

**REQUIREMENT AND TECHNICAL STANDARD FOR NON CONVENTION CARGO SHIP PERTAINING TO  
SAFETY CONSTRUCTION, RADIO, LIFE SAVING APPLIANCES AND EQUIPMENT OF RADIO  
NAVIGATIONAL AIDS**

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## CHAPTER I - GENERAL PROVISIONS

### 1. Application

(1) The Requirements should apply to ships and barges as follows:

- (a) New cargo ships of less than 500 GT
- (b) Existing ships and barges
- (c) Ship above 500 GT plying between Ports in Malaysia.

(2) The provisions of the Requirements should not apply to:

- (a) Ships of war and troop ships;
- (b) Ships and barges of less than 15 meters in length;
- (c) Pleasure crafts not engaged in any activity with pecuniary benefits;
- (d) Fishing vessels;
- (e) Wooden ships of primitive build; and
- (f) Accommodation barges.
- (g) Government ships which are not used for commercial services.

### Interpretation

2. For the purpose of the Requirements, unless expressly provided otherwise:

**"Accommodation spaces"** are those spaces used for public spaces, corridors, lavatories, cabins, offices, hospitals, cinemas, games and hobbies rooms, pantries containing no cooking appliances and similar spaces;

**"Amidships"** is at the middle of the length (L);

**"Anniversary Date"** means the day and month of each year which corresponds to the date of expiry of the relevant certificate;

**"Approved"** means approved by the Surveyor General of Ships, SG ;

**"Auxiliary means of steering"** is the equipment other than any Chapter of the main steering gear necessary to steer the ship in the event of failure of the main steering gear but not including the tiller, quadrant or components serving the same purpose;

**"Barge"** means a cargo ship not propelled by mechanical means and includes manned and unmanned barges and pontoons, but excludes accommodation barges;

**"Block Coefficient (Cb)"** is given by formula:

$$Cb = V / L \cdot B \cdot d1;$$

Where ;

V is the volume of the moulded displacement of the ship, excluding bossing, in a ship with a metal shell, and is the volume of displacement to the outer surface of the hull in a ship with a shell of any other material, both taken at a moulded draught of d1; and

d1 is 85 per cent of the least moulded depth;

L is the length as defined in this rule;

**"Breadth"** (B), unless expressly provided otherwise, is the maximum breadth in meters of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material;

**"Bridge-to-Bridge communications"** means safety communications between ships from the position from which the ships are normally navigated;

**"Bulkhead deck"** is the uppermost deck up to which the transverse watertight bulkheads are carried;

**"COLREG"** means the International Regulations for Preventing Collisions at Sea, 1972, as amended;

**"Continuous watch"** means that the radio watch concerned shall not be interrupted other than for brief intervals when the ship's receiving capability is impaired or blocked by its own communications or when the facilities are under periodical maintenance or checks;

**"Cargo ship"** is any ship which is not a passenger ship;

**"Cargo spaces"** are all spaces used for cargo (including cargo oil tanks) and trunks to such spaces;

**"Company"** means the owner of the ship or organization or person such as the manager or bareboat charterer, who has assumed the responsibility for operation of the ship from the shipowner and who on assuming such responsibility has agreed to take over all the duties and responsibility imposed by the International Safety Management Code (Res. A.741(18));

**"Control stations"** are those spaces in which the ship's radio or main navigating equipment or the emergency source of power is located or where the fire recording or fire control equipment is centralized;

**"Depth for freeboard"** (D) means:

(a) The moulded depth amidships, plus the thickness of the freeboard deck stringer plate, where fitted, plus  $[T(L-S)]/L$  if the exposed freeboard deck is sheathed, where:

L - is the length as defined;

T - is the mean thickness of the exposed sheathing clear of deck openings; and

S - is the total length of superstructures as defined in definition 65 of this regulation;

(b) In a ship having a rounded gunwale with a radius greater than 4 per cent of the breadth (B) or having topsides of unusual form is the depth for freeboard of a ship having a midship section with vertical topsides and with the same round of beam and area of topside section equal to that provided by the actual midship section;

**"Existing ship"** means a ship which is not a new ship;

**"Emergency source of electrical power"** is a source of electrical power, intended to supply the emergency switchboard in the event of failure of the supply from the main source of electrical power;

**"Fishing vessel"** is a vessel used for catching fish, whales, seals, walrus or other living resources of the sea;

**"Float-free launching"** is that method of launching a survival craft whereby the craft is automatically released from a sinking ship and is ready for use;

**"Flush deck ship"** means a ship which has no superstructure on the freeboard deck;

**"Gross tonnage"** means the tonnage as measured in accordance with the International Tonnage Convention, 1969, and for ships of less than 24 m in length in accordance with the Merchant Shipping (Tonnage) Regulations 1985 ;

**"Inflatable appliance"** is an appliance which depends upon non-rigid, gas-filled chambers for buoyancy and which is normally kept un-inflated until ready for use;

**"Launching appliance or arrangement"** is a means of transferring a survival craft or rescue boat from its stowed position safely to the water;

**"Length"** (L), measured in meters, is 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or the length from the fore-side of the stem to the axis of the rudder stock on that waterline, whichever is greater. In ships designed with a rake of keel the waterline on which this is measured shall be parallel to the designed waterline;

**"Locating"** means the finding of ships, aircraft, units or persons in distress;

**"Low flame spread"** means that the surface thus described will adequately restrict the spread of flame, this being determined to the satisfaction of the Surveyor General of Ships by an established test procedure;

**"Machinery space"** is to be taken as extending from the moulded base line to the margin line and between the extreme main transverse watertight bulkheads, bounding the spaces containing the main and auxiliary propulsion machinery, boilers serving the needs of propulsion, and all permanent coal bunkers. In the case of unusual arrangements, the Surveyor General of Ships may define the limits of the machinery spaces;

**"Machinery spaces of category A"** are those spaces and trunks to such spaces which contain:

- (a) Internal Combustion Machinery Used For Main Propulsion;
- (b) Internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less 375 kw; or
- (c) Any oil-fired boiler or oil fuel unit;

**"Main source of electrical power"** is a source intended to supply electrical power to the main switchboard for distribution to all services necessary for maintaining the ship in normal operational and habitable condition;

**"Main steering gear"** is the machinery, rudder actuators, steering gear power units, if any, and ancillary equipment and the means of applying torque to the rudder stock (e.g. tiller or quadrant) necessary for effecting movement of the rudder for the purpose of steering the ship under normal service conditions;

**"Main switch board"** is a switchboard which is directly supplied by the main source of electrical power and is intended to distribute electrical energy to the ships services;

**"MARPOL 73/78"** means the International Convention for the Prevention of Pollution from Ships, 1973 and its Protocol of 1978, as amended;

**"Maximum ahead service speed"** is the greatest speed which the ship is designed to maintain in service at sea at the deepest seagoing draught;

**"Maximum astern speed"** is the speed which it is estimated the ship can attain at the designed maximum astern power at deepest seagoing draught;

**"Moulded depth"** is:

- (a) The vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel;
- (b) In ships having rounded gunwales, it shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwale were of angular design;
- (c) Where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, it should be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part;

**"New ship"** means a ship the keel of which is laid or which is at a similar stage of construction on or after the date of adoption of the Requirements by Surveyor General of Ships. In this definition "similar stage of construction" means the stage of construction of the ship at which:

- (a) Construction identifiable with a specific ship begins; and
- (b) Assembly of that ship has commenced comprising at least 50 tonnes or one percent of the estimated mass of all structural material;

**"Non-combustible material"** is a material, which neither burns nor gives off flammable vapours in sufficient quantity for self-ignition when heated to approximately 750°C. Any other material is a combustible material;

**"Non-convention Ship"** means a ship or barge not covered by the international conventions

**"Offshore supply vessel"** means a vessel:

- (a) Which is primarily engaged in the transport of stores, material and equipment to offshore installations; and;
- (b) Which is designed with accommodation and bridge erections in the forward part of the Ship and an exposed cargo deck in the after part for the handling of cargo at sea;

**"Oil fuel unit"** is the equipment used for the preparation of oil fuel for delivery to an oil-fired boiler, or equipment used for the preparation for delivery of heated oil to an internal combustion engine, and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure of more than 0.18 N/mm<sup>2</sup>:

**"Organization"** means the International Maritime Organization;

**"Perpendiculars"** means the forward and after perpendiculars taken at the forward and after ends of the length (L). The forward perpendicular shall coincide with the fore-side of the stem on the waterline on which the length is measured;

**"Public spaces"** are those portions of the accommodation which are used for halls, dining rooms, lounges and similar permanently enclosed spaces;

**"Recognized standards"** are the applicable international or national standards or those adopted by the recognized Classification Society approved by Surveyor General of Ships

**"Rescue boat"** is a boat designed to rescue persons in distress and to marshal survival craft;

**"Retro-reflective material"** is a material which reflects in the opposite direction a beam of light directed on it;

**"Sea Area A1"** means an area within the telephone coverage of at least one VHF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.

**"Sea Area A2"** means an area, excluding sea area A1, within the telephone coverage of at least one MF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.

**"Sea Area A3"** means an area, excluding sea areas A1 and A2, within the coverage of an INMARSAT geostationary satellite in which continuous alerting is available

**"Service spaces"** are those spaces used for galleys, pantries containing cooking appliances, lockers, mail and specie rooms, store-rooms, workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces;

**"SOLAS 1974"** means the International Convention for the Safety of Life at Sea, 1974, as amended;

**"Stability Code"** means the Publication on `Code on Intact Stability for All Type of Ships Covered by IMO Instruments consists of the texts of Resolution A.749 (18).

**"STCW Convention"** means the International Convention on Standards of Training, Certification and Watchkeeping of Seafarers, 1995;

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

**"Superstructure"** is a decked structure on the freeboard deck, extending from side to side of the ship or with the side plating not being inboard of the shell plating more than 4 per cent of the breadth (B). A raised quarter deck is regarded as a superstructure;

**"Surveyor General of Ships"** as defined in the Merchant Shipping Ordinance 1952

**"Survival craft"** means a craft provided for accommodating the persons on board in the event of abandonment of the ship and includes lifeboats, liferafts and any other craft approved as suitable for the protection and preservation of persons in such circumstances;

**"Tanker"** is a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable nature;

**"Trunk"** is a decked structure on the freeboard deck set in from the sides of the ship for more than 4% of the breadth B and having no doors, windows or other similar openings in the outer bulkheads;

**"Watertight"** means capable of preventing the passage of water through the structure in any direction under a head of water for which the surrounding structure is designed;

**"Weathertight"** means that in any sea condition water will not penetrate into the ship;

**"Wooden ship of primitive build"** means a wooden ship of traditional build not primarily propelled by mechanical means

**"International Voyage"** and 'Near Coastal trade voyage' has the meaning given to it in the Ordinance

**"Domestic voyage"** means a voyage within a port or from a place to another place within the Federation waters

**"Exclusive Economic Zone waters"** has the meaning given to it in the Ordinance

**"Port Limit"** means a limit as set out in the order of the Minister in section 5 and 6 of the Ordinance

### Exemptions

3. (1) The Surveyor General of Ships within the power conferred to him by the Ordinance may where it considers that the sheltered nature and conditions of the voyage are such as to render the application of any specific provisions of the requirement unreasonable or unnecessary, exempt from those requirements individual ships or classes of ships when engaged in such voyages.
- (2) A ship which is not normally engaged on voyages where the requirement are applicable but which in exceptional circumstances is required to undertake a single voyage may be exempted by the Surveyor General of Ships within the power conferred to him by the Ordinance from any of these requirements provided that it complies with such other requirements which are, in the opinion of the Surveyor General of Ships, adequate for the intended voyage.
- (3) The Surveyor General of Ships within the power conferred to him by the Ordinance may exempt any ship which embodies features of a novel kind from any of the provisions of these Requirements the application of which might seriously impede research into development of such features and their incorporation in ships. Any such ship should, however, comply with such safety requirements which, in the opinion of the Surveyor General of Ships, are adequate for the service for which it is intended and are such as to ensure the overall safety of the ship.

