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Merchant Shipping (Load Line) Rules, 1979

**EXTRACT FROM THE GAZETTE OF INDIA, PART II, SEC. 3,SUB-SEC. (i)**

**Appearing on page No.1536 to 1598 Date 7.6.79**

**MINISTRY OF SHIPPING AND TRANSPORT**
**(Transport Wing)**

**NOTIFICATION**

**(MERCHANT SHIPPING)**

**New Delhi, the 15th May, 1979**

G.S.R. 797-Whereas a draft of the certain rules further to amend Merchant Shipping (Load Line) Rules 1977, was published, as required by sect Shipping Act, 1958 (44 of 1958) at pages 690 to 718 of the Gazette of India, Part II Section 3 Sub-Section (i), dated the 25th March, 1978 with the notificatic Shipping and Transport, (Transport Wing), No. G.S.R. 423, dated the 25th October, 1977 inviting objections and suggestions from all person likely to be affec date of publication of the said notification in the Official Gazette;

And whereas the copies of the said Gazette were made available to the public on the 27th March, 1978 ;

And whereas no objection or suggestions have been received from the public on the said draft ;

Now, therefore, in exercise of the powers conferred by section 311, read with section 436 of the said Act, and in Supersession of the Indian Merchant Government hereby makes the following rules, namely :-

**PART 1**
**Preliminary**

1. Short title, commencement and application :- **(1) These rules may be called the Merchant Shipping (Load Line) Rules, 1979.**

(2) They shall come into force at once.

(3) They shall apply to--

(a) every Indian ship, other than a ship of war, a fishing vessel, a pleasure yacht or a sailing vessel, wherever it is ;

(b) every ship other than an Indian ship, not being a ship of war, a fishing vessel, a pleasure yacht or a sailing vessel while it is at a por of India, which is--

(i) an existing ship of 150 tons gross or more;or

(ii) a new ship of 24 metres of more in length :

Provided that these rules shall not apply to any ship other than Indian ship by reason of its being at a port or place in India or within the territorial wate port or place but for the strees of weather or any other circumstances that neither the master nor the owner or character, if any, of the ship could have preven

2. Definition:- In these rules, unless the context otherwise requires,-

(1) "Act" means the Merchant Shipping Act, 1958 (44 of 1958);

(2) "amidship" means at the middle of the length (L);

(3) "approved" means approved by the Central Government or by any other officer appointed by it in this behalf;

(4) "Assigning Authority" means the Director General or any other person appointed by the Central Government to be the assigning notification in the Official Gazette;

(5) "block co-efficient" or the symbol (cb) means block co-efficient obtained by the formula

$$CB = \frac{\Delta}{B.L_p.I}$$

where, is volume of the modulded displacement of the ship, excluding bossing, in a ship with metal shell or, as the case may be, the volume of displacemen shell of any other material, both taken at a moulded draught of $d_1$ ; $d_1$ is 85 per cent of the least modulded depth;

(6) "breadth" or the symbol (B) means the maximum breadth of the ship, measured amidships to the moulded line of the frame in a sh the outer surface of the hull in a ship with a shell of any other material;

(7) "depth for freeboard" or the symbol (D) -

(a) in relation to a ship other than these referred to in sub-clause (b) means the moulded depth of the ship amidships plus the plate, where fitted, plus the value of the expression

$T \frac{(L - S)}{L}$ if the exposed freeboard deck is

completely sheathed between superstructures, when "T" means thickness of the exposed sheathing clear of deck ope structures; and

(b) in relation to a ship having a rounded gunwale with a redius greater than four per cent of the breadth of the ship (B), or in re means – the depth fo freeboard of a ship having midship section with vertical topsides and with the same round of beam anc by the actual midship section;

(8) "enclosed superstructure" means a superstructure with enclosing bulk heads of efficient construction, access openings in suc doors and all other openings in sides and ends of such superstructures being fitted with efficient watertight means of closing these requirements unless access is provided by which the crew can reach machinery and other working spaces within the available for the purpose at all times when access openings in the bulkheads of the bridge or poop are closed;

(9) "existing ship" or "existing sailing vessel" means a ship or sailing vessel the keep of which was laid before the 21st day of July

(10) "flush deck ship" means a ship which has no superstructures on a free board deck;

(11) "freeboard" means the distance measured vertically downwards amidships from the upper edge of the deckline described i the upper edge of the appropriate load line mark lies;

(12) "freeboard deck" means the deck from which the freeboard is assigned being either--

(a) the uppermost complete deck exposed to whether and sea, which has permanent means of closing all openings in the weath the sides of the ship are fitted with permanent means of watertight closing. In a ship having a discontinuous freeboard dec continuation of that line parallel to the upper part of the deck is taken as the freeboard deck; or

(b) on the application of the owner and subject to the approval of the Director General, a deck lower than that described i permanent deck continuous in the fore and aft direction at least between the machinery space and peak bulkheads and cor stepped the lowest line of the deck and the continuation of that line parallel to the upper part of the deck is taken as the freeb

(13) "height of superstructure" means the least vertical height measured at side from the top of the superstructure deck beams to

(14) "length" or the symbol (L) means ninety-six per cent of the total length on a water line at eighty-five per cent of the least m the length from the force side of the stem to the axis of the rudder stock on the water line if that be greater;

(15) "length of a superstructure" means length of the part of the superstructure which lies within the length (L)

(16) "moulded depth" in relation to a ship means the vertical distance measured form the top of the keel to the top of the freeboarc

Provided that---

(a) in the case of awood or composite ship, it shall be measured from the lower edge of keel rabeet. Where the form hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the fla of the keel;

(b) in ships having rounded gunwale, it shall be measured to the point of intersection of the moulded lines of the deck the gunwale were of angular design;

(c) in ships where the freeboard deck is stepped and the raised part of the deck extends over the point at which the m depth shall be measured to a line of reference extending from the lower part of the deck long a line parallel with the r

(17) "new ship" or "new sailing vessel" means a ship or sailing vessel the keel of which was laid on or after the 21st day of Juluy,

(18) "perpendiculars" means the forward and after perpendicular taken at the forward and the after end of the length.(L);

(19) "principal officer" means the Principal Officer of the Mercantile marine Department of the district concerned;

(20) "sailing vessel" includes all ships provided with sufficient sail area for navigation under sails along whether or not fitted with r

(21) "Schedule" means a Schedule appended to these rules ;

(22) "superstructure" means a decked structure on the freeboard deck, extending from side to side plating not being in board of breadth (B), and includes a raised quarter deck;

(23) "timber deck cargo" means a cargo of timber other than wood pulp or similar cargo carried on uncovered part of a freeboard

(24) "type A ship" and "type B ship" means ships as interpreted in the First Schedule;

(25) "watertight" in relation to any part of ship below the freeboard deck means capable of preventing the passage in any directi case may be having regard to the functional requirement of that part of the ship;

(26) "weathertight" in relation to any part of ship above the freeboard deck means that water cannot penetrate through that pa weather encountered at sea.

**PART II**
**Surveys and Certificates**

3. Application for Survey-Application for the survey of a ship for the purpose of assignment of freeboard and for the issue of a load line certificate to the s or on behalf of the owner of the ship. The applicant shall furnish to the Assigning Authority as described hereunder such plans, drawings specifications and design and construction of the ship as the Assigning Authority may require--

(a) the Principal Officer on behalf of the Director General; and

(b) any other person appointed by the Central Government to be an Assigning Authority for the purposes of these rules by a notification publishec

4. Load Line Surveys – (1) After receipt of the application and the documents together with other relevant information required by rule 3, the Assigning A a surveyor with a view to ascertaining-

(a) whether the ship complies with such of the requirements of Part IV of these rules and the First Schedule; and

(b) such other data as may be necessary--

(i) for the assignment of freeboard to the ship in accordance with Part V of these rules and the Second Schedule; and

(ii) to enable the stability information to be supplied to the master of the ship pursuant to Part VI of these rules and the Third Schedule.

(2) In the course of survey of a ship pursuant to the provisions of sub-rule (1), the ship and any of its fittings shall be submitted to suc Authority, be necessary to ascertain that the ship complies with the requirements of sub-rule (1). Any test pertaining to stability of a ship shall be subject to th

(3) The owner or any other person on his behalf applying for the survey of the ship under rule 3, shall afford all necessary facilities f Assigning Authority, furnish, for the Assitning Authority's use and retention if necessary, such further documents and information as the Assigning Authority ma

5. Report of Survey :- (1) On completion of the survey, the Surveyor shall submit a report of survey to the Assigning Authority giving the results of the ship with reference to the requirements of rule 4.

(2) The report of survey shall be accompanied by the Record of Conditions of Assignment in the form set out in the Fourth Schedule con computations of freeboard complying with the requirement of Part V of these rules and the second Schedule.

(3) In the case of any ship which is required to comply with the requirements of Part I of the Third Schedule relating to stability the survey information as may be necessary to determine whether the ship complies with these requirements.

6. Assignment of freeboards ☹1) The Assigning Authority shall-

(a) if satisfied on scrutiny of report of survey that the ship complies with the applicable requirements of Part IV of these rules and the First schedu

(b) on receipt of an intimation from the Director General that it is statisfied that the ship complies with the requirements of Part VI of these rules a

assign freeboard to the ship in accordance with Part V of these rules and second Schedule.

(2) On assignment of freeboards, the Assigning Authority shall furnish to the owner of the ship-

(a) particulars of freeboards so assigned;

(b) directions specifying-

(i) the load lines to be marked on the ship in accordance with the requirements of Part III of these rules;

(ii) the position in which those load lines, the deck line and the load line mark are to be so marked; and

(c) two copies of the Record of Conditions of Assignment.

7. Issue of Load Line Certificates and forms thereof – Subjectto the provisions of rule 12, the Assigning Authority shall, on being satisfied that with the directions given to the owner of the ship under rule 6, issue either an International Load Line Certificate (1966) or an India Load Line Certif Act, in the form set out for such certificates in the Fifth Schedule.

8. Duration of Certificate:-Every Load Line Certificate issued under these rules shall be valid until a date to be determined by the Assi years after the date of completion of survey of the ship under rule 4. Such date shall be specified by the Assigning Authority in every certificate issu deemed to be a valid certificate.

9. Extension of Load Line Certificate :- (1) Where any ship, in respect of which a Load Line Certificate is I force, has been surveyed follo of the fresh certificate to take effect on the expiry of the current certificate, the Assigning Authority may -

(i) if satisfied on serutiny of survey that the ship complies with applicable requirements of Part V of these rules and assignment.

(ii) On receipt of an intimation from the Central Government that the ship complies with the requirements of the Third Schedu current certificates of the ship by a period not exceeding five months, if he considers that it is not reasonably practicable to issue a fresh certificate. issued after the expiry of the extended date of validity of the current certificate.

(2) No such extension granted under sub-rule (1) shall have effect unless particulars of the date upto which the period of vali particulars of place at and date on which extension was granted, are endorsed by the Assigning Authority on the current certificate.

(3) The period of validity of a fresh certiicate ultimately issued to a ship under sub-rule (1) shall not exceed five years from the dat (1).

10. Cancellation of Load Line Certificates :- (1) Where the Central Government is satisfied, whether by a report from an Assigning

(i) the ship to which the certificate relates does not comply with the conditions of assignment, or

(ii) the structural strength of the ship is lowered to such an extent as to render the ship unsafe, or

(iii) information on the basis of which freeboards were assigned to the ship has proved to the incorrect in matters of mate

(2) Where it comes to the notice of the Central Government that ---

(i) the certificate of a ship is not endorsed as required by rule 11 ; or

(ii) a new certificate is issued in respect of the ship; or

(iii) the ship has ceased to be an Indian Ship within the meaning of the Act, it may, after giving the owner of the representation, cancel or cause to cancel any Load Line Certificate issued under these rules.

11. Periodical Inspection of Ships :- (1) Every ship in respect of which a Load Line Certificate is in force shall be periodically i provisions of this rule in order to ensure that --

(a) the fittings and appliances for the protection of openings, the guard rails, the freeing ports and the means of access condition; and

(b) no changes have been made or taken place in the hull or superstructures of the ship which may render inaccurate been assigned to the ship.

(2) Application for the periodical inspection shall be made by or on behalf of the owner of the ship to an Assigning Authority, who shall app

(3) The surveyor may, in the course of any such inspection, require such tests to be carried as in his opinion, may be necessary to establi of sub-rule (1).

(4) Periodical inspections required by this rule shall be carried out annually within a period of nine to fifteen months commencing on the months after each anniversary of the date of completion of the survey of the ship leading to the issue of its current Load Line Certificate :

Provided that the Central Government may, if it is satisfied that the circumstances so require permit the annual inspection to be carried out be

(5) The surveyor, if satisfied after inspection that the ship complies with the requirements of sub-rule (1), shall, in the space provided endorse a record of such inspection and certify---

(a) in the case of an International Load Line Certificate (1966), that the ship was found to comply with the relevant provisions of t

(b) in the case of an India Load Line Certificate, that the ship was found to comply with the relevant provisions of these rules.

Every such endorsement shall be dated and signed by the surveyor carrying out the inspection, specifying the Assigning Authority on whose b

12. Exemption and Exemption Certificate :-- (1) Where the Central Government exempts any ship pursuant to the provisions of Section in respect of such ship an International Load Line Exemption Certificate in the form set out in the Fifth Schedule.

(2) Save in so far as the nature and terms of any such exemption require to the contrary the provisions of rules 1 to 6 and of rules 8 to any exemption certificate so issued to any such ship in the like manner as they apply to any other ship except that--

(i) references in the aforesaid rules to Assigning Authority shall be deemed to be references to the Central Government ; and

(ii) sub-rule (5) of rule 11 shall be deemed to have been substituted by the following, namely :-

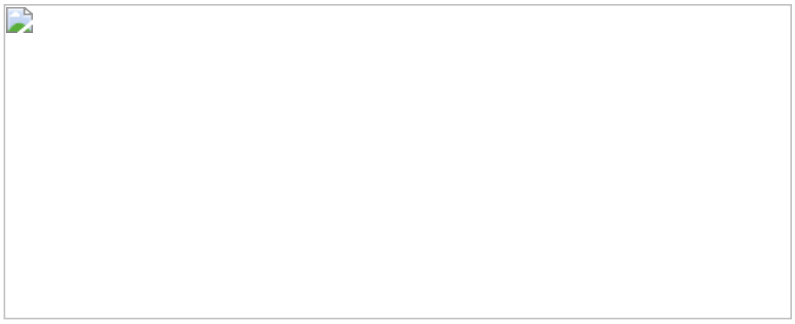
"(5) the surveyor, if satisfied after inspection that the ship continues of comply with the conditions subject to which the exemp certificate to that effect in the space provided and date and sign the endorsement."

**PART III**
**Load Lines and Marks**

13. Appropriate Marks :- For the purposes of this part, the expression "appropriate marks" in relation to a ship means the load lines required to rule (2) of rule 6 and the deck-line and load line mark.

14. Marking:- The owner of a ship, on receipt from the Assigning Authority of particulars and directions referred to in sub-rule (2) of rule 6, shal each side of the ship in accordance with the said directions and requirements of this part.

15. Deck-line:- (1) The deck-line shall consist of a horizontal line 300 millimetres in length and 25 millimetres in width. It shall be marked amidsh the provisions of this rule so as to indicate the position of the freeboard deck.



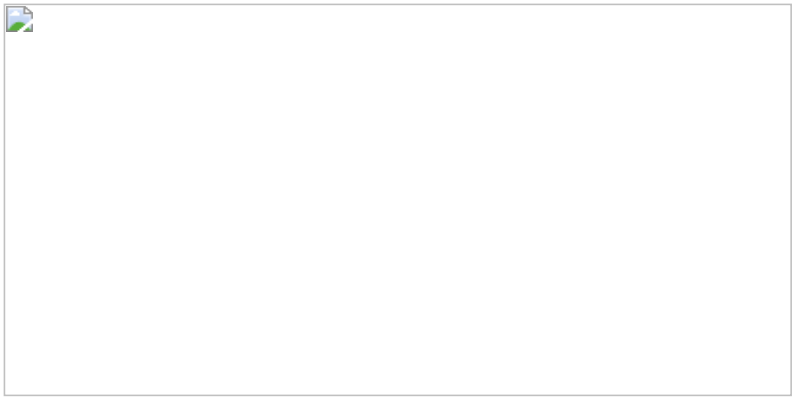
(2) Subject to the provisions of sub-rule (3), the deck-line shall be marked in such a position on the side of the ship that its upper edge continuation outward--

(a) of the upper surface of the freeboard deck, or

(b) of any sheathing of the freeboard deck, intersects the outer surface of the shell of the ship as shown in figure 1.

