(Shipping Wing)
New Delhi, the 22nd August, 1991
(MERCHANT SHIPPING)
NOTIFICATION

G.S.R. 491—Whereas a draft of the Merchant Shipping (Life Saving Appliances) Rules, 1991 was published as required by Sub-section (1) of Section 286 of the Merchant Shipping Act, 1958 (44 of 1958) at pages 1555 to 1596 of the Gazette of India, Part II, Section 3, Sub-section (i) dated 29.6.1991 under the notification of the Government of India in the Ministry of Surface Transport No.G.S.R. 387 dated the 27th June, 1991, inviting objections and suggestions from all persons likely to be affected thereby within a period of thirty days from the date of publication of the said notification in the Official Gazette.

Whereas the said Gazette was made available to the public on the 7th July, 1991 :

And whereas no objections and suggestions have been received from the public on the said draft ;

Now, therefore, in exercise of the powers conferred by sub-section (1) read with clauses (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (m) and (n) of sub-section (2) of section 288 and sub-section (1) read with clause (k) of sub-section (2) of section 435 of the said Act, and in supersession of the Merchant Shipping (Muster) Rules, 1968 except as respect things done or omitted to be done before such supersession the Central Government hereby makes the following, rules, namely :-

SECTION-I
PRILIMINARY

1. Short title, commencement and application—**(1) These rules may be called the Merchant Shipping (Life Saving Appliances) Rules 1991.**

(2) They shall come into force on the date of their publication in the Official Gazette.

(3) Subject to the provision of these rules.

(a) they shall apply to every Indian ship going to sea and every sea-going sailing vessel, the keel or which was laid on or after 1st day of July 1986.

(b) they shall not apply to any such ship or sailing vessel the keel of which was laid before the 1st day of July 1986 and the provisions of the Merchant Shipping (Life Saving Appliances) Rules, 1982 shall apply to such ships or sailing vessels :

Provided that the Director General of Shipping may, after the commencement of these rules require by order in writing, the owner of every such ship or sailing vessel having regard to any structural changes made in such ship or sailing vessel to comply with any or all of the requirement specified in these rules.

2. Definitions.—In these rules unless the context otherwise requires.--

(a) "Act" means the Merchant Shipping Act 1958 (44 of 1958)

(b) "approved" means approved by the Nautical Adviser to the Government of India.

(c) "certified person" means a person who holds a Certificate of Proficiency in s Survival Craft, issued under the authority of , or recognized as valid by, the Director General and includes a deck officer holding a certificate of competency and a person holding a certificate of efficiency as a life boatman issued under the Merchant Shipping (life Boatmen's Qualifications and Certificates) Rules, 1963:

(d) "embarkation ladder" means a ladder provided at a survival craft embarkation station which shall comply with the requirements specified in Part VI of the First Schedule;

(e) "embarkation station" means the area designated as such on board a ship from where the crew and passengers can embark a survival craft directly from that station;

(f) "emergency position indicating radio beacon" means a station in the mobile service the emissions of which are intended to facilitate search and rescue operations;

(g) "fair weather season" means,--

(i) in the Arbian Sea, the season beginning on and from the 1st June and ending with the 31st May; and

(ii) in the Bay of Bengal, the season beginning on and from 1st December and ending with the 30th April;

(h) Foul weather season" means,--

(i) in the Arabian Sea, the season beginning on and from the 1st June and ending with the 31st August; and

(ii) in the Bay of Bengal, the season beginning on and from the 1st May and ending with the 30th November;

(i) "float free launching" means the method of launching a survival craft whereby the craft is automatically released from a sinking ship and is ready for use;

(j) "free-fall launching" means the method of launching a survival craft whereby the craft with its complement of persons and equipment on board is released and allowed to fall into the sea without any restraining apparatus;

(k) "immersion suit" means a protective suit which reduces body heat loss, of a person wearing in cold water which shall comply with the requirements specified in Part IV of the **Second Schedule**;

(l) "IMO Code" means the code of practice for evaluation, testing and acceptance of prototype life saving appliances and arrangements adopted by the Assembly of the International Maritime Organisation at its Thirteenth Session and as amended by the International Maritime Organisation;

(m) "IMO recommendation" means a recommendation on testing of life saving appliances adopted by the Assembly of the International Maritime Organisation at its Thirteenth Session and as amended by International Maritime Organisation from time to time;

(n) "international voyage" means a voyage from or to a port or place in India to or from a port or place outside India;

(o) "launching appliance and arrangements" means a method of transferring a survival craft or rescue boat from its stowed position safely to the water, which shall comply with the requirements specified in the **First Schedule**;

(p) "length" means 96 per cent of the total length on a waterline at 85 per cent 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, if that be greater. In ships designed with a rake of keel the waterline on which this is measured shall be parallel to the designed waterline;

(q) "lifeboat" means a boat which complies with the requirements specified in the **Third Schedule**;

(r) "liferaft" means a liferaft which complies with the requirements specified in the **Fourth Schedule**;

(s) "moulded depth", means,--

(i) the vertical distance measured from the top of the keel of the top of the freeboard deck beam at side. In wooed and composits ships the distance is measured from the lower edge of the keep rabbet. where the form at the lower part of the midship section is of a bollow 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;

(ii) in ship having rounded gunwale, the distance measured to the point of inter-section of the moulded lines of the deck and side shell plating, the lines extending as though the gunwale were of angular design;

(iii) 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 the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part;

(t) "muster list" means a list of the crew and passengers who are required to assemble at a given muster station;

(u) "muster station" means the area designated as such on board a ship or assembly of crew and passengers;

(v) "person" means a person above the age of one year and included ship's crew and officers;

(w) "rescue boat" means a boat designed to rescue persons in distress and to marshal survival caraft and complies with the requirements specified in the **Fifth Schedule**;

(x) "retro reflective material" means a material which reflects in the opposite direction a beam of light directed on it and complies with the requirements specified in the **Sixth Schedule**;

(y) "schedule" means any of the Schedules annexed to these rules;

(z) "short international voyage" means an international voyage in the course of which a ship is at any time not more than 200 nautical miles away from a port or place in which the passengers and crew could be placed in safety. Neither the distance between the last port of call in the country in which the voyage begins and the final port of destination nor the return voyage shall exceed 600 nautical miles. The final port of destination is the last port of call in the scheduled voyage at which the ship commences its return voyage to the country in which the "voyage began;

(za) "survival craft" means a craft capable of sustaining the lives of persons in distress from the time of abandoning the ship and includes a lifeboat and a liferaft;

(zb) "thermal protective aid" means a bag or suit made of water proof material with a low thermal conductivity and complies with the requirement specified in Part V of the **Second Schedule**.

3. Classification of ships—For the purposes of these rules—Indian ships going to sea and sea going sailing vessels, shall be arranged in the following classes, namely :-

A-Pasenger Ships

Class I- Passenger ships engaged on international voyages other than ships of Class III.

Class II- Passenger ships engaged onshort international voyages other than ships of Class IV.

Class III- Special Trade Passenger Ships engaged on international voyages.

Class IV- Special Trade Passenger ships engaged on short international voyages.

Class V- Special Trade Passenger ships (other than ships of Classes VI and VII) engaged on voyages other than international voyages.

Class VI- Special Trade Passenger ships engaged on voyages on the coasting trade of India during the course of which they do not go more than 20 nautical miles from the nearest land;

Provided that such ships shall not cease to be ships of Class VI merely by reason of the fact that they cross during their voyage the Gulf of Kutch Cambay or Mannar.

Class VII- Special Trade Passenger ships engaged on voyages in fair weather season between ports in India during the course of which they do not go more than 5 nautical miles from the nearest land.

Class VIII- Cargo ships engaged on international voyages.

Class IX- Cargo ships (other than ships of Class X) engaged on voyages which are not international.

Class X- Cargo ships engaged on the coasting trade of India (other than ships of Class IX) during the course of which they do not go more than 20 nautical miles from the nearest land.

Provided that such ships shall not cease to be ships of Class X merely by reason of the fact that they cross during their voyage the Gulf of Kutuch, Cambay or Mannar.

Class XI- Cargo ships engaged on voyages in fair weather between ports in India during the course of which they do not go more than 5 nautical miles from the nearest land.

Class XII- Tugs, tenders, launches, lighters, dredgers, barges and hoppers which go to sea.

Class XIII- Fishing vessels other than those specified in Class XIV

Class XIV- Sailing vessels including sailing boats or vessels solely engaged in fishing for profit.

Class XV- Pleasure Yatchchs.

SHIP REQUIREMENTS-PASSENGER AND CARGO SHIPS

4. Application—The provisions of this Section shall, unless otherwise expressly provided, apply to ships of class I to XII (both inclusive).

5. Evaluation, testing and approval of life saving appliances and arrangements—(1) Unless otherwise expressly provided in these rules, life saving appliances and arrangements carried by a ship shall not be approved unless they comply with the requirements of these rules and are tested in accordance with the IMO recommendations.

(2) Without prejudice to the generality of the provisions of sub-rule (1), life saving appliances to be carried by every ship shall be of such quality and workmanship that they--

(a) are not likely to be damaged in storage throughout the air temperature range of -30^0C to $+65^0$C;

(b) operate throughout the sea-water temperature range of -1^0C to 30^0C, if they are to be immersed in sea-water during their use;

(c) are not-proof, corrosion resistant and not be affected by sea-water, oil or fungal attack;

(d) are resistant to deterioration where exposed to sunlight;

(e) are of a highly visible colour on all parts to assist location of survivors or survival crafts;

(f) are fitted with retro-reflective material, and

(g) are capable of satisfactory operation in that environment if they are to be used in a sea way.

(3) Approval granted to any life saving appliance or arrangements may be withdrawn by the Nautical Adviser to the Government of India if the performance of such appliances or arrangements is found not to comply with the conditions of such approval.

(4) In the case of ships built outside India or acquired by Indian owners as second-hand ships in which life saving appliances or arrangements provided have not been approved, the "surveyor shall certify, under intimation to eh Nautical Adviser to the Government of India, that such life saving appliances and arrangements comply with the requirements specified in these rules.

6. Equipment for safety communications—Every ship shall carry—(a) a portable radio telegraph equipment complying with requirements of Part II of the **Seventh Schedule**, which shall be stowed in a protected and easily accessible position, ready to be moved to any survival craft in an emergency and where lifeboats are stowed in widely separated positions fore and aft, such equipment shall be stowed in the vicinity of the lifeboats which are farthest away from the ship's main radio transmitter :

Provided that such equipment need not be carried if the radio [Telegraph Equipment complying with the requirements specified in Part I of the **Seventh Schedule**is carried in atleast one lifeboat on each side of the ship or in the lifeboat capable of being free fall launched over the stern of if the ship is engaged on voyages of such duration that in the opinion of the Director General such portable radio equipment is not necessary.

(b) Such an emergency position indicating ratio beacon, which shall be in accordance with the requirements specified in part III of the **Seventh Schedule**, so stowed with a flat free arrangement that as far as practicable the radio beacon shall float free and actuate automatically the transmission of distress signals when the ship sinks;

(c) An emergency position indicating radio beacon for survival craft, which shall be in accordance with the requirement specified in Part IV of the **Seventh Schedule** stowed in a protected and casily accessible position in the ship ready to be moved to any survival craft in an emergency;

(d) On each side, one manually operated locating device which shall be in accordance with the requirements specified in Part V of the **Seventh Schedule** so stowed that it can be readily placed in any survival carft other than the liferaft or liferafts required by sub-rule (6) of rule 36;

(e) On board, at least three 2-way radio telephone equipments, which shall be in accordance with the requirements specified in Part VI of the **Seventh Schedule** so as to provide communication between survival carft, ship and rescue boat;

(f) An emergency 2-way communication equipment for communication between emergency control stations, muster and embarkation stations and other strategic positions on board which may be fixed or portable or both and shall be in accordance with the requirements specified in Part VII of the **Seventh Schedule**;

(g) A general emergency alarm system in accordance with the requirement specified in Part VIII of the **Seventh Schedule** for summoning crew and passengers to muster list and shall be supplemented by either a public address system or other suitable means of communications;

(h) Not less than 12 rocket parachute flares in accordance with the requirements specified in Part IX of the **Seventh Schedule**, stowed on or near the navigational bridge.

7. Personal life saving appliances.—(1) Every ship shall carry lifebuoy which shall conform with the requirements specified in Part I of the **Second Schedule** and shall be ;-

(i) so distributed as to be readily, available on both sides of the ship and as far as practicable on all open decks extending to the ship's side atleast one shall be placed in the vicinity of the stern;

(ii) so stowed as to be capable of being rapidly case loose and not permanently secured in any way;

(iii) so stowed that at least one lifebuoy on each side of the ship shall be fitted with a buoyant life line in accordance with the requirements specified in the said Part I and shall be equal in length to not less than twice the height at which such lifebuoy is stowed above the waterline in the lightest sea-going condition, or 30 meters whichever is greater:

(iv) marked in block capitals of the Roman alphabet with the name and port or registry of the ship on which it is greater:

(2) Not less than one-half of the total number of the lifebuoys provided in every ship shall be fitted with self igniting lights in accordance with the requirements specified in Part XIII of the **Seventh Schedule**, out of which two shall also be provided with self-activating smoke signals in accordance with the requirements specified in Part XII of the said Schedule and be capable of quick release from the navigation bridge;

(3) Lifebuoys with lights and lifebuoys with light and smoke signals provided in every ship shall be equally distributed on both sides of the ship and shall not be one of the lifebuoys provided with life lines.

(4) Every ship shall carry :-

(a) lifejackets for every person on board or as the case may be for the number of persons the ship is certified to carry, in accordance with the requirements specified in Part II of the **Second Schedule**;

(b) sufficient number of lifejackets for persons on watch and for use at remotely located stations in accordance with the requirements specified in Part II of the said schedule;

(c) life jackets suitable for children for every child on board, or as to the case may be 10 per cent of the number of persons the ship is certified to carry conforming to the requirements specified in Part III of the said Schedule.

(5) All lifejackets shall be so placed as to be readily accessible and their positions shall be clearly indicated and where due to particular arrangements of the ship, the lifejackets provided under Clause (a) of sub-rule (4) are likely to become inaccessible; alternative provisions shall be made and where necessary, the number of lifejackets to be carried shall be increased.

(6) Every ship shall carry on board an immersion suit of appropriate size for every person assigned to crew the rescue boat.

8. Muster list and emergency instructions.—(1) The muster of every ship shall provide clear instructions to be followed in the event of an emergency to every person on board.

(2) The muster of every ship shall exhibit a muster list in accordance with the requirements specified in the **Eighth Schedule** in conspicuous places throughout the ship including the navigation bridge, engine room, crew accommodation and where applicable passenger accommodation.

9. Operating instructions—on every ship poster or signs shall be provided on or in the vicinity of survival craft and their launching controls and shall--

(a) illustrate the purpose of controls and the procedures for operating the appliances with relevant instructions and warning where necessary;

(b) be easily seen under emergency lighting conditions; and

10. Manning of survival craft and supervisions.--

(1) Every ship shall be managed by :-

(a) sufficient number of trained persons for mustering and assisting untrained persons;

(b) sufficient number of certificated persons for operating the survival craft and launching arrangements required for abandonment by the total number of person on board;

(c) a certificated person in charge of each survival craft and in case of the lifeboats a certificated person shall also on board;

(2) Number of the certificated person referred to in sub-rule (1) shall in no case be less than that specified in the following table :

TABLE

Complement of survival craft	Minimum number of certificated persons
--less than 40 persons	2
--40 persons or more but less than 60 persons	3
--60 persons or more but less than 80 persons	4
--80 persons or more	5

Provided that the Nautical Adviser to the Government of India may permit persons competent in the handling and operation of life crafts to be placed in change of life rafts in lieu of persons specified in clause (b) of sub-rule (1).

(3) On every ship:--(a) the person in charge of the survival craft shall be provided with a list of the survival craft crew and it shall be the duty of the person in charge of the survival craft to ensure that the crew under his command are acquainted with their duties;

(b) where a lifeboat is required to carry radio telegraph installations, a person capable of operating such installation shall be assigned to such lifeboat.

(c) a person who is capable of operating the life boat engine and capable of minor adjustments thereto shall be assigned to every lifeboat.

(4) The master shall ensue that persons referred to in sub-rule (1) are distributed equitably among the ship survival craft.

(5) Every person forming the crew of a ship shall be in possession of a certificate indicating that he has attended an approved course on "Survival at Sea".

11. Survival Craft muster and embarkation arrangements.—(1) On every ship muster stations shall be arranged close to the embarkation stations with sufficient space to accommodate all persons assigned to muster at that station.

(2) Muster station and embarkation station shall in addition--

(a) be readily accessible from accommodation spaces and work areas;

(b) be illuminated in accordance with Part VII of the **First Schedule**; and

(c) where survival crafts are provided with launching devits be so arranged as to enable a person on a stretcher to be placed in survival crafts.

(3) On every ship embarkation ladder shall be provided at least at every two adjacent launching stations, so however that there shall be at least one embarkation ladder on each side on the ship.

(4) On every ship painters shall be provided for bringing the survival craft launched by a devit against ship's side and holding the same alongside so that persons can be safety embarked.

12. Launching stations.—On every ship launching stations for survival craft shall be arranged in such positions,--

(a) that they can be launched safety with particular regard to clearance from the propeller and steeply over changing portions of the hull; and

(b) that, as far as possible survival crafts, except survival craft specially designed for free fall launching, can be launched down the straight side of the ship and if located forward they shall be abaft the collision bulkhead in a sheltered position.

13. Stowage of survival craft.—(1) Lifeboats and life rafts for which launching appliances are required to be provided under rule 15, shall be stowed as close to accommodation spaces and work areas as possible.

(2) Each survival craft shall be stowed,--

(a) so that neither the survival craft nor its stowage arrangements interferes with the operation of any other survival craft or rescue boat at any other launching station;

(b) as near the water surface as is safe and practicable and, in the case of survival craft, other than a life craft intended for throw overboard launching, be in such a position that the survival craft in the embarkation position is not less than 2 meters above the water line with the ship in the fully loaded condition under unfavorable conditions of trim and listed up to 20 degree either way, to the angle at which the ship's weather deck edge becomes submerged, whichever is less;

(c) in a state of continuous readiness so that two crew members can carry out preparation for embarkation and launching in less than 5 minutes;

(d) fully equipped as specified in Para 8 of part I of the **Third Schedule** in the case of lifeboats and Para 5 of Part I of the **Fourth Schedule** in the case of life rafts;

(e) as far as practicable, in a secure and sheltered position and protected from damage by fire and explosion.

(3) Lifeboats for lowering down the ship's side shall be stowed as far forward of the propeller as practicable to that :-

(a) on cargo ships of 80 meters length and above but less than 120 meters length, each lifeboat shall be so stowed that the after end of the lifeboat is not less than the length of the lifeboat forward of the propeller;

(b) on cargo ships of 120 meters length and above and passenger ships of above 80 meters length and above, each lifeboat shall be so stowed that the after end of the lifeboat is not less than 1.5 times the length of the lifeboat forward of the propeller.

(4) The ship shall be so arranged that lifeboats in their stowed position are protected from damage by heavy seas.

(5) All lifeboats shall be stowed attached to launching appliances.

(6) Devit-launched life rafts shall be stowed within reach of the lifting hooks, unless some means of transfer is provided which is not rendered inoperable, within the limits of trim and list specified in clause (b) of sub-rule (2) either by ship motion or by power failure.

(7) Every life raft shall be stowed with its painter permanently attached to the ship and with a float free arrangement as specified in the **Ninth Schedule** so that, as far as practicable, the liferaft floats free and if inflatable, inflates automatically when the ship sinks. In addition every liferafts shall be stowed as to permit release of the same manually from its securing arrangements :

Provided that the liferaft required to be provided on cargo ships under sub-rule (6) of rule 36 may be secured to permit release of the liferaft manually only.

(8) Liferaft intended for throw overboard launching shall be stowed as to be readily transferable for launching on either side of the ship unless life rafts of the aggregated capacity required are carried on each side of the ship.

14. Stowage of rescue boats.—(1) Rescue boats required to be provided under rule 26 and sub-rule (3) of rule 36 shall be stowed:--

(a) in a state or continuous readiness for launching in not more than 5 minutes;

(b) in a position suitable for launching and recovery; and

(c) so that neither the rescue boat nor its stowage arrangements will interfere with the operation of any survival craft.

(2) Where the rescue boat is also a lifeboat, then its stowage shall comply with the requirements specified in rule 13.

15. Survival Craft launching and recovery arrangements.—(1) Launching and embarkation appliances and arrangements shall be in accordance with the requirements specified in the **First Schedule** and shall be provided for all survival crafts, unless :--

(a) such survival crafts are boarded from a position on deck which is less than 4.5 meters above the waterline in the lightest sea going condition and the survival crafts:-

(i) either have a mass of not more than 185 kilograms; or

(ii) are stowed for launching directly from the stowed position under unfavorable conditions of trim of upto 10^0 and with the ship listed not less than 20^0 either way;

(b) Such survival crafts, having a mass of not more than 185 kilograms, are carried in excess of the survival crafts for 200 per cent of the total number of persons the ship is certified to carry.

(2) The launching and embarkation appliances and arrangements shall be so designed that the operator on the ship is able to observe the survival craft at all times during launching and in the case of lifeboats also during recovery.

(3) Only one type of release mechanism shall be used for similar survival crafts carried on board.

(4) Preparation and handling of survival craft on any lunching station shall not interfere with the prompt preparation and handling of any other survival craft or rescue boat at any other station.

(5) Illumination shall be provided as specified in part VII of the **First Schedule.**

(6) Means shall be available to prevent any discharge of water from overboard discharge pipes on to survival craft during abandonment.

(7) If there is a danger to the survival craft being damaged by the Ship's stabilizer wings, means shall be available powered by an emergency source of energy to bring the stabilizer wing in board, indicators operated by an emergency source of energy shall show the position of stabilizer wings on the navigation bridge.

