

SUPPLEMENT

TO THE

NEW ZEALAND GAZETTE

OF

THURSDAY, OCTOBER 11, 1934.

Published by Authority.

WELLINGTON, FRIDAY, OCTOBER 12, 1934.

International Convention respecting Load Lines.

Marine Department,
Wellington, 25th September, 1934.

THE following International Convention respecting Load Lines, signed at London on the 5th day of July, 1930, and duly ratified by His Majesty's Government in New Zealand pursuant to Article 22 of the said Convention, is published for general information.

JOHN G. COBBE, Minister of Marine.

INTERNATIONAL LOAD LINE CONVENTION.

PREAMBLE.

The Governments of Germany, the Commonwealth of Australia, Belgium, Canada, Chile, Cuba, Denmark, the Free City of Danzig, Spain, the Irish Free State, the United States of America, Finland, France, the United Kingdom of Great Britain and Northern Ireland, Greece, India, Iceland, Italy, Japan, Latvia, Mexico, Norway, New Zealand, Paraguay, the Netherlands, Peru, Poland, Portugal, Sweden, and the Union of Socialist Soviet Republics; desiring to promote safety of life and property at sea by establishing in common agreement uniform principles and rules with regard to the limits to which ships on

international voyages may be loaded, have resolved to conclude a Convention for that purpose and have appointed as their Plenipotentiaries :—

The Government of Germany :

- Mr. Gustav KOENIGS, Ministerialdirigent in the Reichsverkehrsministerium, Geheimer Regierungsrat, Berlin.
- Mr. Arthur WERNER, Ministerialrat in the Reichsverkehrsministerium, Geheimer Justizrat, Berlin.
- Professor Walter LAAS, Director of the "Germanischer Lloyd" Classification Society, Berlin.
- Mr. Karl STURM, Verwaltungsdirector of the See-Berufsgenossenschaft, Hamburg.

The Government of the Commonwealth of Australia :

- Captain Henry Priaulx CAYLEY, Royal Australian Navy, Commonwealth Naval Representative in London.
- Mr. Vincent Cyril DUFFY, Australia House.

The Government of Belgium :

- Mr. Raoul F. GRIMARD, Naval Engineer, Technical Adviser to the Central Naval Department.

The Government of Canada :

- Mr. Alexander JOHNSTON, Deputy Minister of Marine.

The Government of Chile :

- Lieut.-Commander Constructor Oscar BUNSTER, Member of the Chilean Naval Commission in London.

The Government of Cuba :

- Mr. Guillermo PATTERSON, Cuban Minister in London.

The Government of Denmark :

- Mr. Emil KROGH, Assistant Secretary in the Ministry of Shipping and Fisheries.
- Mr. Aage H. LARSEN, Naval Architect and Engineer in Chief to the Ministry of Shipping and Fisheries.
- Mr. J. A. KÖRBING, Director of the "Forenede Dampskibsselskab," Copenhagen.
- Captain H. P. HAGELBERG, Chairman of the Association of Danish Shipmasters.
- Mr. Erik JACOBSEN, Trade Union Manager.

The Government of the Free City of Danzig :

- Mr. Alphonse POKLEWSKI-KOZIELL, Commercial Counsellor, Polish Legation, London.
- Mr. Waldemar SIEG, Commercial Counsellor.

The Government of Spain :

- Mr. Octaviano MARTINEZ-BARCA, Engineer, Spanish Navy.

The Government of the Irish Free State :

- Mr. J. W. DULANTY, Commissioner for Trade for the Irish Free State in Great Britain.
- Mr. T. J. HEGARTY, Ship Surveyor, Transport and Marine Branch, Department of Industry and Commerce.

The Government of the United States of America :

- Mr. Herbert B. WALKER, President of the American Steamship Owners' Association.
- Mr. David ARNOTT, Chief Surveyor, American Bureau of Shipping.
- Mr. Laurens PRIOR, Bureau of Navigation, Department of Commerce.
- Mr. Howard C. TOWLE, National Council of American Shipbuilders.
- Mr. Samuel D. McCOMB, Marine Office of America.
- Captain Albert F. PILLSBURY, Pillsbury and Curtis, San Francisco.
- Mr. Robert F. HAND, Vice-President, Standard Shipping Company, New York.
- Mr. James KENNEDY, General Manager, Marine Department, Gulf Refining Company, New York.
- Mr. H. W. WARLEY, Vice-president, Ore Steamship Corporation, New York.
- Rear-Admiral John G. TAWRESEY, C.C., United States Navy (Retired). United States Shipping Board.

The Government of Finland :

Mr. A. H. SAASTAMOINEN, Finnish Minister in London.
Commander Birger BRANDT, Finnish Shipmasters' Association.

The Government of France :

Mr. André Maurice HAARBLEICHER, Naval Construction Corps,
Director of the Departments of the Mercantile Fleet and of
Naval Material at the Ministry of the Mercantile Marine.
Mr. René Hippolyte Joseph LINDEMANN, Assistant Director of
the Department of Marine Labour and of the Accountants'
Department at the Ministry of the Mercantile Marine.
Mr. Jean Henri Théophile MARIE, Naval Construction Corps,
Assistant to the Director of the Departments of the Mercantile
Fleet and of Naval Material at the Ministry of the Mercantile
Marine.
Mr. A. H. A. de BERLHE, Deputy Manager of the Bureau Veritas.

The Government of the United Kingdom of Great Britain and Northern Ireland :

Sir Henry F. OLIVER, Admiral of the Fleet, Royal Navy.
Captain F. W. BATE, Professional Officer, Mercantile Marine
Department, Board of Trade.
Mr. A. J. DANIEL, Principal Ship Surveyor, Board of Trade.
Captain J. T. EDWARDS, Master Mariner (Retired).
Sir Ernest W. GLOVER, Chamber of Shipping of the United Kingdom.
Sir Norman HILL, Chairman, Merchant Shipping Advisory Com-
mittee, Board of Trade.
Sir Charles HIPWOOD, Board of Trade.
Mr. J. Foster KING, Chief Surveyor to the British Corporation
Register of Shipping and Aircraft.
Dr. J. MONTGOMERIE, Chief Ship Surveyor to Lloyd's Register of
Shipping.
Sir Charles J. O. SANDERS, Chairman, Load-line Committee,
1927-1929.
Mr. William Robert SPENCE, General Secretary, National Union
of Seamen.
Captain A. SPENCER, Master Mariner (Retired).

The Government of Greece :

Mr. Nicolas G. LELY, Consul-General for Greece in London.

The Government of India :

Sir Geoffrey L. CORBETT, late Secretary to the Government of
India, Commerce Department.
Mr. Nowrojee Dadabhoy ALLBLESS, Chairman of Scindia Steam-
ships (London), Ltd.
Captain Kavas OOKERJEE, Marine Superintendent, Scindia Steam
Navigation Company, Ltd., Bombay.
Engineer-Commander John Sutherland PAGE, Royal Indian Marine,
late Principal Engineer and Ship Surveyor, Government of
Bengal.

The Government of Iceland :

Mr. Emil KROGH, Assistant Secretary to the Danish Ministry of
Shipping and Fisheries.
Mr. Aage H. LARSEN, Naval Architect and Engineer in Chief to
the Danish Ministry of Shipping and Fisheries.
Mr. J. A. KÖRBING, Director of the "Forenede Dampskibsselskab,"
Copenhagen.
Captain H. P. HAGELBERG, Chairman of the Association of Danish
Shipmasters.
Mr. Erik JACOBSEN, Trade Union Manager, Denmark.

The Government of Italy :

General Giulio INGIANNI, General Director of the Mercantile Marine.
Admiral Giuseppe CANTU, Admiral of Division, Technical Inspector
of the Mercantile Marine.
Professor Torquato GIANNINI, Counsellor for Emigration in the
Italian Foreign Office.

The Government of Japan :

Mr. Shoichi NAKAYAMA, First Class Secretary of Embassy, London.
Mr. Sukefumi IWAI, Expert in the Local Administration Office of Communications.

The Government of Latvia :

Mr. Arturs OZOLS, Director of the Marine Department.
Captain Andrejs LONFELDS, Latvian Shipowners' Society.

The Government of Mexico :

Mr. Gustavo Luders de NEGRI, Consul-General for Mexico in London.

The Government of Norway :

Mr. Erling BRYN, Director of the Department of Shipping, Ministry of Commerce and Navigation.
Mr. Johan SCHÖNHEYDER, Surveyor-in-Chief in the Ministry of Commerce and Navigation.
Dr. J. BRUHN, Director of the Norwegian Veritas.
Mr. J. Hysing OLSEN, Shipowner.
Mr. Eivind TONNESEN, Managing Director of the Norwegian Shipmasters' Association.
Mr. A. BIRKELAND, President of the Norwegian Sailors' and Firemen's Union.

The Government of New Zealand :

Sir Thomas Mason WILFORD, High Commissioner for New Zealand in London.
Sir Charles HOLDSWORTH, Managing Director of the Union Steamship Company of New Zealand, Ltd.

The Government of Paraguay :

Dr. Horacio CARISIMO, Chargé d'Affaires in London.

The Government of the Netherlands :

Vice-Admiral (retired) C. FOCK, Inspector-General of Navigation, Chairman of the Freeboard Assigning Commission.
Mr. A. van DRIEL, Naval Architect, Adviser on Naval Architecture to the Shipping Inspection Service, Member and Secretary of the Freeboard Assigning Commission.
Mr. J. BRAUTIGAM, Chairman of the Netherlands Union of Transport Workers, Member of the Second Chamber of the States-General.
Mr. J. W. LANGELEER, Inspector of Shipping, Dutch East Indies.
Mr. J. Rypperda WIERDSMA, Chairman of the Holland-America Line.
Captain G. L. HEERIS, Secretary of the Netherlands Shipowners' Association.

The Government of Peru :

Captain Manuel D. FAURA, Naval Attaché in London.

The Government of Poland :

Mr. Alphonse POKLEWSKI-KOZIELL, Commercial Counsellor, Polish Embassy, London.
Mr. Boguslaw BAGNIEWSKI, Counsellor, Ministry of Industry and Trade, Warsaw.

The Government of Portugal :

Mr. Thomaz Ribeiro de MELLO, Minister Plenipotentiary; Head of the Economic Section of the Portuguese Ministry of Foreign Affairs.
Captain Carlos Theodoro da COSTA, Naval Architect.

The Government of Sweden :

Baron Erik Kule PALMSTIerna, Swedish Minister in London.
Mr. Per Axel LINDBLAD, Assistant Under-Secretary in the Board of Trade.
Captain Erik Axel Fredrik EGGERT, Maritime Expert to the Social Board.

The Government of the Union of Socialist Soviet Republics :

Mr. Dimitri BOGOMOLOFF, Counsellor of the Soviet Embassy in London.

Who, having communicated their full powers, found in good and due form, have agreed as follows:—

CHAPTER I.—PRELIMINARY.

ARTICLE 1.

General Obligation of Convention.

So that the load lines prescribed by this Convention shall be observed, the Contracting Governments undertake to give effect to the provisions of this Convention, to promulgate all regulations, and to take all other steps which may be necessary to give this Convention full and complete effect.

The provisions of this Convention are completed by Annexes, which have the same force and take effect at the same time as this Convention. Every reference to this Convention implies at the same time a reference to the Rules annexed thereto.

ARTICLE 2.

Scope of Convention.

1. This Convention applies to all ships engaged on international voyages, which belong to countries the Governments of which are Contracting Governments, or to territories to which this Convention is applied under Article 21, except—

- (a) Ships of war; ships solely engaged in fishing; pleasure yachts and ships not carrying cargo or passengers;
- (b) Ships of less than 150 tons gross.

2. Ships when engaged on international voyages between the near neighbouring ports of two or more countries may be exempted by the Administration to which such ships belong from the provisions of this Convention, so long as they shall remain in such trades, if the Governments of the countries in which such ports are situated shall be satisfied that the sheltered nature and conditions of such voyages between such ports make it unreasonable or impracticable to apply the provisions of this Convention to ships engaged in such trades.

3. All agreements and arrangements relating to load line or matters appertaining thereto at present in force between Contracting Governments shall continue to have full and complete effect during the terms thereof as regards—

- (a) Ships to which this Convention does not apply;
- (b) Ships to which this Convention applies in respect of matters for which it has not expressly provided.

To the extent, however, that such agreements or arrangements conflict with the provisions of this Convention, the provisions of this Convention shall prevail.

Subject to any such agreement or arrangement—

- (a) All ships to which this Convention does not apply; and
- (b) All matters which are not expressly provided for in this Convention;

shall remain subject to the legislation of each Contracting Government to the same extent as if this Convention had not been made.

ARTICLE 3.

Definitions.

In this Convention, unless expressly provided otherwise,—

- (a) A ship is regarded as belonging to a country if it is registered by the Government of that country;
- (b) The expression "Administration" means the Government of the country to which the ship belongs;
- (c) An "international voyage" is a voyage from a country to which this Convention applies to a port outside such country, or conversely, and for this purpose, every colony, overseas territory, protectorate, or territory under suzerainty or mandate is regarded as a separate country;
- (d) The expression "Rules" means the Rules contained in Annexes I, II, and III;

- (e) A "new ship" is a ship, the keel of which is laid on or after the 1st July, 1932, all other ships being regarded as existing ships :
- (f) The expression "steamer" includes any vessel propelled by machinery.

ARTICLE 4.

Cases of "Force Majeure."

No ship, which is not subject to the provisions of this Convention at the time of its departure on any voyage, shall become subject to the provisions of this Convention on account of any deviation from its intended voyage due to stress of weather or any other cause of *force majeure*.

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

CHAPTER II.—LOAD LINE: SURVEY AND MARKING.

ARTICLE 5.

General Provisions.

No ship to which this Convention applies shall proceed to sea on an international voyage after the date on which this Convention comes into force, unless the ship, being—

A—A new ship—

- (a) Has been surveyed in accordance with the provisions of Annex I ;
- (b) Complies with the provisions of Part II of Annex I ; and
- (c) Has been marked in accordance with the provisions of this Convention.

B—An existing ship—

- (a) Has been surveyed and marked (whether before or after this Convention comes into force) in accordance with the conditions prescribed either in paragraph A of this Article or in one of the sets of Rules for the Assignment of Load Line particularized in Annex IV ; and
- (b) Complies with the provisions of Part II of Annex I in principle, and also in detail, so far as is reasonable and practicable, having regard to the efficiency of (i) the protection of openings ; (ii) guard rails ; (iii) freeing ports, and (iv) means of access to crews' quarters provided by the existing arrangements, fittings and appliances on the ship.

ARTICLE 6.

Provisions for Steamers carrying Timber Deck Cargoes.

1. A steamer which has been surveyed and marked under Article 5 shall be entitled to be surveyed and marked with a timber load line under Part V of Annex I if, being—

A—A new ship, it complies with the conditions and provisions prescribed in Part V of Annex I :

B—An existing ship, it complies with the conditions and provisions of Part V of Annex I other than Rule LXXX, and also in principle, so far as is reasonable and practicable, with the conditions and provisions prescribed by Rule LXXX provided that in assigning a timber load line to an existing ship the Administration shall make such addition to the freeboard as shall be reasonable, having regard to the extent to which such ship falls short of full compliance with the conditions and provisions prescribed in Rule LXXX.

2. A steamer when using the timber load line shall comply with Rules LXXXIV, LXXXV, LXXXVI, LXXXVIII, and LXXXIX.

ARTICLE 7.

Provisions for Tankers.

A steamer which has been surveyed under Article 5 shall be entitled to be surveyed and marked as a tanker under Part VI of Annex I if, being—

A—A new ship, it complies with the conditions and provisions prescribed in Part VI of Annex I :

B—An existing ship, it complies with the conditions and provisions in Rules XCIII, XCVI, XCVII, XCVIII, and XCIX, and also in principle so far as is reasonable and practicable with Rules XCIV, XCV, and C, provided that in assigning a tanker load line to an existing ship the Administration shall make such addition to the freeboard as shall be reasonable having regard to the extent to which such ship falls short of full compliance with the conditions and provisions prescribed in Rules XCIV, XCV, and C.

ARTICLE 8.

Provisions for Ships of Special Types.

For steamers over 300 feet in length, possessing constructional features similar to those of a tanker which afford extra invulnerability against the sea, a reduction in freeboard may be granted.

The amount of such reduction shall be determined by the Administration in relation to the freeboard assigned to tankers, having regard to the degree of compliance with the conditions of assignment laid down for these ships, and the degree of subdivision provided.

The freeboard assigned to such a ship shall in no case be less than would be assigned to the ship as a tanker.

ARTICLE 9.

Survey.

The survey and marking of ships for the purpose of this Convention shall be carried out by officers of the country to which the ships belong, provided that the Government of each country may entrust the survey and marking of its ships either to Surveyors nominated for this purpose, or to organizations recognized by it. In every case the Government concerned fully guarantees the completeness and efficiency of the survey and marking.

ARTICLE 10.

Zones and Seasonal Areas.

A ship to which this Convention applies shall conform to the conditions applicable to the zones and seasonal areas described in Annex II to this Convention.

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

CHAPTER III.—CERTIFICATES.

ARTICLE 11.

Issue of Certificates.

A certificate, called "International Load Line Certificate," shall be issued to every ship which has been surveyed and marked in accordance with this Convention, but not otherwise.

An International Load Line Certificate shall be issued either by the Government of the country to which the ship belongs or by any person or organization duly authorized by that Government, and in every case the Government assumes full responsibility for the certificate.

ARTICLE 12.

Issue of Certificates by another Government.

The Government of a country to which this Convention applies may, at the request of the Government of any other country to which this Convention applies, cause any ship which belongs to the last-mentioned country, or (in the case of an unregistered ship) which is to be registered by the Government of that country, to be surveyed and marked, and, if satisfied that the requirements of this Convention are complied with, issue an International Load Line Certificate to such ship, under its own responsibility. Any certificate so issued must contain a statement to the effect that it has been issued at the request of the Government of the country to which the ship belongs, or of the Government by whom the ship is to be registered, as the case may be, and it shall have the same force and receive the same recognition as a certificate issued under Article 11 of this Convention.

ARTICLE 13.

Form of Certificate.

The International Load Line Certificates shall be drawn up in the official language or languages of the country by which they are issued.

The form of the certificate shall be that of the model given in Annex III, subject to such modifications as may, in accordance with Rule LXXVIII, be made in the case of ships carrying timber deck cargoes.

ARTICLE 14.

Duration of Certificates.

1. An International Load Line Certificate shall, unless it is renewed in accordance with the provisions of paragraph 2 of this Article, expire at the end of such period as may be specified therein by the Administration which issues it; but the period so specified shall not exceed five years from the date of issue.

2. An International Load Line Certificate may be renewed from time to time by the Administration which issued it for such period (not exceeding five years on any occasion) as the Administration thinks fit, after a survey not less effective than the survey required by this Convention before the issue of the certificate, and any such renewal shall be endorsed on the certificate.

3. An Administration shall cancel any International Load Line Certificate issued to a ship belonging to its country:

A. If material alterations have taken place in the hull and superstructures of the ship which affect the calculations of freeboard.

B. If the fittings and appliances for the (i) protection of openings, (ii) guard rails, (iii) freeing ports, and (iv) means of access to crews' quarters are not maintained in as effective a condition as they were in when the certificate was issued.

C. If the ship is not inspected periodically at such times and under such conditions as the Administration may think necessary for the purpose of securing that the hull and superstructures referred to in Condition A are not altered and that the fittings and appliances referred to in Condition B are maintained as therein provided throughout the duration of the certificate.

ARTICLE 15.

Acceptance of Certificates.

International Load Line Certificates issued under the authority of a Contracting Government shall be accepted by the other Contracting Governments as having the same force as the certificates issued by them to ships belonging to their respective countries.

ARTICLE 16.

Control.

1. A ship to which this Convention applies, when in a port of a country to which it does not belong, is in any case subject to control with respect to load line as follows: An officer duly authorized by the Government of that country may take such steps as may be necessary for the purpose of seeing that there is on board a valid International Load Line Certificate. If there is such a certificate on board the ship, such control shall be limited to the purpose of securing—

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

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

(c) That the ship has not been so materially altered in respect to the matters dealt with in conditions A and B (set out in paragraph 3 of Article 14) that the ship is manifestly unfit to proceed to sea without danger to human life.

2. Only officers possessing the necessary technical qualifications shall be authorized to exercise control as aforesaid, and if such control is exercised under (c) above, it shall only be exercised in so far as may be necessary to secure that the ship shall be made fit to proceed to sea without danger to human life.

3. If control under this Article appears likely to result in legal proceedings being taken against the ship, or in the ship being detained, the Consul of the country to which the ship belongs shall be informed as soon as possible of the circumstances of the case.

ARTICLE 17.

Privileges.

The privileges of this Convention may not be claimed in favour of any ship unless it holds a valid International Load Line Certificate.

CHAPTER IV.—GENERAL PROVISIONS.

ARTICLE 18.

Equivalents.

Where in this Convention it is provided that a particular fitting, or appliance, or type thereof, shall be fitted or carried in a ship, or that any particular arrangement shall be adopted, any Administration may accept in substitution therefor any other fitting, or appliance, or type thereof, or any other arrangement, provided that such Administration shall have been satisfied that the fitting, or appliance, or type thereof, or the arrangement substituted is in the circumstances at least as effective as that specified in this Convention.

Any Administration which so accepts a new fitting or appliance, or type thereof, or new arrangement shall communicate the fact to the other Administrations, and, upon request, the particulars thereof.

ARTICLE 19.

Laws, Regulations, Reports.

The Contracting Governments undertake to communicate to each other—

- (1) The text of laws, decrees, regulations, and decisions of general application which shall have been promulgated on the various matters within the scope of this Convention ;
- (2) All available official reports or official summaries of reports in so far as they show the results of the provisions of this Convention, provided always that such reports or summaries are not of a confidential nature.

The Government of the United Kingdom of Great Britain and Northern Ireland is invited to serve as an intermediary for collecting all this information and for bringing it to the knowledge of the other Contracting Governments.

ARTICLE 20.

Modifications, Future Conferences.

1. Modifications of this Convention which may be deemed useful or necessary improvements may at any time be proposed by any Contracting Government to the Government of the United Kingdom of Great Britain and Northern Ireland, and such proposals shall be communicated by the latter to all the other Contracting Governments, and if any such modifications are accepted by all the Contracting Governments (including Governments which have deposited ratifications or accessions which have not yet become effective) this Convention shall be modified accordingly.

2. Conferences for the purpose of revising this Convention shall be held at such times and places as may be agreed upon by the Contracting Governments.

A Conference for this purpose shall be convoked by the Government of the United Kingdom of Great Britain and Northern Ireland whenever, after this Convention has been in force for five years, one-third of the Contracting Governments express a desire to that effect.

CHAPTER V.—FINAL PROVISIONS.

ARTICLE 21.

Application to Colonies.

1. A Contracting Government may, at the time of signature, ratification, accession, or thereafter by a notification in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland, declare its desire that this Convention shall apply to all or any of its Colonies, overseas territories, protectorates, or territories under suzerainty or mandate, and this Convention shall apply to all the territories named in such notification, two months after the date of the receipt thereof, but, failing such notification, this Convention will not apply to any such territories.

2. A Contracting Government may at any time by a notification in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland express its desire that this Convention shall cease to apply to all or any of its colonies, overseas territories, protectorates, or territories under suzerainty or mandate to which this Convention shall have, under the provisions of the preceding paragraph, been applicable for a period of not less than five years, and in such case the Convention shall cease to apply twelve months after the date of the receipt of such notification by the Government of the United Kingdom of Great Britain and Northern Ireland to all territories mentioned therein.

3. The Government of the United Kingdom of Great Britain and Northern Ireland shall inform all the other Contracting Governments of the application of this Convention to any Colony, overseas territory, protectorate, or territory under suzerainty, or mandate under the provisions of paragraph 1 of this Article, and of the cessation of any such application under the provisions of paragraph 2, stating in each case the date from which this Convention has become or will cease to be applicable.

ARTICLE 22.

Authentic Texts.—Ratification.

This Convention, of which both the English and French texts shall be authentic, shall be ratified.

The instruments of ratification shall be deposited in the archives of the Government of the United Kingdom of Great Britain and Northern Ireland, which will notify all the other signatory or acceding Governments of all ratifications deposited and the date of their deposit.

ARTICLE 23.

Accession.

A Government (other than the Government of a territory to which Article 21 applies) on behalf of which this Convention has not been signed, shall be allowed to accede thereto at any time after the Convention has come into force. Accessions shall be effected by means of notifications in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland, and shall take effect three months after their receipt.

The Government of the United Kingdom of Great Britain and Northern Ireland shall inform all signatory and acceding Governments of all accessions received and of the date of their receipt.

ARTICLE 24.

Date of Coming in Force.

This Convention shall come into force on the 1st July, 1932, as between the Governments which have deposited their ratifications by that date, and provided that at least five ratifications have been deposited with the Government of the United Kingdom of Great Britain and Northern Ireland. Should five ratifications not have been deposited by that date, this Convention shall come into force three months after the date on which the fifth ratification is deposited. Ratifications deposited after the date on which this Convention has come into force shall take effect three months after the date of their deposit.

ARTICLE 25.

Denunciation.

This Convention may be denounced on behalf of any Contracting Government at any time after the expiration of five years from the date on which the Convention comes into force in so far as that Government is concerned. Denunciation shall be effected by a notification in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland, which will notify all the other contracting Governments of all denunciations received and of the date of their receipt.

A denunciation shall take effect twelve months after the date on which notification thereof is received by the Government of the United Kingdom of Great Britain and Northern Ireland.

In faith whereof the Plenipotentiaries have signed hereafter.

Done at London this fifth day of July, 1930, in a single copy, which shall remain deposited in the archives of the Government of the United Kingdom of Great Britain and Northern Ireland, which shall transmit certified true copies thereof to all signatory Governments.

[L.S.] GUSTAV KOENIGS.	J. FOSTER KING.
WALTER LAAS.	J. MONTGOMERIE.
KARL STURM.	CHARLES J. O. SANDERS.
H. P. CAYLEY.	W. R. SPENCE.
V. C. DUFFY.	A. SPENCER.
R. GRIMARD.	N. G. LELY.
A. JOHNSTON.	G. L. CORBETT.
OSCAR BUNSTER.	NOWROJEE DADABHOY ALL-
GUILLERMO PATTERSON.	BLESS.
EMIL KROGH.	KAVAS OOKERJEE.
AAGE H. LARSEN.	J. S. PAGE.
H. P. HAGELBERG.	EMIL KROGH.
OCTAVIANO M. BARCA.	AAGE H. LARSEN.
SEAN DULCHAONTIGH.	H. P. HAGELBERG.
T. J. HEGARTY.	GIULIO INGIANNI.
HERBERT B. WALKER.	GIUSEPPE CANTU.
DAVID ARNOTT.	S. NAKAYAMA.
LAURENS PRIOR.	S. IWAI.
HOWARD C. TOWLE.	A. OZOLS.
ALBERT F. PILLSBURY.	G. LUDERS DE NEGRI.
ROBERT F. HAND.	E. BRYN.
JAS. KENNEDY.	J. SCHÖNHEYDER.
H. W. WARLEY.	THOMAS M. WILFORD.
JOHN G. TAWRESEY.	C. HOLDSWORTH.
E. PALMSTIERNÄ.	C. FOCK.
E. EGGERT.	A. VAN DRIEL.
A. H. SAASTAMOINEN.	JOH. BRAUTIGAM.
B. BRANDT.	LANGELER.
JEAN MARIE.	J. R. WIERDSMA.
A. DE BERLHE.	M. D. FAURA.
H. F. OLIVER.	A. POKLEWSKI-KOZIELL.
F. W. BATE.	B. BAGNIEWSKI.
ALFRED J. DANIEL.	THOMAZ RIBEIRO DE MELLO.
JOHN T. EDWARDS.	CARLOS THEODORO DA COSTA.
ERNEST W. GLOVER.	D. BOGOMOLOFF.
NORMAN HILL.	S. HORACIO CARISIMO.
C. HIPWOOD.	T. C. GIANNINI.

FINAL PROTOCOL.

At the moment of signing the International Load Line Convention concluded this day, the undermentioned Plenipotentiaries have agreed on the following:—

I.

Ships engaged solely on voyages on the Great Lakes of North America and ships engaged in other inland waters are to be regarded as outside the scope of the Convention.

II.

This Convention is not applied to the existing ships of the United States of America and of France of the lumber schooner type propelled by power, with or without sails, or by sails alone.

III.

The Government of the United Kingdom of Great Britain and Northern Ireland shall convoke a Conference of the Contracting Governments of the countries to which tankers belong, upon request of the United States of America, at any time within the five-year period mentioned in Article 20, for the purpose of discussing matters relating to tanker freeboard.

The Contracting Governments will not raise any objection to the provisions contained in this Convention in regard to tanker load line being altered as may be determined at such Conference, provided that the conclusions then reached are communicated forthwith to the Governments signatory to the present Convention and that no objection is received by the Government of the United Kingdom of Great Britain and Northern Ireland within six months of the despatch of such communication.

In witness whereof the Plenipotentiaries have drawn up this Final Protocol which shall have the same force and the same validity as if the provisions thereof had been inserted in the text of the Convention to which it belongs.

Done at London this fifth day of July, 1930, in a single copy which shall be deposited in the archives of the Government of the United Kingdom of Great Britain and Northern Ireland, which shall transmit certified true copies thereof to all signatory Governments.

[L.S.] GUSTAV KOENIGS.	J. FOSTER KING.
WALTER LAAS.	J. MONTGOMERIE.
KARL STURM.	CHARLES J. O. SANDERS.
H. P. CAYLEY.	W. R. SPENCE.
V. C. DUFFY.	A. SPENCER.
R. GRIMARD.	N. G. LELY.
A. JOHNSTON.	G. L. CORBETT.
OSCAR BUNSTER.	NOWROJEE DADABHOY ALL-
GUILLELMO PATTERSON.	BLESS.
EMIL KROGH.	KAVAS OOKERJEE.
AAGE H. LARSEN.	J. S. PAGE.
H. P. HAGELBERG.	EMIL KROGH.
OCTAVIANO M. BARCA.	AAGE H. LARSEN.
SEAN DULCHAONTIGH.	H. P. HAGELBERG.
T. J. HEGARTY.	GIULIO INGIANNI.
HERBERT B. WALKER.	GIUSEPPE CANTU.
DAVID ARNOTT.	S. NAKAYAMA.
LAURENS PRIOR.	S. IWAI.
HOWARD C. TOWLE.	A. OZOLS.
ALBERT F. PILLSBURY.	G. LUDERS DE NEGRI.
ROBERT F. HAND.	E. BRYN.
JAS. KENNEDY.	J. SCHÖNHEYDER.
H. W. WARLEY.	THOMAS M. WILFORD.
JOHN G. TAWRESEY.	C. HOLDSWORTH.
E. PALMSTIerna.	C. FOCK.
E. EGGERT.	A. VAN DRIEL.
A. H. SAASTAMOINEN.	JOH. BRAUTIGAM.
B. BRANDT.	LANGELER.
JEAN MARIE.	J. R. WIERDSMA.
A. DE BERLHE.	M. D. FAURA.
H. F. OLIVER.	A. POKLEWSKI-KOZIELL.
F. W. BATE.	B. BAGNIEWSKI.
ALFRED J. DANIEL.	THOMAZ RIBEIRO DE MELLO.
JOHN T. EDWARDS.	CARLOS THEODORO DA COSTA.
ERNEST W. GLOVER.	D. BOGOMOLOFF.
NORMAN HILL.	S. HORACIO CARISIMO.
C. HIPWOOD.	T. C. GIANNINI.

ANNEX I.

Rules for determining Maximum Load Lines of Merchant Ships.

Part I.—General.

The rules necessarily assume that the nature and stowage of the cargo, ballast, &c., are such as to secure sufficient stability for the ship.

Rule I.—Definitions.

Steamer.—The term “steamer” includes all ships having sufficient means for mechanical propulsion, except where provided with sufficient sail area for navigation under sails alone.

A ship fitted with mechanical means of propulsion and with sail area insufficient for navigation under sails alone may be assigned a load line under Part III of these Rules.

A lighter, barge, or other ship without independent means of propulsion, when towed, is to be assigned a load line under Part III of these Rules.

Sailing Ship.—The term “sailing ship” includes all ships provided with sufficient sail area for navigation under sails alone, whether or not fitted with mechanical means of propulsion.

