PHILIPPINE SHIP SAFETY

RULES AND REGULATIONS

(PSSRR)

BOOK II

VOLUME IV

SPECIAL PURPOSE SHIPS

SUBJECT FOR FINAL REVIEW

CONTENTS

CHAPTER I

SCOPE AND COVERAGE

Regulation 1
General

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

Regulation 2
Application

1 Unless expressly provided otherwise, Volume IV, Book II shall apply to special purpose ships the keels of which are laid or which are at a similar stage of construction on or after the effectivity of these Rules and Regulations.

2 For the purpose of these Regulations, the term a similar stage of construction means the stage at which:

.1 construction identifiable with a specific ship begins; and

.2 assembly of that ship has commenced comprising at least 50 tons or 1% of the estimated mass of all structural material, whichever is less.

3 For the purpose of these Regulations:

.1 the expression ships constructed means ships the keels of which are laid or which are at a similar stage of construction;

.2 the expression all ships means ships constructed before, on or after the effectivity of this Rules and Regulations;

.3 Any other ship which is converted to a special purpose ship shall be treated as a special purpose ship constructed on the date on which such a conversion commences.

4 Applicable requirements for existing ships:

Unless expressly provided otherwise, for ships constructed before the effectivity of these Rules and Regulations, the Administration shall ensure that the requirements which are applicable under the Philippine Merchant Marine Rules & Regulations 1997 are complied with.

5 Repairs, alteration, modifications and outfitting.

.1 All ships which undergo repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to these ships. Such ships if constructed before the effectivity of these Rules and Regulations shall, as a rule, comply with the requirements for ships constructed on or after that date to at least the same extent as they did before undergoing such repairs, alterations, modifications or outfitting.

.2 Repairs, alterations and modifications which substantially alter the dimensions of ship or substantially increase a ship service life and outfitting related thereto shall meet the requirements for ships constructed on or after the effectivity of these Rules and Regulations in so far as the Administration deems reasonable and practicable.

6 These Regulations shall apply to all special purpose ships, while Chapter V has been arranged in two (2) parts; Part A applies to special purpose ships of less than 500 GT, and Part B applies to special purpose ships with length of less than 24 meters.

CHAPTER II

CONSTRUCTION AND EQUIPMENT

Regulation 1
General

1 All existing Special Purpose ships shall, as a rule, comply with the requirements existing 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. Existing ships which undergo replacement of equipment or outfitting related thereto shall comply with the requirements specified in this Chapter.

2 All machinery and electrical installations, mechanical, 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 ship built and maintained in conformity with the applicable rules of a classification society or any other body recognized by the Administration may be considered as adequate in this respect.

2 Ships propelled by mechanical means shall be fitted with a collision bulkhead in accordance with Regulation 4/2 and with watertight bulkheads bounding the machinery spaces. Such bulkheads shall be extended up to the freeboard deck. In ships constructed of wood such bulkheads shall be watertight as far as practicable.

3 Propeller shafts and shafts logs or 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
Collision Bulkhead

1 For the purpose of this Regulation freeboard deck, lengths of ship and perpendiculars (forward and aft) have the meanings as defined in Book I.

2 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 therefrom, 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.

3 The collision bulkhead may have steps or recesses in it provided that they are within the limits prescribed in paragraph 2. 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 special purpose space. All such valves shall be of material acceptable to the Administration.

4 Where a long forward superstructure is fitted, the collision bulkhead shall be extended weathertight to the deck immediately above the freeboard deck. The extension shall subject to the requirements of paragraph 3, be located within the limits prescribed in paragraph 2. The part of the deck, if any, between the collision bulkhead and its extension shall be weathertight.

5 Where a bow door and a sloping loading ramp that forms part of the extension of the collision bulkhead above the freeboard deck is fitted, the part of the extension, which is more than 2.3 m, or as specified by the Administration, above the freeboard deck may extend no more than 1 m forward limits specified in paragraph 2. The ramp shall be weathertight over its complete length.

6 The number of openings in the extension of the collision bulkhead above the freeboard deck shall be reduced to the minimum compatible with the design and normal operation of the ship. All such openings shall be capable of being closed weathertight.

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

8 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.

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

Regulation 4
Watertight Bulkheads, Decks, Doors, Trunks, etc.

1 These Rules and Regulations shall apply to new ships propelled by mechanical means.

2 Each weathertight 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 Administrator.

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

4 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.

5 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.

6 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.

7 Testing main compartments by filling them with water is no compulsory. When testing by filling with water is not carried out, a hose test shall be carried out in the most advanced stage of the fitting out of the ship. In any case, a thorough inspection of watertight bulkheads shall be carried out.

8 The forepeak, after peak, double bottom tanks (including duct keels), and inner skins shall be tested with water to a head corresponding to the requirements of paragraph 2.

9 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.

10 The tests referred to in paragraphs 8 and 9 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.

11 All ships shall be provided with watertight bulkheads, fitted so that the ship, when damaged in way of any one compartment in its length from the keel to the deck but not extending to damage to a transverse bulkhead bounding the longitudinal limits of the damage, may be demonstrated to float in a stable condition having the margin line above the still water level and to float in a stable condition in intermediate stages of flooding.

