CHAPTER I**  
*SCOPE AND COVERAGE*

**Regulation 1**

*General*

These Rules and Regulations are geared to ensure that all tankers, of Philippine ownership and/or registry, are so designed, constructed, maintained, operated and inspected in accordance with the standards on safety of life and property at sea, and the protection of the marine environment.

**Regulation 2**

*Application*

1 Tankers defined in these Rules and Regulations flying the Philippine flag in which, by their size and type of operation are covered by applicable International Maritime Conventions and its subsequent amendment, shall remain to be covered by such International Conventions and by these Rules and Regulations as suppletory thereto.

2 Tankers Ships as defined in these Rules and Regulations flying the Philippine flag, in which, by their size and type of operation, are not covered by applicable International Maritime Conventions, shall conform to the provisions of these Rules and Regulations, as far as reasonable and practicable to be determined by the Administration.

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## CHAPTER II

### CONSTRUCTION AND EQUIPMENT

#### **Regulation 1**

##### *General*

1 All tankers shall, as a rule, comply with existing requirements prior to coming into force of these Rules and Regulations. Where no such requirements are applicable, ships shall comply with these Rules and Regulations to the extent the Administration considers to be reasonable or practicable. Tankers which undergo replacement of equipment or outfitting related thereto shall comply with the requirements specified in this Regulation as far as it is considered reasonable and practicable by the Administration.

2 All machinery and electrical installations, mechanical and electrical equipment and appliances, boilers and other pressure vessels, associated piping systems, fittings and electrical cables and wiring shall be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board, due regard being paid to moving parts, hot surfaces and other hazards. The design shall have regard to materials used in construction, and to purposes for which the equipment is intended, the working conditions and the environmental conditions to which it will be subjected.

#### **Regulation 2**

##### *Construction*

1 The strength and construction of hull, superstructures, deckhouses, machinery casings, companion ways and any other structure and equipment shall be sufficient to withstand all foreseeable conditions of the intended service. A Ships built and maintained in conformity with this Rules in hull construction for all tankers or any applicable rules of a classification society or any other body recognized by the Administration may be considered as adequate in this respect.

2 All tankers shall be fitted with a collision bulkhead in accordance with Regulation II/4 and the watertight bulkheads shall be extended up to the freeboard deck.

3 Propeller shafts and stern tubes shall not be situated in any space other than machinery spaces containing main propulsion machinery unless they are enclosed in watertight spaces or enclosures inside such spaces acceptable to the Administration. The Administration may exempt, from the requirements of this paragraph, ships having constraint of space or engaged on sheltered voyages, provided it is demonstrated that any progressive flooding of such space can be easily controlled and that the safety of the ship is not impaired.

4 Stern glands shall be located in spaces which are easily accessible at all times for inspection and maintenance to the satisfaction of the Administration.

#### **Regulation 3**

##### *General Requirements*

1 All applicable provisions of MARPOL 73/78 as amended, IGC Code, as amended, and IBC Code, as amended, shall apply.

2 The provisions of Memorandum Circular No. 2007-01 on the double hull requirements for Ships carrying heavy grade oil, and other persistent oils shall also be adopted.

3 The provisions of Memorandum Circular No. 2010-01 (Revised Policy Guidelines on Ships) on the double hull requirements for Ships carrying white products shall also be adopted.

#### **Regulation 4**

##### *Collision Bulkhead*

1 A collision bulkhead shall be fitted which shall be watertight up to the freeboard deck. This bulkhead shall, as far as practicable, be located at a distance from the forward perpendicular of not less than five percent and not more than eight percent of the length of the ship. Where it can be shown to the satisfaction of the Administration that it is impractical for the collision bulkhead to be located at distance from the forward perpendicular of not more than eight percent of the length of the ship, the Administration may allow relaxation there from, subject to the condition that, should the space forward of the bulkhead be flooded, the ship at full load condition will not be submerged to a line drawn at least 76 mm below the upper surface of the bulkhead deck at side.

2 The collision bulkhead may have steps or recesses in it provided that they are within the limits prescribed in paragraph 1. Pipes piercing the collision bulkhead shall be kept to the minimum. Such pipes shall be fitted with suitable valves operable from above the freeboard deck and the valves chest shall be secured at the collision bulkhead inside the forepeak. The Administration may permit the location of such valves on the after side of the collision bulkhead, provided that they are readily accessible under all service conditions and the space in which they are located is not a cargo space. All such valves shall be of material acceptable to the Administration.

3 No doors, manholes, ventilation ducts or access openings are permitted in the collision bulkhead below the freeboard deck.

4 Where a chain locker is located abaft the collision bulkhead or extends into the forepeak tank, it shall be watertight and provided with efficient means of drainage.

5 A chain locker shall not be used for any purpose other than stowage of anchor chain cables.

#### **Regulation 5**

##### *Watertight Bulkheads, Decks, Doors, Trunks, etc.*

1 Each watertight subdivision bulkhead whether transverse or longitudinal shall be constructed in such a manner that it shall be capable of supporting with a proper margin of resistance, the pressure due to the maximum head of water which it might have to sustain in the event of damage to the ship but at least the pressure due to a head of water up to the margin line. The construction of these bulkheads shall be to the satisfaction of the Administration.

2 Steps and recesses in bulkheads shall be watertight and of the same strength as the bulkhead at the place where each occurs.

3 Where frames or beams pass through a watertight deck or bulkhead, such deck or bulkhead shall be made structurally watertight to the satisfaction of the Administration.

4 The number of openings in watertight bulkheads shall be reduced to the minimum compatible with the general arrangements and operational needs of the ship. Openings shall be fitted with watertight closing appliances to the satisfaction of the Administration. Watertight doors shall be of equivalent strength to the adjacent unpierced structure.

5 Watertight decks, trunks, tunnels, duct keels and ventilators shall be of the same strength as watertight bulkheads at corresponding levels. The means used for making them watertight, and the arrangements adopted for closing openings in them, shall be to the satisfaction of the Administration. Watertight ventilators and trunks shall be carried at least up to the freeboard deck.

6 The forepeak, afterpeak, double bottom tanks (including duct keels), and inner skins shall be tested with water to a head corresponding to the requirements of paragraph 1.

7 Tanks which are designed to hold liquids, and which form part of the subdivision of the ship, shall be tested for tightness with water to a head corresponding to two-third of the depth from the top of keel to the margin line in way of the tanks; provided that in no case shall the test head be less than 0.9 m above the top of the tank.

8 The tests referred to in paragraphs 6 and 7 are for the purpose of ensuring that the subdivision structural arrangements are watertight and are not to be regarded as a test of the fitness of any compartment for the storage of oil fuel or for other special purposes for which a test of a superior character may be required depending on the height to which the liquid has access in the tank or its connections.

### **Regulation 6**

#### *Means for Sounding*

1 Means for sounding to the satisfaction of the Administration, shall be provided for:

- .1 The bilges of those compartments which are not readily accessible at all times during the voyage; and
- .2 All tanks and cofferdams.

2 Where sounding pipes are fitted, their upper ends shall be extended to a readily position and, where practicable, above the freeboard deck. The opening shall be provided with permanently attached means of closing. Sounding pipes which are not extended above the freeboard deck shall be fitted with automatic self-closing device.

### **Regulation 7**

#### *Anchoring and Mooring Equipment*

1 At least two anchors of sufficient weight shall be provided. One of these shall be provided with a chain cable or wire rope of adequate strength and size and windlass, capstan or winch of suitable size for the cable and other anchor handing equipment and arrangements shall be to the satisfaction of the Administration. The Administration may permit carriage of only one anchor with adequate chain or wire and other arrangements taking into account the size of the ship and its area of operation.

2 Windlass, capstan, winches, fairleads, bollards, mooring bits and other anchoring mooring, towing and hauling equipment shall be:

- .1 properly designed to meet all foreseeable operational loads and conditions;
- .2 correctly seated; and
- .3 effectively secured by stoppers to a part of the ship's structure which is strengthened suitably.

### **Regulation 8**

#### *General Protection Measures against Accidents*



1 Hinged covers of manholes and other similar opening shall be protected against accidental closing. In particular, heavy covers on escape hatches shall be equipped with counter weights. Escape doors and covers of escape and access of hatches shall be so constructed as to be capable of being opened from either side of the door or cover.

2 The dimensions of access hatches shall be such that it will allow a person to have a quick and easy escape to a safe place in the event of an emergency. Where practicable, the dimensions of access hatches of cargo, machinery and accommodations spaces shall be such that they will facilitate expeditious rescue operation.

3 Handrails, grab rails and handholds of sufficient size and strength shall be provided to the satisfaction of the Administration as support for persons when the ship is severely rolling or pitching.

4 Skylights of machinery spaces or other similar openings which are normally kept open at sea shall be provided with adequately spaced protective bars or other arrangements to the satisfaction of the Administration to prevent a person from falling into the space accidentally. Where the size of such an opening is small, the Administration may waive this requirement if satisfied that due to the small size of the opening no protective arrangement is necessary.

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## CHAPTER III

### MACHINERY INSTALLATION AND EQUIPMENT

#### Regulation 1

##### *General Requirements*

1 All boilers and other pressure vessels, all parts of machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings, which are under internal pressure, shall be subjected to appropriate tests including a pressure test before being put into service. Corresponding certification from the manufacturer, classification society or other recognized body has to be provided to the Administration.

2 Means shall be provided to ensure that the machinery can be brought into operation from the dead ship condition without external aid.

3 Adequate provisions shall be made to facilitate cleaning, inspection and maintenance of machinery installations including boilers and other pressure vessels.

4 Where risk from over speeding of machinery exists, means shall be provided to ensure that the safe speed is not exceeded.