(8) If life boats complying with the requirements of Part II and Part III of the **Third Schedule** are carried, a davit span shall be provided, fitted with not less than two life lines of sufficient length to reach the water with the ship in its lightest seagoing condition under unfavorable conditions of trim and with the ship listed not less than 20^0 either way.

16. Rescue boat embarkation, launching and recovery arrangements.—(1) embarkation and launching arrangements for rescue boats shall be such that the rescue boats can be boarded and launched in the shortest possible time.

(2) Every rescue boat shall be provided with rapid recovery arrangements when such rescue boat is loaded with its full complement of persons and equipment.

(3) All rescue boats shall be capable of being launched with the ship making headway at speeds upto 5 knots in calm waters with or without the aid of painters.

(4) When the rescue boat is also a lifeboat.--

(i) the embarkation station and launching stations shall comply with the requirements of rule 11 or, as the case may be rule 12 and launching arrangements shall comply with the requirements of rule 15;

(ii) arrangements for rapid recovery shall be provided when the lifeboat is loaded with equipment and a crew complement of at least 6 persons.

17. Line throwing appliances—Every ship shall be provided with a line-throwing appliance in accordance with the requirements specified in the **Tenth Schedule**.

18. Abandon ship training and drills.—(1) Every ship shall be provided with a training manual complying with the requirements specified in the Eleventh **Schedule**, which shall be placed in each crew mess and recreation room. Sufficient copies of the manual shall be provided on the ship for the use of personnel in charge of survival crafts.

(2) On every ship of class I and II a muster of passengers shall be held within 24 hours of the embarkation and at every such muster every passenger shall be instructed in the use of life jackets and the action to be taken in an emergency:

Provided that if only a small number of passengers have embarked at a port after the muster has been held, attention of those passengers shall be drawn to emergency instructions specified in sub-rule (2) of rule 22.

(3) Every passenger ship shall conduct abandon ship drill and fire drill at least once in seven days and such drills shall comply with the requirements specified in the **Twelfth Schedule**.

(4) On passenger ships other than ships of Class I and III, a muster of the passenger shall be held on departure from port of embarkation and wherefore some unavoidable reason it is not possible to hold such muster, the attention of the passengers shall be drawn to the emergency instructions specified in sub-rule (2) of rule 22.

(5) Every ship shall hold for ships crew only, a practice muster, the abandon ship drill and the fire drill within 24 hours of the ship leaving a port if more than 25 per cent of crew have not participated in abandon ship and fire drills on board that particular ship in the previous month. Each member of the crew shall participate in at least one such drill every month. On ships which are engaged on voyages of less than 48 hours, such drills may be held in port.

(6) Every member of the crew, as soon as possible but not later than 2 weeks after he joins the ship shall be given on board training in the use of life saving appliances including survival craft equipment, the details of which shall be included in the training manual specified in sub-rule (1).

(7) The Master of every ship shall maintain record of :-

(a) dates when musters were held ;

(b) details of abandon ship drills and fire drills;

(c) drills in use of life saving appliances other than abandon ship drills; and

(d) details of one board training given to the crew members :

Provided that where it is not possible for a a full muster drills or training session to be held at the appointed time, the records shall indicate the circumstances thereof and the extent of the muster drill or training session held subsequently. Every such entry shall be made in the official log book maintained under Section 212 of the Act.

19. Operation readiness, maintenance and inspections.—(1) All life saving appliances shall be in working order and ready for immediate use on every ship when it leaves port and at all times during the voyage.

(2) Every ship shall be provided with an instruction book for on board maintenance of life saving appliances containing the general pattern specified in the **Thirteenth Schedule**.

(3) Wire falls used in launching survival craft in every ship shall be turned end for end at intervals of not more than 30 months and shall be renewed at intervals of not more than 5 years or at any time when deterioration of the falls deems it necessary. Every such changing of falls end for end or renewal of falls shall be recorded in the on board maintenance log specified in sub-rule (10).

(4) Every ship shall be provided with spaces and repair equipment for life saving appliances and their components as per recommendations of the manufacturer, or where no recommendations exist, to the satisfaction of the Central Government.

(5) On every ship weekly and monthly tests and inspections shall be carried out as detailed in the instructions for on board maintenance as specified in the **Thirteenth Schedule**

(6) On every ship all inflatable life jackets shall be serviced as per requirements specified in Part IV of the **Fourth Schedule.**

(7) On every ship, the inflated rescue boats shall be repaired and maintained in accordance with the manufactures instruction and permanent repairs where necessary shall be carried out at an approved service station; Provided that--

(a) Emergency repairs may be carried out on board the ship, and

(b) every such emergency repair is recorded as specified in sub-rule (10).

(8) On every ship the hydrostatic release units shall be serviced in accordance with the requirements specified in Para 4 of the **Ninth Schedule**.

(9) Periodical maintenance of any safety equipment may be carried out when a ship is at sea if the working order of the equipment is not affected for an appreciable period.

(10) An on board maintenance log shall be provided on every ship in which the muster shall record the periodical maintenance and emergency repairs carried out on life saving appliance and the result thereof. The date when subsequent permanent repairs were carried out shall also be recorded.

SECTION III – Passenger Ships

20. Application.—Every ship of Class I to VII shall comply with the requirements specified in rules 21 to 29, in addition to those specified in Section II.

21. Survival craft stowage and embarkation arrangements—On every passenger ship, survival craft embarkation arrangements shall be provided for :

(i) boarding and launching of the lifeboats either directly from the stowed position or from embarkation deck but not from both ; and

(ii) boarding and launching of liferafts from a position immediately adjacent to the stowed position or from a position to which the liferaft is transferred prior to launching in accordance with sub-rule (6) of rule 13.

(2) On every passenger ship embarkation arrangements for rescue boats shall be such that the rescue boat can be boarded and launched directly from the stowed position with the number of persons assigned as crew of the rescue boat.

(3) Notwithstanding anything contained in sub-rule (1), if the rescue boat is also a lifeboat and the other lifeboats are boarded and launched from an embarkation deck the arrangements shall be such that the rescue boat can also be boarded and launched form the embarkation deck.

(4) On every passenger ship all survival crafts, required to provide for abandonment by the total number of persons the ship is certified to carry, shall be capable for being launched with their complement of persons and equipment within a period of 30 minutes from the time the abandon ship signal is given.

22. Passenger Muster Stations.—(1) Every passenger ship shall provide passenger muster station for passengers,--

(a) in the vicinity of the embarkation station and unless the embarkation and the muster stations are in the same location, with ready access for the passengers to such muster station, and

(b) with ample room for marshalling and instructing the passengers.

(2) At every such muster station and other passenger spaces and cabin, illustrations and instruction, at least in Hindi and English and other appropriate language, shall be conspicuously posted to inform the passengers of --

(i) their muster stations,

(ii) the essential action they must take in an emergency; and

(iii) method of donning the lifejacket.

23. Lifebuoys.—Every passenger ship shall carry minimum number of lifebuoys in accordance with the following table :

The Table

Length of the passenger ship in meters	Minimum number of lifebuoys required to be fitted.
Less than 60 meters	8
60 meters and over but less then 120 meters	12
120 meters and over but less than 180 meters	18
180 meters and over but less than 240 meters	24
240 meters and over	30

Provided that out of the minimum number of lifebuoys to be carried by a passenger ship of 60 meters in length or less, six shall be provided with self-igniting lights.

24. Lifejackets—Every passenger ship shall carry, in addition to the requirements specified in sub-rule (4) of rule 7, lifejackets for not less than 5 per cent of the total number of persons on board, stowed in conspicuous places on deck or at muster stations.

25. Lifeboats.—Every passenger ship shall carry lifeboats complying with the requirements specified in Part I of the **Third Schedule**, and shall, in addition, comply with the following, namely :-

(a) every lifeboat on ships of Class I and II shall comply with the requirements specified in Part II, Part III or Part IV of the **Third Schedule** ; and

(b) every lifeboat on ships of Class III to VII shall at least comply with the requirements specified in Part II of the **Third Schedule**.

26. Rescue boats.—Every passenger ship shall carry at least one rescue boat or a lifeboat complying with the requirements of a rescue boat on each side of the ship;

Provided that ships of less than 500 tons gross tonnage when carrying less than 30 persons may carry one rescue boat so placed that it can be launched on either side.

27. Liferafts.—Every liferaft on passenger ship shall be slowed with its pointer permanently attached to the ship and with a float free arrangement complying with the requirements of the Ninth **Schedule**. The arrangement shall be such that the liferaft shall float free and, if inflatable inflate automatically if the ship sinks.

28. Special requirements as to lifeboats and liferafts.—When a passenger ship of Class III, IV, V, VI, does not comply with the special standards of sub-division specified in Part IV of the First **Schedule** of the Merchant Shipping (Construction and Survey of Passenger ships) Rules, 1981, she shall carry the lifeboats and liferafts complying with the requirements of sub-rules (2) and (3) of rule 30 in lieu of the requirements specified in rule 32, 34, 35 and 36 of these rules.

29. Immersion suits, etc.—Every passenger ship shall carry, for each lifeboat of least 3 immersion suits and in addition a thermal protective and for every person the lifeboat is certified to carry, who are not provided with an immersion suit :

Provided that such immersion suits or thermal protective aids need not be carried--

(a) if the lifeboats comply with the requirements of Part II, Part III or Part IV of the **Third Schedule** or

(b) where the Director General is satisfied that provision of immersion suits or thermal protective aids in lifeboat on any passenger ship is not necessary.

30. Ships of Class L—(1) Every ship of Class I shall, in addition to the requirements specified in Section II, carry--

(a) on each side of the ship such number of lifeboats of such aggregate capacity to accommodate one half of the total number of persons the ship is certificate to carry, or

(b) lifeboats and liferafts in such number as would be sufficient to provide together the total number of persons the ship is certified to carry :

Provided that there shall be sufficient lifeboats on each side of the ship for accommodate at least 37.5 per cent of the total number of persons the ship is certificate to carry. The liferafts shall be served by launching appliances equally distributed on each side of the ship.

(c) carry liferafts of such aggregate capacity as to accommodate at least 25 per cent of the total number of persons on board, with at least one launching appliances on each side:

Provided that the stowage of liferafts provided under this clause need not comply with the provisions of sub-rule (6) of rule 13.

(d) carry sufficient number of lifeboats and rescue boats, so that not more than 6 liferafts need be marshaled by each lifeboats or rescue boat in providing for abandonment of the ship by the number of persons the ship is certified to carry.

(e) carry a radio telegraph equipment complying with the requirements specified in Part I of the **Seventh Schedule** in a lifeboat on each side of the ship when the vessel is certified to carry 1500 persons or more, or in at least one lifeboat when the ship is certified to carry 199 persons or more but less than 1500 persons.

(2) All lifejackets carried on every such ship shall be fitted with a light in accordance with the requirements specified in Part XIII of the **Seventh Schedule**

(3) Every such ship of less than 500 tons gross tonnage, when certified to carry not more than 200 persons, may in lieu of the requirement specified in sub-rule (1) shall carry on each side of the ship liferafts to accommodate the total number of persons the ship is certified to carry:

Provided that--

(i) where the liferafts cannot be readily transferred for launching on either side of the ship, additional liferafts shall be provided on each side to accommodate 150 per cent of the total number of persons, the ship is certified to carry.

(ii) if the rescue boats provided in compliance with the requirements of rule 26 is also a lifeboat, it may be included in the aggregate capacity;

(iii) sufficient number of survival crafts on each side of the ship so that in the event of any one survival craft being lost or rendered unserviceable, sufficient survival crafts shall be available on each side to accommodate total number of persons the ship is certified to carry.

31. Ships of Class II.—(1) Every ship of Class II Shall in addition to the requirements specified in Section II, shall carry :-

(a) lifeboats of such aggregate capacity as to accommodate at least 30 per cent of the total number of persons the ship is certified to carry distributed equally on each side of the ship;

(b) liferafts of such aggregate capacity that together with the lifeboats provided in accordance to clause (a), shall accommodate the total number of persons the ship is certified to carry with launching appliances equally distributed on each side of the ship; and

(c) lifrafts of such aggregate capacity as shall accommodate at least 25 per cent of the total number of persons the ship is certified to carry. such liferafts shall be served by at least one launching appliance on each side which may be those provided in compliance with the requirements of clause (b). Other equivalent approved appliances capable of being used on both sides to facilitate rapid embarkation into survival crafts in water may be provided in lieu of the launching appliance :

Provided that when a passenger ship of Class II engaged on short international voyages does not comply with the standards of sub-division specified in Part III of the **First Schedule** of Merchant Ship (Construction and Survey of Passenger Ships) Rules, 1981 such ships shall carry survival crafts complying with the requirements specified in sub-rule (1) of rule 30.

(2) Every such ship of less than 500 ton gross tonnage when certified to carry not more than 200 persons may in lieu of the requirement specified in a & b sub-rule (1) carry a liferaft and rescue boats as specified in sub-rule (3) or rule 30.

(3) Every such ship, which complies with the standards of sub-division specified in part III of the **First Schedule** to the Merchant Shipping (Construction and survey of Passenger Ships) Rules, 1981 shall carry sufficient number of lifeboats and rescue boats so that not more than 9 liferafts need be marshaled by each lifeboat or rescue boat in providing for abandonment of the ship by the total number of persons the ship is certified to carry.

(4) Every such ship shall carry a radio telegraph equipment complying with the requirements specified in Part II of the **Seventh Schedule** in a lifeboat on each side of the ship when the vessel is certified to carry 1500 persons or more or in at least one lifeboat when the ship is certified to carry 199 persons or more but less then 1500 persons.

32. Ships of class III.—(1) Every such ship of class III shall, in addition to the requirements specified in section II.--

(a) carry--

(i) on each side of the ship, such number of lifeboats of sufficient aggregate capacity as to accommodate one-half of the total number of persons the ship is certified to carry; or

(ii) on each side of the ship. lifeboats of sufficient capacity to accommodate not less than 35 per cent of the total number of persons the ship is certified to carry, and

(iii) liferafts or sufficient capacity so that the lifeboats and liferafts together can accommodate all persons the ship is certified to carry with launching appliances equally distributed on each side of the ship; and

(iv) liferafts of sufficient capacity to accommodate 25 per cent of the total number of persons the ship is certified to carry.

(2) All liferafts carried on every such ship shall be fitted with a light in accordance with the requirements specified in Part XIII of the **Seventh Schedule**.

33. Ships of class IV and V—(1) Every ship of Class IV and V shall, in addition to the requirements specified in Section II, carry.--

(i) lifeboats and liferafts as specified in clauses (a) and (b) of sub-rule (1) of rule 31 or where applicable as specified in sub-rule (3) of the said rule;

(ii) liferafts of such aggregate capacity as shall accommodate at least 10 per cent of the total number of persons the ship is certified to carry; and

(iii) sufficient number of liferafts and rescue boats so that not more than 9 liferafts need be marshaled by each lifeboat or rescue boat in providing or abandonment of the ship by the total number of persons the ship is certified to carry.

34. Ship of Class VI.—Every ship of Class VI shall, in addition to the requirements specified in Section II, carry liferafts on each side sufficient to accommodate the total number of persons the ship is certified to carry.

35. Ship of Class VII.—Every ship of Class VII shall, in addition to the requirements specified in Section II carry liferafts on each side to accommodate fifty per cent of persons which the ship is certified to carry.

SECTION-IV

Cargo Ships

36. General requirements.—(1) Every ship of Class VIII to XII shall comply with the requirements specified in sub-rule (2) to (10) in addition to those specified in Section II.

(2) Lifeboats required o be carried on every such ship shall comply with the requirements specified in Part I of the **Third Schedule** and shall also comply with the following namely :-

(a) lifeboats on ship other than oil tankers, chemical tankers and gas carriers shall comply with the requirements specified in Part IV of the **Third Schedule** .

(b) Lifeboats on oil tankers, chemical tankers and gas carriers carrying cargoes having a flashpoint not exceeding 60^0 close cup test shall comply with requirements specified in Part VI of the **Third Schedule** .

(c) Lifeboats on chemical tankers an gas carriers emitting toxic vapors or gases shall comply with the requirements specified in Part V of the **Third Schedule** .

(d) Lifeboats on ships other than tankers, gas carriers and chemicals carriers shall comply with the requirements specified in Part III of the **Third Schedule** . Provided that--

(i) if such ship ply in favorable climatic conditions in waters of Red Sea, West Asia Gulf, Arabian Sea, Bay of Bengal and any other areas specified in this behalf by the Director General; and

(ii) the cargo ship safety equipment certificate issued to such ship indicate its aggregate area of plying.

(3) Every such ship shall carry at least on rescue boat. Where a rescue boat is also a lifeboat it may be included in the aggregate capacity of lifeboats required, if any.

(4)(a) On every such ship survival craft embarkation arrangement shall provide for ---

(i) boarding and launching of the lifeboats directly from the stowed position;

(ii) boarding and launching of the davit launched liferaft from a position immediately adjacent to the stowed position to which the liferaft is transferred prior to launching in compliance with sub-rule (6) of rule 13.

(b) On every such ship of 20,000 tons gross tonnage and above, launching arrangements, where necessary utilizing painters, shall permit launching of lifeboats with the ship making headway as speed of upto 5 knots in, calm weather.

(5) On every such ship liferafts, other than those required under sub-rule (6) shall be stowed with its painters permanently attached to the ship and with a float free arrangement complying with the requirements specified in the **Ninth Schedule**. The arrangements shall be such that the liferaft shall float free and, if inflatable, inflate automatically if the ship sinks.

(6) Where the survival crafts are stowed in a position which is more than 100 meters from the stem or stern, every such ship shall carry, in addition to the liferafts specified as a requirements for each class of ship a liferaft stowed as far forward or after or one as far forward and another as far aft as it practicable and may be securely fastened so as to permit only manual release. Approved means of embarkation for such liferafts shall be provided.

(7) Survival crafts required to provide for abandonment by the total number of persons the ship is certified to carry except the survival craft referred to in clause (a) of sub-rule (1) of rule 15 shall be capable of being launched with the full complement of persons and equipment within a period of 10 minutes from the time the abandon ship signal is given.

(8)(a) Every such ship shall carry a minimum number of lifeboys in accordance with the following table.

TABLE

Length of the ship	Minimum No. of Lifebuoys.
Less than 100 meters	8
100 or more but less then 150	10
150 or more but less than 200	12
200 and more	14

(b) Self igniting lights for lifebuoys provided on tankers shall be of an intrinsically safe electric battery type.

(9) All life jackets carried on ships of Class VIII to XI (both inclusive) shall be fitted with a light in accordance with the requirements specified in Part XIII of the **Seventh Schedule**.

(10) Every such ship shall, in addition to the immersion suits specified as the equipment in life boats, liferafts and rescue boats, shall carry atleast 3 immersion suits in every lifeboat. Every ship playing continuously in regions north or south of 40^0 North or South latitude respectively shall carry a thermal protective aid for every person nor provided with an immersion suit :

Provided that the immersion suits and thermal protective aids need not be carried if the ship :

(i) has totally enclosed lifeboat on each side of the ship of such aggregate capacity as will accommodate the total number of persons on board ; or

(ii) has totally enclosed lifeboats capable of being launched on either side of the ship and of such aggregate capacity to accommodate the total number of persons the ship is certified to carry. Where the liferaft or liferafts cannot be readily transferred for launching on either side of the ship, sufficient liferafts shall be provided on each side to accommodate the total number of persons the ship is certified to carry ; or

(iii) one or more lifeboats capable of being free fall launched over the stern of the ship and of such aggregate capacity to accommodate the total number of persons the ship is certified to carry.

(iv) liferaft or liferafts on each side of such aggregate capacity to accommodate the total number of persons the ship is certified to carry. The liferaft on atleast one side of the ship shall be served by launching appliances.

(2) Every such ship, if it is less than 85 meters in length, other than tankers, chemicals carrier and gas carriers, may carry--

(i) on each side of the ship one or more liferafts of such aggregate capacity to accommodate the total number of persons the ship is certified to carry. Such liferafts shall be so stowed that they can be readily transferred for launching on either side of the ship. Where the liferafts cannot be so transferred additional liferafts shall be provided so that capacity available on each side shall accommodate 150 per cent of the total number of persons the ship is certified to cary;

(ii) sufficient survival crafts on each side so that in the event of any one survival craft being lost or rendered unserviceable, there shall be sufficient surival crafts available for use on each side to accommodate the total number of persons the ship is certified to carry.

38. Ships of class X, XI and XII.—(1) Every ship of class X, XI and XII shall in addition to the requirements specified in Section II and rule 36, shall carry liferafts of sufficient aggregate capacity to accommodate the total number of persons the ship is certified to carry and shall be so stowed that they may be readily transferred for launching on either side of the ship ;

(2) Where the liferafts cannot be so transferred, additional liferafts shall be provided so that capacity available on each side may accommodate 100 pr cent of the total number of persons the ship is certified to carry :

Provided that ship of Class XII which proceed to sea on of occasional voyage only may carry life rafts of sufficient aggregate capacity to accommodate the total number of persons the ship is certified to carry.

SECTION V

Ships of class XIII, XIV and XV

39. General.—Every ship of class XIII, XIV and XV shall comply with the provisions of rule 5, sub-rules (1) and (2) of rule 8, rules 9, 14, 16 of section I and rules 40 and 41 of this section.

40. Personal life saving appliances.—(1) Every such ship shall carry lifebuoys complying with the requirements specified in Part I of the **Second Schedule** and marked in block capitals of the roman alphabet with the name, official number and the port of registry of the ship on which it is carried.