12 In case of a ship not having a continuous bulkhead deck, the floodable length at any point may be determined to an assumed continuous margin line which at no point is less than76 mm below the top of the deck at side to which the bulkheads concerned and the shell are carried watertight.

Regulation 5
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 provide 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 6
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 7
General Protection Measures against Accidents

1 Hinged covers of hatchways, 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 special purpose, machinery and accommodations spaces shall be such that they will facilitate expeditious rescue operation.

3 Handrails, grabrails 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.

Regulation 8
Means of Escape

1 Each space of more than 4 m in length accessible used by the crew on a regular basis shall have at least two means of escape, one of which shall not be a watertight door.

2 The two required means of escape shall be widely separated and, where possible, at opposite ends or sides of the space to minimize the possibility of one incident blocking both escapes. Means of escape may include normal exits and emergency exits, passageways, stairways, ladders, deck scuttles, and windows. The number and dimensions of the means of escape from each space shall be sufficient for rapid evacuation in an emergency of the maximum number of persons likely to occupy the space under any operational conditions. The size of the escapes shall be to the satisfaction of the Administration.

3 Doors or passageways used solely by crew members shall have a clear opening not less than 700 mm.

4 When a deck scuttle serves as a means of escape, it must not be less than 450mm in diameter and must be fitted with a quick acting release and a holdback device to hold the scuttle in an open space.

CHAPTERIII

MACHINERY INSTALLATIONS

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^3 and above shall be provided with crankcase explosion relief area. 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; an alarm shall be provided and 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 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 ships 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

Subject to Reg. V/1, the requirements of part E of chapter II-1 of SOLAS other than regulation 46, should be met.

1 General

.1 The arrangements provided shall be such as to ensure that the safety of the ship in all sailing conditions, including manoeuvring, is equivalent to that of a ship having the machinery spaces manned.

.2 Measures shall be taken to the satisfaction of the Administration to ensure that the equipment is functioning in a reliable manner and that satisfactory arrangements are made for regular inspections and routine tests to ensure continuous reliable operation.

.3 Every ship shall be provided with documentary evidence, to the satisfaction of the Administration, of its fitness to operate with periodically unattended machinery spaces.

Regulation 5
Steam Boilers and Boiler Feed System

1 Every steam boiler and every unfired steam generator shall be provided with not less than two safety valves of adequate capacity. However, having regard to the output or any other features of any boiler or unfired steam generator, the Administration may permit only one safety valve to be fitted if it is satisfied that adequate protection against overpressure is thereby provided.

2 Each oil-fired boiler which is intended to operate without manual supervision shall have safety arrangements which shut off the fuel supply and give an alarm in the case of low water level, air supply failure or flame failure.

3 Every steam generating system which provides services essential for the safety of the ship, or which could be rendered dangerous by the failure of its feed water supply, shall be provided with not less than two separate feed water systems from and

including the feed pumps, noting that a single penetration of the steam drum is acceptable. Unless overpressure is prevented by the pump characteristics means shall be provided which will prevent overpressure in any part of the systems.

4 Boilers shall be provided with means to supervise and control the quality of the feed water. Suitable arrangements shall be provided to preclude, as far as practicable, the entry of oil or other contaminants which may adversely affect the boiler.

5 Every boiler essential for the safety of the ship and designed to contain water at a specified level shall be provided with at least two means for indicating its water level, at least one of which shall be a direct reading gauge glass.

6 Water tube boilers serving turbine machinery shall be fitted with a high-water-level alarm.

Regulation 6
Steam Pipe Systems

1 Every steam pipe and every fittings connected thereto, through which steam may pass, shall be so designed, constructed and installed as to withstand the maximum working stresses to which it may be subjected.

2 Means shall be provided for draining every steam pipe in which dangerous water hammer action might otherwise occur.

3 If a steam pipe or fitting may receive steam from any source at a higher pressure than that for which it is designed a suitable pressure reducing valve or pressure gauge shall be fitted.

Regulation 7
Air Pressure Systems

1 In every ship means shall be provided to detect and 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 8
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 9
Protection against Noise

Measures shall be taken to reduce machinery noise in machinery spaces to acceptable levels at 85 decibel or less and as may be 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, then an alarm will be attended to by the person in charge.

Regulation 10
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 paragraphs 2 and 3.

Regulation 11
Steering Gear

1 Unless expressly provided otherwise, every ship 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 35º on one side to 35º 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 35º on either side to 30º on the other side is not more than 28 seconds;

.2 the auxiliary steering gear shall be capable of putting the rudder over from 15º on one side to 15º 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 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 of power.

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 12
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.

Regulation 13
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 14
Fire precautions

1 Means shall be provided to detect and give alarms at a nearly stage in case of fires:

.1 In boiler air supply casings and exhausts (uptakes); and

.2 In scavenging air belts of propulsion machinery, unless the Administration considers this to be unnecessary in a particular case.

2 Internal combustion engines of 2,250Kw and above or having cylinders of more than 300mm bore shall be provided with crank case oil mist detectors or engine bearing temperature monitors or equivalent devices.