Flush Deck Ship.—A flush deck ship is one which has no superstructure on the freeboard deck.

Superstructure.—A superstructure is a decked structure on the freeboard deck extending from side to side of the ship. A raised quarter deck is considered a superstructure.

Freeboard.—The freeboard assigned is the distance measured vertically downwards at the side of the ship amidships from the upper edge of the deck line to the upper edge of the load line mark.

Freeboard Deck.—The freeboard deck is the deck from which the freeboard is measured, and is the uppermost complete deck having permanent means of closing all openings in weather portions of the deck in accordance with Rules VIII to XVI. It is the upper deck in flush deck ships and ships with detached superstructures.

In ships having discontinuous freeboard decks within superstructures which are not intact, or which are not fitted with Class 1 closing appliances, the lowest line of the deck below the superstructure deck is taken as the freeboard deck.

Amidships.—Amidships is the middle of the length of the summer load water-line, as defined in Rule XXXII.

Rule II.—*Deck Line.*

The deck line is a horizontal line twelve inches in length and one inch in breadth. It is to be marked amidships on each side of the ship, and its upper edge is to pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell. (See figure 1.) Where the deck is partly sheathed amidships, the upper edge of the deck line is to pass through the point where the continuation outwards of the upper surface of the actual sheathing at amidships intersects the outer surface of the shell.

Rule III.—*Load Line Disc.*

The load line disc is twelve inches in diameter and is intersected by a horizontal line eighteen inches in length and one inch in breadth, the upper edge of which passes through the centre of the disc. The disc is to be marked amidships below the deck line.

Rule IV.—*Lines to be used in connection with the Disc.*

The lines which indicate the maximum load line in different circumstances and in different seasons (see Annex II) are to be horizontal lines, nine inches in length and one inch in breadth, which extend from, and are at right angles to, a vertical line marked 21 inches forward of the centre of the disc (see figure 1).

The following are the lines to be used :—

Summer Load Line.—The Summer load line is indicated by the upper edge of the line which passes through the centre of the disc and also by a line marked S.

Winter Load Line.—The Winter load line is indicated by the upper edge of a line marked W.

Winter North Atlantic Load Line.—The Winter North Atlantic load line is indicated by the upper edge of a line marked WNA.

Tropical Load Line.—The tropical load line is indicated by the upper edge of a line marked T.

Fresh Water Load Lines.—The fresh water load line in summer is indicated by the upper edge of a line marked F. 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. The tropical fresh water load line is indicated by the upper edge of a line marked T.F.*

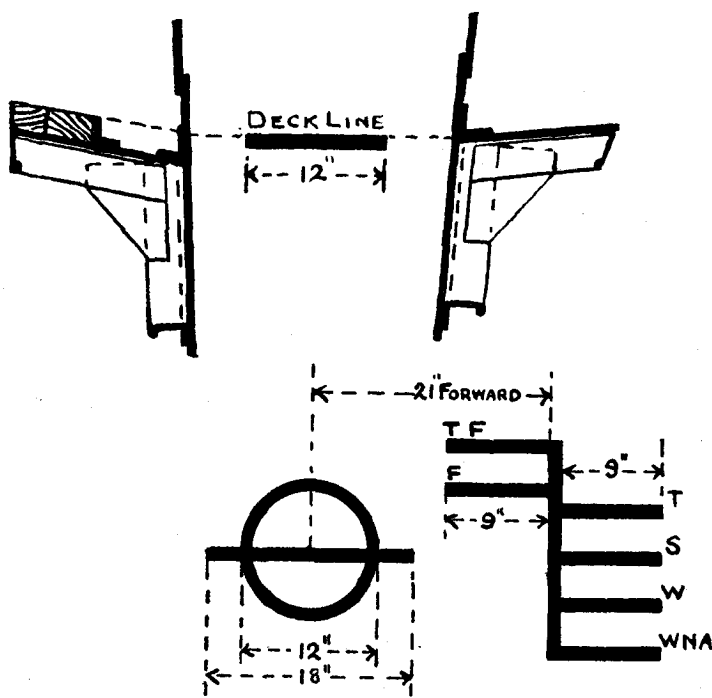


FIGURE 1.

* Where sea-going steamers navigate a river or inland water, deeper loading is permitted corresponding to the weight of fuel, &c., required for consumption between the point of departure and the open sea.

Rule V.—*Mark of Assigning Authority.*

The authority by whom the load lines are assigned may be indicated by letters measuring about $4\frac{1}{2}$ inches by 3 inches marked alongside the disc and above the centre line.

Rule VI.—*Details of Marking.*

The disc, lines, and letters are to be painted in white or yellow on a dark ground or in black on a light ground. They are also to be carefully cut in or centre-punched on the sides of iron and steel ships, and on wood ships they are to be cut into the planking for at least one-eighth of an inch. The marks are to be plainly visible, and, if necessary, special arrangements are to be made for this purpose.

Rule VII.—*Verification of Marks.*

The International Load Line Certificate is not to be delivered to the ship until a surveyor of the assigning authority (acting under the provisions of Article 9 of this Convention) has certified that the marks are correctly and permanently indicated on the ship's sides.

Part II.—Conditions of Assignment of Load Lines.

The assignment of load lines is conditional upon the ship being structurally efficient and upon the provision of effective protection to ship and crew.

Rules VIII to XXXI apply to ships to which minimum freeboards are assigned. In ships to which greater freeboards than the minimum are assigned, the protection is to be relatively as effective.

Openings in Freeboard and Superstructure Decks.

Rule VIII.—*Cargo and other Hatchways not protected by Superstructures.*

The construction and fitting of cargo and other hatchways in exposed positions on freeboard and superstructure decks are to be at least equivalent to the standards laid down in Rules IX to XVI.

Rule IX.—*Hatchway Coamings.*

The height of hatchway coamings on freeboard decks is to be at least 24 inches above the deck. The height of coamings on superstructure decks is to be at least 24 inches above the deck if situated within a quarter of the ship's length from the stem, and at least 18 inches if situated elsewhere.

Coamings are to be of steel, are to be substantially constructed, and, where required to be 24 inches high, are to be fitted with an efficient horizontal stiffener placed not lower than 10 inches below the upper edge, and fitted with efficient brackets or stays from the stiffener to the deck, at intervals of not more than 10 feet. Where end coamings are protected, these requirements may be modified.

Rule X.—*Hatchway Covers.*

Covers to exposed hatchways are to be efficient, and where they are made of wood, the finished thickness is to be at least $2\frac{3}{8}$ inches in association with a span of not more than 5 feet. The width of each bearing surface for these hatchway covers is to be at least $2\frac{1}{2}$ inches.

Rule XI.—*Hatchway Beams and Fore-and-afters.*

Where wood hatchway covers are fitted the hatchway beams and fore-and-afters are to be of the scantlings and spacing given in Table 1 where coamings 24 inches high are required, and as given in Table 2 where coamings 18 inches high are required. Angle bar mountings on the upper edge are to extend continuously for the full length of each beam. Wood fore-and-afters are to be steel shod at all bearing surfaces.

TABLE 1.

(Coamings 24 in. in height.)

HATCHWAY Beams and Fore-and-afters for Ships 200 ft. or more in length.*

HATCHWAY BEAMS.

Breadth of Hatchway.	Mounting.			Beams with Fore-and-Afters.						Beams without Fore-and-Afters.			
				Spacing Centre to Centre.						Spacing Centre to Centre.			
				6' 0"		8' 0"		10' 0"		4' 0"		5' 0"	
In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
10' 0"	3	3	0.40A	11	0.30P	12	0.32P	14	0.34P	9	0.46BP	10	0.50BP
12' 0"	3	3	0.40A	12	0.32P	14	0.34P	17	0.36P	11	0.50BP	12	0.50BP
14' 0"	3	3	0.42A	14	0.34P	17	0.36P	20	0.38P	12	0.50BP	12	0.32P
16' 0"	3½	3	0.42A	16	0.36P	19	0.38P	22	0.38P	12	0.32P	14	0.34P
18' 0"	4	3	0.44A	18	0.36P	21	0.38P	25	0.40P	14	0.34P	16	0.36P
20' 0"	4	3	0.44A	20	0.38P	24	0.40P	28	0.42P	15	0.34P	18	0.36P
22' 0"	4½	3	0.46A	22	0.38P	26	0.42P	30	0.44P	16	0.36P	19	0.36P
24' 0"	5	3½	0.46A	23	0.40P	28	0.42P	32	0.44P	17	0.36P	20	0.38P
26' 0"	5½	3½	0.48A	24	0.40P	29	0.42P	34	0.46P	18	0.36P	21	0.38P
28' 0"	6	3½	0.50A	25	0.40P	31	0.44P	36	0.48P	19	0.38P	22	0.38P
30' 0"	6	3½	0.52A	26	0.42P	32	0.44P	38	0.48P	20	0.38P	23	0.40P

* See footnote at end of table.

FORE-AND-AFTERS.

Length of Fore-and-Afters.	Mounting.			Bulb Plate. Centre Fore-and-Afters.						Bulb Angle. Side Fore-and-Afters.								
				Spacing Centre to Centre.						Spacing Centre to Centre.								
				3' 0"		4' 0"		5' 0"		3' 0"		4' 0"		5' 0"				
In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.				
6' 0"	2½	2½	0.36	6	0.36	6½	0.38	7	0.38	6	3	0.36	6½	3½	0.38	7	3½	0.38
8' 0"	2½	2½	0.38	7	0.42	8	0.44	9	0.44	7	3½	0.42	8	3	0.44	9	3½	0.44
10' 0"	2½	2½	0.40	8	0.50	9½	0.50	11	0.50	8	3½	0.50	9½	3½	0.50	11	3½	0.50

	Wood Centre Fore-and-Afters.						Wood Side Fore-and-Afters.					
	Spacing Centre to Centre.						Spacing Centre to Centre.					
	3' 0"		4' 0"		5' 0"		3' 0"		4' 0"		5' 0"	
	D	B	D	B	D	B	D	B	D	B	D	B
6' 0"	In. 5½	In. 7	In. 6	In. 7	In. 6½	In. 7	In. 5½	In. 5½	In. 6	In. 6	In. 6½	In. 6
8' 0"	6½	7	7½	7	8	7	6½	6½	7½	7	8	7
10' 0"	8	7	8½	8	9	9	8	7	8½	8	9	9

A = Plain angle. BP = Bulb plate. P = Plate D = Depth. B = Breadth

Depths for hatchway beams are at the middle of the length and are measured from the top mounting to the lower edge. Depths for fore-and-afters are measured from the under side of the hatch covers to the lower edge. Sizes for intermediate lengths and spacing are obtained by interpolation. Where plate are specified, two angles, of the sizes given for mountings, are to be fitted at the upper and at the lower part of the beam. Where bulb plates are specified, two angles, of the size given for mountings, are to be fitted at the upper part of the beam or fore-and-after. Where bulb angles are specified, one angle, of the size given for mountings, is to be fitted at the upper part of the section. Where the specified flanges of an angle are of different dimensions, the larger flange is to be horizontal.

* In ships not exceeding 100 feet in length, the depths of beams which are formed of plates and angles may be 60 per cent. of the depths given above; the depths of beams and steel fore-and-afters formed of bulb angle or bulb plate section may be 80 per cent. of the depths given above; the thickness of plates, bulb angles and bulb plates should correspond to the thickness tabulated for the reduced depths with a minimum thickness of 0.30 inch; the depths and breadths of wood fore-and-afters may be 80 per cent. of those given in the tables for side fore-and-afters, but the centre fore-and-afters must be not less than 6½ inches wide. In ships between 100 feet and 200 feet in length, the sizes of the beams and fore-and-afters are to be determined by linear interpolation.

TABLE 2.
(Coamings 18 in. in height.)
HATCHWAY Beams and Fore-and-afters for Ships 200 ft. or more in length.*

HATCHWAY BEAMS.

Breadth of Hatchway.	Mounting.			Beams with Fore-and-Afters.						Beams without Fore-and-Afters.			
				Spacing Centre to Centre.						Spacing Centre to Centre.			
				6' 0"		8' 0"		10' 0"		4' 0"		5' 0"	
In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
10' 0"	3	3	3	9½	0.46BP	10½	0.50BP	11½	0.52BP	8	0.40BP	9	0.44BP
12' 0"	3	3	3	11	0.50BP	11	0.30P	13	0.34P	9	0.44BP	10	0.50BP
14' 0"	3	3	3	11	0.30P	13	0.32P	15	0.34P	10	0.50BP	11½	0.50BP
16' 0"	3½	3	3	12	0.32P	15	0.34P	17	0.36P	11	0.30P	11	0.30P
18' 0"	4	3	3	14	0.34P	17	0.36P	19	0.38P	11	0.30P	12	0.32P
20' 0"	4	3	3	16	0.36P	19	0.38P	21	0.38P	12	0.32P	13	0.34P
22' 0"	4½	3	3	17	0.36P	20	0.38P	23	0.40P	12½	0.32P	14	0.34P
24' 0"	5	3½	3	18	0.36P	21	0.38P	25	0.40P	13	0.34P	14½	0.34P
26' 0"	5½	3½	3	19	0.38P	22	0.38P	26	0.42P	13½	0.34P	15	0.34P
28' 0"	6	3½	3	20	0.38P	23	0.40P	27	0.42P	14	0.34P	16	0.36P
30' 0"	6	3½	3	21	0.38P	24	0.40P	28	0.42P	15	0.34P	17	0.36P

* See footnote at end of table.

FORE-AND-AFTERS.

Length of Fore-and-Afters.	Mounting.			Bulb Plate. Centre Fore-and-Afters.						Bulb Angle. Side Fore-and-Afters.								
				Spacing Centre to Centre.						Spacing Centre to Centre.								
				3' 0"		4' 0"		5' 0"		3' 0"		4' 0"		5' 0"				
In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.				
6' 0"	2½	2½	0.36	5	0.34	5½	0.34	6	0.36	5	3	0.34	5½	3	0.34	6	3	0.36
8' 0"	2½	2½	0.38	6	0.38	7	0.40	7½	0.42	6	3	0.38	7	3	0.40	7½	3½	0.42
10' 0"	2½	2½	0.40	7	0.44	8	0.46	9	0.50	7	3	0.44	8	3½	0.46	9	3½	0.50

	Wood Centre Fore-and-Afters.						Wood Side Fore-and-Afters.					
	Spacing Centre to Centre.						Spacing Centre to Centre.					
	3' 0"		4' 0"		5' 0"		3' 0"		4' 0"		5' 0"	
	D	B	D	B	D	B	D	B	D	B	D	B
6' 0"	In.	5	In.	7	In.	5½	In.	7	In.	6	In.	7
8' 0"	6	7	6½	7	7	7	6	5	6½	6	7	6
10' 0"	7	7	7½	7	8	7	7	6	7½	7	8	7

A = Plain angle. BP = Bulb plate. P = Plate. D = Depth. B = Breadth.

Depths for hatchway beams are at the middle of the length and are measured from the top mounting to the lower edge. Depths for fore-and-afters are measured from the underside of the hatch covers to the lower edge. Sizes for intermediate lengths and spacing are obtained by interpolation. Where plates are specified, two angles, of the sizes given for mountings, are to be fitted at the upper and at the lower part of the beam. Where bulb plates are specified, two angles, of the size given for mountings, are to be fitted at the upper part of the beam or fore-and-after. Where bulb angles are specified, one angle, of the size given for mountings, is to be fitted at the upper part of the section. Where the specified flanges of an angle are of different dimensions, the larger flange is to be horizontal.

* In ships not exceeding 100 feet in length, the depths of beams which are formed of plates and angles may be 60 per cent. of the depths given above; the depths of beams and steel fore-and-afters formed of bulb angle or bulb plate section may be 80 per cent. of the depths given above; the thickness of plates, bulb angles and bulb plates should correspond to the thickness tabulated for the reduced depths with a minimum thickness of 0.30 inch; the depths and breadths of wood fore-and-afters may be 80 per cent. of those given in the tables for side fore-and-afters, but the centre fore-and-afters must be not less than 6½ inches wide. In ships between 100 feet and 200 feet in length, the sizes of the beams and fore-and-afters are to be determined by linear interpolation.

Rule XII.—*Carriers or Sockets.*

Carriers or sockets for hatchway beams and fore-and-afters are to be of steel at least $\frac{1}{2}$ inch thick, and are to have a width of bearing surface of at least 3 inches.

Rule XIII.—*Cleats.*

Strong cleats at least $2\frac{1}{2}$ inches wide are to be fitted at intervals of not more than 2 feet from centre to centre; the end cleats are to be placed not more than 6 inches from each corner of the hatchway.

Rule XIV.—*Battens and Wedges.*

Battens and wedges are to be efficient and in good condition.

Rule XV.—*Tarpaulins.*

At least two tarpaulins in good condition, thoroughly waterproofed and of ample strength, are to be provided for each hatchway in an exposed position on freeboard and superstructure decks. The material is to be guaranteed free from jute, and of the standard weight and quality laid down by each Administration.

Rule XVI.—*Security of Hatchway Covers.*

At all hatchways in exposed positions on freeboard and superstructure decks ring bolts or other fittings for lashings are to be provided.

Where the breadth of the hatchway exceeds 60 per cent. of the breadth of the deck in way of the hatchway, and the coamings are required to be 24 inches high, fittings for special lashings are to be provided for securing the hatchway covers after the tarpaulins are battened down.

Rule XVII.—*Cargo and other Hatchways in the Freeboard Deck within Superstructures which are fitted with Closing Appliances less efficient than Class 1.*

The construction and fitting of such hatchways are to be at least equivalent to the standards laid down in Rule XVIII.

Rule XVIII.—*Hatchway Coamings and Closing Arrangements.*

Cargo, coaling, and other hatchways in the freeboard deck within superstructures which are fitted with Class 2 closing appliances are to have coamings at least 9 inches in height and closing arrangements as effective as those required for exposed cargo hatchways whose coamings are 18 inches high.

Where the closing appliances are less efficient than Class 2, the hatchways are to have coamings at least 18 inches in height, and are to have fittings and closing arrangements as effective as those required for exposed cargo hatchways.

Rule XIX.—*Machinery Space Openings in Exposed Positions on Freeboard and Raised Quarter Decks.*

Such openings are to be properly framed and efficiently enclosed by steel casings of ample strength, and where the casings are not protected by other structures their strength is to be specially considered. Doors in such casings are to be of steel, efficiently stiffened, permanently attached, and capable of being closed and secured from both sides. The sills of openings are to be at least 24 inches above the freeboard deck and at least 18 inches above the raised quarter deck.

Fiddley, funnel, and ventilator coamings are to be as high above the deck as is reasonable and practicable. Fiddley openings are to have strong steel covers permanently attached in their proper positions.

Rule XX.—*Machinery Space Openings in Exposed Positions on Superstructure Decks other than Raised Quarter Decks.*

Such openings are to be properly framed and efficiently enclosed by strong steel casings. Doors in such cases are to be strongly constructed, permanently attached, and capable of being closed and secured from both sides. The sills of the openings are to be at least 15 inches above superstructure decks.

Fiddley, funnel, and ventilator coamings are to be as high above the deck as is reasonable and practicable. Fiddley openings are to have strong steel covers permanently attached in their proper positions.

Rule XXI.—*Machinery Space Openings in the Freeboard Deck within Superstructures which are fitted with Closing Appliances less efficient than Class 1.*

Such openings are to be properly framed and efficiently enclosed by steel casings. Doors in such casings are to be strongly constructed, permanently attached, and capable of being securely closed. The

sills of the openings are to be at least 9 inches above the deck where the superstructures are closed by Class 2 closing appliances, and at least 15 inches above the deck where the closing appliances are less efficient than Class 2.

Rule XXII.—*Flush Bunker Scuttles.*

Flush bunker scuttles may be fitted in superstructure decks, and where so fitted are to be of iron or steel, of substantial construction, with screw or bayonet joints. Where a scuttle is not secured by hinges, a permanent chain attachment is to be provided. The position of flush bunker scuttles in small ships in special trades is to be dealt with by each Assigning Authority.

Rule XXIII.—*Companionways.*

Companionways in exposed positions on freeboard decks and on decks of enclosed superstructures are to be of substantial construction. The sills of the doorways are to be of the heights specified for hatchway coamings (see Rules IX and XVIII). The doors are to be strongly constructed and capable of being closed and secured from both sides. Where the companionway is situated within a quarter of the ship's length from the stem, it is to be of steel and riveted to the deck plating.

Rule XXIV.—*Ventilators in Exposed Positions on Freeboard and Superstructure Decks.*

Such ventilators to spaces below freeboard decks or decks of superstructures which are intact or fitted with Class 1 closing appliances are to have coamings of steel, substantially constructed, and efficiently connected to the deck by rivets spaced four diameters apart centre to centre, or by equally effective means. The deck plating at the base of the coaming is to be efficiently stiffened between the deck beams. The ventilator openings are to be provided with efficient closing arrangements.

Where such ventilators are situated on the freeboard deck, or on the superstructure deck within a quarter of the ship's length from the stem, and the closing arrangements are of a temporary character, the coamings are to be at least 36 inches in height; in other exposed positions on the superstructure deck they are to be at least 30 inches in height. Where the coaming of any ventilator exceeds 36 inches in height, it is to be specially supported and secured.

Rule XXV.—*Air Pipes.*

Where the air pipes to ballast and other tanks extend above freeboard or superstructure decks, the exposed parts of the pipes are to be of substantial construction; the height from the deck to the opening is to be at least 36 inches in wells on freeboard decks, 30 inches on raised quarter decks, and 18 inches on other superstructure decks. Satisfactory means are to be provided for closing the openings of the air pipes.

Openings in the Sides of Ships.

Rule XXVI.—*Gangway, Cargo and Coaling Ports, &c.*

Openings in the sides of ships below the freeboard deck are to be fitted with watertight doors or covers which, with their securing appliances, are to be of sufficient strength.

Rule XXVII.—*Scuppers and Sanitary Discharge Pipes.*

Discharges led through the ship's sides from spaces below the freeboard deck are to be fitted with efficient and accessible means for preventing water from passing inboard. Each separate discharge may have an automatic non-return valve with a positive means of closing it from a position above the freeboard deck, or two automatic non-return valves without positive means of closing, provided the upper valve is situated so that it is always accessible for examination under service conditions. The positive action valve is to be readily accessible and is to be provided with means for showing whether the valve is open or closed. Cast iron is not to be accepted for such valves where attached to the sides of the ship.

Conditional upon the type and the location of the inboard ends of such openings, similar provisions may be prescribed by the Assigning Authority as to discharges from spaces within enclosed superstructures.

Where scuppers are fitted in superstructures not fitted with Class 1 closing appliances they are to have efficient means for preventing the accidental admission of water below the freeboard deck.

Rule XXVIII.—*Side Scuttles.*

Side scuttles to spaces below the freeboard deck or to spaces below the superstructure deck of superstructures closed by Class 1 or Class 2 closing appliances are to be fitted with efficient inside deadlights permanently attached in their proper positions so that they can be effectively closed and secured watertight.

Where, however, such spaces in superstructures are appropriated to passengers other than steerage passengers or to crew, the side scuttles may have portable deadlights stowed adjacent to the side scuttles, provided they are readily accessible at all times on service.

The side scuttles and deadlights are to be of substantial and approved construction.

Rule XXIX.—*Guard Rails.*

Efficient guard rails or bulwarks are to be fitted on all exposed portions of freeboard and superstructure decks.

Rule XXX.—*Freeing Ports.*

Where bulwarks on the weather portions of freeboard or superstructure decks form "wells," ample provision is to be made for rapidly freeing the decks of water and for draining them. The minimum freeing port area on each side of the ship for each well on the freeboard deck and on the raised quarter deck is to be that given by the following scale; the minimum area for each well on any other superstructure deck is to be one-half the area given by the scale. Where the length of the well exceeds 0.7 L, the scale may be modified.

SCALE OF FREEING PORT AREA.

Length of Bulwarks in "Well" in Feet.	Freeing Port Area on each Side in Square Feet.
15	8.0
20	8.5
25	9.0
30	9.5
35	10.0
40	10.5
45	11.0
50	11.5
55	12.0
60	12.5
65	13.0
Above 65	1 square foot for each additional 5 feet length of bulwark.

The lower edges of the freeing ports are to be as near the deck as practicable and preferably not higher than the upper edge of the gunwale bar. Two-thirds of the freeing port area required is to be provided in the midship half of the well. In ships with less than the standard sheer the freeing port area is to be suitably increased.

All such openings in the bulwarks are to be protected by rails or bars spaced about 9 inches apart. If shutters are fitted to freeing ports, ample clearance is to be provided to prevent jamming. Hinges are to have brass pins.

Rule XXXI.—*Protection of Crew.*

Gangways, lifelines, or other satisfactory means are to be provided for the protection of the crew in getting to and from their quarters. The strength of houses for the accommodation of crew on flush deck steamers is to be equivalent to that required for superstructure bulkheads.

Part III.—*Load Line for Steamers.*

Rule XXXII.—*Length (L).*

The length used with the Rules and Freeboard Table is the length in feet on the summer load water-line from the foreside of the stem to the afterside of the rudder post. Where there is no rudder post, the length is measured from the foreside of the stem to the axis of the rudder stock. For ships with cruiser sterns, the length is to be taken as 96 per cent. of the total length on the designed summer load water-line or as the length from the foreside of the stem to the axis of the rudder stock if that be the greater.

Rule XXXIII.—*Breadth (B).*

The breadth is the maximum breadth in feet amidships to the moulded line of the frame in iron or steel ships, and to the outside of the planking in wood or composite ships.

Rule XXXIV.—*Moulded Depth.*

The moulded depth is the vertical distance in feet, measured amidships, 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 of the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the depth is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

Rule XXXV.—*Depth for Freeboard (D).*

The depth used with the Freeboard Table is the moulded depth plus the thickness of stringer plate, or plus $\frac{T(L-S)}{L}$ if that be greater, where—

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

S is the total length of superstructures as defined in Rule XL.

Where the topsides are of unusual form, D is the depth of a midship section having vertical topsides, standard round of beam and area of topside section equal to that in the actual midship section. Where there is a step or break in the topsides—(e.g., as in the Turret Deck ship) 70 per cent. of the area above the step or break is included in the area used to determine the equivalent section.

In a ship without an enclosed superstructure covering at least 0.6 L amidships, without a complete trunk or without a combination of intact partial superstructures and trunk extending all fore and aft, where D is less than $\frac{L}{15}$, the depth used with the Table is not to be taken as less than $\frac{L}{15}$.

Rule XXXVI.—*Coefficient of Fineness (c).*

The coefficient of fineness used with the Freeboard Table is given by—

$$c = \frac{35 \Delta}{L.B.d_1}$$

where Δ is the ship's moulded displacement in tons (excluding bossing) at a mean moulded draught d_1 which is 85 per cent. of the moulded depth.

The coefficient c is not to be taken as less than 0.68.

Rule XXXVII.—*Strength.*

The Assigning Authority is to be satisfied with the structural strength of ships to which freeboards are assigned.

Ships which comply with the highest standard of the rules of a Classification Society recognized by the Administration, shall be regarded as having sufficient strength for the minimum freeboards allowed under the Rules.

Ships which do not comply with the highest standard of the rules of a Classification Society recognized by the Administration shall be assigned such increased freeboards as shall be determined by the Assigning Authority, and for guidance the following strength moduli are formulated:—

Material.—The strength moduli are based on the assumption that the structure is built of mild steel, manufactured by the open hearth process (acid or basic), and having a tensile strength of 26 to 32 tons per square inch, and an elongation of at least 16 per cent. on a length of 8 inches.

Strength Deck.—The strength deck is the uppermost deck which is incorporated into and forms an integral part of the longitudinal girder within the half-length amidships.

Depth to Strength Deck (Ds).—The depth to strength deck is the vertical distance in feet amidships from the top of the keel to the top of the strength deck beam at side.

Draught (d).—The draught is the vertical distance in feet amidships from the top of the keel to the centre of the disc.

Longitudinal Modulus.—The longitudinal modulus $\frac{I}{y}$ is the moment of inertia *I* of the midship section about the neutral axis divided by the distance *y* measured from the neutral axis to the top of the strength deck beam at side, calculated in way of openings but without deductions for rivet holes. Areas are measured in square inches and distances in feet.

Below the strength deck, all continuous longitudinal members other than such parts of under deck girders as are required entirely for supporting purposes, are included. Above the strength deck, the gunwale angle bar and the extension of the sheerstrake are the only members included.

The required longitudinal modulus for effective material is expressed by *f.d.B.*, where *f* is the factor obtained from the following table:—

L.	f.	L.	f.
100	1.80	360	9.40
120	2.00	380	10.30
140	2.35	400	11.20
160	2.70	420	12.15
180	3.15	440	13.10
200	3.60	460	14.15
220	4.20	480	15.15
240	4.80	500	16.25
260	5.45	520	17.35
280	6.20	540	18.45
300	6.95	560	19.60
320	7.70	580	20.80
340	8.55	600	22.00

For intermediate lengths, the value of *f* is determined by interpolation.

This formula applies where *L* does not exceed 600 feet; *B* is between $\frac{L}{10} + 5$ and $\frac{L}{10} + 20$, both inclusive, and $\frac{L}{D_s}$ is between 10 and 13.5, both inclusive.

Frame.—For the purpose of the frame modulus, the frame is regarded as composed of a frame angle and a reverse angle each of the same size and thickness.

Frame Modulus.—The modulus $\frac{I}{y}$ of the midship frame below the lowest tier of beams is the moment of inertia *I* of the frame section about the neutral axis divided by the distance *y* measured from the neutral axis to the extremity of the frame section, calculated without deduction for rivet and bolt holes. The modulus is measured in inch units.

The required frame modulus is expressed by $\frac{s(d-t)(f_1 + f_2)}{1,000}$ where—

s is the frame spacing in inches.

t is the vertical distance in feet measured at amidships from the top of the keel to a point midway between the top of the inner bottom at side and the top of the heel bracket (see Figure 2); where there is no double bottom, *t* is measured to a point midway between the top of the floor at centre and the top of the floor at side.

*f*₁ is a coefficient depending on *H*, which, in ships fitted with double bottoms, is the vertical distance in feet from the middle of the beam bracket of the lowest tier of beams at side to a point midway between the top of the inner bottom at side and the top of the heel bracket (see Figure 2). Where there is no double bottom, *H* is measured to a point midway between the top of the floor at centre and the top of the floor at side. Where the frame obtains additional strength from the form of the ship, due allowance is made in the value of *f*₁.

f_2 is a coefficient depending on K, which is the vertical distance in feet from the top of the lowest tier of beams at side to a point 7 feet 6 inches above the freeboard deck at side, or, if there is a superstructure, to a point 12 feet 6 inches above the freeboard deck at side (see Figure 2). The values of f_1 and f_2 are obtained from the following tables:—

H in feet ..	0	7	9	11	13	15	17	19	21	23	25
f_1 ..	9	11	12.5	15	19	24	29.5	36	43	51	59
K in feet ..	..	..	0	5	10	15	20	25	30	35	40
f_2 ..	..	..	0	0.5	1.0	2.0	3.0	4.5	6.5	9.0	12.0

Intermediate values are obtained by interpolation.

This formula applies where D is between 15 feet and 60 feet, both inclusive, B is between $\frac{L}{10} + 5$ and $\frac{L}{10} + 20$, both inclusive, $\frac{L}{D_s}$ is between 10 and 13.5, both inclusive; and the horizontal distance from the outside of the frame to the centre of the first row of pillars does not exceed 20 feet.

In single deck ships of ordinary form, where H does not exceed 18 feet, the frame modulus determined by the preceding method is multiplied by the factor f_3 where

$$f_3 = 0.50 + 0.05(H - 8).$$

Where the horizontal distance from the outside of the frame to the centre of the first row of pillars exceeds 20 feet, the Assigning Authority is to be satisfied that sufficient additional strength is provided.