(3) Where, in the opinion of the Assigning Authority, the design of the ship or any other circumstance renders it impracticable to mark the sub-rule (2), the Assigning Authority may, in the directions given under sub-rule (2) of rule 6 include a direction that the deck-line may be marked by r which is as near as practicable to the position referred to in sub-rule (2).

(16) Load line mark : The load line mark shall consist , as shown in Figure 2, of a ring 300 millimetres in outside diameter and 25 millim millimetres long and 25 millimetres wide the upper edge of which passes through the center of the ring. The center of the ring shall be marked a except as otherwise provided in rule 29, the distance from the center of the ring to the upper edge of the deck-line is equal to the Summer freeboard a



17. Load lines :- (1) Load lines as described in sub-rule (2) and rule 18 shall be deemed to indicate the maximum depth to which a ship markec described in the sixth Schedule in relation to appropriate load lines, zones, areas and seasonal periods.

(2) Except as otherwise provided in rule 18 and rule 29, load lines shall consist as shown in Figure 2 of horizontal lines each 230 milimetres forward or abaft of a vertical line 25 millimetres in width marked 540 millimetres forward of the center of the ring of the load line mark and at right an be--

(i) the summer load line, which shall extend forward of the aforesaid vertical line and the marked "S". It shall correspond horizontally ring of the load line mark;

(ii) the Winter load line, which shall extend forward of the aforesaid vertical line and be marked "W".

(iii) the Winter North Atlantic load line, which shall extend forward of the aforesaid vertical line and be marked "WNA";

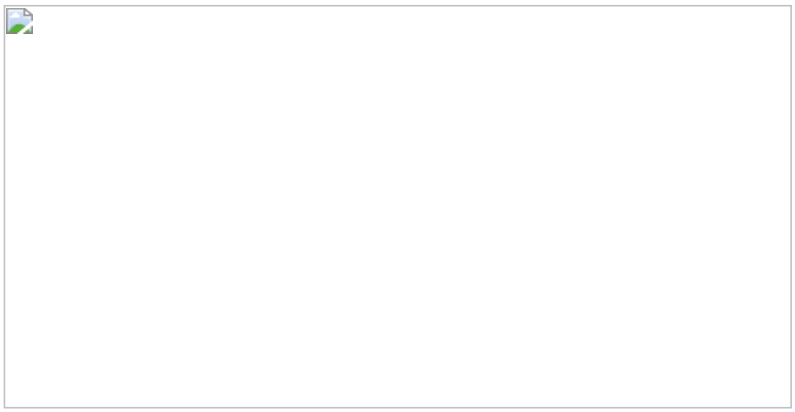
(iv) the Tropical load line, which shall extend forward of the aforesaid vertical line and be marked "T"

(v) the fresh Water load line, which shall extend abaft the aforesaid vertical line and be marked "F";

(vi) the Tropical fresh Water load line, which shall extend abaft the aforesaid vertical line and be marked "TF";

(3) The maximum depth of loading referred to in sub-rule (1) shall be the depth indicated by the upper edge of the appropriate load line de

18. Timber load lines :- (1) Timber load lines, as shown in figure 3, shall consist of horizontal lines of the dimensions specified in resp forward of a vertical line of the dimensions specified in respect of such a line in that rule, marked 540 millimetres abaft the center of the ring of load line r timber Load Lines shall be as follows :-



(i) the Summer timber load line, which shall extend abaft the said vertical line and be marked LS;

(ii) the Winter load line, which shall extend abaft the said vertical line and be marked LW;

(iii) the Winter north atlantic timber load line which shall extend abaft the said vertical line and be marked LWNA;

(iv) the Tropical timber load line, which shall extend abaft the said vertical line and be marked LT ;

(v) the Fresh water timber load line, which shall extend forward of the said vertical line and be marked LTF;

(vi) the Tropical Fresh water timber load line, which shall extend forward of the said vertical line and be marked LLF;

(2) The maximum depth of loading referred to in sub-rule (1) of rule 17 shall be the depth indicated by the upper edge of the appropriate timber load li

19. Appropriate load line :- The appropriate load line in respect of a ship at any particular place and time shall be ascertained in accordance with

20. Position of load lines :-Each load line required to be marked on a ship shall be marked in such a position of each side of the shipl that the dis upper edge of the deckline to the upper edge of the load line is equal to the freeboard assigned to the ship which is appropriate to that load line.

21. Methods of marking ⊗1) The appropriate marks shall be marked on each side of the ship in accordance with the requirements of sub-rule visible.

(2) If the sides of the ship are of metal, the appropriate marks shall be cut in, center punched or welded; if the sides of the ship are of wood, the not less than 3 millimetres; if the sides are of other materials to which the foregoing method of marking cannot be effectively applied, the marks shall by bonding or some other effective method.

(3) The appropriate marks shall be painted in white or yellow if the background is dark, and in black if the background is light.

22. Authorisation of removal etc. of appropriate marks:- After the appropriate marks have been marked on a ship, such marks shall not be conce removed or altered except unde the authority of the Assigning Authority.

23. Mark of assigning authority:- (1) The mark of the Assigning Authority described in sub-rule (2) shall be marked on each side of the ship i above the horizontal line forming part of that mark or above and below it.

(2) An Assigning Authority's mark shall consist of not more than four initials to identity the Authority's name, each measuring approximately 115 m

**PART IV**
**Conditions of Assignment**

24. Assignment of freeboards :- (1) Except as otherwise provided in sub-rules (2) and (3), every ship to which freeboards are to be ass requirements applicable to it under Part I of the First Schedule.

(2) Every ship, being a ship of Type 'A' to which requirements of Part II of the First Schedule aply, every ship, being a ship of Type 'B' to which th apply or every ship, being a ship to be assigned with timber freeboards, to which the requirements of part IV of the First Schedule apdshall

comply with the requirements of the respective part of the First Schedule any also the requirements of Part I of the said Schedule except in so far a may be, of the said Schedule may otherwise require.

(3) Every existing ship, not being a ship to which freeboards are required to be assigned in accordance with clause (a) of rule 28 read wit with such of the requirements relevant to the assignment of freeboards to ships as were applicable to it under the law in force immediately prior to the

25. Compliance with conditions of assignment:- (1) Except as otherwise provided in sub-rule (2), a ship shall be deemed to be not comply

(a) if at any time after the assignment of freeboards to it, there has been any alteration of the hull superstructures, fitting or appliances of

(i) any requirement applicable to the ship under rule 24 is not complied with by it; or

(ii) the record of conditions of assignment made in relation to the ship pursuant to rule 26 is rendered inaccurate in a material re

(b) if the record of conditions of assignment is not kept on board the ship in accordance with sub-rule (2) of rule 26.

(2) Notwithstanding any alteration in the ship as described in clause (a) of sub-rule (1), a ship shall be deemed to be complying with the

(a) fresh freeboards appropriate to the conditions of ship after the alterations have been assigned to it and it has been marke issued to its owner; or

(b) the alteration has been inspected by a surveyor on behalf of the Assigning Authority, and the assigning authority is satisfied change in the freeboards assigned to the ship and full particulars of the alteration together with date and place of inspecti record of conditions of assignment.

26. Record of conditions of assignment:-(1)The record of conditions of assignment in respect of the hull, superstructure fittings and applia shall be in the form set out in the Fourth Schedule, or a form as near thereto as circumstances permit, and shall contain the particulars required by t attaching to the record a copy of report of survey and specifying in the record passages from that report in which the relevant particulars are given.

(2) The record shall be completed by the surveyor carrying out the survey of the ship pursuant to rule 4 and shall be furnished by him t provisions of rule 5. Two copies of the record shall be sent by the assigning authority to the owner of the ship together with the particulars and directi

(3) One copy of the record of conditions of assignment particulars and directions furnished by the assigning Authority to the owner of t ship in the custody of the master of the ship.

## PART V
## Free Boards

27. Types of freeboards :- The freeboards assignable to any ship under the rules shall be --

(i) Summer freeboard;

(ii) Tropical freeboard ;

(iii) Winter freeboard;

(iv) Winter North Atlantic freeboard;

(v) Fresh Water freeboard;

(vi) Tropical Fresh Water freeboard;

(vii) Summer Timber freeboard;

(viii) Winter Timber freeboard;

(ix) Winter North Atlantic Timber freeboard;

(x) Tropical Timber freeboard;

(xi) Fresh Water Timber freeboard; and

(xii) Tropical Fresh Water Timber freeboard.

28. Determination of freeboards :- Except as otherwise provided in rule 29,

(a) the freeboards to be assigned to a new ship shall be determined in accordance with the provisions of the Second Schedule; and

(b) the freeboards to be assigned to an existing ship shall be determined in accordance with the provisions applicable in that behalf t prior to the coming into force of these rules :

Provided that if an existing ship has been so constructed or altered as to comply with the requirements of the First Schedule applicable to a n in respect of such ship for the assignment of freeboards determined in accordance with the provisions of the Second Schedule, such freeboards may

29. Exceptions regarding freeboards :- (1) Greater than minimum freeboard—Any ship may, on the application of the owner made in tha freeboard determinable in accordance with rule 28, subject to the following conditions, namely :-

(a) On survey of the ship pursuant to rule4, the assigning authority is satisfied that the ship complies with the requirements of--

(i) Part IV of these rules ;

(ii) the First Schedule, other than those relating to stability;

(iii) Part VI of these rules in so far as they relate to stability; and

(iv) the Third Schedule in so far as they relate to stability.

(b) The ship is not assigned with timber freeboards.

(c) If the greater than minimum freeboard to be assigned to the ship is such that the position of load lines on the sides c correspond to, or be lower than, the position at which the lowest of the load lines appropriate to minimum freeboards for that

(i) load line appropriate to the greater than minimum freeboard and the fresh water freeboard should only be marked on

(ii) the load line appropriate to the greater than minimum freeboard shall be called the "All season load line" which sh line mark and such mark shall be placed accordingly;

(iii) the vertical line described in sub-rule (2) of rule 17 shall be omitted; and

(iv) subject to the provisions of clause (iii), the fresh water load line shall be as described in sub-rule (2) of rule 17 and sh

(2) Lesser than minimum freeboard – On an application made in this behalf by the owner of a hppper type ship, which is engaged on voyag course of which it does not go farther than 20 miles from the nearest land at any time, the Director General of Shipping may, subject to the conditi assign such ship lesser than minimum free, board reduced to---

(i) five-eighth of the appropriate minimum freeboard determinable in accordance with the Table B set out in Part V of the Second Schedu

(ii) one-held of the appropriate minimum freeboard determinable in accordance with clause (4) or clause (5) of paragraph 4 of the Secon

Provided that such freeboard shall not in either case be less than 150 millimetres.

30. Special position of deck-line and correction of free-board:- In any case in which the deck-line is to be marked on the sides of a ship in accor 15, the freeboards to be assigned to the ship shall be corrected to allow for the vertical distance by which the position of the deck-line is altered by virtue location of the point by reference to which the deckline has been so marked and the identity of the deck which has been regarded as the freeboard deck sha in respect of such ship.

## PART VI
## Stability and loading

31. Information as to stability of ships – (1) The owner of every ship to which freeboards are assigned under these rules shall, for the guidanc relating to the stability of the ship in accordance with the provisions of this rule.

(2) Such information shall include stability particulars appropriate to the ship in respect of all maters specified in Part II of the Third Sc form of the particulars should be so far as practicable, in accordance with Part III of that Schedule or equivalent thereto. The stability characteristics of the Third Schedule.

(3) Subject to the provision of sub-rule (4), the information shall, when first supplied, be based on the determination of stability by me Director General otherwise permits, be carried out in the presence of the Surveyor appointed by the Director General. The information first su whenever its accuracy is materially affected by alteration of the ship. Such fresh information shall, if the Director General so requires be based on a f

(4) The Director General may---

(a) in the case of any ship, permit the information to be based on the determination of stability of sister ship by means of an inclining test.

(b) in the case of any ship specially designed for the carriage of liquids or ore inbulk dispense with the inclining test if from the inform satisfied that the ships proportions and arrangements are such as to ensure more than sufficient stability in all probable loading conc

(5) The information, and any fresh information to replace the same pursuant to the provisions of sub-rule (3), shall, before issue to the master, b Director General for his approval, together with a copy thereof for his record, and shall incorporate such additions and amendments as the Director G

(6) Information provided pursuant to the foregoing provisions of this rule shall be furnished by the owner of the ship to the master in the form of all times in the custody of the master of the ship.

32. Information as to loading and ballasting of ships:-(1) The owner of any whip being a ship of more than 150 metres in length specially de freeboards are assigned under these rules shall, for the information of the master of the ship, provide information relating to the loading and ballastir of sub-rules (2) and (3).

(2) Such information shall consist of working instructions specifying in detail the manner in which the ship is to be loaded and; ballast stresses in its structure and shall indicate the maximum stresses permissible for the ship

(3) The provisions of sub-rule (5) of rule 31 shall apply in the like manner to information required under sub-rule (1). Information c contained in the book to be furnished to the master of the ship pursuant to the provisions of sub-rule (6) of rule 31, so however, that information requ in the book under separate headings specifying the number and heading of each rule.

## THE FIRST SCHEDULE
**See rules 4, 6, , 24, 28 and 29 )**

**Conditions of Assignment**

### PART I
### General

1. Interpretations – (1) Positions 1 and 2; For the purpose of this schedule two positions of hatchways, doorways and ventilators are defined as

Position 1—Upon exposed freeboard and raised quarter decks, and upon exposed superstructure decks situated forward of a point located perpendicular.

(2) Type 'A' ships. (i) A type 'A' ship is one which is designed to carry liquid cargoes in bulk, and in which cargo tanks have only small a covers of steel or equivalent material. Such a ship necessarily has the following inherent features :

(a) high integrity of the exposed deck; and

(b) high degree of safety against flooding, resulting from low permeability of loaded cargo spaces and the degree of sub-division

(ii) A type 'A' ship, if over 150 metres in length, and designed to have empty compartments when loaded to her summer load line, shall these empty compartments at an assumed permeability of 0.95, and remain afloat in a satisfactory condition of equilibrium which unless otherwise re be in accordance with the following clause (iii) Provided that if the ship exceeds 225 metres in length, its machinery space shall also be treated as above but with an assumed permeability of 0.85.

(iii) The final condition of equilibrium of a flooded type. A ship shall atleast comply with the following:-

(a) The final waterline after flooding is below the lower edge of any opening through when progressive flooding may taken place

(b) the maximum angle of heal due to unsymmetrical flooding is of the order of $15^0$ ;

(c) the metacentric height in the flooded condition is at least 50mm when calculated by the constant displacement method;

(d) the ship has adequate residual stability in the final flooded conditions.

(3) Type 'B' Ships – All ships which do not come within the purview of type 'A' ships in sub-paragraph (2) above shall be considered as typ

2. Equivalents and Exemptions

The assigning authority may with the approval of the Director General of Shipping--

(1) allow any fitting, material, appliances or apparatus to be fitted in a ship, in place of any fitting, material, appliance, apparat under any of the provisions of this Schedule, if satisfied by trial thereof or otherwise that it is at least as effective as that so re

(2) grant in any exceptional case exemptions from the requirements of any of the said provisions of this Schedule on cor ship are increased to such an extent that the safety of the ship and protection afforded to the crew till be considered ship fully complied with those requirements with the usual rule freeboard.

**PART II**

**General conditions of Assignment for all ships**

3. Strength of ship – The design and the condition of the ship shall be such that her general structural strength shall be sufficient for the freeboar

4. Stability of ship – The design and the construction of the ship shall be such as to ensure that her stability in all probable loading conditions wil to her for the intended services in accordance with the criteria of stability and methods of calculations laid down in the Sixth Schedule.

5. Weathertight Doors—(i) All access openings in bulkheads at ends of enclosed superstructure or on any other bulkheads or sides and ends of casings be fitted shall be fitted with doors of steel or other equivalent material, permanently and strongly attached to the bulkhead, and framed, stiffened and fitt strength to the unpierced bulkhead and weathertight when closed. The means for securing these doors weather tight shall consists of gaskets and clamping permanently attached to the bulkhead or to the doors themselves and doors shall be so arranged that they can be operated from both sides of the bulkhead.