(2) The minimum number of lifebuoys for such ship shall be in accordance with the following table :

TABLE

Length of ship in meters	Minimum number of lifebuoys
Less than 24 meters	2
24 meters and above but less than 60 meters	4
60 meters and above	6

(3) The lifebuoys shall be --

(a) so distributed that they are readily available on both sides of the ship and so stowed as to be capable of being readily cast loose;

(b) fitted with a buoyant life line complying with the requirements specified in Part I of the **Second Schedule.**

(4) At last half of the lifebuoys shall have self igniting lights complying with the requirements specified in Part XIII of the **Seventh Schedule**.

(5) Every such ship of 60 meters or above in length shall carry one lifebuouy on the navigation bridge capable of being released with a self activating smoke signal complying with the requirements specified in Part XII of the **Seventh Schedule**.

(6) Every such ship shall carry life jackets equal to the number of persons it is certified to carry complying with the requirements specified in Part II of the Second Schedule and shall be so placed as to be readily accessible and their position shall be clearly indicated.

41. Equipment and crew readiness.—In every such ship--

(a) the Master shall provide to every person on board clear instructions to be followed in event of an emergency ;

(b) at least two certificated persons shall be carried to take charge of survival crafts and to assist and train other untrained persons;

(c) each ember of the crew shall process a certificate indicating that he has attended an approved course on "survival at Sea";

(d) the crew shall practice the process of abandoning the ship and the use of life saving appliances at least once every 15 days;

(e) the Master shall ensure that all life saving appliances are in working order and ready to immediate use when she leaves port and at all times during the voyage.

42. Ships of more than 60 meters in length..(1) Every ship of class XIII, XIV and XV of more than 60 meters in length shall carry--

(a) Survival Craft Emergency Position indicating radio beacon complying with the requirements of Part IV of the **Seventh Schedule** which shall be stowed in a protected and easily accessible position ready to be moved to any survival craft in an emergency.

(b) one manually operated locating device complying with the requirements of Part V of the **Seventh Schedule** which shall be so stowed that it can be readily placed in any survival craft;

(2) Every such ship shall carry---

(a) either a rescue boat or a boat complying with the requirements specified in **Fourteenth Schedule;**

(b) liferafts of sufficient aggregate capacity to accommodate all persons the vessel is certified to carry.

43. Ships of less than 60 meters in length.—Every ship of Class XIII, XIV and XV of less than 60 meters in length shall carry--

(a) Survival Craft Emergency Position indicating radio beacon complying with the requirements of Part IV of the **Seventh Schedule** which shall be stowed in a protected and easily accessible position ready to be moved to any survival craft in an emergency ;

(b) One manually operated locating device complying with the requirements of Part V of the **Seventh Schedule** with shall be so stowed that it can be readily placed in any survival craft;

(c) liferafts of sufficient aggregate capacity to carry all persons the ship is certified to carry;

Provided that--

(i) Every such ship of les than 24 meters in length engaged on the coasting trade of India may carry in lieu of liferafts a boat complying with the requirements specified in the **fourteenth Schedule.**

(ii) Every such ships of less than 12 meters in length may not comply with the requirements of clauses 9a) and (b), if they do not go beyond 12 miles from the coast.

44. Equivalent and Exemptions.—(1) Where these rules require that a particular fitting, material, appliance or apparatus or type thereof, shall be fitted or carried in a ship, or that any particular provisions shall be made, the Director General may permit any other fitting, material appliance or apparatus or type thereof to be fitted or carried or any other provisions to be made in a ship, if he is satisfied by trial thereof that such other fitting material appliance or apparatus, or type thereof or provision is not less effective than that required by these rules.

(2) The Director General may exempt any ship not normally engaged on international voyage but which, in exceptional circumstances, is required to undertake a single international voyage, from any of the requirement of these rules.

THE FIRST SCHEDULE

[See Rules 2(d) and (0), 11(2) (b), 15(1) and (5)]

Launching and Embarkation Appliance and Arrangements

General—(1) Working Load—In this schedule the expression 'working load' means :-

(a) In relation to launching appliance for lifeboats and liferafts, the sum of the weight of the lifeboat or liferafts, its full equipment, the blocks and falls and the maximum number of persons, which the lifeboat is deemed to carry, the weight of each person being taken as 75 kilogram's.

(b) In relation to launching appliances for rescue boat, the sum of the weight of the rescue boat, blocks and falls and the number of persons which the rescue boat is certified to carry, not being less than six, the weight of each person being taken as 75 kilogram's.

(c) Where a rescue boat is also a lifeboat, the sum of the weight of the lifeboat its full equipment, the blocks and falls and the maximum number the boat is certified to carry, the weight of each person being taken as 75 kilogram's

PART II

General requirements—(1) Each launching appliance together with its lowering and recovery gear shall be so arranged that the survival craft or rescue boat it serves can be safely lowered against a trim of upto 10 degree and a list of 20 degree either way when lifeboats, liferafts or rescue boats are fully equipped and boarded by the maximum number of persons that the survival craft or rescue boat is certified to carry, provided that when survival crafts or rescue boats are not required to be boarded directly at the stowed position or at the embarkation station such launching appliance may comply with the above requirements when survival craft or rescue boat are fully equipped and boarded by its launching crews only.

(2) Notwithstanding the requirements of Para (1) of this part, lifeboat launching appliance for oil tankers, chemical tankers and gas carriers with a final angle of heel greater than 20 calculated in accordance with the international convention for the prevention of pollution from ships, 1973 as modified by the 1978 protocol related thereto and the damage stability requirements of the International code for the construction and equipment of ships carrying dangerous chemicals in bulk and the International code for the construction and equipment of ships carrying liquid gases in bulk as applicable, shall be capable of operating at that final angle of heel on the lower side of the ship.

(3)(a) A launching appliance shall not depend on any means other than gravity or stored mechanical power which is independent of the ship's supply to launch the survival craft or rescue boat it serves in the fully loaded and equipped condition and also in the light condition.

(b) All gravity davits shall be designed to provide a positive turning out moment during the whole of the davit travel from the inboard to the out board position when the vessel is upright and also when the vessel is listed at any angle upto and including 25 degrees either way from upright.

(c) In the case of gravity type davits comprising of arms mounted on trolly which engage with and travel down inclined track ways, such track ways shall be inclined at an angle of not less 30 degrees to the horizontal when the vessel is upright.

(4) A launching mechanism shall be so arranged that it may be actuated by one person from a position on the ship's deck, and from a position within the survival craft or rescue boat. The survival craft shall be visible to the person on deck operating the launching mechanism. On lifeboats intended for free fall launching the launching mechanism shall be actuated by one person only from a position within such lifeboat.

(5) Every launching appliance shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship's crew shall be readily accessible and easily maintained.

(6) The winch brakes of a launching appliance shall be of sufficient strength to withstand :

(a) a static test with a proof load of not less than 1.5 times the working load; and

(b) a dynamic test with a proof load of not less than 1.1 time the working load at maximum lowering speed.

(7) The launching appliance and its attachments other than winch brakes shall be of sufficient strength to withstand a static test with a proof load of not less than 2.2 times the working load.

(8) Structural members and all blocks falls padys links fartenings and all other fittings used in connection with launching equipment shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction in any case a minimum factor of safety of 4.5 shall be applied to all davit and winch structural members and minimum factor of safety of 6 shall be applied to falls suspension chain, Links and blocks.

(9) Every launching appliance shall, as far as practicable remain effective under conditions of icing.

(10) A life boat launching appliance shall be capable of recovering the life boat with its crew.

(11)(a) Every launching appliance shall be so arranged to enable safe and rapid boarding of survival craft by the full complement of persons it is certified to carry. In case of lifeboats, rapid disembarkation shall also be possible.

(b) On cargo ships launching appliance shall be so arranged that full complement of persons, the survival craft is certified to carry is able to board such survival craft in not m ore than 3 minutes.

PART III

Launching Appliances using falls and winches : (1) Falls where used shall be of rotation resistant and corrosion resistant steel wire ropes. such falls shall be long enough to that the survival craft or rescue boat can be safely lowered to reach the water with the ship in its lightest seagoing condition against a trim of up to 10 degree and a list of up to 20 degree either way.

(2) In the case of a multiple drum winch, unless an efficient compensatory device is fitted, the falls shall be so arranged as to wind off the drums at the same rate when lowering, and to wind on to the drums evenly at the same rate when hoisting.

(3) Every rescue boat launching appliance shall be fitted with a powered winch motor of such capacity that the rescue boat can be raised from the water with its full complement of persons and equipment. They shall be long enough for the rescue boat to reach the water with the ship in its lightest seagoing condition.

(4) An efficient hand gear shall be provided for recovery of each survival craft and rescue boat. Hand gear handles or wheels shall not be rotated by moving parts of the winch when the survival craft or rescue boat is being lowered or when it is being hoisted by power.

(5) Where davit arms are recovered by power, safety devices shall be fitted which will automatically out off the power before the davit arms reach the stops in order to avoid overstressing the falls or davits, unless the motor is designed to prevent such over stressing.

(6) The speed at which the survival craft or rescue boat is lowered into the water in loaded condition shall be not less than that obtained from the formula :

$$S = 0.4 + (0.02 \times H)$$

Where S=Speed of lowering in meters per second and H=height in meters from davit head to the water ling at the lightest seagoing condition.

Provided that, in any case, arrangements shall be made so that the lowering speed in loaded condition does not exceed 1 meter per second. In the case of life boats in lights condition, with the boat fully equipped and manned by one person the speed shall not be less than 75 per cent of the speed in loaded condition. In the case of the liferafts, with the liferafts fully equipped and manned by one person the speed shall not be less than 50 per cent of the speed in loaded condition.

(7) Launching appliance shall be designed to withstand the inertia forces experienced during an emergency stop. For this purpose the launching appliance shall be constructed to be loaded with the working load as defined in Part I.

(8) Every winch attached to a launching appliance shall be capable of lowering and holding a test load of 1.5 times the working load. While lowering under this test load, application of emergency step should be avoided Brake pads, shall, where necessary, be protected, from water and oil.

(9) The brake gear shall include means for automatically controlling the speed of lowering.

(10) Manual brakes shall be so arranged that the brake is always applied unless the operator or a machanism activated by the operator, holds the brake control in the 'Off position.

(11) Every rescue boat launching appliance shall be capable of hoisting the rescue boat when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 meters per second.

(12) Release mechanism for lifeboats shall comply with the requirements of sub-para 6 of para 7 of Part I of the **Third Schedule.**

PART IV

Other launching appliances

(1) Float free launching—Where a survival craft requires a launching appliance and is also designed to float free, the float-free release of the survival craft from its stowed position shall be automatic.

(2) Free fall launching—Every free-fall launching appliance using an inclined plane shall, in addition to complying with the applicable requirements of Part II also comply with the following requirements :

(a) The launching appliance shall be so arranged that excessive forces are not experienced by the occupants of the survival craft during launching.

(b) The launching appliance shall be a rigid structure with a ramp angle and length sufficient to ensure that the survival craft effectively clears the ship.

(c) The launching appliance shall be efficiently protected against corrosion and be so constructed as to prevent incendive friction or impact sparking during the launching of the survival craft.

(3) Evacuation slide launching and embarkation.—Every evacuation slide launching appliance shall in addition to complying with the applicable requirements of Part II, also comply with the following requirements :

(a) The evacuation slide shall be capable of being deployed by one person at the embarkation station.

(b) The evacuation slide shall be capable of being used in high winds and in a seaway.

(c) Every such appliance shall be serviced at intervals not more than 15 months .

(4) Liferaft launching appliances.—Every liferaft launching appliances shall comply with the requirements of Part II and III except with regard to use of gravity for turning out the appliance, embarkation in the stowed position and recovery of the loaded liferaft. The launching appliance shall be so arranged as to prevent premature release during lowering and shall release the liferaft only when waterborne.

PART V

TEST AFTER INSTALLATION ON BOARD

General

1. Tests shall be made to ensure that all survival crafts attached to launching appliances can be restored from the embarkation position safety and when loaded only with the required equipment.

2. Lowering test.—Each launching appliance and any associated winches and their brakes shall withstand a dynamic test with a proof load of not less than 1.1 times working load at the maximum lowering speed. Winch brakes exposed to the weather shall withstand the foregoing test with the breaking surface wetted.

3. Hoisting test for rescue Boasts launching appliances.—Rescue boats launching appliances shall in addition to the lowering test be tested by Hoisting the boats when loaded with its full rescue boat complement of persons and equipments from the water level to the embarkation position at the maximum hoisting speed.

4. Free fall launching appliance shall be tested to ensure that the survival craft can be launched under adverse condition of list and trim.

PART VI

Embarkation ladders

1. Embarkation ladders shall be provided in one length from the deck to the waterline in the lightest seagoing condition under unfavorable conditions of trim and with the ship listed not less than 20^0 either way.

2. Handholds shall be provided to ensure a safe passage from the deck to the head of the ladder and vice versa.

3. The steps of the ladder shall be

(a) made of hardwood free from knots or other irregularities smoothly machined and free from sharp edges and splinters or of suitable material of equivalent properties.

(b) provided with an efficient non-slip surface either by longitudinal grooving or by the application of an approved non-slip coating;

(c) not less than 480 millimeters long, 115 millimeter wide and 25 millimeters in depth, excluding any non-slip surface or coating ;

(d) equally spaced not less than 300 millimeters or more than 380 millimeters apart and secured in such a manner that they will remain horizontal.

4. The side ropes of the ladder shall consist of two uncovered manila ropes not less than 65 millimeters in circumference on each side. Each tope shall be continuous with no joints below the top step. Other materials may be used provided the dimensions breaking strain weathering, stretching and groping properties are at least equivalent to those of manila rope. All rope ends shall be secured to prevent unraveling.

PART VII

Illuminations : 1. Launching and embarkation appliances and arrangements shall be illuminated from the ship main generating plant and in addition from approved emergency source of electrical supply.

2. The following areas shall be adequately illuminated :

(a) All ways stairway exists giving access to every muster station;

(b) Muster and embarkation stations;

(c) The survival craft and its launching appliance to facilitate preparation and launching of survival craft;

(d) Area of the water into which the survival craft is to be launched.

THE SECOND SCHEDULE

[See rules 2(k) and (zb) 7, 40(1), (3) and (6)]

Personal life saving appliances.

PART I

Lifebouys :

1. Every lifebouy shall.—(a) be constructed of cork, evenly formed and securely plugged, or of other equally efficient buoyant material which shall not be adversely affected by oil or oil products ;

(b) If made of plastic or other synthetic compounds it shall be capable of retaining its buoyant properties and durability in contact with sea water or oil products are under variation of temperatures or climatic changes prevailing in open sea, voyages :

(c) have an outer diameter of not more than 800 millimeters and inner diameter of not less than 400 millimeters. Major axis of the section shall be not less than 150 millimeters and minor axis shall be not less than 100 millimeters ;

(d) be constructed of inherently buoyant material, it shall not depend upon rushes, cork shavings or granulated cork any other loose granulated material or any air compartment which depends on inflation for buoyancy ;

(e) be of a highly visible colour ;

(f) be copable of supporting not less than 14.5 kilogrammes of iron in fresh water for a period of 24 hours ;

(g) have a mass of not less than 2.5 kilogrammes not more than 6 kilogrammes.

(h) not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds ;

(i) be constructed to withstand a drop into the water from the height at which it is stowed above the waterline in the lightest seagoing condition or 30 meters whichever is the greater, without impairing either its operating capability or that of its attached components ;

(j) if it is intended to operate the quick-release arrangement provided for the self-activated smoke signals and self-igniting lights, have a mass sufficient operate the quick-release arrangement or 4 kilogrammes whichever is the greater ;

(k) be fitted with a grabline not less than 9.5 millimetres in diameter and not less than 4 times the outside diameter of the body of the buoy in length. The grabline shall be secured at four equidistant points around the circumstances of the buoy to form four equal loops ; and

1. When constructed of materials other than cork, be permanently marked with the manufactures trade name for that product.

2. Buoyant lifeline shall.--

(a) be buoyant even after being wet for 24 hours;

(b) be non-sinking ;

(c) have a diameter of not less than 8 millimeters;

(d) have a breaking strength of not less than 5 kilo Newton.

PART II

Lifejackets.—(1) Lifejackets shall comply with the following general requirements and they shall be so constructed that :-

(a) it shall not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds.

(b) after demonstration, a person can correctly done it within a period of 1 minute without assistance ;

(c) it is capable of being worn inside-out or is clearly capable of being worn in only one way and, as far as possible cannot be done incorrectly ;

(d) it is comfortable to wear ;

(e) it shall not be adversely affected by oil or oil products ;

(f) it shall be of a highly visible colour ;

(g) it shall be fitted with ring or loop or similar device of adequate strength to facilitate rescue ;

(h) the fabric with which it is covered and its tapes shall be rot proof;

(i) it shall have gastening tapes, securely attached to the lifejacket cover and capable of withstanding a force of 882 Newton's ;

(k) Metal fastening when used shall be of a size and strength consistent with the fastening tapes and of corrosion resistant materials; and

(l) it shall allow the earer to jump a vertical distance of 4.5 meters into the water without injury and without dislodging the lifejacket.

(2) A lifejacket shall have sufficient buoyancy and stability in calm fresh water to,--

(a) Lift the mouth of an exhausted or unconscious not less than 120 millimetres clear of the water with the body inclined backwards at an angle of not less than 20 degree and more than 50 degree from the vertical position ; and

(b) turn the body of an unconscious person in the water from any position to one where the mouth is clear of the water in not more than 5 seconds.

(3) A lifejacket shall have buoyancy which is not reduced by more, than 5 per cent after 24 hours submersion in fresh water.

(4) A lifejacket shall allow the person wearing it to swim a short distance and to board a survival craft.

(5) Every lifejacket shall be fitted with a whistle firmly secured by a cort.

(6) Every lifejacket shall be marked indelibly on both sides in letters not less than 1.27 centimeters in size with the words "Adults" or with an appropriate symbol. Marker's name or other identification mark shall be marked on one side only.

(7)(a) The buoyancy of lifejacket shall be provided by kapok or other equally effective buoyant material;

(b) Every kapok lifejacket shall in addition to the requirements of paragraph 1 to 6 of this part comply with the following :-

(i) it shall contain not less than 1 kilogramme of kapok ;

(ii) the kapok shall be of good floatation quality well teased, evenly packed and free from seeds and other foreign matter ;

(iii) The kapok shall be protected from the effects of oil or oil products so that the loss of buoyancy in the lifejacket after floating in disturbed water containing a laver of not less than 3 millimetres in depth of a mixture of gas oil for a period of 48 hours, shall not exceed 2 per cent of the initial buoyancy and for the purpose of this test the lifejacket shall be loaded with weights equal to half its initial buoyancy ;

(iv) the covering shall be of pre-shrunk cotton material, the weight of which in loom state per-meter shall be not less than 170 grammas for width of 0.68 meters and in proportion for other widths. The fabrics shall be free from admixture of sizing or other foreign matter. The threads per 25 millimeters in loom state shall be warp 44 two-fold threads and waft 34 two-fold threads. The sewing shall be carried out with linen thread of a quality of not less than 25 a fine white more cord.

(c) Every such lifejacket using a buoyant material other than kapok shall comply with the requirement of paragraph 1 to 6 of this part such buoyant material shall weigh not more than 192.5 kilogrammes per cubic meter and shall be of good quality and clean. If the material is in pieces, the size of each piece shall be not less than 164 cubic centimeters unless such pieces are in layer form and are fastened together with an approved adhesive and the material is chemically stable.

PART III

Children's lifejackets: 1. Every lifejacket for use by a child shall provide adequate buoyancy so as to enable it to satisfy the requirements of paragraph 1,2 and 3 with the exemption of the provision of paragraph 1(b) of part II

2. Every such lifejacket shall be marked indelibly on both sides in letters not less than 13.0 millimeters in size with the words 'CHILD" or with an appropriate symbol. Maker's name or other identification mark shall be marked on one side only.

3. Every such lifejacket shall comply with the requirement of paragraph 1 of part II.

4. Every kapok lifejacket shall contain not less than 425 grammes kapok and shall in addition to complying with the requirements of paragraph 1 of Part II comply with the requirement of clause ii, iii and iv of paragraph (7b) of Part II of this Schedule.

5. Every lifejacket using a buoyant material other than kapok shall in addition to complying with the requirement of paragraph 1 of Part II comply with clause C of paragraph 7 of Part II of this Schedule.

PART IV

Immersion Suits.—(1) The immersion suit shall be constructed with waterproof materials such that

(a) it can be unpacked and donned without assistance within 2 minutes taking into account any associated clothing and a lifejacket if the immersion suit is to be worn in conjunction with a lifejacket :

(b) it will not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds ;

(c) it will cover the whole body with the exception of the face. hands shall also be covered unless permanently attached gloves are provided;

(d) it is provided with arrangements to minimize or reduce free air in the legs of the suit ; and

(e) following a jump from a height of not less than 4.5 meters into the water there is no undue ingress of water into the suit

2. An immersion suit, which also complies with the requirements of Part II of this schedule may be classified as a lifejacket.

(3) An immersion suit shall permit the person wearing it and if the immersion suit is to be worn in conjunction with a lifejacket then when wearing a life jacket to :-

(a) climb up and down a vertical ladder at least 5 meters in length ;

(b) perform normal duties during abandonment.

(c) jump from a height of not less than 4.5 meters into the water without damaging or dislodging the immersion suit, or being injured; and

(d) swim a short distance through the water and board a survival craft.

(4) An immersion suit which has buoyancy and is designed to be worn without a lifejackets shall be fitted with a light complying with the requirements of Para (8) or Para (9) of Part II of this schedule and the whistle prescribed by Para (5) of Part II of this Schedule.

(5) If the immersion suit is to be worn in conjunction with a lifejacket, the lifejacket shall be worn over the immersion suit. A person wearing such an immersion suit shall be able to don a lifejacket without assistance.

