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Directive (4/2015)

National Standard of Load Line for the Vessels Engaged on International Voyages

Applicable to: Ship owners, Recognized Organizations, Shipping Companies, Flag State Surveyors

1. The Department of Marine Administration circulated this directive in the exercise of the power of Section 294(B), paragraph (b) of Myanmar Merchant Shipping Act.

2 Pursuant to the provision of section 219 of Myanmar Merchant Shipping Act, the Department of Marine Administration provided this national standard on load line for the vessels engaged on international voyages.

3. The purpose of this directive is the standard of Load Line of the Myanmar vessels to be complied with the requirements of the International Convention on Load Line 1966, as amended.

Maung Maung Oo
Director General
Department of Marine Administration

National Standard of Load Line for the Vessels Engaged on International Voyages

General

Department of Marine Administration of the Government of the Union of Myanmar establish this Standard, under the provision of International Convention on Load Lines (1966), for conducting and determining of Load Lines of ships engaged on international voyage regarding the need for safeguarding life and property at sea.

Objective

To comply with International standard, uniform principles and rules with respect to the determination of Load Line of ships engaged on International voyages.

1. General obligation under the Convention

(1) Myanmar, as a Contracting Governments, undertakes to give effect to the provisions of the present Load Line Convention and the annexes thereto, which shall constitute an integral part of the present standard. Every reference to the present Convention constitutes at the same time a reference to the annexes.

(2) Department of Marine Administration shall undertake all measures which may be necessary to give effect to the present Convention.

2. Definitions

For the purpose of the present Standard, unless expressly provided otherwise:

(1) *Standards* mean National Standard on Load Line, International voyage.

(2) *Administration* means the Department of Marine Administration, the Government of the Republic of the Union of Myanmar.

(3) *Approved* means approved by the Department of Marine Administration.

(4) *International voyage* means a sea voyage from Myanmar to a port outside of Myanmar, or conversely.

(5) *A fishing vessel* is a ship used for catching fish, whales, seals, walrus or other living resources of the sea.

(6) *New ship* means a ship the keel of which is laid, or which is at a similar stage of construction, on or after the date of coming into force of this standard.

(7) *Existing ship* means a ship which is not a new ship.

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

3. *General provisions*

(1) No ship to which the present standard applies shall proceed to sea on an international voyage after the date on which the present standard comes into force unless it has been surveyed, marked and provided with an International Load Line Certificate (1966) or, where *appropriate, an International Load Line Exemption Certificate in accordance with the* provisions of the present Standard.

(2) Nothing in this Standard shall prevent the Administration from assigning a greater freeboard than the minimum freeboard determined in accordance with annex I.

4. Application

(1) The present standard shall apply to:

(a) ships registered in Myanmar

(b) unregistered ships flying the flag of a State, the Government of which is a Contracting Government.

(2) The present standard shall apply to ships engaged on International voyages.

(3) The standard contained in annex I are specifically applicable to new ships.

(4) Existing ships which do not fully comply with the requirements of the standards contained in annex I or any part thereof shall meet at least such lesser related requirements as the Administration applied to ships on International voyages prior to the coming into force of this Standard; in no case shall such ships be required to increase their freeboards. In order to take advantage of any reduction in freeboard from that previously assigned, existing ships shall comply with all the requirements of this Standard.

(5) The standards contained in annex II are applicable to new and existing ships to which this standard applies.

5. Exceptions

(1) The present Standard shall not apply to:

(a) ships of war;
(b) new ships of less than 24 metres (79 feet) in length;
(c) existing ships of less than 150 tons gross;
(d) pleasure yachts not engaged in trade;
(e) fishing vessels.

(2) Nothing herein shall apply to ships solely navigation

(a) the Great Lake of North America and the river St. Lawrence as far east as a rhumb line drawn from Capdes Rosiers to West Point, Anticosti Island, and, on the north side of Anticosti Island, the Meridian of longitude 63· W:
(b) the Caspian Sea:
(c) the Plate, Parana and Uruguay Rivers as far east as a rhumb line drawn between Punta Norte, Argentina and Punta Del Este, Uruguay

6. Exemptions

(1) Ships when engaged on international voyages between the near neighboring ports of

Myanmar and another States may be exempted by the Administration from the provisions of this Standard, so long as they shall remain engaged on such voyage, if the Myanmar and Government of another States in which such ports are situated shall be satisfied that the sheltered nature or conditions of such voyages between such ports make it unreasonable or impracticable to apply the provisions of this Standard to ships engaged on such voyages.

(2) The Administration may exempt any ship which embodies features of a novel kind from any of the provisions of this Standard the application of which might seriously impede research into the development of such features and their incorporation in ships engaged on international voyages. Any such ship shall, however, comply with safety requirements which, in the opinion of the Administration, are adequate for the service for which it is intended and are such as to ensure the overall safety of the ship and which are acceptable to the Governments of another States to be visited by the ship.

(3) A ship which is not normally engaged on international voyages but which, in exceptional circumstances, is required to undertake a single international voyage may be exempted by the Administration from any of the requirements of the present Standard provided that it complies with safety requirements which, in the opinion of The Administration adequate for the voyage which is to be undertaken by the ship.

7. Force majeure

(1) A ship which is not subject to the provisions of this Standard at the time of its departure on any voyage shall not become subject to such provisions on account of any deviation from its intended voyage due to stress of weather or any other cause *of force majeure.*

(2) In applying the provisions of this Standard, the Administration give due consideration to any deviation or delay caused to any ship owing to stress of weather or any other cause of *force majeure.*

8. Equivalents

(1) The Administration shall allow any fitting, material, appliance or apparatus to be fitted, or any other provision to be made in a ship, other than that required by this Standard, if it is satisfied by trial thereof or otherwise that such fitting, material, appliance or apparatus, or provision, is at least as effective as that required by the Standard.

(2) The Administration which allows a fitting, material, appliance or apparatus, or provision, other than that required by this Standard, shall communicate to the Organization for circulation to the Contracting Governments particulars thereof, together with a report on any trials made.

9. Approvals for experimental purposes

(1) Nothing in this Standard shall prevent the Administration from making specific approvals for experimental purposes in respect of a ship to which the Standard applies.

(2) The Administration which makes any such approval shall communicate to the

Organization for circulation to the Contracting Governments particulars thereof.

10. Repairs, alterations and modifications

(1) A ship which undergoes repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to the ship. An existing ship in such a case shall not, as a rule, comply to a lesser extent with the requirements for a new ship than it did before.

(2) Repairs, alterations and modifications of a major character and outfitting related thereto should meet the requirements for a new ship in so far as The Administration deems reasonable and practicable.

11. Zones and areas

(1) A ship to which this Standard applies shall comply with the zones and areas requirements described in Annex II.

(2) A port standing on the boundary line between two zones or areas shall be regarded as within the zone or area from or into which the ship arrives or departs.

12. Submersion

(1) Except as provided in paragraphs (2) and (3) of this Standard, the appropriate load lines on the sides of the ship corresponding to the season of the year and the zone or area in which the ship may be shall not be submerged at any time when the ship puts to sea, during the voyage or on arrival.

(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 shown on the International Load Line Certificate (1966). Where the density is other than unity, an allowance shall be made proportional to the difference between 1.025 and the actual density.

(3) When a ship departs from a port situated on a river or inland waters, deeper loading shall be permitted corresponding to the weight of fuel and all other materials required for consumption between the point of departure and the sea.

13. Survey, inspection and marking

The survey, inspection and marking of ships, as regards the enforcement of the provisions of the present Standard and the granting of exemptions therefrom, shall be carried out by officers of the Administration. The Administration may, however, entrust the survey, inspection and marking either to surveyors nominated for the purpose or to organizations recognized by it. In every case The Administration concerned fully guarantees the completeness and efficiency of the survey, inspection and marking.

14. Initial and periodical surveys and inspections

(1) A ship shall be subjected to the surveys and inspections specified below:

(a) A survey before the ship is put in service, which shall include a complete

inspection of its structure and equipment in so far as the ship is covered by this Standard. This survey shall be such as to ensure that the arrangements, material, and scantlings fully comply with the requirements of this Standard.

(b) A periodical survey at intervals specified by the Administration, but not exceeding five years, which shall be such as to ensure that the structure, equipment, arrangements, materials and scantlings fully comply with the requirements of this Standard.

(c) An periodical inspection within 3 months either way of each annual anniversary date of the certificate to ensure that alterations have not been made to the hull or superstructures which would affect the calculations determining the position of the load line and so as to ensure the maintenance in an effective condition of fittings and appliances for:

(i) protection of openings;
(ii) guardrails;
(iii) freeing ports; and
(iv) means of access to crew's quarters.

(2) The periodical inspections referred to in paragraph (l)(c) of this article shall be endorsed on the International Load Line Certificate (1966) or on the International Load Line Exemption Certificate issued to a ship exempted under paragraph 6(2).

15. Maintenance of conditions after survey

After any survey of the ship under paragraph 14 has been completed, no change shall be made in the structure, equipment, arrangements, material or scantlings covered by the survey, without the sanction of the Administration.

16. Issue of certificates

(1) An International Load Line Certificate (1966) shall be issued to every ship which has been surveyed and marked in accordance with the present Standard.

(2) An International Load Line Exemption Certificate shall be issued to any ship to which an exemption has been granted under and in accordance with paragraph 6(2) or (4) .

(3) Such certificates shall be issued by the Administration or by any person or organization duly authorized by it. In every case, the Administration assumes full responsibility for the certificate.

17. Issue of certificate by another Government

(1) Department of Marine Administration may, at the request of another Contracting Government, cause a ship to be surveyed and, if satisfied that the provisions of the present Regulation are complied with, shall issue or authorize the issue of an International Load Line Certificate (1966) to the ship in accordance with this Standard.

(2) A copy of the certificate, a copy of the survey report used for computing the freeboard, and a copy of the computations shall be transmitted as early as possible to the requesting Government.

(3) A certificate so issued must contain a statement to the effect that it has been issued at the request of the another Contracting Government whose flag the ship is or will be flying and it shall have the same force and receive the same recognition as a certificate issued under paragraph 16.

(4) No International Load Line Certificate (1966) shall be issued to a ship which is flying the flag of a State which is not a Contracting Government.

18. Form of certificates

(1) The certificates shall be drawn up in English languages.

(2) The form of the certificates shall be that of the models given in annex I. The arrangement of the printed part of each model certificate shall be exactly reproduced in any certificates issued, and in any certified copies thereof.

19. Duration of certificates

(1) An International Load Line Certificate (1966) shall be issued for a period specified by the Administration, which shall not exceed 5 years from the date of issue.

(2) If, after the periodical survey referred to in sub-paragraph (1) (b) of paragraph 14, a new certificate cannot be issued to the ship before the expiry of the certificate originally issued, the person or organization carrying out the survey may extend the validity of the original certificate for a period which shall not exceed five months. This extension shall be endorsed on the certificate, and shall be granted only where there have been no alterations in the structure, equipment, arrangements, material or scantlings which affect the ship's freeboard.

(3) An International Load Line Certificate (1966) shall be cancelled by the Administration if any of the following circumstances exist:

(a) Material alterations have taken place in the hull or superstructures of the ship such as would necessitate the assignment of an increased freeboard;

(b) The fittings and appliances mentioned in sub-paragraph (c) of paragraph (1) of paragraph 14 are not maintained in an effective condition;

(c) the certificate is not endorsed to show that the ship has been inspected as provided in sub-paragraph (c) of paragraph (1) of paragraph 14;

(d) The structural strength of the ship is lowered to such an extent that the ship is unsafe.

(4) (a) The duration of an International Load Line Exemption Certificate issued by the Administration to a ship exempted under paragraph 6(2) shall not exceed five years from the date of issue. Such certificate shall be subject to a renewal, endorsement and cancellation procedure similar to that provided for an International Load Line Certificate (1966) under this Regulation.

(b) The duration of an International Load Line Exemption Certificate issued to a ship exempted under paragraph (4) of pargaraph 6 shall be limited to the single voyage for which it is issued.

(5) A certificate issued to a ship by the Administration shall cease to be valid upon the transfer of such a ship to the flag of another State.

20. Acceptance of certificates

The certificates issued under the authority of a Contracting Government in accordance with this standard shall be accepted by the other Contracting Governments and regarded for all purposes covered by this standard as having the same force as certificates issued by them.

21. Control

(1) Ships holding a certificate issued under section 16 or section17 of International Load Lines Convention (1966) are subject, when in the ports of Myanmar, to control by officers duly authorized by the Administration. The Administration shall ensure that such control is exercised as far as is reasonable and practicable with a view to verifying that there is on board a valid certificate under the present standard. If there is a valid International Load Line Certificate (1966) on board the ship, such control shall be limited to the purpose of determining that:

(a) The ship is not loaded beyond the limits allowed by the certificate;

(b) The position of the load line of the ship corresponds with the certificate; and

(c) The ship has not been so materially altered in respect of the matters set out in paragraph 19 (3) (a) and (b) that the ship is manifestly unfit to proceed to sea without danger to human life.

If there is a valid International Load Line Exemption Certificate on board, such control shall be limited to the purpose of determining that any conditions stipulated in that certificate are complied with.

(2) If such control is exercised under paragraph (1) (c) of this paragraph, it shall only be exercised in so far as may be necessary to ensure that the ship shall not sail until it can proceed to sea without danger to the passengers or the crew.

(3) In the event of the control provided for in this paragraph giving rise to intervention of any kind, the officer carrying out the control shall immediately inform in writing the Consul or the diplomatic representative of the State whose flag the ship is flying of this decision and of all the circumstances in which intervention was deemed to be necessary.

22. Privileges

The privileges of the present paragraph may not be claimed in favour of any ship unless it holds a valid certificate under this Standard.

23. Casualties

(1) The Administration undertake to conduct an investigation of any casualty occurring to ships for which it is responsible and which are subject to the provisions of the present Standard when it judges that such an investigation may assist in determining what changes in this paragraph might be desirable.

(2) The Administration undertakes to supply the Organization with the pertinent information concerning the findings of such investigations. No reports or recommendations of the Organization based upon such information shall disclose the identity or nationality of the ships concerned or in any manner fix or imply responsibility upon any ship or person.

24. Prior treaties and conventions

(1) All other treaties, conventions and arrangements relating to load line matters at present in force between Governments Parties to the present Standard shall continue to have full and complete effect during the terms thereof as regards:

(a) ships to which the present Standard does not apply; and

(b) ships to which the present Standard applies, in respect matters for which it has not expressly provided.