(ii) Except as otherwise provide in this Schedule, the height of the silts of access openings in bulkheads at the ends of enclosed supers the deck.

6. Superstructure and bulkheads—Bulkheads at exposed ends of enclosed superstructures shall be of efficient construction.

7. General requirements of hatchways.—(1) The construction and the means for securing the weathertightness of cargo and other hatchways in the requirements of paragraphs 8 and 9.

(2) Covernings and hatchway covers to exposed hatchways on decks above the superstructure deck shall be of such construction weathertightness of the hatchway as are adequate having regard to its position.

8. Hatchways closed by portable covers and secured weathertight by tarpaulins and battening devices—(1) Hatchways coamings : Every construction. The coaming shall be constructed of mild steel unless otherwise permitted. The height of the coaming above the deck shall be at least--

600 millimetres if the hatchway is in position 1.

450 millimietres if the hatchway is in Position 2.

(2) Hatchway covers—(a) The width of each bearing surface for hatchway covers shall be at least 65 millimetres.

(b) Where the covers are made of wood, the finished thickness shall be at least 60 millimetres in association with a span of not more larger spans shall be increased in the ratio of 60 millitmeters to a span of 1.5 metres. The ends of wooden covers shall be protected by galvanized st

(c) Where the covers are made of mild steel the strength shall be calculated with assumed loads in accordance with the table belo calculated and the factor 4.25 shall not exceed the minimum ultimate strength of the material. Covers shall also be so designed as to limit the defl under these loads.

Table of Loads
(per sq. metre)

| Ship's Length(L) Hatchway in | Hatchway in Position 1 | Position 2 |
|---|---|---|
| 24 Meters | 1 metric ton | 0.75 metric ton |
| 100 Meters of over | 1.75 metric ton | 1.30 metric ton |
| Over 24 meters but less than 100 metres | to be ascertained by linear interpolation | |

(3) Portable beams--- Where portable beams for supporting hatchway covers are made of mild steel, the strength of such beams shall b ascertained in accordance with the Table in the sub-paragraph (2) above and the product of the maximum stress thus calculated and the factor 5 sha the material. Further, such beams shall also be so designed as to limit the deflection to not more than 0.0022 times the span under the above assum

(4) Pontoon covers—(a) Where pontoon covers of mild steel are used in place of portable beams and covers, their strength shall be ascertained in accordance with the Table in the sub-paragraph (2) and the product of the maximum stress thus calculated and the factor 5 shall material. Further such beams shall also be so designed as to limit the deflection to not more than 0.0022 times the span.

(b) Mild steel plating forming the tops of such covers shall be not less in thickness than 1 per cent of the spacing of the stiffners of 6 millin

(5) Carriers or sockets – Carriers or sockets for portable beams shall be of substantial construction and shall provide means for the effi rolling types of beams are used, the arrangements shall ensure that the beams remain properly in position when the hatchway is closed.

(6) Cleats—Cleats shall be set to fit the taper of the wedges. They shall be at least 65 millimetres wide and spaced not more than 150 m

(7) Battens and wedges—Battens and wedges shall be efficient and in good condition. Wedges shall be tough wood or other equivalen than 1 in 6 and shall be not less than 13 millimetres thick at the toes.

(8) Tarpaulins :- At least two layers of tarpaulin in good condition shall be provided for each hatchway in position 1 or 2. The tarpauline s shall be of a material of at least as approved standard weight and quality.

(9) Security of hatchway covers—For all hatchways in position 1 or 2 steel bars or other equivalent means shall be provided in ord section of hatchway covers after the tarpaulins are battened down hatchway covers of more than 1.5 metres in length shall be secured by least two s

(10) Material—If the material of construction of any hatchway coamings, covers and beams are made of other than mild steel the materials shall be of equivalent strength and stiffness as those specified in this schedule for mild steel.

9. Hatchways closed by weathertight covers of steel or other equivalent material fitted with gaskets and clamping devices—(1) Hatchv shall be of substantial construction. The height of coamings shall be at least.

600 millimetres in Position 1

450 millimetres in Position 2

(b) Provided if the Director General of Shipping so approves the height of the coaming may be reduced or in exceptional circumstances the condition that the safety of the ship will not thereby by impared in consequence in the worst sea and weather condition likely to be encountered by

(2) Weathertight Covers – (a) The strength of weather-tight covers, made of mild steel shall be calculated with an assumed load in accor and the product of the maximum stress thus calculated and the factor 4.25 shall not exceed the minimum ultimate strength of the material. Further s deflection to not more than 0.0028 times the span under these loads.

(b) Mild steel plating forming the tops of covers shall not be less in thickness than one per cent of the spacing of stiffners of 6 millimeters

(3) Means of securing weather tightness – The hatchcovers shall be made weathertight by fitting gaskets and clamping devices. Any eq that the tightness can be maintained in any sea conditions and for the purpose tests for tightness shall be required at the initial survey, and may b inspections or at more frequent intervals.

10. Machinery space openings – (1) Machinery space openings in position 1 or 2 shall be properly framed and efficiently enclosed by taken of the extend, if any, to which the casing is protected by other structures.

(2) Every doorway in such casings shall be fitted with doors complying with paragraph 5 of this Schedule having sills of at least the follow

600 millimetres above the deck if the opening is in Position 1

380 millimetres above the deck if the opening I in Position 2.

Other openings in such casing shall be fitted with permanently attached covers or steel, by which it can be closed weather tight and exce secured by bolts in capable of being operated from both sides.

(3) Coamings of any fiddley, funnel or machinery space ventilators in a exposed position on the freeboard or super-structure deck shall b regard to its position and adequate protection from the sea.

11. Miscellaneous openings in freeboard and superstructure decks—(1) manholes and flush scuttles in position 1 or 2 or within superstr be closed by substantial covers capable of being made watertight. Unless secured by closely spaced bolts, the covers shall be made permanently at

(2) Openings in a deck other than a hatchway, machinery space opening, manhole and flush scuttle,--

(a) if situated in the freeboard deck shall be protected by an enclosed superstructure or by a deck-house or companion way equ enclosed superstructure ;

(b) if situated in an exposed position in a deck over an enclosed superstructure and giving access to space within that superstruc deck and giving access to space below the free board deck, shall be protected by an efficient deckhouse or companionway fi

(c) if situated in an exposed position in a deck above the deck over an enclosed superstructure and giving access to space with in accordance with the requirements of sub-paragraph (b) or to such lessor extent as having regard to its position.

(3) Doorways in such efficient deckhouse companionway or enclosed superstructure as referred to in sub-paragraph (2) shall be fitte paragraph 5 and shall have the following minimum sill heights --

600 millimetres in Position 1

380 millimetres in Position 2

12. Ventilators – (1) Ventilators in position 1 or 2 to space below the freeboard deck or decks of enclosed superstructure shall have substantially constructed and efficiently connected to the deck.

(2)(i) The height of the ventilator coamings shall be, at least

(a) 900 millimetres above the deck if the ventilator is in Position 1;

(b) 760 millimetres above the deck if the ventilator is in Position 2;

Provided that where a ventilator is situated in a position in which it will be particularly subjected to weather and sea the height of the coamin minimum height so as to provide adequate protection, having regard to its position.

(ii) Where the coaming of any ventilator of any ventilator exceeds 900 millimetres in height it shall be efficiently supported by brackets, st

(3) Ventilators in Position 1 or 2 passing through super-structures other than enclosed superstructures shall have coaming of s constructed and connected to the freeboard deck and at least 760 millimetres in height above the deck.

(4) Subject to the subparagraph (5), every ventilator opening in Positon 1 or 2 shall be provided with an efficient appliance by which it c such closing appliance so provided on board a ship of not more than 100 metres in length shall be permanently attached to and in the case of a conveniently stowed near the ventilator to which it is fitted.

(5)(a) A ventilator in Position 1 the coaming of which exceeds 4.5 metres in height above the deck, and a ventilator in Position 2 the coamir the deck, need not be fitted with a closing appliance unless--

(i) it serves the machinery spaces or a Cargo compartment or

(ii) the fitting of such an appliance is necessary in the circumstances in order to provide adequate protection.

(b) A ventilator in Positon 1 or 2 leading to space in a battery room shall not be fitted with a closing appliance.

(13) Air Pipes—(1) Where air pipes to ballast and other tanks extend above the freeboard or superstructure decks, the exposed parts of th the exposed opening of any such air pipe shall be fitted with efficient means of closing weathertight which shall be permanently attached thereto.

(2)(i) The height above the deck of the air pipe opening through which water may gain access below shall be--

(a) at least 760 millimetres if that deck is freeboard deck.

(b) at least 450 millimetres if that deck is above the superstructure of standard height or such greater height not exceeding 76 adequate protection having regard to the lower height of superstructure than the standard.

(ii) Provided that the height described in the preceding sub-paragraph 2(i) may in any particular case be lower than the minimum spe interfere with the working of the ship and if the closing arrangements are such as to ensure adequate protection from the sea even with the lower heig

14. Cargo ports and other similar openings – (i) The number of cargo ports and other similar openings in the sides of the ship belov superstructure which form continuous part of the shell of the ship shall be as few as compatible with the design and proper working of the ship.

(2) Such Cargo ports and openings shall be provided with doors so fitted and designed as to ensure watertightness and structural plating.

(3) Unless so permitted by the Director General in the circumstances the lowr edge of such openings shall not be below a line drawn par its lowest point the upper edge of the uppermost load line.

15. Scuppers, Inlets and Discharges—(1) All discharges led overboard through the shell or a ship from either--

(a) spaces below the freeboard deck, or

(b) spaces within enclosed superstructure, or

(c) spaces within any deckhouses on the freeboard deck fitted with weathertight doors in accordance with paragraph 5,

shall be fitted with efficient and accessible means for preventing water from passing inboard in accordance with the following sub-paragraphs.

(2)(a) Subject to clause (b) and (c) such means of closing shall consist of a single automatic non-returns valve fitted at the shell and ha above the freeboard deck. Such position shall be readily accessible and shall be provided with an indicator showing whether the valve is open or clos

(b) If the vertical distance from the summer load water line to the inboard end of the discharge pipe exceeds 0.01L, the discharge may positive means of closing, the inboard one of which should always be easily accessible for examination, where however, that vertical distance exce without positive means of closing may be provided if it will be equally effective in the circumstances. The single valve or the outboard valve where the as practicable and substantially connected thereto.

(c) Scuppers and discharge pipes originating at any level and penetrating the shell either moe than 450 millimetres below the free boa summer load waterline shall be provided with a non-return valve at the shell. This valve, unless required by clause (a) may be dispensed with, if the p

(4)(a) The controls of any valve situated in a manned machinery space, and serving a man of auxiliary sea inlet or discharge or bilge inj accessible at all times under service conditions. Valves referred to in this and the following sub-paragraph shall be equipped with an indicator showin

(4)(b) The controls of any valve situated in an unattended machinery space and serving a sea inlet or discharge of bilge injection system sh times under service conditions, particular attention being paid in this regard to possible delay in reaching or operating the controls. In addition, the shall be equipped with an efficient warning device to give warning at suitable control position of any entry of water into the machinery space other th the machinery.

(4)(c) In this sub-paragraph "unattended machinery space" means a machinery space which during normal operation of the ship at s machinery space" means a machinery space other than an unattended machinery space.

(5) Every scupper leading from a superstructure other than an enclose superstructure or from a deckhouse not fitted with weathertight do

(6) All valve and shell fittings required by the provisions of this paragraph shall be of steel, bronze or other suitable ductile material, and steel or other equivalent material.

16. Side scuttles—(1) Side scuttles to spaces below the freeboard deck or to spaces within ecnlsoed superstructures shall be fitted wit they can be effectively closed and secured watertight.

(2) No side scuttle shall be fitted in a position so that its sill is below a line drawn parallel to the freeboard deck at side and having its lov the Summer Load Line or 500 millimetres, whichever is the greater distance.

(3) The side scuttles, together with their glasses, if fitted, and deadlights, shall be of substantial and approved constructure.

17. Freeing ports—(1) Where hulkwarks on weather portions of freeboard deck or superstructure decks form wells, ample provision sha and draining them. The minimum freeing port area (A) on each side of the ship for each well on the freeboard deck shall be given by the following for

(a) On freeboard deck with sheer in way of well being equal to or greater than the standard sheer, where L is 20 metres or less--

A=0.7 + 0.035 (sq.metres) where L is greater than 20 metres;

A=0.07 (sq. metres).

the length of bulkwark (L) in no case need be taken greater than 0.7L.

(b) If the height of the bulkwark (h) is higher than 1.2 metres or less than 0.9 metre, the freeing port areas are to increase of or decrease by the f

Where h is greater than 1.2 metres, A in sub-para (a) above is to increase by

$a=(h-1.2) \times .0004^0 \times L$ sq. metres—

Where h is less than 0.9 metres, A in sub-para (a) above is to decrease by

$a=(0.9-h)\ 00004^0 \times L$ sq. metres.

(c) On superstructure decks, the freeing port area shall be only one-half of the area obtained from paragraph (a) as amended by paragraph (b).

(d) In ships with no sheer the calculated area from paragraphs (a) and (b) shall be increase d by 50 per cent. Where the sheer is less than the linear inter-polation.

(2) In ships having superstructures which are open at either or both ends, adequate provisions of freeing the space within such superstru Assigning Authority.

(3) Two-thirds of freeing port area required shall be provided in the half of the well nearest the lowest point of the sheer curve.

(4) The lower edges of the freeing ports shall be as near to the deck as practi-

(5) All such openings in the bulkwarks shall be protected by rails or bars spaced approximately 230 millimetres apart. If shutters are fitted to free prevent jamming. Hinges shall have pins or bearings of non-corrodible material. If shutters are fitted with securing appliances, these appliances shall be of a

18. Protection of the Crew—(1) The strength of the deckhouses used for the accommodation of the crew shall be to the satisfaction of the Direc the case may be.

(2) Efficient guard rails or bulkwarks shall be fitted on the boundaries of all exposed parts of the freeboard decks. The height of the bulkwarks or

Provided that if this height would interfered with the normal operation of the ship at some particular span, a lesser height over that span may be ap satisfied that alternative or adequate protection is provided. In specified areas of the exposed decks, the assigning authority may also permit the use of guard

(3) The opening below the lowest course of the guard rails or wires shall not exceed 230 millimetres. The other courses shall not be more than rounded gunwales, the stanchions shall be secured to the flat boundary of the deck.

(4) Satisfactory and safe means in the form of guard rails, guard wires, lifelines gangways or under-deck passages, etc., shall be provided for t their quarters, the machinery space and all other parts used in the necessary work of the ship.

(5) Deck Cargo when carried shall not interfere with the conditions of assignments enumerated in this schedule nor shall it in any way adversely

## PART III
## Special conditions of assignments for type A ships

19. Machinery casings – The Machinery Casing on Type As hips shall be protected by (i) an enclosed poop or bridge of at least standard equivalent strength and weathertightness

Provided that this requirement shall not apply and the casing may accordingly be exposed---

(a) if there is no opening in the casing which gives direct access from the free-board deck to the machinery space; or

(b) if the only opening in the casing has a steel weathertight door complying with paragraph 5 and leads to a space or passangeway which i separated from the stairway to the machinery space by a second similar steel weathertight door.

20. Gangway and access – (1) References in this paragraph to a poop or detached bridge on Type A ships include reference to a deckhouse fit or detached bridge.

(2) Access between the poop and the detached bridge shall be by means of either ---

(a) Gangway complying with the requirements of sub-para (4), or

(b) an underdeck passage complying with the requirements of sub-para (5), or

(c) other equally effective and equivalent approved means of access.

(3) In the case of a ship the crew of which may in the course of their duties be required to go in adverse weather conditions to a position or posit of the poop in cases where there is no detached bridge and all crew accommodation and machinery spaces are situated at the after end o means of either--

(a) a gangway complying with the requirements of sub-para (4), or

(b) an underdeck passage complying with the requirements of sub-para (5), or

(c) a walkway complying with the requirements of sub-para (6).

(4) A gangway, connecting the specified super-structure or deckhouse in lieu and required under this Part, shall comply with the following require

(a) The gangway shall be permanently and efficiently constructed at the level of the superstructure deck. Efficient means of access from each terminal.