5 Where main or auxiliary machinery including pressure vessels or any parts of such machinery are subjected to dangerous overpressure, means shall be provided practicable to protect against such excessive pressure.

6 All gearing and every shaft and coupling used for transmission of power to machinery essential for the propulsion and safety of the ship or for the safety of persons on board shall be so designed and constructed that they withstand the maximum working stresses which may be subjected in all service conditions, and due consideration shall be given to the type of engines by which they are driven of which they form apart.

7 Main turbine propulsions machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery shall be provided with automatic shutoff arrangements in the case of failures such as lubricating oil supply failure, which could lead rapidly to complete breakdown, serious damage or explosion. The Administration may permit provisions for overriding automatic shutoff devices.

8 Internal combustion engines of a cylinder diameter of 200 mm or crankcase volume of 0.6m<sup>3</sup> and above shall be provided with crankcase explosion relief valve. The relief valves shall be arranged or provided with means to ensure that discharge from them is so directed as to minimize the possibility of injury to personnel.

#### Regulation 2

##### *Machinery Controls*

1 Main and auxiliary machinery essential for the propulsion and safety of the ship shall be provided with effective means for its operation and control.

2 Means shall be provided whereby normal operations of propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative. Special consideration shall be given to the malfunctioning of:

- .1 an electrical power generator which serves as a main source of electrical power;
- .2 the sources of lubricating systems oil pressure;
- .3 the fuel oil supply systems for engines;

- .4 the sources of water pressure;
- .5 an air compressor and receiver for standing or for control purposes;
- .6 the hydraulic, pneumatic or electrical means for control in main propulsion machinery including controllable pitch propellers;
- .7 steam boilers and boiler feed systems, if provided. However, the Administration, having regard to overall safety considerations may accept a partial reduction in propulsion capability from normal operation.

3 Special consideration shall be given to the design, construction and installation of propulsion machinery system so that any mode of their vibrations shall not cause undue stresses in machinery in its normal operating ranges.

### **Regulation 3**

#### *Remote Control of Propulsion Machinery*

1 Where remote control propulsion machinery from the navigating bridge is provided and the machinery spaces are intended to be manned, the following shall apply:

- .1 the speed, direction of thrust and, if applicable, the pitch of the propeller shall be fully controllable from the navigating bridge under all sailing conditions, including maneuvering;
- .2 the remote control shall be performed, for each independent propeller, by a control device so designed and constructed that its operation does not require particular attention to the operational details of the machinery. Where multiple propellers are designed to operate simultaneously, they may be controlled by one control device;
- .3 the main propulsion machinery shall be provided with an emergency stopping device on the navigating bridge which shall be independent of the navigating bridge control system;
- .4 propulsion machinery orders from the navigating bridge shall be indicated in the main machinery control room or at the maneuvering platform as appropriate;
- .5 remote control of the propulsion machinery shall be possible only from one location at a time; at such locations interconnected control positions are permitted. At each location there shall be an indicator showing which location is in control of the propulsion machinery. The transfer of control between the navigating bridge and machinery spaces shall be possible only in the main machinery space or the main machinery control room. This system shall include means to prevent the propelling thrust from altering significantly when transferring control from one location to another;
- .6 it shall be possible to control the propulsion machinery locally, even in the case of failure in any part of the remote control system;
- .7 the design of the remote control system shall be such that in case of its failure an alarm will be given. Unless the Administration considers it impracticable the preset speed and direction of thrust of the propellers shall be maintained until local control is in operation;
- .8 indicators shall be fitted on the navigating bridge for:

- .1 propeller speed and direction of rotation in the case of fixed pitch propellers;
- .2 propeller speed and pitch position in the case of controllable pitch propellers;
- .9 an alarm shall be provided in the machinery space to indicate low starting air pressure or low electrical power which shall be set at a level to permit further main engine starting operation. If the remote control systems of the propulsion machinery is designed for automatic consecutive attempts which fail to produce a start shall be limited in order to produce a start shall be limited in order to safeguard sufficient starting air pressure of adequate electrical power for starting locally. In this context, the recommendations or instructions of the manufacturers for remote controlled starting have to be observed. In case these are not available, an organization, recognized by the Administration, has to conduct tests and shall issue a certification stipulating the capacity (number of starts) of the available air pressure or electrical supply.

2 In all tankers where the main propulsion and associated machinery, including main electrical supply, are provided with various degrees of automatic or remote control and are under continuous manual supervision from a control room, the arrangements and controls shall be so designed, equipped and installed that the machinery operation will be as safe and effective as if it were under direct supervision. Particular consideration shall be given to protect such spaces against fire and flooding.

#### **Regulation 4**

##### *Periodically Unattended Machinery Spaces*

1 Ships having periodically unattended machinery spaces shall, as far as practicable and reasonable in the opinion of the Administration, comply with the applicable requirement of SOLAS'74, as amended for such machinery spaces.

2 Where alternative arrangements are provided the Administration shall ensure that:

- .1 the safety of the ship in all conditions, including maneuvering, is equivalent to that of a ship having manned machinery spaces;
- .2 documentary evidence indicating that such arrangements are satisfactory is provided.

#### **Regulation 5**

##### *Air Pressure Systems*

1 Every ship shall be provided with a measuring device to prevent overpressure in any part of compressed air systems and wherever water jackets or casings of air compressors and coolers might be subjected to dangerous overpressure due to leakage into them from air pressure parts. Suitable pressure relief arrangements shall be provided for all systems.

2 The main starting air arrangements for main propulsion internal combustion engines shall be adequately protected against the effects of backfiring and internal explosion in the starting pipes.

3 All discharge pipes from starting air compressors shall lead directly to the starting air receivers, and all starting pipes from the air receivers to main or auxiliary engines shall be entirely separate from the compressor discharge pipe system.

4 Provision shall be made to reduce to a minimum the entry of oil into the air pressure systems and to drain these systems.

### **Regulation 6**

#### *Ventilation Systems in Machinery Spaces*

1 Machinery spaces of category A shall be adequately ventilated so as to ensure that when machinery or boilers therein are operating at full power in all weather conditions including heavy weather, an adequate supply of air is maintained to the spaces for the safety and comfort of personnel and the operation of the machinery. Any other machinery space shall be adequately ventilated appropriate for the purpose of that machinery space.

2 In addition to complying with the requirements of paragraph 1, the ventilation of machinery spaces shall also be sufficient under all normal conditions to prevent accumulation of oil vapor.

### **Regulation 7**

#### *Protection against Noise*

Measures shall be taken to reduce machinery noise in machinery spaces to acceptable levels as determined by the Administration. If this noise cannot be sufficiently reduced, the source of excessive noise shall be suitably insulated or isolated or a refuge from noise shall be provided if the space is required to be manned. Ear protectors shall be provided for personnel required to enter such spaces, if necessary. In case of ear protectors being applied, it must be made sure by appropriate optical means, that an alarm will be attended to by the person in charge.

### **Regulation 8**

#### *Means of Going Astern*

1 Sufficient means for going astern shall be provided to secure proper control of the ship in all normal circumstances.

2 The ability of the machinery to reverse the direction of thrust of the propeller in sufficient time and so to bring the ship to rest within a reasonable distance from maximum ahead service speed shall be demonstrated and recorded.

3 The stopping times, ship headings and distances recorded on trials, together with the results of trial to determine the ability of ships having multiple propellers to navigate and maneuver with one or more propellers inoperative shall be available on board for the use of the master or designated personnel.

4 Where the ship is provided with supplementary means for maneuvering or stopping, the effectiveness of such means shall be demonstrated and recorded to in compliance with paragraphs 2 and 3.

### **Regulation 9**

#### *Steering Gear*

1 Unless expressly provided otherwise, every tankers shall be provided with a main steering gear and subject to the provisions of paragraph 4, with an auxiliary means of steering the ship in the event of failure of the steering gear.

2 The main steering gear shall be of adequate strength and capable of steering the ship at maximum ahead service speed. The main steering gear and rudder stock shall be so designed that they will not be damaged at maximum astern speed.

3 The auxiliary means of steering shall be adequate strength and capable of steering the ship at navigable speed and of being brought speedily into action in an emergency.

4 Where the power-operated main and auxiliary steering gear units are provided:

- .1 the main steering gear shall be capable of putting the rudder over from 35° on one side to 35° on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35° on either side to 30° on the other side is not more than 28 seconds;
- .2 the auxiliary steering gear shall be capable of putting the rudder over from 15° on one side to 15° on the other side in not more than 60 seconds with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater;
- .3 where the power operated main steering gear units and the connections are fitted in duplicate and each unit complies with the provisions of paragraph 3 no auxiliary steering unit need be required.

5 The main steering power failure unit shall be arranged to restart either by manual or automatic means when power is restricted after power failure.

6 In the event of a power failure to any one of the steering gear power units, an audible and a visual alarm shall be given on the navigating bridge.

7 The angular position of the rudder, if the main steering gear is power-operated, shall be indicated on the navigating bridge. The rudder angle indication shall be independent of the steering gear control system.

8 Where a non-conventional rudder is installed, the Administration shall give special consideration to the steering system, so as to ensure that an acceptable degree of reliability and effectiveness which is based on the provisions of these Rules and Regulations is provided.

9 A means of communication shall be provided, where necessary, between the navigating bridge and the steering gear compartment.

#### **Regulation 10**

##### *Communication between Navigating Bridge and Machinery Spaces*

1 Ships shall be provided with at least two independent means for communicating orders between navigating bridge and the machinery space or control room from which the main propulsion engines are normally controlled. One of the means shall be an engine-room telegraph. The arrangement of these means shall to the satisfaction of the Administration.