### Equivalents

4. (1) Where these Regulations require that a particular fitting, material, appliance or type thereof, should be fitted or carried in a ship, or that particular provision should be made, the Surveyor General of Ships

may allow any fitting, material, appliances, or type thereof to be fitted or carried, or any other provision to be made in that ship, if it is satisfied by trials thereof or otherwise that such fitting, material, appliance, apparatus or type thereof is at least as effective as that required by these requirements.

### **Standards**

5. (1) The construction installation, structural, strength fittings, material, appliances and apparatus unless expressly provided by the requirement, should be of recognized standards.
- (2) In addition to the requirements and standards, other requirements and standards recommended by the Surveyor General of Ships may be applied whenever such requirements and standards are considered appropriate.

### **Repairs, Alterations And Modifications Of Major Character**

6. (1) Repairs alterations and modifications of a major character and outfitting related thereto on existing ships should meet the requirements prescribed for a new ship to such extent as the Surveyor General of Ships deems reasonable and practicable. The owner should inform the Surveyor General of Ships of the proposed alterations and modifications before such alterations and modifications are carried out.
- (2) For the purpose of these requirements, the following repairs, alterations and modifications should be recognized as being of "major character":
  - (a) Any changes that substantially alters the dimensions of the ship;
  - (b) Any changes that substantially increase a ship's service life; or
  - (c) Any conversions that alters the functional aspects of the Ship.

### **Carriage or Cargoes**

7. (1) Ships and barges carrying cargoes specified below should comply with the applicable requirements of Chapters VI and VII of SOLAS 1974, as amended:
  - (a) Grain cargo in bulk;
  - (b) Other cargoes in bulk;
  - (c) Dangerous cargoes in packaged form or in bulk;
  - (d) Liquid chemicals in bulk; and
  - (e) Liquefied gases in bulk.

### **Management Of Safety And Environment Protection**

- 8 (1) The Company should be responsible for compliance with the applicable provisions of the requirement and for maintenance and operation of the ship.
- (2) The Company and the Master of the ship should comply with the requirements of the International Safety Management Code (ISM Code) under Chapter IX, SOLAS 1974, when and as required by the Surveyor General of Ships.

### **Ship's Plans, Signs, Instruction Manuals, Name Plates And Language Used**

- 9 (1) Ship's name plates, signs, instructions, notices, plans and documents on board ships relating to safety and operation of the ship and its machinery should be drawn up in the English and Bahasa Melayu languages.
- (2) Ships propelled by mechanical means should carry adequate information including drawings, plans and instruction manuals necessary for their safe operation and safety of life at sea.

### **Casualties**

10. In the event of an accident involving the ship resulting in loss of life or the ship being materially damaged, stranded, abandoned or lost the master or the owner should inform the Port Officer as required under the Ordinance immediately.

## CHAPTER II- GENERAL ASPECTS OF INSPECTIONS, SURVEYS AND MARKINGS

- 11 (1) The inspection, survey and marking of non-convention ships, so far as regards the enforcement of the requirements and the granting of exemptions therefrom, should be carried out by officers appointed under section 10 of the Ordinance.

### Surveys

- 12 The surveys referred to the Rules under the Ordinance should be carried out as follows:

- (1) The initial survey before the ship is put into service should be such as to ensure that arrangements, equipment and systems specified below comply fully with the Requirements and the workmanship of all such parts and equipment is in all respects satisfactory:
- (a) the arrangements, materials and scantlings of the structure;
  - (b) boilers and other pressure vessels;
  - (c) main and auxiliary machinery including steering gear and associated control systems;
  - (d) fire safety systems and appliances, life-saving appliances and arrangements, navigational equipment, nautical publications, means of embarkation for pilots;
  - (e) radio installation including those used in life-saving appliances;
  - (f) arrangements for the control of discharge of oil and for the retention of oil on board;
  - (g) provision of the lights, shapes, means of making sound signals and distress signals as required by the provisions of Merchant Shipping (Collision Regulation) Order 1984;
  - (h) the arrangements, materials and scantlings fully comply with the requirements of Load Line Rules under the Ordinance relating to the conditions for assignment of load lines and freeboard;
- (2) The renewal survey should include an inspection of the equipment referred to in **paragraph (12)(1)** to ensure that it complies with the relevant requirements and Merchant Shipping (Collision Regulation) Order 1984;
- (3) The periodical survey should include an inspection with tests where necessary of the equipment to ensure that the requirements relating to the life-saving appliances, fire appliances and the light and sound signals are complied with and that they are in satisfactory condition and are fit for the service for which the ship is intended. All certificates, record books, operating manuals and other instructions and documents a specified should be checked for their adequacy.
- (4) The intermediate survey should include an inspection of items relating to Load Line Rules under the Ordinance to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended. When inspecting items of hull and machinery for detailed examination, due account should be taken of any continuous survey schemes adopted
- (5) The annual survey should include an inspection to ensure that:

- (a) the equipment referred to in **paragraph (12)(1)** remains satisfactory for the service for which the ship is intended;
  - (b) alterations have not been made to the hull or superstructures which would affect the calculations determining the position of the load lines;
  - (c) the fittings and appliances for the protection of openings, guard rails, freeing ports and means of access to crew's quarters are maintained in an effective condition;
- (6) An additional survey either general or partial, according to the circumstances, should be made after a repair resulting from investigations whenever an accident occurs to a ship or a defect is discovered, either of which affects the safety of the ship or whenever any important repair or renewals are made. The survey should be such as to ensure that the repairs and renewals are effectively made;
  - (7) A minimum of two inspections of the outside of the ship's bottom during any five-year period except where so authorized by the Surveyor General of Ships. As far as practicable the interval between any two such inspections should not exceed 36 months. The inspection of the outside of the ship's bottom and the survey of related items inspected at the same time should be such as to ensure that they remain satisfactory for the service for which the ship is intended. Preferably the inspection should coincide with the renewal survey.
  - (8) The periodical/intermediate and the annual surveys referred to the Rules should be endorsed on the Certificate.
  - (9) Where a ship complies with the requirements partially and complies with the relevant provisions of any other Rules under the Ordinance, the Surveyor General of Ships should ensure that prior to issue of any certificate under Ordinance compliance with such provisions of the other Rules is assured.

#### **Maintenance of Condition after Survey**

13.

- (1) The condition of the ship and its equipment should be maintained by the master and company to conform with the provisions of these requirements to ensure that the ship in all respects will remain fit to proceed to sea without danger to the ship, persons on board or the marine environment.
- (2) After any survey of the ship under this Chapter is completed, no change should be made in the structural arrangements, machinery, equipment and other items covered by the survey, without the sanction of the Surveyor General of Ships.
- (3) Whenever an accident occurs to the ship or a defect is discovered, either of which affects the safety of the ship or the efficiency or completeness of its life-saving appliances or other equipment, a request shall be made immediately to the Surveyor General of Ships responsible for issuing the relevant certificate for a survey as may be required by **paragraph 12**, to be carried out as soon as practicable.

#### **Issue Or Endorsements Of Certificates**

- 14. (1) Subject to the Rules under the Ordinance and provisions of **paragraph 12(9)** of this requirements, a Merchant Shipping (Non-Convention) Cargo Ships Safety Equipment Certificate and a Merchant Shipping (Non-Convention) Cargo Ships Safety Construction Certificate, should be issued after an initial or renewal survey, specified in **paragraph 12(1)** of this requirement, to a ship which complies to these requirements. In any case, the Surveyor General of Ships should ensure the completeness of the inspections prior to the issue of any certificates.
- (2) The Merchant Shipping (Non-Convention) Cargo Ships Safety Equipment Certificate issued under the provisions of Paragraph (1) should be supplemented by a Record of Cargo Ships Safety Equipment Certificate (Form E).

- (3) When an exemption is granted by the Surveyor General of Ships to a ship in accordance to Rules under the Ordinance from this requirements a Merchant Shipping (Non-Convention) Cargo Ship Exemption Certificate should be issued in addition to the Certificate prescribed in the Requirements. The exemption certificate should be attached to the certificate to which it refers.
- (4) The Certificate referred to in this Requirement should be issued or endorsed either by the Surveyor General of Ships or by any person authorized by him. In any case, the Surveyor General of Ships should assume full responsibility for the Certificate.

### Duration and Validity of Certificates

- 15 (1) A Merchant Shipping (Non-Convention) Cargo Ships Safety Equipment Certificate shall be issued for a period not exceeding five (5) years. A Merchant Shipping (Non-Convention) Cargo Ships Safety Construction Certificate should be issued for a period as specified by the Surveyor General of Ships. Such period should not exceed five years. A Merchant Shipping Non Convention Cargo Ships Exemption Certificate should not be valid for a longer period than the period of the certificate to which it relates.
- (2) Notwithstanding the requirements of **paragraph 15(1)**, when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate should be valid from the date of completion of the renewal survey to a date not exceeding five (5) years from the date of expiry of the existing certificate.
- (3) When the renewal survey is completed after the expiry date of the existing certificate, the new certificate should be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate.
- (4) When the renewal survey is completed more than three months before the expiry date of the existing certificate, the new certificate should be valid from the date of completion of the renewal survey to a date not exceeding five (5) years from the date survey of completion of the renewal
- (5) If the certificate is issued for a period of less than 5 years, the Surveyor General of Ships may extend the validity of the certificate beyond the expiry date to the maximum period specified in **paragraph 15(1)**, provided that the applicable surveys referred to in **paragraph 14** for the issue of the certificate for five (5) years are carried out.
- (6) If a renewal survey has been completed and the new certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the person authorized by the Surveyor General of Ships may endorse the existing certificate and such certificate should be accepted as valid for a further period which should not exceed two (2) months from the expiry date.
- (7) If a ship at the time when the certificate expires is not in a port in which it is to be surveyed, the Surveyor General of Ships may extend the period of validity of the certificate but this extension should be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and only in cases where it appears proper and reasonable to do so. No certificate should be extended for a period longer than two (2) months, and a ship to which such an extension is granted should not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without a new certificate. Where the renewal survey is completed the new certificate should be valid to a date not exceeding five (5) years from the date of expiry of the existing certificate before the extension was granted.
- (8) In special circumstances, as determined by the Surveyor General of Ships, a new certificate need not be dated from the date of expiry of the existing certificate as required by **Paragraph 15(2), 15(5) and 15(7)**. In these special circumstances the new certificate should be valid to a date not exceeding five years from the date of the completion of the renewal survey.
- (9) If an annual or periodical/intermediate survey is completed before the period specified in Rules under the Ordinance;

- (a) The anniversary date shown on the relevant certificate should be amended by endorsement to a date which should not be more than three months later than the date on which the survey was completed;
  - (b) The subsequent annual or periodical survey required by the relevant regulations should be completed at the intervals prescribed by the rules under the ordinance using the new anniversary date;
  - (c) The expiry date may remain unchanged provided one or more annual or periodical surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by the relevant regulations are not exceeded.
- (10) A certificate issued should cease to be valid in any of the following cases:
- (a) If the relevant surveys and inspections are not completed within the periods specified;
  - (b) If the certificate is not endorsed;
  - (c) Upon transfer of the ship to the flag of another State.

#### **Form Of Certificates**

- 16 The Merchant Shipping (Non-Convention) Cargo Ships Safety Equipment Certificate, the Merchant Shipping (Non-Convention) Cargo Ships Safety Construction Certificate, the Merchant Shipping (Non Convention) Cargo Ships Exemption Certificate and the Record of Cargo Ships Safety Equipment (Form E) should be drawn up in a form corresponding to the format in the English Language as attached to this Notice. (Schedule 1)

#### **Availability Of Certificates**

- 17 The certificates issued under this Requirement should be readily available on board for examination at all times.