(b) the gangway platform shall be at least 1 metre in width and of non-slip material. The platform shall be fitted at each side throu supported by stanchions. Such rails or wires shall consist of not less than 3 courses, the lowest being not more than 230 mm above the p than 380 mm apart, but the uppermost one being not less than 1 metre above the platform. The stanchions supporting the rails or guard v metres.

(5) An underdeck passageway connecting and providing unobstructed access between specified superstructures or deckhouses in lieu, and following requirements

(a) the passage shall be constructed oil0tight and gastight immediately below the freeboard deck and shall be well-lighted and adequ passage shall be fitted with efficient gas detection system.

(b) the passage shall be situated throughout its length at distance from the shipside of not less than one-fifth of the breadth (B) of t designed as to render compliance with this requirement is not practicable, two under-deck passages may be provided one to port ar with all requirements except the requirement of this clause.

(c) the means of exit from the passage to the freeboard deck shall be so arranged as to be as near as practicable to the working are metres apart and fitted with efficient means of closing capable of quick release and operable from either sides. The companionway the exist shall be fitted with steel door complying with paragraph 5 of this Schedule.

(6) A walkway providing unobstructed passage if necessary by means of elevated passage over permanent obstruction, and required u requirements--

(a) the walkway shall be situated as near as practicable to the centerline of the ship and shall be not less than 1 metre in width anc identifically with those in sub-para (4) (b) of this paragraph;

(b) the walkway shall provide free access to and from freeboard deck, set in such guard rails or guard wires as near as practicabl openings shall be on the alternate sides of the walkway and be situated not more than 90 metres apart on either side;

(c) if the length of the exposed deck to be traversed exceeds 70 metres, the walkway shall be provided with shelters of substantial const exceeding 45 metres, every such shelter being capable of accommodating at least one person and so constructed as to afforc starboard sides.

21. Hatchway covers—The covers of hatchway in an exposed position on the freeboard deck, on a forecastle deck or on the top of an expansion and watertight when secured.

22. Freeing arrangements – (1) All exposed parts of the freeboard deck and superstructure decks of Type 'A' ships shall be fitted at shipsides guard wires in lieu of bulkwarks or other equally effective freeing arrangements. Such guard rails or guard wires shall comply with the requirements this Part and the upper edge of the sheer strake shall be as low as practicable.

(2) If the superstructures of the Type A ships are connected by a trunk, the exposed parts of the freeboard deck in way of the trunk shall wires complying with the requirements for them in sub-para (4) (b) of paragraph 20 of this Part.

(3) If the ship is so constructed that notwithstanding the provisions of freeing ports and arrangements it will be particularly subjected quantities of water on the freeboard deck efficient breakwater shall be fitted in suitable positions on that deck.

## PART IV
## Special conditions of assignment for type B ships with reduced freeboard

23. Gangway and access—Unless a type B ship with reduced freeboard complies fully with requirements of paragraph 20 as if the shi with the requirements of the following sub-paragraphs, namely :-

(1) References in this paragraph to a poop or detached bridge include references to a deckhouse fitted in lieu of and serving the purpose

(2) Access between the poop and the detached bridge shall be by means of an efficiently constructed gangway of substantial strength c center line of the ship. The gangway shall be at least 1 metre in width and shall be fitted at each side throughout its length with guard rails or guard v relation to such rails or wires in paragraph 20(4)(b). If the length of the gangway exceeds 70 metres, shelters complying with requirements set out i be provided in way of gangway.

(3) In the case of a ship the crew of which in the course of their duties are required to go in adverse weather conditions to a position forward of the poop in cases where there is no detached bridge and the crew accommodation and machinery spaces are situated at the after end o means require under sub-paragraph (2) of this paragraph:

Provided that in the case of a ship the hatchway coamings of which are 600 millimetres or more in height from the deck, two walkways giv with the following requirements may be provided ; namely :-

(i) the walkways shall be efficiently constructed and of satisfactory strength ;

(ii) the walkways shall each be at least 1 metre in width and shall be fitted on the freeboard deck alongside the outboard structure of b starboard of the hatchways;

(iii) each walkway shall be fitted on the side cutboard of the batchways with guard rails or guard wires complying with the requireme paragraph 20(4)(b).

24. Freeing arrangements – The ship shall comply with the requirements of paragraph 22 of this Schedule.

## PART V
## Special Conditions of Assignment for Ships with Timber Freeboard

25. Superstructure –(1) The ship shall have a forecastle of not less than the standard height of an enclosed superstructure and a length of not le

(2) If the ship is less than 100 metres in length it shall be fitted with a poop of not less than standard height or a raised quarter deck having eitl the total height thereof is not less than the standard height of an enclosed superstructure.

26. Double bottom tanks—Double bottom tanks where fitted within the mid ship half-length of the ship shall have satisfactory watertight longitudi

27. Bulkwark and tanks – (1) The ship shall be fitted with either permanent bulkwark at least 1 metre in height, especially stiffened on the uppe attached to the deck and provided with freeing ports complying with the requirements of paragraph 17 of this Schedule.

(2) Efficient guard rails and stanctions at least 1 metre in height, of specially strong construction and complying with the requirements of paragrap

**THE SECOND SCHEDULE**
**(See rules 4,5,6, 28 and 29)**

**FREE BOARDS**
**PART I**
**General**

1. Application—(1) Except as otherwise provided in sub-paragraphs (2) and (3), the freeboards to be assigned to a ship other t accordance with the provisions of Part II of this Schedule, and Timber freeboards to be assigned to a ship shall be determined in accordance with Pa

(2) Freeboards determined as described in sub-paragraph (1) are the freeboards appropriate to ships the structural strength of which co Assigning Authority; and the freeboard to be assigned to ships the structural strength of which does not comply with that standard shall be freeboard such amount as the Assigning Authority with the approval of the Director General may determine as appropriate to the ship's structural strength.

(3) Tabular freeboards appropriate to the ship's length are set out in Freeboard Table A for ships and Freeboard Table B for Type B ships i

(4) The freeboards to be assigned to tugs and unmanned barges having as the freeboard deck only small access closed watertight or sh determined in accordance with provisions of Part IV of this Schedule.

**PART II**
**reeboards other Timber Freeboards**

2. Computation of Freeboards: (1) The Summer freeboard shall be determined in accordance with the provisions of paragraphs 3 and 4 c

Provided that the freeboard so obtained but without any correction made for the deck line as provided in paragraph 6 shall not be les than 5 position 1 hatchways which do not comply with the requirements of paragraphs 8(4), 9 or 21 of the first Schedule, in which case the freeboard s Tropical freeboard shall be obtained by deducting from the Summer freeboard applicable to the ship one forty-eight ($1/48^{th}$) of the summer draft of the

Provided further that the freeboard so obtained but without any correction made for the decline as provided in paragraph 6 shall not be le having in Position 1 hatchways with covers which do not comply with the requirements of paragraphs 8(4), 9 or 21 of First Schedule, in which millimetres.

(3) The Winter Freeboard shall be obtained by adding to the Summer freeboard applicable to the ship one forty-eighth ($1/48^{th}$) of the sum

(4) For ship not more than 100 metres in length, the Winter North Atlantic freeboard shall be obtained by adding 50 millimetres to the Wi ships, the Winter North Atlantic freeboard shall be the winter freeboard.

(5)(a) The Fresh Water freeboard shall, subject to sub-paragraph (b), be obtained by deducting from the summer freeboard the quantity--

$$\frac{\Delta}{4T} \text{ Millimetres}$$

where $\Delta$ is the displacement in salt water in metric tons at summer load waterline and T represents metric tons per centimetre immersion in salt wat

(b) In any case in which the displacement at that waterline cannot be ascertained the deduction shall be one-forty-eighth ($1/48^{th}$) of the su

3. Summer Freeboard for Type A ships --- The summer freeboard for Type A ship shall be determined as follows :

(1)(a) There shall first be ascertained the Tabular Freeboard appropriate to the ship's length.

(b) For ships having black co-efficient (Cb) of not exceeding than 0.68, the basic freeboard shall be tabular freeboard and fo 0.68, the basic freeboard shall be obtained by multiplying the Tabular freeboard by the factor $\frac{(CB - 0.68)}{1.36}$

(2) The basic freeboard shall then be duly corrected in accordance with the requirements of paragraphs 5 to 14 of this Schedule.

(3) Subject to the proviso to paragraph 2(1), the basic freeboard so corrected shall be the summer freeboard to be assigned to the Type A

4. Summer Freeboard for Type B ships. --- The summer freeboard for Type B ship shall be determined as follows:

(1) There shall first be ascertained the Tabular freeboard appropriate to the ship's length.

(2)(a) If the ship has hatchways in Position 1, the covers of which comply with the requirements of paragraph 8(4) or with those of paragraph 9 of t corrected in accordance with such of the provisions of sub-paragraphs (3) to (7) of the paragraphs as are applicable to the ship.

(2)(b) If the ship ahs hatchways in Position 1, the covers of which comply with the requirements of paragraph 8 of the First Schedule with the excep tabular freeboard shall b corrected, in accordance with the provision of Sub-paragraph (8) of this paragraph.

(3) The tabular freeboard of a ship to which sub-paragraph (2)(a) applies and which exceeds 100 metres in length may be reduced by an assigning authority is satisfied that--

(a) the gangway and access are in accordance with paragraph 20 of the First Schedule;

(b) the measures for the protection of the crew comply with the requirements of paragraph 18 of First Schedule;

(c) the freeing arrangements comply with the requirements of paragraph 17 of First Schedule;

(d) all covers of hatchways in Positions 1 and 2 comply with the requirements of paragraph 9 of First Schedule;

(e) the ship when loaded to the Summer load waterline will remain afloat, after the flooding of any single damaged compartment o permeability of 0.95 in the condition of equilibrium described in sub-paragraph (6) ;

Provided that if the length of the ship exceeds 225 metres the machinery space shall rank as a floodable compartment purposes of this requirement.

(4) Subject to sub-paragraph (5), reduction of freeboard pursuant to sub-paragraph (3) shall not exceed 60 per cent of the difference between t length under Freeboard Table A and Freeboard Table B.

(5) The reduction of 60 per cent referred to in the preceding paragraph may be increase to 100 per cent if the assigning authority is satisfied that-

(a) the ship complies with the requirements of paragraphs 19 and 22 of the First Schedule as if it were a Type A ship ;

(b) the ship complies with the requirements of sub-paragraph 3(a) to (d); and

(c) the ship when loaded to the summer load waterline; and

(i) After the flooding of any two compartments adjacent fore and aft, neither of which is the machinery space, at an assumed per

(ii) in the case of a ship exceeding 225 metres in length, after the flooding of the machinery space along, at an assumed permea

will remain afloat in the conditions of equilibrium described in sub-paragraph (6).

(6) The condition of equilibrium referred to in sub-paragraphs (3) and (5) above; is as follows :

(a) the final waterline after flooding is below the top of any ventilator coaming the lower edge of any air pipe opening, the upper edg watertight door, and the lower edge of any other opening through which progressive flooding may take place ;

(b) the angle of heal due to unsymmetrical flooding does not exceed 15 degrees.

(c) the metacentric height calculated using the constant displacement method has a positive value of at least 50 millimetres in the upright

(d) the ship has adequate residual stability.

(7) The following assumptions shall be made for the purposes of calculation pursuant to sub-paragraphs (3)(d) and 5(c)--

(a) that the vertical extent of damage is equal to the depth of the ship at the point of damage, measured from the including the freeboard

(b) that the transverse penetration of damage is not more than one fifth of the breadth of the ship (B), this distance being measured in bo at the level of the summer load waterline:

Provided that if damage of a lesser extent results in a more severe condition, such lesser extent shall be assumed;

(c) that, except in the case of compartments referred to in sub-paragraph (5)(c)(i) no main transverse bulkhead is damaged;

(8) The tabular freeboard of a ship to which sub-paragraph (2) (b) of this paragraph applies shall be increased by the amount shown by the follow

TABLE

| Length of ship (metres) | Freeboard increase (millimeters) | Length of ship (metres) | Freeboard increase (Millimetres) |
|---|---|---|---|
| 108 and below | 50 | 113 | 62 |
| 109 | 52 | 114 | 64 |
| 110 | 55 | 115 | 68 |
| 111 | 57 | 116 | 70 |
| 112 | 59 | 117 | 73 |
| 113 | 62 | 118 | 76 |

| Length of ship (metres) | Freeboard increase (millimeters) | Length of ship (metres) | Freeboard increase (Millimetres) |
|---|---|---|---|
| 119 | 80 | 160 | 264 |
| 120 | 84 | 161 | 267 |

| | | | |
|---|---|---|---|
| 121 | 87 | 162 | 270 |
| 122 | 91 | 163 | 273 |
| 123 | 95 | 164 | 275 |
| 124 | 99 | 165 | 278 |
| 125 | 103 | 166 | 280 |
| 126 | 108 | 167 | 283 |
| 127 | 112 | 168 | 285 |
| 128 | 116 | 169 | 287 |
| 129 | 121 | 170 | 290 |
| 130 | 126 | 171 | 292 |
| 131 | 131 | 172 | 294 |
| 132 | 136 | 173 | 297 |
| 133 | 142 | 174 | 299 |
| 134 | 147 | 175 | 301 |
| 135 | 153 | 176 | 304 |
| 136 | 159 | 177 | 306 |
| 137 | 164 | 178 | 308 |
| 138 | 170 | 179 | 311 |
| 139 | 175 | 180 | 313 |
| 140 | 181 | 181 | 315 |
| 141 | 186 | 182 | 318 |
| 142 | 191 | 183 | 320 |
| 143 | 196 | 184 | 322 |
| 144 | 201 | 185 | 325 |
| 145 | 206 | 186 | 327 |
| 146 | 210 | 187 | 329 |
| 147 | 215 | 188 | 332 |
| 148 | 219 | 189 | 334 |
| 149 | 224 | 190 | 336 |
| 150 | 228 | 191 | 339 |
| 151 | 232 | 192 | 341 |
| 152 | 236 | 193 | 343 |
| 153 | 240 | 194 | 346 |
| 154 | 244 | 195 | 348 |
| 155 | 247 | 196 | 350 |
| 156 | 251 | 197 | 353 |
| 157 | 254 | 198 | 355 |
| 158 | 258 | 199 | 357 |
| 159 | 261 | 200 | 358 |

Freeboard at intermediate length shall be obtained by liner interpolation. The increase in the case of ships of more than 200 metres in length shall be such in each particular case.

(9)(a) This sub-paragraph applies to every Type B ship of not more than 100 metres in length having enclosed superstructures the total effective the ship's length (L).

(9)(b) The freeboard calculated in respect of such a ship in accordance with sub-paragraphs (1), (2) and (3) above shall be increased by an amoun

75 (100 – L) (0.35 – E/L) millimeters.

(10) In the case of a ship the block co-efficient (Cb) of which exceeds 0.68 the freeboard calculated in respect of the ship in accordance with su by the factor.

$$\frac{Cb + 0.68}{1.36}$$

(11) The basic freeboard of a Type B ship is that calculated in accordance with sub-paragraphs (1) to (10) above. The basic freeboard duly corr this Schedule but subject to the proviso to paragraph 2(1)

5. Correction for depth --- (1) If the depth for freeboard D exceeds R(d-L)/15 5" the free board shall be increased by (L/D15)

millimeters where R is L/0.48 at lengths les than 120 metre

and 250 at 120 metres length and above.

(2) If the depth for freeboard D is less than L/15, no

reduction shall be made except in a ship with an enclosed superstructure covering at least 0.6L amidships, with a complete trunk, or combination of detach extend all fore and aft, where the freeboard shall be reduced at the rate prescribed in sub-paragraph (1) above.

(3) Where the height of superstructure of trunk is less than the standard height, the reduction shall be in the ratio of the actual to the standard hei

**Standard Superstructure and correction**

7. Standard height, length and effective length of superstructures :-- (1) The standard height of a superstructure shall be the height appropriate with the following Table :

| Ships Length | Standard Height (metres) | |
|---|---|---|
| | Raised Quarter Deck | All other superstructures |
| 30 or less | 0.90 | 1.80 |
| 75 | 1.20 | 1.80 |
| 125 or more | 1.80 | 2.30 |

Standard heights for intermediate length of ship shall be obtained by liner interpolation.