Regulation 15
Protection against Flooding

1 Bilge wells in periodically unattended machinery spaces shall be located and monitored in such a way that the accumulation of liquids is detected at normal angles of trim and heel, and shall be large enough to accommodate easily the normal drainage during the unattended period.

2 Where the bilge pumps are capable of being started automatically, means shall be provided to indicate when the influx of liquid is greater than the pump capacity or when the pump is operating more frequently than would normally be expected. In these cases, smaller bilge wells to cover a reasonable period of time maybe permitted. Where automatically controlled bilge pumps are provided, special attention shall be given to oil pollution prevention requirements.

3 The location of the controls of any valve serving a sea inlet, a discharge below the waterline or a bilge injection systems hall be so sited as to allow adequate time for operation in case of influx of water to the space, having regard to the time likely to be required in order to reach and operate such controls. If the level to which the space could become flooded with the ship in the fully loaded condition so requires, arrangements shall be made to operate the controls from a position above such level.

Regulation 16
Control of Propulsion Machinery from the Navigation Bridge

1 Under all sailing conditions, including manoeuvring, the speed, direction of thrust and, if applicable, the pitch of the propeller shall be fully controllable from the navigation bridge.

.1 Such remote control shall be performed by a single control device for each independent propeller, with automatic performance of all associated services, including, where necessary, means of preventing overload of the propulsion machinery.

.2 The main propulsion machinery shall be provided with an emergency stopping device on the navigation bridge which shall be independent of the navigation bridge control system.

2 Propulsion machinery orders from the navigation bridge shall be indicated in the main machinery control room or at the propulsion machinery control position as appropriate.

3 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 navigation bridge and machinery spaces shall be possible only in the main machinery space or in the main machinery control room. The system shall include means to prevent the propelling thrust from altering significantly when transferring control from one location to another.

4 It shall be possible for all machinery essential for the safe operation of the ship to be controlled from a local position, even in the case of failure in any part of the automatic or remote control systems.

5 The design of the remote automatic 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 propeller shall be maintained until local control is in operation.

6 Indicators shall be fitted on the navigation bridge for:

.1 propeller speed and direction of rotation in the case of fixed pitch propellers; or

.2 propeller speed and pitch position in the case of controllable pitch propellers.

7 The number of consecutive e automatic attempts which fail to produce a start shall be limited to safeguard sufficient starting air pressure. An alarm shall be provided to indicate low starting air pressure set at a level which still permits starting operations of the propulsion machinery.

Regulation 17
Alarm system

1 An alarm system shall be provided indicating any fault requiring attention and shall:

.1 Be capable of sounding an audible alarm in the main machinery control room or at the propulsion machinery control position, and indicate visually each separate alarm function at a suitable position;

.2 have a connection to the engineers' public rooms and to each of the engineers' cabins through a selector switch, to ensure connection to at least one of those cabins. Administrations may permit equivalent arrangement;

.3 activate an audible and visual alarm on the navigation bridge for any situation which requires action by or attention of the officer on watch;

.4 as far as is practicable be designed on the fail-to-safety principle; and

.5 activate the engineers' alarm required by regulation 38 if an alarm function has not received attention locally within a limited time.

2 The alarm system shall be continuously powered and shall have an automatic change-over to a stand-by power supply in case of loss of normal power supply.

Failure of the normal power supply of the alarm system shall be indicated by an alarm.

3 The alarm system shall be able to indicate at the same time more than one fault and the acceptance of any alarm shall not inhibit another alarm.

Acceptance at the position referred to in paragraph 1 of any alarm condition shall be indicated at the positions where it was shown. Alarms shall be maintained until they are accepted and the visual indications of individual alarms shall remain until the fault has been corrected, when the alarm system shall automatically reset to the normal operating condition.

Regulation 18
Safety systems

A safety system shall be provided to ensure that serious malfunction in machinery or boiler operations, which present an immediate danger, shall initiate the automatic shutdown of that part of the plant and that an alarm shall be given. Shutdown of the propulsion system shall not be automatically activated except in cases which could lead to serious damage, complete breakdown, or explosion. Where arrangements for overriding the shutdown of the main propelling machinery are fitted, these shall be such as to preclude inadvertent operation. Visual means shall be provided to indicate when the over- ride has been activated.

Regulation 19
Special requirements for machinery, boiler and electrical installations

1 The special requirements for the machinery, boiler and electrical installations shall be to the satisfaction of the Administration and shall include at least the requirements of this regulation.

2 The main source of electrical power shall comply with the following:

.1 Where the electrical power can normally be supplied by one generator, suitable load-shedding arrangements shall be provided to ensure the integrity of supplies to services required for propulsion and steering as well as the safety of the ship. In the case of loss of the generator in operation, adequate provision shall be made for automatic starting and connecting to the main switchboard of a stand-by generator of sufficient capacity to permit propulsion and steering and to ensure the safety of the ship with automatic restarting of the essential auxiliaries including, where necessary, sequential operations. The Administration may dispense with this requirement for a ship of less than 1,600 gross tonnage, if it is considered impracticable.

.2 If the electrical power is normally supplied by more than one generator simultaneously in parallel operation, provision shall be made, for instance by load shedding, to ensure that, in case of loss of one of these generating sets, the remaining ones are kept in operation without overload to permit propulsion and steering, and to ensure the safety of the ship.