## CHAPTER III - CONSTRUCTION AND EQUIPMENT

### General Provision

18. (1) All machinery and electrical installations, mechanical and electrical equipment and appliances, boilers and other pressure vessels, associated piping systems, fittings and electrical cables and wiring should be of a design and construction adequate for the service for which they are intended and should 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 should 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.

### Construction

19. (1) The strength and construction of hull, superstructures, deckhouses, machinery casing companion ways and any other structure and equipment should 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 Surveyor General of Ships may be considered as adequate in this respect.
- (2) Ships propelled by mechanical means should be fitted with a collision bulkhead in accordance with **paragraph 21** and with watertight bulkheads bounding the machinery spaces. Such bulkheads should be extended up to the freeboard deck. In ships constructed of wood such bulkheads should be watertight as far as practicable.
- (3) Propeller shafts and shaft logs or stem tubes should 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 Surveyor General of Ships. The Surveyor General of Ships 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 thus impaired.
- (4) Stern glands should be located in spaces which are easily accessible at all times for inspection and maintenance to the satisfaction of the Surveyor General of Ships

### Collision Bulkhead

20. (1) For the purpose of this Requirement freeboard deck, length of ship and perpendiculars (forward and aft) have the meanings as defined in **Paragraph 2**.
- (2) A collision bulkhead should be fitted which should be watertight up to the freeboard deck. This bulkhead should, as far as practicable, be located at a distance from the forward perpendicular of not less than 5 per cent and not more than 8 per cent of the length of the ship. Where it can be shown to the satisfaction of the Surveyor General of Ships that it is impractical for the collision bulkhead to be located at distance from the forward perpendicular of not more than 8 per cent of the length of the ship, the Surveyor General of Ships 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 20(2)**. Pipes piercing the collision bulkhead should be kept to the minimum. Such pipes should be fitted with suitable valves operable from above the freeboard deck and the valve chest should be secured at the collision bulkhead inside the forepeak. The Surveyor General of Ships may permit the location of such valves on the after side of the collision bulkhead provided that they are readily accessible under all services conditions and the space in which they are located is not a cargo space. All such valves should be of material acceptable to the Surveyor General of Ships.

- (4) Where a long forward superstructure is fitted, the collision bulkhead should be extended weathertight to the deck immediately above the freeboard deck. The extension should, subject to the requirements of **Paragraph 20(3)**, be located within the limits prescribed in **Paragraph 20(2)**. The part of the deck, if any, between the collision bulkhead and its extension should 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 Surveyor General of Ships, above the freeboard deck may extend no more than 1 m forward of the forward limits specified in **Paragraph 20(2)**. The ramp should be weathertight over its complete length.
- (6) The number of openings in the extension of the collision bulkhead above the freeboard deck should be reduced to the minimum compatible with the design and normal operation of the ship. All such openings should 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 should be watertight and provided with efficient means of drainage.
- (9) A chain locker should not be used for any purpose other than stowage of anchor chain cables.

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

- 21. (1) The following requirement should apply to new ships propelled by mechanical means and should not apply to ships the hull of which is constructed of wood.
- (2) Each watertight subdivision bulkhead, whether transverse or longitudinal, should be constructed in such a manner that it should 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 should be to the satisfaction of the Surveyor General of Ships
- (3) Steps and recesses in bulkheads should 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 should be made structurally watertight to the satisfaction of the Surveyor General of Ships.
- (5) The number of openings in watertight bulkheads should be reduced to the minimum compatible with the general arrangements and operational needs of the ship. Openings should be fitted with watertight closing appliances to the satisfaction of the Surveyor General of Ships. Watertight doors should be of equivalent strength to the adjacent unpierced structure.
- (6) Watertight decks, trunks, tunnels, duct keels and ventilators should 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, should be to the satisfaction of the Surveyor General of Ships. Watertight ventilators and trunks should be carried at least up to the freeboard deck.
- (7) Testing main compartments by filling them with water is not compulsory. When testing by filling with water is not carried out, a hose test should be carried out in the most advanced stage of the

fining out of the ship. In any case, a thorough inspection of watertight bulkheads should be carried out.

- (8) The forepeak, double bottom tanks (including duct keels) and inner skins should be tested with water to a head corresponding to the requirements of **paragraph 21(2)**.
- (9) Tanks which are designed to hold liquids, and which form part of the subdivision of the ship, should 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 should the test head be less than 0.9 meter above the top of the tank.
- (10) The tests referred to in **paragraphs 21(8)** and **21(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 connection.

### **Means For Sounding**

22. (1) Means for sounding, to the satisfaction of the Surveyor General of Ships should be provided for:
  - (a) The bilges of those compartments which are not readily accessible at all times during the voyage; and
  - (b) All tanks and cofferdams.
- (2) Where sounding pipes are fitted, their upper ends should be extended to a readily accessible position and, where practicable, above the freeboard deck. Their openings should be provided with permanently attached means of closing. Sounding pipes which are not extended above the freeboard deck should be fitted with automatic self-closing devices.

### **Anchoring And Mooring Equipment**

23. (1) At least two anchors of sufficient weight should be provided. One of these should 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 handling equipment and arrangements should be to the satisfaction of the Surveyor General of Ships. The Surveyor General of Ships 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 should be:
  - (a) Properly designed to meet all foreseeable operational loads and conditions;
  - (b) Correctly seated; and
  - (c) Effectively secured to a part of the ship's structure which is strengthened suitably.

### **Requirements Of Towing And Pushing Arrangements Provided On Tugs**

24. (1) The design of the towing gear should be such as to minimize the overturning moment due to the lead of the towline. It should have a positive means of quick release, which can be relied upon to function correctly under all operating conditions and released from the position from which towing operations are controlled.

- (2) Where a towing hook is provided with a quick release mechanism such mechanism should be controlled, as far as practicable, from the navigating bridge, the after control position, if fitted, and at the hook itself.
- (3) When a pushing tug and a barge pushed ahead are rigidly connected in a composite unit, the tug-barge coupling system should be capable of being controlled and powered from the tug. Disassembly should be capable of being made without causing damage to the tug or the barge.
- (4) Every tug should be provided with at least one axe of sufficient size on each side of the ship so as to readily available for cutting the towline free in an event of an emergency.
- (5) Sufficient spare equipment to completely remake the towing and mooring arrangements for the tow should be available on the tug.
- (6) Secondary or emergency towing arrangements should be fitted on board the barge so as to be easily recoverable by the towing tug in the event of failure of the main towing wire or failure of ancillary equipment.

### **Mooring And Towing Arrangements For Barges**

- 25. (1) The towing and mooring arrangements should be such as to reduce to a minimum any danger to personnel during towing or mooring operation. Such arrangements should be suitable for the particular type of barge and of adequate strength.
- (2) The design and arrangements of fittings or equipment for towing and mooring of barges should be to the satisfaction of the Surveyor General of Ships and should take into account both normal and emergency conditions.
- (3) In addition, tugs and barges should comply with the applicable requirements for the safety of towed ships and other floating objects recommended by the Surveyor General of Ships.

### **General Protection Measures Against Accidents**

- 26. (1) Hinged covers of hatchways, manholes and other similar opening should be protected against accidental closing. In particular, heavy covers on escape hatches should be equipped with counter weights. Escape doors and covers of escape and access hatches should be so constructed as to be capable of being opened from either side of the door or cover.
- (2) The dimensions of access hatches should be such that it will allow a person to have a quick and easy escape to a safe place in the event of an emergency. Where practicable, the dimensions of access hatches of cargo and machinery spaces should be such that they will facilitate expeditious rescue operation.
- (3) Handrails, grab rails and handholds of sufficient size and strength should be provided to the satisfaction of the Surveyor General of Ships as for persons when the ship is severely rolling or pitching.
- (4) Skylights of machinery spaces or other similar openings, which are normally kept open at sea should be provided with adequately spaced protective bars or other arrangements to the satisfaction of the Surveyor General of Ships to prevent a person from falling into the space accidentally. Where the size of such an opening is small, the Surveyor General of Ships may waive this requirement if satisfied that due to the small size of the opening no protective arrangement is necessary.

## CHAPTER IV - STABILITY REQUIREMENTS

27. The following IMO Resolutions should be applied to vessels greater than 24 metres in length:
- (1) The Intact Stability Code for Cargo Vessels (Resolution A.749 (18)),
  - (2) IMO Resolution MSC.235(82) for offshore supply vessels.
28. For vessels less than 24 metres in length the Requirement of Intact Stability Code or IMO Resolution MSC.235(82) for offshore supply vessels, should be complied with, as far as practicable to the satisfaction of the Surveyor General of Ship.
29. Subdivision and Damage Stability
- (1) For Subdivision Damage assumption and damage stability criteria shall comply with Resolution MSC.235(82)
30. Peak and Machinery Space Bulkheads, Shaft Tunnels, etc.
- (1)
    - (a) A ship shall have a forepeak or collision bulkhead, which shall be watertight up to the bulkhead deck. This bulkhead shall be fitted not less than 5 per cent of the length of the ship, and not more than 3.05 meters plus 5 per cent of the length of the ship from the forward perpendicular.
    - (b) If the ship has a long forward superstructure, the forepeak bulkhead shall be extended weathertight to the deck next above the bulkhead deck. The extension need not be fitted directly over the bulkhead below, provided it is at least 5 per cent of the length of the ship from the forward perpendicular, and the part of the bulkhead deck which forms the step is made effectively weathertight.
  - (2) An afterpeak bulkhead, and bulkheads dividing the machinery space, from the cargo and crew spaces forward and aft, shall also be fitted and made watertight up to the bulkhead deck. The afterpeak bulkhead may be stepped below the bulkhead deck, where the degree of the safety of the ship as regards subdivisions is not thereby diminished.
  - (3) In all cases stern tubes shall be enclosed in watertight spaces of moderate volume. The stern gland shall be situated in a watertight shaft tunnel or other watertight space separate from the stern tube compartment and such volume that, if flooded by leakage through the stern gland, the margin line will not be submerged.
  - (4) Fuel oil shall not be carried in the peak tanks.

### Inclining Tests And Stability Information

31.
  - (1) Every ship should undergo an inclining test upon its completion and the actual displacement and position of the center of gravity should be determined for the light ship condition.
  - (2) Where alterations are made to a ship affecting its light condition and the position of the center of gravity, the ship should, if the Surveyor General of Ships considers this necessary, be re-inclined and the stability information amended.
  - (3) The Surveyor General of Ships may allow the inclining test of an individual ship to be dispensed with provided that reliable stability information for the exempted ship can be obtained from basic data available from the inclining test of a sister ship and that during the construction the same weights of components and weight distribution is observed.
  - (4) The Surveyor General of Ships may dispense the inclining test of a cargo ship or a class of ships especially designed for the carriage of liquids or ore in bulk, when reference to existing data for

similar ships clearly indicates that due to ship proportions and arrangements more than sufficient transverse metacentric height will be available in all probable loading conditions.

- (5) Stability information approved by the Surveyor General of Ships or any person authorised by him should be supplied to ships propelled by mechanical means to enable the master to assess with ease and certainty the stability of the ship under various operating conditions. Such information should include specific instructions to the master warning him of those operating conditions which could adversely affect either stability or the trim of the ship.
- (6) In particular, the information recommended in the **Paragraph 27 to 30** should be included as appropriate. A copy of the stability information should be submitted to the Surveyor General of Ships.
- (7) The approved stability information should be kept on board, readily accessible at all times and inspected at the periodical surveys of the ship to ensure that it has been approved and the condition of the ship since its approval has not changed.
- (8) Where alterations are made to a ship affecting its stability, revised stability calculations should be prepared and submitted to the Surveyor General of Ships for approval. Such revised information should be supplied to the master and the superseded information removed from the ship.