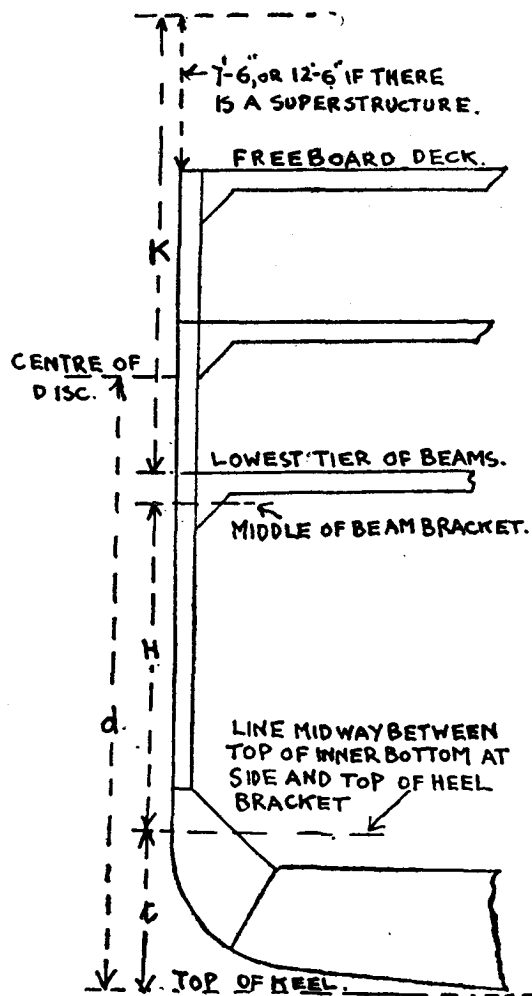


FIGURE 2.

Superstructures.

Rule XXXVIII.—*Height of Superstructure.*

The height of a superstructure is the least vertical height measured from the top of the superstructure deck to the top of the freeboard deck beams minus the difference between D and the moulded depth (see Rules XXXIV and XXXV).

Rule XXXIX.—*Standard Height of Superstructure.*

The standard height of a raised quarter deck is 3 feet for ships up to and including 100 feet in length, 4 feet for ships 250 feet in length, and 6 feet for ships 400 feet in length and above. The standard height of any other superstructure is 6 feet for ships up to and including 250 feet in length and 7 feet 6 inches for ships 400 feet in length and above. The standard height at intermediate lengths is obtained by interpolation.

Rule XL.—*Length of Superstructure (S).*

The length of a superstructure is the mean covered length of the parts of the superstructure which extend to the sides of the ship and lie within lines drawn perpendicular to the extremities of the Summer load water-line, as defined in Rule XXXII.

Rule XLI.—*Enclosed Superstructure.*

A detached superstructure is regarded as enclosed only where—

- (a) The enclosing bulkheads are of efficient construction (see Rule XLII);
- (b) The access openings in these bulkheads are fitted with Class 1 or Class 2 closing appliances (see Rules XLIII and XLIV);
- (c) All other openings in sides or ends of the superstructure are fitted with efficient weathertight means of closing; and
- (d) Independent means of access to crew, machinery, bunker, and other working spaces within bridges and poops are at all times available when the bulkhead openings are closed.

Rule XLII.—*Superstructure Bulkheads.*

Bulkheads at exposed ends of poops, bridges, and forecastles are deemed to be of efficient construction where the Assigning Authority is satisfied that, in the circumstances, they are equivalent to the following standard for ships with minimum freeboards under which standard the stiffeners and plating are of the scantlings given in Table 3, the stiffeners are spaced 30 inches apart, the stiffeners on poop and bridge front bulkheads have efficient end connections, and those on after bulkheads of bridges and forecastles extend for the whole distance between the margin angles of the bulkheads.

TABLE 3.
EXPOSED Bulkheads of Superstructures of Standard Height.

Bridge Front Bulkheads. Unprotected Bulkheads of Poops 0·4 L or more in Length.		Bulkheads of Poops partially protected or less in Length than 0·4 L.		After Bulkheads of Bridges and Forecastles.	
Length of Ship.	Bulb Angle Stiffeners.	Length of Ship.	Plain Angle Stiffeners.	Length of Ship.	Plain Angle Stiffeners.
Feet. Under 160	Inches. 5½ × 3 × 0·30	Feet. Under 150	Inches. 3 × 2½ × 0·30	Feet. Under 150	Inches. 2½ × 2½ × 0·26
160	6 × 3 × 0·32	150	3½ × 2½ × 0·32	150	3 × 2½ × 0·28
200	6½ × 3 × 0·34	200	4 × 3 × 0·34	250	3½ × 3 × 0·30
240	7 × 3 × 0·36	250	4½ × 3 × 0·36	350	4 × 3 × 0·32
280	7½ × 3 × 0·38	300	5 × 3 × 0·38		
320	8 × 3 × 0·40	350	5½ × 3 × 0·42		
360	8½ × 3 × 0·42	400	6 × 3 × 0·44		
400	9 × 3 × 0·44	450	6½ × 3½ × 0·46		
440	9½ × 3½ × 0·46	500	7 × 3½ × 0·48		
480	10 × 3½ × 0·48	550	7 × 3½ × 0·50		
520	10½ × 3½ × 0·50				
560	11 × 3½ × 0·52				

Length of Ship.	Bulkhead Plating.	Length of Ship.	Bulkhead Plating.	Length of Ship.	Bulkhead Plating.
Feet. 200 and under	Inch. 0·3	Feet. 160 and under	Inch. 0·24	Feet. 160 and under	Inch. 0·20
380 and above	0·44	400 and above	0·38	400 and above	0·30

For ships intermediate in length the thicknesses of bulkhead plating are obtained by interpolation.

Appliances for Closing Access Openings in Bulkheads at Ends of Detached Superstructures.

Rule XLIII.—*Class 1 Closing Appliances.*

These appliances are of iron and steel, are in all cases permanently and strongly attached to the bulkhead, are framed, stiffened, and fitted so that the whole structure is of equivalent strength, to the unpierced bulkhead, and are weathertight when closed. The means for securing these appliances are permanently attached to the bulkhead or to the appliances, and the latter are so arranged that they can be closed and secured from both sides of the bulkhead or from the deck above. The sills of the access openings are at least 15 inches above the deck.

Rule XLIV.—*Class 2 Closing Appliances.*

These appliances are (a) strongly framed hard wood hinged doors, which are not more than 30 inches wide nor less than 2 inches thick; or (b) shifting boards fitted for the full height of the opening in channels riveted to the bulkhead, the shifting boards being at least 2 inches thick where the width of opening is 30 inches or less, and increased in thickness at the rate of 1 inch for each additional 15 inches of width; or (c) portable plates of equal efficiency.

Temporary Appliances for Closing Openings in Superstructure Decks.

Rule XLV.

Temporary closing appliances for middle line openings in the deck of an enclosed superstructure consist of—

- (a) A steel coaming not less than 9 inches in height efficiently riveted to the deck;
- (b) Hatchway covers as required by Rule X, secured by hemp lashings; and
- (c) Hatchway supports as required by Rules XI and XII and Table 1 or 2.

Effective Length of Detached Superstructures.

Rule XLVI.—*General.*

Where exposed bulkheads at the ends of poops, bridges, and forecastles are not of efficient construction (*see* Rule XLII) they are considered as non-existent.

Where in the side plating of a superstructure there is an opening not provided with permanent means of closing, the part of the superstructure in way of the opening is regarded as having no effective length.

Where the height of a superstructure is less than the standard its length is reduced in the ratio of the actual to the standard height. Where the height exceeds the standard, no increase is made in the length of the superstructure.

Rule XLVII.—*Poop.*

Where there is an efficient bulkhead and the access openings are fitted with Class 1 closing appliances, the length to the bulkhead is effective. Where the access openings in an efficient bulkhead are fitted with Class 2 closing appliances and the length to the bulkhead is 0.5 L or less, 100 per cent. of that length is effective; where the length is 0.7 L or more, 90 per cent. of that length is effective; where the length is between 0.5 L and 0.7 L, an intermediate percentage of that length is effective; where an allowance is given for an efficient adjacent trunk (*see* Rule LI), 90 per cent. of the length to the bulkhead is to be taken as effective. 50 per cent. of the length of an open poop or of an open extension beyond an efficient bulkhead is effective.

Rule XLVIII.—*Raised Quarter Deck.*

Where there is an efficient intact bulkhead, the length to the bulkhead is effective. Where the bulkhead is not intact, the superstructure is considered as a poop of less than standard height.

Rule XLIX.—*Bridge.*

Where there is an efficient bulkhead at each end, and the access openings in the bulkheads are fitted with Class 1 closing appliances, the length between the bulkheads is effective.

Where the access openings in the forward bulkhead are fitted with Class 1 closing appliances and the access openings in the after bulkhead with Class 2 closing appliances, the length between the bulkheads is effective; where an allowance is given for an efficient Trunk, adjacent to the after bulkhead (*see* Rule LI), 90 per cent. of the length is effective. Where the access openings in both bulkheads are fitted with Class 2 closing appliances, 90 per cent. of the length between the bulkheads is effective. Where the access openings in the forward bulkhead are fitted with Class 1 or Class 2 closing appliances and the access openings in the after bulkhead have no closing appliances, 75 per cent. of the length between the bulkheads is effective. Where the access openings in both bulkheads have no closing appliances, 50 per cent. of the length is effective. 75 per cent. of the length of an open extension beyond the after bulkhead, and 50 per cent. of that beyond the forward bulkhead, are effective.

Rule L.—*Forecastle.*

Where there is an efficient bulkhead and the access openings are fitted with Class 1 or Class 2 closing appliances, the length to the bulkhead is effective. Where no closing appliances are fitted and the sheer forward of amidships is not less than the standard sheer, 100 per cent. of the length of the forecastle forward of 0·1 L from the forward perpendicular is effective; where the sheer forward is half the standard sheer or less, 50 per cent. of that length is effective; and where the sheer forward is intermediate between the standard and half the standard sheer, an intermediate percentage of that length is effective. 50 per cent. of the length of an open extension beyond the bulkhead or beyond 0·1 L from the forward perpendicular is effective.

Rule LI.—*Trunk.*

A trunk or similar structure which does not extend to the sides of the ship is regarded as efficient provided that—

- (a) The trunk is at least as strong as a superstructure;
- (b) The hatchways are in the trunk deck, and comply with the requirements of Rules VIII to XVI, and the width of the trunk deck stringer provides a satisfactory gangway and sufficient lateral stiffness;
- (c) A permanent working platform fore and aft fitted with guard rails is provided by the trunk deck, or by detached trunks connected to other superstructures by efficient permanent gangways;
- (d) Ventilators are protected by the trunk, by watertight covers, or by equivalent means;
- (e) Open rails are fitted on the weather portions 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 standard height, or by a deck house of the same height and of equivalent strength.

Where access openings in poop and bridge bulkheads are fitted with Class 1 closing appliances, 100 per cent. of the length of an efficient trunk reduced in the ratio of its mean breadth to B is added to the effective length of the superstructures. Where the access openings in these bulkheads are not fitted with Class 1 closing appliances 90 per cent. is added.

The standard height of a trunk is the standard height of a bridge.

Where the height of the trunk is less than the standard height of a bridge, the addition is reduced in the ratio of the actual to the standard height; where the height of hatchway coamings on the trunk deck is less than the standard height of coamings (*see* Rule IX), a reduction from the actual height of trunk is to be made which corresponds to the difference between the actual and the standard height of coamings.

Effective Length of Enclosed Superstructures with Middle Line Openings.

Rule LII.—*Enclosed Superstructure with Middle Line Openings in the Deck not Provided with Permanent Means of Closing.*

Where there is an enclosed superstructure with one or more middle line openings in the deck not provided with permanent means of closing (see Rules VIII to XVI), the effective length of the superstructure is determined as follows :—

- (1) Where efficient temporary closing appliances are not provided for the middle line deck openings (see Rule XLV), or the breadth of opening is 80 per cent. or more of the Breadth B_1 of superstructure deck at the middle of the opening, the ship is considered as having an open well in way of each opening, and freeing ports are to be provided in way of this well. The effective length of superstructure between openings is governed by Rules XLVII, XLIX, and L.
- (2) Where efficient temporary closing appliances are provided for middle line deck openings and the breadth of opening is less than 0.8 B_1 , the effective length is governed by Rules XLVII, XLIX, and L, except that where access openings in 'tween deck bulkheads are closed by Class 2 closing appliances, they are regarded as being closed by Class 1 closing appliances in determining the effective length. The total effective length is obtained by adding to the length determined by (1) the difference between this length and the length of the ship modified in the ratio of—

$$\frac{B_1 - b}{B_1} \text{ where } b = \text{breadth of deck opening ;}$$

where $\frac{B_1 - b}{B_1}$ is greater than 0.5 it is taken as 0.5.

Deductions for Superstructures.

Rule LIII.—*Deductions for Superstructures.*

Where the effective length of superstructures is 1.0 L, the deduction from the freeboard is 14 inches at 80 feet length of ship, 34 inches at 280 feet length, and 42 inches at 400 feet length and above; deductions at intermediate lengths are obtained by interpolation. Where the total effective length of superstructures is less than 1.0 L the deduction is a percentage obtained from the following table :—

Superstructures.	Total Effective Length of Superstructure (E).											Line.
	0.	0.1 L.	0.2 L.	0.3 L.	0.4 L.	0.5 L.	0.6 L.	0.7 L.	0.8 L.	0.9 L.	1.0 L.	
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	
All types with forecastle and without detached bridge	0	5	10	15	23.5	32	46	63	75.3	87.7	100	A
All types with forecastle and detached bridge*	0	6.3	12.7	19	27.5	36	46	63	75.3	87.7	100	B

* Where the effective length of a detached bridge is less than 0.2 L, the percentages are obtained by interpolation between lines B and A. Where no forecastle is fitted the above percentages are reduced by 5. Percentages for intermediate lengths of superstructures are obtained by interpolation.

Sheer.

Rule LIV.—*General.*

The sheer is measured from the deck at side to a line of reference drawn parallel to the keel through the sheer line at amidships.

In ships designed to trim by the stern in service, the sheer may be measured in relation to the load line, provided an additional mark is placed at 0.25 L forward of amidships, to indicate the assigned load line. This mark is to be similar to the load line disc amidships.

In flush deck ships and in ships with detached superstructures the sheer is measured at the freeboard deck.

In ships with topsides of unusual form in which there is a step or break in the topsides, the sheer is considered in relation to the equivalent depth amidships (see Rule XXXV).

In ships with a superstructure of standard height which extends over the whole length of the freeboard deck, the sheer is measured at the superstructure deck; where the height exceeds the standard, the sheer may be considered in relation to the standard height.

Where a superstructure is intact or access openings in its enclosing bulkheads are fitted with Class 1 closing appliances, and the superstructure deck has at least the same sheer as the exposed freeboard deck, the sheer of the enclosed portion of the freeboard deck is not taken into account.

Rule LV.—*Standard Sheer Profile.*

The ordinates (in inches) of the standard sheer profile are given in the following Table, where L is the number of feet in the length of the ship:—

Station.	Ordinate.	Factor.
A.P.	0·1 L + 10	1
1/6 L from A.P.	0·0445 L + 4·45	4
1/3 L from A.P.	0·011 L + 1·1	2
Amidships	0	4
1/3 L from F.P.	0·022 L + 2·2	2
1/6 L from F.P.	0·089 L + 8·9	4
F.P.	0·2 L + 20	1

A.P. = After end of Summer load water-line. F.P. = Fore end of Summer load water-line.

Rule LVI.—*Measurement of Variations from Standard Sheer Profile.*

Where the sheer profile differs from the standard, the seven ordinates of each profile are multiplied by the appropriate factors given in the table of ordinates. The difference between the sums of the respective products, divided by 18, measures the deficiency or excess of sheer. Where the after half of the sheer profile is greater than the standard and the forward half is less than the standard, no credit is allowed for the part in excess and the deficiency only is measured.

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

Rule LVII.—*Correction for Variations from Standard Sheer Profile.*

The correction for sheer is the deficiency or excess of sheer (see

Rule LVI), multiplied by $0\cdot75 \frac{S}{2L}$, where S is the total length of superstructure, as defined in Rule XL.

Rule LVIII.—*Addition for Deficiency in Sheer.*

Where the sheer is less than the standard, the correction for deficiency in sheer (see Rule LVII) is added to the freeboard.

Rule LIX.—*Deduction for Excess Sheer.*

In flush deck ships and in ships when an enclosed superstructure covers 0·1 L before and 0·1 L abaft amidships, the correction for excess of sheer (see Rule LVII) is deducted from the freeboard; in ships with detached superstructures where no enclosed superstructure covers amidships, no deduction is made from the freeboard; where an enclosed superstructure covers less than 0·1 L before and 0·1 L abaft amidships, the deduction is obtained by interpolation. The maximum deduction for excess sheer is $1\frac{1}{2}$ inches at 100 feet and increases at the rate of $1\frac{1}{2}$ inches for each additional 100 feet in the length of the ship.

Round of Beam.

Rule LX.—*Standard Round of Beam.*

The standard round of beam of the freeboard deck is one-fiftieth of the breadth of the ship.

Rule LXI.—*Round of Beam Correction.*

Where the round of beam of the freeboard deck is greater or less than the standard, the freeboard is decreased or increased respectively by one-fourth of the difference between the actual and the standard round of beam, multiplied by the proportion of the length of the freeboard deck not covered by enclosed superstructures. Twice the standard round of beam is the maximum for which allowance is given.

*Minimum Freeboards.*Rule LXII.—*Summer Freeboard.*

The minimum freeboard in Summer is the freeboard derived from the Freeboard Table after corrections for departures from the standards and after deduction for superstructures.

The freeboard in salt water measured from the intersection of the upper surface of the freeboard deck with the outer surface of the shell is not to be less than 2 inches.

Rule LXIII.—*Tropical Freeboard.*

The minimum freeboard in the Tropical Zone is the freeboard obtained by a deduction from the Summer freeboard of $\frac{1}{4}$ inch per foot for Summer draught measured from the top of the keel to the centre of the disc.

The freeboard in salt water measured from the intersection of the upper surface of the freeboard deck with the outer surface of the shell is not to be less than 2 inches.

Rule LXIV.—*Winter Freeboard.*

The minimum freeboard in Winter is the freeboard obtained by an addition to the Summer freeboard of $\frac{1}{4}$ inch per foot of Summer draught, measured from the top of the keel to the centre of the disc.

Rule LXV.—*Winter North Atlantic Freeboard.*

The minimum freeboard for ships not exceeding 330 feet in length on voyages across the North Atlantic, North of latitude 36° N., during winter months, is the Winter freeboard plus two inches; for ships over 330 feet in length it is the Winter freeboard.

Rule LXVI.—*Fresh Water Freeboard.*

The minimum freeboard in fresh water of unit density is the freeboard obtained by deducting from the minimum freeboard in salt water $\frac{\Delta}{40 T}$ inches, where

Δ = displacement in salt water in tons at the Summer load water-line, and

T = tons per inch immersion in salt water at the Summer load water-line.

Where the displacement at the Summer load water-line cannot be certified, the deduction is to be $\frac{1}{4}$ inch per foot of Summer draught, measured from the top of the keel to the centre of the disc.

Rule LXVII.—*Freeboard Table for Steamers.*

BASIC Minimum Summer Freeboards for Steamers which comply with the Standards laid down in the Rules.

L.	Freeboard.	L.	Freeboard.	L.	Freeboard.	L.	Freeboard.
Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
80	8-0	250	32-3	420	77-8	590	127-0
90	9-0	260	34-4	430	80-9	600	129-5
100	10-0	270	36-5	440	84-0	610	132-0
110	11-0	280	38-7	450	87-1	620	134-4
120	12-0	290	41-0	460	90-2	630	136-8
130	13-0	300	43-4	470	93-3	640	139-1
140	14-2	310	45-9	480	96-3	650	141-4
150	15-5	320	48-4	490	99-3	660	143-7
160	16-9	330	51-0	500	102-3	670	145-9
170	18-3	340	53-7	510	105-2	680	148-1
180	19-8	350	56-5	520	108-1	690	150-2
190	21-4	360	59-4	530	110-9	700	152-3
200	23-1	370	62-4	540	113-7	710	154-4
210	24-8	380	65-4	550	116-4	720	156-4
220	26-6	390	68-4	560	119-1	730	158-5
230	28-5	400	71-5	570	121-8	740	160-5
240	30-3	410	74-6	580	124-4	750	162-5

(i) The minimum freeboards for flush deck steamers are obtained by an addition to the above Table at the rate of $1\frac{1}{2}$ inches for every 100 feet of length.

(ii) The freeboards at intermediate lengths are obtained by interpolation.

(iii) Where c exceeds 0.68, the freeboard is multiplied by the factor $\frac{c + .68}{1.36}$.

(iv) Where D exceeds $\frac{L}{15}$ the freeboard is increased by $\left\{ D - \frac{L}{15} \right\} R$ inches, where R is $\frac{L}{130}$ at lengths less than 390 feet, and 3 at 390 feet length and above.

In a ship with an enclosed superstructure covering at least 0.6 L amidships, with a complete trunk, or with a combination of intact partial superstructures and trunk which extends all fore and aft, where D is less than $\frac{L}{15}$, the freeboard is reduced at the above rate.

Where the height of superstructures or trunk is less than the standard height, the reduction is in the ratio of the actual to the standard height.

(v) Where the actual depth to the surface of the freeboard deck amidships is greater or less than D , the difference between the depths (in inches) is added to or deducted from the freeboard.

Part IV.—Load Lines for Sailing Ships.

Rule LXVIII.—*Lines to be Used in Connection with the Disc.*

Winter and Tropical load lines are not marked on sailing ships. The maximum load line to which sailing ships may be laden in salt water in Winter and in the Tropical Zone is the centre of the disc (see Figure 3).

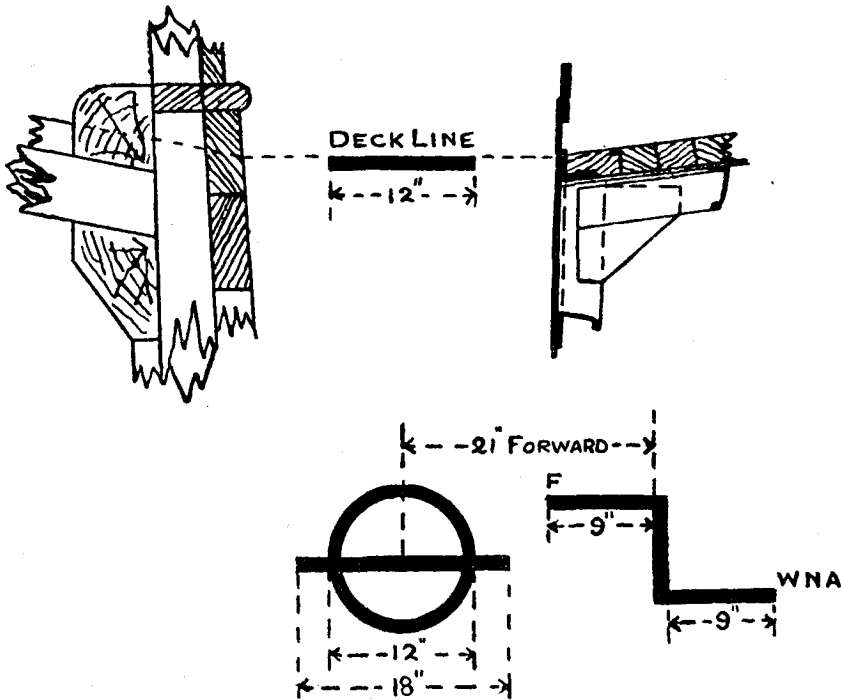


FIGURE 3.

Rule LXIX.—*Conditions of Assignment of Load Line.*

The conditions of assignment are those contained in Part II of these Rules.

Rule LXX.—*Computation of Freeboard.*

Freeboards are computed from the Freeboard Table for Sailing Ships in the same manner as the freeboards for steamers are computed from the Freeboard Table for Steamers, except as follows :—

Rule LXXI.—*Depth for Freeboard (D).*

In sailing ships having a greater rate of rise of floor than $1\frac{1}{2}$ inches per foot, the vertical distance from the top of keel (Rule XXXIV), is reduced by half the difference between the total rise of floor at the half-breadth of the ship and the total rise at $1\frac{1}{2}$ inches per foot. $2\frac{1}{2}$ inches per foot of half-breadth is the maximum rate of rise for which a deduction is made.

Where the form at the lower part of the midship section is of a hollow character, or thick garboards are fitted, the depth is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

The depth used with the Freeboard Table is to be taken as not less than $\frac{L}{12}$.

Rule LXXII.—*Coefficient of Fineness (c).*

The coefficient used with the Freeboard Table is to be taken as not less than 0.62 and not greater than 0.72.

Rule LXXIII.—*Superstructure in Wood Ships.*

In wood ships the construction and closing arrangements of superstructures for which deductions are made from the freeboard are to be to the satisfaction of the Assigning Authority.

Rule LXXIV.—*Deductions for Superstructures.*

Where the effective length of superstructures is 1.0 L, the deduction from the freeboard is 3 inches at 80 feet length of ship, and 28 inches at 330 feet length and above; deductions at intermediate lengths are obtained by interpolation. Where the total effective length of superstructures is less than 1.0 L, the deduction is a percentage obtained from the following Table:—

Type of Superstructures.	Total Effective Length of Superstructures (E).											Line.
	0	.1 L	.2 L	.3 L	.4 L	.5 L	.6 L	.7 L	.8 L	.9 L	1.0 L	
All types without Bridge	% 0	% 7	% 13	% 17	% 23.5	% 30	% 47½	% 70	% 80	% 90	% 100	A
All types with Bridge†	0	7	14.7	22	32	42	56	70	80	90	100	B

† Where the effective length of Bridge is less than .2 L, the percentages are obtained by interpolation between lines B and A. Percentages for intermediate lengths of superstructures are obtained by interpolation.

Rule LXXV.—*Minimum Freeboards.*

No addition to the freeboard is required for Winter freeboard, nor is a deduction permitted for Tropical freeboard.

An increase in freeboard of 3 inches is made for voyages across the North Atlantic North of latitude 36° N. during the winter months.

In computing the fresh water freeboard for a wood ship, the draught is measured from the lower edge of the rabbet of keel to the centre of the disc.

Rule LXXVI.—*Freeboard Table for Sailing Ships.*

Minimum Summer, Winter, and Tropical Freeboards for Iron and Steel Flush Deck Sailing Ships, which comply with the Standards laid down in the Rules.

L.	Freeboard.	L.	Freeboard.	L.	Freeboard.	L.	Freeboard.
Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
80	9.2	140	21.3	200	35.4	270	53.5
90	11.0	150	23.5	210	37.9	280	56.3
100	12.9	160	25.8	220	40.4	290	59.1
110	14.9	170	28.2	230	42.9	300	61.9
120	17.0	180	30.6	240	45.5	310	64.7
130	19.1	190	33.0	250	48.1	320	67.6
				260	50.8	330	70.5

(i) The freeboards at intermediate lengths are obtained by interpolation.

(ii) Where c exceeds 0.62, the freeboard is multiplied by the factor $\frac{c + 0.62}{1.24}$

(iii) Where D exceeds $\frac{L}{12}$ the freeboard is increased by

$$\left\{ D - \frac{L}{12} \right\} \times \left\{ 1 + \frac{L}{250} \right\} \text{ inches.}$$

(iv) Where the actual depth to the surface of the freeboard deck amidships is greater or less than D , the difference between the depths (in inches) is added to or deducted from the freeboard.

Rule LXXVII.—Freeboard for Wood Sailing Ships.

The freeboard for a wood sailing ship is the final freeboard the ship would obtain if she were of iron and steel, with the addition of such penalties as the Assigning Authority may determine, having regard to the classification, construction, age, and condition of the ship.

Wood ships of primitive build such as dhows, junks, prahus, &c., are to be dealt with by the Administration so far as is reasonable and practicable under the Rules for Sailing Ships.

Part V.—Load Lines for Steamers carrying Timber Deck Cargoes.

Definitions.

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.

Timber Load Line.—A timber load line is a special load line to be used only when the ship is carrying a timber deck cargo in compliance with the following conditions and regulations:—

Rule LXXVIII.—Marks on the Ship's Sides.

Timber Load Lines.—The lines which indicate the maximum timber load lines in different circumstances and at different seasons are to be horizontal lines, 9 inches in length and 1 inch in breadth, which extend from, and are at right angles to, a vertical line marked 21 inches abaft the centre of the disc (see Figure 4). They are to be marked and verified similarly to the ordinary load lines (see Rules V to VII).

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

The Winter Timber Load Line is indicated by the upper edge of a line marked LW.

The Winter North Atlantic Timber Load Line is indicated by the upper edge of a line marked LWNA.

The Tropical Timber Load Line is indicated by the upper edge of a line marked LT.

The Fresh Water Timber Load Line in Summer is indicated by the upper edge of a line marked LF. 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. The Fresh Water Timber load line in the Tropical Zone is indicated by the upper edge of a line marked LTF.*

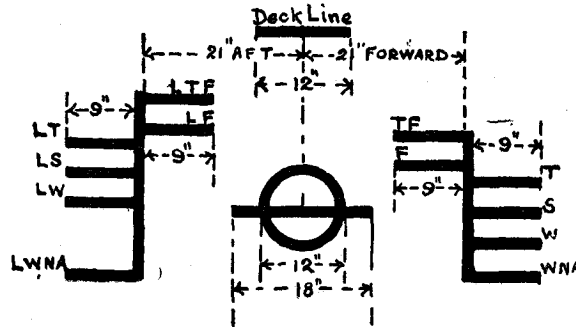


FIGURE 4.

* Where seagoing steamers navigate a river or inland water, deeper loading is permitted corresponding to the weight of fuel, &c., required for consumption between the point of departure and the open sea.

Supplementary Conditions of Assignment and Regulations for Deeper Loading.

Rule LXXIX.—*Construction of Ship.*

The structure of the ship is to be of sufficient strength for the deeper draught allowed and for the weight of the deck cargo.

Rule LXXX.—*Superstructures.*

The ship is to have a forecastle of at least standard height and at least 7 per cent. of the length of the ship, and, in addition, a poop, or a raised quarter deck with a strong steel hood or deck house fitted aft.

Rule LXXXI.—*Machinery Casings.*

Machinery casings on the freeboard deck are to be protected by a superstructure of at least standard height, unless the machinery casings are of sufficient strength and height to permit of the carriage of timber alongside.

Rule LXXXII.—*Double Bottom Tanks.*

Double bottom tanks where fitted within the midship half length of the ship are to have adequate longitudinal subdivision.

Rule LXXXIII.—*Bulwarks.*

The ship must be fitted either with permanent bulwarks at least 3 feet 3 inches high, specially stiffened on the upper edge and supported by strong bulwark stays attached to the deck in the way of the beams and provided with necessary freeing ports, or with efficient rails of the same height as the above and of specially strong construction.

Rule LXXXIV.—*Deck Openings covered by Timber Deck Cargo.*

Openings to spaces below the freeboard deck are to be securely closed and battened down. All fittings, such as hatchway beams, fore-and-afters, and covers, are to be in place. Where hold ventilation is needed, the ventilators are to be efficiently protected.

Rule LXXXV.—*Stowage.*

The wells on the freeboard deck are to be filled with timber stowed as solidly as possible, to at least the standard height of a bridge.

On a ship within a seasonal winter zone in winter, the height of the deck cargo above the freeboard deck is not to exceed one-third of the extreme breadth of the ship.

All timber deck cargo is to be compactly stowed, lashed, and secured. It must not interfere in any way with the navigation and necessary work of the ship, or with the provision of 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 to losses of weight such as those due to consumption of fuel and stores.

Rule LXXXVI.—*Protection of Crew, Access to Machinery Space, &c.*

Safe and satisfactory access to the quarters of the crew, to the machinery space and to all other parts used in the necessary work of the ship, is to be available at all times. Deck cargo in way of openings which give access to such parts is to be so stowed that the openings can be properly closed and secured against the admission of water. Efficient protection for the crew in the form of guard rails or life lines, spaced not more than 12 inches apart vertically, is to be provided on each side of the deck cargo to a height of at least 4 feet above the cargo. The cargo is to be made sufficiently level for gangway purposes.

Rule LXXXVII.—*Steering Arrangements.*

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

Rule LXXXVIII.—*Uprights.*

Uprights when required by the nature of the timber are to be of adequate strength and may be of wood or metal; the spacing is to be suitable for the length and character of timber carried, but is not to exceed 10 feet. Strong angles or metal sockets efficiently secured to the stringer plate or equally efficient means are to be provided for securing the uprights.

Rule LXXXIX.—*Lashings.*

Timber deck cargo is to be efficiently secured throughout its length by independently overall lashings spaced not more than 10 feet apart.

Eye plates for these lashings are to be riveted to the sheerstrake at intervals of not more than 10 feet, the distance from an end bulkhead of a superstructure to the first eye plate being not more than 6 feet 6 inches. Additional eye plates may be fitted on the stringer plate.