(2) To the extent, however, that such treaties, Standards or arrangements conflict with the provisions of the present Standard , shall prevail.

25. Special rules drawn up by agreement

When in accordance with the present Regulation, special rules are drawn up by agreement among all or some of the Contracting Governments, such rules shall be communicated to the Organization for circulation to all Contracting Governments.

26. Communication of information

(1) The Administration undertake to communicate to and deposit with the Organization:

(a) a sufficient number of specimens of their certificates issued under the provisions of the present Standard for circulation to the Contracting Governments;

(b) the text of the laws, decrees, orders, standards and other instruments which shall have been promulgated on the various matters within the scope of the present Regulation; and

(c) a list of non-governmental agencies which are authorized to act behalf in the administration of load line matters for circulation to the Contracting Governments.

(2) Each Contracting Government agrees to make its strength standards available to any other Contracting Government, upon request.

27. Coming into force

The present Standard come into force after (……)

28. Amendments

The present Standard may be amended according to the amendments of International Load Lines Convention 1966.

29. Suspension

(1) In case of hostilities or other extraordinary circumstances which affect the vital interests of Myanmar Government, Myanmar Government may suspend the operation of the whole or any part of the present Standard. Organization shall immediately be given notice of any such suspension.

(2) Myanmar Government may at any time terminate such suspension and shall immediately give notice of such termination to the Organization.

30. Languages

The present standard is established in English languages.

Annex I

Standard for determining load lines

Chapter I

General

This Standards assume that the nature and stowage of the cargo, ballast, etc., are such as to secure sufficient stability of the ship and the avoidance of excessive structural stress.

The Standards also assume that where there are international requirements relating to stability or subdivision, these requirements have been complied with.

31. Strength of hull

The general structural strength of the hull is sufficient for the draught corresponding to the freeboard assigned shall be satisfied by the Administration. Ships built and maintained in conformity with the requirements of a classification society recognized by the Department of Administration may be considered to possess adequate strength.

32. Application

(1) Ships with mechanical means of propulsion or lighters, barges or other ships without independent means of propulsion shall be assigned freeboards in accordance with the provisions of paragraph 31-70 inclusive of this annex.

(2) Ships carrying timber deck cargoes may be assigned, in addition to the freeboards prescribed in paragraph (1), timber freeboards in accordance with the provisions of paragraph 71-75 inclusive of this annex.

(3) Ships designed to carry sail, whether as the sole means of propulsion or as a supplementary means, and tugs, shall be assigned freeboards in accordance with the provisions of paragraph 31-70 inclusive of this annex. Such additional freeboard shall be required as determined by the Administration.

(4) Ships of wood or of composite construction, or of other materials the use of which the Administration has approved, or ships whose constructional features are such as to render the application of the provisions of this annex unreasonable or impracticable,

shall be assigned freeboards as determined by the Administration.

(5) Paragraph 40-56 inclusive of this annex shall apply to every ship to which a minimum freeboard is assigned. Relaxations from these requirements may be granted to a ship to which a greater than minimum freeboard is assigned on condition that the Administration is satisfied with the safety conditions provided.

33. Definitions of terms used

(1) *Length.* The length (L) shall be taken as 96% of the total length on a water line at 85% of the least moulded depth measured from the top of the keel, or as the length from the fore side of the stem to the axis of the rudder stock on that water line, if that be greater. In ships designed with a rake of keel the water line on which this length is measured shall be parallel to the designed water line.

(2) *Perpendiculars.* The forward and after perpendiculars shall be taken at the forward and after ends of the length (L). The forward perpendicular shall coincide with the fore side of the stem on the water line on which the length is measured.

(3) *Amidships.* Amidships is at the middle of the length (L).

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

(5) *Moulded depth*

(a) The moulded depth is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

(b) In ships having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwale were of angular design.

(c) Where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

(6) *Depth for freeboard (D)*

(a) The depth for freeboard (D) is the moulded depth amidships, plus the thickness of the freeboard deck stringer plate, where fitted,

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

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

S is the total length of superstructures as defined in sub-paragraph (10) (d).

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

(7) *Block coefficient.* The block coefficient (C_b) is given by:

$C_b = \frac{\nabla}{L,B,d_1}$: where

∇ is the volume of the moulded displacement of the ship, excluding bossing, in a ship with a metal shell, and is the volume of displacement to the outer surface of the huh in a ship with a shell of any other material, both taken at a moulded draught of d_1; and where

d_1 is 85% of the least moulded depth.

(8) *Freeboard.* The freeboard assigned is the distance measured vertically downwards amidships from the upper edge of the deck line to the upper edge of the related load line.

(9) *Freeboard deck.* The freeboard deck is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing. In a ship having a discontinuous freeboard deck, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck. At the option of the owner and subject to the approval of the Administration, a lower deck may be designated as the freeboard deck provided it is a complete and permanent deck continuous in a fore and aft direction at least between the machinery space and peak bulkheads and continuous athwart ships. When this lower deck is 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 freeboard deck. When a lower deck is designated as the freeboard deck, that part of the huh which extends above the freeboard deck is treated as a superstructure so far as concerns the application of the conditions of assignment and the calculation of freeboard. It is from this deck that the freeboard is calculated.

(10) *Superstructure*

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

(h) An enclosed superstructure is a superstructure with:

(i) enclosing bulkheads of efficient construction;

(ii) access openings, if any, in these bulkheads fitted with doors complying with

the requirements of paragraph 42;

(iii) all other openings in sides or ends of the superstructure fitted with efficient weather tight means of closing.

A bridge or poop shall not be regarded as enclosed unless access is provided for the crew to reach machinery and other working spaces inside these superstructures by alternative means which are available at all times when bulkhead openings are closed.

(c) The height of a superstructure is the least vertical height measured at side from the top of the superstructure deck beams to the top of the freeboard deck beams.

(d) The length of a superstructure (S) is the mean length of the part of the superstructure which lies within the length (L).

(11) *Flush deck ship.* A flush deck ship is one which has no superstructure on the freeboard deck.

(12) *Weathertight.* "Weathertight" means that in any sea conditions water will not penetrate into the ship.

34. Deck line

The deck line is a horizontal line 300 mm (12 inches) in length and 25 mm (1 inch) in breadth. It shall be marked amidships on each side of the ship, and its upper edge shall normally pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell (as illustrated in figure 1), provided that the deck line may be placed with reference to another fixed point on the ship on condition that the freeboard is correspondingly corrected. The location of the reference point and the identification of the freeboard deck shall in all cases be indicated on the International Load Line Certificate (1966).

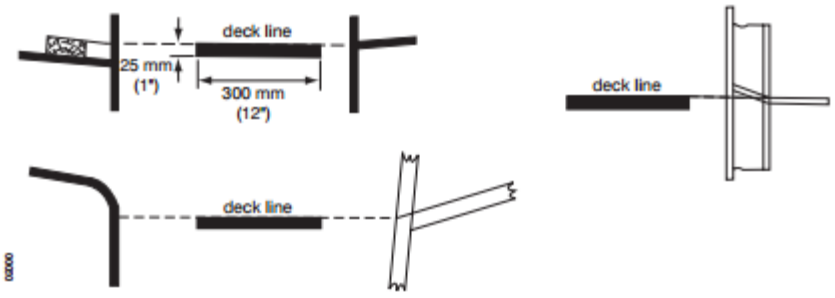


Figure 1 – *Deck line*

35. Load Line Mark

The Load Line Mark shall consist of a ring 300 mm (12 inches) in outside diameter and 25 mm (1

inch) wide which is intersected by a horizontal line 450 mm (18 inches) in length and 25 mm (1 inch) in breadth, the upper edge of which passes through the centre of the ring. The centre of the ring shall be placed amidships and at a distance equal to the assigned summer freeboard measured vertically below the upper edge of the deck line (as illustrated in figure 2).

36. Lines to be used with the Load Line Mark

(1) The lines which indicate the load line assigned in accordance with these paragraphs shall be horizontal lines 230 mm (9 inches) in length and 25 mm (1 inch) in breadth which extend forward of, unless expressly provided otherwise, and at right angles to, a vertical line 25 mm (1 inch) in breadth marked at a distance 540 mm (21 inches) forward of the centre of the ring (as illustrated in figure 2).

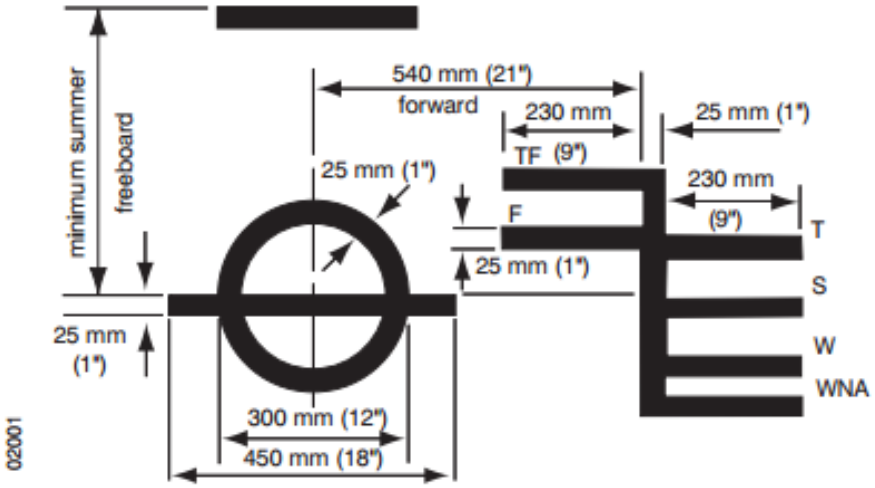


Figure 2 – *Load Line Mark and lines to be used with this mark*

(2) The following load lines shall be used:

a) The Summer Load Line indicated by the upper edge of the line which passes through the centre of the ring and also by a line marked S.

(h) The Winter Load Line indicated by the upper edge of a line marked **W**.

(c) The Winter North Atlantic Load Line indicated by the upper edge of a line marked **WNA**.

(d) The Tropical Load Line indicated by the upper edge of a line marked **T**.

(e) The Fresh Water Load Line in summer indicated by the upper edge of a line marked F. The Fresh Water Load Line in summer is marked abaft the vertical line. The difference between the Fresh Water Load Line in summer and the Summer Load Line is the allowance to be made for loading in fresh water at the other load lines.

(f) The Tropical Fresh Water Load Line indicated by the upper edge of a line marked TF, and marked abaft the vertical line.

(3) If timber freeboards are assigned in accordance with these standards, the timber load lines shall be marked in addition to ordinary load lines. These lines shall be horizontal lines 230 mm (9 inches) in length and 25 mm (1 inch)in breadth which extend abaft unless expressly provided otherwise, and are at right angles to, a vertical line 25 mm (1 inch) in breadth marked at a distance 540 mm (21 inches) abaft the centre of the ring (as illustrated in figure 3).

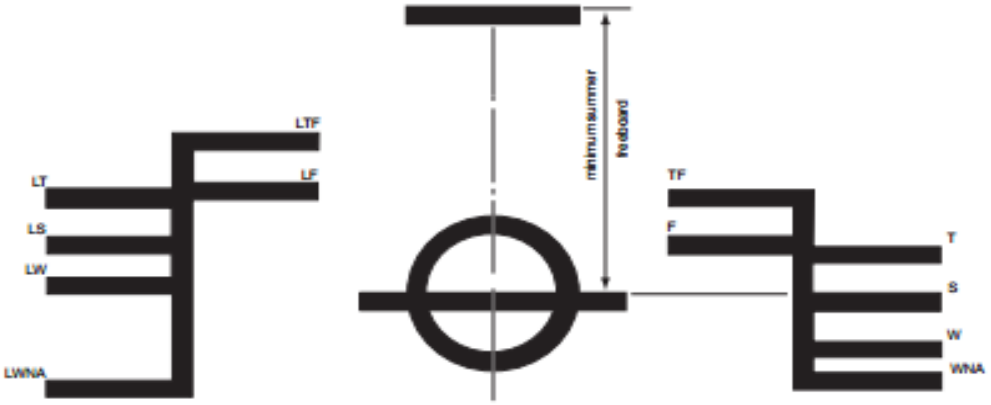


Figure 3 – *Timber Load Line Mark and lines to be used with this mark*

Figure 3 - *Timber Load Line Mark and lines to be used with this mark*

(4) The following timber load lines shall be used:

(a) The Summer Timber Load Line indicated by the upper edge of a line marked **LS**.

(b) The Winter Timber Load Line indicated by the upper edge of a line marked **LW.**

(c) The Winter North Atlantic Timber Load Line indicated by the upper edge of a line marked **LWNA.**

(d) The Tropical Timber Load Line indicated by the upper edge of a line marked **LT**.

(e) The Fresh Water Timber Load Line in summer indicated by the upper edge of a line marked LF and marked forward of the vertical line. The difference between the Fresh Water Timber Load Line in summer and the Summer Timber Load Line is the allowance to be made for loading in fresh water at the other timber load lines.

(f) The Tropical Fresh Water Timber Load Line indicated by the upper edge of a line marked LTF and marked forward of the vertical line.

(5) Where the characteristics of a ship or the nature of the ship's service or navigational limits make any of the seasonal lines inapplicable, these lines may be omitted.

(6) Where a ship is assigned a greater than minimum freeboard so that the load line is marked

at a position corresponding to, or lower than, the lowest seasonal load line assigned at minimum freeboard in accordance with the present Standard, only the Fresh Water Load Line need be marked.

(7) On sailing ships only the Fresh Water Load Line and the Winter North Atlantic Load Line need be marked (as illustrated in figure 4).

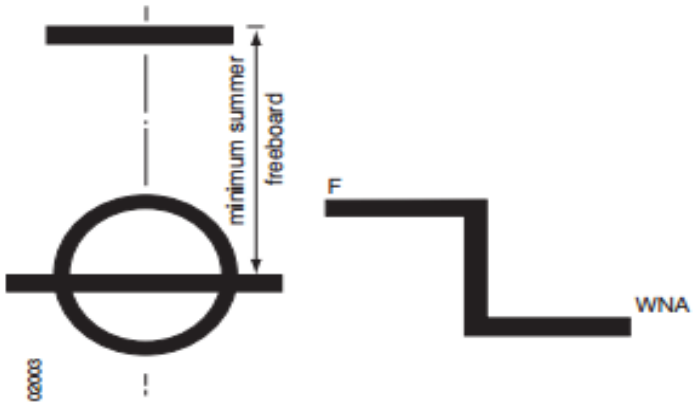


Figure 4 – *Load Line Mark on sailing ships and lines to be used with this mark*

Figure 4 - *Load Line Mark on sailing ships and lines to be used with this mark*

(8) Where a Winter North Atlantic Load Line is identical with the Winter Load Line corresponding to the same vertical line, this load line shall be marked W.