(6) Thermal performance requirements for immersion suits :-

(a) An immersion suit made of material which has no inherent insulation shall be :-

(i) marked with instructions that it must be worn in conjunction with warm clothing; and

(ii) so constructed that, when worn in conjunction with warm clothing, and with a lifejacket, if the immersion suit is to be worn with a lifejacket, the immersion suit continues to provide sufficient thermal protection, following one jump by the wearer into the water from a height of 4.5 meters to ensure that when it is worn for a period 1 hour in calm circulating water at a temperature of 5 degree C, the wearer's body core temperature does not fall more than 2 degree C

(7) An immersion suit made of material with inherent insulation, when worn either on its own or with a lifejacket, if the immersion suit is to be worn with a lifejacket, shall provide the wearer with sufficient thermal insulation following one jump into the water from a height of 4.5 meters to ensure that the wearer's body core temperature does not fall more than 2 degree C after a period of 6 hours immersion in calm circulating water at a temperature of between 0 degree C and 2 degree C.

(8) The immersion suit shall permit the person wearing it with hands covered to pick up a pencil and writ after being immersed in water at 5^0 C for a period of 1 hour.

(9) Buoyancy requirements – A person in fresh water wearing either an immersion suit complying with the requirements of Para (2) of this part of an immersion suit with a lifejacket, shall be able to turn from a face-down to a face-up position in not more than 5 seconds.

PART V

thermal protective aids.—(1) A thermal protective aid shall be made of waterproof material having a thermal conductivity of not more than 0.25 Weber Metre-Kelvin and shall be so constructed that when used to enclose a person, it shall reduce both the convective and evaporative heat loss from the wearer's body.

(2) The thermal protective aid shall :

(a) cover the whole body of a person wearing a lifejacket with the exception of the face. Hands shall also be covered unless permanently attached gloves are provided ;

(b) be capable of being unpacked and easily donned without assistance in a survival craft or rescue boat ;

(c) Permit the wearer to remove it in the water in not more than 2 minutes if it impairs ability to swim.

(3) The thermal protective aid shall function properly throughout an air temperature range —30^0 C to = 20^0C.

THIRD SCHEDULE

[See rules 2(q), 13(2)d, 15.8, 25, 29 and 36(2)]

PART 1

General requirements for lifeboats

1. Construction of lifeboats.—(1) All lifeboats shall be properly constructed and shall be such form and proportion that they have ample stability in a seaway and sufficient free-board when loaded with their full complement of persons and equipment. All lifeboats shall have rigid hulls and shall be capable of maintaining positive stability when in an upright position in calm water and loaded with their full complement of persons and equipment and hold in any one location below the waterline, assuming no loss of buoyancy material and no other damage and allowing for the buoyancy of the full complement of persons.

(2) All lifeboats shall be of sufficient strength to :

(a) enable them to be safely lowered into the water when loaded with their full complement of persons and equipment; and

(b) be capable of being launched and towed when the ship is making headway at a speed of 5 knots in calm water

(3) Hulls and rigid covers shall be fire-retardant or non-combustible.

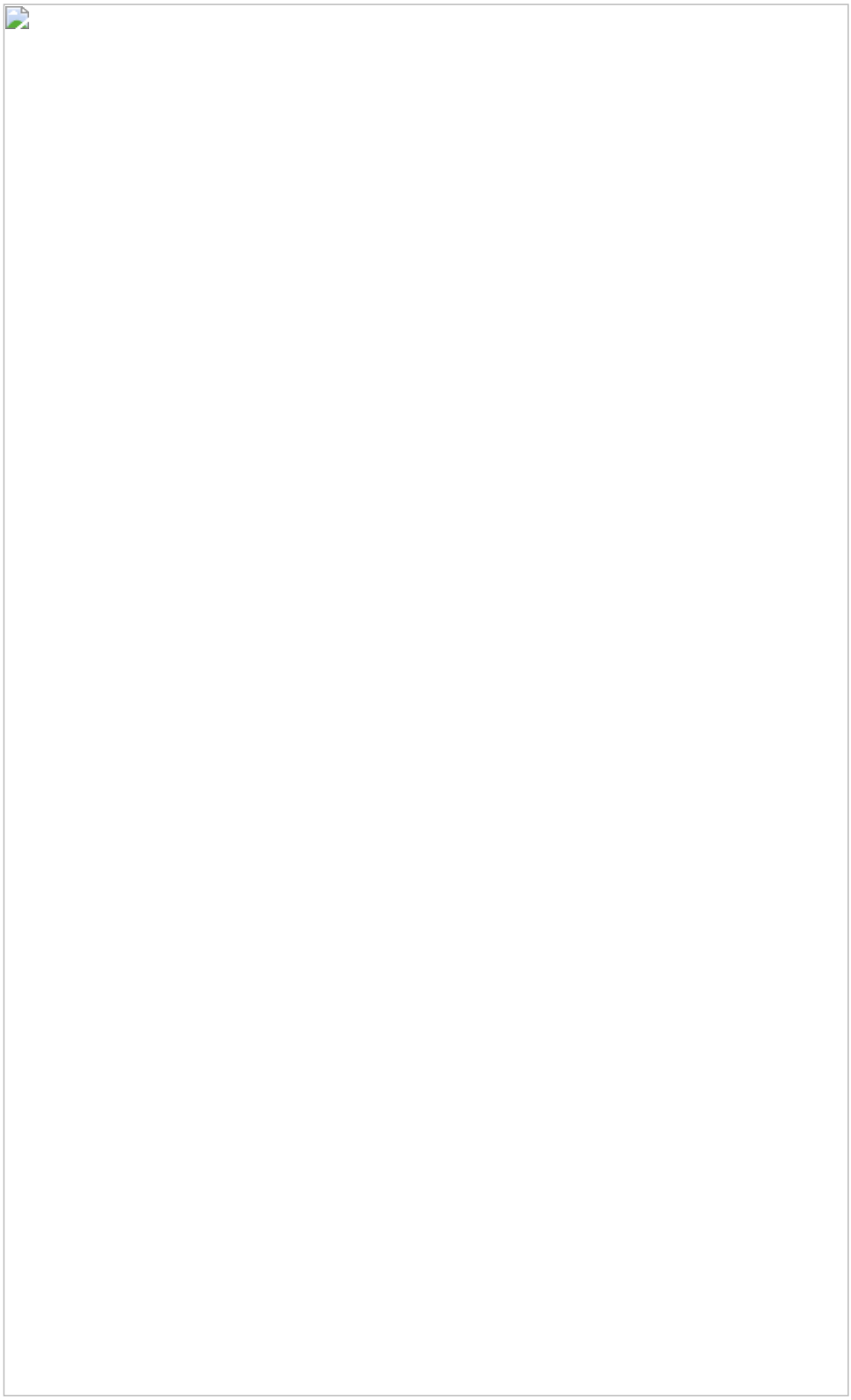
(4) Seating shall be provided on thwarts, benched or fixed chairs fitted as low as practible in the lifeboat and constructed so as to be capable of supporting the number of persons, each weighing 100 Kilogrames, for which spaces are provided in compliance with the requirements of clause (2) of Para (2) of this Part.

(5) Each lifeboat, shall be of sufficient strength to with stand load, without residual deflection on removal of that load and such load shall ;

(a) in the case of boats with metal hulls be 1.25 times the total mass of the lifeboat when loaded with its full complement of persons and equipment ; or

(b) in the case of other boats be twice the total mass of the lifeboat when loaded with its full complement of persons and equipment.

(6) Each lifeboat shall be of sufficient strength to withstand when loaded with its full complement of persons and equipment and with, where applicable, skates or tenders in position, a lateral impact against the ship's side at an impact velocity of at least 3.5 meter per second and also a drop into the water from a height of at least 3 meters



(7) The vertical distance between the floor surface and the interior of the enclosure or canony over 50 per cent of the floor area shall be :

(a) not less than 1.3 meters or a lifeboat permitted to accommodate nine person or less;

(b) not less than 1.7 meters or a lifeboat permitted to accommodate 24 persons or more, and

(c) not less than the distance as determined by linear interpolation between 1.3 meters and 1.7 meters for a lifeboat permitted to accommodate between 9 and 24 persons.

2. Carrying capacity of lifeboats.—(1) No lifecoat shall accommodate more than 150 persons.

(2) The number of persons which a lifeboat shall be permitted to accommodate shall be equal to the lesser of ;

(a) the number of persons having an average mass of 75 kilogrammes all wearing lifejackets, that can be seated in a normal position without interfacing with the means of propulsion or the operation of any of the lifeboats equipments; or

(b) the number of spaces that can be provided on the seating arrangements in accordance with Figure 1. The shapes may be overlapped as shown, provided footrest are fitted and there is sufficient room for legs and the vertical separation between the upper lower set is not less than 350 mm.

(c) Each seating position shall be clearly indicated in the lifeboat.

3. Access into lifeboats.—(1) Every passenger ship lifeboat shall be so arranged that it can be rapidly boarded by its full complement of person. Rapid disembarkation shall also be possible.

(2) Every cargo ship lifeboat shall be so arranged that it can be boarded by its full complement of persons in not m ore than 5 minutes from the time the instruction to board is given. Rapid disembarkation shall also be possible.

(3) Lifeboats shall have a boarding ladder that can be used on either side of the lifeboat to enable persons in the water to board the lifeboat. The lowest step of the ladder shall be not less than 0.4 meter below the life boat's light waterline.

(4) The lifeboat shall be so arranged that helpless people can be embarked on the lifeboat on stretchers at the embarkation station.

(5) All surfaces on which persons might walk shall have a non-skid finish.

4. Lifeboat buoyancy.—All lifeboats shall have inherent buoyancy or shall be fitted with inherently buoyant material, which shall not be adversely affected by seawater and oil or oil products, sufficient to float the lifeboat with all its equipment on board when flooded and open to the sea. Additional inherently buoyant material equal to 280 Newton's of buoyant force per person shall be provided for the number of persons the lifeboat is permitted in accommodate. Buoyant material, unless in addition to that required above, shall not be installed external to the hull of the lifeboat.

5. Lifeboat free board and stability.—All lifeboats when loaded with 50 per cent of the number of persons the lifeboat is permitted to accommodate seated in their normal position to one side of the centerline, shall have a freeboard measured form the waterline to the lowest opening through which the lifeboat may become flooded, of at least 1.5 per cent of the lifeboat's length or 100 millimetres whichever is the greater.

6. Lifeboat propulsion.—(1) Every lifeboat shall be powered by a compression ignition engine. No engine shall be used for any lifeboat if its fuel has a flashpoint of 43^0 C or less (closed cup test).

(2) The engine shall be provided with either a manual starting system, or a power starting system with two independent rechargeable energy sources. Any necessary starting aids shall also be provided. The engine starting systems and starting aids shall start the engine at an ambient temperature of 15^0C within 2 minutes of commencing the start procedure unless, in the opinion of the Central Government having regard to the particular voyages in which the ship carrying the lifeboat is constantly engaged, a different temperature is appropriate. The starting systems shall not be impeded by the engine casing, thwarts or other obstructions.

(3) The engine shall be capable of operating for not less than 5 minutes after starting from cold with the lifeboat out of the water.

(4) The engines shall be capable of operating when the lifeboat is flooded upto the centerline of the

(5) The propeller shafting shall be so arranged that the propeller can be disengaged from the engine. Provision shall be made for ahead and eastern propulsion of the lifeboat.

(6) The exhaust pipe shall be so arranged as to prevent water from entering the engine in normal operation.

(7) All lifeboats shall be designed with due regard to the safety of persons in the water and to the possibility of damage to the propulsion systems by floating debris.

(8) The speed of a lifeboat when proceeding ahead in clam water, when loaded with its full complement of persons and equipment and with all engine-powered auxiliary equipment in operation, shall be at least 6 Knots and at least 2 Knots when towing a 25 persons liferaft loaded with its full complement of persons and equipment or its equivalent. Sufficient fuel, suitable for use throughout the temperature range expected in the area in which the ship operates, shall be provided to run the fully loaded lifeboat at 6 knots for a period of not less than 25 hours.

(9) The lifeboat engine, transmission and engine accessories shall be enclosed in a fire-retardant casing or other suitable arrangements providing similar protection. Such arrangements shall also protect persons from coming into accidental contact with hot or moving parts and protect the engine from exposure to weather and sea. Adequate means shall be provided to reduce the engine noise. Starter batteries shall be provided with casings which form a watertight enclosure around the bottom and sides of the batteries. The battery casings shall have a tight fitting top which provided for necessary gas venting.

(10) The lifeboat engine and accessories shall be designed to limit electromagnetic emissions so that engine operation does not interfere with the operation of radio life-saving appliances used in the lifeboat.

(11) Means shall be provided for recharging all engine starting, radio and search-light batteries. Radio batteries shall not be used to provided power for engine starting. Means shall be provided for recharging lifeboat batteries from the ship's power supply at a supply voltage not exceeding 55 volts which can be disconnected at the lifeboat embarkation station.

(12) Water-resistant instructions for starting and operating the engine shall be provided and mounted in a conspicuous place near the engine starting controls.

7. Lifeboat fittings.—(1) All lifeboats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open to drain water from the hull when the lifeboat is not waterborne and shall automatically close to prevent entry of water when the lifeboat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve which shall be attached to the lifeboat by a lanyard, chain, or other suitable means. Drain valves shall be readily accessible from inside the lifeboat and their position shall be clearly indicated.

(2) All lifeboat shall be provided with a rudder and tiller. When a wheel or other remole steering mechanism is also provided the tiller shall be capable of controlling the rudder in case of a failure of the steering mechanism. The rudder shall be permanently attached to the lifeboat. The tiller shall be permanently installed on, or linked to, the rudder stock however, if the lifeboat has a remote steering mechanism, the tiller may be removable and securely stowed near the rudder stock. The rudder and tiller shall be so arranged as not to be damaged by operation of the release mechanism or the propeller.

(3) Except in the vicinity of the rudder and propeller a buoyant lifeline shall be bickered around the out side of the lifeboat.

(4) Lifeboats which are not self-righting when capsized shall have suitable hand-holds on the underside of the hull to enable persons to cling to the lifeboat. The handholds shall be fastened to the lifeboat in such a way that, when subjected to an impact sufficient to cause them to break away from the lifeboat, they break away without damaging the lifeboat.

(5) All lifeboats shall be fitted with sufficient water tight lockers or compartment to provide for the storage of the small items of equipment, water and provisions required by paragraph 8. Means shall be provided for the storage of collected rainwater.

(6) Every lifeboat to be launched by a fall or falls, shall be fitted with a release mechanism complying with the following requirements :

(a) The mechanism shall be so arranged that all hooks are released simultaneously :

(b) the mechanism shall have two release capabilities as follows :

(i) a normal release capability which will release the lifeboat when it is waterborne or when there is no load on the hooks;

(ii) an on-load release capability which will release the lifeboat with a load on the hooks. This release shall be so arranged as to release the lifeboat under any conditions of loading from no-load with the lifeboat waterborne to a load of 1.1 times the total mass of the fully equipped

lifeboat loaded with its full complement of persons and equipment. This release capacity shall be adequately protected against accidental or premature use.

(iii) The release control shall be clearly marked in a colour that contrasts with its surroundings.

(iv) The mechanism shall be designed with a factor of safety of 6 based on the ultimate strength of the materials used, assuming the mass of the lifeboat is equally distributed between the falls.

(7) Every lifeboat except fee fall launching lifeboats shall be fitted with a release device to enable the forward painter to be released when under tension.

(8) Every lifeboat shall be provided with permanent arrangement for adequately sitting and securing in the operating position with antennas and earth connection, if any :-

(a) the portable radio apparatus required by clause (a) of rule 6.

(b) The emergency position indicating radio beacon required by clause (c) of rule 6 and

(c) the manually operated locating device required under clause (d) of rule 6.

(9) Lifeboats intended for launching down the side of a ship shall have skates and fenders as necessary to facilitate launching and prevent damage to the lifeboat.

(10) a manually controlled lamp visible on a dark night with a clear atmosphere at a distance of at least 2 miles for a period of not less than 12 hours shall be fitted to the top of the cover or enclosure. If the light is a flashing light, shall initially flash at a rate of not less than 50 flashes per minute over the first 2 hours of operation of the 12 hours operating period.

(11) A lamp or source of light shall be fitted inside the lifeboat to provide illumination for not less than 12 hours to enable reading of survival equipment instructions. However, oil lamps shall not be permitted for this purpose.

(12) Unless expressly provided otherwise every lifeboat shall be provided with effective means of bailing or be automatically self-bailing.

(13) Every lifeboat shall be so arranged that an adequate view forward at and to both sides is provided from the control and steering position for safe launching and maneuvering.

8. Lifeboat equipment.—All items of lifeboat equipment, whether required by these rules with the exception of boat hocks which shall be kept free for fending off purposes, shall be secured within the lifeboat by lashings, storage in brackets or similar mounting arrangements or other suitable means. The equipment shall be secured in such a manner as not to interfere with any abandonment procedures. All items of lifeboat equipment shall be as small and of a little mass as possible and shall be packed in a suitable and compact form. Except where otherwise stated, the normal equipment of every lifeboat shall consist of :-

(a) approved buoyant oars with sufficient buoyancy. Thole pm crutches or equivalent arrangements shall be provided for each oars provided. Thole pins or crutches shall be attached to the boat by lanyards or chains, provided that free fall launching lifeboats need not comply with this requirement.

(b) two boat-hooks.

(c) a buoyant bailer and two buckets.

(d) an approved survival manual.

(e) a binnacle containing an approved compass which is luminous or provided with suitable means of illumination in a totally enclosed lifeboat the compass shall be a permanently fitted at the steering position and need not be fitted with a binnacle. In any other lifeboat, a binnacle shall be provided with suitable mounting arrangements

(f) a sea-anchor of adequate size fitted with a shock-resistant hawser and a tripping line which provides a firm hand grip when wet. The strength of the sea-anchor, hawser and tripping line shall be adequate for all sea conditions.

(g) two efficient painters of a length equal to not less than twice the distance form the stowage position of the lifeboat to the water ling in the lightest sea-going condition or 15 meters whichever is the greater. One painter attached to the release device required by Part I sub-Para (7) of Para 7 above shall be placed at the forward end of the lifeboat. The other painter shall be firmly secured at or near the bow of the lifeboat ready for use.

(h) two hatchets, one at each end of the lifeboat.

(i) an approved watertight receptacles containing a total of 3 liters of fresh water for each person the lifeboat is permitted to accommodate, of which a liter per person may be replaced by an approved desalting apparatus capable of production an equal amount of fresh water in 2 days.

(j) a rust profdipper with lanyard.

(k) a rust prood graduated drinking vessel.

(l) approved food rations totaling not less than 10,000 kilojoules for each person the lifeboat is permitted to accommodate. These rations shall be kept in airtight packaging and be stowed in a water tight container.

(m) four rocket parachute flares complying with the requirements of part X of the **Seventh Schedule**.

(n) six hand flares complying with the requirements of Part XI of the **Seventh Schedule**

(o) two buoyant smoke signals complying with the requirements of Part XII of the **Seventh Schedule**.

(p) One waterproof electric torch suitable for Morse signaling together with one spare set of batteries and one spare bulb in a waterproof container.

(q) One approved daylight signaling mirror with instructions for its signaling to ships and aircraft.

(r) One copy of the life-saving signals as specified in the part XVI of the **Seventh Schedule** on a waterproof card or in a waterproof container.

(s) One whistle or equivalent sound signal.

(t) an approved first-aid outfit in a waterproof case capable of being closed tightly after use containing the equipment as specified in Part VII of the schedule for every 30 persons or part thereof the lifeboat is certified to carry.

(u) six does of anti-sea-sickness medicine and one sea-sickness bag for each person.

(v) a Jack-knife to be kept attached to the boat by a lanyard.

(w) three tin openers.

(x) two buoyant rescue quoits, attached to not less than 30 meters of buoyant line.

(y) a manual pump.

(z) one set of approved fishing tackle.

(aa) sufficient tools for minor adjustments to the engine and its accessories.

(ab) approved portable fire-extinguishing equipment suitable for extinguishing on fires.

(ac) approved searchlight capable of effectively illuminating a light-coloured object a night having a width of 18 meters at a distance of 180 ms. for a total period of 6 hours and of working for not less 3 hours continuously.

(ad) an efficient radar reflector.

(ae) approved thermal protective aids complying with the requirements of Part V of the **second Schedule** sufficient for 10 per cent of the number of persons the lifeboat is permitted to accommodate or two persons, whichever is the greater.

(af) In the case of ships engaged on voyages of such a nature and duration that, in the opinion of the Central Government the items specified in clause (1) and (z) of the paragraph are unnecessary, the Central Government may allow these items to be dispensed with.

9. Lifeboat marking.—(1) The dimensions of the lifeboat and the number of persons which it is permitted to accommodate shall be marked on it in clear permanent characters.

(2) The name and port of registry of the ship to which the lifeboat belongs shall be marked on each side of the lifeboat's bow in block capitals of the roman alphabet.

(3) Means of identifying th ship to which the lifeboat belongs and the number of the lifeboat shall to marked on the canopy in such a way that they are visible from above.

PART II

Partially enclosed lifeboats

1. General partially enclosed lifeboats shall comply with the requirements of Part I and in addition shall comply with the requirements of this Part.

2. Every partially enclosed lifeboat shall be provided with effective means of balling or be automatically self bailing.

3. Partially enclosed lifeboats shall be provided with permanently attached rigid covers extending over not less than 20 per cent of the length of the lifeboat from the stem and not less than 20 percent of the length of the lifeboat from the aftermost part of the lifeboat. The lifeboat shall be fitted with a permanently attached foldable canopy which together with the rigid covers completely encloses the occupants of the lifeboat in weatherproof shelter and protects them from exposure. The canopy shall be so arranged that :

(a) it is provided with adequate rigid sections or battens to permit erection of the canopy.

(b) it can be easily erected by not more than two persons.