(2)(a) Subject to sub-paragraphs (b) and (C) , the length of a superstructure(s) shall be the mean length of the parts of the superstructure which lie

(2)(b) In the case of an enclosed superstructure having an end bulkhead which extends in a fair convex curve beyond its intersection wi superstructure (s) may be taken as its length ascertained in accordance with sub-paragraph (a) increased on the basis of an equivalent plane bulkh aft extent of the curvature :

Provided that the amount of the curvature to be taken into account shall not exceed one balf the breadth of the superstructure at the superstructure with its side

(2)(c) In the case of an enclosed superstructure having an extension from an end bulkhead, which extension has a breadth on each side of the c the ship, the length of the superstructure (s) may be ascertained in accordance with sub-paragraph (B) by assuming an equivalent end bulkhea contained within such a superstructure and the extension thereto.

(3) The effective length of a superstructure (E) shall be as follows :-

(a) Subject to sub-paragraph (C), E in the case of an enclosed superstructure of standard height shall be either

(i) its length S, or

(ii) if the superstructure is set in from the sides of the ship, its length S modified in the ratio b/Bs, where---

'b' is the breadth of the superstructure at the middle of its length , and

'Bs' is the breadth of the ship at the middle of the length of the superstructure (s)

Provided that if the superstructure is so set in fore part of its length, such modification shall be applied only to that part,

(b) Subject to sub-paragraph (c), E in the case of an enclosed superstructure of less than standard height shall be its length S superstructure to its standard height.

(c) E in the case of an enclosed superstructure consisting of a raised quarter deck shall, if the deck is fitted with an intact front of 0.6L; and if not so fitted, be ascertained by treating the raised quarter deck as a poop of less than standard height.

(d) A superstructure which is not an enclosed superstructure shall have no effective length.

8. Standard height and effective length of trunk – (1) The standard, height of a trunk shall be determined in the same manner as that a quarter deck under paragraph 7(1)

(2) The effective length of a trunk shall be determined as follows --

(i) A trunk which is not an efficient trunk as described in sub-paragraph (3) shall have no effective length;

(ii) Except as provided in sub-paragraph (iii), the effective length of an efficient trunk shall be its full length reduced in the ratio of its mea

(iii) If the actual height of an efficient trunk is less than the standard height, its effective length shall be the length calculated in accordanc the actual to the standard height of the trunk. In addition if the ship is a Type B ship and the height of the hatchway coamings paragraphs 8(1) or 9(1) of the First Schedule, a reduction from the actual height of the trunk shall be made of an amount correspon of such coamings and the height so required for them.

(3) A trunk shall be treated as an efficient trunk subject to complying with the following conditions, namely :-

(i) that it shall be as strong as an efficient trunk subject to superstructure;

(ii) that the hatchways in way of the trunk are in the trunk deck, and the hatchway coamings and covers comply with the requirements c

(iii) that the Width of the trunk deck stringer in way of the hatches provides a satisfactory gangway and sufficient lateral stiffness ;

(iv) that a permanent working platform fore and aft fitted with guard rails or guard wire complying with the requirements applicabl Schedule is provided by the trunk deck or by detached trunks connected to superstructures by efficient permanent gangways ;

(v) that the ventilators are protected by the trunk by watertight covers or by equivalent means ;

(vi) that open rails or wires are fitted on the weather parts of the freeboard deck in way of the trunk for at least half their length.

(vii) that the machinery casings are protected by the trunk, or by an enclosed superstructure of at least standard height or by a decl weathertightness equivalent to those of such a superstructure ;

(viii) that the breadth of the trunk is lat least 60 per cent of the Breadth of the ship B;

(ix) that where there is no superstructure, the length of the trunk is at least 9.6L.

9. Deduction for superstructure and trunks :-- (1) Where the effective length of superstructures and trunks of a ship is 1.0(L), the basic freebo determined appropriate to the Ship's length in accordance with the following Table, namely :-

TABLE

| Length of a ship L (metre) | Reduction in freeboard millimetre |
|---|---|
| 24 | 350 |
| 85 | 860 |
| 122 | 1070 |

The reduction in freeboard for intermediate lengths of ships shall be obtained by interpolation.

(2) Where the effective length of superstructure and trunks is less than 1.0(L) the basic freeboard of a ship shall be reduced as follows :

(a) in the case of a Type 'A' ships Total effective length of superstructure and trunk by a percentage determined from the following Tabl superstructures and trunks of an effective length intermediate to those specified in the Table being obtained by liner interpolation---

TABLE

Percentage of deduction for type A ships

| Total effective length of superstructure and trunks | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.1L | 0.2L | 0.3L | 0.4L | 0.5L | 0.6L | 0.7L | O.8L | 0.9L | 1.0L |
| Percentage of deduction | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| for all types of superstructures | 0 | 7 | 14 | 21 | 31 | 41 | 52 | 63 | 75.3 | 87.7 | 100 |

(b) in the case of a Type B ship, by a percentage determined from the following Table and to such of directions (i) to (iii) appended thereto as ap
case of a ship having superstructures and trunks of an effective length intermediate to those specified in the Table being obtained by linear in

TABLE

Percentage of deduction for type A ships

| | | Total effective length of superstructure and trunks | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | | 0 | 0.1L | 0.2L | 0.3L | 0.4L | 0.5L | 0.6L | 0.7L | O.8L | 0.9L | 1.0L |
| Ships with forecastle and without detached bridge | I | 0 | 5 | 10 | 15 | 23.5 | 32 | 46 | 63 | 75.3 | 87.7 | 100 |
| Ships with forecastle and without detached bridge | II | 0 | 6.3 | 12.7 | 19 | 27.5 | 36 | 46 | 63 | 75.3 | 87.7 | 100 |

(i) where the effective length of a bridge covers less than 0.1L before and 0.L abaft amidships the percentages shall be obtained by liner interpo

(ii) Where the effective length of a forecastle is more than 0.4L, the percentages shall b e obtained form line II ;

(iii) Where the effective length of forecastle is less than 0.07L, the above percentages shall be reduced by 5 x $\frac{(0.07L - f)}{0.07L}$ where f is the effectiv

10. Measurement of sheer :- (1) The sheer shall be measured form the deck at side of a line of reference drawn parallel to the keel through the s

(2) In ships designed with a rake of keel, the sheet shall be measured in relation to a be measured at the freeboard deck.

(3) In flush deck ships and in ships with detached superstructures, the sheer shall be measured at the freeboard deck.

(4) In ships with topsides of unusual form in which there is a step or break in the topsides, the sheer shall be considered in relation to the equival

(5) In ships with a superstructure of standard height which extends over the whole length of the freeboard deck, the sheer shall be measure exceeds the standard the least difference (z) between the actual and the standard heights shall be added to each end ordinate. Similarly, the intermediat each perpendicular shall be increased by 0.444Z and 0.111Z respectively.

(6) Where the deck of an enclosed superstructure has at least the same sheer as the exposed freeboard deck, the sheer of the enclosed po account.

(7) Where an enclosed poop or forecastle is of standard height with greater sheer than that of the freeboard deck, or is of more than standard h deck shall be made as provided in paragraph 12(4).

11. Standard sheer profile – The ordinate of the standard sheer profile given in the following Table; namely :-

| Station | Ordinate (in milimeters) | Factor |
|---|---|---|

| | | | |
|---|---|---|---|
| | After perpendicular . . | $25(\frac{L}{3}+10)$ | 1 |
| After Half | 1/6 L from A.P. . . | $11.1(\frac{L}{3}+10)$ | 3 |
| | 1/3 L from A.P. . . | $2.8(\frac{L}{3}+10)$ | 3 |
| | Amidships . . . | 0 | 1 |
| | Amidships . . . | 0 | 1 |
| Forward Half | 1/3 L from F.P. . . | $5.6(\frac{L}{3}+10)$ | 3 |
| | 1/6 L from A.P. . . | $22.2(\frac{L}{3}+10)$ | 3 |
| | Forwarded perpendicular . | $50(\frac{L}{3}+10)$ | 1 |

12. Measurement of variation from standard sheer profile :- (1) Where the sheer profile differs from the standard, the four ordinates of each profi by the appropriate factors given in Table of ordinates. The difference between the sums of respective products and those of the standard divided by 8 me forward or after held. The arithmetical mean of the excess or deficiency in the forward and after halves measures the excess or deficiency of sheer.

(2) Where the after half of the sheer profile is greater than the standard and the forward half is less than the standard, no credit shall be allowed be measured.

(3) Where the forward half of the sheer profile exceeds the standard sheer profile and the after half of the sheer profile is not less than 75 pe allowed for the part in excess.

Where the after half of the sheer profile is less than 50 per cent of the standard sheer profile, no credit shall be given for the excess sheer forward.

Where the sheer in the after half is between 50 per cent and 75 per cent of the standard sheer profile, intermediate allowances may be granted for ex

(4) Where the sheer credit is given for a poop or forecastle the following formula shall be used :

$$S = \frac{Y}{3} \quad \frac{L'}{L}$$

Where S= sheer credit, to be deducted from the deficiency or added to the excess of sheer.

Y = difference between actual and standard height of superstructure at forward and after perpendicular.

L' = mean enclosed length of poop or forecastle up to a maximum length of 0.5L.

The above formula provides a curve in the form of a parabola tangential to the actual sheer curve at the freeboard deck and intersecting the end ordi distance equal to the standard height of a superstructure. The superstructure deck shall not be less than standard height above the curve at any point. Th profile for the forward and after halves of the ship.

13. Correction for variations from standard sheer :- (1) The correction for sheer shall be the deficiency or excess of sheer determined by paragra

(2) Where the sheer is less than the standard, the correction for deficiency of sheer determined in accordance with sub-paragraph (1) shall be ad

(3) subject to sub-paragraph (4), in the case of a ship having an excess of sheer -

(a) if an enclosed superstructure covers (0.1) L before and (0.1) L abaft amid ships, the correction for excess of sheer determined deducted from the basic freeboard of the ship;

(b) if no enclosed superstructure covers amidships, no deduction shall be made from the basic free board of the ship;

(c) if an enclosed superstructure covers less than (0.1) L before and (.01) L abaft, amidships, the correction for excess of sheer determir be modified in the ratio of the amount of (0.2) L amidships which is covered by the superstructure to (0.2)L.

(4) The maximum deduction for excess sheer shall be at the rate of 125 millimetres per 100 metres of length (L).

(14) Correction for Minimum Bow Height :- (1) The bow height of a ship is the vertical distance at the forward perpendicular between the summe and the top of the exposed deck at side ascertained as follows :

(a) Where the bow height is obtained by including sheer, the sheer shall extend for not less than 15 per cent of the ship's length (L) meas

(b) Where the bow height is obtained by including the height of the superstructure, such superstructure shall :

(i) extend from the stem to a point not less than 0.07 of ship's length (L) measured from the forward perpendicular;

(ii) if the ship's length (L) is 100 meters or less, be an enclosed superstructure;

(iii) if the ship's length (L) exceeds 100 metres in length, be fitted with satisfactory closing appliances.

(2) The minimum bow height for a ship shall be derived from formula 1 in the case of a ship of less than 250 metres in length (L) and from formul

$$56 \left(1 \frac{(L)}{500}\right) \left(\frac{1.36}{Cb + 0.68}\right) \text{millimetres}$$

Formula 1

$$7000 \left(\frac{1.36}{Cb + 0.68}\right) \text{millimetres}$$

CB being taken as not less than 0.68 in the case of each formula.

Provided that in the case of a ship other than a tug of 65 metres or less in length being based at a port or an open readstead and carrying out ship to from formula 1 with the figure 56 being replaced by figure 40.

(3) Where the bow height of a ship is less than the minimum bow height appropriate to the ship, the freeboard determined in accordance with the amount equal to the difference between the bow height and the minimum bow height :

(a) Provided, however, in the case of ship which I constructed to meet exceptional operation requirements, the corrections to be made p or waived if the Director General is satisfied that the safety of the ship will not be impaired in consequence in the worst sea and wea ship in service.

(4) Where an existing ship has been so reconstructed as to comply with all the conditions of assignments in the first Schedule as applicable to a r

(i) the forecastle of length less than 0.70(L) ; and/or

(ii) the sheer extending over less than 15 per cent of the ship's length measured from the forward perpendicular,

the freeboard determined for the ship in accordance with the foregoing paragraph shall be increased by such amount as the Director General may approve in

**PART III**

**Timber Freeboard**

15. Summer timber freeboard :- (1) There shall first be ascertained the freeboard appropriate to the ship under the provisions of sub-paragra corrected as necessary in accordance with the provisions of paragraphs (5 to 8 of this Schedule).

(2) Deduction for the effective length of superstructures shall be made from the freeboard obtained pursuant to sub-paragraph (1) in accordance the following table for the Table 'Percentage of Deduction for Type B ships'.

| | Total Effective Length of Superstructure | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | 0 | 0.1L | 0.2L | 0.3L | 0.4L | 0.5L | 0.6L | 0.7L | O.8L | 0.9L | 1.0L |
| Percentage of deduction for all types of superstruc-tures . | 20 | 31 | 42 | 53 | 64 | 70 | 76 | 82 | 88 | 94 | 100 |

Percentage at immediate lengths of superstructures shall be obtained by liner interpolation.

(3) The freeboard so far obtained pursuant to the preceding sub-paragraphs shall then be corrected in accordance with paragraphs 10 to 13 of shall be the Summer Timber Freeboard to be assigned to the ship.

16. Other timber freeboards :- (1) The Winter timber freeboard shall be obtained by adding to the Summer timber free board one thirty sixth (1/36$^{t}$

(2) The Winter North Atlantic Timber freeboard shall be same as the Winter North Atlantic Freeboard assigned to the ship.

(3) The Tropical timber freeboard shall be obtained by deducting from the summer timber freeboard one forty eight (1/48$^{th}$) of the summer timber

(4)(a) The Fresh Water Timber freeboard shall, subject to sub-paragraph (b), be obtained by deducting from the Summer Timber freeboard the quai

$$\frac{\Delta}{4T} \text{ millimeters.}$$

Where $\Delta$ is the displacement in salt water in metric tons at the waterline which will when load lines have been marked on the ship's side corre represents metric tons per centimetre immersion in salt water at that waterline.

(b) In any case in which the displacement at the waterline cannot be ascertained the deduction shall be one forty eighth ($1/48^{th}$) of the summer tin

**PART IV**
**Freeboard for other ships**

17. Tugs :- The freeboard to be assigned to tugs shall be freeboards determined in accordance with provisions of Part II of this Schedule increa may direct in each case.

18. Unmanned barges :- The freeboard to be assigned to unmanned barges having on the freeboard deck only small access openings closed freeboards determined in accordance with provisions of Part II of this Schedule omitting paragraph 4.

19. Ships with special construction features :- The freeboard to be assigned to ships with constructional features such as to render freeboard d this Schedule unreasonable or impracticable shall be especially determined by the Director General in each particular case.

20. Conditions for assigning freeboards less than minimum freeboard – The Director General of Shall consider applications for the assignment of B-60) or ½ (Table B-100) subject to a minimum freeboard of 150 mm (6 inches) and to the following conditions, namely:--

(a) The strength of the ship shall be adequate at the draught associated with the decreased freeboard;

(b) The ships shall be of the "hopper" type, i.e. fitted with bottom doors in the shell or having other similar means capable of quickly jettisoning in an emergency. The cargo releasing arrangements on ships assigned a freeboard less than 5/8 (Table B) should be capable of jettisoning requirements of sub-paragraph (e) below to be complied with. In each case details of the arrangements are to be submitted for examination

(c) The operational limits shall not normally exceed 20 miles from land.

(d) The intact stability criteria specified in Part I of the Third Schedule should be achieved at the proposed decreased freeboard.

(e)(i) When a freeboard equivalent to ½ (Table B-60) is assigned, the ship shall be capable of surviving in a manner stated in paragraph 4(3)(e) damage, to the total extent indicated in paragraph 4(6) of Part II of the Second Schedule to any one compartment (including the engine room

(ii) When a freeboard equivalent to ½ (Table B-100) is assigned, the ship shall be capable of surviving in a manner specified in paragraph sustaining damage, to the total extent indicated in paragraph 4(7)(a), 4(7)(C) of Part II of the Second Schedule to the engine room or to any d

Note :- In the damage stability calculation it may be assumed that a proportion of the cargo is capable of being jettisoned immediately after the collision pro designed that they will operate after the ship has sustained the total assumed damage.

(f) Draught indicators shall be fitted to ships requiring freeboards of ½ (B-60) or less.

(g) A special working load line mark in RED shall be marked on ship sides with disc 762 mms abaft normal marks, in all such cases.