2 The engine-room telegraph referred to in paragraph 1 may be dispensed with if the main propulsion engine is directly controlled from the navigating bridge under normal operating conditions.

3 In lieu of meeting the requirements of paragraph 1, ships of less than 24 m in length may be provided with only one means of communications referred to in paragraph 1, if the Administration is satisfied that, due to close proximity of the navigating bridge and the position of local control of the main propulsion machinery, two means of communication are not necessary.

4 Appropriate means of communication shall be provided to any position (other than navigating bridge) from which the engines may be controlled.

**Regulation 11**

*Engineer's Alarm*

An engineer's alarm shall be provided to be operated from the engine control room or at the maneuvering platform as appropriate and shall be clearly audible in the engineer's accommodation. The Administration may dispense with this requirement if satisfied that, due to particular manning patterns adopted in the engine room or close proximity of the engine control room or the maneuvering platform and the engineer's accommodation, no engineer's alarm is necessary.

**Regulation 12**

*Fire Control Plan*

The Fire Control Plan should be in accordance with Graphical Symbols of IMO Resolution A.952 (23).

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**CHAPTER IV**  
*ELECTRICAL INSTALLATIONS*

**Regulation 1**

*General Electrical Requirements*

- 1 Electrical installations on tanker shall comply with the requirements of this Regulation, except as provided otherwise in Regulation IV/5.
- 2 Electrical installations shall be such that:
  - .1 all electrical auxiliary services necessary for maintaining the ship in normal operational and habitable conditions will be ensured without recourse to the emergency source of electrical power;
  - .2 electrical services essential for safety will be ensured under various emergency conditions; and
  - .3 the safety of crew and ship from electrical hazards will be ensured.

**Regulation 2**

*Safety Precautions*

- 1 Exposed metal parts of electrical machines or equipment which are not intended to be live but which are liable under fault conditions to become live shall be earthed unless the machines or equipment are:
  - .1 supplied at a voltage not exceeding 55 V direct current or 55 V, root mean square between conductors. Auto-transformers shall not be used for the purpose of achieving this voltage; or
  - .2 supplied at a voltage not exceeding 250 V by safely isolating transformers supplying only one consuming device; or
  - .3 constructed in accordance with the principle of double insulation.
- 2 The Administration may require additional precautions for portable electrical equipment for use in confined or exceptionally damp spaces where particular risks due to conductivity may exist.
- 3 All electrical apparatus shall be constructed and so installed as not to cause injury when handled or touched in the normal manner.
- 4 Main and emergency switchboards shall be so arranged as to give easy access may be needed to apparatus and equipment, without danger to personnel. The sides and the rear and, where necessary, the front of switchboards shall be suitably guarded. Exposed live parts having voltages to earth exceeding a voltage to be specified by the Administration shall not be installed on the front of such switchboards. Where necessary, non-conducting mats or gratings shall be provided at the front and rear of the switchboard.
- 5 The hull return system of distribution shall not be used for any purpose in a Ships or a barge carrying liquid cargoes of flammable nature in bulk.
- 6 The requirement of paragraph 5 does not preclude under conditions approved by the Administration the use of:
  - .1 impressed current cathodic protective systems;
  - .2 limited and locally earthed systems (e.g. engine starting system);



- .3 limited and locally earthed welding systems; where the Administration is satisfied that the equipotential of the structure is assured in a satisfactory manner, welding systems with hull return may be installed without restriction imposed by paragraph 5; or
- .4 insulation level monitoring devices provided the circulation current does not exceed 30mA under the most unfavorable conditions.

7 Earthed distribution system shall not be used in a Ships or barge carrying liquid cargoes of flammable nature in bulk. The Administration may permit the use of the following earthed system:

- .1 power supplied, control circuits and instrumentation circuits where technical or safety reasons preclude the use of a system with no connection to earth, provided the current in the hull is limited to not more than 5 A in both the normal fault conditions;
- .2 limited and locally earthed systems, provided that any possible resulting current does not flow directly through any of the dangerous spaces; or
- .3 alternating current power network of 1000 V root mean square (line to line) and over, provided that any possible resulting current does not flow directly through any of the dangerous spaces.

8 When a distribution system, whether primary or secondary, for power, heating or lighting, with no connection to earth is used, a device capable of continuously monitoring the insulation level to earth and of giving an audible or visual indication of abnormally low insulation values shall be provided.

9 Except as permitted by the Administration in exceptional circumstances, all metal sheaths and armor of cables shall be electrically continuous and shall be earthed.

10 All electric cables and wiring external to equipment shall be at least of a flame-retardant type and shall be so installed as not to impair their original flame-retarding properties. Where necessary for particular applications the Administrations may permit the use of special types of cables such as radio frequency cables, which do not comply with the foregoing.

11 Cables and wiring serving essential or emergency power, lighting, internal communications or signals shall so far as practicable be routed clear of galleys, laundries, machinery spaces of category A and their casings and other high fire risk areas. Cables connecting fire pumps to the emergency switchboard shall be of a fire-resistant type where they pass through high fire risk areas. Where practicable all such cables shall be run in such a manner as to preclude their being rendered unserviceable by heating of the bulkheads that may be caused by a fire in an adjacent space.

12 Where cables which are installed in hazardous areas introduce the risk of fire or explosion in the event of an electrical fault in such areas, special precautions against such risk shall be taken to the satisfaction of the Administration.

13 Cables and wiring shall be installed and supported in such a manner as to avoid chafing or other damage.

14 Terminations and joints in all conductors shall be so made as to retain the original electrical, mechanical, flame-retarding and, where necessary, fire-resisting properties of the cables.

15 Each separate circuit shall be protected against short circuit and against overload, except the circuit for the steering gear and where the Administration may

exceptionally otherwise permit. The rating or appropriate setting of the overload protective device for each circuit shall be permanently indicated at the location of the protective device.

16 Lighting fittings shall be so arranged as to prevent temperatures rises which could damage the cables and wiring, and to prevent surrounding material from becoming excessively hot.

17 All lighting and power circuits terminating in a bunker or cargo space shall be provided with a multiple-pole switch outside the space for disconnecting such circuits.

18 Accumulator batteries shall be suitably housed, and compartments used primarily for their accommodation shall be properly constructed and efficiently ventilated.

19 Electrical or other equipment which may constitute a source of ignition of flammable vapors shall not be permitted in those compartments except as permitted in paragraph 21.

20 Accumulator batteries except for batteries used in self-contained battery operated lights shall not be located in sleeping quarters except where hermetically sealed to the satisfaction of the Administration.

21 No electrical equipment shall be installed in any space where flammable mixtures are liable to collect including those on board Ships or barges carrying liquid cargoes of flammable nature in bulk or in compartments assigned principally to accumulator batteries, in paint lockers, acetylene stores or similar spaces, unless the Administration is satisfied that such equipment is:

- .1 essential for operational purposes;
- .2 of a type which will not ignite the mixture concerned;
- .3 appropriate to the space concerned; and
- .4 appropriately certified for safe usage in the dusts, vapors or gases likely to be encountered.

### **Regulation 3**

#### *Main Source of Electrical Power*

1 A main source of electrical power of sufficient capacity to supply those services mentioned in Regulation IV/1 paragraph 2.1 shall be provided. This main source of electrical power shall consist of at least two generating sets (one could be accepted if driven by the main propulsion engine) and shall comply with the following:

- .1 the capacity of these generating sets shall be such that in the event of any one generating set being stopped it will be possible to supply those services necessary to provide normal operational conditions of propulsion and safety;
- .2 the arrangements of the ship's main source of electrical power shall be such that the services referred to in Regulation IV/1 paragraph 2.1 can be maintained regardless of the speed and direction of rotation of the propulsion machinery or shafting;
- .3 in addition, the generating sets can be such as to ensure that with any one generator or its primary source of power out of operation, the remaining generating sets shall be capable of providing the electrical services necessary to start the main propulsion plant from a dead ship

condition. The emergency source of electrical power may be used for such electrical service if its capability is sufficient to provide at the same time those services required to be supplied by Regulation IV/4 paragraph 5.

2 A main electrical lighting system which shall provide illumination throughout those parts of the ship normally accessible to and used by crew shall be supplied from the main source of electrical power.

3 The arrangement of the main electric lighting system shall be such that a fire or other casualty in spaces containing the main source of electrical power, associated transforming equipment, if any, and the main switchboard will not render the emergency electric lighting system required by Regulation IV/4 paragraph 5 inoperative.

4 The arrangements of the emergency electrical lighting system shall be such that a fire or other casualty in spaces containing the emergency source of electrical power, associated transforming equipment, if any, and the emergency switchboard will not render the main electric lighting system required by this Regulation inoperative.

5 Ships due to its size and operation may use one (1) main source of power such as battery coupled with charging mechanism or its equivalent.

#### **Regulation 4**

##### *Emergency Source of Electrical Power*

1 A self-contained emergency source of electrical power shall be provided.

2 The emergency source of electrical power, associated transforming equipment, if any, and the emergency switchboard shall be located above the uppermost continuous deck and shall be readily accessible from the open deck. They shall not be located forward of the collision bulkhead, except where permitted by the Administration in exceptional circumstances.

3 The location of the emergency source of electrical power, associated transforming equipment, if any, the emergency switchboard in relation to the main source of electrical power, associated transforming equipment, if any, and the main switchboard shall be such as to ensure, to the satisfaction of the Administration, that a fire or other casualty in the space containing the main source of equipment, if any, and the main switchboard, or in any machinery space category A will not interfere with the supply, control and distribution of emergency electrical power.