.3 Where stand-by machines are required for other auxiliary machinery essential to propulsion, automatic change-over devices shall be provided.

Regulation 20
Automatic control and alarm system

1 The control system shall be such that the services needed for the operation of the main propulsion machinery and its auxiliaries are ensured through the necessary automatic arrangements.

2 An alarm shall be given on the automatic change-over.

3 An alarm system complying with regulation 51 shall be provided for all important pressures, temperatures and fluid levels and other essential parameters.

4 A centralized control position shall be arranged with the necessary alarm panels and instrumentation indicating any alarm.

5 Means shall be provided to keep the starting air pressure at the required level where internal combustion engines are used for main propulsion.

Regulation 21
Special consideration in respect of passenger ships

Passenger ships shall be specially considered by the Administration as to whether or not their machinery spaces may be periodically unattended and if so whether additional requirements to those stipulated in these regulations are necessary to achieve equivalent safety to that of normally attended machinery spaces.

Regulation 22
Special Purpose Ships carrying more than 240 persons on board

Special Purpose Ships carrying more than 240 persons on board should be specially considered by the Administration as to whether or not their machinery spaces may be periodically unattended, and, if so, whether additional requirements to those stipulated

in this chapter are necessary to achieve equivalent safety to that of normally attended machinery spaces.

CHAPTER IV

ELECTRICAL INSTALLATION

Regulation 1
General Electrical Requirements

1 Electrical installations on special purpose ships 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.

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 Where the hull return system is used, al final sub-circuits, i.e. all circuits fitted after the last protective device, shall be two-wire and special precautions shall be taken to the satisfaction of the Administration.

8 Earthed distribution system shall not be used in a tanker or barge carrying liquid special purposes 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.

9 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.

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

11 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.

12 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.

13 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.

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

15 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.

16 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.

17 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.

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

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

20 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 22.

21 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.

22 No electrical equipment shall be installed in any space where flammable mixtures are liable to collect including those on board tankers or barges carrying liquid special purposes 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 essentials 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.

23 Lighting conductors shall be fitted to all masts or topmasts constructed of non-conducting materials. In ships constructed of non-conductive materials the lightning conductors shall be connected by suitable conductors to copper plate fixed to the ship's hull well below the waterline.

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 VI/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 VI/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.

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 fire pumps, if electrically operated.

6 In a ship 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 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 43ºC. 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 chapter taking into account the requirements of electrical power for operating the propulsion machinery and the size of the ship.

Regulation 6
Precautions against Shock, Fire and Other Hazards of Electrical Origin

1 All installations should be in accordance with regulation 45.1 to 45.10 inclusive of Part D chapter II-1 of SOLAS.

2 Installations on Special Purpose Ships carrying more than 60 persons on board should also be in accordance with regulation 45.11 of Part D of chapter II-1 of SOLAS.

CHAPTER *V*

Fire Protection, Detection and Extinction

Regulation 1
Application

1 Unless expressly provided otherwise, Part A applies to special purpose ships of less than 500 GT and Part B shall apply only to ships of less than 24 m in length.

PART A
(For special purpose ships of less than 500GT)

Regulation 2
Fire Pumps

1 Every special purpose ship shall be provided with at least one independent power-operated fire pump, capable of delivering a jet of water as required by Regulation V/3 paragraph 4. In ships of 150 gt and above propelled by mechanical means, such pump shall be operated by means other than the propulsion machinery of the ship.

2 Where two main fire pumps are provided, the capacity of one of the two shall not be less than 40 percent of their total capacity.

3 Sanitary, bilge, ballast or general service pumps may be accepted as fire pumps, provided that they are not normally used for pumping oil and that if they are subject to occasional duty for the transfer or pumping of oil fuel, suitable change-over arrangements are fitted.

4 Every fire pump shall be arranged to draw water directly from the sea and discharge into a fixed fire main, if any. However, in ships with high suction lifts, booster pumps and storage tanks may be installed provided such arrangement satisfies all the requirements of this Regulation.

5 Centrifugal pumps or other pumps connected to the fire main through which back flow could occur shall be fitted with non-return valves.

6 Where the fire pumps are capable of developing a pressure exceeding the design pressure of the fire mains, water service pipes, hydrants and hoses, relief valves shall be fitted. These valves shall be so placed and adjusted as to prevent excessive pressure in any part of the fire main system.

7 Location and arrangement of pumps required for the provision of water for other fire extinguishing systems required by this Regulation, their sources of power and their controls shall be installed outside the space or spaces protected by such systems and shall be so arranged that a fire in the space or spaces protected will not put any such system out of action.

8 Location and arrangements of pumps shall take into account:

.1 If a fire in any one compartment can put all the fire pumps out of action, there shall be an alternate means to extinguish the fire;

.2 An emergency fire pump shall be independently driven self-contained pump either with its own prime mover and fuel supply fitted in an accessible position outside the compartment which may be an emergency generator of sufficient capacity and positioned in a safe place outside the engine room and above the freeboard deck;

.3 The emergency fire pump, sea suction and other valves shall be operable from outside the compartment containing the main fire pump and in a position not likely to be cut off by fire in that compartment;

.4 The capacity of the emergency pump shall not be less than 40 percent of the total capacity of the fire pumps required by this Regulation.