(c) it is insulated to protect the occupants against hes and cold by means of not less than two layers of material separated by an air gap or other equally efficient means. Means shall be provided to prevent accumulation of water in the air gap.

(d) its exterior is of a highly visible colour and its interior is of a colour which does not cause discomfort to the occupants.

(e) it has entrances at both ends and one on each side, provided with efficient adjustable closing arrangements which can be easily and quickly opened and closed from inside or outside so as to permit ventilation but exclude seawater, wind and cold. Means shall be provided for holding the entrances securely in the open and closed position.

(f) with the entrances closed, it admits sufficient air for the occupants at all times.

(g) it has means for collecting rainwater, and

(h) the occupants can escape in the event of the lifeboat capsizing.

4. The exterior of the lifeboat shall be of a highly visible colour.

5. The radio telegraph installation required to be provided by sub-rule (7) of rule 30 or sub-rule (5) of rule 31 shall be installed in an approved sheltered space or cabin large enough to accommodate both equipment and the person using it.

PART III

Self-righting partially enclosed lifeboats

1. General.—Self-righting partially enclosed lifeboats shall comply with the requirements of Part I and in addition shall comply with the requirements of this Part.

2. Enclosure.—(1) Permanently attached rigid covers shall be provided extending over not less than 20 per cent of the length of the lifeboat from the stem and not less than 20 per cent of the length of the lifeboat from the aftermost part of the lifeboat.

(2) The rigid covers shall form two shelters. If the shelters have bulkheads they shall have openings of sufficient size to permit easy access by persons each wearing an immersion suit or warm clothes and life-jacket. The interior height of the shelters shall be sufficient to permit easy access to persons to their seats in the bow and stern of the lifeboat.

(3) The rigid covers shall be so arranged that they include windows or translucent panels to admit sufficient day light to the inside of the lifeboat with the openings or canopies closed so as to make artificial light unnecessary. Such windows or panels may be sited on the upper side of the rigid enclosures.

(4) The rigid covers shall have railings to provide a secure handhold for persons moving about the exterior of the lifeboat.

(5) Open parts of the lifeboat shall be fitted with a permanently attached foldable canopy so arranged that :

(a) it can be easily erected by not more than two persons in not more than 2 minutes.

(b) it is insulated to protect the occupants against, cold by means of not less than two layers of material separated by an air gap or there equally efficient means.

(6) The enclosure formed by the rigid covers and canopy shall be so arranged :

(a) as to allow launching and recovery operations to be performed without any occupant having to leave the enclosure.

(b) that it has entrances at both ends and one each side, provided with efficient adjustable closing arrangements which can be easily and quickly opened and closed from inside or outside so as to permit ventilation but exclude seawater, wind and cold. means shall be provided for holding the entrances securely in the open and in close position;

(c) that with the canopy erected and all entrances closed, sufficient air is admitted for the occupants at all times;

(d) that it has means for collecting rainwater.

(e) that the exterior of the rigid covers and canopy and the interior of that part of the lifeboat covered by the canopy is of a highly visible colour. The interior of the shelters shall be of a colour which does not cause discomfort to the occupants;

(f) that it is possible to row the lifeboat.

3. Capsizing and re-righting.—(1) A safety belt shall be fitted at each indicated seating position. The safety belt shall be so designed as to hold a person of a mass of 100 Kg. securely in place when the lifeboat is in a capsized position.

(2) The stability of the lifeboat shall b such that it is inherently or automatically self-righting when loaded with its full or a partial complement of persons and the persons are secured with safety belts.

4. Propulsion.—(1) The engine and transmission shall be controlled from the helmsmen's position.

(2) The engine and engine installation shall be capable of running in any position during capsize and continue to run after the lifeboat returns to the upright or shall automatically stop on capsizing and be easily restarted after the lifeboat returns to the upright and the water has been drained from the lifeboat. The design of the fuel and lubricating systems shall prevent the loss of fuel and the loss of more than 250 milliliters of lubricating oil from the engine during capsize.

(3) Air-cooled engines shall have a duel system to take in cooling air from and exhaust it to the outside of the lifeboat. Manually operated dampers shall be provided to enable cooling air to be taken in from and exhausted to, the interior of the lifeboat.

5. Construction and fendering.—(1) Notwithstanding the provision of Para 1.6 of part I, a self-righting partially enclosed lifeboat shall be as constructed and rendered as to ensure that the lifeboat renders protection against harmful accelerations resulting from an impact of the lifeboat, when loaded with its full complement of persons and equipment, against the ship's side at an impact velocity of not less than 3.5 meters per second.

(2) The lifeboat shall be automatically self-bailing.

PART IV

Totally enclosed lifeboats

1. Totally enclosed lifeboats shall comply with the requirements of Part I and in addition shall comply with the requirements of the Part.

2. Enclosure.—Every totally enclosed lifeboat shall be provided with a rigid watertight enclosures which completely encloses the lifeboat. The enclosure shall be so arranged that :

(a) it protects the occupants against heat and cold.

(b) access to the lifeboat is provided by hatches which can be closed to make the lifeboat watertight.

(c) hatches are positioned so as to allow launching and recovery operations to be performed without any occupant having to leave the enclosures.

(d) access hatches are capable of being opened and closed from both inside and outside and are equipped with means to hold them securely in open position.

(e) with the exception of the free launched lifeboat it is possible to row the lifeboat.

(f) when the lifeboat is in the capsized position with the hatches closed and without significant leakage, it is capable of supporting the entire mass of the lifeboat, including all equipment, machinery and its full complement of persons.

(g) it includes windows or translucent panels on both sides or on the upper sides of rigid enclosure which admit sufficient daylight to the inside of the lifeboat with the hatches closed to make artificial light unnecessary. such windows or panels may be sited on the upper side of the rigid enclosure.

(h) its exterior is of a highly visible colour and its interior of a color which does not cause discomfort to the occupants.

(i) hand rails provide a secure handhold for persons moving about the exterior of the lifeboat, and aid embarkation and disembarkation.

(k) the occupants are protected from the effects of dangerous sub-atmospheric pressures which might be created by the lifeboat's engine.

3. Capsizing and re-righting—(1) A safety belt shall be fitted at each indicated seating position. The safety belt shall be designed to hold a person of a mass of 100 kilo grams securely in place when the lifeboat is in a capsized position.

(2) The stability of the lifeboat shall be such that it is inherently or automatically self-righting when loaded with its full or a partial complement of persons and equipment and all entrances and openings are closed watertight and the persons are secured with safety belts.

(3) The lifeboat shall be capable of supporting its full complement of persons and equipment when the lifeboat is in the damaged condition prescribed in Para 4 of Part I and its stability shall be such that in the event of capsizing it will automatically attain a position that will provide an above water escape for its occupants.

(4) The design of all engine exhaust pipes, air ducts and other openings shall be such that water in excluded from the engine when the lifeboat capsizes and re-rights.

(2) The engine and engine installation shall be capable of running in any position during capsize and continue to run after the lifeboat returns to the upright or shall automatically top on capsizing and be easily restarted after the lifeboat returns to the upright. The design of the fuel and lubricating systems shall prevent the loss of fuel and the loss of more than 250 milliliters of lubricating oil from the engine during capsize.

(3) Air-cooled engines shall have a dual system to take cooling air from, and exhaust it to, the outside of the lifeboat. Manually operated dampers shall be provided to enable cooling air to be taken in form, and exhausted to the interior of the lifeboat.

5. Construction and rendering-Notwithstanding the provisions of clause (6) of Para 1 of Part I, a totally enclosed lifeboat shall be so constructed and rendered as to ensure that the lifeboat renders protection against armful accelerations resulting from an impact of the lifeboat, when loaded with its full complement of persons and equipment against the ship's side at an impact velocity of not less than 3.5 meters per second.

6. Free-fall lifeboats.—A lifeboat arranged for free fall launching shall be so constructed that it is capable of rendering protection against harmful accelerations resulting from being launched, when loaded with its full complement of persons and equipment, from at least the maximum height at which it is designed to be stowed above the waterline with the ship in its lightest seagoing condition, under unfavorable conditions of trim of upto $10^0$and with the ship listed not less than 20^0 either way.

PART V

Lifeboat with a self-contained air support system.—In addition to complying with the requirements of Part I and Part IV, a lifeboat with a self-contained air support system shall be so arranged that, when proceeding with all entrances and openings closed the air in the lifeboat remains safe and breathable and the engine runs normally for a period of not less than 10 minute. During this period the atmospheric pressure inside the lifeboat shall never fill below the outside atmospheric pressure or shall it exceed it by more than 20m bar. The system shall have visual indicators to indicate the pressure of the air supply at all times.

PART VI

Fire-protected life-boats

1.General—In addition to complying with the requirements of Part 1, Part IV and Part V, a fire-protected lifeboat when waterborne shall be capable of protecting the number of persons it is permitted to accommodate when subjected to a continuous oil fire that envelopes the lifeboat for a period of not less than 8 minutes.

2. Water spray system.—A lifeboat which has a water spray fire-protection sytem shall comply with the following :

(a) Water for the system shall be drawn from the sea by a self-printing motor pump. it shall be possible to turn "on" and turn "of" the flow of water over the exterior of the lifeboat;

(b) the sea water intake shall be so arranged as to prevent the intake of flammable liquids from the sea surface;

(c) the system shall be arranged for flushing with fresh water and allowing complete drainage.

PART VII

First Aid Kit

1.The content of every first aid kit provided in a lifeboat or a life raft shall include the following--

ARTICLE	QUANTITY
(a) Collapse reviers	6 capsules
(b) Pain relivers	25 tablets
(c) Morphine syringe containing a solution of either morphine salt equivalent to Anhydrous Morphine 0.25 gm. in c.cc Papaveretum B.P.C 0.5 gms in 1 c.c	6 ampoules
(d) Antisepic burn or wound cream Centrimide BPC 0.5 per cent W/W	100 GMS.
(e) Energy tablets 10 gm	60 tablets
(f) Standard dressings No.15 large BPO 20 x 15 cms.	4 Nos.
(g) Standard dressing No. 14 large BPC 15 x 10 cms.	4 Nos.
(h) Plastic adhesive dressings 8 x 5 cms.	6 Nos.
(i) Bandages triangular illustrated 125 x 95.95 cms.	4 Nos.
(j) Roller wove Bandages compressed 5.6 cms x 3.5 meters	10 Nos.
(k) Cotton wool compressed	125 gms.
(l) Safety pins, brass plated 5 cms	6 Nos.
(m) Scissors, 10 cms one sharp and one point made of rustless and stainless steel	1 No.
(n) Silica Gel	1 capsule
(o) Instruction in English an Hindi languages printed on linen or waterproof paper stating how and when to use the different items.	

2. The first aid kit shall be packed in a container which shall comply with the following requirements :-

(a) It shall be durable, damp proof, water proof and effectively sealed.

(b) It shall not be effected by extreme temperature.

(c) Every item in the container shall be properly packed and marked with names and quantity/size of the item.

(d) It shall be packed in a room from which an atmospheric moisture has been removed as far as possible.

(e) It shall not be made of metal.

(f) An itemized list of contents shall be given on the outside of the container.

THE FOURTH SCHEDULE

[See rules 2(r), 13(2)(d), 19(6)]

Inflatable life rafts

PART I

GENERAL REQUIREMENTS FOR LIFE RAFTS

1. Construction of liferafts.—(1) Every liferaft shall be so constructed as to be capable of withstanding exposure for 30 days in all sea conditions.

(2) The liferaft shall be so constructed that when it is dropped into the water from a height of 18 meters, the liferafts and its equipment will operate satisfactorily. If the liferaft is to be stowed at a height of more than 18 meters above the waterline in the lightest seagoing condition, it shall be of a type which has been satisfactorily drop-tested from at least that height.

(3) The boating liferaft shall be capable of withstanding repeated jumps on to it from a height of at least 4.5 meters above its floor both with and without the canopy erected.

(4) The liferaft and its fittings shall be so constructed as to enable it to be towed at speed of 3 knots in calm water when loaded with its full complement of persons and equipment and with one of its sea-anchors streamed.

(5) The liferaft shall have a canopy to protect the occupants from exposure which is automatically set in place when the liferaft is launched and waterborne. The canopy shall comply with the following :

(a) it shall provide insulation against heat and cold by means of either two layers of material separated by an air gap or other equally efficient means. means shall be provided to prevent accumulation of water in the air gap;

(b) its interior shall be a colour that does not cause discomfort to the occupants ;

(c) each entrance shall be clearly indicated and be provided with efficient adjustable closing arrangements, which can be easily and quickly opened from inside and outside the life raft so as to permit ventilation but exclude seawater, wind and cold. Life-rafts accommodating more than eight persons shall have at least two diametrically opposite entrances ;

(d) it shall admit sufficient air for the occupants at all times even with the entrances closed ;

(e) it shall be provided with at least one viewing port ;

(f) it shall be provided with means for collecting rain water ;

(g) it shall have sufficient headroom for sitting occupants under all parts of the canopy.

2. Minimum carrying capacity and mass of Liferafts.—(1) No liferaft shall be approved which has a carrying capacity of less than six persons calculated in accordance with the requirements of Para 3 of Part II or Para 3 of Part III of this Schedule, as appropriate.

(2) Unless the liferaft is to be launched by an approved launching appliance and is not required to be portable, the total mass of the liferaft, its container and its equipment shall not be more than 185 kilogrammes.

(a) the portable radio apparatus required by clause (a) of rule 6 ;

(b) the emergency position indicating radio beacon required by clause (c) of rule 6; and

(c) the manually operated locating device required under clause (d) of rule 6.

(3) The liferaft shall be fitted with an efficient painter of length equal to not less than twice the distance from the stowed position to be waterline in the lightest seagoing condition or 15 metres, whichever is the greater.

4. Davit-launched liferaft.—(1) In addition to the above requirements, a liferaft for use with an approved launching appliance shall :

(a) when the liferaft is loaded with its full complement of persons and equipment be capable of withstanding a lateral impact against the ship's side at an impact velocity of not less than 3.5 metres per second and also a drop into the water from a height of not less than 3 metres without damage that will effect its function ;

(b) be provided with means for bringing the liferaft alongside the embarkation deck and holding it securely during embarkation.

(2) Every davit-launched liferaft shall be so arranged that it can be rapidly boarded by its full complement of persons, in case of cargo ships it shall be possible to board the liferaft by its full complement of persons in not more than 3 minutes from the time the instruction to board is given.

5. Equipment.—(1) The normal equipment of every lifraft shall consist of :

(a) One buoyant rescue quoits, attached to not les than 30 meters buoyant line ;

(b) one safety knife of the non folding type having a buoyant handle and lanyard attached and stowed in a pocket on the exterior of the canopy near the point at which the pointer is attached to the life raft. In addition, a life raft which is permitted to accommodation 13 persons or more shall be provided with a second safety knife which need not be of the non-folding type;

(c) for a liferaft which is permitted to accommodate not more than 12 persons, one buoyant bailer. For a liferaft which is permitted to accommodate 13 persons or more, two buoyant bailers ;

(d) two sponges ;

(e) two approved sea-anchors each with shock-resistant hawser and tripping line, one being spare and the other permanently attached to the life raft in such a way that when the life raft inflates so is waterborne it will cause the life raft to lie oriented to the wind in the most stable manner. The strength of each sea-anchor and its hawser and tripping line shall be adequate for all sea conditions. The sea-anchors shall be fitted with a swivel at ach end of the line and shall be or a type which is unlikely to turn inside-out between its show lines ;

(f) two buoyant paddles ;

(g) three tin openers. Safety knives containing special tin-operator blades are satisfactory for this requirement ;

(h) one approved first-aid outfit in a waterproof case capable of being closed tightly after use containing the equipment as specified in Part VII of the **Third Schedule ;**

(i) one whistle or equivalent sound signal ;

(j) four rocket parachute flares complying with the requirements of Part X of the **Seventh Schedule** ;

(k) six hand flares complying with requirements of par XI of the **Seventh Schedule**;

(l) Two buoyant smoke signals complying with the requirements of Part XIV of the **Seventh Schedule**;

(m) one approved waterproof electric torch suitable for Morse signaling together with one spare part of batteries and one spare bulb in a waterproof container;

(n) an efficient radar reflector;

(o) one approved daylight signaling mirror with instructions on its use for signaling to ships and aircraft;

(p) one copy of the life-saving signals specified in part XIV of the **Seventh Schedule** on a waterproof card or in a waterproof container;

(q) one set of approved fishing tackle;

(r) approved food rations totaling not less than 10,000 Kilojoules to reach person the life raft is permitted to accommodate; these rations shall be kept in airtight packaging and be stowed in a watertight container ;

(s) watertight receptacles containing a total of 1.5 liters of fresh water for each person the liferaft is permitted to accommodate of which 0.5 liters per person may be replaced by approved de-sifting apparatus capable of producing an

equal amoum of fresh water in 2 days ;

(t) one rust proof graduated drinking vessel;

(u) six does of anti-seasickness medicine and one sea-sickness bag for each person the life raft is permitted to accommodate;

(v) approved instructions on how survive;

(w) approved instructions for immediate action;

(x) thermal protective aids complying with the requirements of Part IV of the **Second Schedule** sufficient for 10 per cent of the number of persons the liferaft is permitted to accommodate or two, whichever is the greater.

(2) Liferafts equipped in accordance with Para 5 of this Part shall be marked as 'SOLAS 'A' PACK' in block capitals of the roman alphabet.

(3) In the case of passenger ships engaged on short international voyages of such a nature and duration that, in the opinion of the Central Government not all the items specified in sub-paragraph (1) of paragraph 5 are necessary, the Central Government may allow the liferafts carried on any such ships to be provided that the equipment specified in clause (a) to (f) both inclusive, clause (h), (i) clause (m) to (n) both inclusive and clause (u) to (x) both inclusive and one half of the equipment specified in clause (f) to (l) both inclusive. such liferafts shall be marked 'SOLAS B PACK' in block capitals of the roman alphabet.

(4) Where appropriate the equipment shall be stowed in a container which, if it is not an integral part of or permanently attached to the liferaft shall be stowed and secured inside the liferaft and the capable of floating in water for a least 30 minutes without damage to its contents.

PART II

5. General Inflatable liferafts shall comply with the requirements of part I and in addition shall comply with the requirements of this part.

6. Construction of inflatable liferafts.(1) The main buoyancy chamber shall be divided into not less than two separate compartments, each inflated through a non-return inflation valve on each compartment. The buoyancy chambers shall be so arranged that in the event of any one of the compartments being damaged or failing to inflate, the intact compartments shall be able to support, with positive free board over the liferaft's entire periphery, the number of persons which the liferaft is permitted to accommodate each having a mass of 75 Kilogrammes and seated in their normal positions.

(2) The floor of the liferaft shall be waterproof and shall be capable of being sufficiently insulated against cold either;

(a) by means of one or more compartments that occupants can inflate, or which inflate automatically and be deflated and reinflated by the occupants; or

(b) by other equally efficient means not dependent on inflation.

(3) The liferaft shall be inflated with non-toxic gas. Inflation shall be completed within a period of 1 minute at an ambient temperature of between 18 degree C and 20 degree C and within period of 3 minutes at an ambient temperature of 30 degree C. After inflation the liferaft shall maintain its form when loaded with its full complement of persons and equipment.

(4) Each inflatable compartment shall be capable of withstanding a pressure equal to at least 3 times the working pressure and shall be prevented from reaching a pressure exceeding twice the working pressure either by means of relief valves or by a limited gas supply. means shall be provided for connecting the topping-up pump or bellows required by par's 10 so that the working pressure can be maintained.

3. Carrying capacity of inflatable liferaft—The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of :-

(a) the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic meters of the main buoyancy tubes (which for this purpose shall include neither the arches nor the thwarts if fitted) when inflated ; or

(b) the greatest whole number obtained by dividing by 0.372 the inner horizontal cross-sectional area of the liferaft measured in square meters (which for this purpose may include the thwart or thwarts, if fitted) measured to the innermost edge of the buoyancy tubes; or

(c) the number of persons having an average mass of 75 kilogrammes al wearing lifejackets, that can be seated with sufficient comfort and headroom within interfering with the operation of any of the liferafts equipment.

4. Access into inflatable liferafts.—(1) At least one entrance shall be fitted with a semi rigid boarding ramp to enable persons to board the liferaft from the sea to arranged as to prevent significant deflation of the liferaft if the ramp is damaged. In the case of a davit—launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite the bowing lines and embarkation facilities.

(2) Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be situated not less than 0.4 meters below the liferaft's light waterline.

(3) There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

5. Stability of inflatable-liferafts.—(1) Every life table liferaft shall be so constructed that when fully inflated and floating with the canopy uppermost it is stable in a seaway.

(2) The stability of the liferaft when in the inverted position shall b such that it can be righted in a seaway and in calm water by one person.

(3) The stability of the liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speed of upto 3 knots in calm water.

6. Inflatable liferaft fittings.—(1) The breaking strength of the painter system including its means of attachment to the liferaft, except the weak link required by paragraph 6 of Part I shall be not less than 10.0 Kilo Newton's for a liferaft permitted to accommodate nine persons or more, and not less than 7.5 Kilo newtons for any other liferaft. The liferaft shall be capable of being inflated by one person.

(2) A manually controlled lamp, visible on a dark night with a clear atmosphere at a distance of a least 2 miles for a period of not less than 12 hours shall be fitted to the top of the liferaft conopy. If the light is a flashing light it shall flash at a rate of not less than 50 flashes per minutes for the first 2 hours of operation of the 12 hours operation period. The lamp shall be powered by a sea-activated cell or a dry chemical cell and shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft

(3) A manually controlled lamp shall be fitted inside the liferaft capable of continuous operation for a period of at least 12 hours. it shall light automatically when the liferaft inflates and be of sufficient intensity to enable reading of survival and equipment instructions.