Overall lashings are to be in good condition and are to be not less than $\frac{3}{4}$ inch close link chain or flexible wire rope of equivalent strength, fitted with sliphooks and stretching screws, which are to be accessible at all times. Wire rope lashings are to have a short length of long link chain to permit the length of lashings to be regulated.

When timber is in lengths less than 12 feet, the spacing of the lashings is to be reduced to suit the length of timber or other suitable provision made.

When the spacing of the lashings is 5 feet or less, the size of the lashing may be reduced, but not less than $\frac{1}{2}$ inch chain or equivalent wire rope is to be used.

All fittings required for securing the lashings are to be of strength corresponding to the strength of the lashings.

On superstructure decks, uprights, where fitted, are to be about 10 feet apart and are to be secured by athwartship lashings of ample strength.

Rule XC.—*Plans.*

Plans showing the fittings and arrangements for stowing and securing timber deck cargoes in compliance with the foregoing conditions and regulations are to be submitted to the Assigning Authority.

Freeboard.

Rule XCI.—*Computation of Freeboard.*

Where the Assigning Authority is satisfied that the ship is suitable and that the conditions and arrangements are at least equal to the foregoing requirements for the carriage of timber deck cargo, the Summer freeboards computed in accordance with the Rules and Tables in Part III may be modified to give special timber freeboards, by substituting the following percentages for those in Rule LIII:—

TOTAL Effective Length of Superstructures.

—	0	0·1 L	0·2 L	0·3 L	0·4 L	0·5 L	0·6 L	0·7 L	0·8 L	0·9 L	1·0 L
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
All types ..	20	30·75	41·5	52·25	63	69·25	75·5	81·5	87·5	93·75	100

The Winter Timber freeboard is to be obtained by adding to the Summer Timber freeboard one-third of an inch per foot of the moulded Summer Timber draught.

The Winter North Atlantic Timber freeboards are the Winter North Atlantic freeboards prescribed in Rule LXV.

The Tropical Timber freeboard is to be obtained by deducting from the Summer Timber freeboard one-quarter of an inch per foot of the moulded Summer Timber draught.

Part VI.—*Load Lines for Tankers.*

Definition.

Tanker.—The term “tanker” includes all steamers specially constructed for the carriage of liquid cargoes in bulk.

Rule XCII.—*Marks on the Ship's Sides.*

The marks on the ship's sides are to be as provided in the figure in Rule IV.

*Supplementary Conditions of Assignment for Deeper Loading.*Rule XCIII.—*Construction of Ship.*

The structure of the ship is to be of sufficient strength for the increased draught corresponding to the freeboard assigned.

Rule XCIV.—*Forecastle.*

The ship is to have a forecastle of which the length is not less than 7 per cent. of the length of the ship and the height is not less than the standard height.

Rule XCV.—*Machinery Casings.*

The openings in machinery casings on the freeboard deck are to be fitted with steel doors. The casings are to be protected by an enclosed poop or bridge of at least standard height, or by a deck house of equal height and of equivalent strength. The bulkheads at the ends of these structures are to be of the scantlings required for bridge front bulkheads. All entrances to the structures from the freeboard deck are to be fitted with effective closing appliances and the sills are to be at least 18 inches above the deck. Exposed machinery casings on the superstructure deck are to be of substantial construction, and all openings in them are to be fitted with steel closing appliances permanently attached to the casings and capable of being closed and secured from both sides; the sills of such openings are to be at least 15 inches above the deck. Fiddle openings are to be as high above the superstructure deck as is reasonable and practicable and are to have strong steel covers permanently attached in their proper positions.

Rule XCVI.—*Gangway.*

An efficiently constructed permanent gangway of sufficient strength for its exposed position is to be fitted fore and aft at the level of the superstructure deck between the poop and midship bridge, and when crew are berthed forward, from the bridge to the forecastle, or other equivalent means of access may be provided to carry out the purpose of the gangway, such as passages below deck.

Rule XCVII.—*Protection of Crew, Access to Machinery Space, &c.*

Safe and satisfactory access from the gangway level to the quarters of the crew, the machinery space and all other parts used in the necessary work of the ship, is to be available at all times. This rule does not apply to pump rooms entered from the freeboard deck, when fitted with Class I closing appliances.

Rule XCVIII.—*Hatchways.*

All hatchways on the freeboard deck and on the deck of expansion trunks are to be closed watertight by efficient steel covers.

Rule XCIX.—*Ventilators.*

Ventilators to spaces below the freeboard deck are to be of ample strength or are to be protected by superstructures or equally efficient means.

Rule C.—*Freeing Arrangements.*

Ships with bulwarks are to have open rails fitted for at least half the length of the exposed portion of the weather deck or other effective freeing arrangements. The upper edge of the sheerstrake is to be kept as low as practicable, and preferably not higher than the upper edge of the gunwale bar.

Where superstructures are connected by trunks, open rails are to be fitted for the whole length of the weather portions of the freeboard deck.

Rule CI.—Plans.

Plans showing proposed fittings and arrangements are to be submitted to the Assigning Authority for approval.

Freeboards.

Rule CII.—Computation of Freeboard.

When the Assigning Authority is satisfied that the foregoing requirements are fulfilled, the Summer freeboard may be computed from the Table for Tankers; all corrections except those for flush-deck steamers, detached superstructures, excess sheer, and winter voyages across the North Atlantic are to be made in accordance with Part III of the Rules.

Rule CIII.—Deduction for Detached Superstructures.

When the total effective length of superstructure is less than 1.0 L, the deduction is a percentage of that for a superstructure of length 1.0 L, and is obtained from the following table:—

Total Effective Length of Superstructures.											
	0	.1 L	.2 L	.3 L	.4 L	.5 L	.6 L	.7 L	.8 L	.9 L	1.0 L
All types ..	0	7	14	21	31	41	52	63	75.3	87.7	100

Rule CIV.—Deduction for Excess Sheer.

Where the sheer is greater than the standard, the correction for excess sheer (see Rule LVII of Part III, Load Lines for Steamers) is deducted from the freeboard for all tankers. Rule LIX of Part III does not apply except that the maximum deduction for excess sheer is 1½ inches at 100 feet and increases at the rate of 1½ inches for each additional 100 feet in the length of the ship.

Rule CV.—Winter North Atlantic Freeboard.

The minimum freeboard for voyages across the North Atlantic, north of latitude 36° N., during the winter months, is the Winter Freeboard plus an addition at a rate of 1 inch per 100 feet in length.

Rule CVI.—Freeboard Table for Tankers.

L in Feet.	Freeboard in Inches.	L in Feet.	Freeboard in Inches.
190	21.5	400	62.5
200	23.1	410	64.9
210	24.7	420	67.4
220	26.3	430	69.9
230	28.0	440	72.5
240	29.7	450	75.1
250	31.5	460	77.7
260	33.3	470	80.2
270	35.2	480	82.7
280	37.1	490	85.1
290	39.1	500	87.5
300	41.1	510	89.8
310	43.1	520	92.1
320	45.1	530	94.3
330	47.1	540	96.5
340	49.2	550	98.6
350	51.3	560	100.7
360	53.5	570	102.7
370	55.7	580	104.6
380	57.9	590	106.5
390	60.2	600	108.4

Ships above 600 feet are to be dealt with by the Administration.

ANNEX II.

BOUNDARIES OF THE ZONES AND SEASONAL AREAS.

Zones.

The southern boundary of the northern "Winter Seasonal" zone is a line drawn from the east coast of North America along the parallel of lat. 36° N. to Tarifa in Spain; from the east coast of Korea along the parallel of lat. 35° N. to the west coast of Honshiu, Japan; from the

east coast of Honshiu along the parallel of lat. 35° N. to long. 150° W., and thence along a rhumb line to the west coast of Vancouver Island at lat. 50° N., Fusan (Korea) and Yokohama to be considered as being on the boundary line of the northern "Winter Seasonal" zone and the "Summer" zone.

The northern boundary of the "Tropical" zone is a line drawn from the east coast of South America at lat. 10° N. along the parallel of lat. 10° N. to long. 20° W., thence north to lat. 20° N., and thence along the parallel of lat. 20° N. to the west coast of Africa; a line from the east coast of Africa along the parallel of lat. 8° N. to the west coast of the Malay Peninsula, following thence the coast of Malay and Siam to the east coast of Cochin China at lat. 10° N., thence along the parallel of lat. 10° N. to long. 145° E., thence north to lat. 13° N., and thence along the parallel of lat. 13° N. to the west coast of Central America, Saigon to be considered as being on the boundary line of the "Tropical" zone and the "Seasonal Tropical" area (4).

The southern boundary of the "Tropical" zone is a line drawn from the east coast of South America along the Tropic of Capricorn to the west coast of Africa; from the east coast of Africa along the parallel of lat. 20° S. to the west coast of Madagascar, thence along the west and north coast of Madagascar to long. 50° E., thence north to lat. 10° S., thence along the parallel of lat. 10° S. to long. 110° E., thence along a rhumb line to Port Darwin, Australia, thence eastwards along the coast of Australia and Wessel Island to Cape Wessel, thence along the parallel of lat. 11° S. to the west side of Cape York, from the east side of Cape York at lat. 11° S. along the parallel of lat. 11° S. to long. 150° W., thence along a rhumb line to the point lat. 26° S. long. 75° W., and thence along a rhumb line to the west coast of South America at lat. 30° S., Coquimbo, Rio de Janeiro, and Port Darwin to be considered as being on the boundary line of the "Tropical" and "Summer" zones.

The following regions are to be included in the "Tropical" zone:—

- (1) *The Suez Canal, the Red Sea, and the Gulf of Aden*, from Port Said to the meridian of 45° E., Aden and Berbera to be considered as being on the boundary line of the "Tropical" zone and the "Seasonal Tropical" area 2 (b).
- (2) *The Persian Gulf* to the meridian of 59° E.

The northern boundary of the southern "Winter Seasonal" zone is a line drawn from the east coast of South America along the parallel of lat. 40° S. to long. 56° W., thence along a rhumb line to the point lat. 34° S., long. 50° W., thence along the parallel of lat. 34° S. to the west coast of South Africa; from the east coast of South Africa at lat. 30° S. along a rhumb line to the west coast of Australia at lat. 35° S., thence along the south coast of Australia to Cape Arid, thence along a rhumb line to Cape Grim, Tasmania, thence along the north coast of Tasmania to Eddystone Point, thence along a rhumb line to the west coast of South Island, New Zealand, at long. 170° E., thence along the west, south, and east coasts of South Island to Cape Saunders, thence along a rhumb line to the point lat. 33° S. long. 170° W.; and thence along the parallel of lat. 33° S. to the west coast of South America, Valparaiso, Cape Town, and Durban to be considered as being on the boundary line of the southern "Seasonal Winter" and "Summer" zones.

Summer Zones.

The remaining areas constitute the "Summer" zones.

Seasonal Areas.

The following areas are Seasonal Tropical Areas:—

- (1) *In the North Atlantic Ocean.*

An area bounded on the north by a line from Cape Catoche in Yucatan to Cape San Antonio in Cuba, by the South Cuban Coast to lat. 20° N. and by the parallel of lat. 20° N. to the point lat. 20° N. long. 20° W.; on the west by the coast of Central America; on the south by the north coast of South America and by parallel of lat. 10° N., and on the east by the meridian of 20° W.

Tropical: 1st November to 15th July.

Summer: 16th July to 31st October.

(2) *Arabian Sea.*(a) *North of lat. 24° N.*

Karachi is to be considered as being on the boundary line of this area and the seasonal Tropical area (b) below.

Tropical : 1st August to 20th May.

Summer : 21st May to 31st July.

(b) *South of lat. 24° N.*

Tropical : 1st December to 20th May, and 16th September to 15th October.

Summer : 21st May to 15th September, and 16th October to 30th November.

(3) *Bay of Bengal.*

Tropical : 16th December to 15th April.

Summer : 16th April to 15th December.

(4) *In the China Sea.*

An area bounded on the west and north by the coast of Indo-China and China to Hong Kong, on the east by a rhumb line to the port of Sual (Luzon Island), and by the west coast of the Islands of Luzon, Samar, and Leyte to the parallel of 10° N., and on the south by the parallel of lat. 10° N.

Hong Kong and Sual to be considered as being on the boundary of the "Seasonal Tropical" and "Summer" zones.

Tropical : 21st January to 30th April.

Summer : 1st May to 20th January.

(5) *In the North Pacific Ocean.*

(a) An area bounded on the north by the parallel of lat. 25° N., on the west by the meridian of 160° E., on the south by the parallel of lat. 13° N., and on the east by the meridian of 130° W.

Tropical : 1st April to 31st October.

Summer : 1st November to 31st March.

(b) An area bounded on the north and east by the coast of California, Mexico, and Central America, on the west by the meridian of 120° W., and by a rhumb line from the point lat. 30° N., long. 120° W., to the point lat. 13° N., long. 105° W., and on the south by the parallel of lat. 13° N.

Tropical : 1st March to 30th June, and 1st to 30th November.

Summer : 1st July to 31st October, and 1st December to 28th/29th February.

(6) *In the South Pacific Ocean.*

(a) An area bounded on the north by the parallel of lat. 11° S., on the west by the east coast of Australia, on the south by the parallel of lat. 20° S., and on the east by the meridian of 175° E., together with the Gulf of Carpentaria south of lat. 11° S.

Tropical : 1st April to 30th November.

Summer : 1st December to 31st March.

(b) An area bounded on the west by the meridian of 150° W., on the south by the parallel of lat. 20° S., and on the north and east by the rhumb line forming the southern boundary of the "Tropical" zone.

Tropical : from 1st March to 30th November.

Summer : from 1st December to 28th/29th February.

The following are "Seasonal Winter" areas:—

Northern "Seasonal Winter" Zone (between North America and Europe).

(a) In the area within and to the Northwards of the following line:—

A line drawn south from the coast of Greenland at long. 50° W. to lat. 45° N., thence along the parallel of lat. 45° N. to the meridian of 15° W., thence north to lat. 60° N., thence along the parallel of lat. 60° N. to the west coast of Norway, Bergen to be considered as being on the boundary line of this area and area (b) below.

Winter : from 16th October to 15th April.

Summer : from 16th April to 15th October.

(b) An area outside area (a) above and north of the parallel of lat. 36° N.

Winter from 1st November to 31st March.
Summer from 1st April to 31st October.

Baltic (bounded by the parallel of latitude of the Skaw).

Winter from 1st November to 31st March.
Summer from 1st April to 31st October.

Mediterranean and Black Sea.

Winter from 16th December to 15th March.
Summer from 16th March to 15th December.

Northern "Seasonal Winter" Zone (between Asia and North America, except Sea of Japan, South of 50° N.).

Winter from 16th October to 15th April.
Summer from 16th April to 15th October.

Sea of Japan between the parallels of lat. 35° N. and 50° N.

Winter from 1st December to 28th/29th February.
Summer from 1st March to 30th November.

Southern "Seasonal Winter" Zone.

Winter from 16th April to 15th October.
Summer from 16th October to 15th April.

ANNEX III.

International Load Line Certificate.

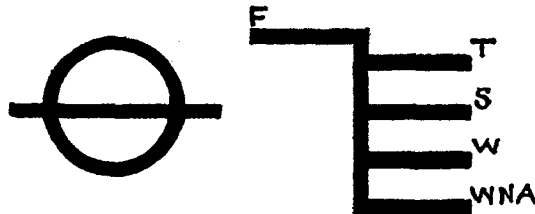
ISSUED under the authority of the Government of _____
under the provisions of the International Load Line Convention,
1930.

Distinctive Number
or Letters.....

Ship _____
Port of Registry _____
Gross Tonnage _____

	<i>Freeboard</i> from deck line.		<i>Load Line.</i>
Tropical _____		(a) _____	above (b).
Summer _____		(b) _____	Upper edge of line through centre of disc.
Winter _____		(c) _____	below (b).
Winter in North Atlantic _____		(d) _____	below (b).

Allowance for fresh water for all freeboards _____
The upper edge of the deck line from which these freeboards
are measured is _____ inches above the top of the _____
deck at side.



THIS IS TO CERTIFY that this ship has been surveyed and the
freeboards and load lines shown above have been assigned in
accordance with the Convention.

This certificate remains in force until _____*
Issued at _____ on the _____
day of _____

*Here follow the signature or seal and the description of the authority
issuing the certificate.*

* See back.

Note.—Where sea-going steamers navigate a river or inland water, deeper
loading is permitted corresponding to the weight of fuel, &c., required for
consumption between the point of departure and the open sea.

The provisions of the Convention being fully complied with by this ship, this certificate is renewed till_____

Place_____ Date_____

Signature or Seal and description of authority.

The provisions of the Convention being fully complied with by this ship, this certificate is renewed till_____

Place_____ Date_____

Signature or Seal and description of authority.

The provisions of the Convention being fully complied with by this ship, this certificate is renewed till_____

Place_____ Date_____

Signature or Seal and description of authority.

ANNEX IV.

Titles of Load Line Laws and Rules regarded as Equivalent to the British Board of Trade Rules, 1906.

Australia.

Part IV of the Navigation Act, 1912-1920, and Navigation (Load Line) Regulations of the 17th December, 1924.

Belgium.

Loi sur la sécurité des navires (7 décembre 1920).

Chile.

Reglamento para el trazado del disco marcas y línea oficial de carguio de las naves mercantes (Decree No. 1896 of the 12th November, 1919).

Denmark.

Merchant Shipping (Inspection of Ships) Act of the 29th March, 1920, with later amendments.

Rules and Tables of Freeboard for Ships, dated the 30th September, 1909, as amended by Notification of the 25th July, 1918.

France.

Loi du 17 avril 1907, arrêté du 5 septembre 1908. Décret du 21 septembre 1908. Autre décret du 21 septembre 1908 modifié par le décret du 1er septembre 1925. Décret du 12 mai 1927. Décret du 17 janvier 1928.

Germany.

Vorschriften der See-Berufsgenossenschaft über den Freibord für Dampfer und Segelschiffe, Ausgabe 1908.

Hong Kong.

Merchant Shipping Consolidation Ordinance (No. 10 of 1899), as amended by Ordinances Nos. 31 of 1901, 2 of 1903, 5 of 1905, 16 of 1906, 9 of 1909, and 6 of 1910.

Iceland.

Law No. 58 of the 14th June, 1929, Sections 25-26.

India.

Indian Merchant Shipping Act, 1923.

Italy.

Regole e tavole per assegnazione del "Bordo Libero" approved by decree dated the 1st February, 1929—VII of the Italian Minister for Communications.

Prior to 1929—British Board of Trade Rules, 1906.

Japan.

Ship Load Line Law [Law No. 2 of the 10th year of Taisho (1921)] and the Rules and Regulations relating thereto.

Netherlands.

Decree of the 22nd September, 1909 (Official Journal No. 315).

Netherlands Indies.

Netherlands Decree of the 22nd September, 1909 (Official Journal No. 315).

New Zealand.

British Board of Trade Rules, 1906.

Norway.

Norwegian Freeboard Rules and Tables of 1909.

Portugal.

Decree No. 11,210 of the 18th July, 1925, and Regulations and Instructions relating thereto.

Spain.

Reglamento para el Trazado del Disco y Marcas de Maxima Carga de los buques marchantes, 1914.

Straits Settlements.

British Board of Trade Rules, 1906.

Sweden.

Rules and Tables of Freeboard approved by decree of the 21st May, 1910.

United Kingdom.

Board of Trade Rules, 1906.

United States of America.

British Board of Trade Rules, 1906.

Union of Soviet Socialist Republics.

Rules and Regulations relating to the Load Lines of seagoing merchant vessels, published by Register of the Union of Soviet Socialist Republics, 1928.

International Convention for Safety of Life at Sea.

Marine Department,
Wellington, 25th September, 1934.

THE following International Convention for Safety of Life at Sea, signed at London on the 31st day of May, 1929, and to which His Majesty's Government in New Zealand has given notification of accession pursuant to Article 64 of the said Convention, is published for general information.

JOHN G. COBBE, Minister of Marine.

**INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE
AT SEA.**

PREAMBLE.

The Governments of Germany, the Commonwealth of Australia, Belgium, Canada, Denmark, Spain, the Irish Free State, the United States of America, Finland, France, the United Kingdom of Great Britain and Northern Ireland, India, Italy, Japan, Norway, the Netherlands, Sweden, the Union of Socialist Soviet Republics; being desirous of promoting safety of life at sea by establishing in common agreement uniform principles and rules directed thereto;

Considering that this end may best be achieved by the conclusion of a Convention;

Have appointed their Plenipotentiaries, namely:

The Government of Germany:

- Dr. Friedrich STHAMER, Ambassador Extraordinary and Plenipotentiary of the German Reich in London.
- Mr. Gustav KEONIGS, Ministerialdirigent in the Reichsverkehrsministerium, Geheimer Regierungsrat, Berlin.
- Mr. Arthur WERNER, Oberregierungsrat in the Reichsverkehrsministerium, Geheimer Justizrat, Berlin.
- Mr. Walter LAAS, Professor, Director of the "Germanischer Lloyd" Classification Society, Berlin.
- Dr. Otto RIESS, Director ret. of the Reichsschiffsvermessungsamt, Geheimer Regierungsrat, Neubrandenburg.
- Mr. Hermann GRESS, Ministerialrat in the Reichspostministerium, Berlin.
- Vice-Admiral Hugo DOMINIK, President of the "Deutsche Seewarte," Hamburg.

The Government of the Commonwealth of Australia:

- Captain Henry James FEAKES, Royal Australian Navy, Commonwealth Naval Representative in London.
- Lieut.-Commander Thomas FREE, Royal Naval Reserve (Retired).
- Captain J. K. DAVIS, Commonwealth Director of Navigation.

The Government of Belgium:

- BARON DE GERLACHE DE GOMERY, Director-General of the Marine Department.
- Mr. Gustave DE WINNE, Ingénieur en Chef, Director of the Marine Department.
- Mr. Georges GOOR, Adviser to the Marine Department.

The Government of Canada:

- Mr. Alexander JOHNSTON, Deputy Minister of Marine.
- Mr. Lucien PACAUD, Secretary in the Office of the Canadian High Commissioner in London.

The Government of Denmark:

- Mr. Emil KROGH, Assistant-Secretary in the Marine Department, Ministry of Industry, Commerce and Shipping.
- Mr. V. TOPSØE-JENSEN, Judge of the Supreme Court of Appeal.
- Captain V. LORCK, Chief Examiner of Masters and Mates.
- Mr. J. A. KÖRBING, Technical Managing Director of the United Steam Ship Company, Copenhagen.
- Mr. Aage H. LARSEN, Engineer in Chief of the Ministry of Industry, Commerce and Shipping.
- Mr. Arnold POULSEN, Engineer Commissioner to the Ministry of Industry, Commerce and Shipping.

The Government of Spain :

Rear-Admiral Don Francisco Javier de SALAS y Gonzalez, Head of the Naval Commission in Europe.

The Government of the Irish Free State :

Mr. J. W. DULANTY, Commissioner for Trade for the Irish Free State in Great Britain.

Mr. E. C. FOSTER, Chief Surveyor in the Marine Branch, Department of Industry and Commerce.

The Government of the United States of America :

The Honourable Wallace H. WHITE, Junior, Member of Congress, Chairman of the Committee on Merchant Marine and Fisheries.

Mr. Arthur J. TYRER, Commissioner of Navigation, Department of Commerce.

Mr. Charles M. BARNES, Chief of the Treaty Division, Department of State.

Rear-Admiral George H. ROCK, Construction Corps, United States Navy, Assistant Chief of the Bureau of Construction and Repair, Navy Department.

Captain Clarence S. KEMPF, United States Navy, Hydrographer, Navy Department.

Mr. Dickerson N. HOOVER, Supervising Inspector-General of the Steamboat Inspection Service, Department of Commerce.

Mr. William D. TERRELL, Chief of the Radio Division, Department of Commerce.

Rear-Admiral John G. TAWRESEY, Construction Corps, United States Navy (Retired), United States Shipping Board.

Mr. Herbert B. WALKER, President of the American Steamship Owners' Association.

Mr. Henry G. SMITH, President of the National Council of American Shipbuilders.

Captain Charles A. McALLISTER, President of the American Bureau of Shipping.

The Government of Finland :

Baron Gustaf WREDE, President of the Shipping Board.

Captain Väinö BERGMAN, Inspector of Shipping.

Consul Karl KURTEN, Manager of the Finnish Shipowners' Association.

The Government of France :

Mr. RIO, Senator and former Minister.

Captain HAARBLEICHER, Naval Construction Corps, Director of Mercantile Shipping Service, Department of Public Works.

Commander MARIE, Naval Construction Corps, Direction of Mercantile Shipping.

Captain THOUROUDE, Naval Attaché to the French Embassy in London.

The Government of the United Kingdom of Great Britain and Northern Ireland :

Sir Herbert W. RICHMOND, Vice-Admiral, Royal Navy.

Sir Westcott ABELL, Professor of Naval Architecture, Armstrong College, Newcastle-on-Tyne.

Mr. A. L. AYRE, Vice-President of the Shipbuilding Employers' Federation.

Captain F. W. BATE, Professional Officer, Mercantile Marine Department, Board of Trade.

Mr. C. H. BOYD, Mercantile Marine Department, Board of Trade.

Sir William C. CURRIE, President of the Chamber of Shipping of the United Kingdom.

Mr. A. J. DANIEL, Principal Ship Surveyor, Board of Trade.

Sir Norman HILL, Chairman of the Merchant Shipping Advisory Committee.

Sir Charles HIPWOOD, Principal Assistant Secretary, Mercantile Marine Department, Board of Trade.

Captain A. R. H. MOBRELL, Trinity House.

The Government of India :

Sir Geoffrey L. CORBETT, Commerce Department, Government of India.

Captain E. V. WHISH, Port Officer, Bombay.

Mr. M. A. MASTER, General Manager of the Scindia Steam Navigation Company.

The Government of Italy :

- Lieut.-General of Port G. INGIANNI, General Director of the Mercantile Marine.
 Vice-Admiral A. ALESSIO, Chief of the Technical Inspectorate of the Mercantile Marine.
 Count D. ROGERI DI VILLANOVA, Counsellor to the Italian Embassy in London.
 Dr. T. C. GIANNINI, Counsellor of Emigration.
 Major-General of Port F. MARENA, Vice-Inspector of Harbour Master Offices.
 Engineer-General E. FERRETTI, Chief of the Technical Office of the Italian Naval and Aeronautical Register.
 Mr. G. GNEME, Chief of the Telegraph Service of the General Direction of Postal and Telegraphic Services.
 Commander L. BIANCHERI, Royal Italian Navy.

The Government of Japan :

- Mr. Yukio YAMAMOTO, Inspector-General of the Mercantile Marine Bureau, Expert in the Department of Communications.
 Captain Schichihei OTA, Imperial Japanese Navy.
 Mr. Itaro ISHII, First Class Secretary of Embassy.

The Government of Norway :

- Mr. B. VOGT, Norwegian Minister in London.
 Mr. L. T. HANSEN, Director of the Department of Shipping, Ministry of Commerce and Navigation.
 Mr. J. SCHÖNHEYDER, Surveyor-in-Chief of the Ship and Engineer Division, Ministry of Commerce and Navigation.
 Mr. Arth H. MATHIESEN, Vice-President of the Norwegian Ship-owners' Association.
 Captain N. MARSTRANDER, Chairman of the Board of the Norwegian Masters' Association.
 Mr. A. BIRKELAND, Manager of the Norwegian Seamen's and Firemen's Union.

The Government of the Netherlands :

- Vice-Admiral C. FOCK, Inspector-General of Navigation.
 Mr. C. H. de GOEJE, Ex-Inspector-General of Navigation, Netherland East Indies.
 Mr. A. van DRIEL, Adviser on Naval Architecture, Shipping Inspection Service.
 Mr. J. A. BLAND van den BERG, Inspector of Coastal and Ships' Radiotelegraphy.
 Mr. Phs. van OMMEREN, Junior, Chairman of Phs. van Ommeren, Ltd.
 Mr. H. G. J. ULKENS, Ex-Commodore of the Netherland Steamship Company.

The Government of Sweden :

- Baron PALMSTIERNA, Swedish Minister in London.
 Mr. Nils Gustaf NILSSON, Assistant Under-Secretary in the Board of Trade.
 Captain Erik Axel Fredrik EGGERT, Maritime Expert to the Social Board.

The Government of the Union of Socialist Soviet Republics :

- Mr. Jan Lvovitch ARENS, Counsellor to the U.S.S.R. Embassy in Paris.
 Captain Karl Pavlovitch EGGI, Commander of the Ice-breaker "Lenin," Soviet Merchant Fleet (Sovtorgflot).

Who, having communicated their full powers, found in good and due form, have agreed as follows :—

CHAPTER I.—PRELIMINARY.

ARTICLE I.

The Contracting Governments undertake to give effect to the provisions of the present Convention for the purpose of promoting safety of life at sea, to promulgate all regulations and to take all other steps which may be necessary to give the present Convention full and complete effect.

The provisions of the present Convention are completed by Regulations contained in Annex I, which have the same force and take effect at the same time as the present Convention. Every reference to the present Convention implies at the same time a reference to the Regulations annexed thereto.

ARTICLE 2.

Applications and Definitions.

1. The provisions of the present Convention shall apply to ships belonging to countries the Governments of which are Contracting Governments, and to ships belonging to territories to which the present Convention is applied under Article 62, as follows:—

Chapter II.—(*Construction*) to passenger ships (mechanically propelled) on international voyages.

Chapter III.—(*Life-saving Appliances*) to passenger ships (mechanically propelled) on international voyages.

Chapter IV.—(*Radiotelegraphy*) to all ships engaged on international voyages except cargo ships of less than 1,600 tons gross tonnage.

Chapter V.—(*Safety of Navigation*) to all ships on all voyages.

Chapter VI.—(*Certificates*) to all the ships to which Chapters II, III, and IV apply.

2. The classes of ships to which each Chapter applies are more precisely defined, and the extent of the application is shown, in each Chapter.

3. In the present Convention, unless expressly provided otherwise—

(a) A ship is regarded as belonging to a country if it is registered at a port of that country;

(b) The expression "Administration" means the Government of the country in which the ship is registered;

(c) An international voyage is a voyage from a country to which the present Convention applies to a port outside such country, or conversely; and for this purpose every colony, overseas territory, protectorate or territory under suzerainty or mandate is regarded as a separate country;

(d) A ship is a passenger ship if it carries more than 12 passengers;

(e) The expression "Regulations" means the Regulations contained in Annex I.

4. The present Convention, unless expressly provided otherwise, does not apply to ships of war.

ARTICLE 3.

Cases of Force Majeure.

No ship, which is not subject to the provisions of the present Convention at the time of its departure on any voyage, shall become subject to the provisions of the present Convention on account of any deviation from its intended voyage due to stress of weather or any other cause of *force majeure*.

Persons who are on board a ship by reason of *force majeure* or in consequence of the obligation laid upon the master to carry shipwrecked or other persons shall not be taken into account for the purpose of ascertaining the application to a ship of any provisions of the present Convention.

CHAPTER II.—CONSTRUCTION.

ARTICLE 4.

Application.

1. This Chapter, except where it is otherwise expressly provided, applies to new passenger ships engaged on international voyages.

2. A new passenger ship is a ship the keel of which is laid on or after the 1st July, 1931, or a ship which is converted to passenger service on or after that date, all other passenger ships being described as existing passenger ships.

3. Each Administration may, if it considers that the route and the conditions of the voyage are such as to render the application of the requirements of this Chapter unreasonable or unnecessary, exempt from the requirements of this Chapter individual ships or classes of ships belonging to its country which, in the course of their voyage, do not proceed more than 20 miles from the nearest land.

4. In the case of a passenger ship which, in the course of its voyage, does not proceed more than 200 miles from the nearest land, the Administration of the country to which the ship belongs may allow relaxations from such of the requirements of Regulations IX, X, XV, and XIX as may be proved to the satisfaction of the Administration to be neither reasonable nor practicable.

5. In the case of existing passenger ships engaged on international voyages which do not already comply with the provisions of this Chapter relating to new passenger ships, the arrangements on each ship shall be considered by the Administration of the country to which the ship belongs, with a view to improvements being made to provide increased safety where practicable and reasonable.