Regulation 3
Fire Mains, Water Service Pipes and Fire Hydrants

1 A fire main shall be provided where more than one hydrant is required to provide a jet of water prescribed under paragraph 4 of this Regulation.

2 The diameter of the fire main and water service pipes shall be sufficient for the effective distribution of the maximum required discharge from the fire pump or where more than one pump is provided the discharge from at least two pumps operated simultaneously. Such diameter need only be sufficient for a discharge of 100m3/h with minimum pressure as indicated in paragraph 4.

3 In a ship where one or more main fire pumps are provided, the diameter of the fire main and of the water service pipes connecting the hydrants thereto shall be sufficient for the effective distribution of the maximum required discharge specified in paragraph 2.

4 Where only one hydrant is required, the minimum pressure at the hydrant shall be 0.21 N/mm^2 ($2.1kg/cm^2$). Where more than one hydrant is required, the main fire pump shall be capable, when discharging the maximum amount through adjacent fire hydrants with nozzles of the sizes specified in Regulation II/21, of maintaining at all hydrants a minimum pressure of 0.21 N/mm^2 ($2.1 kg/cm^2$). In any case, the maximum pressure at any hydrant shall not exceed that at which the effective control of fire hose can be demonstrated.

5 The number and position of hydrants shall be such that at least one jet of water from a single length of hose can reach any part of the ship normally accessible to the crew while the ship is being navigated and any part of any special purpose space when empty. In the case of special category spaces, at least two jets of water not emanating from the same hydrant shall reach any part of such space, each from a single length of hose. Furthermore, such hydrants shall be positioned near the accesses to the protected spaces.

6 Pipes and hydrants shall be arranged as follows:

.1 Material readily rendered ineffective by heat shall not be used for fire mains and hydrants unless adequately protected. The pipes and hydrants shall be so placed that the fire hoses may be easily coupled to them;

.2 In ships where deck special purpose may be carried, the position of the hydrants shall be such that they are always readily accessible and the pipes shall be arranged as far as practicable to avoid risk of damage by such special purpose;

.3 A valve shall be fitted to serve each fire hose so that any fire hose may be removed while the fire pumps are at work;

.4 Fire mains shall have no connections other than those required for firefighting except for the purposes of washing the deck and anchor chains or operating the chain locker bilge ejector.

Regulation 4
Fire Hoses and Nozzles

1 Every ship shall be provided with a minimum of two fire hoses.

2 Where hydrants are required in any machinery spaces, each hydrant shall be provided with a fire hose. Where practicable, fire hoses shall be connected to the hydrants in such machinery spaces.

3 Notwithstanding the requirement of paragraph 1 and 2, the Administration may increase the required number of fire hoses so as to ensure that hoses in sufficient number are available and accessible at all times, having regard to the type of ship and the nature of trade in which ship is engaged.

4 A single length of fire hose shall not exceed 20 m.

5 Fire hoses shall be oil-resistant and of approved material.

6 Fire hoses of unlined canvas shall have a diameter of not less than 64 mm. Lined hoses of at least 45 mm internal diameter having a throughput comparable to that of 64 mm internal diameter unlined canvas at corresponding pressure may be used. Fire hoses of an internal diameter not less than 32 mm may be accepted in accommodation spaces of all ships.

7 Unless one fire hose and nozzle is provided for each hydrant, there shall be complete interchangeability of fire hose coupling or nozzles.

8 Fire hoses provided in compliance with this Regulation shall not be used for any purpose other than firefighting or testing of the fire appliances.

9 Every fire hose shall be provided with an approved nozzle and the necessary couplings.

10 Nozzles shall comply with the following requirements:

.1 All nozzles shall be of dual purpose type and type-approved by the Administration;

.2 Nozzle sizes shall be 12 mm, 16 mm, 19 mm in diameter or as near thereto as possible. Larger diameter nozzles may be permitted at the discretion of the Administration.

.3 For accommodation and services spaces, a nozzle size greater than 12 mm need not be used;

.4 For machinery spaces and exterior locations, the nozzle size shall be such as to obtain the maximum discharge possible from the required jets at the pressure specified in Regulation II/19 paragraph 4 from the smallest pump, provided that a nozzle size greater than 19 mm need not be used.

Regulation 5
Portable Fire Extinguishers

1 General Requirements

.1 All fire extinguishers shall be of approved types and designs.

.2 The capacity of required portable fluid extinguishers shall be not more than 13.5 liters and not less than nine liters.

.3 The capacity of the required portable carbon dioxide extinguishers, the portable mechanical foam extinguishers and the portable dry powder fire extinguishers shall be at least equivalent to that of a nine liters fluid extinguisher.

.4 All required portable fire extinguishers shall not exceed 23 kg in weight in a fully charged condition and shall be at least as portable as 13.5 liters fluid fire extinguisher.

.5 Fire extinguishers containing an extinguishing medium which in the opinion of the Administration, either by itself or under expected conditions of use gives off toxic gasses in such quantities as to endanger persons shall not be permitted.