1. Containers for inflatable liferafts.—(1) The liferaft shall be packed in a container that is :

(a) so constructed as to withstand hard wear under conditions encountered at sea ;

(b) of sufficient inherent buoyancy, when packed with the liferaft and its equipment to pull the painter from within and to operate the inflatable mechanism should the ship sink;

(c) as far as practicable water light, except for drain holes in the container bottom.

(2) The liferaft shall be packed in its container in such a way as to ensure, as far as possible, that the waterborne liferaft inflates in an upright position on breaking free its container.

(3) The container shall be marked with :

(a) maker's name or trade mark;

(b) serial number ;

(c) name of approved authority and the number of persons it is permitted to carry ;

(d) "SOLAS";

(e) type of emergency pack enclosed ;

(f) date when last serviced ;

(g) length of painter ;

(h) maximum permitted height of stowage above water line (depending on drop-test height and length of painter);

(i) launching instructions ;

8. Markings on inflatable liferafts.—The liferaft shall be marked with :

(a) maker's name or trade mark ;

(b) serial number ;

(c) date of manufacture (month and years);

(d) name of approving authority ;

(e) name and places of servicing station where it was last serviced ;

(f) number of persons it is permitted to accommodate over each entrance in characters not less than 100 millimeters in height of a colour contrasting with than of the liferaft;

9. Davit-launched inflatable liferafts.—(1) In addition to complying with the above requirements, a liferaft for use with an approved launching appliance shall when suspended from its lifting hook or bridle, withstand :

(a) 4 times the mass of its full complement of persons and equipment, at an ambient temperature and a stabilized liferaft temperature of 20 ± 30 degreee C with all relief valves inoperative, and

(b) 1.1.times the mass of its full complement of persons and equipment at an ambient temperature and a stabilized liferaft temperature of – 30 degree C with all relief valves operative.

(2) Rigid containers for liferafts to be launched by a launching appliance shall be so secured that the container or part of its are prevented from falling into the sea during and after inflasion and launching of the contained liferaft.

10. Additional equipment for inflatable liferafts : in addition to the equipment required by paragraph 5 of Part 1, every inflatable liferaft shall be proved with :

(a) one repair outfit for repairing punctures in buoyancy compartments ;

(b) one topping-up pump or belows.

PART III

1. General –Rigid liferaft shall comply with the requirement of Part I and in addition shall comply with the requirements of this Part.

2. Construction of rigid liferafts.—(1) The buoyancy of the liferaft shall be provided by approved inherently buoyant material placed as near as possible to the periphery of the liferaft. The buoyant material shall be fire-retardant or the protected by a fire-retardant covering.

(2) The floor of the liferaft shall prevent the ingress of water and shall effectively support the occupants out of the water and insulate them from cold.

3. Carrying capacity of rigid liferafts.—The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of :

(a) the greatest whole number obtained by dividing by 0.096 the volume, measured in cubic meters of the buoyancy material multiplied by a factor of 1 minus the specific gravity of that materials ; or

(b) the greatest whole number obtained by dividing by 0.72 the horizontal cross-sectional area of the floor of the liferaft mesued in square metres; or

(c) the number of persons having an average mass of 75 Kilogrammes all wearing lifejackets that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

4. Access into rigid liferafts.—(1) Atleast one entrance shall be fitted with a rigid boarding ramp to enable persons to board the liferaft from the sea. In the case of a davit launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite to the browsing and embarkation facilities.

(2) Entrances not provided with a boarding ramp shall have a boarding ladder the lowest step of which shall be situated not less than 0.4 metres below the liferaft's light waterline.

(3) There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.

5. Stability of rigid liferafts.—(1) Unless the liferaft is capable of operating safety whichever way up it is floating, its strength and stability shall be such that it is either self-righting or can be readily righted in a seaway and in a calm water by one person.

(2) The stability of a liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speeds of upto 3 knots in calm water.

6. Rigid liferaft fittings.—(1) The liferaft shall be fitted with an efficient painter. The breaking strength of the painter system including its means of attachment to the liferaft, except the weak link shall be not less than 10.0 Kilo Newton's for liferafts permitted to accommodate nine persons or m ore, and not less than 7.5 Kilo Newton's for any other liferaft.

(2) A manually controlled lamp visible on a dark night with a clear atmosphere at distance of at least 2 miles for a period of not less than 12 hours shall be fitted to the top of the lifraft canopy. If the oight is a flashing light it shall flash at a rate of not less than 50 flashes per minute for the first 2 hours of operation of the 12 hours operating period. The lamp shall be powered by a sea activated cell or a dry chemical cell and shall light automatically when the liferaft campy is set in place. The cell shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft.

(3) A manually controlled lamp shall be fitted inside the liferaft, capable of continuous operation for a period of at least 12 hours. It shall light automatically when the canopy is set in place and be of sufficient intensity to enable reading of survival and equipment instructions.

7. Markings on rigid liferafts.—The liferaft shall be marked with :

(a) name and port or egsitry of the ship to which it belongs ;

(b) maker's name or trade mark;

(c) serial number;

(d) name of approving authority;

(e) number of persons it is permitted to accommodate over each entrance in characters not less than 100 milimetres in height of a colour contrasting with that of the liferaft :

(f) "SOLAS"

(g) type of emergency pack enclosed;

(h) maximum permitted height of stowage above waterline (drop-test height)

(i) length of painter;

(j) launching instructing;

8. Davit launched rigid liferafts.—In addition to the above requirements, a rigid liferaft for use with an approved launching appliance whall, when suspended from its lifting hook or bridle, withstand a load of 4 times the mass of its full complement of persons and equipment.

PART IV

SERVICING OF LIFERAFTS, INFLATABLE LIFEJACKETS AND RESCUE BOATS

1. Servicing of inflatable liferafts, inflatable lifejackets and inflated rescue boats.

2. Every inflatable liferaft and inflatable life-jackets and inflatable rescue boat shall be serviced

(a) at intervals not exceeding 12 months. However, in case where it appears proper and reasonable the Central Government may extend this period of 17 months ;

(b) at an approved servicing station which is competent to service them maintains proper servicing facilities, spare parts and uses only properly trained personnel.

(2) All repairs and maintenance of inflated rescue boats shall be carried out in accordance with the manufacturers instructions. Emergency repairs may be carried out on board the ship; however permanent repairs shall be effected at an approved servicing station.

FIFTH SCHEDULE

[See rule 2(w)]

RESCUE BOATS

1. General requirements.—(1) Except as provided in this Schedule all rescue boats shall comply with the requirements of para 1 to para 7(4), both inclusive, and paras 7(6), 7(7), 7(9) & 7(12) and para 9 of the Part I of the **Fourth Schedule.**

(2) Rescue boats may b either of right or inflated construction or a combination of both and shall--

(a) be not less than 3.8 meters and not more than 8.5 meters in length;

(b) be capable of carrying at least five seated persons and a person lying down.

(3) Rescue boats which are a combination of rigid and inflated construction shall comply with the appropriate requirements of this schedule to the satisfaction of the Central Government.

(4) Unless the rescue boat has adequate sheer, it shall be provided with a bow cover extending for not less than 15 per cent of its length. (5) Rescue boats shall be capatle of maneuvering at speed upto 6 knots and maintaining that speed for a period of at least 4 hours.

(6) Rescue boats shall have sufficient mobility and maneuverability in a seaway to enable persons to be retrieved from the water, marshal liferafts and low the largest life raft carried on the ship when loaded with its full complement of persons and equipment or its equipment or its equivalent at a speed of at least 2 knots.

(7) A rescue boat shall be fitted with an inboard engine or outboard motor. if it is fitted with an outboard motor, the rudder and tiller may form part of the engine. Notwithstanding the requirements of Para 6 of Part 1 of the **Third Schedule**, period driven outboard engines with an approved fuel system may be fitted in rescue boats provided the fuel tanks are specially protected against fir and explosion.

(8) Arrangements for towing shall be permanently fitted in rescue boats and shall be sufficiently strong to marshal or tow liferafts as required by sub-clause 6 of this paragraph.

(9) Rescue boats shall be fitted with weather tight stowage for small items of equipment.

2. Rescue boat equipment.—(1) All items of rescue boat equipment, with the exception of boat-books which shall be kept free for fending off purposes, shall be secured within the rescue boat by lashings, storage in lockers or compartments, storage in brackets or similar mounting arrangements, or other suitable means. The equipment shall be secured in such a manner as not to interfere with any launching recovery procedures. All items of rescue boat equipment shall be as small and of a little mass as possible and shall be packed in suitable and compact form.

(2) The normal equipment of every rescue boat shall consist of :

(a) sufficient buoyant cars or paddles to make headway in clam seas. Thole pins, crutches or equipment arrangements shall be provided for each oar. Thole pins or crutches shall be attached to the boat by lanyards or chains.

(b) a buoyant bailer ;

(c) a binnacle containing an efficient compass which is luminous or provided with suitable means of illumination.

(d) a sea-anchor and tripping line with a hawser of adequate strength not less than 10 meters in length;

(e) a painter of sufficient length and strength, attached to the release device complying with the requirements of sub-Para (7) of Para 7 of Part I of the Third Schedule and place at the forward and of the rescue boat;

(f) one buoyant line, not less than 50 meters in length of sufficient strength to tow a liferaft as required by sub-Para (6) of pare 1 of the Schedule;

(g) one waterproof of electric torch suitable for mores signaling, together with one spare set of batteries and one spare bulb in a waterproof container;

(h) one whistle or equivalent round signal;

(i) an approved first-aid outfit in a waterproof case capable of being closed, tightly after use;

(j) two buoyant rescue quoits, attached to not les than 30 meters of buoyant line;

(k) a searchlight capable of effectively illuminating a light-coloured object at night having width of 18 m. at a distance of 180 meters for a total period 6 hours and of working for at least 3 hours continuously;

(l) an efficient radar reflection;

(m) approved thermal protective aids complying with the requirements of Part V of the **Second Schedule** sufficient for 10 per cent of the number of persons the rescue boat is permitted to accommodate or two, whichever is the greater.

3. In addition to the equipment required by clause 2 of paragraph 2 of this part, the normal equipment of every rigid rescue boat shall include;

(a) a boat-hook;

(b) a bucket ;

(c) a knife or hatchet

4. In addition to the equipment required by clause 2 of this part, the normal equipment of every inflated rescue boat shall consist of :

(a) a buoyant safety knife;

(b) two sponges ;

(c) an efficient manually operated bellows or pump;

(d) a repair kit in a suitable container for repairing punctures;

(e) a safety boat-hook.

5. Additional requirements for inflated rescue boats.—(1) The requirements of paragraph 1.3 and 1.5 of Part 1 of the **Fourth Schedule** shall not apply to inflated rescue boats.

(2) An inflated rescue boat shall be constructed in such a way that, when suspended by its bridle or lifting hook;

(a) it is of sufficient strength and rigidity to enable it to b lowered and recovered with its full complement of persons and equipment;

(b) it is of sufficient strength to withstand a load of 4 times the mass of its full complement of persons and equipment at an ambient temperature of 20 degree ± C, with all relief valves operative.

(3) Inflated rescue boats shall be so constructed as to be capable of withstanding exposure :

(a) when stowed or an open deck on a ship at sea;

(b) for 30 days afloat in all sea conditions.

(4) In addition to complying with the requirements of Para 9 of Part 1 of **Third Schedule**., inflated rescue boats shall be marked with a serial number, the maker's name of trade mark and the date of manufacture.

(5) The buoyancy of an inflated rescue boat shall be provided by either a single tube sub-divided into at least five separate compartments of approximately equal volume or two separate tubes neither exceeding 60 per cent of the total volume. The buoyancy tubes shall be so arranged that, in the event of any one of the compartments being damaged , the intact compartments shall be able to support th number of persons which the rescue boat is permitted to accommodate, each having a mass of 75 Kilogrammes when sealed in their normal positions with positive freeboard over the rescue boat's enter periphery.

(6) The buoyancy tubes forming the boundary of the inflated rescue boat shall on inflation provide a volume of not less than 0.17 cubic meters for each person the rescue boat is permitted to accommodate.

(7) Each buoyancy compartment shall be fitted with a non-return valve for manual inflation and means for definition. A safety relief valve shall also be fitted unless the General Government is satisfied that such an appliance is unnecessary.

(8) Underneath the bottom and on vulnerable places on the outside of the inflated rescue boat, rubbing strips shall be provided to the satisfaction of the Central Government.

(9) Where a transom is fitted it shall not be inset by more than 20 per cent of the overall length of the rescue boat.

(10) Suitable patches shall be provided for securing the painters fore and aft and the bucketed lifelines inside and outside the boat.

(11) The inflated rescue boat shall be maintained at all times in a fully inflated condition.

SIXTH SCHEDULE

[See rule 2(x)]

Retro reflective material

1. General .(1) Retro-reflective material is a material which reflects in the opposite direction a beam of light directed on it. Such materials shall be sufficiently flexible so that it can be attached to various shapes and can withstand the tests that need to be carried out for the equipment to which they are attached. Though no specific parameters for the reflectivity of the material are specified, it is recommended that every material used shall reflect sufficient light when a searchlight is directed on to such, material at a distance of thousand meters, the material should be visible from the position of the searchlight as prescribed in clause (ac) of Para 8 of Part 1 of the **Third Schedule.**

2. The Retro-reflective material in general shall comply with the requirements of sub rule (2) of rule 5.

(3) Retro-reflective material shall be attached to the Life Saving Appliances as specified in Para 2 of this Schedule.

(4) The Retro-reflective material to be used shall, a s far as possible, be of a type which can also function as an effective radar reflector, such as a type with a metal full backing.

2.(1) life-boats-Retro-reflective lapse shall be fitted on top of the gunwale as well as on the outside of the boat as near the gunwale as possible. The lapse shall be sufficiently wide and long and shall be spaced at suitable intervals. If a canopy is fitted it shall not be allowed to obscure the lapse fitted on the outside of the boat and the top of the canopy shall be fitted with retro-reflective lapse similar to those mentioned above but shaped in the form of a cross and spaced at suitable intervals.

(2) Lifecrafts—Retro-reflective tapes shall be fitted around the canopy of the raft at suitable intervals and suitable height above the waterline. On inflatable life-rafts four retro reflective tapes shall also be fitted on the underside of the flow (four tapes fitted at equal intervals around the outer edges on the bottom of the life rafts). The tapes shall be sufficiently wide and long. A suitable cross-shaper marking of two such tapes should also be applied to the top of the canopy.

(3) Lifebuoys—Retro-reflective tape of a sufficient width should be applied around or on both sides of the body of the buoy at four evenly-spaced points.

(4) Lifejackets—Unless its cover material is retro-reflective, a life jacket should be fitted with retro-reflective tapes sufficiently wide land long. These tapes should be placed as high up on the jacket as possible in at least six places on the outside of the jacket and in at least as many places on the inside of the same .

SEVENTH SCHEDULE

[The rules 6 and 30(2) (3), 36(9), 39(4) and (5), 42(1)(a) and (b) 43(a) and (b) and para 8 of Part 1 of Third Schedule]

RADIO TELEGRAPH EQUIPMENT

PART 1

1.General .—(1) The radio telegraph equipment for lifeboats include a radio telegraph and a radio telephone transmitter and receiver, an aerial and earth system, a source of energy and all other equipment necessary for the operation of the installation.

(2) The radio telegraph equipment shall be so designed that --

(1) An unskilled person can readily cause it to transmit the signals referred to in paragraph 5.

(2) The purpose of all controls not required for transmitting the said signals shall be clearly and permanently indicated.

(3) Simple instructions for the operation of the radio telegraph equipment and the frequencies specified shall be affixed in clear and permanent form to or near the equipment.

(4) All controls shall be of such size as will permit normal adjustments to be made by a person wearing thick gloves, and in particular all turning knobs shall not be less than 5 centimeters in diameter.

(5) For manual radio telegraph transmission a morse key of approved design shall be fitted in an approved position.

(6) The change over from transmitting to receiving and vice-versa including automatic change of aerial connections shall be possible by means of one switch.

(7) The equipment shall be readily removable from the life boat.

(8) An electric lamp of power between 3 watts and 15 watts with a water-proof casing, shall be provided to illuminate the control panels and the operating instructions.

(9) An electrical heater, connected to the Ship's mains shall be capable of maintaining the interior of the case in which the equipment is installed at a temperature at least 10^0C above the ambient temperature. The heater shall be so mounted that it will reduce the risk of the controls or cover of the equipment becoming frozen into position but will not cause any part of the installation to become over heated.

(10) All parts other than the aerial its terminal which are not at earth potential shall be enclosed.

(11) The serial terminal shall be guarded against accidental contact.

(12) The performance requirements specified in this part shall be complied with while the life-boat engine is running and whether or not the battery is being charged.

3. Aerial and earth system—(1) The Radio telegraph equipment shall include :

(a) a single wire aerial of high conductivity standard or braided wire capable of the being supported by the lifeboat mast without the use of top masts of a maximum height or not less than 6.7 meters above the water-line, in addition an aerial supported by a kite or a balloon may be provided, and

(b) an earth system which shall be of the same material throughout and shall consist of at least three independent bolted connections :

(i) to the hull in the case of metal lifeboat ; or

(ii) to a bare copper plate of area at least 0.55 squat meters fixed to the hull below the water-line in the case of a wooden or a fiberglass lifeboat.

(2) The aerial system shall be mechanically robust.

(3) All practicable steps shall be taken to reduce aerial losses to a minimum.

(4) All parts of the aerial which may come in contact with the occupants of the lifeboat when the equipment is in use shall be insulated.

4. Source of Energy.—(1) The radio telegraph equipment shall include one 24-volt battery composed of accumulators and of a capacity sufficient to operate the receiver for two hours and the transmitter under full power conditions for four hours.

(2) If it is intended to operate a searchlight from the battery, the capacity thereof shall be at least 30 ampere hours, in excess of that referred to in sub-paragraph (1).

(3) The battery shall be capable of being completely recharged--

(a) in not more than 20 hours from a dynamo working in conjunction with and throughout the normal range of speeds of the lifeboat engine if the battery is not in use at the same time ; and

(b) from the ship's main source of electrical energy with out is being removed from the lifeboat.

(4) The battery shall not spill when tilted to an angle of 60^0C from its normal position in any direction.

(5) The battery shall be electrically isolated from the rest of the equipment when the transmitter and receiver are switched off.

(6) If a vibrator power unit is employed, a reserve vibrator shall be provided and so controlled by a changeover switch that can be put into circuit immediately.

(a) sending continuously but not simultaneously Class A2 and A2H emissions on the frequencies of 500 KHz and 8.36 KHz and Class A3 and A3H emissions on the frequency of 2182 KHz.

(i) by manual operation when using radiotelegraph at all speeds upto at least 25 bands without critical relay adjustment; and

(ii) by means of an automatic keying device complying with the requirements of paragraph 6 ; and

(b) maintaining without adjustment of any control, a frequency tolerance throughout every transmission of --

(i) plus or minus 0.5 per cent on a frequency of 500 KHz and

(ii) plus or minus 0.002 per cent on a frequency of 8.364 KHz and

(iii) plus or minus 0.02 per cent on a frequency of 2182 KHz.

Notwithstanding variations of the impedance of the aerial or of any other load to which it is connected or of supply voltage within plus or minus 10 per cent ; and

(2) When class A2 and A2H emissions are being transmitted the carrier wave shall be modulated to a depth of 100 per cent by an approximately rectangular wave of frequency between 450 per cent of modulation cycle.

(3) When Class A# A#H emission are being transmitted, it shall be possible to fully modulate the carrier by speech.

(4) The facility for transmission on the frequency of 2182 KHz shall include a device for the generation of radio telephone alarm signal except that the duration of the radio telephone alarm signal may be determined by manual control.

(5) The power of the transmitter--

(a) shall not be less than 15 meter-amperes as determined by an approved method.

(b) shall not be less than 50 watts on a frequency of 500 KHz when measured into an artificial aerial consisting of a 30 ohm non-inductive resistor in series with a capacitor of every value between 200 and 300 Pico farads.

(c) shall not be less than 15 watts on a frequency of 8.364 KHz when measured into an artificial aerial simulating the impedance of the aerial specified in paragraph 2.

(d) on a frequency of 2181 KHz--

(i) shall not be less than 5 watt when measured with an artificial aerial consisting of 15 ohm none inductive resistor in series with a capacitor having every value from 125 to 200 Pico farads.

(ii) ten watts when measured with an artificial aerial consisting of 30 ohm non-inductive resistor in series with a capacitor having every value from 300 to 400 Pico farads.

(6) The transmitter shall be so designed and constructed that when it is adjusted for maximum power and the transmitting key is depressed the aerial may be dis-connected or the out put short circuited without damage being caused to any part of the installation.

(7) There shall be provided--

(a) an artificial aerial for testing the transmitter on full power, which shall include an indicator or lamp to indicate the passage of radio frequency currents and

(b) an aerial ammeter, and a visual indicator to indicate the passenger of radio frequency current, the failure of either of which shall not disconnect the aerial circuit.

6. Automatic Transmission.—(1) A device for automatic keying shall be provided as par tof the radio telegraph equipment which when switched into circuit with the transmitter, shall be capable of automatically--

(a) sending the alarm signal specified in sub-paragraph (2) and immediately thereafter stopping and opening the keying circuit unless rest or rewound and

(b)(i) sending the distress call specified in sub-paragraph (3) in such manner that if the device is used without attention the transmission will be repeated once every twelve minutes and (ii) switch off the electrical energy to the transmitter in the silent interval between such transmission and, so far as is necessary for the protection of the transmitter automatically delaying the application of electrical energy after the device has been switched on.

(2) The alarm signal shall consist of twelve four second dashes separated by one second spaces, the length of the dashes and spaces being maintained within a tolerance of plus or minus 0.2 second.

(3) The distress call shall consists of the following signals in the following order namely :-

(a) the radio telegram distress signal SOS (3 times),

(b) the morse characters for the word DE.

