

application that said bonds so to be issued are to be deposited as collateral to secure a loan of \$1,100,000, the proceeds of which loan will be used solely for the purpose of financing the business of applicant and that said bonds will not be issued unless applicant first receives an order from the Public Service Commission of Wisconsin authorizing the issue of said bonds and the deposit of the same as collateral security as aforesaid;

It is ordered, that the matter be set down for hearing on May 29, 1936, at ten o'clock in the forenoon of that day, at Room 1101, Securities and Exchange Building, 1778 Pennsylvania Avenue NW., Washington, D. C., and

It is further ordered, that Charles S. Moore, an officer of the Commission, be and he hereby is designated to preside at such hearing, and authorized to adjourn said hearing from time to time, to administer oaths and affirmations, subpoena witnesses, compel their attendance, take evidence, and require the production of any books, papers, correspondence, memoranda, or other records deemed relevant or material to the inquiry, and to perform all other duties in connection therewith authorized by law.

Upon the completion of the taking of testimony in this matter, the officer conducting said hearing is directed to close the hearing and make his report to the Commission.

By the Commission.

[SEAL] FRANCIS P BRASSOR, Secretary.

[F. R. Doc. 755—Filed, May 27, 1936; 12:19 p. m.]

United States of America—Before the Securities and Exchange Commission

At a regular session of the Securities and Exchange Commission, held at its office in the City of Washington, D. C., on the 26th day of May 1936.

Commissioners: James M. Landis, Chairman; George C. Mathews, Robert E. Healy, J. D. Ross, William O. Douglas.

IN THE MATTER OF CHARLES C. WILLSON, PETITIONER, 507 WOODWARD BUILDING, WASHINGTON, D. C.

ORDER VACATING ORDER REFUSING REGISTRATION

Charles C. Willson, on December 16, 1935, having filed with the Commission an application for registration as a broker and/or dealer under Rule MA2 of the Commission's rules regulating over-the-counter markets; and the Commission on April 2, 1936, having refused the said registration pursuant to Rule MA4 of the rules aforesaid; and

The said Charles C. Willson, on May 18, 1936, having filed with the Commission a petition for reconsideration of the matter and praying that the order of April 2, 1936, aforesaid be vacated; and the Commission having duly reconsidered the matter and being fully advised in the premises;

It is ordered that the said petition of Charles C. Willson be and the same is hereby granted.

It is further ordered that the order of January 18, 1936, postponing the registration of Charles C. Willson as a broker and/or dealer in the over-the-counter markets be and the same is hereby vacated.

It is further ordered that the order of April 2, 1936, refusing the registration of Charles C. Willson as a broker and/or dealer in the over-the-counter markets be and the same is hereby vacated.

By the Commission.

[SEAL] FRANCIS P BRASSOR, Secretary.

[F. R. Doc. 756—Filed, May 27, 1936; 12:19 p. m.]

United States of America—Before the Securities and Exchange Commission

At a regular session of the Securities and Exchange Commission, held at its office in the City of Washington, D. C., on the 23rd day of May 1936.

Commissioners: James M. Landis, Chairman; George C. Mathews, Robert E. Healy, J. D. Ross, William O. Douglas.

IN THE MATTER OF INDUSTRIAL ENGINEERING COMPANY, 802 SHIPLEY STREET, WILMINGTON, DELAWARE

ORDER REFUSING REGISTRATION PURSUANT TO RULE MA4

The registration of Industrial Engineering Company as a broker or dealer on over-the-counter markets having come on for hearing before the Commission upon the question of refusal or postponement pursuant to Rule MA4, and the Commission having entered its findings of fact in the matter, and being of the opinion that it is necessary and appropriate in the public interest and for the protection of investors to refuse the said registration;

It is ordered, pursuant to Rule MA4, that the registration of Industrial Engineering Company as broker or dealer transacting business on over-the-counter markets, be and the same is hereby refused.

By the Commission.

[SEAL] FRANCIS P BRASSOR, Secretary.

[F. R. Doc. 757—Filed, May 27, 1936; 12:19 p. m.]

Friday, May 29, 1936

No. 55

PRESIDENT OF THE UNITED STATES

EXECUTIVE ORDER

AMENDMENT TO TARIFF OF UNITED STATES CONSULAR FEES

By virtue of and pursuant to the authority vested in me by section 1745 of the Revised Statutes and in accordance with section 7 of the act of April 5, 1906, ch. 1366, 34 Stat. 101, section 2 of the act of June 4, 1920, ch. 223, 41 Stat. 750, and sections 2 (h) and 7 (h) of the Immigration Act of 1924, approved May 26, 1924, ch. 190, 43 Stat. 153, item 9 of the Tariff of United States Consular Fees is hereby amended to read as follows:

9. Visa services for aliens.

Immigration visa:

Furnishing and verifying application for immigration visa	\$1.00
Issue of immigration visa	9.00
Passport visa (the term "passport visa" refers to the visa of a passport or other travel document including a Chinese certificate)	
Preparation of application for passport visa and administering oath, except where the fee has been reciprocally reduced or abolished under the authority of the act of February 25, 1925 (43 Stat. 976)	1.00
Granting of passport visa, except where the fee has been reciprocally reduced or abolished under the authority of the act of February 25, 1925 (43 Stat. 976)	9.00

(Note: Under the provisions of section 2 of the act of June 4, 1920 (41 Stat. 750-751) no fee for the application or for the visa of the passport shall be collected from any officer of any foreign government, or members of his immediate family, its armed forces, or of any State, district, or municipality thereof.)

Transit certificate:

Preparation of application and administering of oath	No fee
Granting of transit certificate	No fee
Visa of alien crew list	\$2.00
Supplemental visa of alien crew list	No fee

FRANKLIN D ROOSEVELT

THE WHITE HOUSE,

May 26, 1936.

[No. 7379]

[F. R. Doc. 760—Filed, May 27, 1936; 2:34 p. m.]

TREASURY DEPARTMENT.

Accounts and Deposits.

OFFERS OF COMPROMISE UNDER SECTION 194, TITLE 31, UNITED STATES CODE

MAY 25, 1936.

Treasury Department Circular No. 39, dated December 29, 1914, is hereby amended and supplemented so as to read as follows:

The following rules and regulations are prescribed for carrying into effect Section 194, Title 31, United States Code, which provides as follows:

Upon a report by a district attorney, or any special attorney or agent having charge of any claim in favor of the United States, showing in detail the condition of such claim, and the terms upon which the same may be compromised, and recommending that it be compromised upon the terms so offered, and upon the recommendation of the General Counsel for the Department of the Treasury, the Secretary of the Treasury is authorized to compromise such claim accordingly. But the provisions of this section shall not apply to any claim arising under the postal laws.¹

1. The report of the special attorney or agent having charge of any claim in favor of the United States, which has not been referred to the Department of Justice for prosecution or defense in the courts, in which an offer of compromise is made, except claims arising under the postal laws, must be presented to the General Counsel for the Department of the Treasury, who will forward the report, with his recommendation, to the Secretary of the Treasury for final action.

2. No offer in compromise of any such claim in which a specific sum of money is offered under the above-quoted statute will be considered until such sum shall have been deposited to the credit of the Secretary of the Treasury's Special Deposit Account No. 5 with the Treasurer of the United States, and the original copy of the certificate of deposit issued therefor received by the Treasurer of the United States and the General Counsel notified of such receipt.

3. Moneys so offered in compromise may be deposited to the credit of such Special Deposit Account at the United States Treasury, with any Federal Reserve Bank or branch, or with any bank designated as a general depository of Federal funds. The Federal Reserve Bank or branch or bank designated as a general depository of Federal funds will be governed in accepting such deposits by the provisions of Department Circular No. 176, Amended and Supplemented, dated September 2, 1930, and will issue certificate of deposit in duplicate, on Form 6599, original to be transmitted to the Treasurer of the United States, and the duplicate to the depositor. The Treasurer of the United States will, upon receipt of the original copy of the certificate of deposit on Form 6599, or upon the deposit direct with him of the money so offered in compromise, issue certificate of deposit in triplicate on Form 5260, the original to be transmitted to the Division of Bookkeeping and Warrants, the duplicate to the General Counsel, and the triplicate to be retained in his office. If the offer in compromise be rejected, the money will be returned to the proponent; if accepted, it will be covered into the Treasury.

4. To enable a proponent, at a distance from any of the above-named depositories, to perfect his offer in compromise, the Secretary of the Treasury will receive for this purpose a check, draft, or money order for the amount of the offer, payable to the order of the Treasurer of the United States, the check, draft, or money order to be collected by the Treasurer and the proceeds placed to the credit of the Secretary's aforesaid account awaiting action on the offer. Such remittances will not be received unless they are free of all conditions as to acceptance.

5. The Secretary of the Treasury may withdraw or amend at any time or from time to time any of the foregoing rules

¹By section 5 of Executive Order No. 6166 of June 10, 1933, jurisdiction under this law was, with respect to any case referred to the Department of Justice for prosecution or defense in the courts, transferred to the Department of Justice.

and regulations with or without previous notice, and may make such special orders as he may deem proper in any case.

[SEAL]

WAYNE C. TAYLOR,
Acting Secretary of the Treasury.

[F. R. Doc. 753—Filed, May 27, 1936; 1:01 p. m.]

Bureau of Customs.

[T. D. 48344]

COUNTERVAILING DUTY—BACON, CURED HAMS AND OTHER CURED PIGS' MEAT FROM THE IRISH FREE STATE

To Collectors of Customs and Others Concerned:

Reference is made to Treasury Decision 48238, dated March 26, 1936, regarding the collection of countervailing duty on bacon, cured hams, and other cured pigs' meat from the Irish Free State, pursuant to the provisions of Section 303 of the Tariff Act of 1930.

The second paragraph of the Treasury Decision in question is amended to read as follows:

Pursuant to the provisions of Section 303, supra, I have ascertained and determined and hereby declare the net amount of such bounty or grant on the commodities involved to be 12 shillings per hundred-weight of 112 pounds when exported from the Irish Free State prior to February 1, 1936; 15 shillings per hundred-weight of 112 pounds when exported from the Irish Free State between February 1, 1936, and April 12, 1936, both dates inclusive; and, 17 shillings and 6 pence per hundred-weight of 112 pounds when exported from the Irish Free State on and after April 13, 1936.

[SEAL]

FRANK DOW,
Acting Commissioner of Customs.

Approved, May 20, 1936.

WAYNE C. TAYLOR,
Acting Secretary of the Treasury.

[F. R. Doc. 752—Filed, May 27, 1936; 1:01 p. m.]

Bureau of Internal Revenue.

[T. D. 4646]

MODIFYING COMPLETELY DENATURED ALCOHOL FORMULAE 5-A AND 10 AND FURTHER DENATURING STOCKS OF THESE FORMULAE ON HAND

To District Supervisors and Others Concerned:

Pursuant to authority conferred by the Act of June 7, 1906 and Title III of the National Prohibition Act, Completely Denatured Alcohol Formulae 5-A and 10 authorized by Treasury Decision No. 10 approved June 30, 1932 are modified to read as follows effective from the date of approval hereof to July 1, 1936:

COMPLETELY DENATURED ALCOHOL FORMULAE NO. 5-A MODIFIED

To every 100 parts by volume of ethyl alcohol of not less than 160° proof add:

- 2.5 parts by volume of denaturing grade isopropanol.
- 3 parts by volume of the compound pentol or a compound similar thereto.
- 2.0 parts by volume of methyl isobutyl ketone.
- 0.5 parts by volume either alcohol grade A or denatol or a compound similar thereto.
- 0.5 parts by volume of the compound calorite or a compound similar thereto.
- 0.25 parts by volume of commercial alpha terpineol, denaturing grade.

COMPLETELY DENATURED ALCOHOL FORMULA NO. 10 MODIFIED

To every 100 parts by volume of ethyl alcohol of not less than 160° proof add:

- 5 parts by volume of the compound tecsol or a compound similar thereto.
- 2.5 parts by volume of the compound pontol or a compound similar thereto.

- 2.5 parts by volume of denaturing grade isopropanol.
- 2.0 parts by volume of Methyl Isobutyl Ketone.
- 0.5 parts by volume of aviation gasoline.

Except as to that packaged in drums or smaller containers, all stocks of Completely Denatured Alcohol Formulae Numbers 5-A and 10 on the premises, or in the possession or under the control of denaturers, including stocks sold on consignment and remaining in the hands of the denaturers or their consignees, must be immediately further denatured by having added thereto 1.75 gallons of Methyl Isobutyl Ketone to every 100 gallons. This denatured alcohol must be marked and branded Completely Denatured Alcohol Formula No. 5-A Modified or Completely Denatured Alcohol Formula No. 10 Modified, respectively.

SPECIFICATIONS FOR METHYL ISOBUTYL KETONE

Acidity.—Not more than 0.02% as acetic acid.
Specific Gravity.—0.799 to 0.804 at 20/20° C.
Color.—Water-white.
Boiling Range (760 mm.)—None should come over below 113° C. or none above 119° C. when distilled by the A. S. T. M. method.

[SEAL]

GUY T. HELVERING,
 Commissioner of Internal Revenue.

Approved, May 27, 1936:

WAYNE C. TAYLOR,
 Acting Secretary of the Treasury.

[F. R. Doc. 761—Filed, May 27, 1936; 4:35 p. m.]

DEPARTMENT OF COMMERCE.

Bureau of Navigation and Steamboat Inspection.

[Appendices A, B, and C to "Notice of Hearing with Regard to the Promulgation of Rules and Regulations Governing Tank Vessels."]

RULES FOR TANK VESSELS

— APPENDIX "A" —

Rules of Practice in Investigations and Trials [Outline of Sections]

- SECTION A-1. General.
 A-1-1. Accident.
 A-1-2. Investigation.
 A-1-3. Charges Filed.
- SECTION A-2. Suspension and Revocation of Licenses.
 A-2-1. Delivery of Copy of Charges.
 A-2-2. Subpoenas.
 A-2-3. Testimony.
 A-2-4. Continuation of Hearing.
 A-2-5. Examination of Witness.
 A-2-6. Amendment of Charges.
 A-2-7. Witnesses Outside of District.
 A-2-8. Forwarding of Testimony.
 A-2-9. Accused Furnished with Copy of Findings.
 A-2-10. Accused Furnished with Copy of Testimony.
 A-2-11. Public Hearings.
 A-2-12. Counsel.
- SECTION A-3. Appeal to Supervising Inspectors.
 A-3-1. Notice of Appeal.
 A-3-2. Investigation.
 A-3-3. Testimony.
 A-3-4. Applicant to Receive Copy of Findings.
- SECTION A-4. Appeal to Director.
 A-4-1. Decision.
- SECTION A-5. Review of Cases by Supervising Inspectors.
 A-5-1. Conclusions.
 A-5-2. Change in Findings.
 A-5-3. Further Review.
 A-5-4. Official Records.

RULES FOR TANK VESSELS

APPENDIX "A"

Rules of Practice in Investigations and Trials

SECTION A-1. GENERAL

A-1-1. Accident.

TB/ALL. When it has come to the knowledge of any board of local inspectors that an accident has occurred within its

¹ Changed to "Bureau of Marine Inspection and Navigation" (49 Stat. 1380).

district to a vessel under the jurisdiction of the Steamboat Inspection Service such board shall at once investigate the conditions and circumstances under which the accident occurred, unless the Director requires that the investigation be conducted by some other board of local inspectors than that of the district in which the accident occurred.

A-1-2. Investigations.

In conducting the investigations referred to in A-1-1 the board of local inspectors shall by personal observation or by the testimony of witnesses determine, so far as may be possible, the responsibility of any licensed officer for the accident. If it is concluded that no licensed officer is responsible, the investigation may be closed and the case dismissed; but if any licensed officer be concluded to be responsible, the board of local inspectors shall immediately prefer charges against him and cite him to trial under the charges.

A-1-3. Charges Filed.

In cases where complaint or charges have been filed by any person against a licensed officer no investigation is necessary, and the board of local inspectors shall immediately cite the defendant to trial under the charges as preferred, and the trial shall determine the guilt or innocence of the defendant.

SECTION A-2. SUSPENSION AND REVOCATION OF LICENSES

A-2-1. Delivery of Copy of Charges.

The inspectors shall, when the charges have been duly filed against a licensed officer of a vessel, furnish the accused with a copy thereof, setting forth specifically their character and the section of the statutes or the rules of the board that have been violated, and cite him to appear for trial upon a certain day.

A-2-2. Subpoenas.

Subpoenas shall be in the prescribed form, one copy of which shall be furnished each witness.

A-2-3. Testimony.

All testimony shall be reduced to writing. The accused shall be permitted to be represented by counsel and to cross-examine witnesses, and in case of exceptions to questions for any cause the inspectors shall note the exceptions in the margin of the deposition. The deposition shall be sworn to before an officer authorized to administer oaths.

A-2-4. Continuation of Hearing.

The accused may have the hearing of the case continued upon the presentation of reasons satisfactory to the board, and the board may in like manner, continue the hearing from day to day.

A-2-5. Examination of Witness.

During the trial the witnesses shall be examined separately but if the accused is also a witness he shall not be subject to this rule.

A-2-6. Amendment of Charges.

At any time before the conclusion of the evidence the charge or charges, if being tried on charges, may be amended, notice of said amendment being furnished to the accused, of the nature of such amendment, but no amendment shall be permitted after the conclusion of the evidence.

A-2-7. Witnesses Outside of District.

Where the witnesses reside in a district other than that in which the accused is being tried, a certified copy of the charges, together with such interrogatories as the inspectors desire to propound, may be forwarded to the inspectors of the district where the witnesses reside, and said inspectors shall examine the witnesses in the same manner as prescribed in A-2-3.

A-2-8. Forwarding of Testimony.

The testimony thus taken shall be forwarded to the inspectors investigating the case and read as evidence in the cause, the same as though such testimony had been taken by the inspectors trying the same.

A-2-9. Accused Furnished with Copy of Findings.

TB/ALL The inspectors shall furnish the accused with a statement in writing of their findings in the premises.

A-2-10. Accused Furnished with Copy of Testimony.

A copy of testimony taken at a trial by any board of local inspectors shall be given to the accused or his representative when request for same is made.

A-2-11. Public Hearings.

All hearings at investigations and trials shall be open to the public generally and to all who may be interested: *Provided, however,* That in the investigation of a case, and the conducting of a trial or trials resulting therefrom, involving a vessel of a foreign country, where for any reason whatever the officers of such foreign vessel refuse to testify in connection therewith, the local inspector shall have authority to exclude them, as well as their representatives, from all hearings in connection with the case; and, further, they shall have authority to withhold from such person or persons a copy of the record.

A-2-12. Counsel.

At such hearings the principals may be represented by counsel, it being understood that questions by counsel at investigations shall be presented through the inspectors hearing the case; and no cross-examination by counsel shall be permitted at investigations.

SECTION A-3. APPEAL TO SUPERVISING INSPECTORS**A-3-1. Notice of Appeal.**

The supervising inspector, upon notice of an appeal from the decision of the local board, provided said notice of appeal shall be made within 30 days from the date of the decision of the local board, shall give notice in writing to said local board to forward a certified copy of their decision, together with the charges and all evidence in writing on file in their office.

A-3-2. Investigation.

The supervising inspector shall then proceed to investigate the case under the same rules prescribed for the trial of the accused by the local board.

A-3-3. Testimony.

The testimony taken before the local board may be considered by the supervising inspector for the purpose of determining whether the finding of the local board is justified by the evidence, and he shall have power to remand the same for explanation or correction.

A-3-4. Applicant to Receive Copy of Findings.

Upon the conclusion of the case the supervising inspector shall furnish the appellant with a notice of his finding in like manner as prescribed for local inspectors.

SECTION A-4. APPEAL TO DIRECTOR**A-4-1. Decision.**

The Director, upon notice of appeal from the decision of the supervising inspector, provided said notice of appeal shall be made within 30 days from the date of the decision of the supervising inspector, shall proceed to review the case under the same procedure as that of the supervising inspector in cases of appeal, and the decision of the Director in such cases shall, when approved by the Secretary of Commerce, be final.