(9) Additional load lines required by other international conventions in force may be marked at right angles to and abaft the vertical line specified in this paragraph (1).

37. Mark of assigning Authority

The mark of the Authority by whom the load lines are assigned may be indicated alongside the load line ring above the horizontal line which passes through the centre of the ring, or above and below it. This mark shall consist of not more than four initials to identify the Authority's name, each measuring approximately 115 mm (4± inches) in height and 75 mm (3 inches) in width.

38. Details of marking

The ring, lines and letters shall be painted in white or yellow on a dark ground or in black on a light ground. They shall also be permanently marked on the sides of the ships to the satisfaction of the Administration. The marks shall be plainly visible and, if necessary, special arrangements shall be made for this purpose.

39. Verification of marks

The International Load Line Certificate (1966) shall not be delivered to the ship until the officer or surveyor acting under the provisions of this paragraph 14 has certified that the marks are correctly and permanently indicated on the ship's sides.

Chapter II
Conditions of assignment of freeboard

40. Information to be supplied to the master

(1) The master of every new ship shall be supplied with sufficient information, in an approved form, to enable him to arrange for the loading and ballasting of his ship in such a way as to avoid the creation of any unacceptable stresses in the ship's structure, provided that this requirement need not apply to any particular length, design or class of ship where the Administration considers it to be unnecessary.

(2) The master of every new ship which is not already provided with stability information under an international convention for the safety of life at sea in force shall be supplied with sufficient information in an approved form to give him guidance as to the stability of the ship under varying conditions of service, and a copy shall be furnished to the Administration.

41. Superstructure end bulkheads

Bulkheads at exposed ends of enclosed superstructures shall be of efficient construction and shall be to the satisfaction of the Administration.

42. Doors

(1) All access openings in bulkheads at ends of enclosed superstructures shall be fitted with doors of steel or other equivalent material, permanently and strongly attached to the bulkhead, and framed, stiffened and fitted so that the whole structure is of equivalent strength to the unpierced bulkhead and weathertight when closed. The means for securing these doors weathertight shall consist of gaskets and clamping devices or other equivalent means and shall be permanently attached to the bulkhead or to the doors themselves, and the doors shall be so arranged that they can be operated from both sides of the bulkhead.

(2) Except as otherwise provided in these paragraphs, the height of the sills of access openings in bulkheads at ends of enclosed superstructures shall be at least 380 mm (15 inches) above the deck.

43. Position of hatchways, doorways and ventilators

For the purpose of the standards, two positions of hatchways, doorways and ventilators are defined as follows:

Position 1 - Upon exposed freeboard and raised quarter-decks, and upon exposed superstructure decks situated forward of a point located a quarter of the ship's length from the forward perpendicular.

Position 2 - Upon exposed superstructure decks situated abaft a quarter of the ship's length from the forward perpendicular.

44. Cargo and other hatchways

(1) The construction and the means for securing the weathertightness of cargo and other hatchways in positions 1 and 2 shall be at least equivalent to the requirements of paragraph 45 and 46 of this annex.

(2) Coamings and hatchway covers to exposed hatchways on decks above the superstructure deck shall comply with the requirements of the Administration.

45. Hatchways closed by portable covers and secured weathertight by tarpaulins and battening devices

Hatchway coamings

(1) The coamings of hatchways closed by portable covers secured weathertight by tarpaulins and battening devices shall be of substantial construction, and their height above the deck shall be at least as follows:

600 mm (23 $^{1}/_{2}$ inches) if in position 1.

450 mm (17 $^{1}/_{2}$ inches) if in position 2.

Hatchway covers

(2) The width of each bearing surface for hatchway covers shall be at least 65 mm ($2^{1}/_{2}$ inches).

(3) Where covers are made of wood, the finished thickness shall be at least 60 mm *(2%* inches) in association with a span of not more than 1.5 m (4.9 feet).

(4) Where covers are made of mild steel the strength shall be calculated with assumed loads not less than 1.75 metric tons per square metre (358 pounds per square foot) on hatchways in position 1, and not less than 1.30 metric tons per square metre (266 pounds per square foot) on hatchways in position 2, and the product of the maximum stress thus calculated and the factor 4.25 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0028 times the span under these loads.

(5) The assumed loads on hatchways in position 1 may be reduced to 1 metric ton per square metre (205 pounds per square foot) for ships of 24 m (79 feet) in length and shall be not less than 1.75 metric tons per square metre (358 pounds per square foot) for ships of 100 m (328 feet) in length. The corresponding loads on hatchways in position

2 may be reduced to 0.75 metric tons per square metre (154 pounds per square foot) and 1.30 metric tons per square metre (266 pounds per square foot) respectively. In all cases values at intermediate lengths shall be obtained by interpolation.

Portable beams

(6) Where portable beams for supporting hatchway covers are made of mild steel the strength shall be calculated with assumed loads not less than 1.75 metric tons per square metre (358 pounds per square foot) on hatchways in position 1 and not less than 1.30 metric tons per square metre (266 pounds per square foot) on hatchways in position 2 and the product of the maximum stress thus calculated and the factor 5 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0022 times the span under these loads. For ships of not more than 100 metres (328 feet) in length the requirements of this paragraph (5) are applicable.

Pontoon covers

(7) Where pontoon covers used in place of portable beams and covers are made of mild steel the strength shall be calculated with the assumed loads given in this paragraph (4), and the product of the maximum stress thus calculated and the factor 5 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0022 times the span. Mild steel plating forming the tops of covers shall be not less in thickness than 1% of the spacing of stiffeners or 6 mm (0.24 inches) if that be greater. For ships of not more than 100 m (328 feet) in length the requirements of this paragraph (5) are applicable.

(8) The strength and stiffness of covers made of materials other than mild steel shall be equivalent to those of mild steel to the satisfaction of the Administration.

Carriers or sockets

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

Cleats

(10) Cleats shall be set to fit the taper of the wedges. They shall be at least 65 mm *(2^{1}/*, inches) wide and spaced not more than 600 mm (23 V_2 inches) centre to centre; the cleats along each side or end shall be not more than 150 mm (6 inches) from the hatch corners.

Battens and wedges

(11) Battens and wedges shall be efficient and in good condition. Wedges shall be of tough wood or other equivalent material. They shall have a taper of not more than 1 in 6 and shall be not less than 13 mm (V_2 inch) thick at the toes.

Tarpaulins

(12) At least two layers of tarpaulin in good condition shall be provided for each hatchway in

position 1 or 2. The tarpaulins shall be waterproof and of ample strength. They shall be of a material of at least an approved standard weight and quality.

Security of hatchway covers

(13) For all hatchways in position 1 or 2 steel bars or other equivalent means shall be provided in order efficiently and independently to secure each section of hatchway covers after the tarpaulins are battened down. Hatchway covers of more than 1.5 m (4.9 feet) in length shall be secured by at least two such securing appliances.

46 *Hatchways closed by weathertight covers of steel or other equivalent material fitted with gaskets and clamping devices*

Hatchway coamings

(1) At positions 1 and 2 the height above the deck of hatchway coamings fitted with weathertight hatch covers of steel or other equivalent material fitted with gaskets and clamping devices shall be as specified in paragraph15(1). The height of these coamings may be reduced, or the coamings omitted entirely, on condition that the Administration is satisfied that the safety of the ship is not thereby impaired in any sea conditions. Where coamings are provided they shall be of substantial construction.

Weathertight covers

(2) Where weathertight covers are of mild steel the strength shall be calculated with assumed loads not less than 1.75 metric tons per square metre(358 pounds per square foot) on hatchways in position 1, and not less than 1.30 metric tons per square metre (266 pounds per square foot) on hatchways in position 2, and the product of the maximum stress thus calculated and the factor of 4.25 shall not exceed the minimum ultimate strength of the material. They shall be so designed as to limit the deflection to not more than 0.0028 times the span under these loads. Mild steel plating forming the tops of covers shall be not less in thickness than 1% of the spacing of stiffeners or 6 mm (0.24 inches) if that be greater. The provisions of paragraph 15(5) are applicable for ships of not more than 100 m (328 feet) in length.

(3) The strength and stiffness of covers made of materials other than mild steel shall be equivalent to those of mild steel to the satisfaction of the Administration.

Means for securing weathertightness

(4) The means for securing and maintaining weathertightness shall be to the satisfaction of the Administration. The arrangements shall ensure that the tightness can be maintained in any sea conditions, and for this purpose tests for tightness shall be required at the initial survey, and may be required at periodical surveys and at annual inspections or at more frequent intervals.

47. Machinery space openings

(1) Machinery space openings in position 1 or 2 shall be properly framed and efficiently enclosed by steel casings of ample strength, and where the casings are not protected by

other structures their strength shall be specially considered. Access openings in such casings shall be fitted with doors complying with the requirements of paragraph 12(1), the sills of which shall be at least 600 mm ($23\frac{1}{2}$ inches) above the deck if in position 1, and at least 380 mm (15 inches) above the deck if in position 2. Other openings in such casings shall be fitted with equivalent covers, permanently attached in their proper positions.

(2) Coamings of any fiddley, funnel or machinery space ventilator in an exposed position on the freeboard or superstructure deck shall be as high above the deck as is reasonable and practicable. Fiddley openings shall be fitted with strong covers of steel or other equivalent material permanently attached in their proper positions and capable of being secured weathertight.

48. Miscellaneous openings in freeboard and superstructure decks

(1) Manholes and flush scuttles in position 1 or 2 or within superstructures other than enclosed superstructures shall be closed by substantial covers capable of being made watertight. Unless secured by closely spaced bolts, the covers shall be permanently attached.

(2) Openings in freeboard decks other than hatchways, machinery space openings, manholes and flush scuttles shall be protected by an enclosed superstructure, or by a deckhouse or companionway of equivalent strength and weather tightness. Any such opening in an exposed superstructure deck, or in the top of a deckhouse on the freeboard deck which gives access to a space below the freeboard deck or a space within an enclosed superstructure shall be protected by an efficient deckhouse or companionway. Doorways in such deckhouses or companionways shall be fitted with doors complying with the requirements of paragraph 42(1).

(3) In position 1 the height above the deck of sills to the doorways in companionways shall be at least 600 mm (23 V_2 inches). In position 2 it shall be at least 380 mm (15 inches).

49. Ventilators

(1) Ventilators in position 1 or 2 to spaces below freeboard decks or decks of enclosed superstructures shall have coamings of steel or other equivalent material, substantially constructed and efficiently connected to the deck. Where the coaming of any ventilator exceeds 900 mm ($35\frac{1}{2}$ inches) in height it shall be specially supported.

(2) Ventilators passing through superstructures other than enclosed superstructures shall have substantially constructed coamings of steel or other equivalent material at the freeboard deck.

(3) Ventilators in position 1 the coamings of which extend to more than 4.5 m (14.8 feet) above the deck, and in position 2 the coamings of which extend to more than 2.3 m (7.5 feet) above the deck, need not be fitted with closing arrangements unless specifically required by the Administration.

(4) Except as provided in this paragraph (3), ventilator openings shall be provided with

weathertight closing appliances. In ships of not more than 100 m (328 feet) in length the closing appliances shall be permanently attached; where not so provided in other ships, they shall be conveniently stowed near the ventilators to which they are to be fitted. Ventilators in position 1 shall have coamings of a height of at least 900 mm ($35^1/_2$ inches) above the deck; in position 2 the coamings shall be of a height at least 760 mm (30 inches) above the deck.

(5) In exposed positions, the height of coamings may be required to be increased to the satisfaction of the Administration.

50. Air pipes

Where air pipes to ballast and other tanks extend above the freeboard or superstructure decks, the exposed parts of the pipes shall be of substantial construction; the height from the deck to the point where water may have access below shall be at least 760 mm (30 inches) on the freeboard deck and 450 mm *($17^1/_2$* inches) on the superstructure deck. Where these heights may interfere with the working of the ship, a lower height may be approved, provided the Administration is satisfied that the closing arrangements and other circumstances justify a lower height. Satisfactory means, permanently attached, shall be provided for closing the openings of the air pipes.

51. Cargo ports and other similar openings

(1) Cargo ports and other similar openings in the sides of ships below the freeboard deck shall be fitted with doors so designed as to ensure water tightness and structural integrity commensurate with the surrounding shell plating. The number of such openings shall be the minimum compatible with the design and proper working of the ship.

(2) Unless permitted by the Administration, the lower edge of such openings shall not be below a line drawn parallel to the freeboard deck at side, which has at its lowest point the upper edge of the uppermost load line.

52. Scuppers, inlets and discharges

(1) Discharges led through the shell either from spaces below the freeboard deck or from within superstructures and deckhouses on the freeboard deck fitted with doors complying with the requirements of paragraph 42 shall, be fitted with efficient and accessible means for preventing water from passing inboard. Normally each separate discharge shall have one automatic non-return valve with a positive means of closing it from a position above the freeboard deck. Where, however, the vertical distance from the summer load water line to the inboard end of the discharge pipe exceeds 0.01L, the discharge may have two automatic non-return valves without positive means of closing, provided that the inboard valve is always accessible for examination under service conditions; where that vertical distance exceeds 0.02L, a single automatic non-return valve without positive means of closing may be accepted subject to the approval of the Administration. The means for operating the positive-action valve shall be readily accessible and provided with an indicator showing whether the valve is open or closed.

(2) In manned machinery spaces, main and auxiliary sea inlets and discharges in connection with the operation of machinery may be controlled locally. The controls shall be readily accessible and shall be provided with indicators showing whether the valves are open or closed.

(3) Scuppers and discharge pipes originating at any level and penetrating the shell either more than 450 mm *(17$^1/_2$* inches) below the freeboard deck or less than 600 mm (23$^1/_2$ inches) above the summer load waterline shall be provided with a non-return valve at the shell. This valve, unless required by paragraph (1), may be omitted if the piping is of substantial thickness.