.6 Fire extinguisher shall be periodically examined and subjected to such tests as follows:

.1 The condition of the charges of extinguishers other than carbon dioxide extinguishers shall be checked annually. If on checking there is any indication of deterioration the charges shall be renewed and, in any case, at least every four years. A record of the annual check is to be fixed to each fire extinguisher;

.2 Carbon dioxide extinguisher and gas propellant cartridges of other extinguishers shall be examined externally for corrosion and for loss of content annually. They shall be recharged or renewed if the loss of gas by weight exceeds 10 percent of the original charge as stamped on the bottles or cartridge, or have corroded excessively externally;

.3 All portable fire extinguishers, other than carbon dioxide extinguishers, shall be tested by hydraulic pressure once every four years and the date of such test legibly marked on the extinguisher;

.4 New carbon dioxide extinguishers which do not require to be recharged, shall be tested by hydraulic pressure 20 years after manufacture and thereafter every five years;

.5 Carbon dioxide extinguishers which require recharging shall be pressure-tested before being recharged if four years have elapsed since the last hydraulic test was carried out.

.7 One of the portable fire extinguishers intended for use in any space shall be stowed near the entrance to that space.

.8 Halon fire extinguishers shall not be used.

.9 Each fire extinguisher shall, as far as it is practicable, be clearly marked on the front with a label of durable material containing the following minimum information in English;

.1 Name of manufacturer, year of manufacture and serial number;

.2 Type of fire for which the extinguisher is suitable;

.3 Type and quantity of extinguishing medium;

.4 Approval details;

.5 Pictorial and legible operating instructions;

.6 Intervals for recharging;

.7 Temperature range over which the extinguisher will operate satisfactorily;

.8 Test pressure; and

.9 Date last tested.

Regulation 6
Number of Portable Fire Extinguishers

There shall be provided a sufficient number of approved portable fire extinguishers to ensure that at least one extinguisher will be readily available for use in any part of accommodation spaces, service spaces, and control stations. For ships with length of over 24 meters, the ship's approved fire control plan shall be the basis in determining the minimum number of portable fire extinguishers required.

Regulation 7
Fixed Fire Extinguishing Systems

1 A fixed fire-extinguishing system required in this Regulation may be any of the following systems:

.1 A fixed gas fire-extinguishing system complying with the provisions of the Fire Safety Systems Code.

.2 A fixed high-expansion foam fire-extinguishing system complying with the provisions of the Fire Safety Systems Code.

.3 A fixed pressure water-spraying fire-extinguishing system complying with the provisions of the Fire Safety Systems Code.

2 Where a fixed fire-extinguishing system not required by this Regulation is installed, it shall meet the requirements of the relevant regulations of this Regulations and the Fire Safety Systems Code.

3 Fixed halogenated hydrocarbon fire-extinguishing systems shall not be used.

Regulation 8
Fire Extinguishing Systems in Machinery Spaces

1 Machinery spaces containing internal combustion machinery having a total power output of 750 kW and above shall be provided with:

.1 One (1) of the fixed fire-extinguishing systems referred to in Regulation V/7; and

.2 At least one (1) portable extinguisher suitable for extinguishing oil fires for each 750 kW of engine power output or part thereof, but the total number of such fire extinguishers so supplied shall not be less than two and need not exceed six.

2 Machinery spaces containing internal combustion type machinery having a total power output of less than 750 kW which do not comply with the requirement of paragraph 1, such spaces shall at least be provided with:

.1 At least one (1) portable fire extinguisher suitable for extinguishing oil fires for each 75 kW or part thereof of such machinery, but the total number of such extinguishers so supplied shall not be less than two and need not exceed six; or

.2 such other arrangements as the Administration considers adequate.

3 Machinery spaces containing electrical installations shall be provided with one or more fire extinguishers suitable for extinguishing electrical fire as deemed necessary by the Administration having regard to the fire hazards of electrical origin. One or more of the fire extinguishers required by this Regulation may be included in the fire extinguishers required by this paragraph.

4 Where, in the opinion of the Administration, a fire hazard exists in any machinery space for which no specific provision for fire-extinguishing appliances are prescribed in paragraphs 1 to 3, there shall be provided in, or adjacent to, that space a number of approved portable fire extinguishers or other means of fire extinction to the satisfaction of the Administration.

5 Where ships are fitted with auxiliary oil-fired boilers, a receptacle shall be provided in each firing space of every such ship which shall contain at least 0.28 m^3 of sand or other dry material suitable for quenching oil fires. Scoops shall be provided for distributing the contents of the receptacle.

Regulation 9
Fire-fighter's Axe

Special purpose ships shall be provided with at least two (2) fire-fighter's axe with handle provided with high voltage insulation, one of which shall be in an easily accessible location outside the machinery.

Regulation 10
Fire Control Plan

1 A special purpose ship of less than 500 GT with machinery space of Category A shall permanently exhibit a fire control plan approved by the Administration.

2 Fire control plan shall be kept up-to-date. Description in such plan shall be in the English language.

3 In addition, instructions concerning the maintenance and operation of all the equipment and installations on board for the fighting and containment of fire shall be kept under one cover, readily available in an accessible position.