SECTION A-5. REVIEW OF CASES BY SUPERVISING INSPECTORS**A-5-1. Conclusions.**

TB/ALL A supervising inspector in exercising his authority under section 4452, in so far as the investigation of accidents and trials of licensed officers is concerned, to review the action of boards of local inspectors in his district to determine the correctness of their action, shall proceed as in handling the case on appeal, informing the local inspectors in writing of his conclusions.

A-5-2. Change in Findings.

Where a supervising inspector concludes to revoke, change, or modify the findings of a local board, it shall proceed consistently with his findings and directions, reporting its further action and findings to him.

A-5-3. Further Review.

If, upon further review, a supervising inspector believes the findings should be revoked, changed, or modified, he may again proceed as if on appeal to revoke, change, or modify the findings of the local board, informing it of his conclusions.

A-5-4. Official Records.

All official records and official documents on file in the office of any supervising inspector or board of local inspectors, after official action thereon has been concluded, may be open to public inspection and examination: *Provided,* That such inspection or examination be made in the office to which such official records and documents belong.

SUGGESTED RULES FOR TANK VESSELS**APPENDIX "B"****Licensed Officers and Certificated Men****[Outline of Sections]**

- SECTION B-1. Licensed Officers.**
 B-1-1. Original Licenses.
 B-1-2. Prerequisites for License as Engineer of Steam Vessels.
 B-1-3. Medical Examination for Original License.
 B-1-4. Medical Examination for Renewal of License and Raise in Grade.
 B-1-5. Professional Examination and Service.
 B-1-6. Substituting Service in next lower Grade for Raise of Grade.
 B-1-7. Indorsement of Master's or Mate's License as Pilot.
 B-1-8. Extension of Pilot Route.
 B-1-9. Master, Mate, and Pilot of Steam Pilot or Vessels in Puerto Rican and Hawaiian Waters.
 B-1-10. Extension of Route and Raise of Grade of Licenses.
 B-1-11. Laws, General Rules and Regulations, and Pilot Rules to be Furnished Licensed Officers.
 B-1-12. Preparation of Licenses.
 B-1-13. Renewal of License.
 B-1-14. Re-Examinations and Refusal of Licenses.
 B-1-15. Parting with License.
 B-1-16. Lost License.
 B-1-17. Suspension and Revocation of Licenses.
 B-1-18. Misconduct of Licensed Officers.
 B-1-19. Licenses to Officers of Vessels Owned by the United States.
- SECTION B-2. Certificated Men.**
 B-2-1. Able Seamen.
 B-2-2. Certificated Lifeboat Men.
 B-2-3. Certificated Tanker Men.
- SECTION B-3. Qualifications for Officers—Oceans.**
 B-3-1. Master of Steam Vessels.
 B-3-2. Examination of Master of Steam Vessels.
 B-3-3. Chief Mate of Steam Vessels.
 B-3-4. Examination for License as Chief Mate of Steam Vessels.
 B-3-5. Second Mate of Steam Vessels.
 B-3-6. Examination for License as Second Mate of Steam Vessels.
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 B-3-8. Examination for License of Third Mate of Steam Vessels.
 B-3-9. Chief Engineer of Steam Vessels.
 B-3-10. First Assistant Engineer of Steam Vessels.
 B-3-11. Second Assistant Engineer of Steam Vessels.
 B-3-12. Third Assistant Engineer of Steam Vessels.
 B-3-13. Engineers of Motor Vessels.
 B-3-14. Chief Engineer of Motor Vessels.
 B-3-15. First Assistant Engineer of Motor Vessels.
 B-3-16. Second Assistant Engineer of Motor Vessels.
 B-3-17. Third Assistant Engineer of Motor Vessels.
- SECTION B-4. Qualifications for Officers—Coastwise.**
 B-4-1. Master of Steam Vessels.
 B-4-2. Examination for Master of Steam Vessels.
 B-4-3. Chief Mate of Steam Vessels.
 B-4-4. Examination for License as Chief Mate of Steam Vessels.
 B-4-5. Second Mate of Steam Vessels.
 B-4-6. Examination for License as Second Mate of Steam Vessels.
 B-4-7. Third Mate of Steam Vessels.
 B-4-8. Examination for License as Third Mate of Steam Vessels.
 B-4-9. Engineers of Steam and Motor Vessels.

- SECTION B-5. Qualifications for Officers—Great Lakes.
- B-5-1. Master of Steam Vessels.
- B-5-2. Mate of Steam Vessels.
- B-5-3. Experience Required for License as Pilot.
- B-5-4. Engineers of Steam Vessels.
- B-5-5. Chief Engineer.
- B-5-6. First Assistant Engineer of Steam Vessels.
- B-5-7. Second Assistant Engineer of Steam Vessels.
- B-5-8. Third Assistant Engineer of Steam Vessels.
- B-5-9. Engineers of Motor Vessels.
- SECTION B-6. Qualifications for Officers—Bays, Sounds, and Lakes other than the Great Lakes.
- B-6-1. Master of Steam Vessels.
- B-6-2. Mate of Steam Vessels.
- B-6-3. Experience Required for License as Pilot.
- B-6-4. Engineers of Steam Vessels.
- B-6-5. Chief Engineer of Steam Vessels.
- B-6-6. First Assistant Engineer of Steam Vessels.
- B-6-7. Second Assistant Engineer of Steam Vessels.
- B-6-8. Third Assistant Engineer of Steam Vessels.
- B-6-9. Engineers of Motor Vessels.
- SECTION B-7. Qualifications for Officers—Rivers.
- B-7-1. Master of River Steamers.
- B-7-2. Mate of River Steamers.
- B-7-3. Experience Required for License as Pilot.
- B-7-4. Engineers of Steam Vessels.
- B-7-5. Chief Engineer of Steam Vessels.
- B-7-6. First Assistant Engineer of Steam Vessels.
- B-7-7. Second Assistant Engineer of Steam Vessels.
- B-7-8. Third Assistant Engineer of Steam Vessels.
- B-7-9. Engineers of Motor Vessels.

RULES FOR TANK VESSELS

APPENDIX "B"

Licensed Officers, and Certificated Men

SECTION B-1.—LICENSED OFFICERS

B-1-1. Original Licenses.

T/ALL (a) The first license issued to any person by a United States Inspector shall be considered an original license, where the United States records show no previous issue to such applicant.

Before an original license is granted to any person to act as master, mate, pilot, or engineer, he shall personally appear before some board of local inspectors for examination. Any person who has attained the age of 21 years and is qualified in all other respects shall be eligible for examination: *Provided*, That license as third mate, third assistant engineer, or second-class pilot may be granted to applicants who have reached the age of 19 years, and are qualified in all other respects: *Provided further* That no such license may be raised in grade before the holder thereof shall have reached the age of 21 years.

(b) Inspectors shall, before granting an original license to any person to act as an officer of a vessel, require the applicant to make written application upon the blank form furnished by the Department of Commerce, to be filed in the inspectors' office. When practicable, applicants for license as master, mate, pilot, or engineer shall present to the inspectors, to be filed with their application, discharges or letters from the master or other officer under whom they have served, certifying to the name of the vessel and in what capacity the applicant has served under him, also period of such service. Inspectors shall also, when practicable, require applicant for pilot's license to have the written indorsement of the master and engineer of the vessel upon which he has served, and of one licensed pilot as to his qualifications. In the case of applicants for original engineer's license, they shall also, when practicable, have the indorsement of the master and engineer of a vessel on which they have served, together with one other licensed engineer.

(c) No original license shall be issued to any naturalized citizen on less experience in any grade than would have been required of a citizen of the United States by birth.

(d) Before granting an original license to any naturalized citizen to act as master, mate, pilot, or engineer, inspectors shall require the applicant to produce his naturalization certificate. In the event the applicant is without such certificate, or there is any doubt whatsoever about the citizenship of the applicant, he shall be required to produce a certificate from the proper United States naturalization officer certifying to the citizenship of the applicant.

(e) A record of every application for license, raise of grade, and extension of route, together with all examinations, medical certificates, and correspondence in connection therewith, shall be kept on file in the office of the local inspectors of the district.

B-1-2. Qualifications Required for License as Engineer of Steam Vessels.

T/ALL (a) No person shall receive an original license as engineer or assistant engineer of steam vessels (except for license as engineer of sawmill boats and pile drivers propelled by steam, and except for special license as engineer of a steam vessel of any kind of 10 gross tons or under on which a licensed engineer is required) who has not served at least 36 months in the engineers' department of a steam vessel, except as hereinafter provided, a portion of which experience shall have been obtained within the three years next preceding the application.

(b) No person shall receive license as above, except for special license, who is not able to determine the weight necessary to be placed on the lever of a safety valve (the diameter of valve, length of lever, distance from center of valve to fulcrum, weight of lever, and weight of valve and stem being known) to withstand any given pressure of steam in a boiler, or who is not able to figure and determine the strain brought on the braces of a boiler with a given pressure of steam, the position and distance apart of braces being known, such knowledge to be determined by an examination in writing, and the report of examination filed with the application in the office of the local inspectors, and no engineer or assistant engineer now holding a license shall have the grade of the same raised without possessing the above qualifications. No original license shall be granted any engineer or assistant engineer who can not read and write and does not understand the plain rules of arithmetic.

(c) No person holding a special engineer's license shall be eligible for examination for a higher grade of license until such person has actually served two years under the authority of his license and one additional year in a subordinate capacity upon steamers requiring regularly licensed officers.

(d) Inspectors may designate upon the certificate of any chief or assistant engineer the tonnage of the vessel upon which he may act.

B-1-3. Medical Examination for Original License.

T/ALL (a) No candidate for original license as master, pilot, or engineer shall be examined until he presents a certificate from the United States Public Health Service, duly attested, that he has passed a satisfactory oral examination based upon the contents of the Manual on Ship Sanitation and First Aid or some other manual arranged for the purpose having the approval of the United States Public Health Service.

(b) No original license as master, mate, pilot, or engineer shall be issued except upon the official certificate of a surgeon of the United States Public Health Service respecting the eyesight, hearing, and physical condition of the applicant.

(c) Where from distance or other cause, except as hereinafter provided, an applicant would be put to great inconvenience or great expense to appear before a surgeon of the United States Public Health Service for examination, the certificate of a reputable physician may be accepted in lieu of the certificate of the Public Health Service, and the Supervising Inspector General may waive the examination for a like cause: *Provided*, that in no case shall an original license as master, mate, or pilot be issued except upon the certificate of a surgeon of the United States Public Health Service respecting the acuity of vision and color sense of the applicant.

(d) In the event any license shall have been issued without the certificate of a surgeon of the United States Public Health Service, as provided for herein, the inspector who issued such license shall immediately make a written report of the circumstances of the case to the Supervising Inspector General and retain a copy of such report in the office file containing the record of the applicant's examination for license.

(e) Applicants for license as engineer shall not be subjected to examination as to ability to distinguish colors.

B-1-4. Medical Examination for Renewal of License and Raise of Grade.

T/ALL (a) No license as master, mate, or pilot shall be renewed or raise of grade granted except upon the official certificate of a surgeon of the United States Public Health Service that the color sense of the applicant is normal.

(b) Nothing herein contained shall debar an applicant who has lost the sight of one eye from securing a renewal of his license, provided he is qualified in all other respects.

(c) In the event an applicant for renewal of license is pronounced color blind, the inspectors may grant him a license limited to service during daylight only.

(d) Any person holding a license as mate on steamers navigating waters flowing into the Gulf of Mexico and their tributaries, issued prior to 1905, may have such license renewed without being subjected to the examination for color sense.

(e) Applicants for renewal of license or raise of grade as engineer shall not be subjected to examination as to ability to distinguish colors.

(f) In the event an inspector finds that an applicant for raise of grade or renewal of license obviously suffers from near-sightedness, eye disease, poor hearing, or some other physical or mental infirmity to a degree that, in the opinion of the inspector, would render him incompetent to perform the ordinary duties of an officer at sea, he shall be required to undergo an examination by a surgeon of the Public Health Service to determine his competency in such respects.

(g) If the applicant subsequently produces a certificate from the Public Health Service to the effect that his condition has improved to a satisfactory degree, or is normal, he shall be qualified in this respect.

(h) Where from distance, or other cause, the applicant would be put to great inconvenience or expense to appear before a surgeon of the Public Health Service for examination, the certificate of a reputable physician, or an oculist for vision or color sense, may be accepted in lieu of certificate of a surgeon of the Public Health Service.

B-1-5. Professional Examination and Service.

T/ALL (a) Before an applicant for original license as master, mate, pilot, or engineer, or raise of grade of any license, or any extension of route, may be examined, the applicant shall, if practicable, present to the inspectors discharges or letters certifying to the amount and character of his experience. If the amount and character of his experience is satisfactory and he is eligible in all other respects, the applicant shall be examined as to his knowledge, in writing, by a board of local inspectors.

(b) When the application of any person for license has been approved, it shall be the duty of the inspectors to give the applicant the required examination as soon as practicable.

(c) If, however, applicants for license can not be examined without material delay by the inspectors of the district in which the applicant resides or is employed, said local inspectors shall endeavor, through the supervising inspector of the district, to arrange for such examination by some other board of local inspectors.

B-1-6. Substituting Service in Next Lower Grade for Raise of Grade.

T/OC (a) Except as hereinafter provided, an applicant who has served in a lower grade than that for which he is licensed may substitute service in the grade next below that for which he is licensed, which service shall count one-half in computing experience for raise of grade. For example, if an applicant while holding license as chief mate or first assistant engineer serves nine months as chief mate or first assistant engineer and six months in the next lower grade, the six months' service shall count as three months in the higher grade in either case.

B-1-7. Indorsement of Masters' or Mates' License as Pilot.

T/ALL (a) Whenever a master or mate desires to act in the double capacity of master and pilot, or mate and pilot, and furnishes the necessary evidence of his qualifications,

the local inspectors shall indorse such pilot routes on the certificate of license.

B-1-8. Extension of Pilot Route.

T/L, B, R (a) Whenever any pilot applies to a board of local inspectors for an extension of route over waters within their jurisdiction, he shall make written application on form furnished by department, stating the extension desired, and shall be examined, in writing, on the aids to navigation on such extension and upon such other matters as they may deem necessary, and, if found qualified, such extension shall be indorsed upon his license.

(b) Local inspectors may indorse a pilot's license for authority to act on waters outside of their jurisdiction subject to the examination and approval of the local inspectors having jurisdiction. Local inspectors to whom such application is made may request the board of local inspectors having jurisdiction over the waters for which such additional authority is desired to forward them a list of questions and subjects upon which the applicant is to be examined, which examination shall be returned to the local inspectors having jurisdiction, and if they are satisfied from the examination that the applicant is capable the board having jurisdiction shall grant the authority and advise the other board to indorse the license accordingly. The applicant for such indorsement for extension of authority shall make written application upon form furnished by the department.

B-1-9. Master, Mate, and Pilot of Steam Pilot or Vessels in Puerto Rican and Hawaiian Waters.

T/OC (a) Any applicant for original license to act as master of steam or sail vessels navigating between ports of the Hawaiian Islands, or between ports of the island of Puerto Rico, shall have had at least three years' experience in the deck department of such vessels, and except as hereinafter provided, for an original license as mate the applicant shall have had two years' experience in the deck department of such vessels, which fact shall be verified by documentary evidence; and such applicant shall only be subjected to such examination as shall satisfy the inspectors that the applicant is capable of navigating such vessels. The license issued under this section shall state in the body thereof "for coastwise only", Pacific or Atlantic coast, as the case may be, and between what ports on either of said coasts.

(b) It is further provided, That any applicant for original license who has had three years' experience in the deck department on steam pilot boats, or who has had two years' experience in the deck department or steam pilot boats and one year's experience on sail pilot boats, shall be eligible for examination for license as mate on steam pilot boats.

(c) It is further provided, That said master's or mate's license may be indorsed as pilot on such inland waters on the above-named coasts as the local inspectors at the various ports may find the holder qualified to act on as pilot, after examination by the local inspectors, such examination to be in writing and preserved in the files of the inspector's office.

B-1-10. Extension of Route and Raise of Grade of Licenses.

T/ALL (a) Licensed officers serving under five years' license, entitled by license and service to raise of grade, after passing examination, shall have issued to them new licenses for the grade for which they are qualified, the local inspectors to file in their office the old license when surrendered, with the report of the circumstances of the case, but the grade of no license shall be raised except as hereinafter provided, unless the applicant can show one year's actual experience in the capacity for which he has been licensed.

(b) Inspectors shall, before granting an extension of route or raise of grade of license, require the applicant to make his written application upon the blank form of application for extension of route or raise of grade of license furnished by the department. When practicable applicants for extension of route or raise of grade of license shall present to the inspectors, to be filed with the application, discharges or letters from the master or other officer under whom they have served, or other satisfactory documentary evidence,

certifying to the name of the vessel and in what capacity the applicant has served; also period of such service.

(c) If any board of local inspectors is satisfied by the documentary evidence submitted that a pilot is entitled by experience and knowledge to unlimited tonnage, it may remove any tonnage restrictions which may have been placed upon his license by any other board of local inspectors.

(d) Except as hereinafter provided, practical service in the deck department of an ocean or coastwise vessel propelled by machinery shall be accepted when offered in documentary evidence by any person applying for an original license or raise of grade as equal to the same amount of service in any ocean or coastwise steam passenger vessel.

(e) Service on United States lighthouse tenders propelled by machinery shall be considered as equivalent experience for raise of grade as that obtained on vessels subject to inspection by this service.

(f) Service on United States light vessels propelled by machinery shall be considered as one-half experience for raise of grade as that obtained on vessels subject to inspection by this service.

B-1-11. *General Rules and Regulations and Pilot Rules to Be Furnished Licensed Officers.*

T/ALL Every master, mate, pilot, and engineer of vessels shall, when receiving an original license, a renewed license, or a raise of grade of license, be furnished by the inspectors with a copy of the Laws Governing the Steamboat Inspection Service, and a copy of the General Rules and Regulations Prescribed by the Board of Supervising Inspectors, and every master and pilot of vessels and operator of motor vessels shall, when receiving an original license, a renewed license, or a raise of grade of license, be furnished by the inspectors with a pamphlet copy of the rules and regulations governing pilots and of the statutes upon which such rules are founded, applicable to the waters on which their licenses are intended to be used, as stated in the body thereof.

B-1-12. *Preparation of Licenses.*

T/ALL (a) All licenses hereafter issued to masters, mates, pilots, and engineers shall be filled out on the face with pen and black ink instead of typewritten. Inspectors are directed, when licenses are completed, to draw a broad pen and black-ink mark through all unused spaces in the body thereof, so as to prevent, as far as possible, illegal interpolation after issue.

(b) Licenses signed by one local inspector only shall not be valid, nor shall the name of a regular inspector be substituted by that of any other person upon any such certificate.

(c) Every person receiving license or a certificate of lost license shall sign the same and leave a print of his left thumb upon the back thereof, immediately upon its receipt.

(d) Local inspectors will be provided with a blank sheet to be attached to the license when more space is needed for endorsements. This sheet shall be securely glued to the license in a manner so that it may be folded under the license.

(e) The sheet shall bear the signature and thumbprint of the holder as is required for licenses, and shall be inscribed with the words, "Serial Number", "Issue Number" "This license expires _____" (in red ink), as appear on licenses. These data shall be identical with those which appear on the license.

B-1-13. *Renewal of License.*

T/ALL (a) Whenever an officer shall apply for a renewal of his license for the same grade, the presentation of the old license, with satisfactory certificate of visual examination, where required, and with oath of office, shall be considered sufficient evidence of his title to renewal, which old license and oath of office shall be retained by the inspectors upon their official files as the evidence upon which the license was renewed: *Provided*, That it is presented within 12 months after the date of its expiration, unless such title has been forfeited or facts shall have come to the knowledge of the inspectors which would render a renewal improper nor shall

any license be renewed more than 30 days in advance of the date of the expiration thereof, unless there are extraordinary circumstances that shall justify a renewal beforehand, in which case the reasons therefor must appear in detail upon the records of the inspectors renewing the license.