(4) Scuppers leading from superstructures or deckhouses not fitted with doors complying with the requirements of pargraph 42 shall be led overboard.

(5) All valves and shell fittings required by this paragraph shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable. All pipes to which this paragraph refers shall be of steel or other equivalent material to the satisfaction of the Administration.

53. Sidescuttles

(1) Sidescuttles to spaces below the freeboard deck or to spaces within enclosed superstructures shall be fitted with efficient hinged inside deadlights arranged so that they can be effectively closed and secured watertight.

(2) No sidescuttle 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 lowest point 2.5% of the breadth (B) above the load waterline or 500 mm (19$^1/_2$ inches), whichever is the greater distance.

(3) The sidescuttles, together with their glasses, if fitted, and deadlights, shall be of substantial and approved construction.

54. *Freeing ports*

(1) Where bulwarks on the weather portions of freeboard or super-structure decks form wells, ample provision shall be made for rapidly freeing the decks of water and for draining them. Except as provided in this paragraphs (2) and (3), the minimum freeing port area *(A)* on each side of the ship for each well on the freeboard deck shall be that given by the following formulae in cases where the sheer in way of the well is standard or greater than standard. The minimum area for each well on superstructure decks shall be one-half of the area given by the formulae.

Where the length of bulwark (l) in the well is 20 m or less

$$A = 0.7 + 0.035l \text{ m}^2.$$

Where / exceeds 20 m

$$A = 0.07l \text{ m}^2.$$

l need in no case be taken as greater than 0.7L.

If the bulwark is more than 1.2 m in average height, the required area shall be increased by 0.004 m^2 per metre of length of well for each 0.1 m difference in height. If the bulwark is less than 0.9 m in average height, the required area may be decreased by 0.004 m^2 per metre of length of well for each 0.1 m difference in height.

Or

Where the length of bulwark (/) in the well is 66 feet or less

A =7.6 + 0.115 l (square feet).

Where l exceeds 66 feet

A = 0.23 l (square feet)

l need in no case be taken as greater than 0.7L.

If the bulwark is more than 3.9 feet in average height, the required area shall be increased by 0.04 square feet per foot of length of well for each foot difference in height. If the bulwark is less than 3 feet in average height, the required area may be decreased by 0.04 square feet per foot of length for each foot difference in height.

(2) In ships with no sheer, the calculated area shall be increased by 50%. Where the sheer is less than the standard, the percentage shall be obtained by interpolation.

(3) Where a ship fitted with a trunk does not comply with the requirements of paragraph 36(l)(e) or where continuous or substantially continuous hatchway side coamings are fitted between detached superstructures, the minimum area of the freeing port openings shall be calculated from the following table:

Breadth of hatchway or trunk in relation to the breadth of ship	**Area of freeing ports in relation to the total area of the bulwarks**
40% or less	20%
75% or more	10%

The area of freeing ports at intermediate breadths shall be obtained by linear interpolation.

(4) In ships having superstructures which are open at either or both ends, adequate provision for freeing the space within such superstructures shall be provided to the satisfaction of the Administration.

(5) The lower edges of the freeing ports shall be as near the deck as practicable. Two-thirds of the freeing port area required shall be provided in the half of the well nearest the lowest point of the sheer curve.

(6) All such openings in the bulwarks shall be protected by rails or bars spaced approximately 230 mm (9 inches) apart. If shutters are fitted to freeing ports, ample clearance shall be provided to prevent jamming. Hinges shall have pins or bearings of non-corrodible material. If shutters are fitted with securing appliances, these appliances shall be of approved construction.

55. Protection of the crew

(1) The strength of the deckhouses used for the accommodation of the crew shall be to the satisfaction of the Administration.

(2) Efficient guard rails or bulwarks shall be fitted to all exposed parts of the freeboard and superstructure decks. The height of the bulwarks or guard rails shall be at least 1 m ($39^1/_2$ inches) from the deck, provided that where this height would interfere with the normal operation of the ship, a lesser height may be approved if the Administration is satisfied that adequate protection is provided.

(3) The opening below the lowest course of the guard rails shall not exceed 230 mm (9 inches). The other courses shall be not more than 380 mm (15 inches) apart. In the case of ships with rounded gunwales the guard rail supports shall be placed on the flat of the deck.

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

(5) Deck cargo carried on any ship shall be so stowed that any opening which is in way of the cargo and which gives access to and from the crew's quarters, the machinery space and all other parts used in the necessary work of the ship, can be properly closed and secured against the admission of water. Effective protection for the crew in the form of guard rails or lifelines shall be provided above the deck cargo if there is no convenient passage on or below the deck of the ship.

56. Special conditions of assignment for type 'A' ships

Machinery casings

(1) Machinery casings on type 'A' ships, as defined in paragraph 57, shall be protected by an enclosed poop or bridge of at least standard height, or by a deckhouse of equal height and equivalent strength, provided that machinery casings may be exposed if there are no openings giving direct access from the freeboard deck to the machinery space. A door complying with the requirements of paragraph 57 may, however, be permitted in the machinery casing, provided that it leads to a space or passageway which is as strongly constructed as the casing and is separated from the stairway to the engine-room by a second weathertight door of steel or other equivalent material.

Gangway and access

(2) An efficiently constructed fore and aft permanent gangway sufficient strength shall be fitted on type 'A' ships at the level of the superstructure deck between the poop and the midship bridge or deckhouse where fitted, or equivalent means of access shall be provided to carry out the purpose of the gangway, such as passages below deck. Elsewhere, and on type A' ships without a midship bridge, arrangements to the satisfaction of the Administration shall be provided to safeguard the crew in reaching all parts used in the necessary work of the ship.

(3) Safe and satisfactory access from the gangway level shall be available between separate

crew accommodations and also between crew accommodations and the machinery space.

Hatchways

(4) Exposed hatchways on the freeboard and forecastle decks or on the tops of expansion trunks on type 'A' ships shall be provided with efficient watertight covers of steel or other equivalent material.

Freeing arrangements

(5) Type A' ships with bulwarks shall have open rails fitted for at least half the length of the exposed parts of the weather deck or other effective freeing arrangements. The upper edge of the sheer strake shall be kept as low as practicable.

(6) Where superstructures are connected by trunks, open rails shall be fitted for the whole length of the exposed parts of the freeboard deck.

Chapter III

Freeboards

57. Types of ships

(1) For the purposes of freeboard computation ships shall be divided into type 'A' and type 'B'.

Type 'A' ships

(2) A type 'A' ship is one which is designed to carry only liquid cargoes in bulk, and in which cargo tanks have only small access openings closed by watertight gasketed 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 the low permeability of loaded cargo spaces and the degree of subdivision usually provided.

(3) A type 'A' ship if over 150 m (492 feet) in length, and designed to have empty compartments when loaded to her summer load waterline, shall be able to withstand the flooding of any one of these empty compartments at an assumed permeability of 0.95, and remain afloat in a condition of equilibrium considered to be satisfactory by the Administration. In such a ship, if over 225 m (738 feet) in length, the machinery space shall be treated as a floodable compartment but with a permeability of 0.85.

For the guidance of Administrations the following limits may be regarded as satisfactory:

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

(b) The maximum angle of heel due to unsymmetrical flooding is of the order of 15°.

(c) The metacentric height in the flooded condition is positive.

(4) A type 'A' ship shall be assigned a freeboard not less than that based on table A of paragraph 28.

Type 'B' ships

(5) All ships which do not come within the provisions regarding type 'A' ships in this

paragraphs (2) and (3) shall be considered as type 'B' ships.

(6) Type 'B' ships which in position 1 have hatchways fitted with hatch covers complying with the requirements of paragraph 45(7) or 46 shall, except as provided in paragraphs (7) to (10) inclusive of this paragraph, be assigned freeboards based on table B of paragraph 58.

(7) Any type 'B' ships of over 100 m (328 feet) in length may be assigned freeboards less than those required under this paragraph (6) provided that, in relation to the amount of reduction granted, the Administration is satisfied that:

(a) the measures provided for the protection of the crew are adequate;

(b) the freeing arrangements are adequate;

(c) the covers in positions 1 and 2 comply with the provisions of paragraph 46 and have adequate strength, special care being given to their sealing and securing arrangements;

(d) the ship, when loaded to her summer load waterline, will remain afloat in a satisfactory condition of equilibrium after flooding of any single damaged compartment at an assumed permeability of 0.95 excluding the machinery space; and

(e) in such a ship, over 225 m (738 feet) in length, the machinery space shall be treated as a floodable compartment but with a permeability of 0.85.

For the guidance of the Administrations in applying sub-paragraphs (d) and (e) of this paragraph the limits given in sub-paragraphs (3) (a), (b) and (c) may be regarded as satisfactory.

The relevant calculations may be based upon the following main assumptions:

- the vertical extent of damage is equal to the depth of the ship;
- the penetration of damage is not more than $\frac{B}{5}$
- no main transverse bulkhead is damaged;
- the height of the centre of gravity above the base line is assessed allowing for homogeneous loading of cargo holds, and for 50% of the designed capacity of consumable fluids and stores, etc.

(8) In calculating the freeboards for type 'B' ships which comply with the requirements of this paragraph (7), the values from table B of paragraph 58 shall not be reduced by more than 60% of the difference between the 'B' and A' tabular values for the appropriate ship lengths.

(9) The reduction in tabular freeboard allowed under this paragraph (8) may be increased up to the total difference between the values in table A and those in table B of paragraph 58 on condition that the ship complies with the requirements of paragraph 56(1), (2), (3), (5) and (6), as if it were a type A' ship, and further complies with the provisions of paragraph 7 (a) to (d) inclusive of this paragraph except that the reference in sub-paragraph (d) to the

flooding of any single damaged compartment shall be treated as a reference to the flooding of any two adjacent fore and aft compartments, neither of which is the machinery space. Also any such ship of over 225 m (738 feet) in length, when loaded to her summer load waterline, shall remain afloat in a satisfactory condition of equilibrium after flooding of the machinery space, taken alone, at an assumed permeability of 0.85.

(10) Type 'B' ships, which in position 1 have hatchways fitted with hatch covers which comply with the requirements of paragraph 45, other than paragraph (7), shall be assigned freeboards based upon the values given in table B of paragraph 58 increased by the values given in the following table:

Freeboard increase over tabular freeboard for type 'B' ships, for ships with hatch covers not complying with paragraph 45(7) or 46

Length of ship (m)	Freeboard increase (mm)	Length of ship (m)	Freeboard increase (mm)	Length of ship (m)	Freeboard increase (mm)
108 and below	50	139	175	171	292
		140	181	172	294
109	52	141	186	173	297
110	55	142	191	174	299
111	57	143	196	175	301
112	59	144	201	176	304
113	62	145	206	177	306
114	64	146	210	178	308
115	68	147	215	179	311
116	70	148	219	180	313
117	73	149	224	181	315
118	76	150	228	182	318
119	80	151	232	183	320
120	84	152	236	184	322
121	87	153	240	185	325
122	91	154	244	186	327
123	95	155	247	187	329
124	99	156	251	188	332
125	103	157	254	189	334
126	108	158	258	190	336
127	112	159	261	191	339
128	116	160	264	192	341
129	121	161	267	193	343
130	126	162	270	194	346
131	131	163	273	195	348
132	136	164	275	196	350
133	142	165	278	197	353
134	147	166	280	198	355
135	153	167	283	199	357
136	159	168	285	200	358
137	164	169	287		
138	170	170	290		

Freeboard increase over tabular freeboard for type 'B' ships, for ships with hatch covers not complying with paragraph 45(7) or 46

Length of ship (feet)	Freeboard increase (inches)	Length of ship (feet)	Freeboard increase (inches)
350 and below	2.0	510	9.6
		520	10.0
360	2.3	530	10.4
370	2.6	540	10.7
380	2.9	550	11.0
390	3.3	560	11.4
400	3.7	570	11.8
410	4.2	580	12.1
420	4.7	590	12.5
430	5.2	600	12.8
440	5.8	610	13.1
450	6.4	620	13.4
460	7.0	630	13.6
470	7.6	640	13.9
480	8.2	650	14.1
490	8.7	660	14.3
500	9.2		

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ship above 660 feet in length shall be dealt with by the Administration.

(11) A lighter, barge or other ship without independent means of propulsion shall be assigned a freeboard in accordance with the provisions of these standards. However, in the case of barges which are unmanned the requirements of paragraphs 55, 56(2) and (3) and 69 shall not apply. Such unmanned barges which have on the freeboard deck only small access openings closed by weathertight gasketed covers of steel or equivalent material may be assigned freeboards 25% less than those calculated in accordance with these standards.