### **Bilge Pumping Arrangements**

32. (1) An efficient bilge pumping arrangement should be provided which under all practical conditions should be capable of pumping from and draining any watertight compartment other than a space permanently appropriated for the carriage of fresh water, water ballast, oil fuel or liquid cargoes for which other efficient means for pumping are provided. Where the Surveyor General of Ships is satisfied that the safety of the ship is not impaired the bilge pumping arrangements may be dispensed with in any particular compartment and unmanned barges without machinery spaces.
- (2) The arrangement of the bilge and ballast pumping system should be such as to prevent the possibility of water passing from the sea and from water ballast spaces into the cargo and machinery spaces, or from one compartment to another.
- (3) All distribution boxes and manually operated valves in connection with the bilge pumping arrangements should be in positions which are accessible under ordinary circumstances.
- (4) At least two (2) bilge pumps connected to the main bilge system should be provided, one of which may be driven by the propulsion machinery. The total capacity of the required bilge pumps should not be less than 125% of the total capacity of the required main fire pump referred to in **paragraph 55**.
- (5) Sanitary, ballast and general service pumps provided with suitable connections for bilge suction may be accepted as independent power bilge pumps.
- (6) A bilge ejector in combination with an independently driven high pressure sea-water pump may be installed, provided this arrangement is to the satisfaction of the Surveyor General of Ships.
- (7) Bilge pipes should not be led through fuel oil, ballast or double bottom tanks, unless pipes are of heavy gauge steel construction.

**CHAPTER V - MACHINERY INSTALLATION**  
**(Not Applicable To Unmanned Barges)**

**General Requirements**

33. (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 should be subjected to appropriate tests including a pressure test before being put into service.
- (2) Means should be provided to ensure that the machinery could be brought into operation from the dead ship condition without external aid.
- (3) Adequate provisions should 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 should 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 subject to internal pressure and may be subject to dangerous overpressure, means should be provided where 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 should be so designed and constructed that they will withstand the maximum working stresses which may be subjected in all service conditions, and due consideration should be given to the type of engines by which they are driven or of which they form part.
- (7) Main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery should 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 Surveyor General of Ships may permit provisions for overriding automatic shutoff devices.
- (8) Internal combustion engines of a cylinder diameter of 200mm or a crankcase volume of 0.6 m<sup>3</sup> and above should be provided with crankcase explosion relief valves of a suitable type with sufficient relief area. The relief valves should be arranged or provided with means to ensure that discharge from them is so directed as to minimize the possibility of injury to personnel.

**Machinery Controls**

34. (1) Main and auxiliary machinery essential for the propulsion and safety of the ship should be provided with effective means for its operation and control.
- (2) Means should be provided whereby normal operations of propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative. Special consideration should be given to the malfunctioning of:
- (a) An electrical power generator which serves as a main source of electrical power;
  - (b) The sources of lubricating oil pressure;
  - (c) The fuel oils supply systems for engines;
  - (d) The sources of water pressure;
  - (e) An air compressor and receiver for starting or for control purposes;
  - (f) The hydraulic, pneumatic or electrical means for control in main propulsion machinery including controllable pitch propellers; and

- (g) Steam boilers and boiler feed systems, if provided.
- (3) However, the Surveyor General of Ships, having regard to overall safety considerations may accept a partial reduction in propulsion capability from normal operation.
- (4) Special consideration should be given to the design, construction and installation of propulsion machinery system so that any mode of their vibrations should not cause undue stresses in machinery in its normal operating ranges.

### **Remote Control of Propulsion Machinery**

35. (1) Where remote control of propulsion machinery from the navigating bridge is provided and the machinery spaces are intended to be manned, the following should apply:
- (a) The speed, direction of thrust and, if applicable, the pitch of the propeller should be fully controllable from the navigating bridge under all sailing conditions, including maneuvering;
  - (b) The remote control should be performed, for each independent propeller, by a control devices 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;
  - (c) The main propulsion machinery should be provided with an emergency stopping device on the navigating bridge which should be independent of the navigating bridge control system;
  - (d) Propulsion machinery orders from the navigating bridge should be indicated in the main machinery control room or at the manoeuvring platform as appropriate;
  - (e) Remote control of the propulsion machinery should be possible only from one location at a time; at such locations interconnected control positions are permitted. At each location there should be an indicator showing which location is in control of the propulsion machinery. The transfer of control between the navigating bridge and machinery spaces should be possible only in the main machinery space or the main machinery control room. This system should include means to prevent the propelling thrust from altering significantly when transferring control from one location to another;
  - (f) It should be possible to control the propulsion machinery locally, even in the case of failure in any part of the remote control system;
  - (g) The design of the remote control system should be such that in case of its failure an alarm will be given. Unless the Surveyor General of Ships considers it impracticable the preset speed and direction of thrust of the propellers should be maintained until local control is in operation;
  - (h) Indicators should be fitted on the navigating bridge for:
    - (i) propeller speed and direction of rotation in the case of fixed pitch propellers;
    - (ii) propeller speed and pitch position in the case of controllable pitch propellers;

- (k) An alarm should be provided on the navigating bridge and in the machinery space to indicate low starting air pressure or low electrical power which should be set at a level to permit further main engine starting operation. If the remote control systems of the propulsion machinery are designed for automatic starting, the number of automatic consecutive attempts which fail to produce a start should be limited in order to safeguard sufficient starting air pressure or adequate electrical power for starting
- (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 should 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 should be given to protect such spaces against fire and flooding.

### **Periodically Unattended Machinery Spaces (If Installed)**

- 36. (1) Ships having periodically unattended machinery spaces should, as far as practicable and reasonable in the opinion of the Surveyor General of Ships, comply with the applicable requirements of SOLAS 1974 for such machinery spaces.
- (2) Where alternative arrangements are provided the Surveyor General of Ships should ensure that:
  - (a) The safety of the ship in all sailing conditions, including manoeuvring, is equivalent to that of a ship having manned machinery spaces;
  - (b) Documentary evidence indicating that such arrangements are satisfactory is provided.

### **Steam Boilers And Boiler Feed Systems (If Installed)**

- 37. (1) Every steam boiler and every unfired steam generator should 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 Surveyor General of Ships 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 should 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, should be provided with not less than two separate feedwater 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 should be provided which will prevent overpressure in any part of the systems.
- (4) Boilers should be provided with means to supervise and control the quality of the feedwater. Suitable arrangements should 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 should be provided with at least two means for indicating its water level, at least one of which should be a direct reading gauge glass.
- (6) Water tube boilers serving turbine machinery should be fitted with a high-water-level alarm.

### **Steam Pipe Systems (If Installed)**

38. (1) Every steam pipe and every fitting connected thereto through which steam may pass should be so designed, constructed and installed as to withstand the maximum working stresses to which it may be subjected.
- (2) Means should 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, relief valve or pressure gauge should be fitted.

#### **Air Pressure Systems (If Installed)**

39. (1) In every ship means should be provided to prevent overpressure in any part of compressed air systems and wherever water jackets or casings of air compressors and coolers might be subjected to dangerous overpressure due to leakage into them from air pressure parts. Suitable pressure relief arrangements should be provided for all systems.
- (2) The main starting air arrangements for main propulsion internal combustion engines should be adequately protected against the effects of backfiring and internal explosion in the starting air pipes.
- (3) All discharge pipes from starting air compressors should lead directly to the starting air receivers, and all starting pipes from the air receivers to main or auxiliary engines should be entirely separate from the compressor discharge pipe system.
- (4) Provision should be made to reduce to a minimum the entry of oil into the air pressure systems and to drain these systems.

#### **Ventilation Systems In Machinery Spaces**

40. (1) Machinery spaces of category A should 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 should be adequately ventilated appropriate for the purpose of that machinery space.
- (2) In addition to complying with the requirements of **paragraph 40(1)**, the ventilation of machinery spaces should also be sufficient under all normal conditions to prevent accumulation of oil vapor.

#### **Protection Against Noise**

41. (1) Measures should be taken to reduce machinery noise in machinery spaces to acceptable levels as determined by the Surveyor General of Ships. If this noise cannot be sufficiently reduced, the source of excessive noise should be suitably insulated or isolated or a refuge from noise should be provided if the space is required to be manned. Ears protectors should be provided for personnel required to enter such spaces, if necessary.

#### **Means Of Going Astern**

42. (1) Sufficient power for going astern should 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, should be demonstrated and recorded.
- (3) The stopping times, ship headings and distances recorded on trials, together with the results of trials to determine the ability of ships having multiple propellers to navigate and manoeuvre with one or more propellers inoperative, should be available on board for the use of the master or designated personnel.

- (4) Where the ship is provided with supplementary means for manoeuvring or stopping, the effectiveness of such means should be demonstrated and recorded as referred to in **paragraphs 42(2) and 42(3)**.

### Steering Gear

43. (1) Unless expressly provided otherwise, every ship should be provided with a main steering gear and subject to the provisions of **paragraph 43(4)**, with an auxiliary means of steering the ship in the event of failure of the main steering gear.
- (2) The main steering gear should be of adequate strength and capable of steering the ship at maximum ahead service speed. The main steering gear and rudder stock should be so designed that they will not be damaged at maximum astern speed.
- (3) The auxiliary means of steering should be of adequate strength and capable of steering the ship at navigable speed and of being brought speedily into action in an emergency.
- (4) Where power-operated main and auxiliary steering gear units are provided:
- (a) The main steering gear should be capable of putting the rudder over from 35° on one side to 35° on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35° on either side to 30° on the other side in not more than 28 seconds;
- (b) The auxiliary steering gear should be capable of putting the rudder over from 15° on one side to 15° on the other side in not more than 60 seconds with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater.
- (c) Where power operated main steering gear units and the connections are fitted in duplicate and each unit complies with the provisions of **paragraph 43(3)** no auxiliary steering unit need be required.
- (5) The main steering power unit should be arranged to restart either by manual or automatic means when power is restored after a power failure.
- (6) In the event of a power failure to any one of the steering gear power units, an audible and a visual alarm should be given on the navigating bridge.
- (7) The angular position of the rudder, if the main steering gear is power-operated, should be indicated on the navigating bridge. The rudder angle indication should be independent of the steering gear control system.
- (8) Where a non-conventional rudder is installed, the Surveyor General of Ships should 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 this requirements is provided.
- (9) A means of communication should be provided, where necessary, between the navigating bridge and the steering gear compartment.

### Communication between Navigating Bridge and Machinery Space

44. (1) Ships should 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 should be an engine-room telegraph. The arrangement of these means should be to the satisfaction of the Surveyor General of Ships.

- (2) The engine-room telegraph referred to in paragraph 44(1) may be dispensed with if the main propulsion engine is directly controlled from the navigating bridge under normal operating conditions.
- (3) In lieu of meeting the requirements of paragraph 44(1), ships of less than 24 m in length may be provided with only one means for communication referred to in paragraph I if the Surveyor General of Ships is satisfied that, due to close proximity of the navigating bridge and the position of local control of the main propulsion machinery, two means of communication are not necessary.
- (4) Appropriate means of communication should be provided to any position (other than navigating bridge) from which the engines may be controlled

### **Engineer's Alarm**

- 45. An engineer's alarm should be provided to be operated from the engine control rooms or at the manoeuvring platform as appropriate and should be clearly audible in the engineers' accommodation. The Surveyor General of Ships 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 manoeuvring platform and the engineer's accommodation, no engineer's alarm is necessary.

## CHAPTER VI - ELECTRICAL INSTALLATIONS

### General Electrical Requirements

46. (1) Electrical installations on ships and manned barges should comply with the requirements of this chapter, except as provided otherwise in **Paragraph 50**.
- (2) Electrical installations should be such that:
- (a) 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;
  - (b) Electrical services essential for safety will be ensured under various emergency conditions; and
  - (c) The safety of crew and ship from electrical hazards will be ensured.