(c) the morse characters for the lifeboat's call sign (3 times) and

(d) two long dashes each of 10 to 15 seconds duration separated by a space of between 0.5 and 1.5 seconds. The total duration of the distress call shall not be more than 90 seconds.

(4) Means shall be provided to ensure that, when the distress signal is sent, the transmission being at the commencement of the signal within 40 second after the device for automatic keying has been switched into circuit.

(5) The characters of the distress call specified in sub-paragraph (3) shall be keyed at 10 to 16 words per minute.

7. Receivers—(1) The equipment shall include a receiver capable of receiving A1, A2 and A2H emission. The receiver shall be capable of receiving on a spot frequency of 2182 KHz for reception of A3, and A3H emission.

(2) The receiver shall be tunable over the frequency ranges 488 to 513 and 8320 to 8745 KHz.

(3) The receiver shall be fitted with a manual gain control.

(4) Headphones which are weather tight shall be provide and shall be shrouded to exclude noise.

(5) The receiver shall comply with the requirements of sub-paragraphs (6) to (9) inclusive when tested in the following manner :-

(a) An artificial aerial shall be used and shall consist of 40 ohm resistance in series with a 2 micro Henry inductance and 100 picofard capacitance ;

(b) A type A2 signal shall, unless otherwise specified be modulated, to a depth of 30 per cent at 100 Hz.

(c) The standard audio-frequency output shall be one mille-watt into a resistance substantially equal to the modulus of the impedance of the telephone receivers at 1000 Hz.

(6) The selectivity preceding the final detector of the receiver shall comply with the following requirements, namely :-

(a) when tuned to a frequency of 500 KHz and 8364 KHz.

(i) not more than 6 decibels discrimination shall be obtained at frequencies removed from tune by 1 KHz;

(ii) at least 6 decibels discrimination shall be obtained at frequencies removed from tune by 4 KHz;

(iii) at least 30 decibels discrimination shall be obtained at frequencies removed from tune by 15 KHz;

(iv) at least 60 decibels discrimination shall be obtained at frequencies removed from tune by 40 KHz;

(b) when tuned to a frequency of 2182 KHz-

(i) not more than 60 decibels discrimination shall be obtained at frequencies removed from tune by 3 KHz;

(ii) at least 30 decibels discrimination shall be obtained at frequencies removed from tune by 15 KHz;

(iii) at last 60 decibels discrimination shall be obtained at frequencies removed from tune by 40 KHz;

(c) in the case of super heterodyne receiver the image response ratio shall be at least 20 decibels.

(7) The sensitivity of the receiver shall be such that the standards audio-frequency output is obtained with an input not exceeding the following level:-

Frequencies A1	Minimum input for emissions	Maximum input for A2 emissions
488 to 513 KHz	30 decibels above 1 microvolt	40 decibels above 1 microvolt
8320 to 8745 KHz	30 decibels above 1 microvolt	40 decibels above 1 microvolt
2182 KHz	---	30 decibels above 1 microvolt

(8)(a) The signal noise ratio shall, with the inputs and commissions respectively specified in sub-paragraph (7) and with the rotary converter or vibrator tuning, be not less than--

(i) 15 decibels on a frequency of 500 KHz.

(ii) 25 decibels on a frequency 8.364 KHz ;or

(iii) 70 decibels on a frequency of 2182 KHz.

(b) The fidelity of the receiver shall when the change in level of the audio-frequency output shall when the level and modulation depth in the input signal is kept constant, be less than 8 decibels as the modulation of input signal is varied continuously--

(i) from 300 KHz to 1500 KHz for A2 and A3H emission ; and

(ii) from 250 Hz to 3000 Hz for A3 and A3H emissions.

For this purpose, the input signal may have any level and depth of modulation provided that the output of the receiver dos not exceed the standard audio-frequency output.

8. Connection with the ship's Mains—Any connection of the equipment with Ship's main source of energy shall be so provided as act to interfere with the launching of the lifeboat

PART II

portable radio equipment

1. General.—The portable radio equipment shall--

(1) include a hand generator, transmitter, a receiver and all other apparatus necessary for the operation of the equipment.

(2) carry simple instructions for the operation of equipment on the frequencies specified in and permanent form, affixed to this equipment.

(3) shall bear a removable plate or which (clear and permanent form) the call sign of the lifeboats in letter and number and in morse characters shall be indicated in.

2. Design and Construction – The Portable radio equipment shall be so designed and constructed that :-

(1) The entire equipment is contained in single unit provided that the meet referred to in sub-paragraph (2) or paragraph 3 may be attached to the single unit.

(2) an unskilled person can erect the serial system without difficulty and by simple operation and automatic means, transmit the radiotelegraph signals specified in sub-paragraph (4) (a) of paragraph 5.

(3) The equipment is provided with handles and is readily carried by one person.

(4) it is watertight and capable of floating in water.

(5) it can be dropped from a height of 9.2 meters into water without damage.

(6) it can be lowered into the sea or lifeboat from the boat deck.

(7) it can be clamped to a lifeboat.

(8) the number of manual controls are kept to the minimum required to meet the requirements of this Part but include--

(a) send-receive switching.

(b) a switch for changing transmission from 500 KHz to 2182 KHz and from 2182 KHz to 8.264 KHz and vice versa.

(c) a switch position so that the transmitter valve filaments can be energized continuously whilst the receiver is energized.

(d) a single control of received gain.

(e) a morse key of approved design fitted to the equipment in an approved position.

(9) call manual controls are of such size as to permit normal adjustments to be made by a person wearing thick gloves ; and

(10) the operation of manual controls is not impeded by and does not impede, the hand generation of electrical energy.

3. Aerial and Earth System.—The portable radio equipment shall include –(1) a single-wire aerial consisting of not less than 9.2 meters of high conductivity stranded or braided wire so fitted as to capable of being supported from the lifeboat mast without the use of top-mast at the maximum practicable height;

(2) a collapsible stayed mast capable of being easily and quickly installed in a lifeboat and of supporting the aerial at a height of at least 4.9 meters above the sea when the base of the mast is resting on the bottom of any lifeboat in which it is intended to be used ; and

(3) an earth wire of high conductivity firmly connected to the equipment and loaded in such manner that the wire will sink when placed overboard.

4. Hand Generator.—(1) The hand generator shall be of such design and construction that when the handle of the generator is rotated at any speed within the normal range of handle speeds sufficient electrical energy shall be generated--

(a) to enable the transmitter to comply with the requirements of sub-paragraph (4) (a) of paragraph 5 and

(b) the transmitter shall comply with the requirements of sub-paragraph (4) (a) of paragraph 5 with a torque-speed at the handle of not more than 550 expressed in grams/centimeters multiplied by revolutions per minute and

(c) an indicator lamp will be lit.

Explanation.—In this part the expression normal range of handle speeds in relation to a generator means the range of speeds extending from the minimum speed at which the generator enables the transmitter forming part of the same equipment to comply with the requirements of sub-paragraph (4)(a) of paragraph 5 to a speed at least 40 per cent greater than that speed.

(2) The hand generator shall be of such design and construction that --

(a) it can be operated by--

(i) one person or

(ii) two persons simultaneously.

(b) the handles cannot be rotated in the wrong direction

5. Transmitter.—(1) The transmitter shall be capable of

(a) sending continuously, but not simultaneously, class A2 and A2H emission on the frequencies of 500 KHz and 8364 KHz and clam A3 and A3H emissions on 2182 KHz.

(i) by manual operation at all speeds upto 26 bauds and

(ii) by manual operation at the speeds upto specified in sub-paragraph (4) (a).

(b) maintaining over the normal range of handle speeds throughout every transmission at frequency tolerance--

(i) of plus minus 0.5 per cent on a frequency of 500 KHz.

(ii) of plus or minus 0.02 per cent on a frequency of 8364 KHz.

without adjustment of any control and notwithstanding any variations of the impedance of the aerial or artificial aerial to which it is connected and

(c) operating on full power, when the aerial system or artificial aerial has been connected and the necessary controls have been adjusted, within 30 seconds after the generation of electrical energy has commenced.

(2)(a) when A2 and A2H emissions are being transmitted, the carrier wave shall be modulated to a depth of 100 per cent by a wave of rectangular character so that the carrier wave is switched on for not less than 430 per cent, and not more than 50 per cent of a modulation cycle.

(b) when A3 and A3H emission are being transmitted with full modulation of the carrier wave by speech shall be possible without being over modulated.

(3) The note frequency shall not be less than 450 Hz or more than 1,350 Hz.

(4)(a) the signal to be sent by the automatic means referred to in sub-paragraph (1)(a)(ii)--

(i) when the transmission is on a frequency of 500 KHz shall consist of the alarm signal of twelve four second dashe separated by one-second spaces followed by the distress signal ooo….ooo repeated three times, and two long dashes each of 10 to 15 seconds duration separated by space of between 0.5 and 1.5 seconds, and

(ii) when the transmission is on a frequency of 8.364 KHz shall include the distress signal ooo….ooo repeated three times, and two long dashes each of 10 to 15 seconds duration separated by a spae between 0.5 and 1.5 seconds.

(b) Over the normal range of handle speeds.--

(i) the speed of the automatic transmission of the distress signal shall not be less than 8 and not more than 15 words a minute ;

(ii) the tolerance in the timing of the dashes of the alarm signal shall not be more than plus or minutes 0.2 seconds.

(c) The automatic transmission shall cease and open the keying circuit after one complete transmission unless the mechanism is re-set or re-wound.

(d) Means shall be provided--

(i) to ensure that the transmission begins at the commencement of the signal ;

(ii) to indicate to the operator that the mechanism should be re-set or re-wound.

(e) The mean power developed by the transmitter in the load during a marking period, shall--

(i) on frequency of 500 KHz be not less than (3.81) log 10C—5.51 watts, C being the capacitance of the artificial serial in Pico farads when measured with an artificial aerial consisting of a 15 ohm non-inductive resistor in series with a capacitor having any value between a minimum of 10 microfarad less than that of the aerial referred to in sub-paragraph (1) of paragraph 3 and 150 Pico farads and not less than 3.5 watts when measured with an artificial aerial consisting of 30 ohm non-inductive resistor in series with a capacitor having any value between 200 and 300 Pico farads.

(ii) on a frequency of 8364 KHz be not less than 1.5 watts when measured with an artificial aerial consisting of 20 ohm non-inductive resistor in series with a capacitor having any value between 70 and 100 Pico farads.

(iii) On a frequency of 2182 KHz be not less than 1.5 watts when measured with an artificial serial consisting of a 15 ohm non-inductive resistor in series with a capacitor having any value between a minimum of 10 Pico farads less than that of the aerial refereed to in sub-paragraph (1) of paragraph 3 and a maximum of 110 Pico farads and not less than 3.5 watts when measured with an artificial aerial consisting of 30 ohm non-inductive resistor in series with a capacitor having any and every value between 300 and 400 Pico farads.

(f) The aerial circuit shall include--

(i) a tuning control suitable for use with all types of serial provided ; and

(ii) a tuning indicator, the failure of which shall not disconnect the aerial circuit.

(g) There shall be provided--

(i) an artificial aerial within the equipment suitable for testing the transmitter on full power;

(ii) means for testing the facilities for automatic transmission without the general of radio-frequency energy.

(5) The facility or transmission on the frequency of 2182 KHz shall include a device for the generation of radio telephone alarm signal specified in Part II of the Second Schedule except that the duration of the radio-telephone alarm signal may be determined by manual control

(6) The transmitter shall be so designed and constructed that when it is transmitting and adjusted for minimum power the aerial may be disconnected or the output short circuited in either case without damage being caused to any part of the equipment.

6. Receiver.—(1) The receiver shall be a fixed tune receiver which shall be capable of receiving A2 emissions over the frequency band 490 to 510 KHz when used with headphones. The receiver shall also be capable of receiving A3 and A3H emission on the radio-telephone distress frequency of 2182 KHz.

(2) headphones which are surrounded to exclude external noises shall be provided and shall be permanently attached to the receiver.

(3) The receiver shall comply with the requirements of sub-paragraph (4) when tested in the following manner :-

(a) artificial aerials shall be used and shall consists of either--

(i) a 15 ohm non-conductive resistor in series with a capacitor having any value between a minimum of 10 Pico farads less than that of the aerial referred to in sub-paragraph (1) of paragraph 3 and a maximum of 110 Pico farads; or

(ii) a 30 ohm-conductive resistor in series with a capacitor of any value within the range 200 to 400 Pico farads;

(b) the signals used shall be type A2 signals modulated to a depth of 30 per cent at 1000 Hz.

(4) Over the normal range of handle speeds--

(a) the standard audio-frequency output of the receiver into a resistance substantially equal to the modulus of the impedance of the telephone receivers at 1,000 Hz shall be one mill watt ;

(b) the selectivity preceding the final detector of the receiver shall comply with the following Table :-

TABLE

When operating on a frequency	500 KHz	2182 KHz
response to be uniform within 6 decibels over the range of	490-510 KHz	2177-2187 KHz
at least 40 decibels is crimination relative to the response of mid band to be obtained at all frequencies.	below 470 KHz and above 530 KHz	below 2147 KHz and above 2217 KHz

(c) the audio-frequency response of the received shall be uniform to within 8 decibels over the range of modulation frequencies 400 to 3000 Hz and shall substitutable fall for frequencies outside the ranges;

(d) the standard output specified in sub-paragraph (a) shall be obtained with a test signal input not exceeding 40 decibels above one microvolt on a frequency of 500 KHz and net exceeding 30 decibels above one microvolt on a frequency of 2182 KHz.

(e) with the test signal specified in sub-paragraph (d) the signal noise radio shall be at last 15 decibels.

PART III

Float-free emergency position indications radio beacon (EPIRE) operating on 406 MHz.

1. Introduction – The float-free emergency position indicating radio beacon (EPIRB) shall comply with the following :

2. General.—(1) The EPIRB shall be capable of transmiting a distress alert to a polar orbiting satellite.

(2) The equipment shall be capable of floating free automatically. The equipment, mounting and releasing arrangements shall be reliable even under extreme conditions.

3. The APIRB shall.—(1) be fitted with adequate means to prevent inadvertent activation ;

(2) be so designed that the electrical portions are watertight at a depth of 10 meters for at least 5 minutes. Consideration should be given to a temperature variation of 45^0 C during transitions from the mounted position to immersion. The harmful effects of a marine environment, condensation and water leakage shall not affect the performance of the beacon ;

(3) be automatically activated after floating free ;

(4) be capable of manual activation and manual deactivation ;

(5) be provided with means to indicate that signals are being omitted;

(6) be capable of floating upright in calm water and have positive stability and sufficient buoyancy in all sea conditions :

(7) be capable of being dropped into the water without damage from a height of 20 meters ;

(8) be capable of being tested without using the satellite system to determine that the EPIRB is capable of operating properly ;

(9) be of highly visible yellow orange colour and be fitted with retro reflecting material ;

(10) be equipped with a buoyant lanyard suitable for use as a tether, which shall be arranged so as to prevent its being trapped in the ship's structure when floating free;

(11) be provided with a low duty cycle light (.075 candela) activated by darkness to indicate its position for the survivors nearly and rescue units :

(12) not be unduly affected by seawater or oil; and

(13) be resistant to deterioration in prolonged exposure to sunlight.

4. The battery should have sufficient capacity to operate the satellite EPIRB for a period of at least 48 hours.

5. The EPIRB shall be so designed as to operate under the following environmental conditions.—(1) ambient temperatures of $–20^0$C to + 55^0 C;

(2) icing;

(3) relative wind speeds up to 100 knots; and

(4) after stowage at temperatures between – 30^0 C and + 65^0C.

6. Operation—The installed EPIRB shall.—(1) have local manual activation, remote activation may also be provided from the bridge, while the device is installed in the float-free mounting;

(2) be capable, while mounted on board of operating properly over the ranges of shock and vibration and other environment condition normally encountered above-deck on seagoing vessels, and

(3) be designed to release itself and float free before reaching a depth of 4 meters at a list or trim of up to 45^0C.

7. Labeling.—The following shall be clearly indicated on the exterior of the equipment.—(1) brief operating instructions; and

(2) expiry date for the primary battery used.

8. Details of signals.—(1) The EPIRB distress alerting signal shall be transmitted at 406.025 MHz using GIB class of emission.

(2) The technical characteristics of the transmitted signals and message format should be in accordance with CCIR Recommendation 633.

(3) Provisions should be included for storing the fixed portion of the distress message in the EPIRB using non-volatile memory.

(4) A unique ship station identity shall be part of the messages.

9. Servicing—The EPIRB and the float free arrangements shall be serviced at an interval and exceeding 15 months.

PART IV

Survival craft emergency position indicating radio bacon. survival Craft EPIRB shall comply with Part III of this Schedule : Provided that ---

(1) Float free arrangements need not be provided ;

(2) The EPIRB have sufficient buoyancy to float in the water to facilitate its recovery.

PART V
Manually operated locating device
(Radar transponder beacon)

1. Introduction.—The manually operated locating device shall be a radar transponder beacon operating on a frequency of 9 GHz. The device shall, in addition to meeting the requirements of CCIR Recommendation (AE 81), meet the General Requirements for ship beard communication equipment specified in the **Third Schedule** of Merchant Shipping (Radio) Rules 1981.

2. General requirements.—The locating device shall be capable of indicating the location of a unit in distress on the assisting units' radars by means of a series of equally spaced dots.

3. The locating device shall.—(1) be capable of being easily activated by unskilled personal.

(2) be fitted with means to prevent inadvertent activation.

(3) be equipped with a visual and/or audible means to indicate correct operation and to alert survivors that a radar has triggered the locating device.

(4) be capable of manual activation and deactivation provision for, automatic activation may be included .

(5) be provided with an indication of the stand by condition.

(6) be capable of withstanding without damage drops from a height of 20 meters into water.

(7) be watertight to a depth of 10 m for a at least 5 minutes.

(8) maintain watertight when subjected to a thermal shock of 45^0C under specified conditions of immersion.

(9) be capable of floating if it is not an integral part of the survival craft.

(10) be equipped with a floatable lanyard, suitable for use as a tether, if it is floatable.

(11) not be unduly affected by seawater or oil.

(12) be resistant to deterioration by prolonged exposure to sunlight.

(13) be of highly visible yellow/orange colour on all parts where this will assist detection, and

(14) have smooth external construction to prevent the damage of the survival craft.

4. The Locating device shall have sufficient battery capacity to operate in the standby condition for 96 hours and in addition following the standby period to provide transponder transmissions for 8 hours when being continuously interrogated with a pulse repetition frequency of 1 KHz. when an on-board test is performed using a shipboard 9 GHz radar, an activation of the Locating device shall be limited to a few seconds to avoid harmful interference to other ship born or airborne radars and excessive consumption of batteries energy.

5. The Locating device shall be design so as to be able to operate under ambient temperatures of – 20^0C to 55^0C. It should not be damaged in stowage through the temperature range of – 30^0C to 65^0C.

6. The height of the installed Locating device antenna shall be at least 1 metre above sea level.

7. The vertical antenna polar diagram and hydrodynamic characteristics of the device shall permit the Locating device to respond to search radars under heavy swell conditions. The antenna polar diagram shall be substantially omnirectional in the horizontal plane. Horizontal polarization is used for transmission and reception.

8. The Locating device shall operate correctly when interrogated by an approved navigational radars, with an antenna height of 15 meters and at a distance of upto at least 10 nautical miles. It shall also operate correctly when interrogated by air nautical miles. It shall also operate correctly when interrogated by air-born radars with at last 10 kilowatt peak output power at a height of 916 meters and at a distance of at least 30 nautical miles.

9. Labelling.—The following shall be clearly indicted on the exterior of the equipment.—(1) brief operating instructions and

(2) expiry date for the primary batteries used.

PART VI

Two-way radio telephone apparatus

(1) The apparatus shall be portable and capable of being used by an unskilled person.

(2) The apparatus shall be portable and capable of also being used for on board communication.

(3) The apparatus shall be capable of operation on a channel approved by the Central Government. If the apparatus is operating in the VHF band, precautions shall be taken to prevent selection of VHF channel 16 on equipment capable of being operated on that frequency.

(4) The apparatus shall be operated from a battery of adequate capacity to ensure 4 hour operation with a duty cycle of 1 : 9.

(5) While at sea, the equipment shall be maintained in satisfactory condition whenever necessary , the battery shall be brought to the fully charged condition or replaced.

PART VII

Two-way communication system

(1) The emergency communication system on board shall be so arranged that it shall be possible to provide two-way communication between the bridge and emergency control stations, muster and embarkation stations and other strategic positions on board. The system may be used to provide communication between bridge and forward and aft mooring stations and other such areas.

(2) The communication system shall be brought into operation from the bridge only.

(3) The communication system shall be capable of operation on both the mains and the emergency power supply.

PART VIII

General emergency alarm system

(1) The general emergency alarm system shall be capable of sounding the general emergency alarm signal consisting of seven or more short blasts followed by one long blast on the ship's whistle or siren and additionally on an electrically operated beil or klaxon or other equivalent warning system, which shall be powered from the ship's main supply and the emergency source of electrical power. The system shall be capable of operation from the navigating bridge and except for the ship's whistle also from other strategic points. The system shall be audible throughout all the accommodation and normal crew working spaces.

(2) The system shall be used for summoning passengers and crew to muster stations. The system shall be supplemented by either a public address system or other suitable means of communication.

PART IX

Rocket parachute flares (ships)

1. The rocket parachute flare shall.—(1) be contained in a water-resistant casing;

(2) have brief instructions or diagrams clearly illus training the use of the rocket parachute flare printed on its casing

(3) have integral means of ignition;

(4) be so designed as not to cause discomfort to the person holding the casing when used in accordance with the manufacturer's operating instructions.