21. Existing ships from 24 metre to 100 metres in length—Ships of length range 24 to 100 metres, engaged in harbour maintenance, dredger service between ship and shore, or for domestic voyages along with coasts of India may continue to be assigned free boards, under the Indian Merchant Ship

Provided that,

(i) the conditions of assignment, more particularly the ones relating to hatch closing appliances, are brought up to the requirements of these rule

(ii) no increase in the summer draught corresponding to a decrease in the geometric freeboards is made under the terms of these rules.

22. Minimum bow height of coastal ships below 60 metres in length --- Ships engaged on the coasting trade of India If less than 60 metres in l which they are at no time more than 20 miles from the nearest land shall be required to have a minimum bow height which shall not be less than the aggre sheer at the forward perpendicular applicable to the ship :

Provided that the Director General may dispense with the requirement of minimum bow height where exceptional operational requirements are involve

**PART V**

**Tabular Freeboard**

The following is Freeboard Table A referred to in sub-paragraph (3) of paragraph 1 of Part I of this Schedule

**TABLE A**
**FREEBOARD TABLE FOR TYPE "A" SHIPS**

| Length of ship (metres | Freeboard (millimetres | Length of ship (metres) | Freeboard (millimetres | Length of ship (metres | Freeboard (millimetres | Length of ship (metres | Freeboard (millimetres |
|---|---|---|---|---|---|---|---|
| 24 | 200 | 35 | 292 | 46 | 396 | 57 | 530 |
| 25 | 208 | 36 | 300 | 47 | 408 | 68 | 544 |
| 25 | 217 | 37 | 308 | 48 | 420 | 69 | 559 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 27 | 225 | 38 | 316 | 49 | 432 | 60 | 573 |
| 28 | 233 | 39 | 325 | 50 | 443 | 61 | 587 |
| 29 | 242 | 40 | 334 | 51 | 455 | 62 | 600 |
| 30 | 250 | 41 | 344 | 52 | 47 | 63 | 613 |
| 31 | 258 | 42 | 354 | 53 | 478 | 64 | 626 |
| 32 | 267 | 43 | 364 | 54 | 490 | 65 | 639 |
| 33 | 275 | 44 | 374 | 55 | 503 | 66 | 653 |
| 34 | 283 | 45 | 385 | 56 | 516 | 67 | 666 |
| 68 | 680 | 98 | 1105 | 128 | 1598 | 158 | 2096 |
| 69 | 693 | 99 | 1220 | 129 | 1615 | 159 | 2111 |
| 70 | 706 | 100 | 1135 | 130 | 1632 | 160 | 2126 |
| 71 | 720 | 101 | 1151 | 131 | 1650 | 161 | 2141 |
| 72 | 733 | 10 | 1166 | 132 | 1667 | 162 | 2155 |
| 73 | 746 | 103 | 1181 | 133 | 1684 | 163 | 2169 |
| 74 | 760 | 104 | 1196 | 134 | 1702 | 164 | 2184 |
| 75 | 773 | 105 | 1212 | 135 | 1719 | 165 | 2198 |
| 76 | 786 | 106 | 1228 | 136 | 1736 | 166 | 2212 |
| 77 | 800 | 107 | 1244 | 137 | 1753 | 167 | 2226 |
| 78 | 814 | 108 | 1260 | 138 | 1770 | 168 | 2240 |
| 79 | 88 | 109 | 1276 | 139 | 1787 | 169 | 2254 |
| 80 | 841 | 110 | 1293 | 140 | 1803 | 170 | 2268 |
| 81 | 855 | 111 | 1309 | 141 | 1820 | 171 | 2281 |
| 82 | 869 | 112 | 1326 | 142 | 1837 | 172 | 2294 |
| 83 | 883 | 113 | 1342 | 143 | 1853 | 173 | 2307 |
| 84 | 897 | 114 | 1359 | 144 | 1870 | 174 | 2320 |
| 85 | 911 | 115 | 1376 | 145 | 1886 | 175 | 2332 |
| 86 | 96 | 116 | 1392 | 146 | 1903 | 176 | 2345 |
| 87 | 940 | 117 | 1409 | 147 | 1919 | 177 | 2357 |
| 88 | 955 | 118 | 1426 | 148 | 1935 | 178 | 2369 |
| 89 | 969 | 119 | 1442 | 149 | 1952 | 179 | 2381 |
| 90 | 984 | 120 | 1459 | 150 | 1968 | 180 | 2392 |
| 91 | 999 | 121 | 1467 | 151 | 1984 | 181 | 2405 |
| 92 | 1014 | 122 | 1494 | 152 | 2000 | 182 | 2416 |
| 93 | 109 | 123 | 1511 | 153 | 2016 | 183 | 2428 |
| 94 | 1044 | 124 | 1528 | 154 | 2032 | 184 | 2440 |
| 95 | 1059 | 125 | 1546 | 155 | 2048 | 185 | 2451 |
| 96 | 1074 | 126 | 1563 | 156 | 2064 | 186 | 2463 |
| 97 | 1089 | 127 | 1580 | 157 | 2080 | 187 | 2474 |
| 188 | 2486 | 211 | 2714 | 234 | 2903 | 275 | 3054 |
| 189 | 2497 | 212 | 2723 | 235 | 2910 | 258 | 3060 |
| 190 | 2508 | 213 | 2732 | 236 | 2918 | 259 | 3065 |
| 191 | 2519 | 214 | 2741 | 237 | 2925 | 260 | 3072 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 192 | 2530 | 215 | 2749 | 238 | 2932 | 261 | 3078 |
| 193 | 2541 | 216 | 2758 | 239 | 2939 | 262 | 3084 |
| 194 | 2552 | 217 | 2767 | 240 | 2946 | 263 | 3039 |
| 195 | 2562 | 218 | 2775 | 241 | 2953 | 264 | 3095 |
| 196 | 2572 | 219 | 2784 | 242 | 2959 | 265 | 3101 |
| 197 | 2582 | 220 | 2792 | 243 | 2966 | 266 | 3105 |
| 198 | 2592 | 221 | 2801 | 244 | 2973 | 267 | 3112 |
| 199 | 2602 | 222 | 2809 | 245 | 2979 | 268 | 3177 |
| 200 | 2612 | 223 | 2817 | 246 | 2986 | 269 | 3123 |
| 201 | 2622 | 224 | 2825 | 247 | 2993 | 270 | 3128 |
| 202 | 2632 | 225 | 2833 | 248 | 3000 | 271 | 3133 |
| 203 | 2641 | 226 | 2841 | 249 | 3006 | 272 | 3138 |
| 204 | 2650 | 227 | 2849 | 250 | 3012 | 273 | 3143 |
| 205 | 2659 | 228 | 2857 | 251 | 2018 | 274 | 3148 |
| 206 | 2669 | 229 | 2865 | 252 | 3024 | 275 | 3153 |
| 207 | 2678 | 230 | 2872 | 253 | 3030 | 276 | 3158 |
| 208 | 2687 | 231 | 2880 | 254 | 3036 | 277 | 3163 |
| 209 | 2696 | 232 | 2888 | 255 | 3042 | 278 | 3167 |
| 210 | 2705 | 233 | 2895 | 256 | 3048 | 277 | 3172 |
| 280 | 3176 | 302 | 3270 | 324 | 3342 | 346 | 3396 |
| 281 | 3181 | 303 | 3274 | 325 | 3345 | 347 | 3399 |
| 282 | 3185 | 304 | 3278 | 326 | 3347 | 348 | 3401 |
| 283 | 3189 | 305 | 3181 | 327 | 3350 | 349 | 3403 |
| 284 | 3194 | 306 | 3285 | 328 | 3353 | 350 | 3406 |
| 285 | 3198 | 307 | 3288 | 329 | 3355 | 351 | 3408 |
| 286 | 3202 | 308 | 3292 | 330 | 3358 | 352 | 3410 |
| 287 | 3207 | 309 | 3295 | 331 | 3361 | 353 | 3412 |
| 288 | 3211 | 310 | 3298 | 332 | 3363 | 354 | 3414 |
| 289 | 3215 | 311 | 3302 | 334 | 3366 | 355 | 3416 |
| 290 | 3220 | 312 | 3305 | 335 | 3368 | 356 | 3418 |
| 291 | 3224 | 313 | 3308 | 336 | 3371 | 357 | 3420 |
| 292 | 3228 | 314 | 3312 | 337 | 3373 | 358 | 3422 |
| 293 | 3233 | 315 | 3315 | 338 | 3375 | 359 | 3423 |
| 294 | 3237 | 316 | 3318 | 339 | 3378 | 360 | 3425 |
| 295 | 3241 | 317 | 3322 | 340 | 3380 | 361 | 3427 |
| 296 | 3246 | 318 | 3325 | 341 | 3382 | 362 | 3428 |
| 297 | 3250 | 319 | 3328 | 342 | 3385 | 363 | 3430 |
| 298 | 3254 | 320 | 3331 | 343 | 3387 | 364 | 3432 |
| 299 | 3258 | 321 | 3334 | 344 | 3389 | 365 | 3433 |
| 300 | 3262 | 322 | 3337 | 345 | 3392 | 366 | |
| 301 | 3266 | 323 | 3339 | 346 | 3394 | 367 | |
| | | | | | | | |

Note: Freeboard at intermediate lengths of ships shall be obtained by linear interpolation.

The following is Freeboard Table B referred to in-subparagraph(3) of paragraph 1 of Part 1 of this Schedule.

**TABLE B**

**FREEBOARD TABLE FOR TYPE "B" SHIP**

| Length of ship (metres | Freeboard (millimetres | Length of ship (metres) | Freeboard (millimetres | Length of ship (metres | Freeboard (millimetres | Length of ship (metres | Freeboard (millimetres |
|---|---|---|---|---|---|---|---|
| 24 | 200 | 56 | 516 | 88 | 1034 | 120 | 1690 |
| 25 | 208 | 57 | 530 | 89 | 1054 | 121 | 1709 |
| 26 | 217 | 58 | 544 | 90 | 1075 | 122 | 1729 |
| 27 | 225 | 59 | 559 | 91 | 1096 | 123 | 1750 |
| 28 | 233 | 60 | 573 | 92 | 1116 | 124 | 1771 |
| 29 | 242 | 61 | 587 | 93 | 1135 | 125 | 1793 |
| 30 | 250 | 62 | 601 | 94 | 1154 | 126 | 1815 |
| 31 | 258 | 63 | 515 | 95 | 1172 | 127 | 1837 |
| 32 | 275 | 64 | 629 | 96 | 1190 | 128 | 1859 |
| 33 | 275 | 65 | 644 | 97 | 1209 | 129 | 1880 |
| 34 | 283 | 66 | 659 | 98 | 1229 | 130 | 1901 |
| 35 | 292 | 67 | 674 | 99 | 1250 | 131 | 1921 |
| 36 | 300 | 68 | 689 | 100 | 1271 | 132 | 1940 |
| 37 | 308 | 69 | 705 | 101 | 1293 | 133 | 1959 |
| 38 | 316 | 70 | 721 | 102 | 1315 | 134 | 1979 |
| 39 | 325 | 71 | 738 | 103 | 1337 | 135 | 2000 |
| 40 | 334 | 72 | 754 | 104 | 1359 | 136 | 2021 |
| 41 | 344 | 73 | 769 | 105 | 1380 | 137 | 2043 |
| 42 | 354 | 74 | 784 | 106 | 1401 | 138 | 2065 |
| 43 | 364 | 75 | 800 | 107 | 142 | 139 | 2087 |
| 44 | 374 | 76 | 816 | 108 | 1440 | 140 | 2109 |
| 45 | 385 | 77 | 833 | 109 | 1459 | 141 | 2130 |
| 46 | 396 | 78 | 850 | 110 | 1479 | 142 | 2151 |
| 47 | 408 | 79 | 868 | 111 | 1500 | 143 | 2171 |
| 48 | 420 | 80 | 887 | 112 | 1521 | 144 | 2190 |
| 49 | 432 | 81 | 905 | 113 | 1543 | 145 | 2209 |
| 50 | 443 | 82 | 923 | 114 | 1565 | 146 | 2229 |
| 51 | 455 | 83 | 942 | 115 | 1587 | 147 | 2250 |
| 52 | 467 | 84 | 960 | 116 | 1609 | 148 | 2271 |
| 53 | 478 | 85 | 978 | 117 | 1630 | 149 | 2293 |
| 54 | 490 | 86 | 996 | 118 | 1651 | 150 | 2334 |
| 55 | 503 | 87 | 1015 | 119 | 1671 | 151 | |
| 152 | 2354 | 177 | 2855 | 202 | 3296 | 227 | 3690 |
| 153 | 2375 | 178 | 2875 | 203 | 3313 | 228 | 3705 |
| 154 | 2936 | 179 | 2895 | 204 | 3330 | 229 | 3720 |
| 155 | 2418 | 180 | 2915 | 205 | 3347 | 230 | 373533 |

| 156 | 1440 | 181 | 2933 | 206 | 3363 | 231 | 3750 |
|---|---|---|---|---|---|---|---|
| 157 | 2460 | 182 | 2952 | 207 | 3380 | 232 | 3765 |
| 158 | 2480 | 183 | 2970 | 208 | 3397 | 233 | 3780 |
| 159 | 2500 | 184 | 2988 | 209 | 3413 | 234 | 3795 |
| 160 | 2520 | 185 | 3007 | 210 | 3430 | 235 | 3808 |
| 161 | 2540 | 186 | 3025 | 211 | 3445 | 236 | 3821 |
| 162 | 2560 | 187 | 3044 | 212 | 3460 | 237 | 3835 |
| 163 | 2580 | 188 | 3062 | 213 | 3475 | 238 | 3849 |
| 164 | 2600 | 189 | 3080 | 214 | 3490 | 239 | 3864 |
| 165 | 2620 | 190 | 3098 | 215 | 3505 | 240 | 3880 |
| 166 | 2640 | 191 | 3116 | 216 | 3520 | 241 | 3893 |
| 167 | 2660 | 192 | 3134 | 217 | 3557 | 242 | 3906 |
| 168 | 2780 | 193 | 3151 | 218 | 3554 | 243 | 3920 |
| 169 | 2698 | 194 | 3167 | 219 | 3570 | 244 | 3934 |
| 170 | 2716 | 195 | 3185 | 220 | 3586 | 245 | 3949 |
| 171 | 2735 | 196 | 3202 | 221 | 3601 | 246 | 3965 |
| 172 | 2754 | 197 | 3279 | 222 | 3615 | 247 | 3978 |
| 173 | 2774 | 198 | 3235 | 223 | 3630 | 248 | 3992 |
| 174 | 2795 | 199 | 3249 | 224 | 3645 | 249 | 4005 |
| 175 | 2815 | 200 | 3264 | 225 | 3660 | | |
| 176 | 2835 | 201 | 3280 | 226 | 3675 | | |
| 250 | 4018 | 279 | 4385 | 308 | 4717 | 337 | 5025 |
| 251 | 4032 | 280 | 4397 | 309 | 4725 | 338 | 5035 |
| 252 | 4045 | 281 | 4408 | 310 | 4736 | 339 | 5045 |
| 253 | 4058 | 282 | 4420 | 311 | 4748 | 340 | 5055 |
| 254 | 4072 | 283 | 4432 | 312 | 4757 | 341 | 5065 |
| 255 | 4085 | 284 | 4333 | 313 | 4768 | 342 | 5075 |
| 256 | 4098 | 285 | 4455 | 314 | 4779 | 343 | 5086 |
| 257 | 4112 | 286 | 4467 | 315 | 4790 | 344 | 5097 |
| 258 | 4125 | 287 | 4478 | 316 | 4801 | 345 | 5108 |
| 259 | 4139 | 288 | 4490 | 317 | 4812 | 346 | 5119 |
| 260 | 4152 | 289 | 4502 | 318 | 4823 | 347 | 5130 |
| 261 | 4165 | 290 | 4513 | 319 | 4834 | 348 | 5140 |
| 262 | 4177 | 291 | 4525 | 320 | 4844 | 349 | 5150 |
| 263 | 4189 | 292 | 4537 | 321 | 4855 | 350 | 5160 |
| 264 | 4201 | 293 | 4548 | 322 | 4866 | 351 | 5170 |
| 265 | 4214 | 294 | 4560 | 323 | 4878 | 352 | 5180 |
| 266 | 4227 | 295 | 4572 | 324 | 4890 | 353 | 5190 |
| 267 | 4240 | 296 | 4583 | 325 | 4899 | 354 | 5200 |
| 268 | 4252 | 297 | 4595 | 326 | 4909 | 355 | 5210 |
| 269 | 4264 | 298 | 4607 | 327 | 4920 | 356 | 5220 |
| 270 | 4276 | 299 | 4618 | 328 | 4931 | 357 | 5230 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 271 | 4289 | 300 | 4630 | 329 | 4943 | 358 | 5240 |
| 272 | 4302 | 301 | 4642 | 330 | 4955 | 359 | 5250 |
| 273 | 4315 | 302 | 4654 | 331 | 4965 | 360 | 5260 |
| 274 | 4327 | 303 | 4665 | 332 | 4975 | 361 | 5268 |
| 275 | 3339 | 304 | 4676 | 333 | 4985 | 362 | 5276 |
| 276 | 4350 | 305 | 4686 | 334 | 4995 | 363 | 5285 |
| 277 | 4362 | 306 | 4695 | 335 | 5005 | 364 | 5294 |
| 278 | 4373 | 307 | 4704 | 336 | 5015 | 365 | 5303 |

Note :- Freeboard at intermediate lengths of ship shall be obtained by linear.