(b) Before renewing an existing license to a master or pilot of steam vessels, for any waters, who has not been employed as master or pilot on such waters during the three years preceding the application for renewal, to satisfy themselves, by an examination in writing, or orally to be taken down in writing by the inspectors, that such officers are thoroughly familiar with the pilot rules upon the waters for which they are licensed.

(c) Whenever an officer shall apply for renewal of his license for same grade, after 12 months after the date of its expiration, he shall be required to pass an examination for the same grade of license. The renewed license in either case shall receive the next higher number for number of issue of present grade and for number of issues of all grades.

(d) Whenever a licensed officer makes application for a renewal of his license, he shall appear in person before some board of local inspectors or supervising inspector, except that upon renewal of such license for the same grade, when the distance from any local board or supervising inspector is such as to put the person holding the same to great inconvenience and expense to appear in person, he may upon taking oath of office before any person authorized to administer oaths, and forwarding the same, together with the license to be renewed and certificate of visual examination where required, to the local board or supervising inspector of the district in which he resides or is employed, have the same renewed by the said inspectors, if no valid reason to the contrary be known to them; and they shall attach such oath to the stub end of the license, which is to be retained on file in their office: *Provided, however* That any officer holding a license, and who is engaged in a service which necessitates his continuous absence from the United States, may make application in writing for renewal and transmit the same to the board of local inspectors, with his certificate of citizenship, if naturalized, and a statement of the applicant, verified before a consul or other officer of the United States authorized to administer an oath, setting forth the reasons for not appearing in person; and upon receiving the same the board of local inspectors that originally issued such license shall renew the same and shall notify the applicant of such renewal, and no license as master, mate, or pilot of any class of vessel shall be renewed without furnishing a satisfactory certificate of color blindness.

B-1-14. *Reexaminations and Refusal of Licenses.*

T/ALL (a) Any applicant for license who has been duly examined and refused may come before the same local board for reexamination at any time thereafter that may be fixed by such board, but he shall not be examined by any other local board until one year has expired from the date of the refusal without the sanction of the board that refused the applicant.

(b) If the inspectors shall decline to grant the applicant the license asked for, they shall furnish him a statement, in writing, setting forth the cause of their refusal to grant the same.

B-1-15. *Parting with License.*

T/ALL (a) Any license granted to a master, mate, pilot, engineer, or operator shall be immediately revoked if, for any purpose, the holder thereof voluntarily parts with its possession, or places it beyond his personal control by pledging or depositing it with another.

B-1-16. *Lost License.*

T/ALL (a) In case of loss of license of any class from any cause any board of local inspectors upon receiving satisfactory evidence of such loss and a record of the lost license from the board that issued same shall issue a certificate to the owner thereof, which shall have the authority of the lost license for the unexpired term, unless in the meantime

the holder thereof shall have the grade of his license raised, after due examination, in which case a license in due form for such grade may be issued. In all cases where a certificate of lost license is issued by a board other than the board that issued the lost license the certificate of lost license shall state what board issued the lost license.

(b) Whenever a license is reported to a board of local inspectors by a licensed officer as having been stolen from him, or whenever a license is stolen from an office of local inspectors; the local inspectors shall immediately report the fact in either case to the Supervising Inspector General and give a full description of the license.

(c) Whenever a license is reported by a board of local inspectors by a licensed officer as having been lost by him, the local inspectors shall immediately report the fact by letter to the supervising inspector general and give a full description of the license, and all facts incident to the loss of the license. By the same procedure they shall report the recovery of any licenses reported lost, giving the facts incident to their recovery.

B-1-17. Suspension and Revocation of Licenses.

T/ALL (a) When the license of any master, mate, pilot, or engineer is revoked, such license expires with such revocation, and any license subsequently granted to such person shall be considered in the light of an original license except as to number of issue. And upon the revocation or suspension of the license of any such officer said license shall be surrendered to the local inspectors or supervising inspector ordering such suspension or revocation.

(b) When the license of any master, mate, engineer, or pilot is suspended, the inspectors making such suspension shall determine the term of its duration, except that such suspension shall not extend beyond the time for which the license was issued.

(c) The suspension or revocation of a joint license shall debar the person holding the same from the exercise of any of the privileges therein granted, so long as such suspension or revocation shall remain in force.

B-1-18. Misconduct of Licensed Officers.

T/ALL (a) Whenever a supervising, local, or assistant inspector of steam vessels, or any of them, shall find on board any vessel subject to the provisions of Title LII of the Revised Statutes any licensed officer under the influence of liquor or other stimulant to such an extent as to unfit him for duty, or when any licensed officer shall use abusive or insulting language to any inspector or assaults any such inspector while on official duty, the local inspectors or the supervising inspector shall immediately suspend or revoke the license of the officer so offending without further trial or investigation.

(b) The fact of a licensed officer being under the influence of liquor in the presence of the inspector or inspectors to such an extent as to unfit him for duty while on board a vessel shall be sufficient cause for such suspension or revocation.

B-1-19. Licenses to Officers of Vessels Owned by the United States.

T/ALL Any person who has served at least one year as master, commander, pilot, or engineer of any steam vessel owned and operated by the United States in any service in which a license as master, mate, pilot, or engineer was not required at the time of such service shall be entitled to license as master, mate, pilot, or engineer, if the inspectors, upon written examination, as required for applicants for original license, may find him qualified: *Provided*, That the experience of any such applicant within three years of making application has been such as to qualify him to serve in the capacity for which he makes application to be licensed.

SECTION B-2. CERTIFICATED MEN

B-2-1. Able Seamen.

T-B/O, C, L, B (a) An applicant for examination for certificate of service as able seaman shall be eligible for examination after he has furnished satisfactory documentary evi-

dence that he has had the experience required by law. Before a certificate may be granted to such applicant he must prove to the satisfaction of the local inspectors, by an oral and written examination and an actual demonstration, that he has been trained in all the operations connected with launching lifeboats, and life rafts, and the use of oars and sail; that he is acquainted with the practical handling of the boats themselves; and, further, that he is capable of taking command of a boat's crew.

(b) The oral examination shall consist of questions regarding the construction of lifeboats and life rafts, the names of their different parts, and a description of the required equipment; clearing away, swinging out, and lowering boats and rafts; handling boats under oars and sail, including questions relative to the proper handling of a boat in running before a heavy sea, in pulling into a sea, etc.; the construction and functions of the gravity, radial, and bar types of davits; knowledge of nautical terms; boxing the compass, by degrees or points, according to the experience of the applicant; a few of the principal knots, bends, splices, and hitches in common use, and also his knowledge in handling the wheel by obeying orders passed to him as "wheelman", and of the use of engine telegraphs or bell-pull signals.

(c) The written examination shall consist of questions regarding the running lights for steam and sailing vessels on the sea, inland waters, or Great Lakes, and fog signals, according to the waters on which the applicant has served; passing signals for vessels meeting or passing under ordinary conditions.

(d) The applicant shall demonstrate his ability by taking command of a boat's crew and directing the operation of clearing away, swinging out, and lowering a boat into the water, and acting as coxswain in charge of the boat under oars and sail. The candidate will also demonstrate his ability to pull an oar.

(e) The certificate and stub shall bear an imprint of the left thumb of the holder on the back thereof.

B-2-2. Certificated Lifeboat Men.

T-B/O, C, L, B. (a) An applicant for certificate as lifeboat man shall be eligible for examination after he has furnished satisfactory evidence to the examiner that he has had the following experience: Not less than 12 months' sea service in the deck department; or, not less than 24 months' sea service in other departments. Sea service means actual experience on board vessels in ocean, lake, bay, or sound service.

(b) Before a lifeboat man's certificate may be granted the applicant must prove to the satisfaction of the examiner that he has been trained in all the operations connected with launching lifeboats and life rafts and the use of oars and sail; 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.

(c) The oral examination shall consist of questions regarding the construction of lifeboats and life rafts, the names of their different parts, and a description of the equipment required; the construction and functions of the gravity, radial, and round-bar types of davits; clearing away, swinging out, and lowering boats and rafts; handling boats under oars and sail; and nautical terms used in connection with launching and handling lifeboats.

(d) The practical examination shall consist of a demonstration of the applicant's ability to carry out the orders incident to launching lifeboats, and the use of the boat's sail, and to row.

(e) The certificate, Bureau record, and the stub shall bear an imprint of the left thumb of the holder on the back thereof.

B-2-3. Certificated Special Cargo Men—Tank Vessels.

T-B/O, C, L, B, R (a) An applicant for certificate for Special Cargo Man—Tank Vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had at least six months' experience with tank vessels.

(b) Before a certificate may be granted to such an applicant he must prove to the satisfaction of the local inspectors by an oral or written examination that he is familiar with the general arrangement of cargo tanks, suction and discharge pipe lines and valves, cargo pumps and cargo hose and has been properly trained in the actual operation of cargo pumps, all other operations connected with the loading and discharging of cargo, and the use of fire extinguishing and life saving equipment.

(c) Applicants successfully passing such examination shall receive a certificate to that effect and the back of such certificate shall bear an imprint of the left thumb of the holder.

SECTION B-3, QUALIFICATIONS FOR OFFICERS—OCEAN

B-3-1. Master of Steam Vessels.

T/O (a) An applicant for license as master of ocean steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as chief mate of ocean steam vessels of 1,000 gross tons or over; or,

SECOND. One year's service as chief mate of coastwise steam vessels of 2,000 gross tons or over; or

THIRD. Two years' service as second mate of ocean steam vessels of 1,000 gross tons or over while holding a license as chief mate of such vessels; or,

FOURTH. Two years' service as second mate of coastwise steam vessels of 2,000 gross tons or over while holding a license as chief mate of such vessels; or,

FIFTH. One year's service as master of coastwise steam vessels of 2,000 gross tons or over; or,

SIXTH. Two years' service as master of ocean or coastwise sail vessels of 700 gross tons or over, for license as master of freight or towing steam vessels of not more than 3,000 gross tons; or,

SEVENTH. Thirty-six months' service as master of steam vessels of 4,000 gross tons or over upon the waters of the Great Lakes, together with 12 months' service as second mate of ocean steam vessels of 1,000 gross tons or over.

B-3-2. Examination for Master of Steam Vessels.

T/O. An applicant for license as master of ocean steam vessels shall pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by Polaris.
2. Latitude by reduction to meridian (sun, moon, or star)
3. Longitude by chronometer (sun, moon, or star)
4. Position finding by two or more heavenly bodies out of the meridian.
5. Position finding by dead reckoning.
6. Great circle sailing.
7. Azimuth by altitudes of sun, moon, or star.
8. Construction deviation table by bearings of a fixed object.
9. Chart navigation.
10. Time of high water by calculation.
11. Cargo handling.
12. Fuel conservation.
13. Signaling by semaphore and blinker.
14. Stability and hull construction.
15. International Code of Signals.
16. International Rules of the Road.
17. Life-saving apparatus.
18. Deviation and compass compensation.
19. Ocean winds, weather, and currents.
20. Instruments and accessories used in navigation.
21. Aids to navigation.
22. Seamanship.
23. Chart construction.
24. Ship sanitation.
25. United States Navigation Laws.
26. Rules and Regulations of the Board of Supervising Inspectors.

27. Such further examination of a nonmathematical character as the local inspectors may require.

B-3-3. Chief Mate of Steam Vessels.

T/O Any applicant for license as chief mate of ocean steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as second mate of ocean steam vessels of 1,000 gross tons or over; or,

SECOND. One year's service as second mate of coastwise steam vessels of 2,000 gross tons or over; or,

THIRD. Two years' service as officer in charge of a watch on ocean steam vessels of 1,000 gross tons or over while holding a license as second mate of such vessels; or,

FOURTH. Two years' service as officer in charge of a watch on coastwise steam vessels of 2,000 gross tons or over while holding a license as second mate of such vessels; or,

FIFTH. Two years' service as master of lake, bay, or sound steam vessels of 1,000 gross tons or over, together with one year's service as officer in charge of a watch on ocean steam vessels of 1,000 gross tons or over, or together with one year of such service on coastwise steam vessels of 2,000 gross tons or over; or,

SIXTH. Five years' service in the deck department of ocean or coastwise sail vessels of 200 gross tons or over, two years of such service shall have been as master of such vessels, for license as chief mate of ocean freight or towing steam vessels of not more than 3,000 gross tons; or,

SEVENTH. One year's service as master of any class of ocean steam vessels of more than 250 gross tons for license as chief mate of ocean freight or towing steam vessels of not more than 1,500 gross tons.

B-3-4. Examination for License as Chief Mate of Steam Vessels.

T/O An applicant for license as chief mate of ocean steam vessels shall be required to pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by Polaris.
2. Latitude by reduction to meridian (sun or star)
3. Longitude by chronometer (sun or star)
4. Ship's position by lines of position.
5. Ship's position by dead reckoning.
6. Azimuth by altitude of sun or star.
7. Chart navigation.
8. Time of high water by tables.
9. Speed by engine revolutions.
10. Distance off a fixed object.
11. Change in draft due to change in density of water.
12. Signaling by semaphore.
13. Cargo handling.
14. International Code of Signals.
15. International Rules of the Road.
16. Life-saving apparatus.
17. Magnetism, with regard to a ship's compass.
18. Ocean winds and weather.
19. Instruments and accessories used in navigation.
20. Aids to navigation.
21. Seamanship.
22. Temporary repairs to hull and equipment.
23. Ship sanitation.
24. United States Navigation Laws.
25. Rules and Regulations of the Board of Supervising Inspectors.
26. Such further examination of a nonmathematical character as the local inspectors may require.

B-3-5. Second Mate of Steam Vessels.

T/O Any applicant for license as second mate of ocean steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as third mate of ocean or coastwise steam vessels; or,

SECOND. Five years' service in the deck department of ocean or coastwise steam vessels, two years of which shall have been as boatswain or quartermaster; or,

THIRD. Any graduate of the United States Naval Academy who has had not less than three training cruises; or,

FOURTH. A graduate who has served two years in the seaman's class of a State nautical school ship and completed two ocean or coastwise cruises before graduation, together with two years' service in the deck department of an ocean or coastwise steam vessel of 500 gross tons or over: *Provided*, that where the graduate has completed the two cruises, but not the two years' service required, additional service equal to the difference in time shall be served on vessels of the class required for the probationary period of two years; or,

FIFTH. Four years' service in the deck department of ocean or coastwise sail vessels of 200 gross tons or over; one year of such service shall have been as second mate of such vessels; or,

SIXTH. Three years' service in the deck department of any ocean or coastwise sail vessel of 100 gross tons or over, together with one year's service in the deck department of ocean or coastwise steam vessels, for license as second mate of ocean or coastwise steam vessel of 1,000 gross tons or under; or,

SEVENTH. One year's service as master or first-class pilot of lake, bay, or sound steam vessels of 500 gross tons or over, except ferry vessels, together with one year's service in the deck department of ocean or coastwise steam vessels of 1,000 gross tons or over, while holding a license as such master or first-class pilot; or,

EIGHTH. Two years' service as assistant (junior officer of the watch) to the officer in charge of the watch on ocean steamers while holding a license as third mate of such steam vessels.

B-3-6. Examination for License as Second Mate of Steam Vessels.

T/O An applicant for license as second mate of ocean steam vessels shall be required to pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by meridian altitude of the sun or a star.
2. Longitude by sun or star.
3. Deviation of the compass by amplitude.
4. Deviation of the compass by azimuth tables.
5. Ship's position by dead reckoning.
6. Distance off a fixed object.
7. Chart navigation.
8. Mercator sailings.
9. Determination of area and volume.
10. Storm signals.
11. International Rules of the Road.
12. International Code of Signals.
13. Cargo handling.
14. Signaling by blinker.
15. Life-saving apparatus.
16. Instruments and accessories used in navigation.
17. Seamanship.
18. Nautical astronomy definitions.
19. Aids to navigation.
20. Rules and Regulations of the Board of Supervising Inspectors.
21. Such further examination of a nonmathematical character as the local inspectors may require.

B-3-7. Third Mate of Steam Vessels.

T/O Any applicant for license as third mate of ocean steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. Three years' service in the deck department of ocean or coastwise steam vessels; or,

SECOND. Any applicant who has had three years' training at the United States Naval Academy and who has had not less than two training cruises; or,

THIRD. A graduate who has served two years in the seaman's class of a nautical school ship and completed two ocean or coastwise cruises before graduation: *Provided*, that where the graduate has completed the two cruises, but not the two years' service required, additional service equal to the difference in time shall be served in the deck department of ocean or coastwise steam vessels; or,

FOURTH. Three years' service in the deck department of ocean or coastwise sail vessels of 100 gross tons or over, together with one year's service in the deck department of ocean or coastwise steam vessels. Service on such sail vessels engaged in the ocean or coastwise fisheries shall be accepted as meeting the requirements of this paragraph; or,

FIFTH. One year's service as master or pilot of lake, bay, or sound steam vessels of 150 gross tons or over, except ferry vessels, together with three months' service in the deck department of ocean or coastwise steam vessels; or,

SIXTH. Three years' service in the deck department of lake, bay, sound, or river steam vessels, together with one year's service in the deck department of ocean or coastwise steam vessels; or,

SEVENTH. Two years' service as a licensed first-class pilot of steam vessels of 4,000 gross tons or over, except ferry vessels, on the Great Lakes or other lakes, bays, or sounds; or,

EIGHTH. Three years' service in the deck department of steam vessels of 100 gross tons or over, engaged in the ocean or coastwise fisheries, together with six months' experience in the deck department of ocean or coastwise steam vessels; or,

NINTH. A graduate of the Naval Reserve Officers' Training Corps who has served six months in the deck department of ocean or coastwise steam vessels.

B-3-8. Examination for License of Third Mate of Steam Vessels.

T/O An applicant for license as third mate of ocean steam vessels shall be required to pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by meridian altitude of the sun.
2. Longitude by chronometer.
3. Deviation of the compass by tables.
4. Ship's position by dead reckoning.
5. Middle latitude sailing.
6. Distance off by bearings and run.
7. Chart navigation.
8. International Rules of the Road.
9. Cargo handling.
10. Storm signals.
11. Sea terms.
12. Seamanship.
13. Instruments and accessories used in navigation.
14. Rules and Regulations of the Board of Supervising Inspectors.
15. Such further examination of a nonmathematical character as the local inspectors may require.

B-3-9. Chief Engineer of Steam Vessels.

T/O An applicant for license as chief engineer of ocean steam vessels shall be eligible for examination after he has furnished the following documentary evidence to the local inspectors and is qualified in all other respects:

FIRST. One year's service as first assistant engineer of ocean or coastwise steam vessels; or,

SECOND. Two years' service as second assistant engineer of ocean or coastwise steam vessels while holding license as first assistant engineer of such vessels; or,

THIRD. Two years' service as junior first assistant engineer of ocean or coastwise steam vessels while holding license as first assistant engineer of such vessels; or,

FOURTH. One year's service as assistant engineer of ocean or coastwise steam vessels for license as chief engineer of ocean or coastwise steam vessels of not more than 750 gross tons; or,

FIFTH. Three years' service as chief engineer of Great Lakes and all other lake, bay, or sound steam vessels, except

ferry vessels, for license as chief engineer of appropriate tonnage.

B-3-10. First Assistant Engineer of Steam Vessels.

T/O An applicant for license as first assistant engineer of ocean steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as second assistant engineer of ocean or coastwise steam vessels; or,

SECOND. Three years' service as first assistant engineer of Great Lakes and all other lake, bay, or sound steam vessels, except ferry vessels, for license as first assistant engineer of appropriate tonnage; or,

THIRD. Two years' service as third assistant engineer of ocean or coastwise steam vessels while holding license as second assistant engineer of such vessels; or,

FOURTH. Three years' service as oiler, water tender, or fireman in the engine department of ocean or coastwise steam vessels, at least one year of such service shall have been as oiler or water tender, for license as first assistant engineer of steam vessels of not more than 750 gross tons; or,

FIFTH. Two years' service as junior second assistant engineer while holding license as second assistant engineer of such vessels.