4 Provided that suitable measures are taken for safeguarding independent emergency operation under all circumstances, the emergency generator may be used, exceptionally, and for short periods, to supply non-emergency circuits.

5 The electrical power available shall be sufficient to supply all those services that are essential for safety in an emergency, due regard being paid to such services as may have to be operated simultaneously. The emergency source of electrical power shall be capable, having regard to starting currents and the transitory nature of certain loads, of supplying simultaneously at least the following services for the periods specified hereinafter, if they depend upon an electrical source for their operation:

- .1 For a period of three hours, emergency lighting at every muster and embarkation station and over the sides in the way of such stations;
- .2 For a period of 12 hours, emergency lighting;
  - .1 in all service and accommodation alleys, stairways and exits;

- .2 in spaces containing propulsion machinery used for navigation, if any and main source of electrical power and their control positions;
- .3 in all control stations, machinery control rooms and at each main and emergency switchboard;
- .4 at all stowage positions for firemen's outfits;
- .5 at the steering gear, if any; and
- .6 at the emergency fire pump and its control position;
- .3 For a period of 12 hours, the navigation lights and other lights required by COLREG;
- .4 For a period of 12 hours:
  - .1 all communication equipment required for transmission of distress and safety messages, including ship's whistle and all internal communication equipment as required in an emergency;
  - .2 the fire detection and fire alarm systems; and
  - .3 operation of emergency of emergency fire pumps, if electrically operated.

6 Tankers regularly engaged in voyages of short duration, the Administration, if satisfied that an adequate standard of safety would be attained, may accept a lesser period than the 12 hour period specified in sub-paragraphs 5.2 to 5.4 of this Regulation but not less than three hours.

- 7 The emergency source of electrical power may be either:
- .1 an accumulator battery capable of carrying the emergency electrical load without recharging or excessive voltage drop; or
  - .2 a generator driven by a suitable prime mover with an independent fuel supply and starting mechanism, to the satisfaction of the Administration.

8 Where the emergency source of electrical power is an accumulator battery, it shall be capable of automatically connecting to the emergency switchboard in the event of failure of the main source of electrical power. Where an automatic connection to the emergency switchboard is not practical, manual connection may be acceptable to the satisfaction of the Administration.

9 Where the emergency source of power is a generator, it shall be automatically started and connected to the emergency switchboard within 45 seconds of the loss of the main source of electrical power. It shall be driven by a prime mover with an independent fuel supply having a flash point of not less than 43°C. Automatic starting of the emergency generator will not be required where a transitional source of power to the satisfaction of the Administration is provided.

## **Regulation 5**

### *Special Considerations*

The Administration may waive any of the requirements specified in this regulation taking into account the requirements of electrical power for operating the propulsion machinery and the size of the ship.

## CHAPTER V

### FIRE PROTECTION, DETECTION AND EXTINCTION

#### Regulation 1

##### *Application to Existing Ships*

The provisions of the present regulations shall apply to existing ships, within a period not exceeding three (3) years from the date of entry into force of the present Regulations, where they are regarded by the Administration as necessary and reasonable.

#### Regulation 2

##### *General*

1 Unless provided otherwise under the present regulations, the provisions on fire protection shall comply with the Fire Safety System Code, as amended, adopted by the IMO Maritime Safety Committee in Resolution MSC.98 (73).

2 When the nature and conditions of the voyage are such that the application of the present Regulations is neither necessary nor reasonable, the Administration may adopt alternative arrangements if it is satisfied that they are as effective as the measures set out in the present regulations.

#### Regulation 3

##### *Types of Bulkhead*

1 Wherever the words "steel or other equivalent material" occur, "equivalent material" means any non-combustible material which, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of the applicable exposure to the standard fire test (e.g. aluminum alloy with appropriate insulation).

2 "A 30" class divisions are those divisions formed by bulkheads and decks which comply with the following:

- .1 they shall be constructed of steel or other equivalent material;
- .2 they shall be suitably stiffened;
- .3 they shall be so constructed as to be capable of preventing the passage of smoke and flame to the end of the one-hour standard fire test;
- .4 they shall be insulated with approved non-combustible materials such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature, at any one point, including any joint, rise more than 180°C above the original temperature, within a period of 30 minutes.

3 "F" class divisions are those divisions formed by bulkheads, decks, ceilings and linings which comply with the following

- .1 they shall be so constructed as to be capable of preventing the passage of flame to the end of the first half-hour of the standard fire test;
- .2 they shall have an insulation value such that the average temperature of the unexposed side will not rise more than 139°C above the original temperature, nor will the temperature, at any one point, including any joint, rise more than 225°C above the original temperature, to the end of the first half-hour of the standard fire test;

4 Divisions (decks and bulkheads) which separate machinery spaces in category A from cargo spaces, accommodation, service area, control stations shall be as far as possible:

- .1 of A.30 class for ships constructed of steel or equivalent material including aluminum alloys;
- .2 of F class for ships constructed of combustible materials.

A subdivision may be accepted as equivalent to an A class division if it consists of:

- .1 a steel panel coated with 50 mm of mineral wool; or
- .2 an aluminum panel coated with 80 mm or two separate layers of 40 mm of mineral wool.

A subdivision may be accepted as equivalent to an F class division if it consists of a combustible wall coated with a layer of 100 mm or two separate layers of 50 mm of mineral wool.

The mineral wool shall have a voluminal mass of at least 96 kg/m<sup>3</sup>.

The external surface of the mineral wool shall be suitably protected against splashes of oil and other flammable liquids.

5 The insulation shall extend downwards from the deck, over the hull, to a depth of 500 mm for a ship of steel and to the lightship water line for a ship constructed of another material.

6 Stairways which serve several decks shall be encased in bulkheads of steel or equivalent materials or F class materials.

7 In the case of F class bulkheading, the bulkheading around machinery spaces in category A shall prevent the passage of smoke.

8 Bulk heading shall only possess the characteristics of A.30 or F class bulk heading, as appropriate in respect of a fire arising in the machinery space.

9 Doors and hatches of other openings in bulkheads shall be constructed such as to maintain the integrity of the bulkheads in which they are located.

10 Bulkheads around galleys shall be of steel or equivalent material or F class bulkheading.

11 Stairways, escape companionways, etc., shall have a steel frame and, if they serve several decks, they shall be protected by a casing of steel or equivalent material or F class material. They shall have at least one closure as required by paragraph 5 to prevent fire spreading from one deck to another.

12 Pipes, ducts and controls which pass through a fire-resistant bulkhead shall not reduce its resistance to fire.

13 The Administration may exempt ships from some requirement of the present Regulation, if it considers that such requirement is neither reasonable nor necessary taking into account the navigation in which such ships engage.

#### **Regulation 4**

##### *Fire Prevention*

1 Paints, varnishes or other substances with a nitro-cellulose or toxic base, or highly flammable products shall not be used.

- 2 Precautions shall be taken to avoid combustible substances or vapors coming into contact with parts reaching elevated temperatures. In particular:
- .1 arrangements shall be made to ensure that sparks or flames from smoke ducts such as those of cooking or heating appliances cannot penetrate ventilation ducts;
  - .2 thermal insulation shall be provided in cargo spaces, fuel bunkers, control stations, accommodation and service areas for walls reaching high temperature such as boilers, smoke ducts, extraction ducts or galley chimneys;
  - .3 appliances with naked flames or unprotected resistors for lighting and heating of accommodation shall be prohibited.
- 3 Insulation materials shall be approved by the Administration.
- 4 The fixing of combustible parts less than 60 cm from appliances such as ovens and furnaces shall be prohibited unless special precautions are taken to insulate them.
- 5 Materials readily rendered ineffective by heat shall not be used for overboard scuppers, discharges which are close to the water line or for accessories whose destruction in the event of fire would give rise to a risk of flooding.
- 6 Oil or oil fuel pipes shall be of steel or other authorized materials taking into account the risk of fire.
- 7 Air extraction ducts from bunkers and tanks containing combustible liquids shall be fitted with an effective fire-screen capable of being easily cleaned and which shall not significantly reduce the effective diameter of the air duct and shall comply with the provisions of paragraph 6.
- 8 Ventilation ducts serving machinery spaces shall be provided on their upper parts with non-combustible means of closing.
- 9 Other openings in machinery spaces shall be capable of being closed from outside those spaces.

### **Regulation 5**

#### *Arrangements for Combustible Fuel, Lubricating Oil and Other Flammable Oils*

- 1 No combustible liquid shall be used as fuel whose flashpoint, determined by an approved test, is less than 60°C (closed crucible test), except in emergency generators, in which case the flashpoint shall be not less than 43°C.
- 2 Safe and efficient means of ascertaining the amount of fuel contained in any tank shall be provided. If such means consist of sounding pipes, their upper ends shall be located in safe positions and fitted with appropriate shutoff devices.

If an oil-level gauge is used, it shall be fitted with a self-closing control cock at each end. All cocks shall be fixed directly to the walls of the tank.

The use of plastics for oil-level gauges is prohibited.

The use of refracting glass oil-level gauges is permitted provided that a protection against shocks is installed. Tighteners shall be fitted to prevent disconnection of oil-level gauges.

- 3 Precautions shall be taken to prevent any overpressure on tanks or in any part of the fuel supply system, including filling pipes. Outlet valves and air or overflow pipes shall discharge the fuel into a safe place in such a way that it gives rise to no

danger.

4 Subject to approval by the Administration, fuel pipes which, if damaged, would allow oil to escape from storage, settling or daily service tank situated above the double bottom, shall be fitted with a cock or valve directly on the tank capable of being closed from a safe position outside the space concerned in the event of fire occurring in the space in which such tanks are situated. In the special case of deep tanks situated in any shaft or pipe tunnel or similar spaced, valves shall be fitted on the deep tanks but control in the event of fire shall be capable of being effected by means of an additional valve on the pipe or pipes outside the tunnel or similar space. If such additional valve is fitted in the machinery space it shall be operated from a position outside this space.