6. In the case of passenger ships engaged on international voyages which are employed in the carriage of large numbers of unberthed passengers in special trades, such, for example, as the pilgrim trade, an Administration, if satisfied that it is impracticable to enforce compliance with the requirements of this Chapter, may exempt such ships, when they belong to its country, from those requirements on the following conditions:—

(a) That the fullest provision which the circumstances of the trade will permit shall be made in the matter of construction.

(b) That steps shall be taken to formulate general rules which shall be applicable to the particular circumstances of these trades. Such rules shall be formulated in concert with such other Contracting Governments, if any, as may be directly interested in the carriage of such passengers.

7. This Chapter does not apply to ships which are not mechanically propelled or to wooden ships of primitive build, such as dhows, junks, &c.

ARTICLE 5.

Watertight Subdivision of Ships.

1. Ships shall be as efficiently subdivided as is possible having regard to the nature of the service for which they are intended. The requirements respecting subdivision are given in the following Articles and in the Regulations.

2. The degree of subdivision provided for by these requirements varies with the length of the ship and with the service, in such manner that the highest degree of subdivision corresponds with the ships of greatest length primarily engaged in the carriage of passengers.

3. Regulations I to V indicate the method to be followed in order to determine the degree of subdivision applicable to a ship.

4. In order that the required degree of subdivision shall be maintained, a loadline corresponding to the approved subdivision draft shall be assigned and marked on the ship's sides. A ship having spaces which are specially adapted for the accommodation of passengers and the carriage of cargo alternatively may, if the owners desire, have one or more additional loadlines assigned and marked to correspond with the subdivision drafts which the Administration may approve for the alternative service conditions. The freeboard corresponding to each approved subdivision loadline, and the conditions of service for which it is approved, shall be clearly indicated on the Safety Certificate. Subdivision loadlines shall be marked and recorded in the manner provided in Regulation VII.

ARTICLE 6.

Peak and Machinery Space Bulkheads, Shaft Tunnels, &c.

All ships shall be fitted with watertight forward and after peak bulkheads and with watertight bulkheads at the extremities of the machinery space, and, in screw ships, with watertight shaft tunnels or equivalent subdivision in accordance with the provisions of Regulation VI.

ARTICLE 7.

Construction, Testing, &c.

Regulations VIII to XIII and XV to XXI prescribe rules for—

- (a) The construction and testing of subdivision bulkheads, inner bottoms, watertight decks, trunks, ventilators, fire-resisting bulkheads, &c.;
- (b) The conditions governing openings in bulkheads, in the ship's sides and in the weather deck, and the character and use of means which shall be provided for closing these openings;
- (c) The tests and the periodical inspections and operation of the means of closing openings in bulkheads and in the ship's side;
- (d) Exits from watertight compartments;
- (e) Pumping arrangements; and
- (f) Power for going astern and auxiliary steering apparatus.

ARTICLE 8.

Stability Test.

Every new passenger ship shall be inclined upon its completion and the elements of its stability determined. The operating personnel shall be supplied with such information on this subject as is necessary to permit efficient handling of the ship.

ARTICLE 9.

Entries in the Official Log Book.

A record of the closing and opening of watertight doors, &c., and of all inspections and drills, shall be entered in the official log book as required by Regulation XIV.

ARTICLE 10.

Initial and Subsequent Surveys of Ships.

The general principles which shall govern the survey of ships, whether new or existing, as regards hull, main and auxiliary boilers and machinery, and equipments, are stated in Regulation XXII. Each Contracting Government undertakes—

- (1) To draw up detailed regulations in accordance with these general principles, or to bring its existing regulations into agreement with these principles;
- (2) To secure that these regulations shall be enforced.

The detailed regulations referred to in the preceding paragraph shall be in all respects such as to secure that, from the point of view of safety of life, the ship is fit for the service for which it is intended.

CHAPTER III.—LIFE-SAVING APPLIANCES, ETC.

ARTICLE 11.

Interpretation.

For the purposes of this Chapter—

- (a) The expression "new ship" means a ship the keel of which is laid on or after the 1st July, 1931, all other ships being described as existing ships;
- (b) The expression "short international voyage" means an international voyage in the course of which a ship is not more than 200 miles from the nearest land;
- (c) The expression "buoyant apparatus" means buoyant deck seats, or buoyant deck chairs, or any other buoyant apparatus excepting boats, life-buoys and life-jackets.

ARTICLE 12.

Application.

1. This Chapter, except where it is otherwise expressly provided, applies to new passenger ships which are mechanically propelled and engaged on international voyages.

2. Special provisions are laid down in Articles 13, 14, 19 and 25 with regard to new passenger ships engaged on short international voyages.

3. Each Administration, if it considers that the route and the conditions of the voyage are such as to render the application of the full requirements of this Chapter unreasonable or unnecessary, may to that extent exempt from the requirements of this Chapter individual ships or classes of ships belonging to its country which, in the course of their voyage, do not go more than 20 miles from the nearest land.

4. In the case of existing passenger ships which are mechanically propelled and engaged on international voyages and which do not already comply with the provisions of this Chapter relating to new passenger ships, the arrangements on each ship shall be considered by the Administration of the country to which the ships belong, with a view to securing, so far as this is practicable and reasonable, compliance with the general principles set out in Article 13 not later than the 1st July, 1931, and substantial compliance with the other requirements of this Chapter.

5. In the case of passenger ships which are mechanically propelled and engaged on international voyages and which are employed in the carriage of large numbers of unberthed passengers in special trades, such, for example, as the pilgrim trade, an Administration, if satisfied that it is impracticable to enforce compliance with the requirements of this Chapter, may exempt such ships, when they belong to its country, from those requirements on the following conditions:—

(a) That the fullest provision which the circumstances of the trade will permit shall be made in the matter of life-boats and other life-saving appliances and fire protection.

(b) That all such boats and apparatus shall be readily available within the meaning of Article 13.

(c) That a life-jacket shall be provided for every person on board.

(d) That steps shall be taken to formulate general rules which shall be applicable to the particular circumstances of these trades. Such rules shall be formulated in concert with such other Contracting Governments, if any, as may be directly interested in the carriage of such passengers.

ARTICLE 13.

Lifeboats and Buoyant Apparatus.

The general principles governing the provision of lifeboats and buoyant apparatus in a ship to which this Chapter applies are that they shall be readily available in case of emergency and shall be adequate.

1. To be readily available, the lifeboats and buoyant apparatus must comply with the following conditions:—

(a) They must be capable of being got into the water safely and rapidly even under unfavourable conditions of list and trim.

(b) It must be possible to embark the passengers in the boats rapidly and in good order.

(c) The arrangement of each boat and article of buoyant apparatus must be such that it will not interfere with the operation of other boats and buoyant apparatus.

2. To be adequate, the provision of lifeboats and buoyant apparatus must satisfy the following conditions:—

(a) Subject to the provisions of sub-paragraph (b) of this paragraph there must be accommodation in boats for all persons on board, and there must, in addition, be buoyant apparatus for 25 per cent. of the persons on board.

(b) In the case of passenger ships engaged on short international voyages, the boats must be provided in accordance with the requirements set out in the table in Regulation XXXIX, and there must be, in addition, buoyant apparatus so that the boats and buoyant apparatus together provide accommodation for all on board as set out in Regulation XXXVIII. There must, in addition, be buoyant apparatus for 10 per cent. of the persons on board.

(c) No more boats shall be required on any passenger ship than are sufficient to accommodate all persons on board.

ARTICLE 14.

Ready Availability and Adequacy.

The arrangements for securing the principles of ready availability and adequacy mentioned in Article 13 shall be in accordance with the provisions of Regulations XXXVII, XXXVIII, and XXXIX.

ARTICLE 15.

Standard types of Boats. Life Rafts. Buoyant Apparatus.

All the lifeboats, life rafts, and buoyant apparatus shall comply with the conditions fixed by this Convention and Regulations XXIV to XXIX.

ARTICLE 16.

Construction of Boats.

All boats must be properly constructed, and shall be of such form and proportions that they shall have ample stability in a seaway, and sufficient freeboard when loaded with their full complement of persons and equipment.

Each boat must be of sufficient strength to enable it to be safely lowered into the water when loaded with its full complement of persons and equipment.

ARTICLE 17.

Embarkation of the Passengers in the Boats.

Suitable arrangements shall be made for embarking the passengers in the boats at an embarkation deck. There shall also be a suitable ladder provided at each set of davits.

ARTICLE 18.

Capacity of Boats and Life Rafts.

The number of persons that a boat of one of the standard types or an approved life raft or buoyant apparatus can accommodate, and the conditions of approval of life rafts and buoyant apparatus shall be ascertained in accordance with the provisions of Regulations XXX to XXXV inclusive.

ARTICLE 19.

Equipment of Boats and Life Rafts.

Regulation XXXVI prescribes the equipment for boats and life rafts.

ARTICLE 20.

Life-jackets and Life-buoys.

1. Every ship to which this Chapter applies shall carry for every person on board a life-jacket of a type approved by the Administration, and in addition, unless these life-jackets can be adapted for use by children, a sufficient number of life-jackets suitable for children.

2. Every such ship shall also carry life-buoys of a type approved as aforesaid to the number required by Regulation XL.

3. A life-jacket or life-buoy shall not be approved by an Administration unless it satisfies the requirements of Regulation XL applicable to life-jackets and life-buoys respectively.

4. In this Article the expression "life-jacket" includes any appliance capable of being fitted on the body, having the same buoyancy as a life-jacket.

ARTICLE 21.

Means of Ingress and Egress. Emergency Lighting.

1. Proper arrangements shall be made for ingress to and egress from the different compartments, decks, &c.

2. Provision shall be made for an electric or other system of lighting, sufficient for all requirements of safety, in the different parts of the ship, and particularly upon the decks on which the lifeboats are stowed. On ships in which the boat deck is more than 9.15 metres (30 feet) above the waterline at the lightest seagoing draught, provision shall be made for the illumination from the ship of the lifeboats when alongside and in process of or immediately after being launched. There must be a self-contained source capable of supplying, when necessary, this safety lighting system, and placed in the upper parts of the ship above the bulkhead deck.

3. The exit from every main compartment occupied by passengers or crew shall be continuously lighted by an emergency lamp. The power for these emergency lamps shall be so arranged that they will be supplied from the independent installation referred to in the preceding paragraph in the event of failure of the main generating plant.

ARTICLE 22.

Certificated Lifeboatmen. Manning of the Boats.

1. In every ship to which this Chapter applies there must be, for any boat or life raft carried in order to comply with this Chapter, such number of certificated lifeboatmen as is required by Regulation XLI for that boat.

2. The allocation of the certificated lifeboatmen to each boat and life raft remains within the discretion of the master, according to the circumstances.

3. By "certificated lifeboatman" is meant any member of the crew who holds a certificate of efficiency issued under the authority of the Administration in accordance with the conditions laid down in the aforementioned Regulation.

4. The manning of the boats shall be as prescribed in Regulation XLII.

ARTICLE 23.

Line-throwing Appliances.

Every ship to which this Chapter applies shall carry a line-throwing appliance of a type approved by the Administration.

ARTICLE 24.

Dangerous Goods. Fire Protection.

1. The carriage, either as cargo or ballast, of goods which by reason of their nature, quantity, or mode of stowage, are, either singly or collectively, liable to endanger the lives of the passengers or the safety of the ship, is forbidden.

This provision does not apply to the ship's distress signals, nor to the carriage of naval or military stores for the public service of the State under conditions authorized by the Administration.

Each Administration shall, from time to time by official notice, determine what goods are to be considered dangerous goods, and shall indicate the precautions which must be taken in the packing and stowage thereof.

2. The arrangements to be made for the detection and extinction of fire shall be as prescribed in Regulation XLIII.

ARTICLE 25.

Muster Roll and Drills.

Special duties for the event of an emergency shall be allotted to each member of the crew.

The muster list shall show all these special duties and shall indicate, in particular, the station to which each man must go, and the duties that he has to perform.

Before the vessel sails, the muster list shall be drawn up and exhibited, and the proper authority shall be satisfied that the muster list has been prepared for the ship. It shall be posted in several parts of the ship, and in particular in the crew's quarters.

Regulations XLIV and XLV prescribe the conditions under which musters of the crew and drills shall take place.

CHAPTER IV.—RADIOTELEGRAPHY.

ARTICLE 26.

Application and Definition.

1. This Chapter applies to all ships engaged on international voyages except cargo ships of less than 1,600 tons gross tonnage.

2. For the purpose of this Chapter a cargo ship means any ship not being a passenger ship.

ARTICLE 27.

Fitting of Radio Installation.

1. All ships to which this Chapter applies shall, unless exempted under Article 28, be fitted with a radiotelegraph installation complying with the provisions of Article 31, as follows:—

(a) All passenger ships, irrespective of size.

(b) All cargo ships of 1,600 tons gross tonnage and upwards.

2. Each Administration may delay the application of the provisions of paragraph 1 (b) to cargo ships belonging to its country of less than 2,000 tons gross tonnage for a period not exceeding five years from the date of the coming into force of the present Convention.

ARTICLE 28.

Exemptions from the Requirements of Article 27.

1. Each Administration may, if it considers that the route and the conditions of the voyage are such as to render a radiotelegraph installation unreasonable or unnecessary, exempt ships belonging to its country from the requirements of Article 27 as follows:—

I.—*Passenger ships.*

(a) Individual passenger ships or classes of passenger ships which, in the course of their voyage, do not go more than—

(i) 20 miles from the nearest land; or

(ii) 200 miles in the open sea between two consecutive ports.

(b) Passenger ships which make voyages entirely within the restricted areas specified in the Annex to this Article.

II.—*Cargo ships.*

Individual cargo ships or classes of cargo ships which, in the course of their voyage, do not go more than 150 miles from the nearest land.

2. Each Administration may, in addition, exempt ships belonging to its country of the following classes:—

I.—*Barges in tow and existing sailing ships.*

An existing sailing ship is one the keel of which is laid before the 1st July, 1931.

II.—*Ships of primitive build, such as dhows, junks, &c., if it is practically impossible to fit them with a radiotelegraph installation.*

III.—*Ships which are not normally engaged on international voyages, but which in exceptional circumstances are required to undertake a single voyage of that kind.*

ANNEX TO ARTICLE 28.

1. The Baltic Sea and approaches thereto East of a line drawn from Utsire (Norway) in the North of Texel (Netherlands) in the South, outside the territorial jurisdiction of the Union of Socialist Soviet Republics.

2. The portions of the Gulf of Tartary and the Sea of Okhotsk covered in voyages between ports in Hokkaido and ports in Japanese Sakhalin.

3. The Chosen (Tyosen) Strait between a line in the North drawn from Kawajiri Misaki (Cape Natsungu) to Fusan, and a line in the South drawn from Nagasaki to Giffard Island (off the South-west point of Quelpart Island) and thence to Tin To (Amherst Island).

4. The Yellow Sea North of Parallel 37° North.

5. The Formosa Strait between a line in the North drawn from Fuki Kaku (Syauki Point) to Foochow and a line in the South drawn from South Cape (the South point of Formosa) to Hong Kong.

6. The area within the following limits:—

Parallel 10° N. from long. 94° E. to the coast of Asia, coast of Asia to Saigon (Cape Tiwan), straight lines between Cape Tiwan, lat. 4° 30' N. long. 110° E., south point to Palawan Island, Palmas (Miangas) Island, lat. 0° long. 140° E., lat. 0° long. 148° E., lat., 10° S. long. 148° E., Cape York, north coast of Australia from Cape York to Port Darwin (Cape Charles), straight lines between Cape Charles, Ashmore Reef (East Island), lat. 10° S. long. 109° E., Christmas Island, lat. 2° N. long. 94° E., lat. 10° N. long. 94° E., outside the territorial jurisdiction of Australia and of the United States of America.

7. The Caribbean Sea, outside the territorial jurisdiction of the United States of America, in relation to voyages made by sailing ships only.

8. The area of the South Pacific Ocean bounded by the Equator, Meridian 130° W., Parallel 34° S., and the coast of Australia, outside the territorial jurisdiction of Australia.

9. The Tong King Gulf and portions of the China Sea lying to the West of a line drawn from Hong Kong to lat. 17° N., long. 110° E., thence due South to lat. 10° N., and thence West to Saigon.

10. The portions of the Indian Ocean covered in voyages between ports in Madagascar, Reunion, and the Mauritius Islands.

11. The portions of the North Atlantic Ocean and Mediterranean Sea covered in voyages between Casablanca (Morocco) and Oran (Algeria) and intermediate ports.

ARTICLE 29.

Watches.

1. *Passenger ships.*

Each passenger ship which, in accordance with Article 27, is required to be fitted with a radiotelegraph installation, shall, for safety purposes, carry a qualified operator, and, if not fitted with an auto-alarm, shall, whilst at sea, keep watches by means of a qualified operator or a certified watcher, as under:—

(a) All passenger ships under 3,000 tons gross tonnage, as determined by the Administration concerned;

(b) All passenger ships of 3,000 tons gross tonnage and over, continuous watch.

Each Administration is authorized to exempt passenger ships belonging to its country from 3,000 tons to 5,500 tons gross tonnage, both included, from the requirement of a continuous watch for a period not exceeding one year from the date of the coming into force of the present Convention, provided that during the period of such exemption they shall maintain a watch of at least 8 hours per day.

2. *Cargo Ships.*

Each cargo ship which, in accordance with Article 27, is required to be fitted with a radiotelegraph installation, shall, for safety purposes, carry a qualified operator, and, if not fitted with an auto-alarm, shall, whilst at sea, keep watches by means of a qualified operator or a certified watcher, as under:—

(a) All cargo ships under 3,000 tons gross tonnage, as determined by the Administration concerned;

(b) Cargo ships from 3,000 to 5,500 tons gross tonnage, both included, at least 8 hours' watch per day;

(c) Cargo ships over 5,500 tons gross tonnage, continuous watch.

Each Administration is authorized to exempt ships belonging to its country included in (c) above from the requirement of a continuous watch for a period not exceeding one year from the date of the coming into force of the present Convention, provided that during the period of such exemption they shall maintain a watch of at least 8 hours per day.

Each Administration is also authorized to exempt ships belonging to its country from 5,500 tons to 8,000 tons gross tonnage from the requirement of a continuous watch for a further period of one year, provided that during this further period of exemption they shall maintain a watch of at least 16 hours per day.

3. On all ships fitted with an auto-alarm this auto-alarm shall, whilst the ship is at sea, always be in operation when the operator or watcher is not on watch.

On ships for which the hours of watch are to be determined by the Administration concerned, such watch should be maintained preferably at hours prescribed for radiotelegraph service by the International Radiotelegraph Convention in force.

On ships which are required to keep 8 hours' or 16 hours' watch per day, such watch shall be maintained at the hours prescribed for radiotelegraph service by the International Radiotelegraph Convention in force.

4. By *auto-alarm* is meant an automatic alarm receiver which complies with the requirements of Article 19, § 21, of the General Regulations annexed to the International Radiotelegraph Convention, 1927.

5. By *qualified operator* is meant a person holding a certificate complying with the provisions of the General Regulations annexed to the International Radiotelegraph Convention in force.

6. By *certified watcher* is meant any person holding a watcher's certificate issued under the authority of the Administration.

ARTICLE 30.

Watchers.

1. A watcher's certificate shall not be granted by a Contracting Government unless the applicant proves that he is capable—
 - (a) Of receiving and understanding the alarm, distress, safety, and urgency signals when these signals occur among a series of other signals;
 - (b) Of correct reception by ear of code groups (mixed letters, figures, and punctuation marks) at a speed of sixteen groups per minute, each group being composed of five characters and each figure or punctuation mark counting as two characters;
 - (c) Of regulating the receivers used in the ship's radiotelegraph installation.
2. The Contracting Governments undertake to take steps to ensure that certified watchers observe the secrecy of correspondence.

ARTICLE 31.

Technical Requirements.

The radiotelegraph installations required by Article 27 above and the direction-finding apparatus required by Article 47 shall comply with the following requirements:—

1. The ship's station must be placed in accordance with the detailed Regulations of the Government of the country to which the ship belongs, in the upper part of the ship in a position of the greatest possible safety, as high as practicable above the deepest load water line.
2. There shall be provided, between the bridge of the ship and the wireless telegraph room, means of communication either by voice, pipe, or by telephone, or in some other manner equally efficient.
3. A reliable clock with a seconds hand must be provided in the wireless telegraph room.
4. A reliable emergency light must be provided in the wireless telegraph room.
5. The installation shall comprise a main installation and an emergency (reserve) installation. If, however, the main installation complies with all the requirements of an emergency (reserve) installation the latter is not then obligatory.
6. The main and emergency (reserve) installations must be capable of transmitting and receiving on the frequencies (wave lengths) and types of waves assigned by the International Radiotelegraph Convention in force for the purpose of distress and safety of navigation to ships compulsorily fitted with radiotelegraph installations in accordance with the present Convention.
7. The main and emergency (reserve) transmitters shall have a note frequency of at least 100.
8. The main transmitter shall have a *normal range* of 100 nautical miles, that is to say, it must be capable of transmitting clearly perceptible signals from ship to ship over a range of at least 100 nautical miles by day under normal conditions and circumstances, the receiver being assumed to be one employing a rectifier of the crystal type without amplification.*
9. Sufficient power must be available in a ship station at all times to operate the main radiotelegraph installation efficiently under normal conditions over the above range.
10. All parts of the emergency (reserve) installation shall be placed in the upper part of the ship in a position of the greatest possible safety, as high above the deepest load water line as practicable. The emergency (reserve) installation must be provided with a source of energy independent of the propelling power of the ship and of the main electricity system and must be capable of being put into operation rapidly and of working for at least six continuous hours. For the emergency (reserve) installation, the normal range as defined in paragraph 8 above must be at least 80 nautical miles for ships required to maintain a continuous watch and at least 50 nautical miles for all other ships.*

* Unless a more precise and practical method is available to determine the range of transmitters it is recommended that, as a guide, the following relations between the range in nautical miles (from ship to ship under normal conditions in daytime) and the power of the ship transmitter in metre ampères for 500 kilocycles per second (600 m) be used:—

100 nautical miles	60 M A
80 nautical miles	45 M A
50 nautical miles	25 M A

M being the actual height in metres of the aerial from its highest point to the load line.

A being the current in ampères measured at the base of the aerial in case of B, or fully modulated A2, transmitters.

11. The receiving installation must permit of the reception of such of the waves used for the transmission of time signals and meteorological messages as may be considered necessary by the Administration.

12. The receiver must be so arranged as to be capable of maintaining reception by means of a rectifier of the crystal type.

13. In ships in which watch is kept by means of an automatic alarm receiver a means of giving audible warning shall be provided in the wireless telegraph room, in the wireless operator's cabin, and on the bridge, which shall operate continuously after the receiver has been operated by the alarm signal or distress call until stopped. Only one switch for stopping the warning shall be provided and this shall be situated in the wireless telegraph room.

14. In such ships the wireless operator, when going off watch, shall connect the automatic alarm receiver to the aerial and test its efficiency. He shall report to the master or the officer on watch on the bridge whether it is in working order.

15. Whilst the ship is at sea the emergency source of power shall be maintained at its full efficiency and the automatic alarm receiver shall be tested at least once every 24 hours. A statement that both these requirements have been fulfilled must be inserted in the ship's official log daily.

16. A wireless log shall be carried by every ship compulsorily equipped with wireless transmitting apparatus. This document shall be kept in the wireless telegraph room, and in it shall be inserted the names of the operators and watchers as well as all incidents and occurrences connected with the wireless service which may appear to be of importance to safety of life at sea, and in particular all distress messages and distress traffic in full.

17. The direction-finding apparatus required by Article 47, shall be efficient and capable of receiving clearly perceptible signals and of taking bearings from which the true bearing and direction may be determined. It shall be capable of receiving signals on the frequencies prescribed for distress, direction finding and wireless telegraph beacons by the International Radiotelegraph Convention in force.

Efficient communication shall be provided between the apparatus and the bridge.

ARTICLE 32.

Competence.

The matters governed by the International Radiotelegraph Convention, Washington, 1927, and the Regulations annexed thereto remain, and will continue, subject to the provisions:—

(1) Of that Convention and of the Regulations annexed thereto, and of any Convention and Regulations which may in the future be substituted therefor;

(2) Of the present Convention in regard to all the points in which it supplements the aforementioned documents.

CHAPTER V.—SAFETY OF NAVIGATION.

ARTICLE 33.

Application.

The provisions of this Chapter referring to ships, unless otherwise expressly provided, apply to all ships on all voyages.

ARTICLE 34.

Danger Messages.

The master of every ship which meets with dangerous ice, a dangerous derelict, a dangerous tropical storm or any other direct danger to navigation is bound to communicate the information, by all the means of communication at his disposal, to the ships in the vicinity, and also to the competent authorities at the first point of the coast with which he can communicate. It is desirable that the said information be sent in the manner set out in Regulation XLVI.

Each Administration will take all steps which it thinks necessary to ensure that when intelligence of any of the dangers specified in the previous paragraph is received, it will be promptly brought to the knowledge of those concerned and communicated to other Administrations interested.

The transmission of messages respecting the dangers specified is free of cost to the ships concerned.

ARTICLE 35.

Meteorological Services.

The Contracting Governments undertake to encourage the collection of meteorological data by ships at sea, and to arrange for their examination, dissemination and exchange in the manner most suitable for the purpose of aiding navigation.

In particular, the Contracting Governments undertake to cooperate in carrying out, as far as practicable, the following meteorological arrangements:—

(a) To warn ships of gales, storms and tropical storms, both by the issue of wireless messages and by the display of appropriate signals at coastal points;

(b) To issue daily, by radio, weather bulletins suitable for shipping, containing data of existing weather conditions and forecasts;

(c) To arrange for certain selected ships to take meteorological observations at specified hours, and to transmit such observations by wireless telegraphy for the benefit of other ships and of the various official meteorological services; and to provide coast stations for the reception of the messages transmitted;

(d) To encourage all ship-masters to inform surrounding ships whenever they experience wind force of 10 or above on the Beaufort scale (force 8 or above on the decimal scale).

The information provided for in paragraphs (a) and (b) of this article will be furnished in form for transmission in accordance with Article 31, §§ 1, 3 and 5, and Article 19, § 25, of the General Regulations annexed to the International Radiotelegraph Convention, Washington, 1927, and during transmission "to all stations" of meteorological information, forecasts and warnings, all ship stations must conform to the provisions of Article 31, § 2, of those General Regulations.

Weather observations from ships addressed to national meteorological services will be transmitted with the priority specified in Article 3, Additional Regulations, International Radiotelegraph Convention, Washington, 1927.

Forecasts, warnings, synoptic and other meteorological reports intended for ships shall be issued and disseminated by the national service in the best position to serve various zones and areas, in accordance with mutual arrangements made by the countries concerned.

Every endeavour will be made to obtain a uniform procedure in regard to the international meteorological services specified in this Article, and, as far as is practicable, to conform to the recommendations made by the International Meteorological Organization, to which organization the Contracting Governments may refer for study and advice any meteorological questions which may arise in carrying out the present Convention.

ARTICLE 36.

Ice Patrol. Derelicts.

The Contracting Governments undertake to continue a service of ice patrol and a service for study and observation of ice conditions in the North Atlantic. Further, they undertake to take all practicable steps to ensure the destruction or removal of derelicts in the northern part of the Atlantic Ocean east of the line drawn from Cape Sable to a point in latitude 34° N. longitude 70° W. if this destruction or removal is considered necessary at the time.

The Contracting Governments undertake to provide not more than three vessels for these three services. During the whole of the ice season they shall be employed in guarding the south-eastern, southern and south-western limits of the regions of icebergs in the vicinity of the Great Bank of Newfoundland for the purpose of informing trans-Atlantic and other passing vessels of the extent of this dangerous region; for the observation and study of ice conditions in general; for the destruction or removal of derelicts; and for the purpose of affording assistance to vessels and crews requiring aid within the limits of operation of the patrol vessels.

During the rest of the year the study and observation of ice conditions shall be maintained as advisable, and one vessel shall always be available for the search for, and destruction or removal of derelicts.

ARTICLE 37.

Ice Patrol. Management and Cost.

The Government of the United States is invited to continue the management of these services of ice patrol, study and observation of ice conditions, and derelict destruction and removal. The Contracting Governments specially interested in these services, whose names are given below, undertake to contribute to the expense of maintaining and operating these services in the following proportions :—

	Per Cent.
Belgium	2
Canada	3
Denmark	2
France	6
Germany	10
Great Britain and Northern Ireland	40
Italy	6
Japan	1
Netherlands	5
Norway	3
Spain	1
Sweden	2
Union of Socialist Soviet Republics	1
United States of America	18

Each of the Contracting Governments has the right to discontinue its contribution to the expense of maintaining and operating these services after the 1st September, 1932. Nevertheless, the Contracting Government which avails itself of this right will continue responsible for the expense of working up to the 1st September following the date of giving notice of intention to discontinue its contribution. To take advantage of the said right it must give notice to the other Contracting Governments at least six months before the said 1st September; so that, to be free from this obligation on the 1st September, 1932, it must give notice on the 1st March, 1932, at the latest, and similarly for each subsequent year.

If, at any time, the United States Government should not desire to continue these services, or if one of the Contracting Governments should express a wish to relinquish responsibility for the pecuniary contribution defined above, or to have its percentage of obligation altered, the Contracting Governments shall settle the question in accordance with their mutual interests.

The Contracting Governments which contribute to the cost of the three above-mentioned services shall have the right by common consent to make from time to time such alterations in the provisions of this Article and of Article 36 as appear desirable.

ARTICLE 38.

Speed near Ice.

When ice is reported on, or near, his course, the master of every ship at night is bound to proceed at a moderate speed or to alter his course so as to go well clear of the danger zone.

ARTICLE 39.

North Atlantic Routes.

The practice of following recognized routes across the North Atlantic in both directions has contributed to safety of life at sea, but the working of these routes should be further investigated and studied with a view to the introduction of such variations as experience may show to be necessary.

The selection of the routes and the initiation of action with regard to them is left to the responsibility of the steamship companies concerned. The Contracting Governments will assist the companies, when requested to do so, by placing at their disposal any information bearing on the routes which may be in the possession of the Governments.

The Contracting Governments undertake to impose on the companies the obligation to give public notice of the regular routes which they propose their vessels should follow, and of any changes made in these routes; they will also use their influence to induce the owners of all vessels crossing the Atlantic to follow, so far as circumstances will

permit, the recognized routes, and to induce the owners of all vessels crossing the Atlantic bound to or from ports of the United States via the vicinity of the Great Bank of Newfoundland to avoid, as far as practicable, the fishing banks of Newfoundland north of latitude 43° N. during the fishing season, and to pass outside regions known or believed to be endangered by ice.

The Administration managing the ice patrol service is requested to report to the Administration concerned any ship which is observed not to be on any regular, recognized or advertised route, or which crosses the above-mentioned fishing banks during the fishing season, or which, when proceeding to or from ports of the United States, passes through regions known or believed to be endangered by ice.

ARTICLE 40.

Collision Regulations.

The Contracting Governments agree that the alterations in the International Regulations for Preventing Collisions at Sea shown in Annex II are desirable and ought to be made. The Government of the United Kingdom of Great Britain and Northern Ireland is requested to forward full particulars of the alterations to the other Governments who have accepted the International Regulations for Preventing Collisions at Sea, and ascertain whether they will adopt these alterations; to report the results to the Governments represented at this Conference, and to endeavour to arrange that the revised regulations shall come in force on the 1st July, 1931.

ARTICLE 41.

Helm Orders.

The Contracting Governments agree that after midnight on the 30th June, 1931, helm or steering orders, *i.e.*, orders to the steersman, shall on all their ships be given in the direct sense, *e.g.*, when the ship is going ahead an order containing the word "starboard" or "right" or any equivalent of "starboard" or "right" shall only be used when it is intended, on ships as at present generally constructed and arranged, that the wheel, the rudder-blade, and the head of the ship, shall all move to the right.

ARTICLE 42.

Misuse of Distress Signals.

The use of an international distress signal, except for the purpose of indicating that a vessel is in distress, and the use of any signal which may be confused with an international distress signal, are prohibited on every ship.

ARTICLE 43.

Alarm, Distress and Urgency Signals.

The alarm signal and the distress signal may only be used by ships in serious and imminent danger which require immediate assistance. In all other cases in which assistance is required, or in which a vessel desires to issue a warning that it may become necessary to send out the alarm signal or the distress signal at a later stage, use must be made of the urgency signal (XXX) established by the International Radiotelegraph Convention, Washington, 1927.