**THE THIRD SCHEDULE**
**( See rules 4, 5, 6, 7, 29 and 31 )**

**STABILITY AND LOADING**

**PART 1**

**Criteria of Stability**

1. The stability of the ship in all intended loading conditions shall be adequate at all drafts not submerging the appropriate freeboard ma Government having regard to the special design features and the service conditions of a ship, the stability of the ship will be considered satisfactory upon con

(i) The area under the righting lever (GZ) curve shall not be less than :-

(a) 0.055 metre – radians upto an angel of 30 degress;

(b) 0.09 metre—radians to an angle of either 40 degrees or an angle of OF if that be less. The angle Of is the angle at whic superstructures or deckhouses, being openings which cannot be closed weathertight and which are likely to cause progressi

(c) 0.03 metre – radians between the angles of heel of 30 and 40 degrees or between 30 and Of degrees, if Of is less than 40 de

(ii) The righting lever (GZ) shall be at least 0.20 metre, at an angle of heel equal to or greater than 30 degrees.

(iii) The maximum righting lever (GZ) should occur at an angle of heel not less than 30 degrees.

(iv) The initial transverse metacentric height shall be not less than 0.15 metre.

2. The Central Government may allow a timberdeck cargo ship to comply with such lesser criteria of stability than those of the preceding paragr cargo stowage and lashing and other service conditions.

3. In addition to complying with the provisions of the above paragraphs 1 and 2, the ship master should also exercise due precaution and discre lashing, etc.

4. To assess if a ship complies with the stability criteria in paragraphs 1 and 2, the stability data shall be based on inclining testing of that ship, a exempted by the same rule.

**PART II**

**Stability and Loading Conditions**

5. The stability characteristics of at least the following loading and ballasting conditions should be duly investigated in order to ensure complianc of this Schedule.

(1) Light Condition – If the ship has permanent ballast, the light condition should include two conditions, e.g. (i) light condition with su ballast.

(2) Ballast Conditions—These should include two conditions, e.g. (i) ballast departure condition with full stores, fresh water, fuel and othe ballast arrival condition with only 10 per cent stores, fresh water fuel and other consumable stores.

(3) Standard Loading Conditions – These should include (i) the departure condition with the ship loaded to the summer load line with ho cargo, except cargo spaces where this is clearly inappropriate, for example, in the case of cargo spaces in a ship which are inter vehicles or of containers and (ii) the arrival condition with the ship similarly loaded but with only 10 per cent stores, fresh water, fuel a

(4) Service Loading Condition—These should include the departure and arrival conditions of additional loading conditions for which the s desired by the shipowners.

6. (1) For passenger ships, the full number of passengers and their luggage should be included in conditions (2) to (4) of paragraph 5 above

(2) In passenger ships, the effect of the movement of passengers and the heeling of the ship during turning manouvres shall also be dul on the stability of the ship.

**PART III**
**Method and Form of Stability Calculations**

7. For the purposes of Part VI of these rules relating to stability and loading the method of stability calculations and the form of the stabi accordance with the following paragraphs.

8. The stability book should include the following particulars :

(1) The ship's name, official number, port of registry, gross and registration nages, principal dimensions, displacement, deadweight and c in the beginning of the stability booklet.

(2) A profile view and if practicable, plan views of the ship drawn to scale showing with their names outlines of all main compartments, tar

(3) The capacity and the positions of the vertical and longitudinal centers of gravity of compartments available for the carriage of cargo, ballast.

In the case of a vehicle ferry, the vertical centre of gravity of compartments for the carriage of vehicles shall be based on the estimated ce volumetric centers of compartments.

(4) The estimated total weight of (a) passengers and their effects and (b) crew and their effects, and the centers of gravity (longitud determining such centers of gravity, passengers and crew shall be assumed to be distributed about the ship in the spaces they will which either or both have access.

(5) The estimated weight and the disposition and the centers of gravity of the maximum amount of deck cargo which the ship may re deck. The estimated weight shall include in the case of deck cargo likely to absorb water the estimated weight of water likely conditions, such weight in the case of timber deck cargo being taken to be 15 per cent by weight.

(6) The effect on stability of free surface in tanks in the ship in which liquids may be carried, including an example on how to corr effect.

9. The following diagrams or approved tabular statements in lieu thereof should be provided in the stability booklet :

(1) A diagram of the deadweight-displacement scale illustrating load line mark and the load lines with particulars of the corresponding freebo immersion, and deadweight tons corresponding to a range of mean draughts extending between the waterline representing the deepest load line and the wat

(2) A diagram or tabular statement showing the hydrostatic particulars of the ship, including :-

(i) the heights of the transverse and longitudinal metacentre above base line.

(ii) the positions of the center of buoyancy, both vertical and longitudinal,

(iii) the positions of the longitudinal centers of floatation.

(iv) the values of the mements to change trim by one centimetre.

(v) the values of the cross-sectional areas (Bonjean's Curves) and the water plane areas.

for a range of mean draughts extending at least between the waterline representing the deepest load line and the waterline of the ship in light condition.

Where a tabular statement issued the intervals between such draughts shall be sufficiently close to permit accurate interpolation. In the case of shi height of centers of buoyancy and metacentres shall be used as for the centers of gravity referred to in paragraph 8.

(3)(i) A diagram of cross-curves of stability showing clearly the keel points on the inclined axis from which the righting levers are measured and th ships having raked keels where datum other than the top of the keel has been use, full information is to be provided as to its position.

A sufficient number of cross- curves for an adequate range of the angles of inclination and each such curve extending over the displacement range fr load line, should be provided sot that the statistical stability curved of righting levers over all positive ranges could be obtained with sufficient accuracy by inte

(ii) An illustrative example shall be given showing how to obtain a curve of righting levers (GZ) from the cross curves.

10. The stability characteristics of each of the loading conditions required to be investigated in Part II of this schedule shall be represented in the statements :

(i) A profile diagram of the ship drawn to a suitable small scale showing the dispositions of the main components of the deadweight;

(ii) Suitable tabular statements including the lightweight, the disposition and moments of components of the deadweight, the final displaceme gravity, the metacentre, the free surface effects and the metacentric height duly corrected for free surface effect ;

11 (1) In deriving the cross-curves of stability account may be taken of the stability and buoyancy provided by enclosed superstructure and effic paragraphs 7 and 8 of Second Schedule.

(2) The stability and buoyancy provided by the following structures may also be taken into account in deriving the cross-curves if the Dire particular case, having regard to their location, integrity and means of closure.

(i) Superstructure located above the superstructure deck;

(ii) Deck houses on the freeboard deck, whether wholly or in part only;

(iii) hatchway structure on or above freeboard deck.

Additionally, if the Director General so approves, in the case of a ship carrying timber deck cargo, the volume of timber deck cargo or part the supplementary curve of stability appropriate to the ship when carrying such cargo.

(3) Where the buoyancy of a superstructure or any other structure is taken into account in the calculations of stability, suitable endorsement sh indicating the extent of such inclusion. Notices shall also be conspicuously displayed near weathertight doors or any other special openings to the effect that sea on account of stability.

**FORM LL INDIA**

**THE FOURTH SCHEDULE**
**( See rules 5 and 26 )**

International Convention on Load Lines, 1966.

RECORD OF CONDITIONS OF ASSIGNMENT LOAD LINE SURVEY

---

Ship's Name…….. Part and date of Survey…….

Official Number …….. Surveyors Signature……..

Nationality and Port of registry …….. Surveying

Organisation…….

---

Builder and Yard No…….. Building Year ……..

Owner ……..

Ship Type (existing/type A/type B)…….

Freeboard Length …… Gross Tonange……..

---

1.SUPERSTRUCTURE BULKHEADS (Paragraph 6)

| Forecastle Bulkhead | Material &Scantlings | Details of openings | Closing appliances |
|---|---|---|---|
| Bridge Fort Bulkhead | | | |
| Bridge Aft. Bulkhead | | | |
| Poop Bulkhead | | | |

Is the construction of superstructure efficient ?

---

2.HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS

(Paragraphs 8 and 9)

| Description of | Hatch Nos. | Hatch Nos. | Hatch Nos. | Hatch Nos. | Hatch Nos. | Hatch No. |
|---|---|---|---|---|---|---|
| Dimension of Opening | | | | | | |
| Coaming hatchbeam: Scantlings & Bearing Surface | | | | | | |
| Fore-and-Aft. | | | | | | |

Scantlings.

Hatchboards/ Pantoon Covers

Weathertight Hatchcovers.

Are the closing devices of hatches strong and efficient in accordance with the rule requirements ?

3. MACHINERY SPACE OPENINGS (Paragraph 10)

| Details of materials and scantlings of fiddley funnel, and cashings | Details of sill and openings | Details of Closing Appliances |
|---|---|---|

Are ventilators fitted on the machinery casings well protected ?

4. MISCELLANEOUS OPENINGS ON FREEBOARD AND SUPERSTRUCTURE DECKS (paragraph 11)

(a) Give details of opening and closing appliances of manholes and flush scattles.

Are such constructions efficient ?

(b) Details of companion ways :

5.VENTILATORS IN EXPOSED POSITIONS ON FREEBOARD AND SUPERSTRUCTURE DECKS (Paragraph 12)

| Position of ventilators | Size of openings | Height and thickness of coamings | Ventilate space | Closing appliances |
|---|---|---|---|---|

Are any ventilators situated in space particularly subjected to weather and sea ? If so, how are they protected ?

6.AIR PIPES IN EXPOSED POSITIONS ON FREEBOARD AND SUPERSTRUCTURE DECKS (Paragraph 13)

| Position | Nos, and type of air pipe | Diameter and height | Closing appliances |
|---|---|---|---|

(a) Give particulars of any air pipe situated on the deck of a superstructure of less than standard height ?

(b) are all the air pipes are substantially constructed ?

7.CARGO PORTS AND SIMILAR OPENINGS ON SHIPSIDE (Paragraph 14)

(a) State the longitudinal locations, sizes and numbers of Cargo ports and similar openings below the freeboard deck.

(b) State the vertical distance of the lower edge of any such cargo port or similar openings with respect to a line parallel to the freeboard d deepesi load line.

(c) State particulars of closing appliances of such opening and if such closing appliances ensure structural and watertightness.

8.SCUPPERS, INLETS AND DISCHARGES (Paragraph 15)

| Vertical position of inboards end of pipe | Compartment/ Deck being | Nos. and diameter drained drained of pipes discharge & type of closing appliance & material | Outboard end of discharge |
|---|---|---|---|
| Keel to 0.01 L above SLWL | | | |
| 0.01 L to 0.02 L above SLWL | | | |
| More than 0.02 L above SLWL | | | |

(a) State particulars of location and accessibility of controls of valves in, (i) manned machinery space and (ii) unattended machinery space.

(b) State particulars of the devices giving warning of entry of water into unattended machinery space.

9. SIDE SCUTTLES (Paragraph 16)

(a) State location and particulars of construction of side scuttles, deadlights and flasses.

(b) Are the sails of all side Scuttles at or above a Line drawn parallel to the freeboard deck at side and having at its lowest point :

(i) 2.5 per cent of B above summer load line, or

(ii) 500 millimetres above the summer load line.

10.FREEING PORTS AND ARRANGEMENTS (Paragraph 17)

(a) Freeing Arrangement on weather Deck:

| Length and Height of bulkwark | Number & sizes of Freeomg [prts | Area each | Rule each | Area side |
|---|---|---|---|---|
| Forward Well | | | | |
| After Well | | | | |

(b) State particulars of provisions made for freeing water from superstructures other than enclosed superstructure. Are such provisions efficient.

11. PROTECTION OF CREW (Paragraph 18)

(a) State particulars, including spacing and height of guard rails, guard wires and stanchions fitted at the perimeters of exposed freeboard and su

(b) State particulars of the gangways, underdeck passages and other means of access enabling the crew to pass between their quarters, the ma

(c) State particulars of life lines, access ladders guard rails, guard wires, hand rails and others safety fittings.

SPECIAL REQUIREMENTS APPLICABLE TO TYPE A SHIPS OR TYPE B SHIPS WITH REDUCED FREEBOAI

12. MACHINERY CASINGS (Paraagraph 19)

If casings enclosing machinery space openings in Position 1 or Position 2 are not protected by a Poop, Bridge or a deckhouse, state reasons employed.

13. GANGWAY AND ACCESS (Paragraphs 20 and 23)

Where access between Poop and detached bridge or the forward part of a ship where there is no detached bridge is obtained by means other th passage, sate the equivalent arrangement provided.

14. FREEING ARRANGEMENTS (Paragraphs 22 and 24)

(a) Where guard rails, guard wires and Stanchions are not provided for at least a half of the length of the freeboard and superstructure decks, sta

(b) State the numbers, type and positions of breakwaters fitted if such fittings are efficient.

SPECIAL REQUIREMENTS APPLICABLE TO SHIPS TO BE ASSIGNED TIMBER FREEBOARDS

BUL WARKS, GUARD RAILS AND STANCHIONS (paragraph 27)

(a) State particulars of stiffening and supports of bulwarks. Are such arrangements adequately strong and efficient.

(b) Where bulwarks are not fitted, state particulars o guard rails and stanchions provided in lieu and if they are adequately strengthened.

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Note:- Reference to paragraphs in this record are reference to paragraphs of First Schedule to these rules.

FORM L. L. (India) Certificate No……..

**The Fifth Schedule**
**(See rules 7 and 12)**
**International Load Line Certificate (1966)**

Issued under the provisions of the International Convention on Load Lines, 1966, under the authority of the Government of India by the Director Gene

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| Name of the ship | Distinctive Nos. or letters | Port of Registry | Length (L) as designed in rticle 2 (g) |
|---|---|---|---|

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Freeboard assigned as : Type of ship :

* A new ship * Type 'A'

Type 'B

Type 'B' with reduced freeboards

An existing ship Type 'B' with increased freeboard

---

*Delete whatever is inapplicable.

Freeboard from deck line

Tropical…….mm, (T) …….. mm above (8)

Summer …….mm, (S) Upper edge of line through centers of ring

Winter …….mm, (W) …….mm, below (S)

Winter North Atlantic ……mm, (WNA) …….mm, below (S)

Timber tropical ……..mm, (LT) …….mm, above (LS)

Timber Summer…….mm, (LS) …….mm, above (S)

Timber Winter…….mm, (LW ) …….mm, below (S)

Timber Winter Atlantic……mm, (LWNA) …….mm, below (LS)

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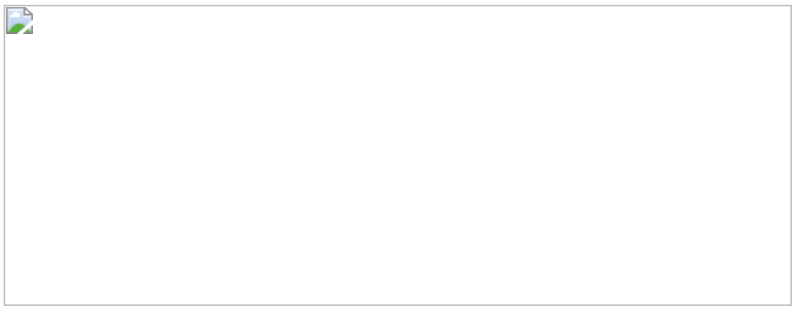
Note :- Freeboard and load line which is not to be entered on the certificate.