### Safety Precautions

47. (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 should be earthed unless the machines or equipment are:
- (a) Supplied at a voltage not exceeding 55 V direct current or 55 V, root mean square between conductors. Auto-transformers should not be used for the purpose of achieving this voltage; or
  - (b) Supplied at a voltage not exceeding 250 V by safety isolating transformers supplying only one consuming device; or
  - (c) Constructed in accordance with the principle of double insulation.
- (2) The Surveyor General of Ships 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 should be so 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 as may be needed to apparatus and equipment, without danger to personnel. The sides and the rear and, where necessary, the front of switchboards should be suitably guarded. Exposed live parts having voltages to earth exceeding a voltage to be specified by the Surveyor General of Ships should not be installed on the front of such switchboards. Where necessary, non-conducting mats or gratings should be provided at the front and rear of the switchboard.
- (5) The hull return system of distribution should not be used for any purpose in a tanker or a barge carrying liquid cargoes of flammable nature in bulk.
- (6) The requirement of **paragraph 47(5)** does not preclude under conditions approved by the Surveyor General of Ships the use of:

- (a) Impressed current cathodic protective systems;
  - (b) Limited and locally earthed systems (e.g. Engine starting system);
  - (c) Limited and locally earthed welding systems; where the Surveyor General of Ships 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 47(5); or
  - (d) Insulation level monitoring devices provided the circulation current does not exceed 30 ma under the most unfavorable conditions.
- (7) Where the hull return system is used, all final sub-circuits, i.e. all circuits fitted after the last protective device, should be two-wire and special precautions should be taken to the satisfaction of the Surveyor General of Ships.
- (8) Earthed distribution system should not be used in a tanker or barge carrying liquid cargoes of flammable nature in bulk. The Surveyor General of Ships may permit the use of the following earthed system:
- (a) 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 and fault conditions;
  - (b) Limited and locally earthed systems, provided that any possible resulting current does not flow directly through any of the dangerous spaces; or
  - (c) 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 should be provided.
- (10) Except as permitted by the Surveyor General of Ships in exceptional circumstances, all metal sheaths and armour of cables should be electrically continuous and should be earthed.
- (11) All electric cables and wiring external to equipment should be at least of a flame-retardant type and should be so installed as not to impair their original flame-retarding properties. Where necessary for particular applications the Surveyor General of Ships 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 should 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 should be of a fire-resistant type where they pass through high fire risk areas. Where practicable all such cables should 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 risks should be taken to the satisfaction of the Surveyor General of Ships.
- (14) Cables and wiring should be installed and supported in such a manner as to avoid chafing or other damage.

- (15) Terminations and joints in all conductors should 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 should be protected against short circuit and against overload, except the circuit for the steering gear and where the Surveyor General of Ships may exceptionally otherwise permit. The rating or appropriate setting of the overload protective device for each circuit should be permanently indicated at the location of the protective device.
- (17) Lighting fittings should be so arranged as to prevent temperature 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 cargo space should be provided with a multiple-pole switch outside the space for disconnecting such circuits.
- (19) Accumulator batteries should be suitably housed, and compartments used primarily for their accommodation should be properly constructed and efficiently ventilated.
- (20) Electrical or other equipment which may constitute a source of ignition of flammable vapors should not be permitted in those compartments except as permitted in **paragraph 47(22)**.
- (21) Accumulator batteries except for batteries used in self-contained battery operated lights should not be located in sleeping quarters except where hermetically sealed to the satisfaction of the Surveyor General of Ships.
- (22) No electrical equipment should be installed in any space where flammable mixtures are liable to collect including those on board tankers or barges carrying liquid cargoes of flammable nature in bulk or in compartments assigned principally to accumulator batteries, in paint lockers, acetylene stores or similar spaces, unless the Surveyor General of Ships is satisfied that such equipment is:
  - (a) Essential for operational purposes;
  - (b) Of a type which will not ignite the mixture concerned;
  - (c) Appropriately certified for safe usage in the dusts, vapours or gases likely to be encountered.
- (23) Lightning conductors should be fixed to all masts or topmasts constructed of non-conducting materials. In ships constructed of non-conductive materials the lightning conductors should be connected by suitable conductors to copper plate fixed to the ship's hull well below the waterline.

#### **Main Source Of Electrical Power**

48. (1) A main source of electrical power of sufficient capacity to supply those services mentioned in **paragraph 46(2)(a)** should be provided. This main source of electrical power should consist of at least two generating sets (one could be accepted if driven by the main propulsion engine) and should comply with the following:
  - (a) The capacity of these generating sets should be such that in the event of any one generating set being stopped it will still be possible to supply those services necessary to provide normal operational conditions of propulsion and safety;
  - (b) The arrangements of the ship's main source of electrical power should be such that the services referred to in paragraph 46(2)(a) can be maintained regardless of the speed and direction of rotation of the propulsion machinery or shafting;
  - (c) In addition, the generating sets should be such as to ensure that with any one generator or its primary source of power out of operation, the remaining generating sets should 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 paragraph 49(5) of this chapter.

- (2) A main electrical lighting system which should provide illumination throughout those parts of the ship normally accessible to and used by passengers or crew should be supplied from the main source of electrical power.
- (3) The arrangement of the main electric lighting system should 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 paragraph 49(5) inoperative.
- (4) The arrangement of the emergency electric lighting system should 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 Requirement inoperative.

### **Emergency Source Of Electrical Power**

49. (1) A self-contained emergency source of electrical power should be provided.
- (2) The emergency source of electrical power, associated transforming equipment, if any, and the emergency switchboard should be located above the uppermost continuous deck and should be readily accessible from the open deck. They should not be located forward of the collision bulkhead, except where permitted by the Surveyor General of Ships 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 should be such as to ensure, to the satisfaction of the Surveyor General of Ships, that a fire or other casualty in the space containing the main source of electrical power, associated transforming equipment, if any, and the main switchboard, or in any machinery space of 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 should 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 should 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:
  - (a) For a period of 3 hours, emergency lighting at every muster and embarkation station and over the sides in the way of such stations;
  - (b) For a period of 12 hours, emergency lighting;
    - (i) in all service and accommodation alleys, stairways and exits;
    - (ii) in spaces containing propulsion machinery used for navigation, if any, and main source of electrical power and their control positions;
    - (iii) in all control stations, machinery control rooms, and at each main and emergency switchboard;
    - (iv) at all stowage positions for firemen's outfits;

- (v) at the steering gear, if any; and
  - (vi) at the emergency fire pump and its control position;
- (c) For a period of 12 hours, the navigation lights and other lights required by COLREG;
  - (d) For a period of 12 hours:
    - (i) 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;
    - (ii) the fire detection and fire alarm systems: and
    - (iii) operation of emergency fire pumps, if electrically operated.
  - (e) In a ship regularly engaged in voyages of short duration, the Surveyor General of Ships, if satisfied that an adequate standard of safety would be attained, may accept a lesser period than the 12 hour period specified in **paragraphs 49(5)(b) to 49(5)(d)** of this Requirement but not less than 3 hours.
- (6) The emergency source of electrical power may be either:
    - (a) An accumulator battery capable of carrying the emergency electrical load without recharging or excessive voltage drop; or
    - (b) A generator driven by a suitable prime mover with an independent fuel supply and starting to the satisfaction of the Surveyor General of Ships.
  - (7) Where the emergency source of electrical power is an accumulator battery, it should be capable of automatically connecting to the emergency switchboard in the event of failure of the main source of electrical power. Where an automatically connection to the emergency switchboard is not practical, manual connection may be acceptable to the satisfaction of the Surveyor General of Ships.
  - (8) Where the emergency source of power is a generator, it should be automatically started and connected to the emergency switchboard within 45 seconds of the loss of the main source of electrical power. It should be driven by a prime mover with an independent fuel supply having a flash point of not less than 43°C. Automatic starting of the emergency generator will not be required where a transitional source of power to the satisfaction of the Surveyor General of Ships is provided.

### **Special Considerations**

- 50. The Surveyor General of Ships 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.

## CHAPTER VII - FIRE PROTECTION AND FIRE EXTINCTION

### Application

51. (1) Unless expressly provided otherwise this chapter should apply to all ships propelled by mechanical means and manned barges.

### Fire Pumps and Fire Main Systems

#### 52. Capacity

The total capacity of the main fire pump(s) is not to be less than:

$$Q = (0,145 (L (B+D))^{1/2} + 2,170)^2 \quad \text{but need not exceed } 25\text{m}^3/\text{hour}$$

Where

- B = greatest moulded breadth of vessel, in metres  
D = moulded depth to bulkhead deck, in metres  
L = Freeboard Length, in metres  
Q = total capacity, in m<sup>3</sup>/hour

### Fire pumps

53. Generally one main power pump and one portable fire pump should be provided as specified below.

- (1) Sanitary, ballast, bilge 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 fuel oil, suitable changeover arrangements are fitted.
- (2) A power pump is a fixed pump driven by a power source other than by hand.
- (3) Relief valves should be provided in conjunction with any fire pump if the pump is capable of developing a pressure exceeding the design pressure of the water service pipes, hydrants and hoses. These valves should be so placed and adjusted as to prevent excessive pressure in any part of the fire main system.
- (4) Where a centrifugal pump is provided in order to comply with this paragraph, a non- return valve should be fitted in the pipe connecting the pump to the fire main.

### Portable fire pumps

54. Portable fire pumps should comply with the following:

- (1) The pump should be self-priming.
- (2) The total suction head and the net positive suction head of the pump should be determined taking account of actual operation, i.e. pump location when used.
- (3) The portable fire pump, when fitted with its length of discharge hose and nozzle, should be capable of maintaining a pressure sufficient to produce a jet throw of at least 12 m, or that required to enable a jet of water to be directed on any part of the engine room or the exterior boundary of the engine room and casing, whichever is the greater.

- (4) Except for electric pumps, the pump set should have its own fuel tank of sufficient capacity to operate the pump for three hours. For electric pumps, their batteries should have sufficient capacity for three hours.
  - (5) Except for electric pumps, details of the fuel type and storage location should be carefully considered. If the fuel type has a flashpoint below 60°C, further consideration to the fire safety aspects should be given.
  - (6) The pump set should be stored in a secure, safe and enclosed space, accessible from open deck and clear of the Category 'A' machinery space.
  - (7) The pump set should be easily moved and operated by two persons and be readily available for immediate use.
  - (8) Arrangements should be provided to secure the pump at its anticipated operating position(s).
  - (9) The overboard suction hose should be non-collapsible and of sufficient length, to ensure suction under all operating conditions. A suitable strainer should be fitted at the inlet end of the hose.
  - (10) Any diesel-driven power source for the pump should be capable of being readily started in its cold condition by hand (manual) cranking. If this is impracticable, consideration should be given to the provision and maintenance of heating arrangements, so that readily starting can be ensured.
55. Alternatively to the requirements of paragraph 53 a fixed fire pump may be fitted, which should comply with the following:
- (1) The pump, its source of power and sea connection should be located in accessible positions, outside the compartment housing the main fire pump.
  - (2) The sea valve should be capable of being operated from a position near the pump.
  - (3) The room where the fire pump prime mover is located should be illuminated from the emergency source of electrical power, and should be well ventilated.
  - (4) Pump is required to supply water for a fixed fire-extinguishing system in the space where the main fire pump is situated, it should be capable of simultaneously supplying water to this system and the fire main at the required rates.
  - (5) The pump may also be used for other suitable purposes, subject to the approval in each case.
  - (6) Pressure and quantity of water delivered by the pump being sufficient to produce a jet of water, at any nozzle, of not less than 12 m in length. For vessels of less than 500 GT the jet of water may be specially considered.
56. Means to illuminate the stowage area of the portable pump and its necessary areas of operation should be provided from the emergency source of electrical power.
57. **Fire main**
- (1) The diameter of the fire main should be based on the required capacity of the fixed main fire pump(s) and the diameter of the water service pipes should be sufficient to ensure an adequate supply of water for the operation of at least one fire hose.
  - (2) The wash deck line may be used as a fire main provided that the requirements of this sub-paragraph are satisfied.
  - (3) All exposed water pipes for fire-extinguishing should be provided with drain valves for use in frosty weather. The valves should be located where they will not be damaged by cargo.