If a ship has sent out the alarm or distress signal and subsequently finds that assistance is no longer required such ship shall immediately notify all stations concerned as provided for by the Radiotelegraph Convention in force.

ARTICLE 44.

Speed of Distress Messages.

The speed of transmission of messages in connection with cases of distress, urgency or safety, shall not exceed 16 words per minute.

ARTICLE 45.

Distress Messages. Procedure.

1. The master of a ship on receiving on his ship a wireless distress signal from any other ship, is bound to proceed with all speed to the assistance of the persons in distress, unless he is unable, or in the special circumstances of the case, considers it unreasonable or unnecessary to do so, or unless he is released under the provisions of paragraphs 3 and 4 of this Article.

2. The master of a ship in distress, after consultation, so far as may be possible, with the masters of the ships which answer his call for assistance, has the right to requisition such one or more of those ships as he considers best able to render assistance, and it shall be the duty of the master or masters of the ship or ships requisitioned to comply with the requisition by continuing to proceed with all speed to the assistance of the persons in distress.

3. A master shall be released from the obligation imposed by paragraph 1 of this Article as soon as he is informed by the master of the ship requisitioned, or, where more ships than one are requisitioned, all the masters of the ships requisitioned, that he or they are complying with the requisition.

4. A master shall be released from the obligation imposed by paragraph 1 of this Article, and, if his ship has been requisitioned, from the obligation imposed by paragraph 2 of this Article, if he is informed by a ship which has reached the persons in distress that assistance is no longer necessary.

5. If a master of a ship, on receiving a wireless distress call from another ship, is unable, or in the special circumstances of the case considers it unreasonable or unnecessary to go to the assistance of that other ship, he must immediately inform the master of that other ship accordingly, and enter in his log-book his reasons for failing to proceed to the assistance of the persons in distress.

6. The provisions of this Article do not prejudice the International Convention for the unification of certain rules with respect to Assistance and Salvage at Sea, signed at Brussels on the 23rd September, 1910, particularly the obligation to render assistance imposed by Article 11 of that Convention.

ARTICLE 46.

Signalling Lamp.

All ships of over 150 tons gross tonnage, when engaged on international voyages, shall have on board an efficient signalling lamp.

ARTICLE 47.

Direction-finding Apparatus.

Every passenger ship of 5,000 tons gross tonnage and upwards shall, within two years from the date on which the present Convention comes into force, be provided with an approved direction-finding apparatus (radio compass), complying with the provisions of Article 31 (17) of the present Convention.

ARTICLE 48.

Manning.

The Contracting Governments undertake, each for its national ships, to maintain, or, if it is necessary, to adopt, measures for the purpose of ensuring that, from the point of view of safety of life at sea, all ships shall be sufficiently and efficiently manned.

CHAPTER VI.—CERTIFICATES.

ARTICLE 49.

Issue of Certificates.

A certificate called a *Safety Certificate* shall be issued, after inspection and survey, to every passenger ship which complies in an efficient manner with the requirements of Chapters II, III, and IV of the Convention.

A certificate called a *Safety Radiotelegraphy Certificate* shall be issued after inspection to every ship other than a passenger ship which complies in an efficient manner with the requirements of Chapter IV of the present Convention.

A certificate called an *Exemption Certificate* shall be issued to every ship to which exemption is granted by a Contracting Government under, and in accordance with, the provisions of Chapters II, III, and IV of the present Convention.

The inspection and survey of ships, so far as regards the enforcement of the provisions of the present Convention and the annexed Regulations applicable to such ships and the granting of exemptions therefrom, shall be carried out by officers of the country in which the ship is registered, provided that the Government of each country may entrust the inspection and survey of its ships either to Surveyors nominated for this purpose or to organizations recognized by it. In every case the Government concerned fully guarantees the completeness and efficiency of the inspection and survey.

A Safety Certificate, Safety Radiotelegraphy Certificate, and Exemption Certificate shall be issued either by the Government of the country in which the ship is registered or by any person or organization duly authorized by that Government. In every case that Government assumes full responsibility for the certificate.

ARTICLE 50.

Issue of Certificate by Another Government.

A Contracting Government may, at the request of the Government of a country in which a ship coming under the present Convention is registered, cause that ship to be surveyed, and, if satisfied that the requirements of the present Convention are complied with, issue a Safety Certificate or Safety Radiotelegraphy Certificate to such ship, under its own responsibility. Any certificate so issued must contain a statement to the effect that it has been issued at the request of the Government of the country in which the ship is registered, and it shall have the same force and receive the same recognition as a certificate issued under Article 49 of the present Convention.

ARTICLE 51.

Form of Certificates.

All certificates shall be drawn up in the official language or languages of the country by which they are issued.

The form of the certificates shall be that of the models given in Regulation XLVII. The arrangement of the printed part of the standard certificates shall be exactly reproduced in the certificates issued, or in certified copies thereof, and the particulars inserted by hand shall in the certificates issued, or in certified copies thereof, be inserted in Roman characters and Arabic figures.

The Contracting Governments undertake to communicate one to another a sufficient number of specimens of their certificates for the information of their officers. This exchange shall be made, so far as possible, before the 1st January, 1932.

ARTICLE 52.

Duration of Certificates.

Certificates shall not be issued for a period of more than twelve months.

If a ship at the time when its certificate expires is not in a port of the country in which it is registered the certificate may be extended by a duly authorized officer of the country to which the ship belongs; but such extension shall be granted only for the purpose of allowing the ship to complete its return voyage to its own country, and then only in cases in which it appears proper and reasonable so to do.

No certificate shall be extended for a longer period than five months, and a ship to which such extension is granted shall not, on returning to its own country, be entitled by virtue of such extension to leave the country again without having obtained a new certificate.

ARTICLE 53.

Acceptance of Certificates.

Certificates issued under the authority of a Contracting Government shall be accepted by the other Contracting Governments for all purposes covered by the present Convention. They shall be regarded by the other Contracting Governments as having the same force as the certificates issued by them to their own ships.

ARTICLE 54.

Control.

Every ship holding a certificate issued under Article 49 or Article 50, is subject, in the ports of the other Contracting Governments to control by officers duly authorized by such Governments in so far as this control is directed towards verifying that there is on board a valid certificate, and if necessary, that the conditions of the vessel's seaworthiness correspond substantially with the particulars of that certificate, that is to say, so that the ship can proceed to sea without danger to the passengers and the crew.

In the event of this control giving rise to intervention of any kind, the officer carrying out the control shall forthwith inform the Consul of the country in which the ship is registered of all the circumstances in which intervention is deemed to be necessary.

ARTICLE 55.

Privileges.

The privileges of the present Convention may not be claimed in favour of any ship unless it holds a proper valid certificate.

ARTICLE 56.

Qualification of Certificate.

If in the course of a particular voyage the ship has on board a number of crew and passengers less than the maximum number which the ship is licensed to carry, and is in consequence, in accordance with the provisions of the present Convention, free to carry a smaller number of life-boats and other life-saving appliances than that stated in the certificate, a memorandum may be issued by the officers or other authorized persons referred to in Articles 49 and 52 above.

This memorandum shall state that in the circumstances there is no infringement of the provisions of the present Convention. It shall be annexed to the certificate and shall be substituted for it in so far as the life-saving appliances are concerned. It shall be valid only for the particular voyage in regard to which it is issued.

CHAPTER VII.—GENERAL PROVISIONS.

ARTICLE 57.

Equivalents.

Where in the present Convention it is provided that a particular fitting, appliance, or apparatus, or type thereof, shall be fitted or carried in a ship, or that any particular arrangement shall be adopted, any Administration may accept in substitution therefor any other fitting, appliance, or apparatus, or type thereof, or any other arrangement, provided that such Administration shall have been satisfied by suitable trials that the fitting, appliance, or apparatus, or type thereof, or the arrangement substituted, is at least as effective as that specified in the present Convention.

Any Administration which so accepts a new fitting, appliance, or apparatus, or type thereof, or new arrangement, shall communicate the fact to the other Administrations, and, upon request, the particulars thereof, together with a report on the trials made.

ARTICLE 58.

Laws, Regulations, Reports.

The Contracting Governments undertake to communicate to each other—

(1) The text of laws, decrees, and regulations which shall have been promulgated on the various matters within the scope of the present Convention ;

(2) All available official reports or official summaries of reports in so far as they show the results of the provisions of the present Convention, provided always that such reports or summaries are not of a confidential nature.

The Government of the United Kingdom of Great Britain and Northern Ireland is invited to serve as an intermediary for collecting all this information, and for bringing it to the knowledge of the other Contracting Governments.

ARTICLE 59.

Measures taken after Agreement.

Where the present Convention provides that a measure may be taken after agreement between all or some of the Contracting Governments, the Government of the United Kingdom of Great Britain and Northern Ireland is invited to approach the other Contracting Governments with a view to ascertaining whether they accept such proposals as may be made by any Contracting Government for effecting such a measure, and to inform the other Contracting Governments of the results of the inquiries thus made.

ARTICLE 60.

Prior Treaties and Conventions.

1. The present Convention replaces and abrogates the Convention for the Safety of Life at Sea, which was signed at London on the 20th January, 1914.

2. All other treaties, conventions, and arrangements relating to safety of life at sea, or matters appertaining thereto, at present in force between Governments parties to the present Convention, shall continue to have full and complete effect during the terms thereof as regards—

(a) Ships to which the present Convention does not apply ;

(b) Ships to which the present Convention applies, in respect of subjects for which it has not expressly provided.

To the extent, however, that such treaties, conventions, or arrangements conflict with the provisions of the present Convention, the provisions of the present Convention shall prevail.

3. All subjects which are not expressly provided for in the present Convention remain subject to the legislation of the Contracting Governments.

ARTICLE 61.

Modifications. Future Conferences.

1. Modifications of the present Convention which may be deemed useful or necessary improvements, may be at any time proposed by any Contracting Government to the Government of the United Kingdom of Great Britain and Northern Ireland, and such proposals shall be communicated by the latter to all the other Contracting Governments, and if any such modifications are accepted by all the Contracting Governments (including Governments which have deposited ratifications or accessions which have not yet become effective) the present Convention shall be modified accordingly.

2. Conferences for the purpose of revising the present Convention shall be held at such times and places as may be agreed upon by the Contracting Governments.

A Conference for this purpose shall be convoked by the Government of the United Kingdom of Great Britain and Northern Ireland whenever, after the present Convention has been in force for five years, one-third of the Contracting Governments express a desire to that effect.

CHAPTER VIII.—FINAL PROVISIONS.

ARTICLE 62.

Application to Colonies, &c.

1. A Contracting Government may, at the time of signature, ratification, accession, or thereafter, by a declaration in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland, declare its desire that the present Convention shall apply to all or any of its colonies, overseas territories, protectorates, or territories under suzerainty or mandate, and the present Convention shall apply to all the territories named in such declaration, two months after the date of the receipt thereof, but failing such declaration, the present Convention will not apply to any such territories.

2. A Contracting Government may at any time by a notification in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland express its desire that the present Convention shall cease to apply to all or any of its colonies, overseas territories, protectorates, or territories under suzerainty or mandate to which the present Convention shall have, under the provisions of the preceding paragraph, been applicable for a period of not less than five years, and in such case the present Convention shall cease to apply one year after the date of the receipt of such notification by the Government of the United Kingdom of Great Britain and Northern Ireland to all territories mentioned therein.

3. The Government of the United Kingdom of Great Britain and Northern Ireland shall inform all the other Contracting Governments of the application of the present Convention to any colony, overseas territory, protectorate or territory under suzerainty or mandate under the provisions of paragraph 1 of this Article, and of the cessation of any such application under the provisions of paragraph 2, stating in each case the date from which the present Convention has become or will cease to be applicable.

ARTICLE 63.

Authentic Texts : Ratification.

The present Convention of which both the English and French texts shall be authentic shall bear this day's date.

The present Convention shall be ratified.

The instruments of ratification shall be deposited in the archives of the Government of the United Kingdom of Great Britain and Northern Ireland which will notify all the other signatory or acceding Governments of all ratifications deposited and the date of their deposit.

ARTICLE 64.

Accession.

A Government (other than the Government of a territory to which Article 62 applies) on behalf of which the present Convention has not been signed shall be allowed to accede thereto at any time after the Convention has come into force. Accessions may be effected by means of notifications in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland, and shall take effect three months after their receipt.

The Government of the United Kingdom of Great Britain and Northern Ireland shall inform all signatory and acceding Governments of all accessions received and of the date of their receipt.

A Government which intends to accede to the present Convention but desires to add an area to those specified in the Annex to Article 28 shall, before notifying its accession, inform the Government of the United Kingdom of Great Britain and Northern Ireland of its desire for communication to all the other Contracting Governments. If all the Contracting Governments signify their assent thereto, the area shall be added to those mentioned in the aforesaid Annex when such Government notifies its accession.

ARTICLE 65.

Date of coming in Force.

The present Convention shall come into force on the 1st July, 1931, as between the Governments which have deposited their ratifications by that date, and provided that at least five ratifications have been deposited with the Government of the United Kingdom of Great Britain and Northern Ireland. Should five ratifications not have been deposited on that date, the present Convention shall come into force three months after the date on which the fifth ratification is deposited. Ratifications deposited after the date on which the present Convention has come into force shall take effect three months after the date of their deposit.

ARTICLE 66.

Denunciation.

The present Convention may be denounced on behalf of any Contracting Government at any time after the expiration of five years from the date on which the Convention comes into force in so far as that Government is concerned. Denunciation shall be effected by a notification in writing addressed to the Government of the United Kingdom of Great Britain and Northern Ireland, which will notify all the other Contracting Governments of all denunciations received and of the date of their receipt.

A denunciation shall take effect twelve months after the date on which notification thereof is received by the Government of the United Kingdom of Great Britain and Northern Ireland.

In faith whereof, the Plenipotentiaries have signed hereafter.

Done at London this thirty-first day of May, 1929, in a single copy, which shall remain deposited in the archives of the Government of the United Kingdom of Great Britain and Northern Ireland, which shall transmit certified true copies thereof to all signatory Governments.

STHAMER.	H. W. RICHMOND.
GUSTAV KEONIGS.	WESTCOTT ABELL.
ARTHUR WERNER.	A. L. AYRE.
WALTER LAAS.	F. W. BATE.
OTTO RIESS.	C. H. BOYD.
HERMANN GIESS.	WILLIAM C. CURRIE.
HUGO DOMINIK.	A. J. DANIEL.
	NORMAN HILL.
HENRY JAMES FEAKES.	C. HIPWOOD.
THOMAS FREE.	A. MORRELL.
	G. L. CORBETT.
A. DE GERLACHE DE GOMERY.	E. V. WHISH.
G. DE WINNE.	MANSUKHLAL ATMARAM
	MASTER.
A. JOHNSTON.	GIULIO INGIANNI.
LUCIEN PACAUD.	ALBERTO ALESSIO.
EMIL KROGH.	DELFINO ROGERI DI VILLA-
V. LORCK.	NOVA.
JAVIER DE SALAS.	TORQUATO C. GIANNINI.
	FRANCESCO MARENA.
JOHN WHELAN DULANTY.	ERNESTO FERRETTI.
E. C. FOSTER.	G. GNEME.
	LUIGI BIANCHERI.
WALLACE H. WHITE.	YUKIO YAMAMOTO.
ARTHUR J. TYRER.	SHICHIHEI OTA.
CHARLES M. BARNES.	ITARO ISHII.
GEO. H. ROCK.	B. VOGT.
CLARENCE S. KEMPF.	L. T. HANSEN.
DICKERSON N. HOOVER.	ARTH H. MATHIESEN.
W. D. TERRELL.	C. FOCK.
JOHN G. TAWRESEY.	C. H. DE GOEJE.
HERBERT B. WALKER.	A. VAN DRIEL.
CHARLES A. McALLISTER.	J. A. BLAND-V.-D.-BERG.
	PHS. VAN OMMEREN.
GUSTAF WREDE.	H. G. J. UILKENS.
V. BERGMAN.	ERIK PALMSTIERNA.
KARL KURTEN.	NILS GUSTAF NILSSON.
RIO.	J. ARENS.
A. HAARBLEICHER.	K. EGGI.
JEAN MARIE.	
F. THOUROUDE.	

ANNEX I.

REGULATIONS.

CONSTRUCTION.

REGULATION I.

Definitions.

(1) The *subdivision loadline* is the waterline used in determining the *subdivision of the ship*.

The *deepest subdivision loadline* is that which corresponds to the greatest draught.

(2) The *length of the ship* is the length measured between perpendiculars taken at the extremities of the deepest subdivision loadline.

(3) The *breadth of the ship* is the extreme width from outside of frame to outside of frame at or below the deepest subdivision loadline.

(4) The *bulkhead deck* is the uppermost deck up to which the transverse watertight bulkheads are carried.

(5) The *margin line* is a line drawn parallel to the bulkhead deck at side and 3 inches (76 millimetres) below the upper surface of that deck at side.

(6) The *draught* is the vertical distance from the top of keel amidships to the subdivision loadline in question.

(7) The *permeability* of a space is the percentage of that space which can be occupied by water.

The volume of a space which extends above the margin line shall be measured only to the height of that line.

(8) The *machinery space* is to be taken as extending from the top of keel to the margin line and between the extreme main transverse watertight bulkheads bounding the spaces devoted to the main and auxiliary propelling machinery, boilers when installed, and all permanent coal bunkers.

(9) *Passenger spaces* are those which are provided for the accommodation and use of passengers, excluding baggage, store, provisions and mail rooms.

For the purposes of Regulations III and IV, spaces provided below the margin line for the accommodation and use of the crew shall be regarded as passenger spaces.

(10) In all cases *volumes* shall be calculated to moulded lines.

REGULATION II.

Floodable Length.

(1) The floodable length at any point of the length of a ship shall be determined by a method of calculation which takes into consideration the form, draught, and other characteristics of the ship in question.

(2) In a ship with a continuous bulkhead deck, the floodable length at a given point is the maximum portion of the length of the ship, having its centre at the point in question, which can be flooded under the definite assumptions hereafter set forth in Regulation III without the ship being submerged beyond the margin line.

(3) In the case of a ship not having a continuous bulkhead deck, the floodable length at any point may be determined to an assumed continuous margin line, up to which, having regard to sinkage and trim after damage, the sides of the ship and the bulkheads concerned are carried watertight.

REGULATION III.

Permeability.

(1) The definite assumptions referred to in Regulation II relate to the permeabilities of the spaces below the margin line.

In determining the floodable length, a uniform average permeability shall be used throughout the whole length of each of the following portions of the ship below the margin line:—

- (a) The machinery space as defined in Regulation I (8);
- (b) The portion forward of the machinery space; and
- (c) The portion abaft the machinery space.

(2) (a) For steamships the uniform average permeability throughout the machinery space shall be determined from the formula—

$$80 + 12.5 \left(\frac{a-c}{v} \right), \text{ where}$$

a = volume of the passenger spaces, as defined in Regulation I (9), which are situated below the margin line within the limits of the machinery space.

c = volume of between deck spaces below the margin line within the limits of the machinery space which are appropriated to cargo, coal, or stores.

v = whole volume of the machinery space below the margin line.

(b) For ships propelled by internal combustion engines, the uniform average permeability shall be taken as 5 greater than that given by the above formula.

(c) Where it is shown to the satisfaction of the Administration that the average permeability, as determined by detail calculation, is less than that given by the formula, the calculated value may be substituted. For the purposes of such calculation, the permeabilities of passenger spaces, as defined in Regulation I (9), shall be taken as 95, that of all cargo, coal, and store spaces as 60, and that of double bottom, oil fuel and other tanks at such values as may be approved in each case by the Administration.

(3) The uniform average permeability throughout the portion of the ship before (or abaft) the machinery space shall be determined from the formula—

$$63 + 35 \frac{a}{v}, \text{ where}$$

a = volume of the passenger spaces, as defined in Regulation I (9), which are situated below the margin line, before (or abaft) the machinery space, and

v = whole volume of the portion of the ship below the margin line before (or abaft) the machinery space.

(4) If a between deck compartment between two watertight transverse bulkheads contains any passenger or crew space, the whole of that compartment, less any space completely enclosed within permanent steel bulkheads and appropriated to other purposes, shall be regarded as passenger space. If, however, the passenger or crew space in question is completely enclosed within permanent steel bulkheads, only the space so enclosed need be considered as passenger space.

REGULATION IV.

Permissible Length of Compartments.

(1) *Factor of Subdivision.*—The maximum permissible length of a compartment having its centre at any point in the ship's length is obtained from the floodable length by multiplying the latter by an appropriate factor called the *factor of subdivision*.

The factor of subdivision shall depend on the length of the ship, and for a given length shall vary according to the nature of the service for which the ship is intended. It shall decrease in a regular and continuous manner—

(a) As the length of the ship increases, and

(b) From a factor A, applicable to ships primarily engaged in the carriage of cargo, to a factor B, applicable to ships primarily engaged in the carriage of passengers.

The variations of the factors A and B shall be expressed by the following formulæ (i) and (ii) where L is the length of the ship as defined in Regulation I (2):—

$$A = \frac{190}{L - 198} + 0.18 \quad \begin{matrix} L_1 \text{ in feet.} \\ (L = 430 \text{ and} \\ \text{upwards).} \end{matrix}$$

$$A = \frac{58.2}{L - 60} + 0.18 \quad \begin{matrix} L \text{ in metres.} \\ (L = 131 \text{ and} \\ \text{upwards).} \end{matrix} \dots\dots\dots (i)$$

$$B = \frac{100}{L - 138} + 0.18 \quad \begin{matrix} L \text{ in feet.} \\ (L = 260 \text{ and} \\ \text{upwards).} \end{matrix}$$

$$B = \frac{30.3}{L - 42} + 0.18 \quad \begin{matrix} L \text{ in metres.} \\ (L = 79 \text{ and} \\ \text{upwards).} \end{matrix} \dots\dots\dots (ii)$$

(2) *Criterion of Service.*—For a ship of given length the appropriate factor of subdivision shall be determined by the Criterion of Service Numeral (hereinafter called the Criterion Numeral) as given by the following formulæ (iii) and (iv) where:—

C_s = the Criterion Numeral;

L = length of the ship, as defined in Regulation I (2);

M = the volume of the machinery space, as defined in Regulation I (8); with the addition thereto of the volume of any permanent oil fuel bunkers which may be situated above the inner bottom and before or abaft the machinery space;

P = the whole volume of the passenger spaces below the margin line, as defined in Regulation I (9);

V = the whole volume of the ship below the margin line;

$P_1 = KN$ where:—

N = number of passengers for which the ship is to be certified, and

K has the following values:—

	Value of K.
Length in feet and volumes in cubic feet	0.6 L.
Length in metres and volumes in cubic metres	0.056 L.

Where the value of KN is greater than the sum of P and the whole volume of the actual passenger spaces above the margin line the lower figure may be taken provided that the value of P_1 used is not less than $\frac{2}{3}$ KN.

When $\frac{2}{3}P_1$ is greater than P

$$C_s = 72 \frac{M + 2P_1}{V + P_1 - P} \dots\dots\dots(iii)$$

and in other cases

$$C_s = 72 \frac{M + 2P}{V} \dots\dots\dots(iv)$$

For ships not having a continuous bulkhead deck the volumes are to be taken up to the actual margin lines used in determining the floodable lengths.

(3) *Rules for Subdivision.*—(a) *The subdivision abaft the fore peak* of ships 430 feet (131 metres) in length and upwards having a criterion numeral of 23 or less shall be governed by the factor A given by formula (i); of those having a criterion numeral of 123 or more by the factor B given by formula (ii); and of those having a criterion numeral between 23 and 123 by the factor F obtained by linear interpolation between the factors A and B, using the formula:—

$$F = A - \frac{(A - B)(C_s - 23)}{100} \dots\dots\dots(v)$$

Where the factor F is less than 0.40 and it is shown to the satisfaction of the Administration to be impracticable to comply with the factor F in a machinery compartment of the ship, the subdivision of such compartment may be governed by an increased factor, which, however, shall not exceed 0.40.

(b) *The subdivision abaft the fore peak* of ships less than 430 feet (131 metres) but not less than 260 feet (79 metres) in length having a criterion numeral equal to S, where

$$S = \frac{9382 - 20L}{34} \text{ (L in feet)} = \frac{3574 - 25L}{13} \text{ (L in metres)}$$

shall be governed by the factor unity; of those having a criterion numeral of 123 or more by the factor B given by the formula (ii); of those having a criterion numeral between S and 123 by the factor F obtained by linear interpolation between unity and the factor B, using the formula:—

$$F = 1 - \frac{(1 - B)(C_s - S)}{123 - S} \dots\dots\dots(vi)$$

(c) *The subdivision abaft the fore peak* of ships less than 430 feet (131 metres) but not less than 260 feet (79 metres) in length and having a criterion numeral less than S, and of all ships less than 260 feet (79 metres) in length shall be governed by the factor unity, unless it is shown to the satisfaction of the Administration to be impracticable to comply with this factor in any part of the ship, in which case, the Administration may allow such relaxation as may appear to be justified, having regard to all the circumstances.

(d) The provisions of sub-paragraph (c) shall apply also to ships of whatever length, which are to be certified to carry a number of passengers exceeding 12 but not exceeding

$$\frac{L^2 \text{ (in feet)}}{7000} \left(\frac{L^2 \text{ (in metres)}}{650} \right) \text{ or } 50, \text{ whichever is the less.}$$

REGULATION V.

Special Rules concerning Subdivision.

(1) A compartment may exceed the permissible length determined by the rules of Regulation IV provided the combined length of each pair of adjacent compartments to which the compartment in question is common does not exceed either the floodable length or twice the permissible length, whichever is the less.

If one of the two adjacent compartments is situated inside the machinery space, and the second is situated outside the machinery space, and the average permeability of the portion of the ship in which the second is situated differs from that of the machinery space, the combined length of the two compartments shall be adjusted to the mean average permeability of the two portions of the ship in which the compartments are situated.

E

Where the two adjacent compartments have different factors of subdivision, the combined length of the two compartments shall be determined proportionately.

(2) In ships 430 feet (131 metres) in length and upwards, one of the main transverse bulkheads abaft the fore peak shall be fitted at a distance from the forward perpendicular which is not greater than the permissible length.

(3) A main transverse bulkhead may be recessed provided that all parts of the recess lie inboard of vertical surfaces on both sides of the ship, situated at a distance from the shell plating equal to one-fifth the breadth of the ship, as defined in Regulation I (3), and measured at right angles to the centreline at the level of the deepest subdivision loadline.

Any part of a recess which lies outside these limits shall be dealt with as a step in accordance with the following paragraph.

(4) A main transverse bulkhead may be stepped provided that—

(a) The combined length of the two compartments, separated by the bulkhead in question, does not exceed 90 per cent. of the floodable length, or

(b) Additional subdivision is provided in way of the step to maintain the same measure of safety as that secured by a plane bulkhead.

(5) Where a main transverse bulkhead is recessed or stepped, an equivalent plane bulkhead shall be used in determining the subdivision.

(6) If the distance between two adjacent main transverse bulkheads, or their equivalent plane bulkheads, or the distance between the transverse planes passing through the nearest stepped portions of the bulkheads, is less than 10 feet (3.05 metres) plus 2 per cent. of the length of the ship, only one of these bulkheads shall be regarded as forming part of the subdivision of the ship in accordance with the provisions of Regulation IV.

(7) Where a main transverse watertight compartment contains local subdivision and it can be shown to the satisfaction of the Administration that, after any assumed side damage extending over a length of 10 feet (3.05 metres) plus 2 per cent. of the length of the ship, the whole volume of the main compartment will not be flooded, a proportionate allowance may be made in the permissible length otherwise required for such compartment.

In such a case the volume of effective buoyancy assumed on the undamaged side shall not be greater than that assumed on the damaged side.

(8) Where it is proposed to fit watertight decks, inner skins or longitudinal bulkheads, watertight or non-watertight, the Administration shall be satisfied that the safety of the ship will not be diminished in any respect, particularly having in view the possible listing effect of flooding in way of such structural arrangements.

REGULATION VI.

Peak and Machinery Space Bulkheads, Shaft Tunnels, &c.

(1) Every ship shall have a forepeak or collision bulkhead, which shall be watertight up to the bulkhead deck. This bulkhead shall be fitted not less than 5 per cent. of the length of the ship, and not more than 10 feet (3.05 metres) plus 5 per cent. of the length of the ship from the forward perpendicular.

If the ship has a long forward superstructure, the forepeak bulkhead shall be extended weathertight to the deck next above the bulkhead deck. The extension need not be fitted directly over the bulkhead below, provided it is at least 5 per cent. of the length of the ship from the forward perpendicular, and the part of the bulkhead deck which forms the step is made effectively weathertight.

(2) An afterpeak bulkhead, and bulkheads dividing the machinery space, as defined in Regulation I (8), from the cargo and passenger spaces forward and aft, shall also be fitted and made watertight up to the bulkhead deck. The afterpeak bulkhead may, however, be stopped below the bulkhead deck, provided the degree of safety of the ship as regards subdivision is not thereby diminished.

(3) In all cases stern tubes shall be enclosed in watertight spaces. The stern gland shall be situated within a watertight shaft tunnel or other space of such volume that if flooded by leakage through the stern gland the margin line will not be submerged.

REGULATION VII.

Assigning, Marking, and Recording of Subdivision Loadlines.

(1) The subdivision loadlines assigned and marked under the provisions of Article 5 of the Convention shall be recorded in the Safety Certificate, and shall be distinguished by the notation C.1 for the principal passenger condition, and C.2, C.3, &c., for the alternative conditions.

(2) The freeboard corresponding to each of these loadlines inserted in the Safety Certificate shall be measured at the same position and from the same deck line as the freeboards determined by recognized national Freeboard Regulations.

(3) In no case shall any subdivision loadline mark be placed above the deepest loadline in salt water as determined by the strength of the ship and/or recognized national Freeboard Regulations.

(4) Whatever may be the position of the subdivision loadline marks, a ship shall in no case be loaded so as to submerge the loadline mark appropriate to the season and locality as determined by the recognized national Freeboard Regulations.

REGULATION VIII.

Construction and Initial Testing of Watertight Bulkheads, &c.

(1) Watertight subdivision bulkheads, whether transverse or longitudinal, shall be constructed in such a manner that they shall be capable of supporting with a proper margin of resistance the pressure due to a head of water up to the margin line in way of each bulkhead. The construction of these bulkheads shall be to the satisfaction of the Administration.

(2) Steps and recesses in bulkheads shall be watertight and as strong as the bulkhead at the place where each occurs.

Where frames or beams pass through a watertight deck or bulkhead, such deck or bulkhead shall be made structurally watertight without the use of wood or cement.

(3) Testing main compartments by filling them with water is not compulsory. A complete examination of the bulkheads shall be made by a surveyor; and, in addition, a hose test shall be made in all cases.

(4) The forepeak shall be tested with water to a head up to the deepest subdivision loadline.

(5) Double bottoms, including duct keels, and inner skins are to be subjected to a head of water up to the margin line.

(6) Tanks which are intended to hold liquids, and which form part of the subdivision of the ship, shall be tested for tightness with water to a head up to the deepest subdivision loadline or to a head corresponding to two-thirds of the depth from the top of keel to the margin line in way of the tanks, whichever is the greater; provided that in no case shall the test head be less than 3 feet (0.92 metre) above the top of the tank.

REGULATION IX.

Openings in Watertight Bulkheads.

(1) The number of openings in watertight bulkheads shall be reduced to the minimum compatible with the design and proper working of the ship; satisfactory means shall be provided for closing these openings.

(2) (a) Where pipes, scuppers, electric-light cables, &c., are carried through watertight subdivision bulkheads, arrangements shall be made to ensure the integrity of the watertightness of the bulkheads.

(b) Sluice valves shall not be permitted in the watertight subdivision bulkheads.

(3) (a) No doors, manholes, or access openings are permitted—

(i) In the collision bulkhead below the margin line;

(ii) In the watertight transverse bulkheads dividing a cargo space from an adjoining cargo space or from a permanent or reserve bunker, except as provided in paragraph (7).

(b) The collision bulkhead may be pierced below the margin line by not more than one pipe for dealing with fluid in the fore peak tank, provided that the pipe is fitted with a screwdown valve capable of being operated from above the bulkhead deck, the valve chest being secured inside the fore peak to the collision bulkhead.