B-3-11. Second Assistant Engineer of Steam Vessels.

T/O An applicant for license as second assistant engineer of ocean steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as third assistant engineer of ocean or coastwise steam vessels; or,

SECOND. Three years' service as second assistant engineer of Great Lakes and all other lake, bay, or sound steam vessels, except ferry vessels, for license as second assistant engineer of appropriate tonnage; or,

THIRD. Five years' actual service in the engine department of an ocean or coastwise steam vessel, four years of which shall have been as oiler or water tender; or,

FOURTH. Three years' service as an apprentice to the machinist trade and engaged in construction or repair of marine, stationary, or locomotive engines, and one year's service as a journeyman machinist engaged in the construction or repair of marine steam engines, together with one year's service in the engine department of ocean or coastwise steam vessels; or,

FIFTH. Two years' service as junior third assistant engineer while holding license as third assistant engineer; or,

SIXTH. A graduate in mechanical, marine, or electrical engineering from a duly recognized school of technology, together with 1 year's service in the engine department of an ocean or coastwise steam vessel.

B-3-12. Third Assistant Engineer of Steam Vessels.

T/O An applicant for license as third assistant engineer of ocean steam vessels shall be eligible for examination after he has had the following experience and is qualified in all other respects:

FIRST. Four years' service as fireman on ocean or coastwise steam vessels; or,

SECOND. Three years' service as oiler or water tender, or combined service of three years in these positions, on ocean or coastwise steam vessels; or,

THIRD. Three years' service as licensed engineer of steam vessels on lakes, bays, sounds, and rivers, for license of appropriate tonnage; or,

FOURTH. One year's service as chief or assistant engineer of river steam vessels, together with six months' service in the engine department of ocean or coastwise steam vessels; or,

FIFTH. A graduate from the engineering class of a nautical school ship, the term of such engineering class to be based upon a period of two years; or,

SIXTH. Three years' service as an apprentice to the machinist trade and engaged in the construction or repair of marine, stationary, or locomotive engines, together with one year's service in the engine department of ocean or coastwise steam vessels; or,

SEVENTH. A graduate in mechanical, marine, or electrical engineering from a duly recognized school of technology together with three months' service in the engine department of an ocean or coastwise steam vessel.

B-3-13. Engineers of Motor Vessels.

T/O The term "motor vessel" used in this and the following sections shall include any vessel of above 15 gross tons, propelled by gas, fluid, naphtha, or electric motors.

No person shall receive an original license as engineer of motor vessels who has not served at least 36 months in the engine department of a motor vessel, except as hereinafter provided, at least 25 percent of which service shall have been obtained within the three years next preceding the application.

Inspectors may designate upon the certificate of any chief or assistant engineer the tonnage of the vessel upon which he may act.

B-3-14. Chief Engineer of Motor Vessels.

T/O An applicant for license as chief engineer of motor vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as first assistant engineer of motor vessels; or,

SECOND. Two years' service as second assistant engineer of motor vessels, or two years' combined service as first and second assistant engineer of motor vessels; or,

THIRD. One year's service as assistant engineer on motor vessels of 750 gross tons and under; or,

FOURTH. Any person holding a license as chief engineer of steam vessels who has served at least three months as licensed first assistant engineer of motor vessels; or,

FIFTH. Any person holding license as chief engineer of steam vessels who has served six months as oiler in the engine department of motor vessels; or has been employed for not less than three months in the construction or installation of marine motor engines together with three months' service as oiler in the engine department of motor vessels; or,

SIXTH. Any person who has served at least two years in the engine department of motor vessels, or has had at least one year's experience in the construction or installation of marine motor engines, together with one year's service in the engine department of motor vessels, shall be eligible for examination for license as chief engineer of motor vessels of not more than 300 gross tons.

B-3-15. First Assistant Engineer of Motor Vessels.

T/O An applicant for license as first assistant engineer of motor vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as second assistant engineer of motor vessels; or,

SECOND. Two years' service as third assistant engineer of motor vessels, or two years' combined service as second and third assistant engineer of motor vessel; or,

THIRD. Three years' service as oiler in the engine department of motor vessels, for license as first assistant engineer of motor vessels of 750 gross tons and under; or,

FOURTH. Any person holding a license as first assistant engineer of steam vessels who has served at least three months as licensed second assistant engineer of motor vessels; or,

FIFTH. Any person who has served at least two years in the engine department of motor vessels, or has had at least one year's experience in the construction or installation of marine motor engines, together with one year's service in the

engine department of motor vessels, shall be eligible for examination for license as first assistant engineer of motor vessels of not more than 450 gross tons; or,

SIXTH. Three years' service as oiler in the engine department of motor vessels of over 750 gross tons for license as first assistant engineer of motor vessels of 1,200 gross tons and under.

B-3-16. Second Assistant Engineer of Motor Vessels.

T/O An applicant for license as second assistant engineer of motor vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as third assistant engineer of motor vessels; or,

SECOND. Four years' service as oiler in the engine department of motor vessels; or,

THIRD. A journeyman machinist who has served an apprenticeship for three years and engaged in the construction or repair of marine motor engines for at least two years of that time, together with one year's service in the engine department of motor vessels as oiler; or,

FOURTH. Any person holding a license as second assistant engineer of steam vessels, who has served at least three months as licensed third assistant engineer of motor vessels; or,

FIFTH. Any person holding a license as second assistant engineer of steam vessels, after having served as oiler in the engine department of motor vessels for not less than six months or has been employed for not less than three months in the construction or installation of engines for motor vessels, together with three months' service in the engine department of motor vessels; or

SIXTH. A graduate in mechanical, marine, or electrical engineering from a duly recognized school of technology, together with 6 months' service as oiler on motor vessels.

B-3-17. Third Assistant Engineer of Motor Vessels.

T/O An applicant for license as third assistant engineer of motor vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. Three years' service in the engine department of motor vessels; or,

SECOND. A graduate from the engineering class of a nautical school ship, the term of such engineering class to be based upon a period of two years, after he has served at least six months as oiler on motor vessels, or has been employed at least six months in the construction and installation of engines for motor vessels; or,

THIRD. Three years' service as an apprentice to the machinist trade and engaged in the construction or repair of marine, stationary, or locomotive engines, together with one year's service in the engine department of motor vessels as oiler; or,

FOURTH. Two years' service as a locomotive or stationary engineer, together with two years' service as oiler on motor vessels; or,

FIFTH. Any person holding a license as third assistant engineer of steam vessels, after having served as oiler in the engine department of motor vessels for not less than three months or has been employed for not less than three months in the construction and installation of engines for motor vessels.

SECTION B-4. QUALIFICATIONS FOR OFFICERS—COASTWISE

B-4-1. Master of Steam Vessels.

T/C An applicant for license as master of coastwise steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as chief mate of ocean or coastwise steam vessels; or,

SECOND. Two years' service as second mate of ocean or coastwise steam vessels while holding a license as chief mate of ocean or coastwise steam vessels; or,

THIRD. Two years' service as master of lake, bay, or sound steam vessels of 500 gross tons or over, together with six months' service as chief mate or twelve months' service as second mate of ocean or coastwise steam vessels, while holding license as master of such lake, bay, or sound steam vessels; or,

FOURTH. Five years' service on ocean or coastwise sail vessels of 200 gross tons or over, two years of which service shall have been as master of such vessels, for license as master of coastwise freight and towing vessels of not over 750 gross tons; or,

FIFTH. One year's service as a licensed master of ocean or coastwise sail vessels of 700 gross tons or over for a license as master of coastwise freight or towing vessels of not more than 3,000 gross tons; or,

SIXTH. Two years' service as master or first-class pilot of lake, bay, or sound towing steamers of 150 gross tons or over, for license as master of coastwise towing steam vessels of 750 gross tons or under; or,

SEVENTH. Two years' service as master of steam vessels of 1,000 gross tons or over, except ferry vessels, on the Great Lakes and other lakes, bays, or sounds, for license as master of coastwise vessels on routes not exceeding 300 miles; or,

EIGHTH. Two years' service as a licensed master of steam vessels of 250 gross tons or over, engaged in the ocean or coastwise fisheries, for license as master of coastwise, freight, or towing vessels of not more than 750 gross tons.

NINTH. Three years' service as operator of nondescript power-propelled vessels not carrying passengers for license as master of such vessels not exceeding 100 gross tons; 3 years' service as operator of nondescript power-propelled vessels carrying passengers for license as master of such vessels not exceeding 100 gross tons; on coastwise routes not exceeding 50 miles, and 15 miles off shore: *Provided*, That local inspectors shall require a suitable examination for this license.

B-4-2. Examination for Master of Steam Vessels.

T/C (a) An applicant for license as master of coastwise steam vessels on routes exceeding 300 miles shall pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by Polaris.
2. Latitude by reduction to meridian (sun or star).
3. Longitude by chronometer (sun or star).
4. Ship's position by lines of position.
5. Ship's position by dead reckoning.
6. Azimuth by altitude of sun or star.
7. Chart navigation.
8. Time of tide by tables.
9. Speed by engine revolutions.
10. Distance off a fixed object.
11. Change in draft due to density of water.
12. Signalling by semaphore.
13. Cargo handling.
14. International Code of Signals.
15. International Rules of the Road.
16. Life-saving apparatus.
17. Magnetism, with regard to a ship's compass.
18. Coastwise winds and currents.
19. Instruments and accessories used in navigation.
20. Aids to navigation.
21. Seamanship.
22. Hull nomenclature.
23. Ship sanitation.
24. United States Navigation Laws.
25. Rules and Regulations of the Board of Supervising Inspectors.
26. Such further examination of nonmathematical character as the local inspectors may require.

(b) An applicant for license as master of coastwise steam vessels on routes of 300 miles or less shall be required to

pass a satisfactory examination as to his knowledge of the following subjects:

1. Chart navigation.
2. Distance off a fixed object.
3. International Rules of the Road.
4. Storm signals.
5. Aids to navigation on route.
6. Cargo handling.
7. Signaling by semaphore.
8. Instruments and accessories used in navigation.
9. United States Navigation Laws.
10. Rules and Regulations of the Board of Supervising Inspectors.
11. Such further examination of a nonmathematical character as the local inspectors may require.

B-4-3. Chief Mate of Steam Vessels.

T/C An applicant for license as chief mate of coastwise steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as second mate of ocean or coastwise steam vessels of 1,000 gross tons or over; or,

SECOND. Two years' service as officer in charge of a watch on ocean or coastwise steam vessels of 1,000 gross tons or over while holding license as second mate of ocean and coastwise steam vessels; or,

THIRD. One year's service as master or first-class pilot of lake, bay, or sound steam vessels of 500 gross tons or over, except ferry vessels, together with twelve months' service as third mate of ocean or coastwise steam vessels of 1,000 gross tons or over, while holding license as such master or first-class pilot; or,

FOURTH. Two years' service as master or first-class pilot of lake, bay, or sound towing vessels for license as chief mate of coastwise towing vessels of 750 gross tons or under; or,

FIFTH. One year's service as a licensed master or two years' service as a licensed mate on ocean or coastwise steam vessels of 250 gross tons or over engaged in the ocean or coastwise fisheries, for license as chief mate of coastwise freight or towing steam vessels of 1,000 gross tons or under; or,

SIXTH. Five years' service in the deck department of any ocean or coastwise sail vessel of 100 gross tons or over, two years of such service shall have been as master of such vessels, for license as chief mate of freight or towing steam vessels of 1,000 gross tons or under; or,

SEVENTH. Two years' service as first-class pilot, or two years' combined service as master and first-class pilot of steam vessels of 1,000 gross tons or over, except ferry vessels, on the Great Lakes and other lakes, bays, and sounds, for license as chief mate of coastwise vessels on routes not exceeding 300 miles; or,

EIGHTH. Three years' service in the deck department of ocean or coastwise steam vessels for license as chief mate of coastwise steam vessels of not more than 500 gross tons.

B-4-4. Examination for License as Chief Mate of Steam Vessels.

T/C (a) An applicant for license as chief mate of coastwise steam vessels on route exceeding 600 miles shall be required to pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by meridian altitude (sun or star)
2. Longitude by chronometer (sun or star)
3. Deviation of the compass by azimuth.
4. Ship's position by dead reckoning.
5. Distance off a fixed object.
6. Chart navigation.
7. Mercator sailings.
8. Determination of areas and volume.
9. Storm signals.
10. International Rules of the Road.
11. International Code of Signals.
12. Cargo handling.
13. Signaling by blinker

14. Life-saving apparatus.

15. Instruments and accessories used in navigation.

16. Seamanship.

17. Nautical astronomy definitions.

18. Aids to navigation.

19. Rules and Regulations of the Board of Supervising Inspectors.

20. Such further examination of a nonmathematical character as the local inspectors may require.

(b) An applicant for license as chief mate of coastwise steam vessels on routes of 600 miles or less shall be required to pass a satisfactory examination as to his knowledge of the following subjects:

1. Chart navigation.
2. Distance off a fixed object by bearings and run.
3. International Rules of the Road.
4. Storm signals.
5. Aids to navigation on route.
6. Cargo handling.
7. Signaling by blinker.
8. Instruments and accessories used in navigation.
9. Rules and Regulations of the Board of Supervising Inspectors.
10. Such further examination of a nonmathematical character as the local inspectors may require.

B-4-5. Second Mate of Steam Vessels.

T/C An applicant for license as second mate of coastwise steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. One year's service as third mate of ocean or coastwise steam vessels; or,

SECOND. Five years' service in the deck department of ocean or coastwise steam vessels, two years of which shall have been as boatswain or quartermaster; or,

THIRD. Three years' service in the deck department of any ocean or coastwise sail vessel of 100 gross tons or over, together with one year's service in the deck department of ocean or coastwise steam vessels, for license as second mate of coastwise steam vessels of not more than 750 gross tons; or,

FOURTH. A graduate who has served two years in the seamanship class of a State nautical school ship and completed two ocean or coastwise cruises before graduation, together with two years' service in the deck department of ocean or coastwise steam vessels: *Provided*, That where the graduate has completed the two cruises, but not the two years' service required, additional service equal to the difference in time shall be served on ocean or coastwise steam vessels; or,

FIFTH. One year's service as a licensed master or first-class pilot of lake, bay or sound steam vessels of 150 gross tons or over, except ferry vessels, together with one year's service in the deck department of ocean or coastwise steam vessels; or,

SIXTH. One year's service as a licensed mate on ocean or coastwise steam vessels of 150 gross tons or over engaged in the fisheries, for license as second mate of towing vessels; or,

SEVENTH. Two years' service as assistant (junior officer of the watch) to the officer in charge of the watch on coastwise steamers, while holding a license as third officer of coastwise steamers; or,

EIGHTH. Two years' service as first- or second-class pilot of steam vessels of 1,000 gross tons or over, except ferry vessels, on the Great Lakes and other lakes, bays, and sounds, for license as second mate of coastwise vessels on routes not exceeding 300 miles.

B-4-6. Examination for License as Second Mate of Steam Vessels.

T/C (a) An applicant for license as second mate of coastwise steam vessels on routes exceeding 600 miles shall be required to pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by meridian altitude of sun.
2. Longitude by chronometer.

3. Deviation of the compass by tables.
4. Ship's position by dead reckoning.
5. Middle latitude sailing.
6. Distance off by bearings and run.
7. Chart navigation.
8. International Rules of the Road.
9. Cargo handling.
10. Storm signals.
11. Sea terms.
12. Seamanship.
13. Instruments and accessories used in navigation.
14. Rules and Regulations of the Board of Supervising Inspectors.
15. Such further examination of a nonmathematical character as the local inspectors may require.

(b) An applicant for license as second mate of coastwise steam vessels on routes of 600 miles or less shall be required to pass a satisfactory examination as to his knowledge of the following subjects:

1. Chart navigation.
2. Distance off a fixed object by bearings and run.
3. International Rules of the Road.
4. Storm signals.
5. Aids to navigation on route.
6. Cargo handling.
7. Signaling by International Code of Signals.
8. Instruments and accessories used in navigation.
9. Rules and Regulations of the Board of Supervising Inspectors.
10. Such further examination of a nonmathematical character as the local inspectors may require.

B-4-7. Third Mate of Steam Vessels.

T/C An applicant for license as third mate of coastwise steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience and is qualified in all other respects:

FIRST. Three years' service in the deck department of ocean or coastwise steam vessels; or,

SECOND. A graduate who has served two years in the seamanship class of a nautical school ship and completed two ocean or coastwise cruises before graduation: *Provided*, That where the graduate has completed the two cruises, but not the two years' service required, additional service equal to the difference in time shall be served in the deck department of ocean or coastwise steam vessels; or,

THIRD. Two years' service in the deck department of ocean or coastwise sail vessels of 100 gross tons or over, together with twelve months' service in the deck department of ocean or coastwise steam vessels. Service on such sail vessels engaged in the ocean or coastwise fisheries shall be accepted as meeting the requirements of the paragraph; or,

FOURTH. One year's service as master or pilot of lake, bay, sound, or river steam vessels of 150 gross tons or over, except ferry vessels, together with six months' service in the deck department of ocean or coastwise steam vessels; or,

FIFTH. Twenty-four months' service as a licensed first-class pilot of steam vessels of 2,500 gross tons or over, except ferry vessels, on the Great Lakes and other lakes, bays, or sounds; or,

SIXTH. Three years' service in the deck department of ocean or coastwise steam or sail vessels of less than 100 gross tons, together with one year's service in the deck department of ocean or coastwise steam vessels; or,

SEVENTH. Two years' service in the deck department of lake, bay, or sound steam vessels, together with two years' service in the deck department of ocean or coastwise steam vessels; or,

EIGHTH. Two years' service in the deck department of steam vessels of 100 gross tons or over engaged in the ocean or coastwise fisheries, together with one year's service in the deck department of ocean or coastwise steam vessels.

B-4-8. Examination for License as Third Mate of Steam Vessels.

T/C An applicant for license as third mate of coastwise steam vessels shall pass a satisfactory examination as to his knowledge of the following subjects:

1. Latitude by meridian altitude of sun.
2. Chart navigation.
3. Determination of distance off a fixed object.
4. International Rules of the Road.
5. Storm signals.
6. Signaling by blinker.
7. Instruments and accessories used in navigation.
8. Sea terms.
9. Rules and Regulations of the Board of Supervising Inspectors.
10. Such further examination of a nonmathematical character as the local inspectors may require.

B-4-9. Engineers of Steam and Motor Vessels.

T/C All engineers of steam and motor coastwise vessels shall have the same qualifications as those required for ocean vessels.

SECOND E-5. QUALIFICATIONS FOR OFFICERS—GREAT LAKES

B-5-1. Master of Steam Vessels.

T/L An applicant for license as master of steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. At least one year's experience as first-class pilot while acting in the capacity of first mate on steam vessels.

SECOND. Or five years' combined experience in the deck department of sail vessels and vessels propelled by machinery, one year of which has been as pilot or chief mate.

THIRD. Or one year's experience as master of steam vessels of 150 gross tons or under while acting under the authority of a first-class pilot's license, or two years' experience while acting under the authority of a second-class pilot's license.

FOURTH. Or five years' experience on sail vessels, one year of which has been as master.

FIFTH. Or three years' experience as master of sail vessels on the Great Lakes, for license as master of steam vessels on the Great Lakes and other inland waters.

SIXTH. Or three years' experience as master of barge consorts on the Great Lakes, and has been licensed as first-class pilot for one year, for license as master of steam vessels on the Great Lakes.

Any applicant for license as master of steam vessels shall be subjected to such examination as shall satisfy the local inspectors that he is capable of navigating such steam vessels.

B-5-2. Mate of Steam Vessels.