## **58. Pressure in the fire main**

- (1) When the main fire pump is delivering the quantity of water required by paragraph 52, or the fire pump described in paragraph 55, through the fire main, fire hoses and nozzles, the pressure maintained at any hydrant should be sufficient to produce a jet throw at any nozzle of not less than 12 m in length.

## **59. Fire Hydrants**

### **(1) Number and position of hydrants**

- (a) For vessels less than 150 GT the number and position of the hydrants shall be provided to the satisfaction of the Surveyor General of ships. At least one hydrant should be provided in each Category 'A' machinery space.
- (b) For vessels equal or greater than 150 GT the number and position of hydrants should be such that at least two jets of water not emanating from the same hydrant, one of which should be from a single length of hose, may reach any part of the vessel normally accessible to the crew while the vessel is being navigated and any part of any cargo spaces when empty. Furthermore, such hydrants should be positioned near the accesses to the protected spaces.

### **(2) Pipes and hydrants**

- (a) Materials readily rendered ineffective by heat should not be used for fire mains. Where steel pipes are used, they should be galvanized internally and externally. Cast iron pipes are not acceptable. The pipes and hydrants should be so placed that the fire-hoses may be easily coupled to them. The arrangement of pipes and hydrants should be such as to avoid the possibility of freezing. In vessels where deck cargo may be carried, the positions of the hydrants should be such that they are always readily accessible and the pipes should be arranged, as far as practicable, to avoid risk of damage by such cargo. There should be complete interchangeability of hose couplings and nozzles.
- (b) A valve should be fitted at each fire hydrant so that any fire-hose may be removed while the fire pump is at work.
- (c) Where a fixed fire pump is fitted outside the engine room, in accordance with paragraph 55:
  - (i) an isolating valve should be fitted in the fire main so that all the hydrants in the vessel, except that or those in the Category 'A' machinery space, can be supplied with water. The isolating valve should be located in an easily accessible and tenable position outside the Category 'A' machinery space; and
  - (ii) the fire main should not re-enter the machinery space downstream of the isolating valve.

## **60 Fire-hoses**

- (1) Fire-hoses should be of approved non-perishable material. The hoses should be sufficient in length to project a jet of water to any of the spaces in which they may be required to be used. Their length, in general, is not to exceed 18 m. Each hose should be provided with a nozzle and the necessary couplings. Fire-hoses, together with any necessary fittings and tools, should be kept ready for use in conspicuous positions near the water service hydrants or connections.
- (2) For vessel less than 150 GT, one hose should be provided for each hydrant. In addition one spare hose should be provided onboard.
- (3) Vessel equal or greater than 150 GT should be provided with fire hoses the number of which should be one for each 30 m length of the ship and one spare, but in no case less than three in all. Unless one hose and nozzle is provided for each hydrant in the ship, there should be complete interchangeability of hose couplings and nozzles.

## **61 Nozzles**

- (1) For the purpose of this Chapter, standard nozzle sizes are 12 mm, 16 mm or 19 mm, or as near thereto as possible, so as to make full use of the maximum discharge capacity of the fire pump(s).

- (2) For accommodation and service spaces, the nozzle size need not exceed 12 mm.
- (3) The size of nozzles used in conjunction with a portable fire pump need not exceed 12 mm.
- (4) All nozzles should be of an approved dual purpose type (i.e. spray/jet type) incorporating a shut-off.

## Fire Safety Measures

### 62. Structural fire protection

- (1) The minimum fire integrity of bulkheads and decks should be as prescribed in Table 1

**Table 1 Minimum fire integrity of bulkheads and decks**

<b>[Item]</b>	<b>Space</b>	<b>Separation By</b>	<b>From Space</b>
[(1)]	Machinery Space Class 'A'	A-60	Accommodation / control stations / corridors / staircases / service spaces of high fire risk / ro-ro spaces / vehicle spaces
[(2)]	Machinery Space Class 'A'	A-0	Other than above [item (1)]
[(3)]	Galley	A-0	Unless specified otherwise
[(4)]	Service space of high fire risk other than galley	B-15	Unless specified above [item (1)]
[(5)]	Corridor Staircase	B-0	Unless specified above [item (1)]
[(6)]	Cargo Space (other than ro-ro spaces and vehicle space)	A-0	Unless specified above [item (1)]
[(7)]	Ro-ro space and vehicle space (except weather deck)	A-60	Control stations/machinery spaces of category 'A'
[(8)]	Ro-ro space and vehicle space (except weather deck)	A-0	Unless specified above [item (1)]

- (a) Category 'A' machinery spaces should be enclosed by A-60 Class divisions, where adjacent to:
  - (i) Accommodation spaces
  - (ii) Control stations
  - (iii) Corridors and staircases
  - (iv) Service spaces of high fire risk, and
  - (v) by A-0 Class divisions elsewhere.
- (b) Vessel of less than 150 GT except oil tanker and vessel carrying dangerous goods in bulk are exempted to comply with this requirement.
- (c) The divisions used to separate spaces, not mentioned above, should be of non-combustible material.

- (2) The hull, superstructure, structural bulkheads, decks and deckhouses should be constructed of steel or other equivalent material. For the purpose of applying the definition of steel or other equivalent material, as given in SOLAS, the 'applicable fire exposure' should be one hour. Vessels built of materials other than steel should be specially considered.
- (3) Stairways should be enclosed, at least at one level, by divisions and doors or hatches, in order to restrict the free flow of smoke to other decks in the vessel and the supply of air to the fire. Doors forming such enclosures should be self-closing.
- (4) Openings in 'A' Class divisions should be provided with permanently attached means of closing which should be at least as effective for resisting fires as the divisions in which they are fitted.
- (5) Interior stairways serving machinery spaces, accommodation spaces, service spaces or control stations should be of steel or other equivalent material.
- (6) Doors should be self-closing in way of Category 'A' machinery spaces and galleys, except where they are normally kept closed.
- (7) Where 'A' Class divisions are penetrated for the passage of electric cables, pipes, trunks, ducts, etc., or for girders, beams or other structural members, arrangements should be made to ensure that the fire resistance is not impaired. Arrangements should also prevent the transmission of heat to un-insulated boundaries at the intersections and terminal points of the divisions and penetrations by insulating the horizontal and vertical boundaries or penetrations for a distance of 450 mm.

### **63 Materials**

- (1) Paints, varnishes and other finishes used on exposed interior surfaces should not be capable of producing excessive quantities of smoke, toxic gases or vapours and should be of the low flame spread type in accordance with the IMO FTP Code, Annex 1, Parts 2 and 5.
- (2) Except in cargo spaces or refrigerated compartments of service spaces, insulating materials should be non-combustible.
- (3) Where pipes penetrate 'A' or 'B' Class divisions, the pipes or their penetration pieces should be of steel or other approved materials having regard to the temperature and integrity Recommendations such divisions are required to withstand.
- (4) Pipes conveying oil or combustible liquids through accommodation and service spaces should be of steel or other approved materials having regard to the fire risk.
- (5) Materials readily rendered ineffective by heat should not be used for overboard scuppers, sanitary discharges and other outlets which are close to the waterline, and where the failure of the material in the event of fire would give rise to the danger of flooding.
- (6) Primary deck coverings within accommodation spaces, service spaces and control stations should be of a type which will not readily ignite, or give rise to toxic or explosive hazards at elevated temperatures in accordance with the IMO FTP Code, Annex 1, Parts 2 and 6.
- (7) Materials used for insulating pipes, etc., in machinery spaces and other compartments containing high fire risks should be non-combustible. Vapour barriers and adhesives used in conjunction with insulation, as well as the insulation of pipe fittings, for cold service systems need not be of non-combustible materials, but they should be kept to the minimum quantity practicable and their exposed surfaces should have low flame spread characteristics.

### **64. Surface of insulation**

- (1) In spaces where penetration of oil products is possible, the surface of the insulation should be impervious to oil or oil vapours. Insulation boundaries should be arranged to avoid immersion in oil spillage.

### **65 Ventilation systems**

- (1) Ventilation fans should be capable of being stopped and main inlets and outlets of ventilation systems closed from outside the spaces being served.

- (2) Ventilation ducts for Category 'A' machinery spaces, ro-ro spaces and vehicle spaces should not pass through accommodation spaces, galleys, service spaces or control stations, unless the ducts are constructed of steel and arranged to preserve the integrity of the division.
- (3) Ventilation ducts for accommodation spaces, service spaces or control stations should not pass through Category 'A' machinery spaces or galleys unless the ducts are constructed of steel and arranged to preserve the integrity of the division.
- (4) Ventilation arrangement for store rooms containing highly flammable products should be specially considered.
- (5) Ventilation systems serving Category 'A' machinery spaces and galley exhaust ducts should be independent of systems serving other spaces.
- (6) Ventilation should be provided to prevent the accumulation of gases that may be emitted from batteries.
- (7) Ventilation openings may be fitted in and under the lower parts of cabin, mess and dayroom doors in corridor bulkheads. The total net area of any such openings is not to exceed 0,05 m<sup>2</sup>. Balancing ducts should not be permitted in fire divisions.

## **66 Oil fuel arrangements**

- (1) In a cargo vessel in which oil fuel is used, the arrangements for the storage, distribution and utilization of the oil fuel should be such as to ensure the safety of the vessel and persons on board.
- (2) Oil fuel tanks situated within the boundaries of Category 'A' machinery spaces should not contain oil fuel having a flashpoint of less than 60°C.
- (3) Oil fuel, lubricating oil and other flammable oils should not be carried in fore peak tanks.
- (4) For vessels of 150 GT or more, and as far as practicable:
  - (a) oil fuel lines shall be arranged far apart from hot surfaces, electrical installations or other sources of ignition and shall be screened or otherwise suitably protected to avoid oil spray or oil leakage onto the sources of ignition. The number of joints in such piping systems shall be kept to a minimum.
  - (b) surfaces with temperatures above 220°C which may be impinged as a result of a fuel system failure shall be properly insulated. Precautions shall be taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces.
  - (c) External high-pressure fuel delivery lines between the high pressure fuel pumps and fuel injectors shall be protected with a jacketed piping system capable of containing fuel from a high-pressure line failure. A suitable enclosure on engines having an output of 375 kW or less having fuel injection pumps serving more than one injector may be used as an alternative to the jacketed piping system.

## **67 Special arrangements in Category 'A' machinery spaces and where necessary other machinery spaces**

- (1) The number of skylights, doors, ventilators, openings in funnels to permit exhaust ventilation and other openings to machinery spaces should be reduced to a minimum consistent with the needs of ventilation and the proper and safe working of the cargo vessel.
- (2) Skylights should be of steel and are not to contain glass panels. Suitable arrangements should be made to permit the release of smoke, in the event of fire, from the space to be protected.
- (3) Windows should not be fitted in machinery space boundaries. This does not preclude the use of glass in control rooms within the machinery spaces.
- (4) Means of control should be provided for:
  - (a) opening and closure of skylights, closure of openings in funnels which normally allow

exhaust ventilation, and closure of ventilator dampers;

- (b) permitting the release of smoke;
  - (c) closing power-operated doors or actuating release mechanism on doors other than power-operated watertight doors;
  - (d) stopping ventilating fans; and
  - (e) stopping forced and induced draught fans, oil fuel transfer pumps, oil fuel unit pumps and other similar fuel pumps.
- (5) The controls required in paragraph 67(4) should be located outside the space concerned, where they will not be cut off in the event of fire in the space they serve. Such controls and the controls for any required fire-extinguishing system should be situated at one control position or grouped in as few positions as possible. Such positions should have a safe access from the open deck.

## **68 Arrangements for gaseous fuel for domestic purposes**

- (1) Where gaseous fuel is used for domestic purposes, the arrangements for the storage, distribution and utilization of the fuel should be specially considered.