58. *Freeboard tables*

Type 'A' ships

(1) The tabular freeboard for type A' ships shall be determined from the following table:

Table A - *Freeboard table for type 'A' ships*

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
24	200	69	693	114	1359
25	208	70	706	115	1376
26	217	71	720	116	1392
27	225	72	733	117	1409
28	233	73	746	118	1426
29	242	74	760	119	1442
30	250	75	773	120	1459
31	258	76	786	121	1476
32	267	77	800	122	1494
33	275	78	814	123	1511
34	283	79	828	124	1528
35	292	80	841	125	1546
36	300	81	855	126	1563
37	308	82	869	127	1580
38	316	83	883	128	1598
39	325	84	897	129	1615
40	334	85	911	130	1632
41	344	86	926	131	1650
42	354	87	940	132	1667
43	364	88	955	133	1684
44	374	89	969	134	1702
45	385	90	984	135	1719
46	396	91	999	136	1736
47	408	92	1014	137	1753
48	420	93	1029	138	1770
49	432	94	1044	139	1787
50	443	95	1059	140	1803
51	455	96	1074	141	1820
52	467	97	1089	142	1837
53	478	98	1105	143	1853
54	490	99	1120	144	1870
55	503	100	1135	145	1886
56	516	101	1151	146	1903
57	530	102	1166	147	1919
58	544	103	1181	148	1935
59	559	104	1196	149	1952
60	573	105	1212	150	1968
61	587	106	1228	151	1984
62	600	107	1244	152	2000
63	613	108	1260	153	2016
64	626	109	1276	154	2032
65	639	110	1293	155	2048
66	653	111	1309	156	2064
67	666	112	1326	157	2080
68	680	113	1342	158	2096

Table A *(continued)*

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
159	2111	204	2650	249	3006
160	2126	205	2659	250	3012
161	2141	206	2669	251	3018
162	2155	207	2678	252	3024
163	2169	208	2687	253	3030
164	2184	209	2696	254	3036
165	2198	210	2705	255	3042
166	2212	211	2714	256	3048
167	2226	212	2723	257	3054
168	2240	213	2732	258	3060
169	2254	214	2741	259	3066
170	2268	215	2749	260	3072
171	2281	216	2758	261	3078
172	2294	217	2767	262	3084
173	2307	218	2775	263	3089
174	2320	219	2784	264	3095
175	2332	220	2792	265	3101
176	2345	221	2801	266	3106
177	2357	222	2809	267	3112
178	2369	223	2817	268	3117
179	2381	224	2825	269	3123
180	2393	225	2833	270	3128
181	2405	226	2841	271	3133
182	2416	227	2849	272	3138
183	2428	228	2857	273	3143
184	2440	229	2865	274	3148
185	2451	230	2872	275	3153
186	2463	231	2880	276	3158
187	2474	232	2888	277	3163
188	2486	233	2895	278	3167
189	2497	234	2903	279	3172
190	2508	235	2910	280	3176
191	2519	236	2918	281	3181
192	2530	237	2925	282	3185
193	2541	238	2932	283	3189
194	2552	239	2939	284	3194
195	2562	240	2946	285	3198
196	2572	241	2953	286	3202
197	2582	242	2959	287	3207
198	2592	243	2966	288	3211
199	2602	244	2973	289	3215
200	2612	245	2979	290	3220
201	2622	246	2986	291	3224
202	2632	247	2993	292	3228
203	2641	248	3000	293	3233

Table A *(continued)*

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
294	3237	318	3325	342	3387
295	3241	319	3328	343	3389
296	3246	320	3331	344	3392
297	3250	321	3334	345	3394
298	3254	322	3337	346	3396
299	3258	323	3339	347	3399
300	3262	324	3342	348	3401
301	3266	325	3345	349	3403
302	3270	326	3347	350	3406
303	3274	327	3350	351	3408
304	3278	328	3353	352	3410
305	3281	329	3355	353	3412
306	3285	330	3358	354	3414
307	3288	331	3361	355	3416
308	3292	332	3363	356	3418
309	3295	333	3366	357	3420
310	3298	334	3368	358	3422
311	3302	335	3371	359	3423
312	3305	336	3373	360	3425
313	3308	337	3375	361	3427
314	3312	338	3378	362	3428
315	3315	339	3380	363	3430
316	3318	340	3382	364	3432
317	3322	341	3385	365	3433

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ships above 365 m in length shall be dealt with by the Administration.

Table A - *Freeboard table for type 'A' ships*

Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)
80	8.0	180	19.8	280	36.3
90	8.9	190	21.3	290	38.0
100	9.8	200	22.9	300	39.7
110	10.8	210	24.5	310	41.4
120	11.9	220	26.2	320	43.2
130	13.0	230	27.8	330	45.0
140	14.2	240	29.5	340	46.9
150	15.5	250	31.1	350	48.8
160	16.9	260	32.8	360	50.7
170	18.3	270	34.6	370	52.7

Table A *(continued)*

Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)
380	54.7	660	103.3	940	126.2
390	56.8	670	104.4	950	126.7
400	58.8	680	105.5	960	127.2
410	60.9	690	106.6	970	127.7
420	62.9	700	107.7	980	128.1
430	65.0	710	108.7	990	128.6
440	67.0	720	109.7	1000	129.0
450	69.1	730	110.7	1010	129.4
460	71.1	740	111.7	1020	129.9
470	73.1	750	112.6	1030	130.3
480	75.1	760	113.5	1040	130.7
490	77.1	770	114.4	1050	131.0
500	79.0	780	115.3	1060	131.4
510	80.9	790	116.1	1070	131.7
520	82.7	800	117.0	1080	132.0
530	84.5	810	117.8	1090	132.3
540	86.3	820	118.6	1100	132.6
550	88.0	830	119.3	1110	132.9
560	89.6	840	120.1	1120	133.2
570	91.1	850	120.7	1130	133.5
580	92.6	860	121.4	1140	133.8
590	94.1	870	122.1	1150	134.0
600	95.5	880	122.7	1160	134.3
610	96.9	890	123.4	1170	134.5
620	98.3	900	124.0	1180	134.7
630	99.6	910	124.6	1190	135.0
640	100.9	920	125.2	1200	135.2
650	102.1	930	125.7		

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ships above 1200 feet in length shall be dealt with by the Administration.

Type 'B' ships

(2) The tabular freeboard for type 'B' ships shall be determined from the following table:

Table B - *Freeboard table for type 'B' ships*

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
24	200	28	233	32	267
25	208	29	242	33	275
26	217	30	250	34	283
27	225	31	258	35	292

Table B *(continued)*

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)
36	300	81	905	126	1815
37	308	82	923	127	1837
38	316	83	942	128	1859
39	325	84	960	129	1880
40	334	85	978	130	1901
41	344	86	996	131	1921
42	354	87	1015	132	1940
43	364	88	1034	133	1959
44	374	89	1054	134	1979
45	385	90	1075	135	2000
46	396	91	1096	136	2021
47	408	92	1116	137	2043
48	420	93	1135	138	2065
49	432	94	1154	139	2087
50	443	95	1172	140	2109
51	455	96	1190	141	2130
52	467	97	1209	142	2151
53	478	98	1229	143	2171
54	490	99	1250	144	2190
55	503	100	1271	145	2209
56	516	101	1293	146	2229
57	530	102	1315	147	2250
58	544	103	1337	148	2271
59	559	104	1359	149	2293
60	573	105	1380	150	2315
61	587	106	1401	151	2334
62	601	107	1421	152	2354
63	615	108	1440	153	2375
64	629	109	1459	154	2396
65	644	110	1479	155	2418
66	659	111	1500	156	2440
67	674	112	1521	157	2460
68	689	113	1543	158	2480
69	705	114	1565	159	2500
70	721	115	1587	160	2520
71	738	116	1609	161	2540
72	754	117	1630	162	2560
73	769	118	1651	163	2580
74	784	119	1671	164	2600
75	800	120	1690	165	2620
76	816	121	1709	166	2640
77	833	122	1729	167	2660
78	850	123	1750	168	2680
79	868	124	1771	169	2698
80	887	125	1793	170	2716

Table B *(continued)*

Length of ship (m)	Freeboard (mm)	Length of ship (m)	Freeboard (mm)	Length of Ship (m)	Freeboard (mm)
171	2735	216	3520	261	4165
172	2754	217	3537	262	4177
173	2774	218	3554	263	4189
174	2795	219	3570	264	4201
175	2815	220	3586	265	4214
176	2835	221	3601	266	4227
177	2855	222	3615	267	4240
178	2875	223	3630	268	4252
179	2895	224	3645	269	4264
180	2915	225	3660	270	4276
181	2933	226	3675	271	4289
182	2952	227	3690	272	4302
183	2970	228	3705	273	4315
184	2988	229	3720	274	4327
185	3007	230	3735	275	4339
186	3025	231	3750	276	4350
187	3044	232	3765	277	4362
188	3062	233	3780	278	4373
189	3080	234	3795	279	4385
190	3098	235	3808	280	4397
191	3116	236	3821	281	4408
192	3134	237	3835	282	4420
193	3151	238	3849	283	4432
194	3167	239	3864	284	4443
195	3185	240	3880	285	4455
196	3202	241	3893	286	4467
197	3219	242	3906	287	4478
198	3235	243	3920	288	4490
199	3249	244	3934	289	4502
200	3264	245	3949	290	4513
201	3280	246	3965	291	4525
202	3296	247	3978	292	4537
203	3313	248	3992	293	4548
204	3330	249	4005	294	4560
205	3347	250	4018	295	4572
206	3363	251	4032	296	4583
207	3380	252	4045	297	4595
208	3397	253	4058	298	4607
209	3413	254	4072	299	4618
210	3430	255	4085	300	4630
211	3445	256	4098	301	4642
212	3460	257	4112	302	4654

Table B *(continued)*

Length of Ship (m)	Freeboard (mm)	Length of Ship (m)	Freeboard (mm)	Length of Ship (m)	Freeboard (mm)
306	4695	326	4909	346	5119
307	4704	327	4920	347	5130
308	4714	328	4931	348	5140
309	4725	329	4943	349	5150
310	4736	330	4955	350	5160
311	4748	331	4965	351	5170
312	4757	332	4975	352	5180
313	4768	333	4985	353	5190
314	4779	334	4995	354	5200
315	4790	335	5005	355	5210
316	4801	336	5015	356	5220
317	4812	337	5025	357	5230
318	4823	338	5035	358	5240
319	4834	339	5045	359	5250
320	4844	340	5055	360	5260
321	4855	341	5065	361	5268
322	4866	342	5075	362	5276
323	4878	343	5086	363	5285
324	4890	344	5097	364	5294
325	4899	345	5108	365	5303

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ships above 365 m in length shall be dealt with by the Administration.

Table B - *Freeboard table for type 'B' ships*

Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)
80	8.0	240	30.4	400	68.2
90	8.9	250	32.4	410	70.7
100	9.8	260	34.4	420	73.2
110	10.8	270	36.5	430	75.7
120	11.9	280	38.7	440	78.2
130	13.0	290	41.0	450	80.7
140	14.2	300	43.3	460	83.1
150	15.5	310	45.7	470	85.6
160	16.9	320	48.2	480	88.1
170	18.3	330	50.7	490	90.6
180	19.8	340	53.2	500	93.1
190	21.3	350	55.7	510	95.6
200	22.9	360	58.2	520	98.1
210	24.7	370	60.7	530	100.6
220	26.6	380	63.2	540	103.0
230	28.5	390	65.7	550	105.4

Table B *(continued)*

Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)	Length of ship (feet)	Freeboard (inches)
560	107.7	780	151.5	1000	184.4
570	110.0	790	153.2	1010	185.8
580	112.3	800	154.8	1020	187.2
590	114.6	810	156.4	1030	188.5
600	116.8	820	158.0	1040	189.8
610	119.0	830	159.6	1050	191.0
620	121.1	840	161.2	1060	192.3
630	123.2	850	162.8	1070	193.5
640	125.3	860	164.3	1080	194.8
650	127.3	870	165.9	1090	196.1
660	129.3	880	167.4	1100	197.3
670	131.3	890	168.9	1110	198.6
680	133.3	900	170.4	1120	199.9
690	135.3	910	171.8	1130	201.2
700	137.1	920	173.3	1140	202.3
710	139.0	930	174.7	1150	203.5
720	140.9	940	176.1	1160	204.6
730	142.7	950	177.5	1170	205.8
740	144.5	960	178.9	1180	206.9
750	146.3	970	180.3	1190	208.1
760	148.1	980	181.7	1200	209.3
770	149.8	990	183.1		

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation. Ships above 1200 feet in length shall be dealt with by the Administration.

59. ***Correction to the freeboard for ships under 100 m (328 feet) in length***

The tabular freeboard for a type 'B' ship of between 24 m (79 feet) and 100 m (328 feet) in length having enclosed superstructures with an effective length of up to 35% of the length of the ship shall be increased by:

$$7.5\ (100 - L)\ (0.35 - \frac{E}{L})\ \text{mm}$$

where L = length of ship in metres,

E = effective length of superstructure in metres as defined in paragraph 35.

or

$$0.09\ (328 - L)\ (0.35 - \frac{E}{L})\quad \text{inches}$$

where L = length of ship in feet

E = effective length of superstructure in feet as defined in paragraph 35.

60. Correction for block coefficient

Where the block coefficient (C_b) exceeds 0.68, the tabular freeboard specified in paragraph 58 as modified, if applicable, by paragraphs 57(8), 57(10) and 59 shall be multiplied by the factor $\frac{C_b+0.68}{1.36}$

61. Correction for depth

(1) Where *D* exceeds $\frac{L}{15}$ the freeboard shall be increased by

(D - $\frac{L}{15}$*)R* mm, where *R* is $\frac{L}{15}$ at lengths less than 120 m and 250 at 120 m length and above, or (D - $\frac{L}{15}$*)R* inches, where *R* is $\frac{L}{131.2}$ y at lengths less than 393.6 feet and 3 at 393.6 feet length and above.

(3) Where *D* is less than $\frac{L}{15}$ 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 detached enclosed superstructures and trunks which extend all fore and aft, where the freeboard shall be reduced at the rate prescribed in this paragraph (1) .

(3) Where the height of superstructure or trunk is less than the standard height, the reduction shall be in the ratio of the actual to the standard height as defined in paragraph 33.

62. Correction for position of deck line

Where the actual depth to the upper edge of the deck line is greater or less than D, the difference between the depths shall be added to or deducted from the freeboard.

63. Standard height of superstructure

The standard height of a superstructure shall be as given in the following table:

	Standard height (m)	
L (m)	**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 height (feet)	
	Raised quarter-deck	**All other superstructures**
98.5 or less	**3.0**	5.9
246	**3.9**	5.9
410 or more	**5.9**	7.5

The standard heights at intermediate lengths of the ship shall be obtained by linear interpolation.

64. ***Length of superstructure***

(1) Except as provided in this paragraph (2), the length of a superstructure (S) shall be the mean length of the parts of the superstructure which he within the length (L).

(2) Where the end bulkhead of an enclosed superstructure extends in a fair convex curve beyond its intersection with the superstructure sides, the length of the superstructure may be increased on the basis of an equivalent plane bulkhead. This increase shall be two-thirds of the fore and aft extent of the curvature. The maximum curvature which may be taken into account in determining this increase is one-half the breadth of the superstructure at the point of intersection of the curved end of the superstructure with its side.

65. ***Effective length of superstructure***

(1) Except as provided for in this paragraph (2), the effective length *(E)* of an enclosed superstructure of standard height shall be its length.

(2) In all cases where an enclosed superstructure of standard height is set in from the sides of the ship as permitted in paragraph 63(10), the effective length shall be the length modified by the ratio of b/B_s, where

b is the breadth of the superstructure at the middle of its length; and

B_s is the breadth of the ship at the middle of the length of the superstructure.

Where a superstructure is set in for a part of its length, this modification shall be applied only to the set-in part.

(3) Where the height of an enclosed superstructure is less than the standard height, the effective length shall be its length reduced in the ratio of the actual height to the standard height. Where the height exceeds the standard, no increase shall be made to the effective length of the superstructure.

(4) The effective length of a raised quarter-deck, if fitted with an intact front bulkhead, shall be its length up to a maximum of 0.6L. Where the bulkhead is not intact, the raised quarter-deck shall be treated as a poop of less than standard height.