5 Pumps which form part of the oil fuel lines shall be separate from any other lines and the inversion of the flow of such pumps shall be fitted with an effective, closed circuit, outlet valve.

6 No oil fuel tank shall be situated where spillage or leakage there from can constitute a hazard by falling on heated surfaces. Precautions shall be taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces.

7 Oil fuel pipes and their valves and fittings shall be of steel or other approved material, except that the restricted use of flexible pipes may be permitted by the Administration. Such flexible pipes and end attachments shall be of approved fire-resisting materials or coated with fire-resisting coatings, to the satisfaction of the Administration.

8 When necessary, oil fuel lines shall be screened or otherwise suitably protected to avoid, as far as practicable, oil spray or oil leakages on to hot surfaces or into machinery air intakes. The number of joints in such piping systems shall be kept to a minimum.

9 As far as practicable, oil fuel tanks shall be part of the ship's structure and shall be located outside machinery spaces of category A. Where oil fuel tanks, other than double bottom tanks, are necessarily located adjacent to or within machinery spaces of category A, at least one of their vertical sides shall be contiguous to the machinery space boundaries, and shall preferably have a common boundary with the double bottom tanks, and the area of the tank boundary common with the machinery spaces shall be kept to a minimum. Where such tanks are situated within the boundaries of machinery spaces of category A they shall not contain oil fuel having a flashpoint of less than 60°C (closed crucible test). In general, the use of free-standing oil fuel tanks shall be avoided in areas where there is a risk of fire and especially in machinery spaces of category A. When free-standing are permitted, they shall be placed in an oil-tight spill tray of ample size having a suitable drain pipe leading to a suitably sized spill oil tank.

10 The arrangements for the storage, distribution and utilization of oil used in the pressure lubrication systems shall be considered satisfactory by the Administration. The arrangements made in machinery spaces of category A, and whenever practicable in other machinery spaces, shall at least comply with the provisions of paragraphs 1, 3, 6 and 7 and, in so far as the Administration considers it to be necessary, with the provisions of paragraph 2 and 4. The use of sight-flow glasses in lubricating systems shall be permitted provided that they are shown by tests to have a suitable degree of fire resistance.



11 The arrangements for the storage, distribution and utilization of flammable oils other than those specified in paragraph 10 employed under pressure in power transmission systems, control and drive systems and heating systems shall be considered satisfactory of the Administration. In locations where means of ignition are present, such arrangements shall at least comply with the provisions of paragraphs 2 and 6, and with the provisions of paragraphs 3 and 7 in respect of strength and construction.

12 Oil fuels, lubricating oils and other flammable oils shall not be carried in forepeak tanks. Furthermore, oil fuels shall not be stored forward of the collision bulkhead or its extension.

### **Regulation 6**

#### *Storage and Use of Oil Fuels*

1 Air outlet pipes in oil fuel compartments and tanks shall terminate with an S-bend with a close-mesh metal cowl and a detachable closing device. A hole of 5 to 6 mm in diameter shall be pierced in the closing device.

The closing device may be replaced by a system such as an automatic ball-valve if it provides equivalent safety.

2 Compartments intended to contain oil fuels with a flashpoint less than 60°C but not less than 43°C shall be insulated from continuous compartments intended for liquids or oil fuels with different flashpoints by cofferdams with air pipes and sounding pipes.

3 Oil fuels with a flashpoint less than 60°C but not less than 43°C may be used subject to the agreement of the Administration to supply emergency fire-pump motors and auxiliary motors which are not situated in machinery spaces of category A.

### **Regulation 7**

#### *Pressurized Water Fire-Extinguishing Systems*

1 Any pressurized water fire-extinguishing system, required to be installed by the present chapter, shall consist of pipes fed by one or more pumps and serving nozzles through hydrants and hoses.

#### 2 Fire pumps

- .1 Except as otherwise provided in the present regulation, fire pumps shall be mechanically driven by motors independent of the propulsion machinery.
- .2 Sanitary, ballast and bilge pumps, as well as general service pumps may be regarded as fire pumps, provided that they are not normally used for extraction of oil fuel.
- .3 Fire pumps shall be fitted with safety valves if they are capable of operating at a pressure exceeding that for which the pipes and their attachments have been calculated and tested.
- .4 Each mechanically powered pump, where required to be fitted by the present regulation, shall be capable of delivering for fire-fighting purposes a quantity of water, at the pressure specified in paragraph 3.2, not less than two-thirds of the quantity required to be dealt with by a bilge pump under the provisions of Regulation 4 of Chapter IV of BOOK I General Provision.

- 3 Fire mains
  - .1 The diameter of the fire main shall be sufficient for the effective distribution of the maximum discharge of one fire pump.
  - .2 Where a fire pump delivers the quantity of water specified in subparagraph 3.1 above through any adjacent fire hydrants, a pressure of at least  $0.21 \text{ N/mm}^2$  ( $2.1 \text{ kg/cm}^2$ ) shall be maintained at all hydrants affected.
  - .3 The arrangement of the fire main shall be such that it is capable of delivering water very rapidly. The controls shall be easy to operate and readily accessible.
- 4 Pipes and hydrants
  - .1 The number and position of hydrants shall be such that at least one jet of water may reach any part of the ship normally accessible to the crew while the ship is being navigated and any part of any cargo space when empty.
  - .2 Pipes and hydrants shall be so placed that the fire hoses may be easily coupled to them. The positions of the hydrants shall be such that they are readily accessible and the pipes shall be arranged as far as practicable to avoid risk of damage.
  - .3 Cocks or valves shall be fitted to pipes such that any of the hydrants may be shut off while the pumps are in operation and continue to supply other hoses connected to other hydrants.
  - .4 Fire hoses of materials readily affected by heat shall not be used unless suitably protected.
- 5 Hoses and nozzles
  - .1 Fire hoses shall be of approved materials. They shall not exceed fifteen (15) meters in length. Hoses shall be fitted with the necessary couplings and attachments.
  - .2 On open decks, a hose shall not be required for each hydrant, but the number of hoses installed shall be sufficient, in the area concerned, such that the jet required by the present Regulation can be delivered in all circumstances.
  - .3 Fire hoses and their attachments shall be maintained in a permanently serviceable condition.
  - .4 The diameter of nozzles (full jet) shall be not less than 10 mm.
  - .5 All nozzles shall be fitted with a shutoff device, as well as a sprinkler jet.

### **Regulation 8**

#### *Gas Fire-Extinguishing Systems*

1 The use of a fire-extinguishing medium which, in the opinion of the Administration, under expected conditions of use gives off toxic gases in such quantities as to endanger persons on board shall not be permitted.

The fire extinguishing systems shall be started by a deliberate manual operation.

2 The pipes for conveying the fire-extinguishing medium into protected spaces

shall be provided with control valves:

- .1 for which the spaces to which the pipes are led are clearly indicated;
- .2 where the open or closed position may be readily checked; and
- .3 which can only be operated locally (no remote control).

3 Means of manually activating chambers by percussion. In such case, the control shall be exercised from the spaces where the extinguishing medium is placed, except when it is placed in a protected space.

4 The piping shall be so positioned as to ensure efficient distribution of the gas. It shall be tested according to the regulations of an approved classification society

5 Means shall be provided to close all openings which may admit air or allow gas to escape from a protected space. The ventilation of the protected space shall be shut off automatically or manually before the discharge of the extinguishing medium.

6 Verification

- .1 The operation of percussion devices and valves shall be periodically checked, as well as the quantity of gas available and the general state of the system.
- .2 Means shall be provided for safe blowing of the pipes leading from the control valves, one by one.
- .3 Means shall be provided for the crew to safely check the quantity of gas in the chambers.

7 Quantity of gas

To determine the quantity of gas, in cases where the safety valves or other safety devices on the air chambers to start the motors discharge within machinery spaces, the gross volume taken into account in calculating the minimum concentration of gas shall be increased by the volume of free air relating to such chambers.

8 Alarm

- .1 A sound signal shall announce the release of the extinguishing medium in any space in which personnel normally work or to which they have access.
- .2 The signal shall be supplied by the emergency source of power and shall be distinct from any other alarm.
- .3 The time between the giving of the alarm and the arrival of the gas in the protected space shall be such as to allow people to escape from the protected space. The system should be checked periodically to ensure that it is in good working order.

9 The means of control of any fixed gas fire-extinguishing system shall be readily accessible, simple to operate and shall be grouped together at positions where they are not likely to be cut off by a fire in the protected space and shall have clear instructions relating to the operation of the system having regard to the safety of personnel.

10 Where several locations are protected by the same system, the quantity of gas

shall be sufficient for the largest of those locations. Several locations which are not completely separate from each other shall be regarded as forming a single location.

11 Pressurized gas fire-extinguisher chambers shall be approved by the Administration and tested every ten years.

12 Pressurized gas fire-extinguisher chambers shall not be positioned forward of the collision bulkhead.

They shall be kept in locations reserved exclusively for that purpose, situated in a safe readily accessible and well ventilated position. Any entrance to such locations shall preferably be from the open deck and in any case shall be separate from the entrance to the protected space. Access doors shall open outwards. Bulkheads, decks and doors which form the boundaries between such places and adjoining closed spaces shall be of steel or equivalent material or F class except when such chambers are installed above the freeboard deck.

All access doors to the locations of chambers shall carry a sign clearly showing the type of extinguishing medium and the notice "Danger".