2. The rocket shall when fired vertically, reach an altitude of not less than 300 meter. At or near the top of its trajectory the rocket shall eject a parachute flare, which shall.--

(1) burn with a bright red colour ;

(2) burn uniformly with an average luminous intensify of not less than 30,000 candallas ;

(3) have burning period of not less than 40 Seconds ;

(4) have a rate of descent of not more than 5 metres per second;

(5) not damage its parachute or attachment while burning;

3. All components, compositions and ingredients shall be of such a character and of such a quality as to enable the rocket to maintain its serviceability under good average storage condition for a period of at least two year.

(4)(1) The rocket shall be packed in a container which shall be durable, dam proof and effectively sealed.

(2) If made of metal the container shall be lacquered, or otherwise adequately protected against corrosion.

5. The date on which the rocket is filled shall be stamped indelibly on the rocket and on the container.

6. Clear and concise directions for use in the English and Hindi language shall be printed indelibly on the rocket.

PART X

Rocket parachute flare (Survival Craft) Rocket parachute flares (survival Craft) shall comply with the requirement of Part IX of this Schedule and shall in addition also be capable off functioning properly after immersing in water for one minute and after removing of adhering water by shaking.

PART XI

Hand hold distress flares

1. The hand flare shall.—(1) Be contain in a water-resistance casing.

(2) Have brief instructions or diagrams clearly illustrating the use of the hand flare printed on its casing.

(3) Have a self-contained means of ignition.

(4) Be so designed as not to cause discomfort to the persons holding the casing and not endanger the survival craft by burning or glowing residues when used in accordance with the manufacturer's operating instructions.

2. The hand flare shall.—(1) Burn with a bright red colour.

(3) Have burning period of not les than 2 minute.

(4) continue to burn after having been immersed for a period of 10 seconds under 100 mili meters of water.

3. The flare shall be water-proofed and capable of satisfactory functioning after immersion in water for one minute.

4. The flare shall be stamped indelibly with the date on which, it is filled.

5. Clear and concise direction for use in the English and Hindi languages shall be printed indelibly on the flare.

6. All components, compositions and ingredients shall be of such a character and of such a quality as to enable the flares to maintain its service ability under good average storage conditions for a period of at least three years.

PART XIII

self activating smoke signals (Lifebuoy) Self-activating smoke signals shall :

(1) emit smoke of a highly visible colour at a uniform rate for a period of at least 15 minutes when floating in clam water.

(2) not ignite explosively or emit any flame during the entire smoke emission time of the signal.

(3) not be swamped in a seaway.

(4) continue to emit smoke when fully submerged in water for a period of at least 10 seconds.

(5) be capable of withstanding the drop test specified in paragraph 1(i) of Part 1 of the Second **Schedule**.

PART XIII

Self-igniting lights Lifebuoys and life jackets.

1. Lifebuoy self-igniting lights shall :

(1) be such that they cannot be extinguished by water.

(2) be capable of either burning continuously with a lummous intensity of not less than 2 candellas in all directions of the upper hemisphere of flashing (discharge flashing) at a rate of not less than 50 flashes per minute with at least the corresponding effective luminous intensity.

(3) be provided with a source of energy capable of meeting the requirement of sub-paragraph 2 for a period of at least 2 hours.

(4) be capable of withstanding the drop test specified in paragraph 1(i) of part 1 of the Second **Schedule**.

2. Lifejacket lights.—(1) Each lifejackets light shall :

(1) have a luminous intensity of not less than 0.75 candellas.

(2) have a source of energy capable of providing a luminous intensity of 0.75 candellas for a period of 8 hrs.

(3) be visible over as great a segment of the upper hemisphere as a practicable when attached to a life jacket.

(2) If the referred to in paragraph 3.1 is a flashing light it shall, in addition :

(i) be provided with a manually operated switch.

(ii) not be fitted with a lens or curved reflector to concentrate the beam.

(iii) flash at a rate of not less than 50 flashes per minute with an effective luminous intensity of at least 0.75 candellas.

PART XIV

Buoyant smoke signals (Life/Lifecraft)

1. The buoyant smoke signal shall :

(i) be contained in a water resistant casing.

(2) not ignite explosively when used in accordance with the manufacturer's operating instructions.

(3) have brief instructions or diagrams clearly illustrating the use of the buoyant smoke signal printed on its casing.

2. The buoyant smoke signal shall.—(1) emit smoke of a highly visible colour at uniform rate for a period of not less than 3 minutes when floating in calm water.

(2) not emit any flare during the entire smoke emission time.

(3) not be swamped in a seaway.

(4) continue to emit smoke when submerged in water for a period of 10 seconds under 100 milimetres of water.

PART XV

Search light (life boat and rescue boat)

A Searchlight shall be capable of effectively illuminating a light-coloured object at night having a width of 18 meters at a distance of 180 meters for a total period of 6 hours and working for at least 3 hours continuously.

PART XVI

International Life Saving Signals

The following signals shall be used by life-saving stations and maritime rescue units when communicating with ships or persons in distress and by ship or persons in distress when communicating with life-saving stations and maritime rescue units. The signals used by aircraft engaged in search and rescue operations to direct ships are indicated in paragraph (d) below. An illustrated table describing the signals listed below shall be readily available to the officer of the watch of every ship to which this rule apply.

(a) Replies from life-saving station or maritime rescue units to distress signals made by a ship or person :

SIGNAL	SIGNIFICATION

By day-Vertical motion of a white flavor the arms or fiting of a green star-signal or signaling the code letter 'K' (--o-) given by light or sound-sign all apparatus. By night-Vertical motion of a white light or flare, or firing of a green star signal or signaling the code letter 'K' (--o--) given by light or sound-signal apparatus. A range (indication or direction) may be given by placing a steady white light or flare at a lower level and in line with the observer.	'This is the best place to land'.
By day-Horizontal motion of a white flag or arms extended horizontally or firing of a red star-signal or signaling the code letter 'S' (..) given by light or sound-signal apparatus. By night-Horizontal motion of a white light or flare or firing of a red star-signal of signaling the code letter 'S' (..) given by light or sound-signal apparatus.	'Landing here highly dangerous'.
By day-Horizontal motion of a white flag, followed by the placing of the white flag in the ground and the carrying of another white flag in the direction to the indicated or signaling line code letter 'S' followed by the letter code 'F' (o—o) if a better landing place for the craft in distress is located more to the right in the direction of approach for the code letter 'P' if a better landing place for the craft in distress is located more to the left in the direction of approach.	'Landing here highly dangerous. A more favorable location for landing is in the direction indicated."
By night-Horizontal motion of a white light or flare, followed by the placing of the white light or flare on the ground and the carrying of another white light or flare in the direction to be indicated or firing of a red star-signal vertically and a white star-signal in the direction towards the better landing place or signaling the code letter 'S' (..) followed by code letter 'R' (ooo) if a better landing place for the craft in distress is located more to the right in the direction of approach or the code letter 'L' (…) if a better landing place for the craft in distress is located more to the left in the direction of approach.	'Landing here highly dangerous. A more favorable location for a landing is in the direction indicator'.

(c) Signals to the employed in connection with the use of shore life-saving apparatus :

SIGNAL	SIGNIFICATION

By day-Vertical motion of a white flag or the arms of firing of a green star-signal	In general- Affirmative'.Specifically : 'Rocket line is held'
By right-Vertical motion of a white light or flare or firing of a green star-signal	'Tail block is made fast'Hawser is made fast'. 'Man is in the breeches buoy' 'Haul away'
By day-Horizontal motion of a white flag or arms extended horizontally or firing of a red star-signal	In general-'Negative' Specifically :'Slack away 'Avast hauling'.

(d) Signals used by aircraft engaged on search and rescue operation to direct shows towards an aircraft, ship or person in distress :

(i) When an aircraft desires to direct a surface craft towards an aircraft or a surface craft in distress it shall perform the following procedures in sequence.

(1) circling the surface craft at least once ;

(2) crossing the protected course of the surface craft ahead at a 1 w altitude opening and closing the throttle or changing the propeller pitch;

(3) heading in the direction in which the surface craft is to be directed.

Repetition of such procedures has the same meaning.

(ii) The following procedure performed by the aircraft means that the assistance of the surface craft to which the signal is directed is no longer required : crossing the wake of the surface craft close astern at a low altitude, opening and closing the throttle of changing the propeller pitch.

EIGHTH SCHEDULE

[See rule 8(2)]

MUSTER LIST AND EMERGENCY INSTRUCTIONS

1. General:- The master of every ship shall prepare a Muster list and emergency instructions which shall comply with the following :-

(a) The muster list shall specify details of the General emergency alarm signal and the action to be taken by crew and passengers when this alarm is sounded. The Muster list shall also specify now the order to abandon ship will be given and the details of the signal to indicate fire emergency.

(b) The Muster list shall show the duties assigned to the different members of the crew including :

(i) closing the waterlight doors, fire doors, valves, scuppers, sidescuttles, swylights, portholes and other similar openings in the ship ;

(ii) equipping of the survival craft and other life saving appliances ;

(iii) preparation and launching of survival craft ;

(iv) general preparations of other life-savings appliances ;

(v) Muster of passengers ;

(vi) use of communication equipment ;

(viii) manning of fire parties assigned to deal with fires;

(c) The muster list shall specify the officers who are assigned to ensure that life saving and fire appliances are maintained in good condition and are ready for immediate use.

(d) The muster list shall specify substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions.

(e) The muster list shall show the duties assigned to members of the crew in relation to passengers in case of emergency.

(i) warning the passengers ;

(ii) seeing that they are suitably clad and have donned their lifejackets correctly :

(iii) assembling passengers at muster stations ;

(iv) keeping order in the passageways and on the stairways and generally controlling the movements of the passengers ;

(v) ensuring that a supply of blankets is taken to the survival craft.

(f) The muster list shall be prepared before the ship proceeds to sea. After the muster list has been prepared, if any change takes place in the crew which necessitates an alteration in the muster list, the muster shall either revise the list or prepare a new list.

2. The formal of the muster list used on every ship shall be scrutinized by the surveyor every time the safety equipment on board a ship is impeded to ensure compliance with this schedule.

NINTH SCHEDULE

[See rule 13(7)27 19(8) 27 and 36.]

Float free arrangements for liferafts

1. The liferaft painter system shall provide a _____ between the ship and the liferaft and shall be so _____ as to ensure that the liferaft when released and, in the case of an inflatable liferaft when inflated, is not dragged under by the sinking ship.

2. If a _____ is used in the float free arrangement, it shall :

(a) not be broken by the force required to pull the painter from the liferaft container ;

(b) if applicable, be of sufficient strength to permit the inflation of the liferaft ;

(c) break under a strain of 2.2 + 0.4 Kilo Newtons.

3. If a hydrostatic release unit is used in the floatfree arrangements it shall.

(a) be constituted of compatible materials so as to prevent malfunction of the unit. Galvanizing or other forms of metallic coating on parts of the hydrostatic release unit shall not be accepted ;

(b) automatically release the liferaft at a depth of not more than 4 minutes ;

(c) have drains to prevent the accumulation of water in the hydrostatic chamber when the unit is in its normal position ;

(d) be so constructed as to prevent release when seas wash over the unit ;

(e) be permanently marked on its exterior with its type and serial number ;

(f) be provided with a document of identification places stating the date of manufacture, type and serial number ;

(g) by such that each part connected to the painter system has strength of not less than required for their painter.

4. Hydrostatic release units shall be serviced :

(a) at intervals not exceeding 12 months. However, in cases where it appears proper and reasonable, the Central Government may extended this period to 17 months ;

(b) at a servicing station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel.

TENTH SCHEDULE

[See rule 17)

Every line throwing appliance shall :

1. be capable of throwing a line with reasonable accuracy,

2. include not less than four projectiles each capable of carrying the line at least 230 m in claim weather;

3. include not less than four lines each having breaking strength of not less than 2 Kilo Newton ;

4. have brief instructions or diagrams clearly illustrating the use of the line-throwing appliance.

2. The rocket, in the case of a pistol fired rocket, or the assembly, in the case of an integral rocket and line, shall b contained in a water resistant casing. In addition, in the case of a pistol-fired rocket, the line and rockets together with the means of ignition shall be stowed in a container which provides protection from the weather.

3(i). All components, composition and ingredients of the rockets and the means of igniting them shall be of such a character and of such quality as to enable them to maintain their service ability under good average storage conditions for a period of at least two years.

(ii) The date on which the rocket is filled shall be stamped indelibly on the rocket and its container and the date of packing shall be similarly marked on the cartridge containers.

ELEVENTH SCHEDULE

[See rule 18(1) and (6)]

Training Manual

1. The training manual, which may comprise of several volume, shall contain instructions and information, in easily understood terms illustrated wherever possible, on the life-saving appliances provided in the ship and on the best methods of survival. Any part of such information may b provided in the form of audio-visual aids in lieu of the manual. The following shall b explained in detail :

1. donning of lifejackets and immersion suits, as appropriate :

2. muster at the assigned stations.

3. boarding, launching, and clearing the survival craft and rescue boats,

4. method of launching from within the survival craft ;

5. release from launching appliances ;

6. methods and use of devices for protection in launching aras, where appropriate ;

7. illumination in launching aras ;

8. us of all survival equipment ;

9. use of all detection equipment ;

10. with the assistance of illustrations, the use of radio life-saving appliances ;

11. use of drogues ;

12. use of engine and accessories ;

13. recovery of survival craft and rescue boats including stowage and securing ;

14. hazards of exposure and the need for warm clothing ;

15. best use of the survival craft facilities in order to survive;

16. methods of retrieval, including the use of helicopter, rescue gear (slings, baskets, stretchers), breeches, buoy and shore life-saving apparatus and ship's line-throwing apparatus;

17. all other functions contained in the muster list and emergency instructions ; and

18. instructions for emergency repair of the life-saving appliances.

2. Instructions in the use of the ship's life-saving appliances and in survival at sea shall be given by the Master or other officers at the same interval as the drills. Individual instructions may cover different parts of the ship's life-saving system but all the ship's life saving equipment and appliances shall be covered within any period of 2 months. Each member of the crew shall be given instructions which shall include but not necessarily be limited to :

(a) operation and use of the ship's inflatable life rafts :

(b) problems of hypothermia, first-aid treatment for hypothermia and other appropriate first-aid procedures ; and

(c) special instructions necessary for use of the ship's life-saving appliances in severe weather and ever as conditions.

3. On-board training in the use of davit-launched liferafts, shall take place at intervals of not more than 4 months on every ship fitted with such appliances. Whenever practicable this shall include the inflation and lowering of a liferaft. This lifraft may be a special lifraft intended for training purposes only, which is not part of the ship's lifesaving equipment. Such a special liferaft shall be conspicuously marked.

TWELFTH SCHEDULE

[See rule 18(3)]

Abandon ship drills and fire drills

PART I

Abandon ship drill

1. Each abandon ship drill shall include.—(1) summoning of passengers and crew to muster stations by sounding the alarm of signals specified in Part VI of the Seventh **Schedule**.

(2) ensuring that the passengers and crew are informed of the process the abandon ship order is given ;

(3) reporting to stations and preparing for the duties described in the muster list ;

(4) checking that passengers and crew are suitable dressed ;

(5) checking that lifejackets are correctly donned ;

(6) lowering of at least one lifeboat after any necessary preparation for launching ;

(7) starting and operating the lifeboat engine ;

(8) operation of davits used for launching liferafts.

2. Different lifeboats shall, as far as practicable, be lowered in compliance with the requirements of paragraph 1(6) above at successive drills.

3. Drills shall as far as practicable, be conducted as if there were an actual emergency.

4. Each lifeboat shall be launched with its assigned operating crew abroad and maneuvered in the water at least once every 3 month during an abandon ship drill. ships operating on short voyages may not be expected to launch the lifeboats on on side if their berthing arrangements in port and their trading patterns do not permit launching of lifeboats on that side. However, all such lifeboats shall be lowered at least once every 3 months and launched at least annually.

5. As far as is reasonable and practicable, rescue boats other than lifeboats which are also rescue boats, shall be launched each month with their assigned crew abroad and maneuvered in the water. In all cases this requirement shall be complied with at least once every 3 months.

6. If lifeboat and rescue boat launching drills are carried out with the ship making headway, such drills shall, because of the dangers involved be practiced in sheltered waters only and under the supervision of an officer experienced in such drills.

7. Emergency lighting for mustering and abandonment shall be tested at each abandon ship drill.

PART II

Fire Drill

1. Each fire drill shall be conducted in as realistic manner as possible. Before organizing the fire drill, the equipment require to be carried on board vide Merchant Shipping (fire appliances) rules, shall be checked to ensure that it is in working order.

2. Each fire drill shall include summoning of crew to fire station with an alarm signal as specified in the muster list.

3. As far as possible, fire parties shall be organized to act as an integrated until and should carry with if the equipment that is necessary including communication equipment.

4. Each fire party shall be under the charge of a person who has been trained in fire fighting and a second in command with similar training shall be nominated.

5. The remaining crew shall be assigned task to attend to following details :

(a) restriction of ventilation operation of remote switches and controls and emergency fire pump.

(b) administration first aid.

(c) evacuation of crew members and/or passengers from any areas likely to be affected by fire.

(d) preparation of survival crafts for "abandon ship" if necessary.

(e) maintenance of efficient watch in the engine room, on the bridge, in the radio room and at other control stations where necessary.

6. At each of the fire drills, fire parties shall be informed of the location of the fire and its nature immediately after they are assembled.

7. The person in charge of the fire party shall communicate the progress of the fighting operations by using efficient communication system. Special signals, if any, should be intimated to all concerned. When communications are established on a portable two way radio system, each communication should indicate that the exercise is a fir drill. The precaution is necessary as this communication can be heard for a considerable distance and may raise unnecessary alarms.

8. In order to conduct scalistic drills, dummy fires may be arranged in suitable locations on decks. for instructions purposes, the fighting of dummy fire should b carried out in the presence of the crew to familiarize them with the effectiveness of the equipment.

9. On every ship a person should be designated as a fire training officer. The training officer shall instruct a batch of crew members once every week in the use of fire equipment, location of such equipment and the location of alarms.

10. Every crew member should undergo such training within 15 days of joining a ship and thereafter at least once every 2 months.

11. As matter of training all deck officers be placed in the Engine Room fire control party in turn and all engineer officers be placed in 'abandon ship' preparation parties.

12. At the conclusion of each drill, master, Chief Engineer and the Fire Control Officer shall assess the performance and direct further on board training where necessary.

THIRTEENTH SCHEDULE

[See rule 19(2) and (5)]

Instructions for onboard maintenance

1. Instructions for onboard maintenance of life-saving appliances shall be easily understood, illustrated wherever possible and as appropriate, shall include the following for each appliance :

(1) a checklist for use when carrying out the inspections ;

(2) maintenance and repair instructions :

(3) schedule of periodic maintenance ;

(4) diagram of lubrication points with the recommended lubricants ;

(5) list of replaccable parts ;

(6) list of sources of spare parts ;

(7) log for record of inspections and maintenance.

2. Weekly inspection.—(1) The following tests and inspection shall be carried out weekly all survival carft, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use ;

(2) all engines in lifeboats and rescue boats shall be run ahead and astern for a total period of not less than 3 minutes provided the ambient temperature is above the minimum temperature required for starting the engine. Ships constructed before 1st July 1986, shall comply with the provisions as far as it is practicable.

(3) the general emergency alarm system shall be tested.

3. Monthly inspection :

Inspection of the life-saving appliances, including life boat equipment shall be carried out monthly using the checklist mentioned above to ensure that they are complete and in good order. A report of the inspection shall be entered in the log-book.

FOURTEENTH SCHEDULE

[See rule 42(2), 43(c)]

Class 'C' Boat

(1) Every Class 'C' boat shall be --

(a) a open boat constructed with rigid sides.

(b) of such form and proportions that it shall have ample stability in seaway and sufficient free board when loaded with greatest number of persons for whom seating provided and its full equipment.

(c) not less than 4.3 metres and not more than 5.5 metres in length.

(d) fitted with thawrls and side seats as low in the boat as practicable and bottom boards.

(e) fitted with internal buoyancy so placed as to secure stability when the boat is fully loaded under adverse weather condition. The internal buoyancy shall consist of either of air cases constructed of copper or muntz metal or of other equally suitable material.

(2) The carrying capacity of the Class 'C' boat shall be determined by the number of persons having an average mass of 75 Kilograms, all wearing like-jackets that can be seated in normal position without interfering the operation of any of the boats equipment.

(3) Every Class 'C' boat shall carry :

(a) sufficient buoyant oars to make headway in calm seas. Thole pins, crutches or equivalent arrangements shall be provided for each oar provided Thole pins or crutches shall be attached to the boat by landyards or chains ;

(b) two boat-hooks ;

(c) a buoyant bailer and abucket ;

(d) an efficient painter of a length equal to not less than twice the distance from the stowage position of the lifeboat to the waterline in the lightest seagoing condition or 15 metres, whichever is the greater ;

(e) an hatchet ;

(f) watertight receptacles containing a total of 3 litres of fresh water for each person the lifeboat is permitted to accommodate ;

(g) a rustproof dipper landyar ;

(h) a rustproof graduated drinking vessel ;

(i) two rockets parachute flares complying with the requirements of Part X of **Seventh Schedule** ;

(j) four hand flares complying with the requirements of Part XI of **Seventh Schedule** ;

(k) two buoyant smoke signals complying with the requirements of Part XIV of the S**Seventh Schedule**;

(l) one waterproof electric torch suitable for Morse signaling together with one spare set of batteries and one spare bulb in a waterproof container ;

(m) one daylight signaling mirror with instructions for its use for signaling to ships and aircraft ;

(n) one whistle or equivalent sound signal ;

(o) a jack-knife to be kept attached to the boat by a landyard ;

(p) three in openers ;

(q) one buoyant rescue quoir, attached to not less than 30 metres of buoyant line ;

(r) one set of fishing tackle.

[F.No.SR/11013/3/86-MA]
K. PADMANABHACHAR, Under Secy.

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