PART B
(For special purpose ships of less than 24 meters)

Regulation 11
Fire Protection Requirements

1 The minimum number of portable fire extinguishers on board shall be as follows:

Length of ship	**Number of extinguishers**
Not over 10 m	2
Over 10 m but not over 15 m	3
Over 15 m but not over 24 m	5

2 The provisions specified in this Regulation may be relaxed to the extent as follows, except that no relaxation shall be granted to ships carrying hazardous special purposes:

.1 In lieu of the provisions specified in Regulation V/2 paragraph 1, in self-propelled ships, fire pumps may be driven by the main propulsion machinery provided that the propeller can be readily disconnected or that a controllable pitch propeller is fitted;

.2 In lieu of the provisions specified in Regulation V/4 paragraph 6, fire hoses of an internal diameter of not less than 32 mm may be accepted;

3 Such ships shall be provided with fire buckets as follows:

.1 At least three fire buckets shall be provided which shall be of a material which is not readily flammable. They shall be painted red, clearly marked with the word "FIRE BUCKET" and provided with lanyards of sufficient length, having regard to the size of the ship;

.2 The capacity of each of the fire buckets referred to in this part shall be at least nine liters;

.3 Fire buckets provided in compliance with this Regulation shall not be used for any other purpose than extinguishing fire;

4 Where the provision of fixed fire extinguishing systems is considered to be impracticable, the Administration may accept alternate arrangements.

CHAPTER VI

LIFESAVING 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 In areas where the approval of the Administration is impracticable, a surveyor from the Administration shall conduct actual testing of the rigid life raft, buoyant apparatus and life jacket. The surveyor shall provide a description of the appliances and equipment and the testing made indicating there in the observations and findings resulting from the testing conducted and should be recorded in the log book provided by the company

3 The Administration may, if it considers that the sheltered nature and conditions of the voyage are such as to render the application of any specific requirements of this Regulation unreasonable or unnecessary. Approved alternative specifications that are considered equally effective under circumstances may be allowed.

4 Where novel life-saving appliances or arrangements are to be approved, the Administration shall ensure that they provide the same safety standards as specified herein and such appliances and arrangements are evaluated and tested in accordance with the recommendations of the Organization.

Regulation 2
Exemptions

The Administration may, if it considers that the sheltered nature and conditions of the voyage are such as to render the application of any specific requirements of this chapter unreasonable or unnecessary, exempt from those requirements individual ships or classes of ships which, in the course of their voyage, do not proceed more than 20 miles from the nearest land.

Regulation 3
Training and abandon ship drills

1 Every crew member shall be trained in launching and maneuvering life-saving appliances

2 The method and instructions for use of life-saving appliances and arrangements shall be exhibited at muster stations and common crew areas.

3 Muster stations and embarkation stations for lifeboats shall be provided with lighting supplied by the emergency source of power.

4 Every crew member shall participate in at least one abandon ship drill and one fire drill every month. Each drill shall be the occasion of a training session on the use of the corresponding equipment.

5 The conduct of the above drills and corresponding training shall be recorded in a log specified by the Administration.

Regulation 4
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.

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

Regulation 5
Communications

1 Each special purpose ship shall carry:

.1 in 300 gross tonnage and above but less than 500 gross tonnage, at least 2 two-way VHF radiotelephone apparatus and at least one radar transponder stowed accessibly that it can be rapidly placed in any survival craft;

.2 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;

.3 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 6
Minimum Requirements of Life-Saving Appliances and Equipment

1 Ships engaged in international voyage shall carry life-saving appliances and equipment required under Chapter III of SOLAS 1974, as amended.

2 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 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 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;

3 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 liferaft, which shall cover up to 50% on each side (port and starboard) 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 one (1), 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;

4 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)

- 100% inflatable/rigid type liferaft, which shall cover up to 50% on each side (port and starboard) of the total number of persons the ship is authorized to carry.

.2 Lifebuoys:

.1 Every ship shall carry at least two (2) lifebuoys;

.2 50% of the required 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 7
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 in appropriate languages shall be posted at muster stations and other crew spaces.

3 Posters or signs shall be provided on or in a 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 every abandon ship drill and fire drill every month. On board training in 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-log-books as may be prescribed by the Administration.

Regulation 8
Marking of Survival Craft and other life-saving appliances

1 Survival craft (Lifeboats, liferafts, lifefloats buoyant apparatus), lifebuoys and lifejackets shall be clearly marked with the name of the ship.

2 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 and lifejackets shall be numbered.

3 The marking size shall be 5 inches in height and ¼ inch thickness.

Regulation 9
Stowage, launching and recovery of survival craft

1 Survival craft shall be stowed such that:

.1 Neither the survival craft nor its launching gear will interfere with the operation of any other survival craft at any other launching station,

.2 They are as near the water surface as is safe and practicable

.3 They are kept in a state of continuous readiness and that two members of the crew can carry out preparations for embarkation and launching in less than five minutes.