13 The air in the protected place shall be changed, after extinction of the fire, within a period compatible with the safety of the ship.

14 Carbon dioxide systems

For machinery spaces the quantity of carbon dioxide delivered by the piping shall be sufficient to give a minimum volume of free gas equal to 30% of the gross volume of the largest machinery space so protected, including the housing.

The volume of free carbon dioxide shall be calculated as 0.56 m<sup>3</sup>/kg.

The fixed piping shall be such that 85% of the gas can be discharged into the space within 2 minutes.

### **Regulation 9**

#### *Fixed High-Expansion Foam Fire-Extinguishing Systems in Machinery Spaces*

1 Any required fixed high-expansion fire extinguishing systems in machinery spaces shall be capable of rapidly discharging through fixed discharge outlets a quantity of foam sufficient to fill the greatest space to be protected at a rate of at least 1 m in depth per minute, after deducting the volumes of the plant or equipment, or 1.5 m in depth if such volumes are not deducted.

The quantity of foam-forming liquid available shall be sufficient to produce a volume of foam equal to five times the volume of the largest space to be protected. The expansion ratio of the foam shall not exceed 1,000 to 1.

The Administration may permit alternative arrangements and discharge rates provided that it is satisfied that equivalent protection is achieved.

2 Supply ducts for delivering foam, intakes to the foam generator and the number of foam-producing units shall in the opinion of the Administration be such as will provide effective foam production and distribution.

3 Foam-producing units shall be of an approved type.

4 The arrangement of the foam generator delivery ducting shall be such that a fire in the protected space will not affect the foam generating equipment.

5 The foam generator, its sources of power supply, foam-forming liquid and means of controlling the system shall be readily accessible and simple to operate and

shall be grouped in as few locations as possible at positions not likely to be cut off by a fire in the protected spaced.

### **Regulation 10**

#### *Fixed Pressure Water-Spraying Fire-Extinguishing Systems in Machinery Spaces*

1 Any required fixed pressure water-spraying fire-extinguishing system in machinery spaces shall be provided with sprinkler jets of an approved type.

2 The number and arrangement of the sprinkler jets shall be to the satisfaction of the Administration and shall be such as to ensure an effective average distribution of water of at least 5 liters per square meter per minute in the spaces to be protected. This distribution may be reduced to 3.5 liters per square meter per minute when the ceiling height of the space to be protected is less than 2.5 meters.

3 The system may be divided into sections, the distribution valves of which shall be operated from easily accessible positions outside the spaces to be protected and not likely to be rapidly cut off by a fire in the protected space.

4 The pump shall be capable of simultaneously supplying at the necessary pressure all sections of the system in any one space to be protected. The pump and its controls shall be installed outside the space or spaces to be protected. It shall not be possible for a fire in the space or spaces protected by the water-spraying system to put the system out of action.

5 The pump may be driven by an independent internal combustion engine. If, however, it is dependent upon power being supplied from the emergency generator fitted in compliance with the provisions of Regulation V, that source shall be readily accessible and simple to operate in the event of failure of the main source of electrical power. When the pump is driven by an independent internal combustion engine it shall be so situated that a fire in the protected space will not affect the air supply to the engine.

6 Precautions shall be taken to prevent the sprinkler jets from becoming clogged by impurities in the water or corrosion of piping, jets, valves and pump.

### **Regulation 11**

#### *Fire Protection*

1 Pressurized water extinguishing systems

- .1 A fire main shall be provided in compliance with the requirements of Regulation 7.
- .2 The fire system shall be supplied by a main pump situated in the propulsion machinery space and an independent emergency pump. Such pumps shall comply with the requirements of Regulation 7.
- .3 The main pump may be coupled to the propulsion machinery, in which case it shall have a clutch mechanism.
- .4 In the case of Ships with two independent propulsion spaces, the main pump and emergency pump referred to in paragraph 1.2 may be replaced by two fire pumps with a clutch mechanism coupled to each propulsion engine and supplying the same fire main.
- .5 In addition to the hose and nozzle referred to in paragraph 6, at least two hoses with nozzles shall be provided.
- .6 The following shall be installed in the propulsion space:

- .1 a fire hydrant permanently coupled to a hose with a nozzle; and
- .2 a receptacle containing a powdery material such as sand or sawdust impregnated with caustic soda and a shovel. A portable extinguisher of an approved type may be accepted as an equivalent.

## 2 Machinery spaces

In addition to the provisions of paragraph 1, machinery spaces containing oil-fired fuel, oil fuel units or internal combustion machinery for the purposes of propulsion of ships shall be provided, to the satisfaction of the Administration, with any one of the following fixed fire- extinguishing systems:

- .1 a gas system complying with the provisions of Regulation V/8.
- .2 a high-expansion foam system complying with the provisions of Regulation V/9.
- .3 a pressure water-spraying system complying with the provisions of Regulation V/10.

### **Regulation 12**

#### *Fixed Fire Detection and Alarm Systems in Propulsion Machinery Spaces*

- 1 A fixed fire detection system of an approved type shall be installed in spaces containing internal combustion machinery used for the main propulsion of ships.
- 2 The detectors shall be operated by smoke or other products of combustion and initiate an audible and visual alarm, distinct from any other device that does not indicate a fire, to the wheelhouse.
- 3 The system shall be tested to the satisfaction of the Administration

### **Regulation 13**

#### *Fire Extinguishers*

- 1 All fire extinguishers shall be of an approved type.
- 2 A portable foam applicator unit shall consist of an air-foam nozzle of an inductor-type capable of being connected to the main by a fire hose, together with a portable tank containing at least 20 liters of foam-making liquid and one spare tank. The nozzle shall be capable of producing effective foam suitable for extinguishing an oil fire, at the rate of 1.5 m<sup>3</sup>/min.
- 3 One of the portable fire extinguishers intended for use in any space shall be stowed near the entrance to that space, preferably outside.
- 4 The number of spare charges shall be determined by the Administration to the extent that recharging of used extinguishers may be effected.
- 5 Ships shall be provided with at least three portable extinguishers, at least one of which being appropriate to extinguish an oil fire.

### **Regulation 14**

#### *Fire Drills*

Fire drills shall be conducted under the same conditions as those required by Regulation V/14, in order to check the condition of fire-fighting equipment and train the crew in its use.

### **Regulation 15**

*Ready Availability of Fire-Extinguishing Appliances*

1 Fire-extinguishing appliances shall be kept in good order and be available for immediate use at all times.

2 Equipment and systems shall be subject to periodic tests to ensure that they are in good working order or special checks depending on their nature, at least once a year. The date and purpose of such inspections shall be recorded in a maintenance and test log, and noted in the ship's log.

**Regulation 16**

*Substitutes*

Where in this regulation any special type of appliance, apparatus, extinguishing medium or arrangement is specified, any other type of appliance, etc., may be allowed if the Administration is satisfied that it is not less effective.

**Regulation 17**

*Protection Measures Applicable To Tankers*

In the case of tankers, the special provisions relating to fire protection on board tankers of 500 gross tonnes or more shall apply.

**DRAFT**  
24 JANUARY 2019

**REGULATION VI**  
*LIFE-SAVING APPLIANCES*

**Regulation 1**

*General Requirements*

- 1 Life-saving appliances and equipment shall be of the approved type and shall be acquired from an accredited manufacturer/supplier or serviced by an accredited servicing entity. Life-saving appliances and equipment on board ships acquired from abroad must also be type-approved and proof thereof to be checked and certified by the Administration.
- 2 Where a novel life-saving appliances or arrangements are to be used, such life-saving appliances or arrangements shall be approved by the Administration.
- 3 The Administration shall ensure that such appliances and arrangements provide the same safety standards and are evaluated and tested in accordance with the requirements of the LSA Code.

**Regulation 2**

*Minimum Requirements*

- 1 Ships engaged in Coastwise Voyage (Greater Coastal Waters) shall carry:
  - .1 Survival Craft: (To cover the total number of persons the ship is authorized to carry)
    - .1 Lifeboat or combination of liferaft, or
    - .2 Liferaft (Inflatable/Rigid Type or Equivalent Approved – Type)
      - 100% inflatable/rigid type or combination of equivalent approved-type liferaft which shall cover up to 50% of the total number of persons the ship is authorized to carry;
  - .2 Lifebuoys:
    - .1 Two (2) lifebuoys for ships less than 250 gt;
    - .2 Four (4) lifebuoys for ships 250 gt but less than 500 gt;
    - .3 50% of the require lifebuoys, and in no case less than two (2), shall be fitted with self igniting lights, with at least one (1) of which shall be fitted with manually activated smoke signal as well as buoyant line of at least 25 meters in length
  - .3 Lifejackets:
    - Every ship shall carry at least one (1) approved-type lifejacket for each and every person authorized on board.
  - .4 Distress Flares:
    - .1 Four (4) rocket parachute flares for ships less than 500 gt;
    - .2 Six (6) rocket parachute flares for ships 500 gt and above;
- 2 Ships engaged in Partly Protected Voyage (Coastal Waters) shall carry:
  - .1 Survival Craft: (To cover the total number of persons the ship is authorized to carry)
    - .1 Lifeboat or combination of liferaft, or



- .2 Liferaft (Inflatable/Rigid Type or Equivalent Approved – Type)
  - 100% inflatable/rigid type or combination of equivalent approve-type liferaft which shall cover up to 50% of the total number of persons the ship is authorized to carry.
- .2 Lifebuoys:
  - .1 Two (2) lifebuoys for ships less than 500 gt;
  - .2 Four (4) lifebuoys for ships 500 gt but and above;
  - .3 50% of the require lifebuoys, and in no case less than two (2), shall be fitted with self igniting lights, with at least one (1) of which shall be fitted with manually activated smoke signal as well as buoyant line of at least 25 meters in length
- .3 Lifejackets:
  - Every ship shall carry at least one (1) approved-type lifejacket for each and every person authorized on board.
- .4 Distress Flares:
  - .1 Two (2) rocket parachute flares for ships less than 500 gt;
  - .2 Four (4) rocket parachute flares for ships 500 gt and above;
- 3 Ship engaged in Protected Voyage (Smooth Waters) shall carry:
  - .1 Survival Craft: (To cover the total number of persons the ship is authorized to carry)
    - .1 Lifeboat or combination of liferaft, or
    - .2 Liferaft (Inflatable/Rigid Type or Equivalent Approved – Type)
  - .2 Lifebuoys:
    - .1 Every ship shall carry at least two (2) lifebuoys;
    - .2 50% of the require lifebuoys shall be fitted with at least one manually activated smoke signal, as well as a buoyant line of at least 25 meters in length
  - .3 Lifejackets:
    - Every ship shall carry at least one (1) approved-type lifejacket for each and every person authorized on board.
  - .4 Distress Flares:
    - Every ship shall carry at least one (1) rocket parachute flares.