## **69 Space heating**

- (1) Space heaters, if used, should be fixed in position and so constructed as to reduce fire risks to a minimum. The design and location of these units should be such that clothing, curtains or other similar materials cannot be scorched or set on fire by heat from the unit.

## **70 Means of escape**

- (1) The following requirement is to provide means of escape so that persons onboard can safely and swiftly escape to the lifeboat and liferaft embarkation deck. For this purpose, the following functional requirements should be met:
- (a) safe escape routes should be provided;
  - (b) escape routes should be maintained in a safe condition, clear of obstacles; and
  - (c) additional aids for escape should be provided as necessary to ensure accessibility, clear marking, and adequate design for emergency situations.
- (2) Stairways, ladders and corridors serving crew spaces and other spaces to which the crew normally have access should be arranged so as to provide ready means of escape to a deck from which embarkation into survival craft may be effected.
- (3) There should be at least two means of escape, as widely separated as possible, from each section of accommodation and service spaces and control stations.
- (a) The normal means of access to the accommodation and service spaces below the open deck should be arranged so that it is possible to reach the open deck without passing through spaces containing a possible source of fire (e.g. machinery spaces, storage spaces of flammable liquids).
  - (b) The second means of escape may be through portholes or hatches of adequate size and preferably leading directly to the open deck.
  - (c) Dead-end corridors having a length of more than 7m should not be accepted.
- (4) At least two means of escape should be provided from machinery spaces, except where the small size of a machinery space makes it impracticable. Escape should be by steel ladders that should be as widely separated as possible.

## **71 Fixed fire detection and fire-alarm systems**

- (1) An approved and fixed fire detection system should be installed in all Category 'A' machinery spaces and cargo pump rooms.

## Fire-Extinguishing Arrangements

### 72 Fixed Fire-extinguishing arrangements in Category 'A' machinery spaces

- (1) Machinery spaces of category 'A' on vessels with GT greater than or equal to 150 and operating in unrestricted or restricted waters, should be provided with an approved fixed fire- extinguishing system, as specified in paragraph 73.
- (2) Machinery spaces of category 'A' on vessels operating within port limit, domestic voyage or exclusive economic zone may be exempted from this requirement.

### 73 Fixed Fire-extinguishing systems

- (1) Fixed fire-fighting systems where required, should be in accordance with the requirements of the IMO FSS Code.

### 74 Protection of paint lockers and flammable liquid lockers

- (1) Paint lockers and flammable liquids lockers should be provided with sufficient fire detection and extinguishing system to the satisfaction of the Surveyor General of Ship.

### 75. Portable Fire-extinguishers

#### (1) Portable fire extinguishers

- (a) Accommodation and service spaces.
  - (i) Vessels greater than or equal to 150 GT  $\geq 3$
  - (ii) Vessels less than 150 GT  $\geq 1$
  - (iii) Machinery spaces (one extinguisher per every 375 kW of internal combustion engine power)  $\geq 2, \leq 6$
- (b) All fire-extinguishers should be of approved types and designs.

#### (2) Extinguishing medium

- (a) The extinguishing media employed should be suitable for extinguishing fires in the compartments in which they are intended to be used.
- (b) The extinguishers required for use in the machinery spaces of cargo vessels using oil as fuel should be of a type discharging foam, carbon dioxide gas, dry powder or other approved media suitable for extinguishing oil fires.

#### (3) Capacity

- (a) The capacity of required portable fluid extinguishers should not exceed more than 13.5 litres but not less than 9 litres. Other extinguishers should be at least as portable as the 13.5 litre fluid extinguishers, and should have a fire-extinguishing capability at least equivalent to a 9 litre fluid extinguisher.
- (b) The following capacities may be taken as equivalents:
  - (i) 9 litre fluid extinguisher (water or foam).
  - (ii) 5 kg dry powder.

- (iii) 5 kg carbon dioxide.

**(4) Spare charges**

- (a) A spare charge should be provided for each required portable fire-extinguisher that can be readily recharged on board. If this cannot be done, duplicate extinguishers should be provided.

**(5) Location**

- (a) The extinguishers should be stowed in readily accessible positions and should be spread as widely as possible and not be grouped.
- (b) One of the portable fire-extinguishers intended for use in any space should be stowed near the entrance to that space.

**(6) Portable fire-extinguishers in accommodation spaces, service spaces and control stations**

- (a) Accommodation spaces, service spaces and control stations should be provided with a sufficient number of portable fire-extinguishers to ensure that at least one extinguisher will be readily available for use in every compartment of the crew spaces. In any case, their number should be not less than three, except where this is impractical for very small vessels, in which case one extinguisher should be available at each deck having accommodation or service spaces, or control stations.

**Fire Fighting Equipment**

The firefighting equipment should comply with the minimum requirement as specified below, regardless of service area.

**76. Fire blanket**

- (1) A fire blanket should be provided.

**77 Fire-fighter's outfit (which includes an axe)**

- (1) All cargo vessels greater than or equal to 150 GT should carry at least one firefighter's outfit complying with the Requirements of the IMO FSS Code.

**Fire control plans**

**78 Description of plans**

- (1) In all cargo vessels, general arrangement plans should be permanently exhibited for the guidance of the vessel's officers, using graphical symbols that are in accordance with IMO Resolution A.952(23), which show clearly for each deck the control stations, the various fire sections enclosed by steel or 'A' Class divisions, together with particulars of:
  - (a) the fire detection and fire-alarm systems;
  - (b) fixed fire-fighting system;
  - (c) the fire-extinguishing appliances;
  - (d) the means of access to different compartments, decks, etc.;
  - (e) the position of the fireman's outfits;
  - (f) the ventilating system, including particulars of the fan control positions, the position of dampers and identification numbers of the ventilating fans serving each section; and
  - (g) the location and arrangement of the emergency stop for the oil fuel unit pumps and for

closing the valves on the pipes from oil fuel tanks.

- (2) Alternatively, the details required by paragraph 78(1) may be set out in a booklet, a copy of which should be supplied to each officer, and one copy is at all times to be available on board in an accessible position.
- (3) The plans and booklets should be kept up to date, any alterations being recorded thereon as soon as practicable. Description in such plans and booklets should be in the official language of the Flag State and in the language as shown in the following Table 2. In addition, instructions concerning the maintenance and operation of all the equipment and installations on board for the fighting and containment of fire should be kept under one cover, readily available in an accessible position.
- (4) Fire plan should be provided in Bahasa Melayu and English
- (5) In all cargo vessels greater than or equal to 150 GT, a duplicate set of fire-control plans or a booklet containing such plans should be permanently stored in a prominently marked weathertight enclosure outside the deckhouse for the assistance of shoreside fire- fighting personnel.

#### **79. Additional Fire Safety Measures for tankers**

- (1) The requirements for tankers of SOLAS Chapter II-2 should apply to tankers carrying crude oil and petroleum products, having a flash point not exceeding 60°C, and other liquid products having a similar fire hazard.
- (2) The additional requirements for tankers of SOLAS Chapter II-2 should apply to tankers carrying crude oil and petroleum products having a flash point not exceeding 60°C (closed cup test), as determined by an approved flash point apparatus, and a Reid vapour pressure which is below atmospheric pressure, and other liquid products having a similar fire hazard.
- (3) Tankers carrying petroleum products having a flashpoint exceeding 60°C (closed cup test), as determined by an approved flashpoint apparatus, should comply with the provisions of 6.3 of these requirement.

#### **80 Cargo area deck protection**

- (1) At least one mobile foam appliance should be provided for use on the cargo tank deck including the cargo manifolds. It should be capable of simple and rapid operation. Where the appliance is of the inductor type it should comply with paragraph 80(2). Selfcontained appliances should have a foam solution capacity of at least 135 litres.
- (2) A portable foam applicator unit should consist of an air foam nozzle of an inductor type capable of being connected to the fire main by a fire hose, together with a portable tank containing at least 20 litres of foam-making liquid and one spare tank. The nozzle should be capable of producing effective foam, suitable for extinguishing an oil fire, at the rate of at least 1,5 m<sup>3</sup>/min.
- (3) The type of foam used should be suitable for the cargoes to be carried.

#### **81 Alternative design and arrangements**

The alternative design and arrangement shall be approved by the Surveyor General of Ship.

**CHAPTER VIII - LIFE SAVING APPLIANCES**

82. The minimum requirements for the carriage of life saving equipment is specified in the table below :

(1) The equipment specified in the table below, should comply with the IMO Life Saving Appliances Code.

<b>CHAPTER V LIFE SAVING APPLIANCES</b> i. X indicates items to be provided ii. * see notes	<b>International</b>	<b>Near Coastal</b>	<b>Domestic</b>
All cargo vessels excluding tankers, chemical tankers and gas carriers should be provided with liferafts on each side of the vessel capable of accommodating the total number of persons on board.	X*1)	X*1)	X*2)
Oil tankers, chemical tankers and gas carriers carrying cargoes having a flashpoint not exceeding 60 <sup>o</sup> C (closed-cup test), not engaged on International voyages, should be provided with totally enclosed fire protected lifeboats capable of accommodating the total number of persons on board on each side of the vessel or a single free-fall lifeboat.	X	X	X
Chemical tankers and gas carriers, not engaged on International voyages, carrying cargoes emitting toxic vapours or gases should carry lifeboats as above with the addition of a self contained air support system.	X	X	X
Oil tankers, chemical tankers and gas carriers, not engaged on International voyages, should in addition be provided with life-rafts for 200% of the persons on board in the case of a free-fall lifeboat or 100% in the case of davit launched lifeboats which should be capable of being launched on each side of the vessel.	X	X	X

All cargo vessels should be provided with a rescue boat and launching appliance, a lifeboat may be accepted as a rescue boat provided that it also complies with the requirements for a rescue boat.	- X if length greater than 20m - X*3) if length under/equal 20m	X*3)	-
A satellite EPIRB complying with GMDSS Requirements, appropriate to the sea area within which the vessel operates.	X	X*4)	X*4)
A radar transponder complying with GMDSS Requirements.	X	X	X
At least 2 two-way portable VHF radiotelephone apparatus complying with GMDSS Requirements.	X	X	X
A minimum of 6 lifebuoys, 2 fitted with a self-activating smoke and light signal, 2 with a self-igniting light and 2 with a buoyant lifeline.	x	x	X
A lifejacket for each of the persons on board, and in addition a minimum of two lifejackets for persons on watch. All life jackets should be fitted with an approved lifejacket light.	x	x	X
An immersion suit to be provided for each person on board, which may include those provided for the rescue boat crew.	x	x	X
Rocket parachute flares.	12	12	6
Line-throwing apparatus.	1	1	-

General emergency alarm.	x	X*7)	X*7)
Muster lists, operating instruction etc. as applicable	x	X*8)	X*8)

Notes:

- 1)
  - (i) If such liferafts cannot be readily transferred for launching on either side of the vessel, then liferafts capable of accommodating 150% the total number of persons on board should, where practicable considering vessel's size, be provided on each side.
  - (ii) The arrangement should be such that in the event of failure or loss of any one liferaft, sufficient liferafts remain, on each side of the vessel capable of accommodating the total number of persons on board.
  - (iii) All liferafts should be provided with a hydrostatic or similar automatic release to enable the liferafts to float free in the event of the vessel sinking.
- 2)
  - (i) Vessels operating within the near coastal waters should, where practicable, be provided with liferafts on each side.
  - (ii) Vessels operating within domestic waters should, where practicable, be provided with at least one liferaft capable of accommodating the total number of persons on board. Craft of 24 m or less may be provided with buoyant apparatus or additional lifebuoys (1 per 2 persons) in place of liferafts.
- 3) Wherever practicable vessels should be provided with a rescue boat or on smaller vessels a suitable inflated boat with engine, however, the design and operational Recommendations of some vessels such as small tugs may preclude this.
- 4) If the vessel operates within an area designated as A1 a VHF EPIRB may be provided in place of the satellite EPIRB in accordance with GMDSS Recommendations.
- 5) Immersion suits and thermal protective aids are exempted on vessels operating permanently between the latitudes 30°N and 30°S.
- 6)
  - (i) Each person assigned to crew of the rescue boat including combined lifeboat/rescueboats, should be provided with an immersion suit.
  - (ii) Where totally enclosed lifeboats and/or davit launched liferafts are provided a minimum of 3 immersion suits should be provided.
  - (iii) Thermal protective aids should be provided in accordance with SOLAS Requirements where they form part of a lifeboat and liferaft equipment.
  - (iv) This paragraph applies to ships operate beyond the limit as specified in Paragraph 5.
- 7) General emergency alarm may be exempted if the design of the vessel is such as to make it unnecessary.
- 8) The extent to which such notices are required and can be posted is dependent upon the size and type of vessel.