(5) Superstructures which are not enclosed shall have no effective length.

66. Trunks

(1) A trunk or similar structure which does not extend to the sides of the ship shall be regarded as efficient on the following conditions:

(a) the trunk is at least as strong as a superstructure;

(b) the hatchways are in the trunk deck, and the hatchway coamings and covers comply with the requirements of paragraphs 73 to 76 inclusive and the width of the trunk deck stringer provides a satisfactory gangway and sufficient lateral stiffness. However, small access openings with watertight covers may be permitted in the freeboard deck;

(c) a permanent working platform fore and aft fitted with guard rails is provided by the trunk deck, or by detached trunks connected to superstructures by efficient permanent gangways;

(d) ventilators are protected by the trunk, by watertight covers or by other equivalent means;

(e) open rails are fitted on the weather parts of the freeboard deck in way of the trunk for at least half their length;

(f) the machinery casings are protected by the trunk, by a superstructure of at least standard height, or by a deckhouse of the same height and of equivalent strength;

(g) the breadth of the trunk is at least 60% of the breadth of the ship; and

(h) where there is no superstructure, the length of the trunk is at least 0.6L.

(2) The full length of an efficient trunk reduced in the ratio of its mean breadth to *B* shall be its effective length.

(3) The standard height of a trunk is the standard height of a superstructure other than a raised quarter-deck.

(4) Where the height of a trunk is less than the standard height, its effective length shall be reduced in the ratio of the actual to the standard height. Where the height of hatchway coamings on the trunk deck is less than that required under paragraph 75(1), a reduction from the actual height of trunk shall be made which corresponds to the difference between the actual and the required height of coaming.

67. Deduction for superstructures and trunks

(1) Where the effective length of superstructures and trunks is 1.0L, the deduction from the freeboard shall be 350 mm at 24 m length of ship, 860 mm at 85 m length, and 1070 mm at 122 m length and above (14 inches at 79 feet length of ship, 34 inches at 279 feet length, and 42 inches at 400 feet length and above); deductions at intermediate lengths shall be obtained by linear interpolation.

(2) Where the total effective length of superstructures and trunks is less than 1.0L the deduction shall be a percentage obtained from one of the following tables:

Percentage of deduction for type 'A' ships

	Total effective length of superstructures and trunks										
	0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	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

Percentages at intermediate lengths of superstructures shall be obtained by linear interpolation.

Percentage of deduction for type 'B' ships

	Line	Total effective length of superstructures and trunks										
		0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	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 detached bridge	II	0	6.3	12.7	19	27.5	36	46	63	75.3	87.7	100

Percentages at intermediate lengths of superstructures shall be obtained by linear interpolation.

(3) For ships of type 'B':

(a) Where the effective length of a bridge is less than 0.2L, the percentages shall be obtained by linear interpolation between lines I and II.

(h) Where the effective length of a forecastle is more than 0.4L, the percentages shall be obtained from line II.

(c) Where the effective length of a forecastle is less than 0.07L, the above percentages shall be reduced by:

Where f is the effective length of the forecastle.

$$5 \text{ x } \frac{(0.07L - f)}{0.07\ L}$$

68. Sheer

General

(1) The sheer shall be measured from the deck at side to a line of reference drawn parallel to the keel through the sheer line amidships.

(2) In ships designed with a rake of keel, the sheer shall be measured in relation to a reference line drawn parallel to the design load waterline.

(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 equivalent depth amidships.

(5) In ships with a superstructure of standard height which extends over the whole length of the freeboard deck, the sheer shall be measured at the superstructure deck. Where the height exceeds the standard the least difference (Z) between the actual and standard heights shall be added to each end ordinate. Similarly, the intermediate ordinates at distances of $\frac{1}{6}$ L and $\frac{1}{3}L$ from 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 portion of the freeboard deck shall not be taken into 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 height, an addition to the sheer of the freeboard deck shall be made as provided in this paragraph (12).

Standard sheer profile

(8) The ordinates of the standard sheer profile are given in the following table:

Standard sheer profile

(where L is in metres)

	Station	Ordinate (mm)	Factor
After half	After perpendicular	$25(\frac{L}{3}+10)$	1
	$\frac{1}{6}$ L from A.P.	$11.1(\frac{L}{3}+10)$	3
	$\frac{1}{3}$ L from A.P.	$2.8(\frac{L}{3}+10)$	3
	Amidships	0	1
For-ward half	Amidships	0	1
	$\frac{1}{3}$ L from F.P.	$5.6(\frac{L}{3}+10)$	3
	$\frac{1}{6}$ L from F.P.	$22.2(\frac{L}{3}+10)$	3
	Forward perpendicular	$50(\frac{L}{3}+10)$	1

Standard sheer profile

(where L is in feet)

	Station	Ordinate (inches)	Factor
After half	After perpendicular	$0.1L + 10$	1
	$\frac{1}{6}$ L from A.P.	$0.0444L + 4.44$	3
	$\frac{1}{3}$ L from A.P.	$0.0111L + 1.11$	3
	Amidships	0	1
For-ward half	Amidships	0	1
	$\frac{1}{3}$ L from F.P.	$0.0222L + 2.22$	3
	$\frac{1}{6}$ L from F.P.	$0.0888L + 8.88$	3
	Forward perpendicular	$0.2L + 20$	1

Measurement of variation from standard sheer profile

(9) Where the sheer profile differs from the standard, the four ordinates of each profile in the forward or after half shall be multiplied by the appropriate factors given in the table of ordinates. The difference between the sums of the respective products and those of the standard divided by 8 measures the deficiency or excess of sheer in the forward or after half. The arithmetical mean of the excess or deficiency in the forward and after halves measures the excess or deficiency of sheer.

(10) 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 for the part in excess and deficiency only shall be measured.

(11) Where the forward half of the sheer profile exceeds the standard, and the after portion of the sheer profile is not less than 75% of the standard, credit shall be allowed for the part in excess; where the after part is less than 50% of the standard no credit shall be given for the excess sheer forward. Where the after sheer is between 50% and 75% of the standard, intermediate allowances may be granted for excess sheer forward.

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

$$s = \frac{YL'}{3\,L}$$

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 the end of sheer,

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

L = length of ship as defined in paragraph 33(1) of this annex.

The above formula provides a curve in the form of a parabola tangent to the actual sheer curve at the freeboard deck and intersecting the end ordinate at a point below the superstructure deck a distance equal to the standard height of a superstructure. The superstructure deck shall not be less than standard height above this curve at any point. This curve shall be used in determining the sheer profile for forward and after halves of the ship.

Correction for variations from standard sheer profile

(13) The correction for sheer shall be the deficiency or excess of sheer (see paragraphs (9) to (11) inclusive of this paragraph), multiplied by

$$0.75 - \frac{S}{2L}$$

where S is the total length of enclosed superstructures.

Addition for deficiency in sheer

(14) Where the sheer is less than the standard, the correction for deficiency in sheer (see this paragraph (13)) shall be added to the freeboard.

Deduction for excess sheer

(15) In ships where an enclosed superstructure covers 0.1L before and 0.1L abaft amidships, the correction for excess of sheer as calculated under the provisions of this sub -paragraph (13) shall be deducted from the freeboard; in ships where no enclosed superstructure covers amidships, no deduction shall be made from the freeboard; where an enclosed superstructure covers less than 0.1L before and 0.1L abaft amidships, the deduction shall be obtained by linear interpolation. The maximum deduction for excess sheer shall be at the rate of 125 mm per 100 m of length (1± inches per 100 feet of length).

69. Minimum bow height

(1) The bow height defined as the vertical distance at the forward perpendicular between the waterline corresponding to the assigned summer freeboard and the designed trim and the top of the exposed deck at side shall be not less than:

for ships below 250 m in length,

$$56L\left(1-\frac{L}{500}\right)\frac{1.36}{C_b+0.68} \text{ mm;}$$

for ships of 250 m and above in length,

$$7000\ \frac{1.36}{C_b+0.68} \text{ mm;}$$

Where L is the length of the ship in metres,

C_b is the block coefficient which is to be taken as not less than 0.68

Or

For ships below 820 feet in length,

$$0.672L\ (1-\frac{L}{1640})\ \frac{1.36}{C_b+0.68}\ \text{inches;}$$

For ships below 820 above feet in length,

where L is the Length of the ship in feet,

C_b is the block coefficient which is to be taken as not less than 0.68

(2) Where the bow height required in sub-paragraph (1) of this paragraph is obtained by sheer, the sheer shall extend for at least 15% of the length of the ship measured from the forward perpendicular. Where it is obtained by fitting a superstructure, such superstructure shall extend from the stem to a point at least 0.07L abaft the forward perpendicular, and it shall comply with the following requirements:

(a) for ships not over 100 m (328 feet) in length it shall be enclosed as defined in paragraph 3(10), and

(b) for ships over 100 m (328 feet) in length it need not comply with paragraph 3(10), but shall be fitted with closing appliances to the satisfaction of the Administration.

(3) Ships which, to suit exceptional operational requirements, cannot meet the requirements of sub-paragraphs (1) and (2) of this paragraph may be given special consideration by the Administration.

70. Minimum freeboards

Summer freeboard

(1) The minimum freeboard in summer shall be the freeboard derived from the tables in paragraph 28 as modified by the corrections in paragraphs 27, as applicable, 29, 30, 31, 32, 37, 38 and, if applicable, 39.

(2) The freeboard in salt water, as calculated in accordance with sub-paragraph (1) of this paragraph, but without the correction for deck line, as provided by paragraph 32, shall not be less than 50 mm (2 inches). For ships having in position 1 hatchways with covers which do not comply with the requirements of paragraph 15(7), 16 or 26, the freeboard shall be not less than 150 mm (6 inches).

Tropical freeboard

(3) The minimum freeboard in the Tropical Zone shall be the freeboard obtained by a deduction from the summer freeboard of one forty-eighth of the summer draught measured from the top of the keel to the centre of the ring of the load line mark.

(4) The freeboard in salt water, as calculated in accordance with sub-paragraph (1) of this paragraph, but without the correction for deck line, as provided by paragraph 32, shall not be less than 50 mm (2 inches). For ships having in position 1 hatchways with covers which

do not comply with the requirements of paragraphs 15(7), 16 or 26, the freeboard shall be not less than 150 mm (6 inches).

Winter freeboard

(5) The minimum freeboard in winter shall be the freeboard obtained by an addition to the summer freeboard of one forty-eighth of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

Winter North Atlantic freeboard

(6) The minimum freeboard for ships of not more than 100 m (328 feet) in length which enter any part of the North Atlantic defined in paragraph 52 (annex II) during the winter seasonal period shall be the winter freeboard plus 50 mm (2 inches). For other ships, the Winter North Atlantic freeboard shall be the winter freeboard.

Fresh water freeboard

(7) The minimum freeboard in fresh water of unit density shall be obtained by deducting from the minimum freeboard in salt water:

$$\frac{\Delta}{40T}\,cm\ (inches)$$

where ∇ = displacement in salt water in tons at the summer load waterline

T = tons per centimeter (inch) immersion in salt water at the summer load waterline.

(8) Where the displacement at the summer load water line cannot be certified, the deduction shall be one forty-eighth of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

Chapter IV

Special requirements for ships assigned timber freeboards

71. *Application of this chapter*

paragraphs 42 to 45 inclusive apply only to ships to which timber load lines are assigned.

72. Definitions

(1) *Timber deck cargo.* The term "timber deck cargo" means a cargo of timber carried on an uncovered part of a freeboard or superstructure deck. The term does not include wood pulp or similar cargo.

(2) *Timber load line.* A timber deck cargo may be regarded as giving a ship a certain additional buoyancy and a greater degree of protection against the sea. For that reason, ships carrying a timber deck cargo may be granted a reduction of freeboard calculated according to the provisions of paragraph 45 and marked on the ship's side in accordance with the provisions of paragraphs 6(3) and (4). However, in order that such special freeboard may be granted and used, the timber deck cargo shall comply with certain conditions which are laid down in paragraph 44, and the ship itself shall also comply with certain conditions relating to its construction which are set out in paragraph 43.

73. Construction of ship

Superstructure

(1) Ships shall have a forecastle of at least standard height and a length of at least 0.07L. In addition, if the ship is less than 100 m (328 feet) in length, a poop of at least standard height, or a raised quarter-deck with either a deckhouse or a strong steel hood of at least the same total height shall be fitted aft.

Double bottom tanks

(2) Double bottom tanks where fitted within the mishap half length of the ship shall have adequate watertight longitudinal subdivision.

Bulwarks

(3) The ship shall be fitted either with permanent bulwarks at least 1 m ($39\frac{1}{2}$ inches) in height, specially stiffened on the upper edge and supported by strong bulwark stays attached to the deck and provided with necessary freeing ports, or with efficient rails of the same height and of specially strong construction.

74. Stowage

General

(1) Openings in the weather deck over which cargo is stowed shall be securely closed and battened down. The ventilators shall be efficiently protected.

(2) Timber deck cargo shall extend over at least the entire available length which is the total length of the well or wells between superstructures. Where there is no limiting superstructure at the after end, the timber shall extend at least to the after end of the aftermost hatchway. The timber shall be stowed as solidly as possible to at least the standard height of the superstructure.

(3) On a ship within a seasonal winter zone in winter, the height of the deck cargo above the weather deck shall not exceed one-third of the extreme breadth of the ship.

(4) The timber deck cargo shall be compactly stowed, lashed and secured. It shall not interfere in any way with the navigation and necessary work of the ship.

Uprights

(5) Uprights, when required by the nature of the timber, shall be of adequate strength considering the breadth of the ship; the spacing shall be suitable for the length and character of timber carried, but shall not exceed 3 m (9.8 feet). Strong angles or metal sockets or equally efficient means shall
be provided for securing the uprights.

Lashings

(6) Timber deck cargo shall be efficiently secured throughout its length by independent over-all lashings spaced not more than 3 m (9.8 feet) apart. Eye plates for these lashings shall be efficiently attached to the sheer strake or to the deck stringer plate at intervals of not more than 3 m (9.8 feet). The distance from an end bulkhead of a superstructure to the first eye plate shall be not more than 2 m (6.6 feet). Eye plates and lashings shall be provided 0.6 m ($23\frac{1}{2}$ inches) and 1.5 m (4.9 feet) from the ends of timber deck cargoes where there is no bulkhead.