**Regulation 3**  
*Communications*

Each ship shall carry:

- 1 at least two two-way VHF radio-telephone apparatus;
- 2 at least one radar transponder. Such radar transponder shall be so stowed that it can be rapidly placed in any survival craft;

3 an emergency means comprising either fixed or portable equipment or both for two-way communications between emergency control stations, muster and embarkation stations and strategic positions on board;

4 a general emergency alarm system for summoning the crew to muster stations capable of sounding a signal consisting of seven or more short blasts followed by a long blast on the ship's whistle or siren which shall be powered from the ship's main or the emergency power. The system shall be operated from the ship's bridge and be audible throughout all the accommodation and normal crew spaces.

#### **Regulation 4**

##### *Manning and Survival Procedures*

1 All persons manning such ships shall be trained in launching and operating the survival crafts.

2 Illustrations and instructions relating to the use of life-saving appliances shall be posted at muster stations and other crew spaces.

3 Posters or signs shall be provided on or in the vicinity of survival craft and their launching controls.

4 Muster stations shall be provided close to the embarkation stations. Both shall be adequately illuminated by lighting supplied from the emergency source of electric power.

5 Each member of the crew shall participate in at least one abandon ship drill and one fire drill every months. On board training on the use of life-saving appliances, including survival craft equipment shall be provided at such drills.

6 Records shall be maintained relating to abandon ship drills, fire drills and on board training in such logbooks as may be prescribed by the Administration.

#### **Regulation 5**

##### *Stowage, Launching and Recovery of Survival Craft*

1 Survival craft shall be stowed:

- .1 so that neither the survival craft nor its stowage arrangements will interfere with the operation of any other survival craft or rescue boat at any other launching station;
- .2 as near the water surface as is safe and practicable but not less than 2 m above the waterline with the ship in the fully loaded condition under unfavorable condition of trim and listed up to 20° either way;
- .3 so that the life boats and the rescue boats can easily be launched from the ship.
- .4 in a state of continuous readiness so that two crew members can carry out preparations for embarkation and launching in less than five minutes;

2 Liferrafts intended for throw-overboard-launching shall be so stowed as to be readily transferable for launching on either side of the ship.

3 Survival craft which are not stowed under davits or equivalent systems shall be stowed such that they are secured to the ship by hydrostatic release units.

4 Launching stations shall be in such positions as to ensure safe launching having particular regard to clearance from the propeller and steeply overhanging portions of the hull and so that, as far as possible, survival craft can be launched down the straight

side of the ship. If positioned forward, they shall be located abaft the collision bulkhead in a sheltered position and, in this respect, the Administration shall give special consideration to the strength of the launching appliance.

## **Regulation 6**

### *Markings*

1 Survival craft (lifeboats, liferafts, life floats buoyant apparatus), and lifebuoys shall be clearly marked in capital letters in the Roman alphabet with the name of the ship and its homeport.

2 Lifejackets shall be clearly marked in capital letters in the Roman alphabet with the name of the ship.

3 In addition to the marking prescribed in paragraph 1, survival craft shall be properly marked with the approved maximum number of persons it is permitted to carry. The marking size shall be 5 inches in height and ¼ inch thickness.

## **Regulation 7**

### *Operational Readiness, Maintenance and Inspections*

1 Before the ship leaves port and at all times during the voyage, all life-saving appliances shall be in working order and ready for immediate use.

2 Instructions for on board maintenance of life-saving appliances shall be easily understood and illustrated where possible.

3 The following tests and inspections shall be carried out monthly:

- .1 all survival craft, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use;
- .2 the general emergency alarm system shall be tested.

4 Inspection of the life-saving appliances, including lifeboat equipment, shall be carried out monthly using a checklist to ensure that such equipment is complete and in good order. A report of the inspection shall be entered in the log-book.

5 Every inflatable liferaft and radar transponders shall be serviced at intervals of not more than 12 months and at an accredited servicing station. However, in cases where it appears proper and reasonable, the Administration may extend this period to 17 months.

Hydrostatics release units shall be serviced at intervals not exceeding 18 months at an accredited servicing station.

## **Regulation 8**

### *Training Manual and On-Board Training Aids*

1 On-board training in the use of the ship's life-saving appliances, including survival craft equipment, and in the use of the ship's fire-extinguishing appliances shall be given as soon as possible a crew member joins the ship.

2 Instructions in the use of the ship's fire-extinguishing appliances, life-saving appliances and survival at sea shall be given at the same interval as the drills. Individual instruction may cover different parts of the ship's life-saving and fire-extinguishing appliances, but all the ship's life-saving and fire-extinguishing appliances shall be covered within any period of two months.

3 Every crew member shall be given instructions which shall include but not necessarily be limited to:

- .1 operation and use of the ship's inflatable liferafts;
  - .2 first-aid treatment and other appropriate first-aid procedures;
  - .3 special instructions necessary for use of the ship's life-saving appliances in severe weather and severe sea conditions; and
  - .4 operation and use of fire-extinguishing appliances.
- 4 On-board training in the use of davit-launched liferafts shall take place at intervals of not more than four months on every ship fitted with such appliances.

**DRAFT**  
**24 JANUARY 2019**

**REGULATION VII**  
*RADIO COMMUNICATIONS*

**Regulation 1**

*General*

- 1 All tankers above 300 gt shall comply with the requirements of this Regulation.
- 2 Existing and new ships below 300 gt are exempted from the above paragraph, and may otherwise use the installations as prescribed by the telecommunications authority.

Below 350 gt. and less than 60 mi. (96 km.) of navigation	- VHF with capability on 156.8/156.6/156.3 Khz
Below 350 gt. and more than 60 mi. (96 km.) of navigation	- SSB with capability on 2182/4125/6215.5 KHz - VHF with capability on 156.8/156.6/156.3 Khz

- 3 No provision in this Regulation shall prevent the use by any ship, survival craft or person in distress, of any means at their disposal to attract attention, make known their position and obtain help.

**Regulation 2**

*Functional Requirements*

- 1 Ships while at sea shall be provided with radio installations capable of complying with the functional requirements identified in this Regulation throughout its intended voyage for the sea area or areas through which it will pass during the intended voyage.
- 2 Ships, while at sea, shall be capable of:
  - .1 transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radio communication service;
  - .2 receiving shore-to-ship distress alerts;
  - .3 transmitting and receiving ship-to-ship distress alerts;
  - .4 transmitting and receiving search and rescue coordinating communications;
  - .5 transmitting and receiving on-scene communications;
  - .6 transmitting and where applicable receiving signals for locating;
  - .7 transmitting and receiving maritime safety information;
  - .8 transmitting and receiving general radio communications to and from shore-based radio systems or networks; and
  - .9 transmitting and receiving bridge-to-bridge communications.

**Regulation 3**

*Ship Requirements*

- 1 Every radio installation shall be:

- .1 so located that no harmful interference of mechanical, electrical or other origin affects its proper use;
- .2 so located as to ensure the greatest possible degree of safety and operational availability;
- .3 be protected against harmful effects of adverse environmental conditions;
- .4 provided with reliable permanently arranged electrical lighting for adequate illumination; and
- .5 clearly marked with the call sign, the ship station identity and other qualified codes.

2 Control of the VHF radiotelephone channels required for navigational safety shall be available on the navigation bridge.

#### **Regulation 4**

##### *Watches*

1 Every ship, while at sea, shall maintain continuous distress and safety watch on the, appropriate distress frequencies identified for the relevant sea area. (Frequency should be identified)

2 Every ship, while at sea, shall maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the ship is navigating.

3 Each ship, while at sea, shall maintain a continuous listening watch on:

- .1 VHF Channel 16;
- .2 radiotelephone distress frequency 2,182KHz.

#### **Regulation 5**

##### *Maintenance Requirements*

1 The Administration shall ensure that radio equipment required by this regulation is maintained to provide the availability of the functional requirements and to meet the recommended performance standards of such equipment.

2 Adequate information shall be provided to enable the equipment to be properly operated and maintained.

3 The availability of the radio equipment shall be ensured by using one of the following method:

- .1 duplication of equipment
- .2 shore-based maintenance, or
- .3 at-sea electronic maintenance capability.

#### **Regulation 6**

##### *Radio Equipment*

1 All tankers shall be provided with the following radio communication equipment:

- .1 Ships operating in the protected areas:
  - .1 VHF radio Installation;
- .2 Ships operating in coastwise voyage:
  - .1 VHF, MF/HF SSB Radio Installation (20 – 100 watts power output);

- .2 GPS (150 GT and above);
- .3 AIS (300 GT and above).