**CHAPTER IX - RADIO INSTALLATIONS**

The minimum Requirements for the radio installations should be as given in the table below

<b>CHAPTER VI RADIO INSTALLATIONS</b>	<b>International Voyage</b>	<b>Near Coastal Voyage</b>	<b>Domestic</b>
Ships 150 GT and above shall comply with the requirement of Chapter IV SOLAS 1974/78.	Area A1, A2,A3, A4	Area A1, A2	Area A1

## **CHAPTER X - NAVIGATIONAL EQUIPMENT**

The Requirements, as specified in SOLAS 1974, as amended, Chapter V, as applicable based on ship's size.

Automatic Identification System (AIS) shall be fitted to all cargo ship above 150 GT operating beyond Port Limit.



**MERCHANT SHIPPING ORDINANCE 1952  
CARGO SHIPS SAFETY EQUIPMENT  
(NON CONVENTION) CERTIFICATE**

Issued under the provisions of the  
Merchant Shipping Ordinance 1952  
Under the authority of the Government of Malaysia

*This Certificate shall be supplemented by the Record Of Safety Equipment (Form E)*

Name Of Ship	Official Number	Port Of Registry	Gross Tonnage	Deadweight*

\* For oil tankers, chemical tankers, Bulk Carriers and gas carriers only.

Plying Limit : .....

Date on which keel was laid or ship was at a similar stage of construction or, where applicable, date on which work for a conversion or an alteration or modification of a major character was commenced: .....

*Type of ship*

- Oil tanker
- Chemical tanker
- Gas carrier
- Cargo ship other than any of the above

**THIS IS TO CERTIFY:**

- 1 That the ship has been surveyed in accordance with the requirements of Merchant Shipping (Passenger and Cargo Ships Safety) Rules.
- 2 That the survey referred to above showed that the vessel complied with the requirements of the said Regulations as regards to:
  - 2.1 fire safety systems and appliances and fire control plans;
  - 2.2 the life saving appliances and the equipment of survival crafts were provided;
  - 2.3 the ship was provided with a line-throwing appliance and radio installations.
  - 2.4 shipborne navigational equipment and nautical publications;
  - 2.5 the ship was provided with lights, shapes, means of making sound signals and distress signals.
  - 2.6 in all other respects, the ship complied with the relevant requirements of Merchant Shipping (Passenger And Cargo Ships Safety) Rules.
- 3 That an Exemption Certificate has / has not been issued.

This Certificate will remain in force, unless previously cancelled, until **dd/mm/yyyy**

Issued at ..... on the ..... day of ..... 200X  
*(Place of issue of certificate) (date) (month)*

[seal]

*(Signature of authorized official issuing the certificate)*

**SCHEDULE 2**

*Certificate Reference Number*

**RECORD OF SAFETY EQUIPMENT  
(FORM E)**



Issued under the provisions of the  
Merchant Shipping Ordinance 1952  
Under the authority of the Government of Malaysia

This Form E shall be permanently attach to the Cargo Ships Safety Equipment (Non Convention) Certificate

**Particulars of ship**

Name of Ship: .....  
Official Number:

**2 Details of life-saving appliances**

1. Total number of persons for which life-saving appliances are provided .....		
	Port Side	Starboard Side
1 Total number of lifeboats 1.1 Total number of persons accommodated by them 1.2 Number of totally enclosed lifeboats 1.3 Number of lifeboats with a self-contained air support system 1.4 Number of fire-protected lifeboats 1.5 Other lifeboats 1.5.1 Number 1.5.2 Type		
3. Number of motor lifeboats (included in the total lifeboats shown above) 3.1 Number of lifeboats fitted with searchlights  4. Number of rescue boats  4.1 Number of boats which are included in the total lifeboats shown above  5. Liferafts  5.1 Those for which approved launching appliances are required  5.1.1 Number of liferafts 5.1.2 Number of persons accommodated by them 5.2 Those for which approved launching appliances are not required  5.2.1 Number of liferafts 5.2.2 Number of persons accommodated by them 5.3 Number of liferafts required by		
6. Number of lifebuoys 7. Number of lifejackets 8. Immersion suits 8.1 Total number 8.2 Number of suits complying with the requirements of lifejackets 9. Radio installations used in life-saving appliances 9.1 Number of radar transponders 9.2 Number of two-wav VHF radiotelephone apparatus		

THIS IS TO CERTIFY that this record is correct in all respects.

Issued at ..... on the ..... day of ..... 200X  
*(Place of issue of certificate) (date) (month)*

[seal]

*(Signature of authorized official issuing the certificate)*

SCHEDULE 3

Certificate Reference Number

CARGO SHIP SAFETY CONSTRUCTION (NON CONVENTION) CERTIFICATE

Issued under the provisions of the Merchant Shipping Ordinance 1952 Under the authority of the Government of Malaysia



Table with 5 columns: Name Of Ship, Official Number, Port Of Registry, Gross Tonnage, Deadweight\*

\* For oil tankers, chemical tankers, Bulk Carriers and gas carriers only.

Plying Limit : .....

Date on which keel was laid or ship was at a similar stage of construction or, where applicable, date on which work for a conversion or an alteration or modification of a major character was commenced: .....

Type of ship

- Oil tanker
Chemical tanker
Gas carrier
Cargo ship other than any of the above

THIS IS TO CERTIFY:

- 1. That the ship has been surveyed in accordance with the requirements of the Merchant Shipping (Passenger and Cargo Ships Safety) Rules.
2. That the survey showed that the condition of the structure, machinery and equipment as defined in the above regulation was satisfactory and the ship complied with the relevant requirements of Merchant Shipping (Passenger and Cargo Ships Safety) Rules (other than those relating to fire safety systems and appliances and fire control plans).
3. That an Exemption Certificate has/has not been issued.

This certificate is valid until dd/mm/yyyy subject to the annual and intermediate surveys and inspections of the outside of the ship's bottom in accordance with Merchant Shipping (Passenger and Cargo Ships Safety) Rules.

Issued at ..... on the ..... day of ..... 200X
(Place of issue of certificate) (date) (month)

[seal]

(Signature of authorized official issuing the certificate)

**Endorsement For Annual And Intermediate Surveys**

THIS IS TO CERTIFY that, at an annual/intermediate survey in accordance with Merchant Shipping (Passenger and Cargo Ships Safety) Rules, the ship was found to comply with the relevant requirements.

First Annual Survey

Place : ..... ..

Date : ..... Surveyor

Second Annual/Intermediate Survey

Place : ..... ..

Date : ..... Surveyor

Third Annual/Intermediate Survey

Place : ..... ..

Date : ..... Surveyor

Fourth Annual Survey

Place : ..... ..

Date : ..... Surveyor

**Annual/Intermediate Survey In Accordance With Part II Regulation 14**

THIS IS TO CERTIFY that, at an annual/intermediate survey in accordance with Merchant Shipping (Passenger and Cargo Ships Safety) Rules, the ship was found to comply with the relevant requirements.

Place : ..... ..

Date : ..... Surveyor

**Endorsement for Inspections of the Outside of the Ship's Bottom**

THIS IS TO CERTIFY that, at an inspection required by Merchant Shipping (Passenger and Cargo Ships Safety) Rules, the ship was found to comply with the relevant requirements.

Place : ..... ..

Date : ..... Surveyor

SCHEDULE 4

Certificate Reference Number



MERCHANT SHIPPING ORDINANCE 1952  
CARGO SHIPS (NON CONVENTION)  
EXEMPTION CERTIFICATE

Issued under the provisions of the  
Merchant Shipping Ordinance 1952  
Under the authority of the Government of Malaysia

Name Of Ship	Official Number	Port Of Registry	Gross Tonnage

**THIS IS TO CERTIFY:-**

that under the Merchant Shipping (Passenger and Cargo Ships Safety) Rules, the above-mentioned ship is exempted from the requirements of regulation(s)

.....  
(provisions)

of the regulations subject to the following conditions:

.....  
(conditions if any)

Voyages, if any, for which the Exemption Certificates is granted:

.....

This certificate is valid until **dd/mm/yyyy** subject to the ..... Certificate, to which a copy of this certificate is attached, remaining valid.

Issued at ..... on the ..... day of ..... 200X  
(Place of issue of certificate) (date) (month)

[seal]

(Signature of authorized official issuing the certificate)

SCHEDULE 5

Certificate Reference Number



MERCHANT SHIPPING ORDINANCE 1952  
CARGO SHIPS SAFETY RADIO  
(NON CONVENTION) CERTIFICATE

Issued under the provisions of the  
Merchant Shipping Ordinance 1952  
Under the authority of the Government of Malaysia

This Certificate shall be supplemented by the Record of Equipment of Radio Facilities (Form R)

Name Of Ship	Official Number	Port Of Registry	Gross Tonnage

**THIS IS TO CERTIFY:-**

1. That the ship has been surveyed in accordance with the provisions of the Merchant Shipping (Passenger and Cargo Ships Safety) Rules.
2. The survey showed that the ship radio installations and functioning complied with provisions of the Merchant Shipping (Passenger and Cargo Ships Safety) Rules
3. That an Exemption Certificate has / has not been issued.

This Certificate will remain in force, unless previously cancelled, until **dd/mm/yyyy**

Issued at ..... on the ..... day of ..... 200X  
(Place of issue of certificate) (date) (month)

[seal]

(Signature of authorized official issuing the certificate)

**SCHEDULE 6**

*Certificate Reference Number*



**MERCHANT SHIPPING ORDINANCE 1952  
RECORD OF EQUIPMENT OF RADIO FACILITIES  
(FORM R)**

Issued under the provisions of the  
Merchant Shipping Ordinance 1952  
Under the authority of the Government of Malaysia

This Form R shall be permanently attach to the Cargo Ships Safety Radio (Non Convention) Certificate

Name Of Ship	Distinctive number or letters	Port Of Registry

Minimum number of persons with required qualification to operate the radio installations:-

**DETAILS OF RADIO FACILITIES**

ITEM	ACTUAL PROVISIONS
1. Primary Systems VHF Radio Installation DSC Encoder DSC Watch Receiver Radiotelephony MF Radio Installation DSC Encoder DSC Watch Receiver Radiotelephony MF/HF Radio Installation DSC Encoder DSC Watch Receiver Radiotelephony Direct-printing Telegraphy INMARSAT Ship Earth Station	
2. Secondary Means of Alerting	
3. Facilities for receptions of Maritime Safety Information NAVTEX Receiver EGC Receiver HF Direct-printing radiotelegraph receiver	
4. Satellite EPIRB COSPAS-SARSAT INMARSAT	
5. VHF EPIRB	
6. Ship's Radar Transponder	

**3. METHODS USED TO ENSURE AVAILABILITY OF RADIO FACILITIES**

ITEM	ACTUAL PROVISIONS
3.1 Duplication of equipment 3.2 Shore based maintenance 3.3 At – sea maintenance capability	

**THIS IS TO CERTIFY that this Record is correct in all respect**

Issued at ..... on the ..... day of ..... 200X  
*(Place of issue of certificate) (date) (month)*

[seal]

*(Signature of authorized official issuing the certificate)*