(7) Lashings shall be not less than 19 mm ($\frac{3}{4}$ inch) close link chain or flexible wire rope of equivalent strength, fitted with shphooks and turn-buckles, which shall be accessible at all times. Wire rope lashings shall have a short length of long link chain to permit the length of lashings to be regulated.

(8) When timber is in lengths less than 3.6 m (11.8 feet) the spacing of the lashings shall be reduced or other suitable provisions made to suit the length of timber.

(9) All fittings required for securing the lashings shall be of strength corresponding to the strength of the lashings.

Stability

(10) Provision shall be made for a safe margin of stability at all stages of the voyage, regard being given to additions of weight, such as those due to absorption of water and icing, and to losses of weight such as those due to consumption of fuel and stores. *Protection of crew, access to machinery spaces, etc.*

(11) In addition to the requirements of paragraph 25(5) of this annex guard rails or lifelines not more than 33 cm (13 inches) apart vertically shall be provided on each side of the deck cargo to a height of at least 1 m ($39\frac{1}{2}$ inches) above the cargo.

Steering arrangements

(12) Steering arrangements shall be effectively protected from damage by cargo and, as far as practicable, shall be accessible. Efficient provision shall be made for steering in the event of a breakdown in the main steering arrangements.

75. Computation for freeboard

(1) The minimum summer freeboards shall be computed in accordance with paragraphs 27(5), 27(6), 27(11), 28, 29, 30, 31, 32, 37 and 38, except that paragraph 37 is modified by substituting the following percentages for those given in paragraph 37:

	Total effective length of superstructures										
	0	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	1.0L
Percentage of deduction for all types of superstructure	20	31	42	53	64	70	76	82	88	94	100

Percentages at intermediate lengths of superstructures shall be obtained by linear interpolation.

(2) The Winter Timber Freeboard shall be obtained by adding to the Summer Timber Freeboard one thirty-sixth of the moulded summer timber draught.

(3) The Winter North Atlantic Timber Freeboard shall be the same as the Winter North Atlantic Freeboard prescribed in paragraph 40(6).

(4) The Tropical Timber Freeboard shall be obtained by deducting from the Summer Timber Freeboard one forty-eighth of the moulded summer timber draught.

(5) The Fresh Water Timber Freeboard shall be computed in accordance with paragraph 40(7) based on the summer timber load waterline.

Annex II

Zones, areas and seasonal periods

The zones and areas in this annex are, in general, based on the following criteria:

SUMMER - not more than 10% winds of force 8 Beaufort (34 knots) or more.

TROPICAL - not more than 1% winds of force 8 Beaufort (34 knots) or more.

Not more than one tropical storm in 10 years in an area of 5° square in any one separate calendar month.

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

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

76. Northern Winter Seasonal Zones and Area

(1) North Atlantic Winter Seasonal Zones I and II

(a) The North Atlantic Winter Seasonal Zone I lies within the meridian of longitude 50° W from the coast of Greenland to latitude 45° N, thence the parallel of latitude 45° N to longitude 15° W, thence the meridian of longitude 15° W to latitude 60° N, thence the parallel of latitude 60° N to the Greenwich Meridian, thence this meridian northwards.

Seasonal periods:

WINTER: 16 October to 15 April SUMMER: 16 April to 15 October

(b) The North Atlantic Winter Seasonal Zone II lies within the meridian of longitude 68°30' W from the coast of the United States to latitude 40° N, thence the rhumb line to the point latitude 36° N, longitude 73° W, thence the parallel of latitude 36° N to longitude 25° 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 The Skaw in the Skaggerak.

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°30' W from the coast of the United States to latitude 40° N, thence the rhumb line to the southernmost intersection of the meridian of longitude 61° W with the coast of Canada and thence the east coasts of Canada and the United States.

Seasonal periods:

For ships over 100 m (328 feet) in length:

WINTER: 16 December to 15 February SUMMER: 16 February to 15 December

For ships of 100 m (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 southern boundary of the North Pacific Winter Seasonal Zone is the parallel of latitude 50° N from the east coast of the USSR to the west coast of Sakhalin, thence the west coast of Sakhalin to the southern extremity of Cape Kril'on, thence the rhumb line to Wakkanai, Hokkaido, Japan, thence the east and south coasts of Hokkaido to longitude 145° E, thence the meridian of longitude 145° E to latitude 35° N, thence the parallel of latitude 35° N to longitude 150° W and thence the rhumb line to the southern extremity of Dall Island, Alaska.

Seasonal periods:

WINTER: 16 October to 15 April SUMMER: 16 April to 15 October

77. Southern Winter Seasonal Zone

The northern boundary of the Southern Winter Seasonal Zone is the rhumb line from the east coast of the American continent at Cape TresPuntas to the point latitude 34° S, longitude 50° W, thence the parallel of latitude 34° S to longitude 17° E, thence the rhumb line to the point latitude 35°10' S, longitude 20° E, thence the rhumb line to the point latitude 34° S, longitude 28° E, thence along the rhumb line to the point latitude 35°30' S, longitude 118° E, and thence the rhumb line to Cape Grim on the north-west coast of Tasmania; thence along the north and east coasts of Tasmania to the southernmost point of Bruny Island, thence the rhumb line to Black Rock Point on Stewart Island, thence the rhumb line to the point latitude 47° S, longitude 170° E, thence along the rhumb line to the point latitude 33° S, longitude 170° W, and thence the parallel of latitude 33° S to the west coast of the American continent.

Seasonal periods:

WINTER: 16 April to 15 October SUMMER: 16 October to 15 April

78. Tropical Zone

(1) Northern boundary of the Tropical Zone

The northern boundary of the Tropical Zone is the parallel of latitude 13° N from the east coast of the American continent to longitude 60° W, thence the rhumb line to the point latitude 10° N, longitude 58° W, thence the parallel of latitude 10° N to longitude 20° W, thence the meridian of longitude 20° W to latitude 30° N and thence the parallel of latitude 30° N to the west coast of Africa; from the east coast of Africa the parallel of latitude 8° N to longitude 70° E, thence the meridian of longitude 70° E to latitude 13° N, thence the parallel of latitude 13° N to the west coast of India; thence the south coast of India to latitude 10°30' N on the east coast of India, thence the rhumb line to the point latitude 9° N, longitude 82° E, thence the meridian of longitude 82° E to latitude 8° N, thence the parallel of latitude 8° N to the west coast of Malaysia,

thence the coast of South-East Asia to the east coast of Viet Nam at latitude 10° N, thence the parallel of latitude 10° N to longitude 145° E, thence the meridian of longitude 145° E to latitude 13° N and thence the parallel of latitude 13° 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 southern boundary of the Tropical Zone is the rhumb line from the Port of Santos, Brazil, to the point where the meridian of longitude 40° W intersects the Tropic of Capricorn; thence the Tropic of Capricorn to the west coast of Africa; from the east coast of Africa the parallel of latitude 20° S to the west coast of Madagascar, thence the west and north coasts of Madagascar to longitude 50° E, thence the meridian of longitude 50° E to latitude 10° S, thence the parallel of latitude 10° S to longitude 98° E, thence the rhumb line to Port Darwin, Australia, thence the coasts of Australia and Wessel Island eastwards to Cape Wessel, thence the parallel of latitude 11° S to the west side of Cape York; from the east side of Cape York the parallel of latitude 11° S to longitude 150° W, thence the rhumb line to the point latitude 26° S, longitude 75° W, and thence the rhumb line to the west coast of the American continent at latitude 30° S. Coquimbo and Santos are to be considered as being on the boundary line of the Tropical and Summer Zones.

(3) Areas to be included in the Tropical Zone

The following areas are to be treated as 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° E. Aden and Berbera are to be considered as being on the boundary line of the Tropical Zone and the Seasonal Tropical Area.

(b) The Persian Gulf to the meridian of longitude 59° E.

(c) The area bounded by the parallel of latitude 22° S from the east coast of Australia to the Great Barrier Reef, thence the Great Barrier Reef to latitude 11° S. The northern boundary of the area is the southern boundary of the Tropical Zone.

79. Seasonal tropical areas

The following are Seasonal Tropical Areas:

(1) In the North Atlantic

An area bounded on the north by the rhumb line from Cape Catoche, Yucatan, to Cape San Antonio, Cuba, the north coast of Cuba to latitude 20° N and thence the parallel of latitude 20° N to longitude 20° W; 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° E in the Gulf of Aden, the coast of South Arabia and the meridian of longitude 59° E in the Gulf of Oman; 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: 1 December 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 of the Tropical Zone and the east coast of Madagascar; on the south by the parallel of latitude 20° S; on the east by the rhumb line from the point latitude 20° S, longitude 50° E, to the point latitude 15° S, longitude 51°30' E, and thence by the meridian of longitude 51°30' E to latitude 10° S.

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 ° S from longitude 51 °30' E to longitude 120° E and thence the meridian of longitude 120° E to the coast of Australia; on the west by the meridian of longitude 51°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 Viet Nam and China from latitude 10° N to Hong Kong; on the east by the rhumb line from Hong Kong to the Port of Sual (Luzon Island) and the west coasts of the Islands of Luzon, Samar, and Leyte to latitude 10° N; on the south by the parallel of latitude 10° 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° N; on the west by the meridian of longitude 160° E; on the south by the parallel of latitude 13° N; on the east by the meridian of longitude 130° 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° W from the coast of the American continent to latitude 33° N and by the rhumb line from the point latitude 33° N, longitude 123° W, to the point latitude 13° N, longitude 105° W; on the south by the parallel of latitude 13° 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° 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 Capricorn from the east coast of Australia to longitude 150° W, thence by the meridian of longitude 150° W to latitude 20° S and thence by the parallel of latitude 20° S to the point where it intersects the southern boundary of the Tropical Zone; on the west by the boundaries of the area within the Great Barrier Reef included in the Tropical Zone and by the east coast of Australia.

Seasonal periods:

TROPICAL: 1 April to 30 November SUMMER: 1 December to 31 March

80. Summer Zones

The remaining areas constitute the Summer Zones. However, for ships of 100 m (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°30' W from the coast of the United States to latitude 40° N and thence by the rhumb line to the point latitude 36° N, longitude 73° W; on the south by the parallel of latitude 36° N is a Winter Seasonal Area.

Seasonal periods:

WINTER: 1 November to 31 March SUMMER: 1 April to 31 October

81. 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 100 m (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 m (328 feet) and under in length, the area north of latitude 44° N is a Winter Seasonal Area.

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 m (328 feet) 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° E from the coast of Spain to latitude 40° N; on the south by the parallel of latitude 40° N from longitude 3° E to the west coast of Sardinia; on the east by the west and north coasts of Sardinia from latitude 40° N to longitude 9° E, thence by the meridian of longitude 9° E to the south coast of Corsica, thence by the west and north coasts of Corsica to longitude 9° E and thence by the rhumb line to Cape 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° N is included in the Summer Zones.

However, for ships of 100 m (328 feet) and under in length, the area between the parallel of latitude 50° N and the rhumb line from the east coast of Korea at latitude 38° N to the west coast of Hokkaido, Japan, at latitude 43°12' N is a Winter Seasonal Area.

Seasonal periods:

WINTER: 1 December to 28/29 February SUMMER: 1 March to 30 November

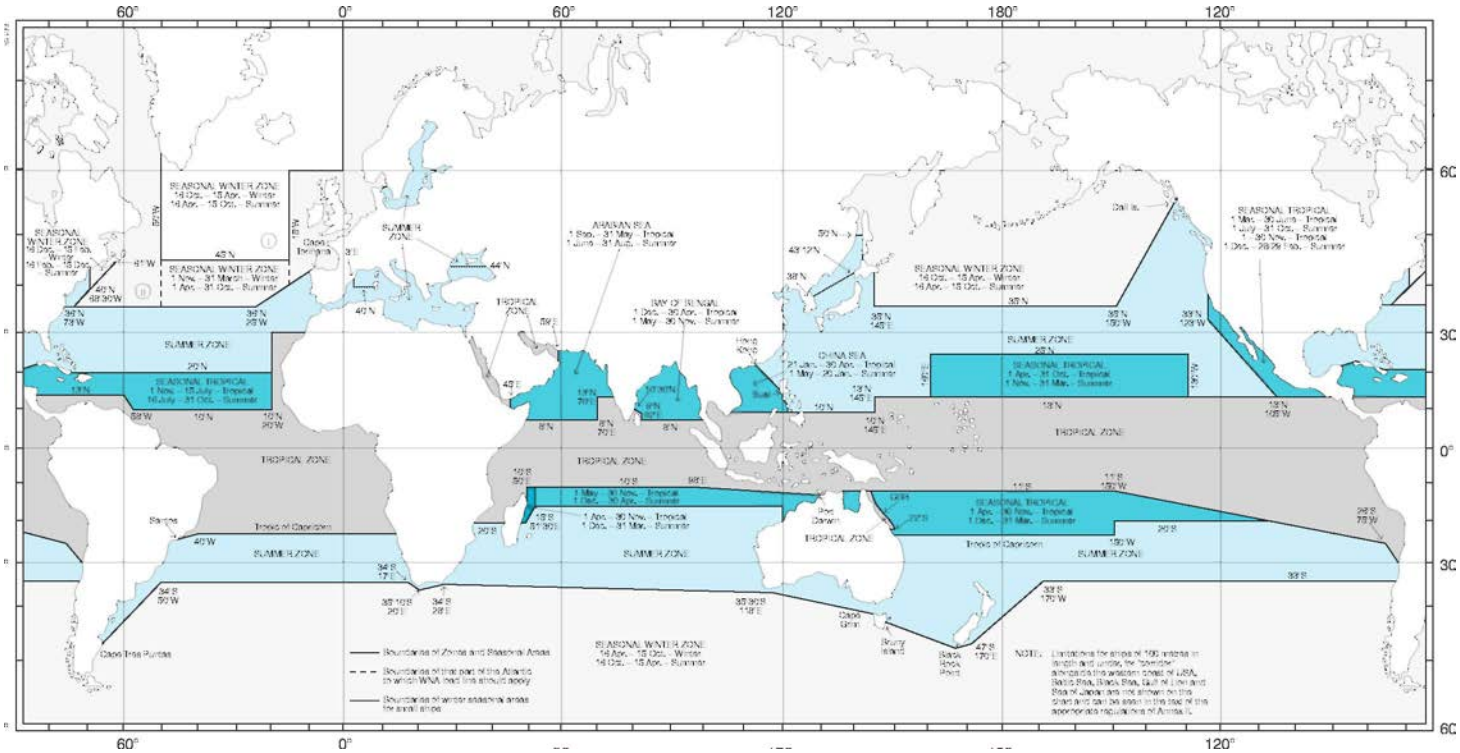
82. The Winter North Atlantic Load Line

The part of the North Atlantic referred to in paragraph 40(6) (annex I) comprises:

(a) that part of the North Atlantic Winter Seasonal Zone II which lies between the meridians of 15° W and 50° W;

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

Purchased by Chevron Texaco



60° 120° 180°

Chart of Zones and Seasonal Areas

Annex III - Certificates

Form of International Certificate on Load Lines

INTERNATIONAL LOAD LINE CERTIFICAT

Annex 3

Certificate No.……

INTERNATIONAL LOAD LINE CERTIFICATE (1966)

Issued under the provisions of the
INTERNATIONAL CONVENTION ON LOAD LINES,1966,

under the authority of the Government of

THE REPUBLIC OF THE UNION OF MYANMAR

by **Department of Marine Administration**

Name of Ship	Distinctive Number or Letters	Port of Registry	Length (L) as defined in article 2(8)	IMO number [1)]

Freeboard assigned as[2)]:

A new ship

An existing ship

Type of ship [2)]

Type 'A'

Type 'B'

Type 'B' with reduced freeboard

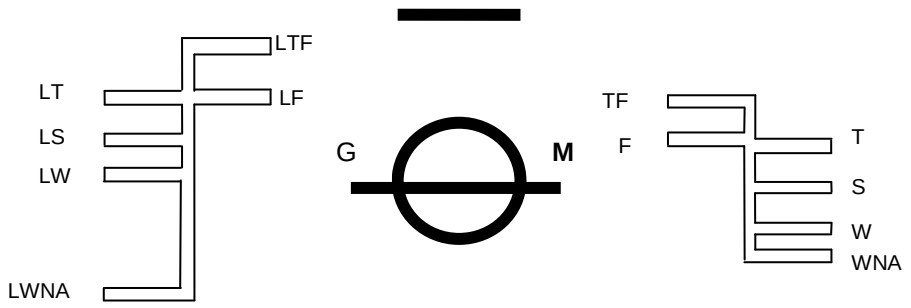
Type 'B' with increased freeboard

Freeboard from deck line		**Load line**
Tropical	…..mm. (inches) (T)	…..mm. (inches) above (S)
Summer	…..mm. (inches) (S)	Upper edge of linethrough centre of ring
Winter	…..mm. (inches) (W)	…..mm. (inches) below (S)
Winter North Atlantic	…..mm. (inches) (WNA)	…..mm. (inches) below (S)
Timber tropical	…..mm. (inches) (LT)	.....mm. (inches) above (LS)
Timber summer	……mm. (inches) (LS)	…..mm. (inches) above (S)
Timber winter	…..mm. (inches) (LW)	…..mm. (inches) below (LS)
Timber winter North Atlantic	…..mm. (inches) (LWNA)	…..mm. (inches) below (LS)

Allowance for fresh water for all freeboards other than timber …….mm.

For timber freeboards ……mm. .

The upper edge of the deck line from which these freeboards are measured is …….mm (inches) ……..deck at side.



[1)] In accordance with resolution A.600(15)- IMO Ship Identification Number Scheme, this information may be included voluntary.

[2)] Delete as appropriate.

Revised 05(12.3.2015)

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 accordance with the International Convention on Load Lines, 1966.

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

Completion date of the survey on which this certificate is based:……..

Issued at ……

……

……

Date of issued

Director General

Department of Marine Administration

NOTES: 1. When a ship departs from a port situated on a river or inland waters, deeper loading shall be permitted corresponding to the weight of fuel and all other materials required for consumption between the point of departure and the sea.

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

This is to certify that at a periodical inspection required by article 14(1) (C) of the Convention, the ship was found to comply with the relevant provisions of the Convention.

Place of survey Signed:……

Date **Surveyor to DMA***

Place of survey Signed:……

Date **Surveyor to DMA***

Place of survey Signed:……

Date **Surveyor to DMA***

Place of survey Signed:……

Date **Surveyor to DMA***

The provisions of the Convention being fully complied with by this ship, the validity of this certificate is, in accordance with article 19(2) of the Convention, extended until: ……

Place: ……
Date: …….. Signed:
……..

Signature and seal of issuing authority

Article 14(1)(c): A periodical inspection within three months either way of each annual anniversary date of the Certificate to ensure that alterations have not been made to the hull or superstructures which would affect the calculation determining the position of the load line and so as to ensure the maintenance in an effective condition of fittings and appliances for:

(i) protection of openings;
(ii) guard rails;
(iii) freeing ports; and
(iv) means of access to crew's quarters

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*Department of Marine Administration

Timber freeboards for ships having reduced type ’B’ freeboards assigned (Pargraph 45(2) and (3)) (IACS interpretation LL.33)

. Some Administrations accept that timber freeboards may be assigned to ships with reduced type ’B’ freeboards, provided the timber freeboards arecalculated on the basis of the ordinary type ’B’ freeboard.

. Paragraph 45(2) and (3) should be interpreted such that the Timber Winter mark and/or the Timber Winter North Atlantic mark are placed at the samelevel as the reduced type ’B’ Winter mark when the computed Timber Winter mark and/or the computed Timber Winter North Atlantic mark fall below thereduced type ’B’ Winter mark.

The Republic Of The Union Of Myanmar

Ministry of Transport and Communications
Department of marine administration

International Convention on Load Lines
Record of condition of assignment

Name of Ship ----------

Port of registry----------

Nationality----------

Distinctive number or letters----------

Ship builder----------

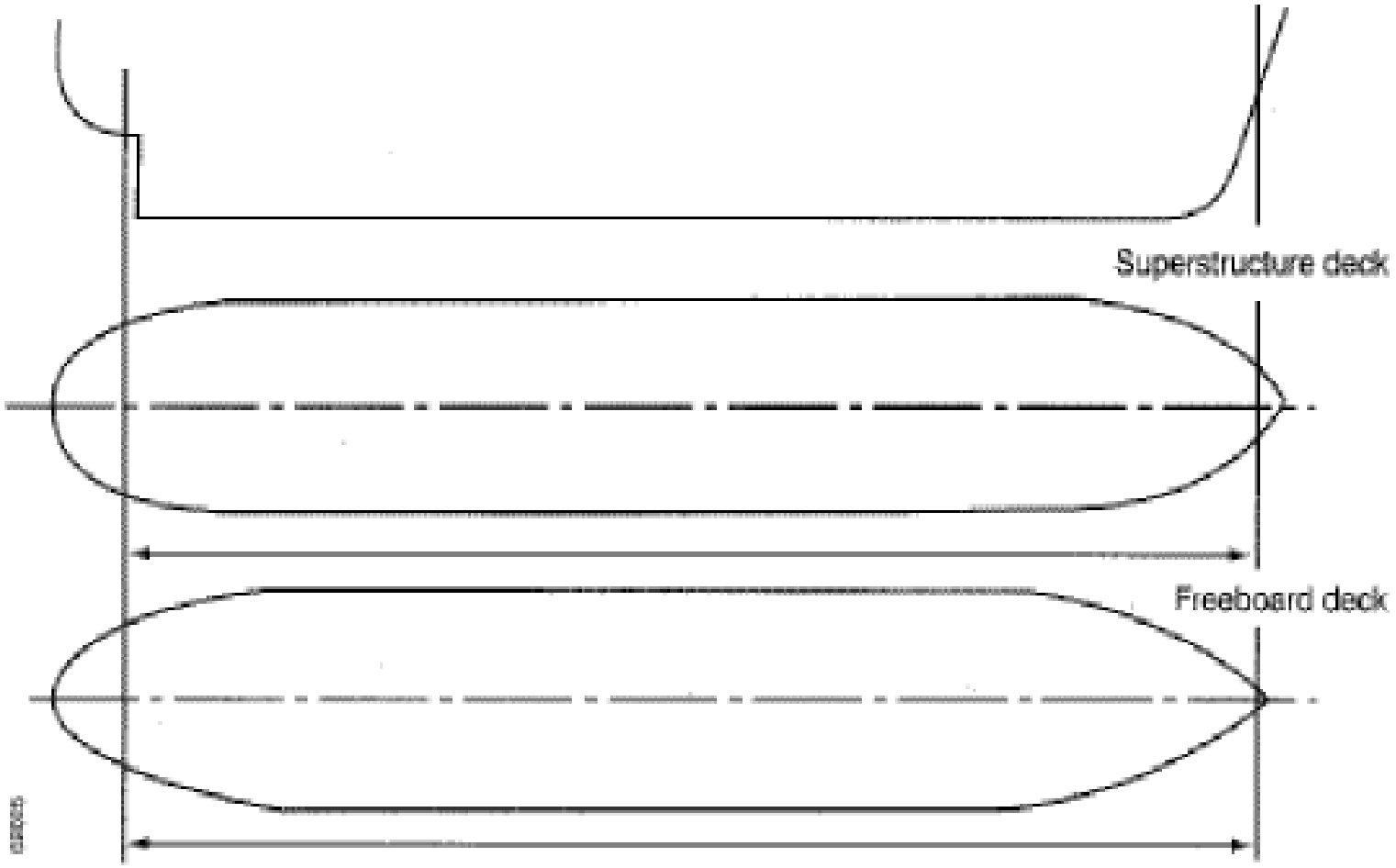
Yard number----------

Date of construction/conversion----------

Freeboard assigned as a ship of Type----------

Issuing Authority----------

Date and place of initial survey----------


Superstructure deck
Freeboard deck

Doorways in superstructures, Exposed machinery casings and deckhouse protecting openings in freeboard and Superstructure decks (paragraph 12,17 and 18)

Location	Ref. No. on Sketch or plan	No. and size opening	Height of sills	Closing appliance	
				Type and Material	Number of clips
In forecastle bulkhead					
In bridge forward bulkhead					
In bridge after bulkhead					
In raised quarter deck bulkhead					
In poop bulkhead					
In exposed machinery casings on Freeboard or raised quarter decks					
In exposed machinery casings on superstructure decks					

HATCHWAYS AT POSITION 1 AND 2 CLOSED BY PORTABLE COVERS AND SECURED WEATHER TIGHT BY TARPAULINS AND BATTENING DEVICES (Res. 15)

Position and Reference No. on Sketch or plan								
Dimensions of clear opening at top of coaming								
Height of coamings above deck								
Closing Appliances	**Type of Covers**							
	Portable Beams or Pontoon Covers	**Number**						
		Spacing of Beams or stiffeners						
		Dimensions of section						
		Means of securing each beam						
	Portable Covers	**Material**						
		Thickness						
		Direction fitted						
		Bearing surface						
	Spacing of Cleats							
	Tarpaulins	**No. of Layers**						
		Material						

Means of securing each section of covers:
Are wood covers fitted with galvanized and bands?

Hatchways at position 1 and 2 closed by weathertight covers of steel (or other equivalent material) fitted with gaskets and clamping devices (Paragraph 16)

Position and Reference No. On sketch or plan						
Dimensions of clear opening At top of coaming						
Height of coamings above deck						
Type of cover or patent name Material						

MACHINERY SPACE OPENINGS AND MISCELLANEOUS OPENINGS IN FREEBOARD AND SUPERSTRUCTURE DECKS

(Regs. 17 & 18)

Position and Reference No. on Sketch or Plan							
Opening	**Dimensions (mm)**						
	Height of coaming (mm)						
Cover	**Material**						
	How attached						
	Number & Spacing of Toggles						

Position and Reference No. on Sketch or Plan		**MAIN DECK (Man Hole)**					
Opening	**Dimensions (mm)**	**600 x 400**					
	Height of coaming (mm)	**FLUSH**					
Cover	**Material**	**MILD STEEL**					
	How attached	**BOLTED**					
	Number & Spacing of Toggles	**24 PITCHED BOLTS**					

Ventilators on freeboard and superstructure decks (position 1 and 2)

(Paragraph 19)

Deck on which fitted	**Number fitted**	**Coaming**		**Type** (State patent name if any)	**Closing appliances**
		Dimension	**Height**		

Air Pipes on freeboard and superstructure decks (Paragraph 20)

Deck on which fitted	**Number fitted**	**Coaming**		**Type** (State patent name if any)	**Closing appliances**
		Dimension Φ (mm)	**Height (mm)**		

Cargo port and other opening (Paragraph 21)

Positions of port	Dimensions of opening	Distance of lower edge From freeboard deck	Securing devices	Remarks

Scuppers, inlets and discharges (Paragraph 22)

State if Scupper or discharge	Number	Pipe			From	Vertical distance above top of keel			Number, type and material of Discharge valves	Position of controls
						Discharge		Uppermost valve		
		Diameter	Thickness	Material		Outlet in hull	Inboard end			

S – scupper
D – Discharge
Any other approved material to be designated

MS – Mild steel
CS – Cast steel
GM – Gun metal

SD – Screw Down
ANR – Automatic non-return
SD ANR – Screw down automatic non-return

Side scuttles (Paragraph 23)

Position	Number fitted	Clear glass size	Fixed or opening	Material		Type of glass and thickness	Standards used and Type No.
				Frame	Deadlight		

Indicate the vertical distance between the freeboard deck and the lower sill of the side scuttle positioned at the greatest vertical distance below the freeboard deck.

Freeing port (Paragraph 24)

	Length of bulwark	**Height of bulwark**	**Number and size of freeing ports each side**	**Total area each side**	**Required area each side**
Freeboard deck after well Forward well					
Superstructure deck					

State fore and aft position of each Freeing port in relation to Superstructure end bulkheads { After well / Forward well

Particulars of shutters, bars or rails fitted to freeing ports

Height of lower edge of freeing port above deck

Protection of the crew (Paragraph 25 and 26)

State particulars of bulwarks or guardrails on

Freeboard and superstructure decks:

State details of lifelines, walkways, gangways or
Under deck passageways where required to be fitted :

Timber deck cargo fittings (paragraph 44)

State particulars of uprights, sockets, lashings,
Guard-rails and lifelines :

Other special features

The conditions of assignment shown on this form are a record of the arrangement and fittings provided on the ship and are in accordance with the requirements of the relevant paragraphs of the International Convention of Load Lines.

…….
(Surveyor's signature)

…….
(Date)