T/L Whenever any person presents himself for examination for license as mate of Great Lakes steamers, the local inspectors shall examine him as to his knowledge, experience, and skill in handling cargo, the operation and handling of fire apparatus, the launching and handling of lifeboats, his knowledge of life preservers and the method of adjusting them, his ability to manage the crew, and his general familiarity with his duties in maintaining discipline, and if found qualified they shall grant him a license as such, but no such license shall be granted to any person who has not had at least two years' experience in the deck department of a steam vessel, sail vessel, motor vessel, or barge consort, six months of such service to have been in a steam vessel.

B-5-3. Experience Required for License as Pilot.

T/L (a) No original license for pilot of any class shall be issued to any person, except for special license for steamers of 10 gross tons and under, who has not served at least three years in the deck department of a steam vessel, motor vessel, sail vessel, or barge consort, one year of which experience must have been obtained within the three years next preceding the date of application for license, which fact the inspec-

tors shall require, when practicable, to be verified by the certificate, in writing, of the licensed master or pilot under whom the applicant has served, such certificate to be filed with the application of the candidate: *Provided*, that one year's experience as quartermaster or wheelsman while holding a second-class pilot license shall entitle the holder of such license to examination for license as first-class pilot.

(b) The local inspectors shall, before granting a license as pilot, satisfy themselves that the applicant is qualified to steer.

B-5-4. *Engineers of Steam Vessels.*

T/L (a) Chief engineer of condensing steamers on Great Lakes.

Chief engineer of noncondensing steamers on Great Lakes.
First assistant engineer of condensing steamers on Great Lakes.

First assistant engineer of noncondensing steamers on Great Lakes.

Second assistant engineer of condensing steamers on Great Lakes.

Second assistant engineer of noncondensing steamers on Great Lakes.

Third assistant engineer of condensing steamers on Great Lakes.

Third assistant engineer of noncondensing steamers on Great Lakes.

(b) No person shall receive license as engineer or assistant engineer of steam vessels who has not had the experience specified in the following sections, a portion of which experience shall have been obtained within the three years next preceding the application, which fact shall be verified by the certificate, in writing, of the licensed engineer and master under whom the applicant has served, where practicable, said certificate to be filed with the application of the candidate; and no person shall receive license as above who is not able to pass a satisfactory written examination before the local inspectors.

(c) Inspectors shall designate upon the certificate of any chief or assistant engineer the tonnage of the vessel on which he may serve.

(d) Engineers of all classifications may be allowed to pursue their profession upon all waters of the United States in the class for which they are licensed.

(e) Engineers of Great Lakes steamers who have actually performed the duties of engineer for a period of three years shall be entitled to examination for engineer of ocean steamers, applicant to be examined in the use of salt water, method employed in regulating the density of the water in the boilers, the application of the hydrometer in determining the density of the sea water, and the principle of constructing the instrument; and may be examined by inspectors on the Great Lakes and seaboard.

(f) Wherever the word "year" appears in the following sections of this rule, it shall be understood as contemplating 12 months:

B-5-5. *Chief Engineer of Steam Vessels.*

T/L An applicant for license as chief engineer of steamers on Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as first assistant engineer of Great Lakes steamers, or,

SECOND. Two years' experience as second assistant engineer of Great Lakes steamers, while holding a license as first assistant engineer of Great Lakes steamers, or,

THIRD. Any equivalent experience made up of proportional parts of the experience prescribed in the first and second numbered paragraphs of this section: For example, six months' experience as first assistant engineer, and twelve months' experience as second assistant engineer while holding a license as first assistant engineer, or,

FOURTH. Two years' experience as chief engineer of river steamers, or,

FIFTH. Any person holding a license as first assistant engineer of river steamers who has had one year's experi-

ence as first assistant engineer of steamers of 1,500 gross tons or over may be examined and licensed as chief engineer of Great Lakes steamers of not over 750 gross tons, or,

SIXTH. A person who has had the experience prescribed for license as first assistant engineer of Great Lakes steamers may be licensed as chief engineer of Great Lakes steamers of not over 750 gross tons, if the local inspectors, upon examination, find him qualified.

B-5-6. *First Assistant Engineer of Steam Vessels.*

T/L An applicant for license as first assistant engineer of steamers on Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he had had the following experience:

FIRST. One year's experience as second assistant engineer of Great Lakes steamers, or,

SECOND. Two years' experience as third assistant engineer of Great Lakes steamers while holding a license as second assistant engineer of Great Lakes steamers, or,

THIRD. Any equivalent experience made up of proportional parts of experience prescribed in the first and second numbered paragraphs of this section. For instance, six months' experience as second assistant engineer, together with 12 months' experience as third assistant engineer while holding a license as second assistant engineer, or,

FOURTH. One year's experience as chief engineer of river steamers, or,

FIFTH. Two years' experience as first assistant engineer of river steamers, or,

SIXTH. Three years' service as oiler, water tender, or fireman on Great Lakes steamers for license as first assistant engineer on steam vessels not over 1,500 gross tons, or,

SEVENTH. A journeyman machinist who has been engaged in the erection, construction, or repair of marine steam engines for two years, together with one year's service in the engine department of Great Lakes steamers, or,

EIGHTH. A person who has had the experience prescribed for license as second assistant engineer may be licensed as first assistant engineer of Great Lakes steamers of not over 750 gross tons, if the local inspectors, upon examination, find him qualified.

B-5-7. *Second Assistant Engineer of Steam Vessels.*

T/L An applicant for license as second assistant engineer of steamers on Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as third assistant engineer of Great Lakes steamers; or,

SECOND. One year's experience as first assistant engineer of river steamers; or,

THIRD. Three years' service as oiler, water tender, or fireman on Great Lakes steamers; or,

FOURTH. Three years' service as apprentice to the machinist trade and engaged in the construction or repair of marine, stationary, or locomotive engines, together with one year's service in the engine department of Great Lakes steamers; or,

FIFTH. A graduate from an engineering class of a nautical school ship, the term of such class to be based upon a period of two years; or,

SIXTH. Two years' service as stationary engineer, together with one year's service in the engine department of Great Lakes steamers; or,

SEVENTH. Any person holding a license as third assistant engineer of Great Lakes steamers, and having had one year's experience as junior engineer, or one year's combined experience as junior engineer and third assistant engineer while holding a license as third assistant engineer, or,

EIGHTH. Any person holding a license as third assistant engineer of Great Lakes steamers and having had one year's service as oiler or water tender since receiving license;

NINTH. A graduate in mechanical, electrical, or marine engineering from a duly recognized school of technology, to-

gether with one year's service in the engine department of Great Lakes steamers.

B-5-8. Third Assistant Engineer.

T/L An applicant for license as third assistant engineer of steamers on the Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. Three years' service in the engine department of Great Lakes steamers; or,

SECOND. One year's experience as second assistant engineer of river steamers; or,

THIRD. One year's service as stationary engineer, together with one year's service in the engine department of Great Lakes steamers; or,

FOURTH. A graduate from an engineering class of a nautical school ship, the term of such engineering class to be based upon a period of two years; or,

FIFTH. Eighteen months' experience as junior engineer.

B-5-9. Engineers of Motor Vessels.

T/L All engineers of motor vessels on the Great Lakes shall have the same qualifications as those required for ocean vessels.

SECTION B-6. QUALIFICATIONS FOR OFFICERS—BAYS, SOUNDS, AND LAKES OTHER THAN THE GREAT LAKES

B-6-1. Master of Steam Vessels.

T/B Any applicant for license as master of steam vessels shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. At least one year's experience as first-class pilot or chief mate of steam vessels.

SECOND. Or five years' combined experience in the deck department of sail vessels and vessels propelled by machinery, one year of which has been as pilot or chief mate.

THIRD. Or one year's experience as master of steam vessels of 150 gross tons or under while acting under the authority of a first-class pilot's license, or two years' experience while acting under the authority of a second-class pilot's license.

FOURTH. Or five years' experience on sail vessels, one year of which has been as master.

FIFTH. Or three years' experience as master of sail vessels for license as master of steam vessels.

SIXTH. Or two years' experience in the deck department of a steam vessel, one year of which shall have been either as wheelsman or in assisting in the navigation of the vessel, while holding a first-class pilot's license, for license as master of steam vessels of 500 gross tons and under, navigating all lakes, bays, and sounds other than the Great Lakes.

Any applicant for license as master of steam vessels shall be subjected to such examination as shall satisfy the local inspectors that he is capable of navigating such steam vessels.

B-6-2. Mate of Steam Vessels.

T/C Whenever any person presents himself for examination for license as mate of inland steamers the local inspectors shall examine him as to his knowledge, experience, and skill in handling cargo, the operation and handling of fire apparatus, the launching and handling of lifeboats, his knowledge of life preservers and the method of adjusting them, his ability to manage the crew, and his general familiarity with his duties in maintaining discipline, and if found qualified they shall grant him a license as such, but no such license shall be granted to any person who has not had at least two years' experience in the deck department of a steam vessel, sail vessel, motor vessel, or barge consort, six months of such service to have been in a steam vessel.

B-6-3. Experience Required for License as Pilot.

T/B (a) No original license for pilot of any class shall be issued to any person, except for special license for steamers of 10 gross tons and under, who has not served at least three years in the deck department of a steam vessel, motor vessel, or sail vessel, one year of which experience must have been

obtained within the three years next preceding the date of application for license, which fact the inspectors shall require, when practicable, to be verified by the certificate, in writing, of the licensed master or pilot under whom the applicant has served, such certificate to be filed with the application of the candidate: *Provided*, That one year's experience as quartermaster or wheelsman while holding a second-class pilot license shall entitle the holder of such license to examination for license as first-class pilot.

(b) Pilots, after written examination, may be licensed for limited tonnage and routes on steamers navigating canals and small inland lakes like Seneca and Cayuga lakes in the State of New York, after 24 months' experience in the deck department of vessels propelled by machinery, 12 months of which experience must have been obtained within the two years next preceding the date of application for license.

(c) The local inspectors shall, before granting a license as pilot, satisfy themselves that the applicant is qualified to steer.

B-6-4. Engineers of Steam Vessels.

T/B (a) Chief engineer of condensing steamers on bays, sounds, and lakes other than the Great Lakes.

Chief engineer of noncondensing steamers on bays, sounds, and lakes other than the Great Lakes.

First assistant engineer of condensing steamers on bays, sounds, and lakes other than the Great Lakes.

First assistant engineer of noncondensing steamers on bays, sounds, and lakes other than the Great Lakes.

Second assistant engineer of condensing steamers on bays, sounds, and lakes other than the Great Lakes.

Second assistant engineer of noncondensing steamers on bays, sounds, and lakes other than the Great Lakes.

Third assistant engineer of condensing steamers on bays, sounds, and lakes other than the Great Lakes.

Third assistant engineer of noncondensing steamers on bays, sounds, and lakes other than the Great Lakes.

(b) No person shall receive license as engineer or assistant engineer of steam vessels who has not had the experience specified in the following sections, a portion of which experience shall have been obtained within the three years next preceding the application, which fact shall be verified by the certificate, in writing, of the licensed engineer and master under whom the applicant has served, where practicable; said certificate to be filed with the application of the candidate; and no person shall receive license as above who is not able to pass a satisfactory written examination before the local inspectors.

(c) Inspectors shall designate upon the certificate of any chief or assistant engineer the tonnage of the vessel on which he may serve.

(d) Engineers of all classifications may be allowed to pursue their profession upon all waters of the United States in the class for which they are licensed.

(e) Engineers of lake, bay, and sound steamers who have actually performed the duties of engineer for a period of three years shall be entitled to examination for engineer of ocean steamers, applicant to be examined in the use of salt water, method employed in regulating the density of the water in the boilers, the application of the hydrometer in determining the density of the sea water, and the principle of constructing the instrument; and may be examined by inspectors on the Great Lakes and seaboard.

(f) Wherever the word "year" appears in the following sections of this rule it shall be understood as contemplating 12 months.

B-6-5. Chief Engineer of Steam Vessels.

T/B An applicant for license as chief engineer of steamers on bays, sounds, and lakes other than the Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as first assistant engineer of lake, bay, and sound steamers; or,

SECOND. Two years' experience as second assistant engineer of lake, bay, and sound steamers while holding a license as first assistant engineer of lake, bay, and sound steamers: or,

THIRD. Any equivalent experience made up of proportional parts of the experience prescribed in the first and second numbered paragraphs of this section. For example, 6 months' experience as first assistant engineer and 12 months' experience as second assistant engineer while holding a license as first assistant engineer; or,

FOURTH. Two years' experience as chief engineer of river steamers; or,

FIFTH. Any person holding a license as first assistant engineer of river steamers who has had one year's experience as first assistant engineer of steamers of 1,500 gross tons or over may be examined and licensed as chief engineer of lake, bay, and sound steamers of not over 750 gross tons; or,

SIXTH. A person who has had the experience prescribed for license as first assistant engineer of lake, bay, and sound steamers may be licensed as chief engineer of lake, bay, and sound steamers of not over 750 gross tons, if the local inspectors, upon examination, find him qualified.

B-6-6. First Assistant Engineer of Steam Vessels.

T/B. An applicant for license as first assistant engineer of steamers on bays, sounds, and lakes other than the Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as second assistant engineer of lake, bay, and sound steamers; or,

SECOND. Two years' experience as third assistant engineer of lake, bay, and sound steamers while holding a license as second assistant engineer of lake, bay, and sound steamers; or,

THIRD. Any equivalent experience made up of proportional parts of experience prescribed in the first and second numbered paragraphs of this section. For instance, six months' experience as second assistant engineer, together with twelve months' experience as third assistant engineer while holding license as second assistant engineer; or,

FOURTH. One year's experience as chief engineer of river steamers; or,

FIFTH. Two years' experience as first assistant engineer of river steamers; or,

SIXTH. Three years' service as oiler, water tender, or fireman on lake, bay, and sound steamers, for license as first assistant engineer on steam vessels not over 1,500 gross tons; or,

SEVENTH. A journeyman machinist who has been engaged in the erection, construction, or repair of marine steam engines for two years, together with one year's service in the engine department of lake, bay, and sound steamers; or,

EIGHTH. A graduate in mechanical or marine engineering from a duly recognized school of technology, together with one year's service in the engine department of lake, bay, and sound steamers; or,

NINTH. A person who has had the experience prescribed for license as second assistant engineer may be licensed as first assistant engineer of lake, bay, and sound steamers of not over 750 gross tons, if the local inspectors, upon examination, find him qualified.

B-6-7. Second Assistant Engineer of Steam Vessels.

T/B 44. An applicant for license as second assistant engineer of steamers on bays, sounds, and lakes other than the Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as third assistant engineer of lake, bay, and sound steamers; or,

SECOND. One year's experience as first assistant engineer of river steamers; or,

THIRD. Three years' service as oiler, water tender, or fireman on lake, bay, and sound steamers; or,

FOURTH. Three years' service as apprentice to the machinist trade and engaged in the construction or repair of marine, stationary, or locomotive engines, together with one year's service in the engine department of lake, bay, and sound steamers; or,

FIFTH. A graduate from an engineering class of a nautical school ship, the term of such class to be based upon a period of two years; or,

SIXTH. Two years' service as stationary engineer, together with one year's service in the engine department of lake, bay, and sound steamers; or,

SEVENTH. Any person holding a license as third assistant engineer of lake, bay, and sound steamers, and having had one year's experience as junior engineer, or one year's combined experience as junior engineer and third assistant engineer while holding a license as third assistant engineer; or,

EIGHTH. Any person holding a license as third assistant engineer of lake, bay, and sound steamers, and having had one year's service as oiler or water tender since receiving license.

B-6-8. Third Assistant Engineer of Steam Vessels.

T/B. An applicant for license as third assistant engineer of steamers on bays, sounds, and lakes other than the Great Lakes shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. Three years' service in the engine department of lake, bay, and sound steamers; or,

SECOND. One year's experience as second assistant engineer of river steamers; or,

THIRD. One year's service as stationary engineer, together with one year's service in the engine department of lake, bay, and sound steamers; or,

FOURTH. A graduate from an engineering class of a nautical school ship, the term of such engineering class to be based upon a period of two years; or,

FIFTH. Eighteen months' experience as junior engineer.

B-6-9. Engineers of Motor Vessels.

T/B. All engineers of motor vessels on bays, sounds, and lakes other than Great Lakes shall have the same qualifications as those required for ocean vessels.

SECTION B-7. QUALIFICATIONS FOR OFFICERS—RIVERS

B-7-1. Master of River Steamers.

T/R (a). Inspectors shall examine all applicants for original license as master of steamers navigating rivers exclusively, which examination shall be reduced to writing and made a part of the permanent records of the office of the inspectors making such examination; and no such license shall be issued to any person to act as master of such steamers who has not, by actual service of at least three years in the deck department of steam vessels, one year of which shall have been on river steamers, acquired practical knowledge, skill, and experience essential in case of emergency and disaster, and in the navigation of such steamers with safety to life and property, and at least one year of service to have been within the three years next preceding the application, and no license as master shall be issued to any applicant who can not read and write, and who has not served at least one year as licensed mate or pilot of steam vessels.

(b) The line of examination to be pursued by inspectors in examining applicants for original license as master of river steamers shall be as follows:

1. As to his general knowledge of the duties of master of such steamers.
2. As to his ability to handle the wheel in case of emergency or disaster.
3. As to the knowledge of his duties and proper method of procedure in case of fire on his vessel.
4. As to his knowledge of proper management of a vessel and crew in case of collision and sinking.
5. As to executive ability generally to manage officers and crew.
6. As to his general knowledge and ability to navigate steamers with safety to life and property.
7. As to his knowledge of pilot rules governing the navigation of such steamers.

8. As to his knowledge of signals between the pilot house and engine room.
9. As to his knowledge of signal lights and their proper position on all steam and other vessels.
10. As to duties of master in case of fog or stormy weather, and on such other subjects in connection with the navigation of such vessels as the inspectors conducting such examination may deem proper and necessary.

B-7-2. Mate of River Steamers.

T/R Whenever any person presents himself for examination for license as mate of river steamers the local inspectors shall examine him as to his knowledge, experience, and skill in handling cargo, the operation and handling of fire apparatus, the launching and handling of lifeboats, his knowledge of life preservers and the method of adjusting them, his ability to manage the crew, and his general familiarity with his duties in maintaining discipline, and if found qualified they shall grant him a license as such, but no such license shall be granted to any person who has not had at least two years' experience in the deck department of a steam vessel, sail vessel, motor vessel, or barge consort, six months of such service to have been in a steam vessel.

B-7-3. Experience Required for License as Pilot.

T/R (a) No original license for pilot of any class shall be issued to any person, except for special license for steamers of 10 gross tons and under, who has not served at least three years in the deck department of a steam vessel, motor vessel, sail vessel, one year of which experience must have been obtained within the three years next preceding the date of application for license, which fact the inspectors shall require, when practicable, to be verified by the certificate, in writing, of the licensed master or pilot under whom the applicant has served, such certificate to be filed with the application of the candidate: *Provided*, That one year's experience as quartermaster or wheelsman while holding a second-class pilot license shall entitle the holder of such license to examination for license as first-class pilot.

(b) Special pilots may be licensed for steamers of 10 gross tons and under, locally employed.

(c) The local inspectors shall, before granting a license as pilot, satisfy themselves that the applicant is qualified to steer.

B-7-4. Engineers of Steam Vessels.

T/R (a) Chief engineer of condensing river steamers.
 Chief engineer of noncondensing river steamers.
 First assistant engineer of condensing river steamers.
 First assistant engineer of noncondensing river steamers.
 Second assistant engineer of condensing river steamers.
 Second assistant engineer of noncondensing river steamers.
 Third assistant engineer of condensing river steamers.
 Third assistant engineer of noncondensing river steamers.

(b) No person shall receive license as engineer or assistant engineer of steam vessels who has not had the experience specified in the following sections, a portion of which experience shall have been obtained within the three years next preceding the application, which fact shall be verified by the certificate, in writing, of the licensed engineer and master under whom the applicant has served, where practicable, said certificate to be filed with the application of the candidate; and no person shall receive license as above who is not able to pass a satisfactory written examination before the local inspectors.