Allowance for fresh water for all freeboard other than timber…… mm. For timber freeboards ……..mm.  The upper edge of the deck line ……mm……deck at side



Date of initial or periodical survey……

This is to certify that this ship has been surveyed and that the freeboards have been assigned and load lines shown above have been marked in a Load Lines, 1966.

This certificate is valid until …….. subject to periodical inspections in accordance with Article 14(1)(C) of the Convention.

Issued at …….. on the …….. day of …….. 19……..

The undersigned declares that he is duly authorized by the said Government to issue this certificate.

This is to certify that at a periodical inspection required by Articles 14(1)(c) of the Convention, this ship was found to comply with the relevant provisio

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

The provisions of the Convention being fully complied with by this ship, the validity of this certificate is, in accordance with Artic …….

Place…….. Date……

……..…

Surveyor

Note :- (1) When a ship departs from a port situated on a river or inland waters deeper loading shall be permitted corresponding to the we consumption between the point of departure and the sea.

(2) When a ship is in fresh water of unit density the appropriate load line may be submerged by the amount of the fresh water allowance unity, an allowance shall be made proportional to the difference between 1.025 and the actual density.

Form L L India Certificate No……

India Load Line Certificate

Issued by the Government of India

| Name of Ship | Distinction Number Letters | Port of Registry | Length(L) as defined by rules made under section 311 of the Merchant Shipping Act, 1958. | Gross Tonnage |
|---|---|---|---|---|

Freeboard assigned : Type of ship :

* (A new ship (Type 'A'

(Type 'B'

(An existing ship. (Type B with reduced freeboard

(Type B with increased freeboard.

*Delete whichever is inapplicable.

Freeboard from Deck Line Load Line

Tropical…….. mm. (T) ……mm, above (S)

Summer…….mm. (S) Upper edge of line through center of ring.

Winter……mm (W) ……..mm, below (S)

Allowance for fresh water for all freeboards…….. mm.

Note :- Freeboard and load line which is not applicable need not be entered on the certificate.

The upper edge of the deck line from which freeboard are measured is …….. mm……. deck at side.

This is to certify that this ship has been surveyed and the freeboard and load lines shown above have been assigned in accordance with the rules ma
Act, 1958.

This certificate is valid until …….. subject to periodical inspections in accordance with the provisions of the rules made under sectio

Issued at …….. on the ……. day of ……19……

This is to certify that at periodical inspection required by the rules made under section 311 of the Merchant Shipping Act, 1958, this ship as found to
rules.

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

Note :- (1) When a ship departs from a port situated on a river of inland waters, deeper loading shall be permitted corresponding to the we consumption between the point of departure and the sea.

(2) When a ship is in fresh water of unit density the appropriate load line may be submerged by the amount of the fresh water allowance unity, an allowance shall be made proportional to the difference between 1.025 and the actual density.

FORM L L (India) Certificate No……..

International Load Line Exemption Certificate

Issued under the provisions of the International Convention on Load Lines 1966, under the authority of the Government of India by the Director Gener

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Name of Ship Distinction Number or letters Port of Registry

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This is to certify that the above mentioned ship is exempted from the provisions of the 1966 Convention, under the authority conferred by Article 6(2)/Article 6

The provisions of the Convention from which the ship is exempted under Article 6(2) are :

The voyage for which exemption is granted under Article 6(4)* is :

From ……..

To…….

Conditions, if any, on which the exemption is granted under either Article 6(2) or Article 6(4):

……

This certificate is valid …… subject, where appropriate, to periodical inspection in accordance with Article 14(1)(C) of the Convention.

Issued at …….. on the ……. day of …….. 19……..

The undersigned declares that he is duly authorized by the said Government to issue this certificate.

* Delete whichever is inapplicable.

This is to certify that this ship continues to comply with the conditions under which this exemption was granted.

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

Place…….. Date……

……

Surveyor

This ship continues to comply with the conditions under which this exemption was granted, and the validity of the certificate is, in accordance wi until……..

Place…….. Date…….

**THE SIXTH SCHEDULE**

**(See rules 17 and 19)**

**Zones, Areas and Seasonal Periods**

1. The Zones and areas in this Schedule are, in general, based on the following criteria:

Summer—not more than 10 per cent winds of force 8 Beaufort (34 knots) or more

Tropical—not more than 1 per cent winds of force 8 Beaufort (34 knots) or more. Not more than one tropical storm in 10 years in an area of $5^0$ squar

In certain special areas, for practical reasons, some degree of relaxation has been acceptable.

A chart is attached to this Schedule to illustrate the zones and areas defined below.

Northern Winter Seasonal Zones and Area.

2. (1) North Atlantic Winter Seasonal Zones I and II :

(a) The North Atlantic Winter Seasonal Zone 1 lies within the meridian of longitude $50^0$ W from the coast of Greenland to latitude 45 longitude $15^0$ W, thence the meridian of longitude $15^0$ W to latitude $60^0$N, thence the parallel of latitude $60^0$ N to the Greenwich Meri

Seasonal periods :

(b) The North Atlantic Winter Seasonal Zone II lies within the meridian of longitude $68^0$ 30/W from the coast of the United States to lat latitude $36^0$N longitude $73^0$ W, rhence the parallel of latitude $36^0$ N to longitude $25^0$ W and thence the rhumb line to Cape Torinana.

Excluded from this zone are the North Atlantic Winter Seasonal Zone I and the Baltic Sea bounded by the parallel of the latitude of th

Seasonal periods :

WINTER : 1 November to 31 March

SUMMER : 1 April to 31 October

(2) North Atlantic Winter Seasonal Area

The boundary of the North Atlantic Winter Seasonal Area is :-

the meridian of longitude $68^0$ 30/W from the coast of the United States to latitude $40^0$N, thence the rhumb line to the southernmost inter-section of th Canada and thence the east coasts of Canada and the United States.

Seasonal periods :

For ship over 100 metres (328 feet) in length :

WINTER : 16 December to 15 February

SUMMER: 16 February to 15 December

For ships of 100 metres (328 feet) and under in length :

WINTER : 1 November to 31 March

SUMMER : 1 April to 31 October

(3) North Pacific Winter Seasonal Zone

the parallel of latitude $50^0$ N from the east coast of the USSR to the west coast of Sakhalin, thence the west coast of the Sakhalin to the sout to Wakkani. Hokkaido, Japan, thence the east and south coasts of Hokkaido to longitude $145^0$E, thence the meridian of longitude $145^0$E to latitude $35^0$N, t $150^0$ W and thence the rhumb line to the southern extremitly of Dall Island Alaska.

WINTER : 16 October to 15 April

SUMMER : 16 April to 15 October

3. The northern boundary of the Southern Winter Seasonal zone is :-

the rhumb line form the east coast of the American continent at Cape Tres-Funtas to the point latitude $34^0$S longitude $50^0$W , thence the parallel rhumb line to the point latitude $35^0$ 10'S, longitude 2E, thence the rhumb line to the point latitude $34^0$S, longitude $28^0$R, thence along the rhu $118^0$ E, and thence the rhumb line to Cape Grim on the northwest coast of Tasmania; thence along with north and east coasts of Tasma thence the rhumb line to black Rock Point on Steward Island, then the rhumb line to the point latitude $47^0$S, longitude $170^0$E, thence al longitude $170^0$E, thence along the rhumb to the point latitude $33^0$S, longitude $170^0$W, and thence the parallel $33^0$S to the west coast of the Ar

Seasonal periods :

WINTER: 16 April to 15 October

SUMMER: 16 October to 15 April

4. Regulation 48

Tropical Zone

(1) Northern Boundary of the Tropical Zone

The northern boundary of the Tropical Zone is ---

the parallel of latitude $13^0$ N form the east coast of the American continent of latitude $60^0$ W, thence the rhumb line to the point latitude $10^0$ N, longitud to longitude $20^0$ W, thence the meridian of longitude $20^0$ W to latitude $30^0$ N and thence the parallel of latitude $30^0$ N to the west coast of Afr latitude $8^0$ N to longitude $70^0$ E, thence the meridian of longitude $70^0$ E to latitude $13^0$ N, thence the parallel of latitude $13^0$ N to the west c latitude $10^0$ 30'N on the east coast of India, thence the meridian of longitude $82^0$ E to latitude $8^0$ N, thence the parallel of latitude $8^0$ N to South-East Asia to the east coast of Viet Nam at latitude $10^0$ N, thence the parallel of latitude $10^0$ N to longitude $145^0$ E, thence the meri thence the parallel of latitude $13^0$ N to the west coast of the American continent.

Saigon is to be considered as being on the boundary line of the Tropical Zone and the Seasonal Tropical Area.

(2) Southern Boundary of the Tropical Zone.

the rhumb line from the Port of Santos, Brazil to the point where the meridian of longitude $40^0$ W intersects the Tropic of Capricorn ; thence from the east coast of Africa the parallel of latitude $20^0$ S to the west coast of Madagascar, thence the west and north coasts of Madagas longitude $50^0$E, to latitude 10/S, thence the parallel of latitude $10^0$S to longitude $98^0$E, thence the rhumb line to Port Darwin, Austrilian th eastwards to Cape Vessel, thence the parallel of latitude $11^0$S to the west side of Cape York ; from the east side of cape York the parallel rhumb line to the point latitude $26^0$S, longitude $75^0$ W, and thence the rhumb line to the west coast of the American continent at latitude $30^0$ S

Coquimbo and Santos are to be considered as being on the boundary line of the Tropical and Summer Zones.

Areas to be included in the Tropical Zone

(a) The Suez Canal, the Red Sea and the Gulf of Aden, from Port Said to the meridian of longitude $45^0$ E. Aden and Berbera are to be Tropical Zone and the Seasonal Tropical Area.

(b) The Persian Gulf to the meridian of longitude $59^0$ E.

(c) The area bounded by the parallel of latitude $22^0$ S from the east coast of Australia to the Great Barrier Reef, thence the Great Barrie of the area is the southern boundary of the Tropical Zone.

Seasonal Tropical Areas.

5. The following are Seasonal Tropical Areas.

(1) In the North Atlantic

An area bounded

On the north by the rhumb line from Cape Capoche, Yucatan, to Cape San Antonio, Cuba, the north Coast of Cuba to latitude $20^0$ N and thence the p

On the west by the coast of the American Continent; on the south and east by the northern boundary of the Tropical Zone.

Seasonal periods :

TROPICAL : 1 November to 15 July.

SUMMER : 16 July to 31 October.

(2) In the Arabian Sea

An area bounded---

On the west by the coast of Africa, the meridian of longitude $45^0$ E in the Gulf of Aden, the coast of South Arabia and the meridian of longitude $59^0$ E i

On the north and east by the coasts of Pakistan and India ;

On the south by the northern boundary of the Tropical Zone.

Seasonal periods :

TROPICAL : 1 September to 31 May.

SUMMER : 1 June to 31 August

(3) In the Bay of Bengal

The bay of Bengal north of the northern boundary of the Tropical Zone.

Seasonal Periods :

TROPICAL : 1December to 30 April

SUMMER : 1 May to 30 November

(4) In the South Indian Ocean.

(a) An area bounded --

On the north and west by the southern boundary or the Tropical Zone and the east coast of Madagascar ;

On the south by the parallel of latitude $20^0$ S ;

On the east by the rhumb line from the point latitude $20^0$ S, longitude $50^0$ E to the point latitude $15^0$ S, longitude $51^0$ 30'E, and thence by the meridian

Seasonal periods :

TROPICAL : 1 April to 30 November.

SUMMER : 1 December to 31 March.

(b) An area bounded --

on the north by the southern boundary of the Tropical Zone ;

on the east by the coast of Australia ;

on the south by the parallel of latitude $15^0$ S from longitude $51^0$ 30'E, to longitude $120^0$E and thence the meridian of longitude $120^0$ E to the c

on the west by the meridian of longitude $51^0$ 30'E.

Seasonal periods :

TROPICAL : 1 May to 30 November.

SUMMER : 1 December to 30 April

(5) In the China Sea

An Area bounded ---

On the west and north by the coasts of Vietnam and Port of Sual (Luzon Island) and the west coasts of the Islands of Luzon, Samar and Leyte t

on the south by the parallel of latitude $10^0$ N.

Hong Kong and sual are to be considered as being on the boundary of the Seasonal Tropical Area and Summer Zone.

Seasonal periods :

TROPICAL : 21 January to 30 April.

SUMMER : 1 May to 20 January.

(6) In the North Pacific.

(a) An area bounded --

on the north by the parallel of latitude $25^0$ N;

on the west by the meridian of longitude $160^0$ E;

on the south by the parallel of latitude $13^0$ N ;

on the east by the meridian of longitude $130^0$ W.

Seasonal periods ;

TROPICAL : 1 April to 31 October

SUMMER : 1 November to 31 March.

(b) An area bounded--

on the north and east by the west coast of the American continent;

on the west by the meridian of longitude $123^0$ W from the coast of the American continent to latitude $33^0$N and by the rhumb line from the point latitu $13^0$ N, longitude $105^0$ W ;

on the south by the parallel of latitude $13^0$ N.

Seasonal Periods :

TROPICAL: 1 March to 30 June and 1 November to 30 November

SUMMER: 1 July to 31 October and 1 December to 28/29 February.

(7) In the South Pacific

(a) The Gulf of Carpentaria south of latitude $11^0$S.

Seasonal periods :

TROPICAL : 1 April to 30 November

SUMMER : 1 December to 31 March.

(b) An area bounded ---

on the north and east by the southern boundary of the Tropical Zone ;

on the south by the Tropic of Capricon from the east coast of Australia to longitude 150$^0$W thence by the meridian of longitude 150$^0$W to latitude 20$^0$ the point where it intersects the southern boundary of the Tropical Zone ; on the west by the boundaries of the area within the Great Barrie coast of Australia.

Seasonal periods :

TROPICAL : 1 April to 30 November.

SUMMER : 1 December to 31 March.

6. Summer Zones.

The remaining areas constitute the Summer Zones.

However, for ships of 100 metres (328 feet) and under in length, the area bounded :--

on the north and west by the east coast of the united States ;

on the east by the meridian of longitude 68$^0$ 30'W from the coast of the United States to latitude 40$^0$ N and thence by the rhumb line to the point latitu

on the south by the parallel of latitude 36$^0$ N ; is a Winter Seasonal Area.

Seasonal Periods :

WINTER : 1 November to 31 March

SUMMER : 1 April to 31 October

7. Enclosed Seas ;

(1) Baltic sea.

This sea bounded by the parallel of latitude of the Skaw in the Skagerrak is included in the Summer Zones.

However for ships of 10 metres (328 feet) and under in length, it is a Winter Seasonal Area.

Seasonal Periods :

WINTER : 1 November to 31 March

SUMMER : 1 April to 31 October

(2) Black Sea.

This sea is included in the Summer Zones. However, for ships of 100 metres (328 feet) and under in length, the area north of latitude 44$^0$ N is a Wint

Seasonal periods :

WINTER : 1 December to 28/29 February.

SUMMER : 1 March to 30 November.

(3) Mediterranean :

This sea is included in the Summer Zones.

However, for ships of 100 metres (328) and under in length, the area bounded :-

On the north and west by the coasts of France and Spain and the meridian of longitude 3$^0$ E from the Coast of Spain to latitude 40$^0$ N;

On the south by the parallel of latitude 40$^0$N from longitude 3$^0$ E to the west coast of Sardinia ;

on the east by the west and north coasts of Sardinia from latitude 40$^0$ N to longitude 9$^0$E, thence by the meridian of longitude 3E to the south longit Side is a Winter Seasonal Area.

Seasonal periods :

WINTER : 16 December to 15 March.

SUMMER : 16 March to 15 December.

(4) Sea of Japan.

This sea south of latitude 50$^0$N is included in the Summer Zones.

However, for ships of 100 metres (328 feet) and under in length, the area between the parallel of latitude 50$^0$N and the rhumb line from the east coa Hakkaido, Japan, at latitude 43$^0$N is a Winter Seasonal Area.

Seasonal periods :

WINTER : 1 December to 28/29 February.

SUMMER :1 March to 30 November.

8. The Winter North Atlantic Load Line.

(a) that part of the North Atlantic Winter Seasonal Zone II which lies between the meridians of $15^0$W and $50^0$W.

(b) the whole of the North Atlantic Winter Seasonal Zone I, the Shetland Island to be considered as being on the boundary.