(4) (a) Watertight doors fitted in bulkheads between permanent and reserve bunkers, shall be always accessible, except as provided in subparagraph 9 (b) for between deck bunker doors.

(b) Satisfactory arrangements shall be made by means of screens or otherwise, to prevent the coal from interfering with the closing of watertight bunker doors.

(5) Within the machinery space and apart from bunker and shaft tunnel doors, not more than one door may be fitted in each main transverse bulkhead for intercommunication. These doors shall be located so as to have the sills as high as practicable.

(6) (a) The only types of watertight doors permissible are hinged doors, sliding doors, and doors of other equivalent patterns, excluding plate doors secured only by bolts.

(b) A hinged door shall be fitted with catches workable from each side of the bulkhead.

(c) A sliding door may have a horizontal or vertical motion. If required to be hand operated only, the gearing shall be capable of being worked at the door itself and also at an accessible position above the bulkhead deck.

(d) If a door is required to be closed by dropping or by the action of a dropping weight, it shall be fitted with a suitable arrangement to regulate the closing movement, and the gearing shall be so arranged that the door can be released both at the door itself and at an accessible position above the bulkhead deck. Hand gear shall also be provided, so arranged as to operate at the door itself and above the bulkhead deck, and also, so that after being disengaged for dropping, it can be quickly re-engaged from either the upper or the lower position.

(e) If a door is required to be power operated from a central control, the gearing shall be so arranged that the door can be operated by power also at the door itself. The arrangement shall be such that the door will close automatically if opened by the local control after being closed from the central control, and also such that any door can be kept closed by local arrangements, which will prevent that door from being opened from the central control. Such power operated doors shall be provided with hand gear, workable both at the door itself and from an accessible position above the bulkhead deck.

(f) In all classes of doors indicators shall be fitted at all operating stations other than at the door itself, showing whether the door is opened or closed.

(7) (a) Hinged watertight doors in passenger, crew, and working spaces are only permitted above a deck, the underside of which, at its lowest point at side, is at least 7 feet (2.13 metres) above the deepest subdivision loadline, and they are not permitted in those spaces below such deck.

(b) Hinged watertight doors of satisfactory construction may be fitted in bulkheads dividing cargo between deck spaces, in levels in which side cargo doors would be permitted under the provisions of Regulation X (11). These doors shall be closed before the voyage commences and shall be kept closed during the voyage, and the time of opening such doors in port and of closing them before the ship leaves port shall be entered in the official log book. Where it is proposed to fit such doors, the number and arrangements shall receive the special consideration of the Administration, and a statement shall be required from the owners certifying as to the absolute necessity of such doors.

(8) All other watertight doors shall be sliding doors.

(9) (a) When any watertight doors which may be sometimes opened at sea, excluding those at the entrances of tunnels, are fitted in the main transverse watertight bulkheads at such a height that their sills are below the deepest subdivision load-line, the following rules shall apply:—

(1) When the number of such doors exceeds 5 all the watertight sliding doors shall be power operated and shall be capable of being simultaneously closed from a station situated on the bridge, simultaneous closing of these doors being preceded by a warning sound signal.

(II) When the number of such doors does not exceed 5—

(i) If the criterion numeral does not exceed 30, all the watertight sliding doors may be operated by hand only;

(ii) If the criterion numeral exceeds 30, but does not exceed 60, all the watertight sliding doors may be either dropping doors fitted with releasing and hand gear operated at the door and from above the bulkhead deck or doors operated by power.

(iii) If the criterion numeral exceeds 60, all the watertight sliding doors shall be operated by power.

(b) If watertight doors which have sometimes to be open at sea for the purpose of trimming coal are fitted between bunkers in the between-decks below the bulkhead deck, these doors shall be operated by power. The opening and closing of these doors shall be recorded in the official log book.

(c) When trunkways in connection with refrigerated cargo are carried through more than one main transverse watertight bulkhead, and the sills of the openings are less than 7 feet (2.13 metres) above the deepest subdivisions loadline, the watertight doors at such openings shall be operated by power.

(10) Portable plates on bulkheads shall not be permitted except in machinery spaces. Such plates shall always be in place before the ship leaves port, and shall not be removed at sea except in case of urgent necessity. The necessary precautions shall be taken in replacing them to ensure that the joints shall be watertight.

(11) All watertight doors shall be kept closed during navigation except when necessarily open for the working of the ship, and shall always be ready to be immediately closed.

(12) Where trunkways or tunnels for access from crew's accommodation to the stokehold, for piping, or for any other purpose are carried through main transverse watertight bulkheads, they shall be watertight and in accordance with the requirements of Regulation XII. The access to at least one end of each such tunnel or trunkway, if used as a passage at sea, shall be through a trunk extending watertight to a height sufficient to permit access above the margin line. The access to the other end of the trunkway or tunnel may be through a watertight door of the type required by its location in the ship. Such trunkways or tunnels shall not extend through the first subdivision bulkhead abaft the collision bulkhead.

Where it is proposed to fit tunnels or trunkways for forced draft, piercing main transverse watertight bulkheads, these shall receive the special consideration of the Administration.

REGULATION X.

Openings in Ship's Sides below the Margin Line.

(1) The arrangement and efficiency of the means for closing any opening in the ship's sides shall be consistent with its intended purpose and the position in which it is fitted and generally to the satisfaction of the Administration.

(2) (a) If in a between decks, the sills of any sidescuttles are below a line drawn parallel to the bulkhead deck at side, and having its lowest point $2\frac{1}{2}$ per cent. of the breadth of the ship above the deepest subdivision loadline, all sidescuttles in that between deck shall be of a non-opening type.

(b) If in a between decks, the sills of any sidescuttles other than those required to be of a non-opening type by subparagraph (a) are below a line drawn parallel to the bulkhead deck at side and having its lowest point at a height of 12 feet (3.66 metres) plus $2\frac{1}{2}$ per cent. of the breadth of the ship above the deepest subdivision loadline, all sidescuttles in that between decks shall be of such construction as will effectively prevent any person opening them without the consent of the master of the ship.

(c) Other sidescuttles may be of any ordinary opening type.

(d) If in a between decks, the sills of any of the sidescuttles referred to in subparagraph (b) are below a line drawn parallel to the bulkhead deck at side and having its lowest point $4\frac{1}{2}$ feet (1.37 metres), plus $2\frac{1}{2}$ per cent. of the breadth of the ship above the loadline at which the ship is floating on her departure from any port, all the sidescuttles in that between decks shall be closed watertight and locked before the ship leaves port and they shall not be opened during navigation.

The time of opening such sidescuttles in port and of closing and locking them before the ship leaves port shall be entered in the official log book.

The Administration may indicate the limiting mean draught at which these sidescuttles will have their sills above the line defined in this paragraph and at which it will be permissible to open them at sea on the responsibility of the master. In tropical waters in fair weather this limiting draught may be increased by 1 foot (0.305 metres).

(3) Efficient hinged inside deadlights arranged so that they can be easily and effectively closed and secured watertight shall be fitted to all sidescuttles—

- (a) Which are required to be of a non-opening type ;
- (b) Which are to be fitted within one-eighth of the ship's length of the forward perpendicular ;
- (c) Which are to be fitted in positions defined in subparagraph (2) (b) ;
- (d) Which will not be accessible during navigation ;
- (e) Which are to be fitted in spaces intended for the accommodation of sailors and firemen ;
- (f) Which are to be fitted in spaces intended for the accommodation of steerage passengers.

(4) Sidescuttles fitted below the bulkhead deck, other than those referred to in the preceding paragraph, shall be fitted with efficient inside deadlights which may be portable and stowed adjacent to the sidescuttles.

(5) Sidescuttles and their deadlights, which will not be accessible during navigation, shall be closed and secured before the ship proceeds to sea.

(6) No sidescuttles shall be fitted in any spaces which are appropriated exclusively to the carriage of cargo or coal.

(7) Automatic ventilating sidescuttles shall not be fitted in the ship's sides below the margin line without the special sanction of the Administration.

(8) All machinery and other inlets and discharges in the ship's sides shall be arranged so as to prevent the accidental admission of water into the ship.

(9) The number of scuppers, sanitary discharges, and other similar openings in the ship's sides shall be reduced to the minimum either by making each discharge serve for as many as possible of the sanitary and other pipes, or in any other satisfactory manner.

(10) Discharges led through the ship's sides from spaces below the margin line shall be fitted with efficient and accessible means for preventing water from passing inboard. It is permissible to have for each separate discharge either one automatic non-return valve fitted with a positive means of closing it from above the bulkhead deck, or, alternatively, two automatic non-return valves without such means, the upper of which valves is so situated above the deepest subdivision loadline as to be always accessible for examination under service conditions.

Where a positive action valve is fitted, the operating position above the bulkhead deck shall always be readily accessible and means shall be provided for indicating whether the valve is open or closed.

(11) Gangway, cargo, and coaling ports fitted below the margin line shall be of sufficient strength. They shall be effectively closed and secured watertight before the ship leaves port, and shall be kept closed during navigation.

Cargo and coaling ports which are to be fitted partly or entirely below the deepest subdivision loadline shall receive the special consideration of the Administration.

(12) The inboard opening of each ash-shoot, rubbish-shoot, &c., shall be fitted with an efficient cover.

If the inboard opening is situated below the margin line, the cover shall be watertight, and in addition an automatic non-return valve shall be fitted in the shoot in an easily accessible position above the deepest subdivision loadline. When the shoot is not in use both the cover and the valve shall be kept closed and secured.

REGULATION XI.

Construction and Initial Tests of Watertight Doors, Sidescuttles, &c.

(1) The design, materials, and construction of all watertight doors, sidescuttles, gangway, cargo and coaling ports, valves, pipes, ash-shoots, and rubbish-shoots referred to in these Regulations, shall be to the satisfaction of the Administration.

(2) Each watertight door shall be tested by water pressure to a head up to the margin line. The test shall be made before the ship is put in service, either before or after the door is fitted.

REGULATION XII.

Construction and Initial Tests of Watertight Decks, Trunks, &c.

(1) Watertight decks, trunks, tunnels, duct keels, and ventilators shall be of the same strength as watertight bulkheads at corresponding levels. The means used for making them watertight, and the arrangements adopted for closing openings in them, shall be to the satisfaction of the Administration. Watertight ventilators and trunks shall be carried at least up to the margin line.

(2) After completion a hose or flooding test shall be applied to watertight decks and a hose test to watertight trunks, tunnels, and ventilators.

REGULATION XIII.

Periodical Operation and Inspection of Watertight Doors, &c.

In all new and existing ships drills for the operating of watertight doors, sidescuttles, valves, and closing mechanisms of scuppers, ash-shoots, and rubbish-shoots, shall take place weekly. In ships in which the voyage exceeds one week in duration a complete drill shall be held before leaving port, and others thereafter at least once a week during the voyage, provided that all watertight power doors and hinged doors, in main transverse bulkheads, in use at sea shall be operated daily.

The watertight doors and all mechanisms and indicators connected therewith, and all valves the closing of which is necessary to make a compartment watertight, shall be periodically inspected at sea, at least once a week.

REGULATION XIV.

Entries in the Official Log Book.

In all new and existing ships hinged doors, portable plates, sidescuttles, gangway, cargo, and coaling ports and other openings, which are required by these Regulations to be kept closed during navigation, shall be closed before the ship leaves port. The time of closing, and the time of opening (if permissible under these Regulations), shall be recorded in the official log book.

A record of all drills and inspections required by Regulation XIII shall be entered in the official log book with an explicit record of any defects which may be disclosed.

REGULATION XV.

Double Bottoms.

(1) In ships 200 feet (61 metres) and under 249 feet (76 metres) in length a double bottom shall be fitted at least from the machinery space to the fore peak bulkhead, or as near thereto as practicable.

(2) In ships 249 feet (76 metres) and under 330 feet (100 metres) in length a double bottom shall be fitted at least outside the machinery space, and shall extend to the fore and after peak bulkheads, or as near thereto as practicable.

(3) In ships 330 feet (100 metres) in length and upwards a double bottom shall be fitted amidships, and shall extend to the fore and after peak bulkheads, or as near thereto as practicable.

(4) Where a double bottom is required to be fitted the inner bottom shall be continued out to the ship's sides in such a manner as to protect the bottom to the turn of bilge.

Such protection will be deemed satisfactory if the line of intersection of the outer edge of the margin plate with the bilge plating is not lower at any part than a horizontal plane passing through the point of intersection with the frame line amidships of a transverse diagonal line inclined at 25 degrees to the base line and cutting it at a point one-half the ship's moulded breadth from the middle line.

(5) Wells constructed in the double bottom in connection with the drainage arrangements shall not extend downwards more than necessary, not shall they be less than 18 inches (457 millimetres) from the outer bottom or from the inner edge of the margin plate. A well extending to the outer bottom is, however, permitted at the after end of the shaft tunnel of screw ships.

REGULATION XVI.

Fire-resisting Bulkheads.

Ships shall be fitted above the bulkhead deck with fire-resisting bulkheads which shall be continuous from side to side of the ship and arranged to the satisfaction of the Administration.

They shall be constructed of metal or other fire-resisting material, effective to prevent for one hour, under the conditions for which the bulkheads are to be fitted in the ship, the spread of fire generating a temperature of 1,500° F. (815° C.) at the bulkhead.

Steps and recesses and the means for closing all openings in these bulkheads shall be fire-resisting and flamtight.

The mean distance between any two adjacent fire-resisting bulkheads in any superstructure shall in general not exceed 131 feet (40 metres).

REGULATION XVII.

Side and other Openings, &c., above the Margin Line.

(1) Sidescuttles, gangway, cargo, and coaling ports, and other means for closing openings in the ship's sides above the margin line shall be of efficient design and construction and of sufficient strength having regard to the spaces in which they are fitted and their positions relative to the deepest subdivision loadline.

(2) The bulkhead deck or a deck above it shall be weathertight in the sense that in ordinary sea conditions water will not penetrate in a downward direction. All openings in the exposed weather deck shall have coamings of ample height and strength, and shall be provided with efficient means for expeditiously closing them weathertight.

(3) Freeing ports and/or scuppers shall be fitted as necessary for rapidly clearing the weather deck of water under all weather conditions.

REGULATION XVIII.

Exits from Watertight Compartments.

(1) In passenger and crew spaces, practicable means of exit to the open deck shall be provided for the occupants from each watertight compartment.

(2) Practicable means of escape for the crew shall be provided from each engine room, shaft tunnel, stokehold compartment, and other working spaces, independent of watertight doors.

REGULATION XIX.

*Pumping Arrangements.**Steamships.*

(1) Ships shall be provided with an efficient pumping plant capable of pumping from and draining any watertight compartment under all practicable conditions after a casualty whether the ship is upright or listed. For this purpose wing suction will generally be necessary except in narrow compartments at the ends of the ship. Where close ceiling is fitted over the bilges, arrangements shall be made whereby water in the compartment may find its way to the suction pipes. Efficient means shall be provided for draining water from insulated holds.

(2) In addition to the ordinary bilge pump, worked by the main engines, or its equivalent engine-room pump, two independent power bilge pumps shall be provided, except that in ships less than 300 feet (91.5 metres) in length, having a criterion numeral less than 30, either two efficient hand pumps of the crank type fitted one forward and one aft, or a portable power pump, may be substituted for one of the additional independent power bilge pumps.

*In all cases an additional independent power pump shall be fitted when the criterion number exceeds 30.**

Sanitary, ballast, and general service pumps may be accepted as independent power bilge pumps if fitted with the necessary connections to the bilge pumping system.

(3) Where two or more independent power pumps are required, the arrangement shall be such that at least one power pump will be available for use in all ordinary circumstances in which a vessel may be flooded at sea. One of the power pumps shall, therefore, be an emergency pump of a reliable submersible type. A source of power situated above the bulkhead deck shall be available for this pump in any case of emergency.

* This modification was effected on 17th January, 1933, pursuant to Article 61 of the Convention.

(4) Where practicable, the power bilge pumps shall be placed in separate watertight compartments so arranged or situated that these compartments will not readily be flooded by the same damage. If the engines and boilers are in two or more watertight compartments, the pumps available for bilge service shall be distributed through these compartments as far as is possible.

(5) With the exception of pumps which may be provided for peak compartments only, each bilge pump, whether operated by hand or by power, shall be arranged to draw water from any hold or machinery compartment in the ship.

(6) Each independent power bilge pump shall be capable of giving a speed of water through the main bilge pipe of not less than 400 feet (122 metres) per minute, and it shall have a separate direct suction, to the compartment in which it is situated, of a diameter not less than that of the bilge main. The direct suction from each independent power bilge pump shall be arranged to pump from either side of the ship.

(7) Main circulating pumps shall have direct suction connections, provided with non-return valves, to the lowest drainage level in the machinery space, and of a diameter at least two-thirds that of the main sea inlet. Where the fuel is, or may be, coal, and there is no watertight bulkhead between the engines and boilers, a direct discharge overboard shall be fitted from at least one circulating pump, or, alternatively, a bye-pass may be fitted to the circulating discharge.

(8) (a) All pipes from the pumps which are required for draining, cargo or machinery spaces shall be entirely distinct from pipes which may be used for filling or emptying spaces where water or oil is carried.

(b) Lead pipes shall not be used under coal bunkers or oil fuel storage tanks, nor in boiler or machinery spaces, including motor rooms in which oil settling tanks or oil fuel pump units are situated.

(9) The Administration shall make rules relating to the diameters of the bilge main and branch pipes which shall be proportioned respectively in relation to the size of the ship and the sizes of the compartments to be drained.

(10) The arrangement of the bilge and ballast pumping system shall be such as to prevent the possibility of water passing from the sea and from water ballast spaces into the cargo and machinery spaces, or from one compartment to another. Special provision shall be made to prevent any deep tank having bilge and ballast connections being inadvertently run up from the sea when containing cargo, or pumped out through a bilge pipe when containing water ballast.

(11) Provision shall be made to prevent the compartment served by any bilge suction pipe being flooded, in the event of the pipe being severed or otherwise damaged, by collision or grounding, in any other compartment. For this purpose, where the pipe is at any part situated near the side of the ship or in a duct keel, there shall be fitted to the pipe in the compartment containing the open end either a non-return valve, or a screw-down valve which can be operated from a position above the bulkhead deck.

(12) All distribution boxes, cocks, and valves in connection with the bilge-pumping arrangement shall be in positions which are accessible at all times under ordinary circumstances. They shall be so arranged that in the event of flooding the emergency bilge pump may be operative on any compartment. If there is only one system of pipes common to all the pumps, the necessary cocks or valves for controlling the bilge suction must be workable from above the bulkhead deck. If in addition to the main bilge pumping system an emergency bilge pumping system is provided, it shall be independent of the main system and so arranged that the emergency pump is capable of operating on any compartment under flooding conditions.

Motor Ships.

(13) The bilge pumping arrangements in motor ships shall, so far as practicable, be equivalent to those required for steamships of similar size, except as regards main circulating pumps.

REGULATION XX.

Power for Going Astern.

Ships shall have sufficient power for going astern to secure proper control of the ship in all circumstances.

REGULATION XXI.

Auxiliary Steering Apparatus.

Ships shall be provided with an auxiliary steering apparatus which, however, may be of less power than the main apparatus, and need not be worked by steam or other mechanical power, provided adequate arrangements for manual operation are practicable. A duplicate main steering power plant shall be considered as an auxiliary steering apparatus within the meaning of this Regulation.

REGULATION XXII.

Initial and Subsequent Surveys of Ships.

(1) Every new or existing ship shall be subjected to the surveys specified below :—

- (a) A survey before the ship is put in service.
- (b) A periodical survey once every twelve months.
- (c) Additional surveys, as occasion arises.

(2) The surveys referred to above shall be carried out as follows :—

(a) *The survey before the ship is put in service* shall include a complete inspection of the hull, machinery, and equipments, including the outside of the ship's bottom and the inside and outside of the boilers. This survey shall be such as to ensure that the arrangements, material, and scantlings of the hull, boilers, and their appurtenances, main and auxiliary machinery, life-saving appliances, and other equipments, fully comply with the requirements of the present Convention, and of the detailed regulations promulgated as a result thereof by the Government of the country to which the ship belongs for ships of the service for which it is intended. The survey shall also be such as to ensure that the workmanship of all parts of the ship and its equipments is in all respects satisfactory.

(b) *The periodical survey* shall include an inspection of the whole of the hull, boilers, machinery, and equipments, including the outside of the ship's bottom. The survey shall be such as to ensure that the ship, as regards the hull, boilers, and their appurtenances, main and auxiliary machinery, life-saving appliances, and other equipments is in satisfactory condition and fit for the service for which it is intended, and that it complies with the requirements of the present Convention, and of the detailed regulations promulgated as a result thereof by the Government of the country to which the ship belongs.

(c) *A survey either general or partial*, according to the circumstances, shall be made every time an accident occurs or a defect is discovered which affects the safety of the ship or the efficiency or completeness of its life-saving appliances or other equipments, or whenever any important repairs or renewals are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the ship complies in all respects with the provisions of the present Convention and of the detailed regulations promulgated as a result thereof by the Government of the country to which the ship belongs.

(3) The detailed regulations referred to in subparagraph (2) shall prescribe the requirements to be observed as to the initial and subsequent hydraulic tests to which the main and auxiliary boilers, connections, steam-pipes, high-pressure receivers, and fuel tanks for oil motors are to be submitted, including the test pressure to be applied, and the intervals between two consecutive tests.

Main and auxiliary boilers, connections, tanks and receivers, also steam-piping of more than 3 inches (76 millimetres) internal diameter shall be satisfactorily tested by hydraulic pressure when new. Steam pipes of more than 3 inches (76 millimetres) internal diameter shall be tested by hydraulic pressure periodically.

REGULATION XXIII.

Maintenance of Conditions after Survey.

After the survey of the ship as provided in Regulation XXII has been completed no change shall be made in the structural arrangements, machinery, equipments, &c., covered by the survey, without the sanction of the Administration.

LIFE-SAVING APPLIANCES, &c.

REGULATION XXIV.

Standard Types of Boats.

The standard types of boats are classified as follows :—

Class I.—Open boats with rigid sides having either (a) internal buoyancy only, or (b) internal and external buoyancy.

Class II.—(a) Open boats with internal and external buoyancy—upper parts of sides collapsible, and (b) decked boats with either fixed or collapsible watertight bulwarks.

No boat may be approved the buoyancy of which depends upon the previous adjustment of one of the principal parts of the hull, or which has not a cubic capacity of at least 3.5 cubic metres (equivalent to 125 cubic feet).

No boat may be approved the weight of which when fully laden with persons and equipment exceeds 20,300 kilogrammes (equivalent to 20 tons).

REGULATION XXV.

Lifeboats of Class I.

Lifeboats of Class I must have a mean sheer at least equal to four per cent. of their length.

The air cases of lifeboats of Class I shall be so placed as to secure stability when fully laden under adverse weather conditions.

In boats certified to carry 100 or more persons the volume of the buoyancy shall be increased to the satisfaction of the Administration.

Lifeboats of Class I must also satisfy the following conditions :—

(a) *Lifeboats with Internal Buoyancy only.*

The buoyancy of a wooden boat of this type shall be provided by watertight air-cases, the total volume of which shall be at least equal to one-tenth of the cubic capacity of the boat.

The buoyancy of a metal boat of this type shall not be less than that required above for a wooden boat of the same cubic capacity, the volume of watertight air-cases being increased accordingly.

(b) *Lifeboats with Internal and External Buoyancy.*

The internal buoyancy of a wooden boat of this type shall be provided by watertight air-cases, the total volume of which is at least equal to seven and a half per cent. of the cubic capacity of the boat.

The external buoyancy may be of cork or of any other equally efficient material, but such buoyancy shall not be obtained by the use of rushes, cork shavings, loose granulated cork or any other loose granulated substance, or by any means dependent upon inflation by air.

If the buoyancy is of cork, its volume, for a wooden boat, shall not be less than thirty-three thousandths of the cubic capacity of the boat; if of any material other than cork, its volume and distribution shall be such that the buoyancy and stability of the boat are not less than that of a similar boat provided with buoyancy of cork.

The buoyancy of a metal boat shall be not less than that required above for a wooden boat of the same cubic capacity, the volume of the watertight air-cases and that of the external buoyancy being increased accordingly.

REGULATION XXVI.

Boats of Class II.

Boats of Class II must satisfy the following conditions :—

(a) *Open Boats with Internal and External Buoyancy—Upper Part of Sides collapsible.*

A boat of this type shall be fitted both with watertight air-cases and with external buoyancy. the aggregate volume of which, for each person which the boat is able to accommodate, shall be at least equal to the following amounts :—

	Cubic Decimetres.	Cubic Feet.
Air-cases	43	1.5
External buoyancy (if of cork)	6	0.2

The external buoyancy may be of cork or of any other equally efficient material, but such buoyancy shall not be obtained by the use of rushes, cork shavings, loose granulated cork, or any other loose granulated substance, or by any means dependent upon inflation by air.

If of any material other than cork, its volume and distribution shall be such that the buoyancy and stability of the boat are not less than that of a similar boat provided with buoyancy of cork.

A metal boat of this type shall be provided with internal and external buoyancy to ensure that the buoyancy of the boat shall be at least equal to that of a wooden boat.

The minimum freeboard of boats of this type shall be fixed in relation to their length; and it shall be measured vertically to the top of the solid hull at the side amidships, from the water-level, when the boat is loaded.

The freeboard in fresh water shall not be less than the following amounts:—

Length of Lifeboat.		Minimum Freeboard.	
Metres.	Equivalent in Feet to—	Millimetres.	Equivalent in Inches to—
7.90	26	200	8
8.50	28	225	9
9.15	30	250	10

The freeboard of boats of intermediate lengths is to be found by interpolation.

The collapsible sides must be watertight.

(b) *Decked Boats with either Fixed or Collapsible Watertight Bulwarks.*

(i) *Decked Boats having a Well Deck.*—The area of the well deck of a boat of this type shall be at least 30 per cent. of the total deck area. The height of the well deck above the water-line at all points shall be at least equal to one-half per cent. of the length of the boat, this height being increased to one-and-a-half per cent. of the length of the boat at the ends of the well.

The freeboard of a boat of this type shall be such as to provide for a reserve buoyancy of at least 35 per cent.

(ii) *Decked Boats having a Flush Deck.*—The minimum freeboard of boats of this type is independent of their lengths and depends only upon their depths. The depth of the boat is to be measured vertically from the underside of the garboard strake to the top of the deck at the side amidships and the freeboard is to be measured from the top of the deck at the side amidships to the water-level when the boat is loaded.

The freeboard in fresh water shall not be less than the following amounts, which are applicable without correction to boats having a mean sheer equal to three per cent. of their length:—

Depth of Lifeboat.		Minimum Freeboard.	
Millimetres.	Equivalent in Inches to—	Millimetres.	Equivalent in Inches to—
310	12	70	2 $\frac{3}{4}$
460	18	95	3 $\frac{3}{4}$
610	24	130	5 $\frac{1}{8}$
760	30	165	6 $\frac{1}{2}$

For intermediate depths the freeboard is obtained by interpolation.

If the sheer is less than the standard sheer defined above, the minimum freeboard is obtained by adding to the figures in the table one-seventh of the difference between the standard sheer and the actual mean sheer measured at the stem and stern post; no deduction is to be made from the freeboard on account of the sheer being greater than the standard sheer or on account of the camber of the deck.

(iii) All decked lifeboats shall be fitted with efficient means for clearing the deck of water.

REGULATION XXVII.

Motor Boats.

A motor boat carried as part of the life-saving appliances of a vessel, whether required by Regulation XXXVI (2) or not, shall comply with the following conditions:—

(a) It shall comply with the requirements for a lifeboat of Class I, and proper appliances shall be provided for putting it into the water speedily.

(b) It shall be adequately provided with fuel, and kept so as to be at all times ready for use.

(c) The motor and its accessories shall be suitably enclosed to ensure operation under adverse weather conditions, and provision shall be made for going astern.

(d) The speed shall be at least six knots when fully loaded in smooth water.

The volume of the internal buoyancy and, where fitted, the external buoyancy shall be increased in sufficient proportion to compensate for the difference between the weight of the motor, the searchlight, and the wireless telegraph installation and their accessories, and the weight of the additional persons which the boat could accommodate if the motor, the searchlight, and the wireless telegraph installation and their accessories were removed.

REGULATION XXVIII.

Life Rafts.

No type of life raft may be approved unless it satisfies the following conditions:—

- (a) It shall be of approved material and construction;
- (b) It shall be effective and stable when floating either way up;
- (c) It shall be fitted with fixed or collapsible bulwarks of wood, canvas, or other suitable material on both sides;
- (d) It shall have a line securely becketed round the outside;
- (e) It shall be of such strength that it can be launched or thrown from the vessel's deck without being damaged, and if to be thrown it shall be of such size and weight that it can be easily handled;
- (f) It shall have not less than 85 cubic decimetres (equivalent to three cubic feet) of air-cases or equivalent buoyancy for each person to be carried thereon;
- (g) It shall have a deck area of not less than 3,720 square centimetres (equivalent to four square feet) for each person to be carried thereon, and it shall effectively support the occupants out of the water;
- (h) The air-cases or equivalent buoyancy shall be placed as near as possible to the sides of the life raft, and such buoyancy shall not be by any means dependent on inflation by air.

REGULATION XXIX.

Buoyant Apparatus.

Buoyant apparatus, whether buoyant deck seats, buoyant deck chairs, or other buoyant apparatus, shall be deemed sufficient, so far as buoyancy is concerned, for a person or number of persons to be ascertained by dividing the number of kilogrammes of iron which it is capable of supporting in fresh water by 14·5 (equivalent to the number of pounds divided by 32), and if the apparatus depends for its buoyancy on air it shall not require to be inflated before use in an emergency.

The number of persons for whom the apparatus is deemed suitable shall be determined by the least of the numbers ascertained either as above or by the number of 30·5 centimetres (equivalent to one foot) in the perimeter.

Such approved buoyant apparatus shall comply with the following conditions:—

1. It shall be constructed with proper workmanship and materials.
2. It shall be effective and stable when floating either way up.
3. It shall be of such size, strength, and weight that it can be handled without mechanical appliances and, if necessary, thrown without damage from the vessel's deck on which it is stowed.
4. The air-cases or equivalent buoyancy shall be placed as near as possible to the sides of the apparatus.
5. It shall have a line securely becketed round the outside of the apparatus.

REGULATION XXX.

Cubic Capacity of Lifeboats of Class I.

1. The cubic capacity of a lifeboat of Class I shall be determined by Stirling's (Simpson's) Rule or by any other method giving the same degree of accuracy. The capacity of a square-sterned boat shall be calculated as if the boat had a pointed stern.

2. For example, the capacity in cubic metres (or cubic feet) of a boat, calculated by the aid of Stirling's Rule, may be considered as given by the following formula :—

$$\text{Capacity} = \frac{l}{12} (4A + 2B + 4C)$$

l being the length of the boat in metres (or feet) from the inside of the planking or plating at the stem to the corresponding point at the stern post; in the case of a boat with a square stern, the length is measured to the inside of the transom.

A, B, C denote respectively the areas of the cross-sections at the quarter length forward, amidships, and the quarter length aft, which correspond to the three points obtained by dividing l into four equal parts (the areas corresponding to the two ends of the boat are considered negligible).

The areas A, B, C shall be deemed to be given in square metres (or square feet) by the successive application of the following formula to each of the three cross-sections :—

$$\text{Area} = \frac{h}{12} (a + 4b + 2c + 4d + e)$$

h being the depth measured in metres (or in feet) inside the planking or plating from the keel to the level of the gunwale, or, in certain cases, to a lower level, as determined hereafter.

a, b, c, d, e denote the horizontal breadths of the boat measured in metres (or in feet) at the upper and lower points of the depth and at the three points obtained by dividing h into four equal parts (a and e being the breadths at the extreme points, and c at the middle point of h).

3. If the sheer of the gunwale, measured at the two points situated at a quarter of the length of the boat from the ends, exceeds 1 per cent. of the length of the boat, the depth employed in calculating the area of the cross-sections A or C shall be deemed to be the depth amidships plus 1 per cent. of the length of the boat.

4. If the depth of the boat amidships exceeds 45 per cent. of the breadth, the depth employed in calculating the area of the midship cross-section B shall be deemed to be equal to 45 per cent. of the breadth, and the depth employed in calculating the areas of the quarter length sections A and C is obtained by increasing this last figure by an amount equal to 1 per cent. of the length of the boat, provided that in no case shall the depths employed in the calculation exceed the actual depths at these points.