(c) Inspectors shall designate upon the certificate of any chief or assistant engineer the tonnage of the vessel on which he may serve.

(d) Engineers of all classifications may be allowed to pursue their profession upon all waters of the United States in the class for which they are licensed.

(e) Wherever the word "year" appears in the following sections of this rule, it shall be understood as contemplating 12 months.

B-7-5. Chief Engineer of Steam Vessels.

T/R An applicant for license as chief engineer of river steamers shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as first assistant engineer of steam vessels, or,

SECOND. Two years' experience as second assistant engineer of steam vessels while holding a license as first assistant engineer, or,

THIRD. Any equivalent experience made up of proportional parts of the experience prescribed in the first and second numbered paragraphs in this section. For example, six months' experience as first assistant engineer, and twelve months' experience as second assistant engineer while holding a license as first assistant engineer, or,

FOURTH. Applicants who have had the experience prescribed for license as first assistant engineer may be licensed as chief engineer of river steam vessels of not over 750 gross tons, if the local inspectors, upon examination, find him qualified.

B-7-6. First Assistant Engineer of Steam Vessels.

T/R An applicant for license as first assistant engineer of river steamers shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as second assistant engineer, or,

SECOND. Two years' experience as third assistant engineer while holding a license as second assistant engineer, or,

THIRD. Any equivalent experience made up of proportional parts of the experience prescribed in the first and second numbered paragraphs of this section. For example, six months' experience as second assistant engineer and twelve months' experience as third assistant engineer while holding a license as second assistant engineer, or,

FOURTH. Three years' experience as oiler, water tender, or fireman, or,

FIFTH. A graduate in mechanical or marine engineering from a duly recognized school of technology together with one year's service in the engine department of steam vessels, or,

SIXTH. A journeyman machinist who has been engaged in the erection, construction, or repair of marine steam engines for two years, together with one year's service in the engine department of steam vessels; or,

SEVENTH. Applicants who have had the experience prescribed for license as second assistant engineer may be licensed as first assistant engineer of river steamers of not over 750 gross tons, if the local inspectors, upon examination, find him qualified.

B-7-7. Second Assistant Engineer of Steam Vessels.

T/R An applicant for license as second assistant engineer of river steamers shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. One year's experience as third assistant engineer of steam vessels; or,

SECOND. Two years' service as stationary engineer, together with one year's service in the engine room of steam vessels; or,

THIRD. Three years' service as an apprentice to the machinist trade and engaged in the construction and repair of marine, stationary, or locomotive engines, together with one year's service in the engine department of steam vessels; or,

FOURTH. A graduate from an engineering class of a nautical school ship, the term of such engineering class to be based upon a period of two years; or,

FIFTH. Any person holding license as third assistant engineer and having had one year's service as junior engineer, or one year's combined service as third assistant and junior engineer, or one year's service as oiler or water tender, or one year's combined service as oiler and water tender, since receiving license.

B-7-8. Third Assistant Engineer of Steam Vessels.

T/R An applicant for license as third assistant engineer of river steamers shall be eligible for examination after he has furnished satisfactory documentary evidence to the local inspectors that he has had the following experience:

FIRST. Three years' service in the engine department of steam vessels, or,

SECOND. One year's service as stationary engineer, together with one year's service in the engine department of steam vessels, or,

THIRD. Two years' service as an apprentice to the machinist trade, and engaged in the construction and repair of marine, stationary, or locomotive engines, together with one year's service in the engine department of steam vessels.

B-7-9. Engineers of Motor Vessels.

T/R All licensed engineers of motor vessels on rivers where required, shall have the same qualifications as those required for ocean vessels (Sec. B-3-13 to B-3-17)

RULES FOR TANK VESSELS

APPENDIX "C"

Specifications—Life Saving Appliances

[Outline of Sections]

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 - C-1-1. Drawings, Specifications, Name Plates.
 - C-1-2. Inspection.
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- SECTION C-2. Construction of Metallic Lifeboats.
 - C-2-1. Specifications.
 - C-2-2. Keel, Stern, and Sternport.
 - C-2-3. Shell Plating.
 - C-2-4. Riveting.
 - C-2-5. Welding.
 - C-2-6. Application of Welding.
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 - C-2-13. Breast Plates.
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 - C-2-15. Scantlings.
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SECTION C-7. Kapok Life Preservers.

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SUGGESTED RULES FOR TANK VESSELS

APPENDIX "C"

Specifications—Life Saving Appliances

SECTION C-1. LIFEBOATS, LIFERAFTS, AND BUOYANT APPARATUS

C-1-1. Drawings, Specifications, Name Plate.

(a) All lifeboats, liferafts, and buoyant apparatus shall be substantially constructed in accordance with drawings, or blue prints, and specifications approved by the Board of Supervising Inspectors.

(b) Builders of lifeboats, liferafts, and buoyant apparatus shall furnish the supervising inspector of the district in which the equipment is built drawings, or blueprints, and specifications showing and explaining the construction of same, and showing the tensile strength and ductility of the metal used. Lifeboats and liferafts may be constructed of steel having a minimum tensile strength not less than 50,000 pounds per square inch and an elongation of at least 20 per cent in a gage length of 8 inches; or of wrought iron having a minimum tensile strength of 45,000 pounds per square inch and a minimum elongation of 12 per cent in 8 inches; or of other approved metals. Where steel is used and the minimum thickness of the metal is less than no. 16 B. W. G., the elongation shall not be less than 15 per cent in a gage length of 8 inches.

(c) Builders of lifeboats and liferafts shall affix a plate or other device to each lifeboat, having thereon the builder's name, number of boat, date of construction of boat, cubical contents of boat, and number of persons said boat will carry, as determined by the rules of the Board of Supervising Inspectors.

C-1-2. Inspection.

Supervising inspectors of districts where lifeboats are built shall detail an assistant or local inspector to any place where lifeboats, liferafts, or buoyant apparatus are being built, whose duty it shall be to carefully inspect and examine the construction of such lifeboats, and he shall satisfy himself that such lifeboats, liferafts, or buoyant apparatus are constructed in accordance with the drawings, or blue prints, and specifications furnished by the builders. When the assistant or local inspector approves the construction of the boat or raft or equipment, he shall stamp his initials, together with the letters "U. S. I." on a blank space on the plate required to be affixed to the boat, by the builder. The initials of the assistant or local inspector shall be satisfactory evidence to all parties interested that the boat has been constructed in accordance with the drawings, or blue prints, and specifications on file.

C-1-3. Approval.

Any type of lifeboat or liferaft approved by the Board of Supervising Inspectors shall be considered as equivalent to the standard boat or raft.

SECTION C-2. CONSTRUCTION OF METALLIC LIFEBOATS

C-2-1. Specifications.

The following specifications and schedule of lifeboat material shall be complied with unless other arrangements in matters of construction details, design, and strength equivalent in safety and efficiency are approved by the supervising inspector of the district in which the lifeboat is built.

C-2-2. Keel, Stem, and Sternpost.

The dimensions of bar keels, stems, and sternposts shall be as given in table. The keel, stem, and sternpost shall be in one length except in the case of a boat of stern-frame construction where the stem and keel shall be in one length, scarphed and riveted to the stern frame. The scarph connecting the keel to the stern frame shall have a length of nine times the thickness of the keel, or butt welded with suitable reinforcing straps on both sides.

C-2-3. Shell Plating.

(a) The gage of shell plating shall be as given in table and shall have a tensile strength of not less than 50,000 pounds per square inch and an elongation of at least 20 per cent in a gage length of 8 inches, or of wrought iron having a minimum tensile strength of 45,000 pounds per square inch and a minimum elongation of 12 per cent in 8 inches; or of other approved metals. When the minimum thickness of the steel is less than no. 16 B. W. G. the elongation shall be not less than 15 per cent in a gage length of 8 inches.

(b) The bottom shell plating shall be increased to gages as shown in table for not less than 25 per cent of the breadth each side of the keel.

(c) Doubling plates of suitable size shall be fitted on all steel boats at points where the shell is liable to corrosion from contact with the boat's chocks, or alternatively steel liners may be fitted to the latter.

(d) All seam and butt laps shall lap at least 1 1/4 inches.

(e) The laps of joints on keel, stem, and sternpost shall be not less than that specified in table.

C-2-4. Riveting.

TB/ALL The several plates composing the shell may be joined together either by riveting or welding. Where riveting is employed, it shall be by double riveting. The center of the row of rivets nearest the edge of a sheet shall be about three-eighths of an inch from the edge. The rivets shall be staggered with not less than 18 rivets to the foot and such rivets shall have counter-sunk heads. The diameter of the rivets shall be not less than no. 10 B. W. G. The riveting of the shell plating to the keels, stems, and sternposts shall be with button-head rivets of the following diameters, said riveting to be staggered with not less than 12 rivets to the foot:

	Inch
Boats 24 feet or under.....	3/8
Over 24 feet, under 27.....	1/2
Over 27 feet, under 32.....	5/8

C-2-5. Welding.

(a) Where welding is employed in lifeboat or life raft construction it shall be in accordance with the following specifications for fusion welding of sheet metal:

(b) Scope.—These specifications apply only to the application of fusion welding to lifeboats, life rafts, air tanks, and similar vessels subject to pressures not to exceed 15 pounds per square inch.

(c) Materials.—1. Base metal: The materials shall be steel or wrought iron plates (galvanized) having a thickness of not less than no. 18 B. W. G. nor more than three-sixteenths inch. 2. Filler metal: High-test electrode shall be used to insure a weld which will have an efficiency equal to the strength of the base metal without reinforcement.

(d) Process.—Any process of welding which has been approved by the Board of Supervising Inspectors may be used in the fabrication of lifeboats and life rafts.

(e) Design of Joints.—The following joints are acceptable: Butt joints, flanged joints, or lapped joints, fillet-welded as both edges.

C-2-6. Application of Welding.

The plates shall be properly formed and secured by jigs, clamps, or other suitable devices to prevent sagging or warping. The welder shall use due caution to avoid heating the plate to such an extent as to cause it to become distorted or warped. Care shall be taken to insure that the weld has complete fusion, proper penetration to the full thickness, and is reasonably free from porosity. Provision should be made to provide for reasonable expansion and contraction while the welding is being applied. The weld shall be machined to a reasonable degree of smoothness and galvanized by spraying with zinc to protect against the weather.

C-2-7. Supervision.

Manufacturers who desire to construct lifeboats or life rafts by means of any process of fusion welding shall submit plans and specifications to the supervising inspector, showing in detail the design and methods of construction which they propose to employ. The plans or specifications shall contain the following data:

- Tensile strength of the base metal.
- Elongation of base metal in a gage length of 4 inches.
- Trade name of electrode used.
- Elongation of filler metal in a gage length of 2 inches.

C-2-8. Inspection and Tests.

(a) Inspectors shall have access to lifeboats, life rafts, tanks, etc., under construction in order to ascertain whether the material and technique is such as to insure dependable workmanship.

(b) Two tension and two bend test specimens shall be taken from each life-boat, or life-raft cylinder, constructed by means of fusion welding.

(c) The tension test specimens shall be made with a reduced section having a gage length of 4 inches. The edges of the bend test specimens may be parallel. Both tension and bend test specimens shall be made with the weld in the center. The reinforcement shall be ground off, and the tension test specimen shall show under test a tensile strength at least equal to that of the base metal. The bend test shall be made in a vise in such manner that the fibers of the weld will be stretched and must withstand being bent to a radius of not less than twice its thickness without showing cracks or flaws.

(d) The inspector making the tests shall satisfy himself that the workmanship is such that the boat or raft so constructed is at least equal in strength and dependability to an approved metallic lifeboat or raft of riveted construction.

C-2-9. Floors.

(a) Floors shall be fitted in lifeboats 26 feet in length and over, of such dimensions as indicated in table.

(b) The floors shall be flanged 1 1/2 inches top and bottom and fastened to the skin by a single row of rivets 3/8 inch in diameter and pitched three inches on centers.

(c) Limber holes shall be cut in the floors and so located as to provide efficient draining.

C-2-10. Gunwales.

(a) The dimensions of angular steel gunwales shall be as given in table.

(b) The gunwales on each side of the lifeboat shall be in not more than two pieces. If the gunwales are fitted in two lengths, the butts shall be kept beyond the midship half length of the boat and at opposite ends on each side. The joint may be riveted or welded, and the backing-up piece shall be angular in section, of the thickness of the gunwale, and the length shall be not less than eight times the depth of the gunwale. It shall be secured to the sheer strake by riveting or welding.

(c) The gunwales may be of clear grain oak or teak. When made in two lengths the gunwales shall be scarphed with a good long bevel scarph stiffened on the under side by a piece of the same material at least 2 feet long 1 1/4 inches thick, and of the same width as the gunwale.

(d) The size of gunwales shall be of not less than the following dimensions:

Length of Boat	Depth of Gunwale, Inches	Width of Gunwale, Inches
12 feet and not over 18 feet	1 1/8	2 1/2
Over 18 and not over 20 feet	1 7/8	2 3/4
Over 20 and not over 22 feet	2	2 3/4
Over 22 and not over 24 feet	2 1/4	2 1/2
Over 24 and not over 26 feet	2 3/8	2 5/8
Over 26 feet	2 5/8	2 3/4

C-2-11. Nosings.

TB/ALL The outside of the gunwale angle shall have a nosing fitted to the gunwale of hollow half round 2 inches by 1/4 inch, or the nosing may be of clear grain oak or teak; the flat side of the nosing on boats not over 20 feet long shall be not less than 1 1/2 inches wide and five-eighths inch thick; on boats over 20 feet and not over 24 feet it shall be not less than 1 7/8 inches wide and 1 inch thick; on all boats over 24 feet it shall be not less than 2 1/4 inches wide and 1 inch thick.

C-2-12. Gunwale Braces:

(a) The gunwales shall be secured to the thwarts by steel braces and teed on the thwarts as follows:

Length of Boat:	Size of Brace, Inches	Teed on Thwarts, Inches
Under 22 feet and under	3/8 by 1 1/4	4
Over 22 feet	3/8 by 1 1/2	5

(b) The gunwale braces shall be bolted to thwarts and riveted, or welded to gunwales.

C-2-13. Breast Plates.

Breast plates shall be fitted to the stem and sternpost, the thickness of the breast plates to be not less than the thickness of the leg of the gunwale. The depth of the throat of the plate shall be not less than twice the depth of the gunwale.

C-2-14. Thwarts.

(a) The dimensions of the thwarts shall be as given in table except that the mast thwarts shall be 2 inches wider and the hole properly reinforced.

The number of thwarts shall be not less than the following:

Length of Boat:	No. of Thwarts
Under 18 feet	4
18 feet and under 24	5
24 feet and under 28	6
28 feet and under 32	7

TB/ALL

C-2-15. Metallic Lifeboat Scantling.

Length of boat not over—	Bar keel, stem, and sternpost	Angle bar gunwales	Shell plate		Depth not less than—	Floors		Nosing hollow 1/2 round	Fir or yellow pine thwarts	Fir or yellow pine stanchions	Fir or pine side and benches	Yellow pine seats	Tackles and painter shackles
			Side plating	Bottom plating		Thickness	Spacing not more than—						
12 feet 0 inches	2 1/2 by 3/4	2 by 1 1/2 by 3/4	No. 18 B. W. G.	No. 18 B. W. G.	In.		Inches	Inches	Inches	Inches	Inch	Inch	Inch
14 feet 0 inches	2 1/2 by 3/4	2 by 1 1/2 by 3/4	do	do			2 by 1/4	1 1/2 by 7/4	1 1/2 by 4 1/2		3/8	3/8	3/8
16 feet 0 inches	2 1/2 by 3/4	2 by 1 1/2 by 3/4	do	do			2 by 1/4	1 1/2 by 7/4	1 1/2 by 4 1/2		3/8	3/8	3/8
18 feet 0 inches	2 1/2 by 3/4	2 by 2 by 3/4	do	do			2 by 1/4	1 1/2 by 7/4	1 1/2 by 4 1/2		3/8	3/8	3/8
20 feet 0 inches	2 1/2 by 3/4	2 by 2 by 3/4	No. 16 B. W. G.	No. 16 B. W. G.			2 by 1/4	1 1/2 by 7/4	1 1/2 by 4 1/2		3/8	3/8	3/8
22 feet 0 inches	2 1/2 by 3/4	2 1/2 by 2 by 3/4	do	do			2 by 1/4	1 1/2 by 7/4	1 1/2 by 4 1/2		3/8	3/8	3/4
24 feet 0 inches	3 by 3/4	2 1/2 by 2 by 3/4	do	do			2 by 1/4	1 1/2 by 9	1 1/2 by 4 1/2		3/8	3/8	3/4
26 feet 0 inches	3 by 3/4	2 1/2 by 2 by 3/4	No. 14 B. W. G.	No. 13 B. W. G.	6	No. 14 B. W. G.	36	2 by 1/4	1 1/2 by 9	1 1/2 by 6 1/2	3/8	3/8	3/4
28 feet 0 inches	3 1/2 by 3/4	2 1/2 by 2 1/2 by 3/4	do	do	6	do	36	2 by 1/4	1 1/2 by 9	1 1/2 by 6 1/2	3/8	3/8	3/4
30 feet 0 inches	3 1/2 by 3/4	2 1/2 by 2 1/2 by 3/4	do	do	6	do	30	2 by 1/4	1 1/2 by 9	1 1/2 by 6 1/2	3/8	3/8	3/8
32 feet 0 inches	4 by 3/4	2 1/2 by 2 1/2 by 3/4	do	do	6	do	30	2 by 1/4	1 1/2 by 9	1 1/2 by 6 1/2	3/8	3/8	3/8

(b) The thwart ends shall be fitted between flanges and secured thereto by bolts in addition to the bolts through the gunwale braces. The U flange shall extend inboard to take the brace bolt, which shall be 1 inch in width less than the thwart.

(c) Stretchers or lower cross seats of sufficient size and strength shall be fitted in suitable positions for the efficient rowing of all boats.

(d) In boats over 20 feet in length where lower cross or side seats are required to be fitted, they shall be well secured and supported. They shall not be placed more than 12 inches above the floors.

(e) Stanchions.—Stanchions shall be fitted in all lifeboats where the unsupported length of the thwarts exceeds 4 1/2 feet.

(f) Footings.—Footings shall cover the bottom of the boat between the side tanks, spaced not more than 2 inches apart. The width of the footings shall be not less than 7 1/2 inches except the center footing, which shall not be less than 9 1/2 inches.

(g) The footings shall be made readily portable, and so arranged that the plugs are at all times directly accessible without removing any fitting.

C-2-16. Hoisting Shackles.

Hoisting or lifting shackles when installed in the ends of lifeboats shall have the shackle pins go through the stem and sternpost. Sectional area around the shackle pinhole shall be at least equal to the area of the shackle specified for the lifeboat. In cases where the lifting shackles are required to be installed inside of the lifeboat, such lifting shackles shall be attached to bracket plates, riveted to stem and sternpost or to rods with bracket plates riveted to keel. The complete unit for each boat of the brackets, rods, and connecting bolts shall be of sufficient strength to support the loaded lifeboat with a safety factor of 6.

(b) Hooks may be allowed in lieu of lifting shackles when constructed with a safety factor of 6, except when disengaging apparatus is required.

(c) Rings or links shall not be attached to lifeboats for hoisting purposes. When attached to the lower tackle blocks they shall be of such strength as to resist the proof load test without set, six times the maximum working load.

(d) The safety factor of 6 referred to is on material having a tensile strength of 58,000 to 65,000 pounds per square inch.

C-2-17. Plug.

Each lifeboat shall be fitted with an automatic plug.

C-2-18. Galvanizing and Plating.

All steel or iron entering into the construction of lifeboats shall be galvanized by the hot process.

C-2-19. Air Tanks.

(a) All lifeboats contracted for after September 30, 1912, shall have not more than 50 per cent of the air-tank capacity in the ends of the boat and the remaining capacity shall be located in the side tanks.