### **Regulation 7**

#### *Sources of Energy*

There shall be available at all times, while the ship is at sea, a supply of electrical energy sufficient to operate the radio installations and to charge any batteries used as part of a reserve source or sources of energy for the radio installations for a period of 18 hours.

### **Regulation 8**

#### *Radio logs*

1 A radio log shall be maintained in accordance with the Radio Regulations in a ship which is fitted with radio communication station. Every qualified operator, master, officer or crew member maintaining a listening watch in accordance with Regulation 4 shall enter in the log his name and the details of all incidents connected with the radio services which occur during his watch which may appear to be of importance to safety of life at sea. In addition, there shall be entered in the log:

- .1 the details required by the Radio Regulations;
  - .2 the time listening watch begins when the ship leaves port, and the time at which it ends when the ship reaches port;
  - .3 the time at which listening watch was discontinued for any reason together with the reason thereof, and the time at which listening watch was resumed thereafter; and
  - .4 details of the maintenance of the batteries (if provided), including a record of the charging required.
- 2 Radio logs shall be available for inspection.

**CHAPTER VIII**  
*SAFETY OF NAVIGATION*

**Regulation 1**

*Danger Messages*

- 1 The master of each ship which meets with dangerous derelict, or any other direct danger to navigation, or a tropical storm (signal no. 2 and above) or winds of force 10 or above on the Beaufort scale shall communicate such information by all the means at his disposal to ships in the vicinity and to the competent authorities at the first point on the coast with which he can communicate.
- 2 All radio messages issued under this Regulation shall be preceded by the safety signal, using the procedure as prescribed by the Radio Regulations.
- 3 The information to be transmitted shall be as complete as practicable and may be sent in plain language preferably in English.
- 4 The following information is required in danger messages:
  - .1 Derelicts and other direct dangers to navigation:
    - .1 The kind of derelict or danger observed.
    - .2 The position of the derelict or danger when last observed.
    - .3 The time and date when the danger was last observed.
  - .2 Tropical cyclones (storms):
    - .1 A statement that a tropical cyclone has been encountered. This obligation should be interpreted in a broad spirit, and information transmitted whenever the master has good reason to believe that a tropical cyclone is developing or exists in the neighborhood.
    - .2 Time, date and position of ship when the observation was taken.
    - .3 As much of the following information as is practicable should be included in the message:
      - .1 barometric pressure, preferably corrected (stating millibars, millimeters, or inches, and whether corrected or uncorrected);
      - .2 barometric tendency (the change in barometric pressure during the past three hours);
      - .3 true wind direction;
      - .4 wind force (Beaufort scale);
      - .5 state of the sea (smooth, moderate, rough, high);
      - .6 swell (slight, moderate, heavy) and the true direction from which it comes. Period or length of swell (short, average, long) would also be of value;
      - .7 true course and speed of ship.
  - .3 When a Master has reported a tropical cyclone or other dangerous storm, it is desirable, but not obligatory, that further observations be made and transmitted hourly, if practicable, but in any case at intervals of not more



than 3 hours, so long as the ship remains under the influence of the storm.

- .4 Winds of force 10 or above on the Beaufort scale for which no storm warning has been received. This is intended to deal with storms other than the tropical cyclones referred to in paragraph 2; when such a storm is encountered, the message should contain similar information to that listed under the paragraph but excluding the details concerning sea and swell.

## **Regulation 2**

### *Misuse of Distress Signals*

The use of any distress signal, except for the purpose of indicating that a ship, aircraft or person is in distress, and the use of any signal, which may be confused with any international distress signal, is prohibited.

## **Regulation 3**

### *Distress Messages: Obligations and Procedures*

1 The master at sea, on receiving a signal from any source that another ship or aircraft or survival craft thereof is in distress, is bound to proceed with all speed to the assistance of the persons in distress informing them if possible that he is doing so. If he is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to their assistance, he must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress.

2 The master shall be released from the obligation imposed by paragraph 1 if he is informed by the persons in distress or by the master of another ship which has reached such persons that assistance is no longer necessary. If the Master of a ship receives such release, this has to be documented by him from the duty to render assistance.

3 A ship which receives any kind of distress message, shall simultaneously report this immediately to the nearest Coast Guard, Ports Authority or Coastal Radio Station under providing all relevant data to introduce immediate life-saving actions.

## **Regulation 4**

### *Safe Navigation and Avoidance of Dangerous Situations*

1 Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned using the appropriate nautical charts and nautical publications for the area concerned.

2 The voyage plan shall identify a route which:

- .1 takes into account any relevant ships' routing systems;
- .2 ensures sufficient sea room for the safe passage of the ship throughout the voyage;
- .3 anticipates all known navigational hazards and adverse weather conditions; and takes into account the marine environmental protection measures that apply, and avoids, as far as possible, actions and activities which could cause damage to the environment.

## **Regulation 5**

### *Navigational Equipment*

The information provided by navigational systems and equipment shall be displayed that the probability of misreading is reduced to a minimum. Navigational system and equipment shall be capable of giving readings to optimum accuracy.

### **Regulation 6**

#### *Marine Magnetic Compass with Light*

- 1 ships shall be fitted with:
  - .1 a standard magnetic compass, except as provided in subparagraph .4
  - .2 a steering magnetic compass, unless heading information provided by the standard compass required under paragraph 1 is made available and is clearly readable by the helmsman at the main steering position;
  - .3 adequate means of communication between the standard compass position and the normal navigation control position to the satisfaction of the Administration; and
  - .4 means for taking bearings as nearly as practicable over an arc of the horizon of 360°.
- 2 Each compass referred to in subparagraph 1 shall be properly adjusted and its table or curve of residual deviations shall be available at all times.
- 3 A spare magnetic compass, interchangeable with the standard compass, shall be carried, unless the steering compass mentioned in paragraph 1.2 or a gyro-compass is fitted.
- 4 The Administration, if it considers it unreasonable or unnecessary to require a standard magnetic compass, may exempt individual ships or classes of ships from these requirements if the nature of the voyage, the ship's proximity to land or the type of ship does not warrant a standard compass, provided that a suitable steering compass is in all cases carried.

### **Regulation 7**

#### *Navigation Lights/Signal Lights*

- 1 Designs and installations of navigational lights/signal lights shall be in conformity with the color, height and angle of visibility prescribed under COLREG.
- 2 Requirements of Regulation V/11 of SOLAS 74, as amended, relating to the provision of an efficient daylight signaling lamp not solely dependent upon the ship's main source of electrical power are applicable to ships of over 150 GT. The Administration may extend this requirement to all ships to which these Rules and Regulations apply.

### **Regulation 8**

#### *Radars*

- 1 All covered ships shall, as far as practicable, be fitted with a radar installation capable of operating in the 9 GHz frequency band. A ship may be exempted from compliance with the requirements of paragraph 2 at the discretion of the Administration, provided that the equipment is fully compatible, with the radar transponder for search and rescue.
- 2 All equipment fitted in compliance with this Regulation shall be of type-approved by the Administration. Equipment installed on board cargo ships conform to appropriate performance standards not inferior to those adopted by the Organization. Equipment fitted prior to the adoption of related performance standards may be

exempted from full compliance with those standards at the discretion of the Administration having due regard to the recommended criteria which the Organization might adopt in connection with the standards concerned.

### **Regulation 9**

#### *Speed and Distance Indicator*

All covered ships shall be fitted with a device to indicate speed and distance.

### **Regulation 10**

#### *Rudder Angle Indicator*

All covered ships constructed shall be fitted with indicators showing the rudder angle, the rate of revolution of each propeller and in addition, if fitted with variable pitch propellers or lateral thrust propellers, the pitch and operational mode of such propellers. All these indicators shall be readable from the conning position.

### **Regulation 11**

#### *Life-Saving Signals*

Life-saving signals shall be used by ships when communicating with ships or persons in distress or when communicating with life-saving stations, maritime rescue units and aircraft engaged in search and rescue operations. An illustrated table describing the life-saving signals shall be readily available to the officer of the watch of every ship. Life-saving signals maybe in the form of sounds, lights and/or any device approved in maritime practice.

### **Regulation 12**

#### *Global Positioning Systems (GPS)*

All covered ships shall be fitted with a global positioning device (GPS).

### **Regulation 13**

#### *Automatic Identification System (AIS)*

All tanker ships of 300 GT and above shall be fitted with a Class "A" Automatic Identification System (AIS).

### **Regulation 14**

#### *Regulations on Deck Logs and Engine Logs*

All ships shall maintain a deck log where the condition of the atmosphere, the prevailing winds, the course sailed, the rigging carried and or the number of boilers in use and steam pressure carried and or the number of engines used and the engine speeds the distance covered, the maneuvers executed and other incidents of navigation. Entries related to any damage to the hull, engines, riggings and tackles, that may occur and the cause, as well as such injuries and damages as may occur to the cargo, and the amount and value of jettisoned cargo, if any, shall be entered in the deck or engine logbook.

### **Regulation 15**

#### *Nautical Publications*

1 All ships shall carry adequate and up-to-date nautical charts and nautical publications to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage.

2 An electronic chart display and information system (ECDIS) is also accepted as meeting the chart carriage requirements.

**Regulation 16***International Code of Signals*

Ships required to carry radio installations shall carry the International Code of Signals. This publication may also be carried by any other ship, which, in the opinion of the Administration, has a need to use it.

**Regulation 17***Routeing*

Ships shall comply with the traffic separation schemes or routeing requirements applicable to the area including avoidance of passage through areas designated as areas to be avoided by Ships or certain classes of ships.

**DRAFT**  
**24 JANUARY 2019**