2 The arrangements for the recovery of survival craft shall be to the satisfaction of the Administration.

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

Regulation 10
Public address systems

1 Except as noted in paragraph 5, ships shall be equipped with a public address system.

2 On a ship of 20m (65 feet) or more in length, the public address system shall be a fixed installation and be audible during normal operating conditions throughout the accommodation spaces and all other spaces normally manned by crew members.

3 A ship with more than one passenger deck or with overnight accommodation shall have the public address system operable from the operating station.

4 On a ship of less than 20 m (65 feet) in length, a battery powered bullhorn may serve as the public address system where it can be demonstrated to be audible throughout the accommodation spaces of the ship during normal operating conditions. The bullhorn's batteries shall be continually maintained at a fully charged level by use of a battery charger or other means acceptable to the Administration.

5 On a ship of less than 20 m (65 feet) in length carrying less than 50 passengers, a public address system is not required where the Administration is satisfied that a public announcement made from the operating station without amplification can be heard throughout the accommodation spaces of the vessel during normal operating conditions.

Regulation 11
Record of passengers

The master of a ship making a voyage in exposed or coastal waters shall keep an accurate list of all persons, which embark on and disembark from the vessel. However, for short and repetitive voyages the Administration may request to only record the number of passengers on board. The passenger list or the passenger count shall be deposited ashore in a well-marked location.

Regulation 12
Passenger safety

1 Before getting underway on a voyage where passengers are carried, the master of a ship shall ensure that suitable public announcements are made informing all passengers of the following, as applicable to the vessel's operations and arrangement:

.1 A general explanation of emergency procedures;

.2 the location of emergency exits and survival craft embarkation areas;

.3 the stowage location of lifejackets;

.4 the proper method of putting on and adjusting lifejackets of the type carried on the vessel including a demonstration of the proper donning of a lifejacket;

.5 the location of the instruction placards for lifejackets and other lifesaving

devices; and

.6 that all passengers will be required to wear lifejackets when possible hazardous conditions exist, as directed by the master.

2 As an alternative to an announcement that complies with 1, the master or other designated person may:

.1 Prior to getting underway, deliver to each passenger or, on a ship that does not carry vehicles and that has seats for each passenger, place near each seat, a card or pamphlet that has the information listed in.1.1 to.1.6; and

.2 make an abbreviated announcement consisting of:

.1 a statement that passengers should follow the instructions of the crew in an emergency;

.2 the location of lifejackets; and

.3 that further information concerning emergency procedures including the donning of lifejackets, location of other emergency equipment, and emergency evacuation procedures are located on the card or pamphlet that was given to each passenger or is located near each seat.

3 Ships operating on short runs of less than 15 minutes may substitute bulkhead placards or signs for the announcement required in.1 and .2 where the Administration determines that the announcements are not practical due to the ship's unique operation.

Regulation 13
Muster list, emergency instructions and manuals

1 Clear instructions to be followed in the event of an emergency shall be provided of each person on board.

2 Muster lists complying with the requirements of regulation III/7 of the Convention shall be exhibited in conspicuous places throughout the craft, including the control compartment, engine room and crew accommodation spaces.

3 Illustrations and instructions in appropriate languages shall be posted in public spaces and be conspicuously displayed at assembly stations at other passenger spaces and near each seat to inform passengers of:

.1 their assembly station;

.2 the essential actions they must take in an emergency; and

.3 the method of donning lifejackets.

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

5 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.

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

7 Records shall be maintained relating to abandon ship drills, fire drills and on board training in such- deck/engine logbook as may be prescribed by the Administration.

Regulation 14
Special Purpose Ships for International Voyages

1 The requirements of Chapter III SOLAS should be applied with the specifications as provided thereto.

2 Where in chapter III of SOLAS the term “special purpose ships” is used, it should be read to mean “special purpose personnel” for the purpose of this Rules and Regulations.

CHAPTER VII

Radio Communications

Regulation 1
General Requirements

1 The requirements prescribed by the National Telecommunications Commission (NTC) shall apply to all ships.

2 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 protected against harmful effects of adverse environmental conditions;

.4 provided with reliable and 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.

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 every ship, unless otherwise specified with applicable provisions by relevant National Regulations mentioned in regulation VII/1.1, while at sea, shall maintain a continuous listening watch on:

.1 VHF channel 16;

.2 radiotelephone distress frequency 2,182 kHz.

Regulation 5
Maintenance requirements

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

2 Adequate information shall be provided to enable the equipment to be properly operated and maintained, taking into account the recommendations of the Organization.

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 ships 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
Radio logs

1 A radio log shall be maintained in accordance with the Radio Regulations in a ship which is fitted with a GMDSS radio communication station. Every qualified operator, master, officer or crew member maintaining a listening watch in accordance with Regulation X/4 shall enter in the log his name and the details of all incidents connected with the radio service 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 by the officers authorized by the Administration to make such inspection.

Regulation 8

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.

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' routeing 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 ~~so~~ 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 paragraph .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.

5 All ships shall be fitted with a steering compass and have means for taking bearings.

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/19 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 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 5.2 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 passenger 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 ships shall be fitted with a device to indicate speed and distance.

Regulation 10
Rudder Angle Indicator

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

Regulation 13
Automatic Identification System (AIS)

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

Regulation 14
Regulations on Deck 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.