TB/ALL. (b) After June 20, 1912, the air tanks of all lifeboats shall be entirely independent of the hull or other construction and shall be of suitable non-corrosive material and of a capacity of not less than 1.5 cubic feet for each person allowed in metallic boats and not less than 1 cubic foot for each person allowed in wooden boats; *Provided*, That in all metallic boats constructed and inspected on and after March 1, 1931, there shall be at least 1 cubic foot for each person allowed in addition to sufficient air-tank capacity to float the boat (including its equipment), when filled with water. Such air tanks shall be firmly and securely fastened in the hull, and in such manner as will allow them to be temporarily removed, and in no case shall the tanks be punctured or opened for such fastenings. The tops of such tanks shall be thoroughly protected by a grating or platform or by the thwarts or seats. Such air tanks of 6 cubic feet or less shall be constructed of material of a thickness not less than No. 22 B. W. G.; from 6 cubic feet to and including 15 cubic feet, of a thickness not less than No. 20 B. W. G.; and all air tanks of more than 15 cubic feet capacity shall be of a thickness not less than No. 18 B. W. G.

(c) All joints of air tanks shall be properly double riveted and tightly calked or securely hook jointed and efficiently soldered or properly and securely welded, and such air tanks shall be located in such a manner that will permit the lifeboat to be on as near an even keel as possible when flooded with water.

(d) The cubical contents of air space of air tank shall be stamped on the tank where same can be seen when air tank is placed in boat.

(e) All air tanks shall be fitted with a connection of one-half inch outside diameter, for testing purposes.

(f) Before any lifeboat is passed and accepted, the air tanks thereof shall be tested in the presence of an inspector of this Service by an air pressure of not more than 1 pound to the square inch.

SECTION C-3. CONSTRUCTION OF WOODEN LIFEBOATS

C-3-1. Materials.

The timber shall be of the best quality, well seasoned, free from sapwood, shakes, and objectionable knots. The other materials shall be the best of their respective kinds.

C-3-2. Keels, Stems, Sternposts, Aprons, Deadwoods, Scarphs, Stem Bands.

(a) Keels, stems, sternposts, aprons, and deadwoods shall be oak or elm with no short grain or shakes. Parts having considerable curvature shall be oak or hackmatack grown to form. The stem and sternpost are to be rabbeted to take the plank ends and form an efficient stop for the caulk. The depth of the rabbet shall not exceed the thickness of the plank.

(b) Aprons shall be of sufficient size to insure a 3-inch faying surface and receive the double fastenings of the hooded ends.

(c) Deadwoods are to be of the same size as the keel and are to scarph properly with the apron and keelson. The timbers are to be checked into the deadwoods, and cavities filled with marine glue to form a water course.

(d) Keel and hog piece shall be elm or oak, and the keel shall be in one length.

(e) Scarphs connecting the stem and sternpost to the keel may be either vertical or horizontal. The vertical scarphs shall be secured by five clinched nails, and the hor-

izontal or flat scarphs shall be properly lipped and secured by at least two through fastenings. Ordinary tenons shall not be accepted as equivalent to scarphs.

(f) Stem bands shall be galvanized wrought iron and extend from the breasthook over the stem head to keel plate or 2 feet abaft the scarph.

C-3-3. Planing.

(a) The planing may be of the clincher, carvel, or multiple-skin types, the carvel and double plank to be recommended, especially the latter when for use on vessels in tropical trades.

(b) In clincher-built boats the extreme breadth of the plank is not to exceed 5½ inches; except in the four strakes next to the keel, which may be as follows: 2 at 7 inches, 1 at 6½ inches, and 1 at 6 inches.

(c) In boats 18 feet in length and under, these breadths may require to be reduced about an inch. The landings shall not be less than seven-eighths inch in breadth. The planks should be in as long lengths as possible, with an efficient shift of butts. There shall be at least two passing strakes between butts in the same timber space.

C-3-4. Timbers.

Timbers shall be elm or oak bent to shape and fitted in one length from gunwale to gunwale, except in the extreme ends of the boats. The spacing of timbers shall not exceed 6 inches center to center.

C-3-5. Keelsons, Bilge Stringers, Risings, Gunwales, Etc.

TB/ALL (a) Keelsons shall be in one length and overlap the dead-woods so as to take all the fastenings of the lifting plates. A substantial hardwood chock shall be well secured to the keelson to form a mast step; the keelson shall not be cut for this purpose.

(b) The bilge stringers and risings should be in as long lengths as possible, properly scarphed at the butts, and either through fastened at each timber or fastened at each timber with a brass screw.

(c) In boats 25 feet in length and over, the heads of the timbers are to be carried up and connected through the sheer strake and gunwale.

(d) In all boats, provision shall be made for double-banking the oars.

C-3-6. Thwarts, Stanchions, Footings, Plugs, Etc.

(a) The number of thwarts shall not be less than given by the following:

Lifeboats, Length in Feet:	No. of Thwarts
18 and under.....	4
Over 18 and not over 24.....	5
Over 24 and not over 28.....	6
Over 28 and not over 30.....	7

(b) The distance of the top of the thwarts below the top of the gunwale shall be as follows:

Lifeboats, Length in Feet:	Inches
22 and under.....	9
Over 22 and not above 28.....	10
Over 28 and not above 30.....	11

(c) The thwarts shall be scored over the timbers and directly attached to the risings by means of two screws at each end.

(d) In all boats where the unsupported length of the thwarts exceeds 5 feet, stanchions well connected to the thwart and to the side of keelson shall be fitted.

(e) The side benches shall be continuous and fitted in as long lengths as possible; they shall not be removable, but form part of the permanent structure of the boat.

(f) In boats over 20 feet in length where lower cross or side seats are required to be fitted, they are to be well secured and supported. They shall be placed as low as practicable.

(g) Stretchers or lower cross seats of sufficient size and strength are to be fitted in suitable positions for the efficient rowing of all boats.

(h) All lower sheets and bottom boards are to be made readily portable, and so arranged that the plugs are at all times directly accessible without removing any fitting.

(i) The plug chains are to be securely attached to the boat by screws.

C-3-7. Thwart Knees.

(a) The knees shall be of wrought or stamped iron, galvanized, 1¼ inches thick at the thwart.

(b) In lifeboats over 24 feet in length, the knees shall be double, but, in lieu thereof, iron knees of special design may be adopted.

(c) The knees shall be connected to the side of the boat and to the thwarts by at least 2 through fastenings in each arm. Nut and screw bolts are recommended for the purpose. The bolts should be cupheaded and the nuts have iron plate washers on the under side of the thwarts. Any additional fastenings may be stout screws, but spike or wire nails are not to be allowed. A hardwood chock 3 inches wide should be fitted between knee and side of boat to receive knees and fastenings of sheer strake.

(d) Where wood knees are preferred, they should be of oak, ash, elm, or hackmatack grown to form. The fastenings may be galvanized iron, but wire nails shall not be allowed.

C-3-8. Breasthooks.

(a) The sides of the boat at the ends shall be well bound together across the middle line, the breasthooks being of sufficient number and size, having regard to the dimensions and form of the boat. The arms are to extend along the sides of the boat for at least two timber spaces and are to be through fastened by 2 bolts in each arm and 1 through the throat.

(b) The breasthooks are to be galvanized iron, or oak or hackmatack grown to form.

(c) Rubbers, filling pieces, bilge keels.—Fore and aft rubbers shall be fitted to all boats.

(d) Clincher-built boats are to have filling pieces for about one-third of the boat's length amidships, fitted to the projecting plank edges from the gunwale to the bilge.

(e) In all boats intended to accommodate more than 60 persons, vertical fenders extending from the gunwale down to the bilge, are to be fitted to facilitate launching on the high side of a listed ship. These fenders are to be sufficient in number to prevent damage to the boats when being lowered. If the fenders are of wood they are to have cope iron fitted to the outside edges.

(f) Particulars of any proposed arrangements, including alternatives such as skates or rollers temporarily secured to the boat to prevent it from being damaged, and to facilitate launching, are to be submitted for the Board's approval.

(g) When bilge keels are fitted, they shall be secured to a doubling plank well fastened to the bottom planking and timbers by brass screws. Bilge-keel fastening shall not penetrate the bottom planking. Suitable hand grips shall be made in the bilge keels for use in event of capsizing.

C-3-9. Fastenings.

TB/ALL (a) Fastenings of the keel, stem, and sternpost, aprons, knees, keelsons, or deadwood shall be through fastenings wherever practicable, or long screws. There shall not be less than six through fastenings in the deadwood at each end of the boat.

(b) The hog shall be secured to the keel by galvanized screws, 8 inches to 7 inches apart, and the keelson to the keel by through fastenings 24 to 27 inches apart. In boats over 23 feet in length, the hog may be in two pieces provided it is scarphed to the satisfaction of the inspector.

(c) Box gunwales shall be through fastened at every timber, and solid gunwales should be secured with at least four through fastenings between each pair of thwart knees and strengthened by check pieces in way of rowlocks. All gunwales when not fitted in one length shall have either lipped or table scarphs, and the scarphs of gunwales shall be kept if possible beyond midship half length of the boat.

(d) Plank fastenings shall be copper of sufficient length and gage, and those in the plank edges, scarphs, and timbers, properly clinched. One fastening is required between the

timbers in each edge of each plank, subject to a maximum spacing of 3½ inches in clincher-built boats.

C-3-10. Air Tanks.

(a) All lifeboats contracted for after September 30, 1912, shall have not more than 50 per cent of the air-tank capacity in the ends of the boat and the remaining capacity shall be located in the side tanks.

(b) After June 20, 1912, the air tanks of all lifeboats shall be entirely independent of the hull or other construction and shall be of suitable noncorrosive material and of a capacity of not less than 1.5 cubic feet for each person allowed in metallic boats and not less than 1 cubic foot for each person allowed in wooden boats; *Provided*, That in all metallic boats constructed and inspected on and after March 1, 1931, there shall be at least 1 cubic foot for each person allowed in addition to sufficient air tank capacity to float the boat (including its equipment), when filled with water. Such air tanks shall be firmly and securely fastened in the hull, and in such manner as will allow them to be temporarily removed, and in no case shall the tanks be punctured or opened for such fastenings. The tops of such tanks shall be thoroughly protected by a grating or platform or by the thwarts or seats. Such air tanks of 6 cubic feet or less shall be constructed of material of a thickness not less than No. 22 B. W. G.; from 6 cubic feet to and including 15 cubic feet, of a thickness not less than No. 20 B. W. G.; and all air tanks of more than 15 cubic feet capacity shall be of a thickness not less than No. 18 B. W. G.

(c) All joints of air tanks shall be properly double riveted and tightly calked or securely hook jointed and efficiently soldered or properly and securely welded, and such air tanks shall be located in such a manner that will permit the lifeboat to be on as near an even keel as possible when flooded with water.

(d) The cubical contents of air space of air tank shall be stamped on the tank where same can be seen when air tank is placed in boat.

(e) All air tanks shall be fitted with a connection of one-half inch outside diameter, for testing purposes.

(f) Before any lifeboat is passed and accepted, the air tanks thereof shall be tested in the presence of an inspector of this Service by an air pressure of not more than 1 pound to the square inch.

SECTION C-4. CONSTRUCTION OF RAFTS

C-4-1. Cylinders.

(a) All metal life-raft cylinders of more than 15 feet in length or of more than 16 inches in diameter shall be constructed of metal not less than No. 18 B. W. G. No life-raft cylinders shall be of less thickness of metal than No. 20 B. W. G.

(b) The retaining bands which secure the cylinders to the frames shall be made in halves, so that the cylinders may be detached without difficulty and without disassembling the body of the raft, for the purpose of inspection, cleaning, and painting, as required by section 46. Wooden guards and gunwales shall be secured to the retaining bands by angle-iron clips or by the jaws of the retaining bands. Iron rods extending across the raft at top and bottom shall pass through the gunwale and its securing clips or jaws at each end of the raft. The ends of the rods shall be properly secured with a screw nut inside and outside of the gunwale.

(c) All such cylinders shall be divided by water-tight bulkheads into not less than three compartments of equal lengths. Cylinders over 9 feet in length shall be divided into equal lengths by watertight bulkheads into not less than one compartment for every 3 feet of its length. One of such bulkheads shall be at the extreme end of each cylinder or as near thereto as the flange of cone or bumped ends will permit. Each compartment shall be provided with a suitable air pump connection of one-half inch outside diameter, fitted with airtight cap.

(d) Only countersunk-headed rivets shall be used in the construction of metallic life rafts.

TB/ALL (e) All seams and joints shall be properly double riveted.

(f) The above provisions of this section shall take effect only as to life rafts constructed after December 31, 1903.

(g) The circumferential as well as the longitudinal seams of life-raft cylinders shall be riveted and tightly calked, or securely hook jointed and efficiently soldered, or properly and securely welded on rafts constructed after June 30, 1905. Such longitudinal seams shall be secured by not less than 12 rivets to each foot, circumferential seams by not less than 10 rivets to each foot, and bulkheads by not less than 8 rivets to each foot. Bulkhead flanges may be single riveted. The diameter of shank of rivets shall be not less than No. 10 B. W. G.

C-4-2. Framework.

The framework connecting the cylinders of metallic life rafts shall be substantially built and capable of resisting the strain which tends to break the cylinders apart when the raft is broadside on in surf or seaway.

C-4-3. Test.

Before any life raft is passed and accepted the air tanks thereof shall be tested in the presence of an inspector of this Service by an air pressure of not more than 1 pound to the square inch.

C-4-4. Approval.

(a) No type of raft may be approved unless it satisfies the following conditions:

(b) **FIRST.** It should be reversible and fitted with bulwarks of wood, canvas, or other suitable material on both sides. These bulwarks may be collapsible, and shall be not less than 4 inches high.

(c) **SECOND.** It should be of such size, strength, and weight that it can be handled without mechanical appliances, and, if necessary, be thrown from the vessel's deck.

(d) **THIRD.** It should have not less than 3 cubic feet of air cases or equivalent buoyancy for each person whom it can accommodate.

(e) **FOURTH.** It should have a deck area of not less than 4 square feet for each person whom it can accommodate, and the platform should be not less than 6 inches above the water level when the raft is loaded.

(f) **FIFTH.** The air tanks or equivalent buoyancy should be placed as near as possible to the sides of the raft.

SECTION C-5. CARRYING CAPACITY OF LIFEBOATS AND LIFERAFTS

C-5-1. Open Boats.

(a) **FIRST.** The cubic capacity of an open boat shall be determined by *Stirling's (Simpson's) rule* or by any other method, approved by the Board of Supervising Inspectors, giving the same degree of accuracy. The capacity of a square-sterned boat shall be calculated as if the boat had a pointed stern.

(b) **SECOND.** For example, the capacity in cubic feet of a boat, calculated by the aid of *Stirling's rule*, may be considered as given by the following formula:

$$\text{Capacity} = \frac{1}{12} (4A + 2B + 4C)$$

being the length of the boat in feet from the inside of the planking or plating at the stem to the corresponding point at the sternpost; 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.)

(c) The areas A, B, C, shall be deemed to be given in 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 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 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*).

(d) **THIRD.** 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 percent 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 percent of the length of the boat.

(e) **FOURTH.** If the depth of the boat amidships exceeds 45 percent of the breadth, the depth employed in calculating the area of the midship cross section B shall be deemed to be equal to 45 percent 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 percent 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.

(f) **FIFTH.** If the depth of the boat is greater than 4 feet, the number of persons given by the application of this rule shall be reduced in proportion to the ratio of 4 feet to the actual depth, until the boat has been satisfactorily tested afloat with that number of persons on board, all wearing life jackets.

(g) **SIXTH.** The following rule may be used, provided it does not give a greater capacity than that obtained by the above method: Measure the length and breadth outside of the planking or plating and the depth inside at the place of minimum depth. The depth used in calculating shall not in any case exceed 45 percent of the breadth. The product of these dimensions multiplied by 0.6 resulting in the nearest whole number shall be deemed the capacity in cubic feet.

(h) To determine the number of persons a boat may carry, divide the result by 10 for ocean steam vessels.

Example

(i) The carrying capacity of a boat 22 feet in length, 6 feet in breadth and 2½ feet in depth, shall be determined as follows:

$$\frac{22 \times 6 \times 2\frac{1}{2} \times 0.6}{10} = \frac{198}{10} = 19 \text{ persons}$$

(j) To determine the number of persons a boat is to carry, for river steamers, divided the result by 8.

Example

$$\frac{22 \times 6 \times 2\frac{1}{2} \times 0.6}{8} = \frac{198}{8} = 25 \text{ persons}$$

(k) If after a practical demonstration it is found that there is a greater seating capacity than is allowed by the above, the number of square feet may be reduced, but never less than 3 square feet for each person.

(l) Lifeboats with the ends at least nine-tenths of the width of the boat at its widest part and sides and ends of even height, to be used on steamers navigating rivers only, shall be measured in accordance with the following rule: Measure the length and breadth outside of the plates and the depth inside at the center. The product of these dimensions multiplied by 0.9 resulting in the nearest whole number shall be deemed the capacity in cubic feet.

(m) The cubical capacity of a lifeboat propelled by hand-operated propeller shall be obtained by deducting from the gross capacity a volume equal to that occupied by such device.

(n) In all cases the vessel owner has the right to require that the cubic capacity of the boat shall be determined by exact measurements.

(o) Every lifeboat shall have sufficient room, freeboard, and stability to safely carry the number of persons allowed to be carried by the above rule, which fact shall be determined by actual test in the water at the time of the first inspection of the lifeboat, except that where a vessel is carrying lifeboats of different types or capacities, at least one lifeboat of each type or capacity shall be so tested.

◊ C-5-2. Capacity of Life Rafts.

(a) The capacity of all life rafts shall be determined as follows:

(b) For every person carried there shall be not less than 3 cubic feet of air space or equivalent buoyancy and a deck area of not less than 2½ square feet.

(c) Rafts shall never be allowed a greater number of persons than for whom there is proper seating capacity without interfering with the use of the oars.

C-5-3. Capacity of Buoyant Apparatus.

(a) The capacity of all buoyant apparatus will be determined by the number of persons for which the Bureau of Steamboat Inspection has approved the particular types and size of the said appliance.

SECTION C-6. CORK LIFE PRESERVERS

C-6-1. General.

(a) Every life preserver adjustable to the body of an adult person, manufactured after February 10, 1923, shall be of the reversible type, made of suitable material approved by the Board of Supervising Inspectors, with straps properly attached on each side of the body of the life preserver (thus making it reversible), with recesses under the arms, thereby allowing the front and back sections to fit around the upper part of the wearer, and held in place by the straps, and the upper part of the life preserver shall be made vestlike cut so as to fit snugly over the shoulders, the whole so constructed as to place the main buoyant body of the device underneath the shoulders and around the body in a manner that it will support the person wearing it in an upright or a slightly backward position.

TE/ALL (b) All such life preservers shall not be less than 52 inches in length when measured laid flat, and every life preserver shall be capable of sustaining for a continuous period of at least 24 hours an attached weight so arranged that whether the said weight be submerged or not there shall be a direct downward gravitation pull upon said life preserver of at least 20 pounds.

C-6-2. Covering.

All life preservers shall be covered with unbleached, uncolored, or chrome yellow (vat dye) cotton drill or twill without filling or sizing, weighing not less than 7.2 ounces to the square yard, except that vivatex or its equivalent may be used where it is of a weight not less than 10.2 ounces for each square yard. The covering shall be in not more than 2 pieces, 1 piece forming either side. The lower longitudinal edge of the covering seam shall be turned to a roll and closely rope stitched.

C-6-3. Straps.

The straps or other approved means of securing the life preserver about the body of the wearer shall be of double-woven cotton tape of 1¼ inches width with two selvage or cord edges, of 175 pounds tensile strength, extending along both sides of the life preserver and secured thereto in a permanent manner, so as to make such life preserver reversible, the ends of the straps extending 12 inches beyond the ends of the jacket: *Provided*, that when it becomes necessary to replace belt straps on life preservers of the single-belt type, it shall be done in the foregoing manner, so as to make such repaired life preservers reversible.