5. If the depth of the boat is greater than 122 centimetres (equivalent to 4 feet) the number of persons given by the application of this rule shall be reduced in proportion to the ratio of 122 centimetres to the actual depth, until the boat has been satisfactorily tested afloat with that number of persons on board, all wearing life-jackets.

6. Each Administration shall impose, by suitable formulæ, a limit for the number of persons allowed in boats with very fine ends and in boats very full in form.

7. Each Administration reserves the right to assign to a boat a capacity equal to the product of the length, the breadth and the depth multiplied by 0.6 if it is evident that this formula does not give a greater capacity than that obtained by the above method. The dimensions shall then be measured in the following manner :—

Length.—From the intersection of the outside of the planking with the stem to the corresponding point at the stern post or, in the case of a square sterned boat, to the after side of the transom.

Breadth.—From the outside of the planking at the point where the breadth of the boat is greatest.

Depth.—Amidships inside the planking from the keel to the level of the gunwale, but the depth used in calculating the cubic capacity may not in any case exceed 45 per cent. of the breadth.

In all cases the shipowner has the right to require that the cubic capacity of the boat shall be determined by exact measurement.

8. The cubic capacity of a motorboat is obtained from the gross capacity by deducting a volume equal to that occupied by the motor and its accessories, and, when carried, the wireless telegraphy installation and the searchlight with their accessories.

REGULATION XXXI.

Deck Area of Boats of Class II.

1. The area of the deck of a decked boat shall be determined by the method indicated below or by any other method giving the same degree of accuracy. The same rule is to be applied in determining the area within the fixed bulwarks of a boat of Class II (a).

2. For example, the surface in square metres (or square feet) of a boat may be deemed to be given by the following formula :—

$$\text{Area} = \frac{l}{12} (2a + 1.5b + 4c + 1.5d + 2e)$$

l being the length in metres (or in feet) from the intersection of the outside of the planking with the stem to the corresponding point at the stern post.

a, b, c, d, e denote the horizontal breadths in metres (or in feet) outside the planking at the points obtained by dividing *l* into four equal parts and subdividing the foremost and aftermost parts into two equal parts (*a* and *e* being the breadths at the extreme subdivisions, *c* at the middle point of the length, and *b* and *d* at the intermediate points).

REGULATION XXXII.

Marking of Boats, Life Rafts and Buoyant Apparatus.

The dimensions of the boat, and the number of persons which it is authorized to carry, shall be marked on it in clear permanent characters. These marks shall be specifically approved by the officers appointed to inspect the ship.

Life rafts and buoyant apparatus shall be marked with the number of persons in the same manner.

REGULATION XXXIII.

Carrying Capacity of Boats.

1. The number of persons which a boat of one of the standard types can accommodate is equal to the greatest whole number obtained by dividing the capacity in cubic metres (or cubic feet), or the surface in square metres (or square feet), of the boat by the standard unit of capacity, or unit of surface (according to circumstances), defined below for each type.

2. The standard units of capacity and surface for determining the number of persons are as follows :—

Unit of Capacity.	Cubic Metres.	Equivalent in Cubic Feet.
Open boats, Class I (a)	0.238	10
Open boats, Class I (b)	0.255	9
Unit of Surface.	Square Metres.	Equivalent in Square Feet.
Class II	0.325	3½

3. The Administration may accept, in place of 0.325 or 3½, as the case may be, a smaller divisor, if it is satisfied after trial that the number of persons for whom there is seating accommodation in the decked boat in question is greater than the number obtained by applying the above divisor, provided always that the divisor adopted in place of 0.325 or 3½, as the case may be, may never be less than 0.280 or 3, as the case may be.

The Administration which accepts a lower divisor in this way shall communicate to the other Administrations particulars of the trial and drawings of the decked boat in question.

REGULATION XXXIV.

Capacity Limits.

No boat shall be marked for a greater number of persons than that obtained in the manner specified in these Regulations.

This number shall be reduced—

(1) When it is greater than the number of persons for which there is proper seating accommodation; the latter number shall be determined in such a way that the persons when seated do not interfere in any way with the use of the oars;

(2) When, in the case of boats other than those of Class I, the freeboard when the boat is fully loaded is less than the freeboard laid down for each type respectively; the number shall be reduced until the freeboard when the boat is fully loaded is at least equal to the standard freeboard laid down above.

In boats of Class II (b) (i), the raised part of the deck at the sides may be regarded as affording seating accommodation.

REGULATION XXXV.

Equivalent for and Weight of the Persons.

In the tests for determining the number of persons which a boat or life raft can accommodate, each person shall be assumed to be an adult person wearing a life-jacket.

In verifications of freeboard the decked boats shall be loaded with a weight of at least 75 kilogrammes (165 lb.) for each adult person that the decked boat is authorized to carry.

In all cases two children under twelve years of age shall be reckoned as one person.

REGULATION XXXVI.

Equipment of Boats and Life Rafts.

1. The normal equipment of every boat shall consist of:—

(a) A single banked complement of oars, two spare oars and a steering-oar; one set and a half of thole pins or crutches; a boat-hook.

(b) Two plugs for each plug-hole (plugs are not required when proper automatic valves are fitted); a bailer and a galvanized iron bucket.

(c) A rudder and a tiller or yoke and yoke lines.

(d) Two hatchets.

(e) A lamp filled with oil and trimmed.

(f) A mast or masts with one good sail at least, and proper gear for each.

(g) An efficient compass.

(h) A life-line becketed round the outside.

(i) A sea-anchor.

(j) A painter.

(k) A vessel containing four and a half litres (equivalent to one gallon) of vegetable or animal oil. The vessel shall be so constructed that the oil can be easily distributed on the water, and so arranged that it can be attached to the sea-anchor.

(l) An airtight receptacle containing one kilogramme (equivalent to 2 lb.) of provisions for each person.

(m) A watertight receptacle provided with a dipper with lanyard containing one litre (equivalent to one quart) of fresh water for each person.

(n) At least one dozen self-igniting "red lights" and a box of matches in watertight containers.

(o) Half a kilogramme (equivalent to 1 lb.) of condensed milk for each person.

(p) A suitable locker for the stowage of the small items of the equipment.

(q) Any boat which is certified to carry one hundred or more persons shall be fitted with a motor and shall comply with the requirements of Regulation XXVII.

A motor lifeboat need not carry a mast or sails or more than half the complement of oars, but it shall carry two boathooks.

Decked lifeboats shall have no plug-hole, but shall be provided with at least two bilge-pumps.

In the case of a ship which carries passengers in the North Atlantic north of 35° North Latitude, only a proportion of the boats, to be fixed by the Administration, need be equipped with masts and sails, and only one-half the quantity of condensed milk need be carried.

2. Where the number of lifeboats carried on a ship is more than thirteen, one shall be a motor-boat, and where the number is more than nineteen, two shall be motor-boats. These motor-lifeboats shall be fitted with a wireless telegraph installation and a searchlight.

The wireless telegraph installation shall comply with conditions as to range and efficiency to be decided by each Administration.

The searchlight shall include a lamp of at least 80 watts, an efficient reflector, and a source of power which will give effective illumination of a light coloured object over a width of about 18 metres (60 feet) at a distance of 180 metres (200 yards) for a total period of six hours, and it shall be capable of working for three hours continuously.

Where the power for the wireless equipment and the searchlight are derived from the same source, this shall be sufficient to provide for the adequate working of both appliances.

3. The normal equipment of every approved life raft shall consist of—

- (a) Four oars.
- (b) Five rowlocks.
- (c) A self-igniting lifebuoy light.
- (d) A sea-anchor.
- (e) A painter.

(f) A vessel containing four and a half litres (equivalent to one gallon) of vegetable or animal oil. The vessel shall be so constructed that the oil can be easily distributed on the water, and so arranged that it can be attached to the sea-anchor.

(g) An airtight receptacle containing one kilogramme (equivalent to 2 lb.) of provisions for each person.

(h) A watertight receptacle provided with a dipper with lanyard containing one litre (equivalent to one quart) of fresh water for each person.

(i) At least one dozen self-igniting red lights and a box of matches in watertight containers.

4. In the case of a ship which is engaged in short international voyages, the Administration may exempt the boats from carrying the equipment specified under subparagraphs (f), (l), and (o) of paragraph 1 and from the requirements of paragraph 2, and may also exempt the life rafts from carrying the equipment specified in paragraph 3 (g).

REGULATION XXXVII.

Stowage and Handling of Boats and Life Rafts.

1. Subject to the conditions of Regulation XXXVIII, the life-boats may be stowed one above the other, or they may, subject to such conditions as the Administration may impose, be fitted one within another, but where boats so fitted require lifting before being launched they shall only be permitted if mechanical power appliances for lifting are provided.

(2) The lifeboats and life rafts additional to boats stowed under boats attached to davits may be stowed across a deck, bridge, or poop, and so secured that they will have the best chance of floating free of the ship if there is no time to launch them.

(3) As large a number as possible of the additional boats referred to in paragraph 2 shall be capable of being launched on either side of the ship by means of approved appliances for transferring them from one side of the deck to the other.

(4) Boats may only be stowed on more than one deck on condition that proper measures are taken to prevent boats on a lower deck being fouled by those stowed on a deck above.

(5) Boats shall not be placed in the bows of the ship or in any positions in which they would be brought into dangerous proximity to the propellers at the time of launching.

(6) Davits shall be of approved form and so disposed on one or more decks that the boats placed under them can be safely lowered without interference from the operation of any other davits.

(7) The davits, blocks, falls, and all other gear shall be of such strength that the boats can be safely lowered with the full complement of persons and equipment, with the ship listed to 15 degrees either way. The falls shall be long enough to reach the water with the vessel at her lightest seagoing draught and with a list of 15 degrees.

(8) The davits shall be fitted with gear of sufficient power to ensure that the boats, fully equipped and manned, but not otherwise loaded with passengers, can be turned out against the maximum list at which the lowering of the boats is possible.

(9) The boats attached to the davits shall have the falls ready for service, and means shall be provided for speedily, but not necessarily simultaneously, detaching the boats from the falls.

(10) Where more than one boat is served by the same set of davits, if the falls are of rope, separate falls shall be provided to serve each boat, but where wire falls are used with mechanical appliances for recovering them, separate falls need not be provided. The appliances used must be such as to ensure lowering the boats in turn and rapidly.

Where mechanical appliances are fitted for the recovery of the falls efficient hand gear shall also be provided.

(11) On short international voyages where the height of the boat deck above the water-line when the vessel is at her lightest sea-going draught does not exceed 4.5 metres (15 feet), the requirements as to strength of davits and turning-out gear in subparagraphs 7, 8, and 10 shall not apply.

REGULATION XXXVIII.

Number and Capacity of Boats, Life Rafts, &c., and Davits.

(1) A ship shall be provided with sets of davits in accordance with its length as provided in Column A of the Table in Regulation XXXIX, provided that a number of sets of davits greater than the number of boats necessary for the accommodation of all the persons on board shall not be required.

Each set of davits shall have a boat of Class I attached to it. If the lifeboats attached to davits do not provide sufficient accommodation for all the persons on board, additional lifeboats of one of the standard types shall be provided. One additional lifeboat shall, in the first place, be stowed under each of the boats attached to davits. After these have been fitted other boats shall be carried inboard, but an Administration may, if it is of opinion that life rafts will be more readily available and otherwise more satisfactory than these lifeboats in a case of emergency, allow life rafts to be carried provided that the total capacity of the boats on the ship will be at least up to the minimum capacity required by Column C of the Table in Regulation XXXIX.

When in the opinion of the Administration it is neither practicable nor reasonable to place on a ship the number of sets of davits required by Column A of the Table in Regulation XXXIX, the Administration may authorize, under exceptional conditions, a smaller number of sets of davits, provided always that this number shall never be less than the minimum number fixed by Column B of the Table and that the total capacity of the boats on the ship will be at least up to the minimum capacity required by Column C.

2. A ship engaged on short international voyages shall be provided with sets of davits in accordance with its length as provided in Column A of the Table in Regulation XXXIX. Each set of davits shall have a boat of Class I attached to it. If the lifeboats attached to davits do not provide the minimum cubic capacity specified in Column D of the Table in Regulation XXXIX or provide accommodation for all persons on board, additional lifeboats of one of the standard types, approved life rafts or other approved buoyant apparatus shall be provided, and the accommodation thus provided shall be sufficient for all on board.

When in the opinion of the Administration it is neither practicable nor reasonable to place on a ship engaged in short international voyages the number of sets of davits required by Column A of the Table in Regulation XXXIX, the Administration may authorize, under exceptional conditions, a smaller number of sets of davits, provided always that this number shall never be less than the minimum number fixed by Column B of the Table, and that the total capacity of the boats on the ship will be at least up to the minimum capacity required by Column D.

REGULATION XXXIX.

Table relating to Davits and Lifeboat Capacity.

The following table fixes, according to the length of the ship,—

(A) *The minimum number of sets of davits to be provided to each of which must be attached a boat of Class I in accordance with Regulation XXXVIII above.*

(B) *The smaller number of sets of davits which may be authorized exceptionally under Regulation XXXVIII.*

(C) *The minimum lifeboat capacity required, including the lifeboats attached to davits and the additional boats, in accordance with Regulation XXXVIII.*

(D) *The minimum lifeboat capacity required for a ship engaged in short international voyages.*

Registered Length of the Ship.		(A)	(B)	(C)		(D)			
		Minimum Number of Sets of Davits.	Smaller Number of Sets of Davits authorized exceptionally.	Minimum Capacity of Lifeboats.		Minimum Capacity of Lifeboats.			
Metres.	Feet			Cubic Metres.	Cubic Feet.	Cubic Metres.	Cubic Feet.		
31 and under	37	100 and under	120	2	2	28	980	11	400
37	43	120	140	2	2	35	1,220	17	600
43	49	140	160	2	2	44	1,550	24	850
49	53	160	175	3	3	53	1,880	33	1,150
53	58	175	190	3	3	68	2,390	37	1,300
58	63	190	205	4	4	78	2,740	41	1,450
63	67	205	220	4	4	94	3,330	45	1,600
67	70	220	230	5	4	110	3,900	48	1,700
70	75	230	245	5	4	129	4,560	52	1,850
75	78	245	255	6	5	144	5,100	60	2,100
78	82	255	270	6	5	160	5,640	68	2,400
82	87	270	285	7	5	175	6,190	76	2,700
87	91	285	300	7	5	196	6,930	85	3,000
91	96	300	315	8	6	214	7,550	94	3,300
96	101	315	330	8	6	235	8,290	105	3,700
101	107	330	350	9	7	255	9,000	116	4,100
107	113	350	370	9	7	273	9,630	125	4,400
113	119	370	390	10	7	301	10,650	133	4,700
119	125	390	410	10	7	331	11,700	144	5,100
125	133	410	435	12	9	370	13,060	156	5,500
133	140	435	460	12	9	408	14,430	170	6,000
140	149	460	490	14	10	451	15,920	185	6,550
149	159	490	520	14	10	490	17,310	201	7,100
159	168	520	550	16	12	530	18,720	217	7,650
168	177	550	580	16	12	576	20,350	..	..
177	186	580	610	18	13	620	21,900	..	..
186	195	610	640	18	13	671	23,700	..	..
195	204	640	670	20	14	717	25,350	..	..
204	213	670	700	20	14	766	27,050	..	..
213	223	700	730	22	15	808	28,560	..	..
223	232	730	760	22	15	854	30,180	..	..
232	241	760	790	24	17	908	32,100	..	..
241	250	790	820	24	17	972	34,350	..	..
250	261	820	855	26	18	1,031	36,450	..	..
261	271	855	890	26	18	1,097	38,750	..	..
271	282	890	925	28	19	1,160	41,000	..	..
282	293	925	960	28	19	1,242	43,880	..	..
293	303	960	995	30	20	1,312	46,350	..	..
303	314	995	1,030	30	20	1,380	48,750	..	..

Note on (A) and (B).—When the length of the ship exceeds 314 metres (equivalent to 1,030 feet) the Administration shall determine the minimum number of sets of davits for that ship; full particulars of its decision shall be communicated to the other Administrations.

Note on (C) and (D).—For the purposes of this table the capacity of a boat of Class II is obtained by multiplying the number of persons for which the boat is certified by 0.283 to obtain the capacity in cubic metres, and by 10 to obtain the capacity in cubic feet.

Note on (D).—When the length of a ship is under 31 metres (equivalent to 100 feet) or over 168 metres (equivalent to 550 feet) the cubic capacity of the lifeboats shall be prescribed by the Administration.

REGULATION XL.

Life-jackets and Life-buoys.

1. A life-jacket shall satisfy the following requirements:—

(a) It shall be constructed with proper workmanship and materials.

(b) It shall be capable of supporting in fresh water for 24 hours 7.5 kilogrammes of iron (equivalent to 16½ pounds);

(c) It shall be reversible.

Life-jackets the buoyancy of which depends on air compartments are prohibited.

2. A lifebuoy shall satisfy the following requirements :—

- (a) It shall be of solid cork or any other equivalent material ;
 (b) It shall be capable of supporting in fresh water for 24 hours at least 14·5 kilogrammes (equivalent to 32 pounds) of iron.

Life-buoys filled with rushes, cork shavings or granulated cork, or any other loose granulated material, or whose buoyancy depends upon air compartments which require to be inflated, are prohibited.

3. The minimum number of life-buoys with which ships are to be provided is fixed by the following table :—

Length of the Ship: Metres.	Equivalent in Feet.	Minimum Number of Buoys.
Under 61	Under 200	8
61 and under 122	200 and under 400	12
122 and under 183	400 and under 600	18
183 and under 244	600 and under 800	24
244 and over	800 and over	30

4. All the buoys shall be fitted with beackets securely seized. At least one buoy on each side shall be fitted with a life-line of at least 27·5 metres (15 fathoms) in length. Not less than one-half of the total number of life-buoys, and in no case less than six, shall be provided with efficient self-igniting lights which cannot be extinguished in water, and these shall be kept near the buoys to which they belong, with the necessary means of attachment.

5. All the life-buoys and life-jackets shall be so placed as to be readily accessible to the persons on board ; their position shall be plainly indicated so as to be known to the persons concerned.

The life-buoys shall always be capable of being rapidly cast loose and shall not be permanently secured in any way.

REGULATION XLI.

Certificated Lifeboatmen.

In order to obtain the special lifeboatman's certificate provided for in Article 22 of the present Convention, the applicant must prove that he has been trained in all the operations connected with launching lifeboats and the use of oars ; that he is acquainted with the practical handling of the boats themselves ; and, further, that he is capable of understanding and answering the orders relative to lifeboat service.

There shall be for each boat or life-raft a number of lifeboatmen at least equal to that specified in the following table :—

If the Prescribed Complement is :	The Minimum Number of Certificated Lifeboatmen shall be :
Less than 41 persons	2
From 41 to 61 persons	3
From 62 to 85 persons	4
Above 85 persons	5

REGULATION XLII.

Manning of Boats.

A deck officer or certificated lifeboatman shall be placed in charge of each boat or life-raft and a second in command shall also be nominated. The person in charge shall have a list of its crew, and shall see that the men placed under his orders are acquainted with their several duties.

A man capable of working the motor shall be assigned to each motor boat.

A man capable of working the wireless and searchlight installations shall be assigned to boats carrying this equipment.

The duty of seeing that the boats, life-rafts, and buoyant apparatus and other lifesaving apparatus are at all times ready for use shall be assigned to one or more officers.

REGULATION XLIII.

Fire Detection and Extinction.

1. An efficient patrol system shall be maintained, so that any outbreak of fire may be promptly detected. In addition, a fire alarm or fire detecting system shall be provided, which will automatically indicate or register at one or more points or stations, where it can be most quickly observed by officers and crew, the presence or indication of fire in any part of the ship not accessible to the patrol system.

2. Every ship shall be provided with powerful pumps, operated by steam or other means. On ships of less than 4,000 tons gross there shall be two, and on larger ships three of these pumps. Each of the pumps shall be capable of delivering a sufficient quantity of water in two powerful jets simultaneously in any given part of the ship, and shall be available for immediate use before the ship leaves port.

3. The service pipes shall permit of two powerful jets of water being simultaneously directed on any given part of a deck occupied by passengers and crew, when the watertight and fire-resisting doors are closed. The service pipes and hoses shall be of ample size and made of suitable material. The branches of the pipes shall be so placed on each deck that the fire hose can be easily coupled to them.

4. Provision shall be made whereby at least two powerful jets of water can be rapidly and simultaneously directed into any space containing cargo. In addition, arrangements shall be made whereby smothering gas sufficient to give a minimum volume of free gas equal to 30 per cent. of the gross volume of the largest hold in the ship can be promptly conveyed by a permanent piping system into each compartment in which cargo is carried. Steam in adequately equivalent proportion may be accepted in place of smothering gas on steam-driven ships. Provision for the supply of smothering gas or steam need not be required in ships of less than 1,000 tons gross.

5. A sufficient number of portable fluid fire extinguishers shall be provided, at least two being carried in each machinery space.

6. Two equipments, consisting of a smoke helmet or breathing apparatus and a safety lamp, shall be carried on board, and kept in two widely separated places.

7. In steamships in which the main boilers are oil fired, there shall be provided, in addition to means whereby two powerful jets of water may be rapidly and simultaneously directed into any part of the machinery spaces,—

(a) Suitable conductors for spraying water on oil without undue disturbance of the surface.

(b) In each firing space, a receptacle containing 283 cubic decimetres (10 cubic feet) of sand, sawdust impregnated with soda, or other approved dry materials, and scoops for distributing the same.

(c) In each boiler-room, and in each of the machinery spaces in which a part of the oil-fuel installation is situated, two approved portable extinguishers of a type discharging froth or other approved medium suitable for quenching oil fires.

(d) Means whereby froth may be rapidly discharged and distributed over the whole of the lower part of the boiler-room or of any one boiler-room, if there are more than one, or of any machinery space in which oil-fuel units or settling tanks are situated. The quantity of froth which can be discharged shall be ample to cover to a depth of 15·24 centimetres (6 inches) the whole area of the plating formed in any one compartment by the inner bottom plating, or by the shell plating of the vessel, if there is no double-bottom tank. If the engine and boiler rooms are not entirely separate, and fuel can drain from the boiler-room bilges into the engine-room, the combined engine and boiler rooms shall be considered as one compartment. The apparatus shall be operated and controlled from outside the compartment in which the fire may occur.

(e) In addition to the foregoing, one extinguisher of the froth type of at least 136 litres (30 gallons) capacity in steamships having one boiler-room and two such extinguishers in steamships with more than one boiler-room. These extinguishers shall be provided with hoses on reels suitable for reaching any part of the boiler-rooms and spaces containing oil-fuel pumping units. Equally efficient apparatus may be accepted in place of the 136 litres (30 gallons) extinguishers.

(f) All containers and valves by which they are operated shall be easily accessible and so placed that they will not readily be cut off from use by an outbreak of fire.

(8) In vessels propelled by internal-combustion engines there shall be provided in each of the machinery spaces, in addition to means whereby two powerful jets of water may be rapidly and simultaneously directed into any part of the machinery spaces, together with suitable spraying conductors, froth extinguishers as follows :—

(a) At least one approved 45 litres (10 gallons) extinguisher with an addition of one approved 9 litres (2 gallons) extinguisher for each 1,000 B.H.P. of the engines, but the total number of 9 litres (2 gallons) extinguishers so supplied shall be not less than two and need not exceed six.

(b) When a donkey boiler is situated in the machinery space there shall be provided, in place of the 45 litres (10 gallons) extinguisher mentioned above, one of 136 litres (30 gallons) capacity, fitted with suitable hose attachments or other approved methods for distributing the froth.

(9) In steamships using oil fuel, if the engine and boiler rooms are not entirely separated by a steel bulkhead, and if fuel oil can drain from the boiler-room bilges into the engine-room, one of the fire pumps shall be situated in the tunnel or other space outside the machinery compartment. When more than two pumps are required they shall not all be fitted in the same space.

(10) Where any special type of appliance, extinguishing medium, or arrangement is specified, any other type of appliance, &c., may be allowed, provided that it is not less effective than the specified one. For example—a Carbon Dioxide system may be accepted in place of a froth installation (paragraph (7), subparagraphs (d) and (e)), provided that the quantity of carbon dioxide carried is sufficient to give a gas saturation of about 25 per cent. for the gross volume of the stokehold to about the top of the boilers.

(11) All the fire-extinguishing appliances shall be thoroughly examined at least once each year by a surveyor appointed by the Administration.

REGULATION XLIV.

Muster List.

The muster list shall assign duties to the different members of the crew in connection with—

(a) The closing of the watertight doors, valves, &c.

(b) The equipment of the boats, life rafts and buoyant apparatus generally.

(c) The launching of the boats attached to davits.

(d) The general preparation of the other boats, the life rafts, and buoyant apparatus.

(e) The muster of the passengers.

(f) The extinction of fire.

The muster list shall assign to the members of the stewards' department their several duties in relation to the passengers at a time of emergency. These duties shall include—

(a) Warning the passengers.

(b) Seeing that they are dressed and have put on their life-jackets in a proper manner.

(c) Assembling the passengers at muster stations.

(d) Keeping order in the passages and on the stairways, and, generally, controlling the movements of the passengers.

The muster list shall specify definite signals for calling all the crew to their boat and fire stations, and shall give full particulars of these signals.

REGULATION XLV.

Musters and Drills.

Musters of the crew for boat drill shall take place weekly when practicable, and in vessels in which the voyage exceeds one week, before leaving port. The dates upon which musters are held shall be recorded in the Official Log Book, and, if in any week a muster is not held, an entry shall be made stating why a muster was not practicable.

In ships in which the voyage exceeds one week practice musters of passengers should be held at an early period of each voyage.

Different groups of boats shall be used in turn at successive boat drills. The drills and inspections shall be so arranged that the crew thoroughly understand and are practised in the duties they have to perform, and that all life-saving appliances with the gear appertaining to them are always ready for immediate use.

The emergency signal for summoning passengers to muster stations shall be a succession of more than six short blasts followed by one long blast on the whistle or syren. This shall be supplemented on all ships except those engaged in short international voyages by other electrically operated signals throughout the ship controlled from the bridge. The meaning of all signals affecting passengers shall be clearly stated in different languages on cards posted in their cabins and in other passenger quarters.

SAFETY OF NAVIGATION.

REGULATION XLVI.

Transmission of Information.

The transmission of information regarding ice, derelicts, tropical storms, or any other direct danger to navigation is obligatory. The form in which the information is sent is not obligatory. It may be transmitted either in plain language (preferably English) or by means of the International Code of Signals (Wireless Telegraphy Section). It should be issued CQ to all ships, and should also be sent to the first point of the coast to which communication can be made with a request that it be transmitted to the appropriate authority.

All messages issued under Article 34 of the present Convention will be preceded by the safety signal TTT followed by an indication of the nature of the danger, thus: TTT ice; TTT derelict; TTT storm; TTT navigation.

Information required.

The following information is desired, the time in all cases being Greenwich Mean Time:—

(a) **Ice, Derelicts, and other Direct Dangers to Navigation.**

- (1) The kind of ice, derelict, or danger observed;
- (2) The position of the ice, derelict, or danger when last observed.
- (3) The time and date when the observation was made.

(b) **Tropical Storms.**—(Hurricanes in the West Indies, Typhoons in the China Seas, Cyclones in Indian waters, and storms of a similar nature in other regions.)

(1) *A Statement that a Tropical Storm has been encountered.*—

This obligation should be interpreted in a broad spirit, and information transmitted whenever the master has good reason to believe that a tropical storm exists in his neighbourhood.

(2) *Meteorological Information.*—In view of the great assistance given by accurate meteorological data in fixing the position and movement of storm centres, each shipmaster should add to his warning message as much of the following meteorological information as he finds practicable:—

- (a) Barometric pressure (millibars, inches, or millimetres);
- (b) Change in barometric pressure (the change during the previous two to four hours);
- (c) Wind direction (true not magnetic);
- (d) Wind force (Beaufort or decimal scale);
- (e) State of the sea (smooth, moderate, rough, high);
- (f) Swell (slight, medium, heavy) and the direction from which it comes.

When barometric pressure is given the word "millibars," "inches," or "millimetres," as the case may be, should be added to the reading, and it should always be stated whether the reading is corrected or uncorrected.

When changes of the barometer are reported the course and speed of the ship should also be given.

All directions should be true, not magnetic.

(3) *Time and Date and Position of the Ship.*—These should be for the time and position when the meteorological observations reported were made and not when the message was prepared or despatched. The time used in all cases should be Greenwich Mean Time.

(4) *Subsequent Observations.*—When a master has reported a tropical storm it is desirable, but not obligatory, that other observations be made and transmitted at intervals of three hours, so long as the ship remains under the influence of the storm.

*Examples.***Ice.**

TTT Ice. Large berg sighted in 4605 N., 4410 W., at 0800 GMT. May 15.

Derelict.

TTT Derelict. Observed derelict almost submerged in 4006 N., 1243 W., at 1630 GMT. April 21.

Danger to Navigation.

TTT Navigation. Alpha lightship not on station. 1800 GMT. January 3.

Tropical Storm.

TTT Storm. Experiencing tropical storm. Barometer corrected 994 millibars, falling rapidly. Wind NW., force 9, heavy squalls. Swell E. Course ENE., 5 knots. 2204 N., 11354 E. 0030 GMT. August 18.

TTT Storm. Appearances indicate approach of hurricane. Barometer corrected 29.64 inches falling. Wind NE., force 8. Swell medium from NE. Frequent rail squalls. Course 35°, 9 knots. 2200 N., 7236 W. 1300 GMT. September 14.

TTT Storm. Conditions indicate intense cyclone has formed. Wind S. by W., force 5. Barometer uncorrected 753 millimetres, fell 5 millimetres last three hours. Course N. 60 W., 8 knots. 1620 N., 9302 E. 0200 GMT. May 4.

TTT Storm. Typhoon to south-east. Wind increasing from N. and barometer falling rapidly. Position 1812 N., 12605 E. 0300 GMT. June 12.

CERTIFICATES.

REGULATION XLVII.

Form of Safety Certificate for Passenger Ships.

SAFETY CERTIFICATE.

*(Official Seal.)**(Country.)*

for ^{an} international voyage.
a short

Issued under the provisions of the

INTERNATIONAL CONVENTION FOR SAFETY OF LIFE AT SEA, 1929.

Name of Ship.	Distinctive Number or Letters.	Port of Registry.	Gross Tonnage.

The
I, the undersigned,

(Name) Government certifies
(Name) certify

I. That the above-mentioned ship has been duly surveyed in accordance with the provisions of the International Convention referred to above.

II. That the survey showed that the ship complied with the requirements of the said Convention as regards—

- (1) The hull, main and auxiliary boilers and machinery ;
- (2) The watertight subdivision arrangements and details ;
- (3) The following subdivision loadlines :—

Subdivision loadlines assigned and marked on the ship's side at amidships (Convention Article 5).	Freeboard.	To apply when the spaces in which passengers are carried include the following alternative spaces.
C. 1
C. 2
C. 3

This certificate is issued under the authority of the Government. It will remain in force until

Issued at the day of

Here follows the seal or signature of the authority entitled to issue this certificate.

(Seal.)

If signed, the following paragraph is to be added :—

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

(Signature.)

Form of Exemption Certificate.

EXEMPTION CERTIFICATE.

(Official Seal.)

(Country.)

Issued under the provisions of the

INTERNATIONAL CONVENTION FOR SAFETY OF LIFE AT SEA, 1929.

Name of Ship.	Distinctive Number or Letters.	Port of Registry.	Gross Tonnage.

The (Name) Government certify
I, the undersigned, (Name) certify

That the above-mentioned ship is under the authority conferred by Article.....of the International Convention referred to above exempted from the requirements of..... of the Convention on the voyages..... to

* Insert here the conditions, if any, on which the exemption certificate is granted. *

This certificate is issued under the authority of the Government. It will remain in force until

Issued at the day of

Here follows the seal or signature of the authority entitled to issue this certificate.

(Seal.)

If signed, the following paragraph is to be added :—

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

(Signature.)

† Insert here references to Articles and Regulations, specifying particular paragraphs.

ANNEX II.

INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA.

NOTE.—The alterations to these regulations, recommended by Article 40 of the Convention, will shortly be incorporated in amending regulations and gazetted in New Zealand.

By Authority: G. H. LONEY, Government Printer, Wellington.

Price 1s. 9d.]