C-6-4. Thread.

All thread used in the construction of life preservers shall be of a size and strength not less than Barbour's linen, three-cord, No. 25, machine thread, and any thread other than linen shall be approved by the Board of Supervising Inspectors before being permitted to be used. All seams and other machine sewing on life preservers shall be with a short lock stitch, not less than eight stitches to the inch.

C-6-5. Cork.

(a) Cork block life preservers shall contain an aggregate weight of 5½ pounds of good cork in the body thereof, and where the blocks are made up of separate pieces said pieces shall be fastened with non-corrosive materials.

(b) Blocks of compressed cork when used in life preservers shall weigh in the aggregate not less than 5½ pounds in the

body thereof, and shall be so constructed that said blocks will sustain, without disintegration or substantial expansion, a submersion test satisfactory to the inspector examining the same, and that at the expiration of such test shall have the buoyancy above required.

(c) The edges, corners, and outside surface of block material used in the construction of life preservers shall present a smooth surface to guard against undue destruction of the covering material and present suitable smooth surface for legible stenciling and stamping by the inspectors making the inspection.

C-6-6. Cork Substitute.

Blocks of balsa wood or sheaves of tule when used in life preservers shall fulfill the same requirements as for life preservers constructed of solid or compressed cork as to construction, material in cover, straps, and thread, and be subjected to similar tests for buoyancy.

C-6-7. Collar.

TB/ALL When a kapok collar is provided, it shall be filled with prime Java kapok, efficiently tufted, such collar filling to weigh at least 10 ounces, and every such kapok collar should be capable of sustaining for a continuous period of at least 48 hours an attached weight so arranged that whether the weight shall be submerged or not there shall be a direct downward gravitation pull of at least eleven times the weight of the completed collar or collar sample undergoing the test. Such kapok supporting collars and all other supporting collars shall be subjected to buoyancy test separate and independent to that of the test required for the body of the life preserver.

C-6-8. Approval.

(a) Every new type of life preserver submitted to the Board of Supervising Inspectors for approval shall be accompanied by specifications, blue prints, or drawings, in triplicate, and no such type of life preserver shall be approved without an actual satisfactory service test being witnessed by the Board of Supervising Inspectors.

(b) After September 2, 1921, no life preserver shall be passed at the factory inspection which does not fulfill the foregoing requirements, but life preservers now in use or already passed at factory inspection may be used on board vessels, provided they are constructed in accordance with the laws and regulations in force up to the date of September 2, 1921, and are in good and serviceable condition: *Provided*, That life preservers that have deteriorated to the extent of requiring new covers may be used upon vessels under the jurisdiction of this service when reconstructed in a manner to conform in every particular with the foregoing requirements.

C-6-9. Marking.

All life preservers shall be marked with the name and address of the manufacturer.

C-6-10. Inspection.

The supervising inspector of the district shall detail a local or assistant inspector to any place where approved life preservers are manufactured, whose duty it shall be to test and examine all life preservers manufactured at that place and satisfy himself that such life preservers are in accordance with the requirements of the Board of Supervising Inspectors. When found to be in accordance with the requirements, the inspector shall stamp them with a stamp bearing the initials of his name and the date of examination and certifying that they have been examined and passed. When life preservers are so stamped, it shall be prima facie evidence that they comply with the requirements of law and regulations as to their original construction, and they may thereafter be accepted by inspectors, in their discretion, as being in accordance with the rules and regulations of the Board of Supervising Inspectors.

SECTION C-7. KAPOK LIFE PRESERVERS

C-7-1. Approval.

(a) Every type of kapok life preserver used on any vessel subject to inspection by this service shall first be approved

by the Board of Supervising Inspectors. The life preservers receiving such approval shall conform in every respect to the sample submitted to the board.

(b) Kapok life preservers to receive the approval of the board shall be simple in design and of a character to support the wearer in an upright or slightly backward position. The life preserver shall be filled with not less than 1½ pounds of prime Java kapok and shall be suitably and efficiently tufted. It shall be tested for buoyancy as follows:

C-7-2. Test.

TB/ALL (a) First. At least 1 life preserver from each lot of 250 shall be selected indiscriminately by an inspector of this service for buoyancy test.

(b) Second. The life preserver shall be submerged in a tank of fresh water for a period of 48 hours.

(c) Third. The life preserver shall then support in fresh water a submerged weight of 20 pounds for a period of 24 hours. Whenever life preservers contain more than 1½ pounds of kapok in the body thereof the buoyancy test shall be made in the ratio of 20 pounds to each 1½ pounds of kapok.

C-7-3. Collar.

When a kapok collar is provided, it shall be filled with prime Java kapok, efficiently tufted, such collar filling to weigh at least 10 ounces, and every such kapok collar shall be capable of sustaining for a continuous period of at least 48 hours an attached weight so arranged that whether the weight shall be submerged or not there shall be a direct downward gravitation pull of at least 11 times the weight of the completed collar or collar sample undergoing the test. Such kapok supporting collars and all other supporting collars shall be subjected to a buoyancy test separate and independent to that of the test required for the body of the life preserver.

C-7-4. Marking.

All approved kapok life preservers shall be marked with the name and address of the manufacturer. Each life preserver shall be marked on the front compartment "Adults" if for the use of adults; and "Children," if for the use of children; and if of a character suitable for the use of both adults and children, it shall be so marked.

C-7-5. Inspection.

For each lot of 250 life preservers the manufacturer shall submit to the local inspectors of the district in which manufactured an affidavit setting forth the material with which the life preservers are filled and that the life preservers meet in every respect the requirements of the General Rules and Regulations of the Board of Supervising Inspectors. Every life preserver meeting the above requirements shall be inspected by an inspector of this Service and stamped with his initials and the date of inspection.

SECTION C-8. LIFE BUOYS

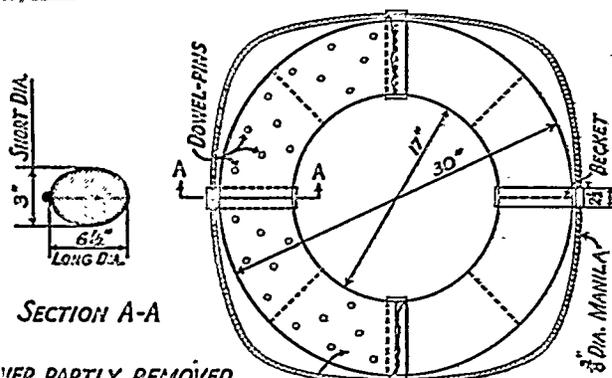
C-8-1. Buoyancy.

Life buoys shall be capable of sustaining in fresh water for a continuous period of 24 hours an attached weight so arranged that whether said weight be submerged or not there shall be a direct downward gravitation pull upon the buoy of not less than 32 pounds. The required buoyancy may be supplied by solid cork or any other equivalent material, but no life buoy shall be approved which is 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.

C-8-2. Standard Ring Life Buoys.

Ring buoys of the standard type shall conform to the following sketch and shall be of not less than 30 inches outside diameter and not less than 17 inches inside diameter, but any form of construction which will meet the general purposes of this specification may be used after having been approved by the Board of Supervising Inspectors.

TB/ALL



STANDARD RING LIFE BUOY

C-8-3. Buoyant Material.

The buoyant material shall be of sheet cork weighing not more than 12 pounds per cubic foot. The cork shall be in two layers or thicknesses. The cork sheets shall be flattened and smoothed so that the back or outside hard crust is removed sufficiently to give a smooth surface for gluing. One layer shall be built of segments not to exceed four in number. The other layer may be built of segments not to exceed eight in number. The ends of all segments shall be fitted neatly and glued securely one to the other. The two layers shall be neatly joined and properly and securely dowel-pinned and glued firmly together with joints staggered or broken. When completed, the outside of the life buoy shall be of good, sound corkwood finished to a smooth surface.

C-8-4. Glue.

The glue used shall be insoluble in water, and the finished life buoy shall stand steaming at a pressure of two pounds for a period of 30 minutes without disintegration or other positive indications of the glue losing its adhesive properties.

C-8-5. Strength.

The body of the life buoy before covering shall withstand a downward gravity pull of 200 pounds, the weight to be attached to the life buoy body by a sling covering a surface of 2 linear inches without breaking, without rupture of the joints, or without showing a maximum elongation of internal diameter in excess of 1½ inches while the weight is attached and after being under this test for a period of 30 minutes.

C-8-6. Covering.

TB/ALL The life buoy shall be covered with cloth of sufficient weight and strength to protect fully the body of the life buoy, such material to be a strength at least equal to unbleached single-filling cotton duck having a weight of 10 ounces per square yard.

C-8-7. Sewing.

The cover shall be constructed and placed on the body of the life buoy in a substantial manner. All seams and other machine sewing on the life buoy shall be with a short lock stitch not less than eight stitches to the inch. The inside seam shall be sewed with a rope stitch not less than three stitches to the inch. All thread used in the construction of the life buoy shall be No. 16, three-cord linen.

C-8-8. Becketts.

Four becketts 2½ inches wide, made from the same material as the covering of the buoy, shall be securely attached to the life buoy and spaced an equal distance from each other.

C-8-9. Grab Line.

A grab line shall pass through the becketts which shall be sewed tightly together to prevent slipping. The line shall be manilla, ¾-inch in diameter, three-ply, medium quality, having the ends securely and neatly spliced, the line to be festooned in bights around the outer edge of the life buoy.

C-8-10. Factory Inspection of Life Buoys.

The supervising inspector of the district shall detail a local or assistant inspector to any place where ring life buoys are manufactured within his district, whose duty it shall be to test and examine all such buoys manufactured at that place. When a ring life buoy is found to be in accordance with the requirements of the rules of the Board of Supervising Inspectors the inspectors shall stamp the buoyant material, and, after completion of the buoy, shall stamp the cover with the word "passed", his initials, the inspection port, and the date of approval. The buoyant material and the cover shall also be stamped by the manufacturer with the name or trade mark of the manufacturer.

SECTION C-9. SELF-IGNITING WATER LIGHTS**C-9-1. Cylinder.**

The self-igniting water lights for ring buoys and life rafts shall consist of a cylinder (with bumped heads or ends) made of good sheet copper of not less than 0.022 inch thick, and shall be so designed as to be nonexplosive, and shall be free from any defects which may affect the serviceability or operation of the light. The cylinder shall be sufficiently weighted in the bottom to recover and maintain an upright position in the water, and all circumferential and horizontal seams of the cylinder shall be hook jointed and soldered, and the top circumferential seam shall be flush, so as to prevent the lodgment of water.

C-9-2. Plug.

The cylinder shall be provided with a plug or other device of such character that when removed from the cylinder sufficient water will be admitted to insure the prompt and efficient action of the light, regardless of whether the cylinder when first striking the water becomes completely submerged.

C-9-3. Lanyard.

The removal of the plug or device shall be effected by the operation of a lanyard attached to the buoy and to the plug or device on the cylinder, and shall be so arranged and constructed that the weight of the buoy when thrown overboard will automatically disengage the plug or device, and will insure that the light will self-ignite within one minute after reaching the surface of the water: *Provided*, That on oil-tank steamers the self-igniting water light need not be attached to the ring buoy, but may be placed alongside the buoy which it is intended to serve, so that it can be easily and quickly attached to the buoy by means of its lanyard when needed in case of emergency. On oil-tank steamers, when self-igniting water lights are not attached to the ring buoys, a snap hook shall be provided for this purpose.

C-9-4. Chemical.

The cylinder shall contain calcium carbide (taken from fresh stock entirely free from the white powdery substance resulting from exposure to the air) and calcium phosphide sufficient to create a brilliant flame of at least 150 candlepower, which shall be maintained and burn for a continuous period of not less than 45 minutes without emitting obnoxious fumes. If at any time during this period the flame is extinguished, due to the total submersion of the light, the light shall self-ignite upon coming to the surface.

C-9-5. Marking.

The cylinder shall be plainly marked with the word "Top" at its top end and permanently indented or embossed with the name and address of the manufacturer, the year of manufacture (the use of labels of any description for this purpose is strictly forbidden), and with the statement that the device meets in every way the requirements of the Board of Supervising Inspectors.

C-9-6. Approval.

On and after July 1, 1924, no type or make of water light will be approved which has not been tested by the Bureau of Standards, Department of Commerce, and found to conform in all respects to these requirements.

C-9-7. Life Raft Water Lights.

The self-igniting water lights required for life rafts shall meet the above requirements, except that the plug or device

may be removed by manual action instead of by automatic action of the buoy lanyard above referred to.

SECTION C-10. LINE THROWING GUN**C-10-1. Muzzle-Loading Guns.**

The muzzle-loading type of gun shall be of steel or of bronze not less than 20 inches long, 2½ inches smooth bore, and weigh with its carriage not more than 200 pounds. It shall have a primer hole fitted in the upper wall. On guns manufactured after June 30, 1920, the primer hole shall be protected by a beading, coaming, or projection extending above the wall of the gun not less than one-half inch. The gun shall be mounted in a carriage on trunnions or other suitable mechanism so as to permit of elevation up to 35°. The carriage may be of wood, reinforced with metal or recesses properly spaced to receive the gun trunnions or other supporting mechanisms. These recesses or seats shall be fitted with detachable trunnion cap squares or a similar device to permit easy mounting and dismounting of the gun. The carriage shall be so constructed that the gun may be secured in elevation. Rings, eyebolts, or other efficient device shall be fitted to the carriage for securing it in position for firing.

C-10-2. Breech-Loading Guns.

(a) The breech-loading type of gun shall be of the materials specified for the muzzle-loading type. It shall also approximate the dimensions and weight required for the muzzle-loading gun and shall be smooth bored. It shall be equipped with suitable breech closing and locking devices, capable of withstanding pressures of 23,500 pounds per square inch. A breech-loading gun must incorporate in its design a suitable gas-checking device to prevent the escape of gas to the rear.

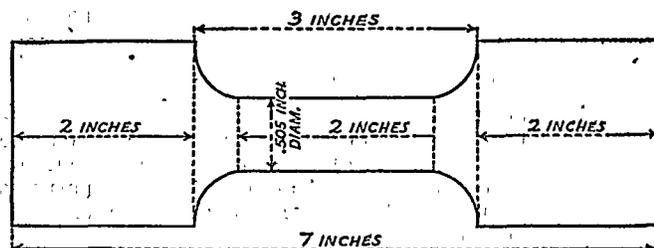
(b) The mount shall be of the slide and carriage type and shall be provided with a suitable recoil-checking mechanism. The slide shall include a means of carrying or mounting the gun so as to permit recoil and the recoil-checking mechanism. It shall be fitted with trunnions which shall rest in the trunnion seats of the carriage so as to permit the gun and slide to be elevated up to 35°. The carriage shall be a U- or a Y-shaped casting having at its base a pivot which will fit in a rail socket or socket stand, thus permitting motion of the gun, slide, and carriage in train. It shall afford suitable trunnion seats fitted with cap squares and bolts. There shall be incorporated in this type of mount efficient means for securing the gun in elevation and train.

C-10-3. Material.

(a) Material used in the construction of bronze guns shall have a tensile strength of not less than 65,000 pounds per square inch with an elongation of not less than 20 per cent in 2 inches and a reduction of area not less than 25 per cent.

(b) Material used in the construction of steel guns shall have a tensile strength of not less than 65,000 pounds per square inch with an elongation of not less than 20 per cent in a length of two inches.

(c) The manufacturer shall furnish the supervising inspector in whose district the gun is tested a sample of the material used in its construction, accompanied by an affidavit that the specimen submitted actually and correctly represents the material used. The sample shall be distinctly marked with the number appearing on the gun it represents, and shall conform to the dimensions as shown in the diagram below:



C-10-4. *Factory Tests.*

TB/ALL (a) Tests and Approval: A mounted line-carrying gun shall be tested in the presence of the supervising inspector of the district by firing three rounds from the gun. At least one round shall carry the regular service projectile with one of the service lines attached for a distance of at least 1,400 feet without breaking or fouling the line, under conditions of a reasonably still atmosphere. The other rounds shall be fired with not less than the same weight powder charge used in the above test, and one shall be fired with not less than an 8-ounce charge. The projectiles used for these shots shall be of the same weight as the service projectile, but no line need be attached. Test shots shall be fired from the gun when mounted on its own carriage, lashed as in shipboard use. After the test has been satisfactorily completed, the gun and carriage shall show no signs of fracture or damage.

(b) Marking of Gun and Equipment and Filing Report: The mounted type line-carrying gun and its equipment, i. e., carriage, line box, or reel and projectiles, shall all bear the same number and be initialed by the inspector who observes the test. He shall file a report of the test, together with the number of the gun, the date, and the result, in the office of the supervising inspector in whose district the test is made, and the supervising inspector shall furnish the manufacturer a copy of the report.

J. B. WEAVER, *Director.*

[F. R. Doc. 751—Filed, May 26, 1936; 3:18 p. m.]

SECURITIES AND EXCHANGE COMMISSION.

United States of America—Before the Securities and Exchange Commission

At a regular session of the Securities and Exchange Commission held at its office in the City of Washington, D. C., on the 28th day of May A. D. 1936.

Commissioners: James M. Landis, Chairman; George C. Mathews, Robert E. Healy, J. D. Ross, William O. Douglas.

[File 32-20]

IN THE MATTER OF THE APPLICATION OF WISCONSIN POWER AND LIGHT COMPANY

ORDER AUTHORIZING HEARING AND DESIGNATING OFFICER TO CONDUCT PROCEEDINGS

An application having been duly filed with this Commission, by Wisconsin Power and Light Company, pursuant to Section 6 (b) of the Public Utility Holding Company Act of 1935, for an exemption from the provisions of Section 6 (a) of said Act of the issue and sale of \$32,000,000 principal amount of applicant's First Mortgage Bonds, Series A, 4½%, due June 1, 1966, and \$3,700,000 principal amount of applicant's 4% Serial Debentures, due serially June 1, 1937–June 1, 1946, it being stated in said application that the issue and sale of said securities will be solely for the purpose of financing the business of the applicant, and that said securities will not be issued unless applicant first receives an order from the Public Service Commission of Wisconsin authorizing the issue and sale of said securities;

It is ordered, that the matter be set down for hearing on June 13, 1936, at ten o'clock in the forenoon of that day, at Room 1103, Securities and Exchange Building, 1778 Pennsylvania Avenue NW., Washington, D. C.: and

It is further ordered, that Charles S. Lobingier, an officer of the Commission, be and he hereby is designated to preside at such hearing, and authorized to adjourn said hearing from time to time, to administer oaths and affirmations, subpoena witnesses, compel their attendance, take evidence, and require the production of any books, papers, correspondence, memoranda or other records deemed relevant or material to the inquiry, and to perform all other duties in connection therewith authorized by law; and

It is further ordered, that any interested state, state commission, state securities commission, municipality, or other

political subdivision of a state, or any representative of interested consumers or security holders, or any other person desiring to be admitted as a party in this proceeding or to offer evidence in this matter, shall give notice of such intention to the Commission, such notice to be received by the Commission not later than June 8, 1936.

Upon the completion of the taking of testimony in this matter, the officer conducting said hearing is directed to close the hearing and make his report to the Commission.

By the Commission

[SEAL]

FRANCIS P. BRASSOR, *Secretary.*

[F. R. Doc. 762—Filed, May 23, 1936; 12:10 p. m.]

United States of America—Before the Securities and Exchange Commission

At a regular session of the Securities and Exchange Commission held at its office in the City of Washington, D. C., on the 23rd day of May A. D. 1936.

Commissioners: James M. Landis, Chairman; George C. Mathews, Robert E. Healy, J. D. Ross, William O. Douglas.

[File No. 36-15]

IN THE MATTER OF NEW ENGLAND POWER ASSOCIATION

ORDER CORRECTING ORDER APPROVING ACQUISITION OF ASSETS

To correct an error in the third paragraph of the Order Approving Acquisition of Assets issued by this Commission on May 16, 1935, in the above matter the name appearing in the second and third lines of said paragraph is changed to "New England Power Securities Company" instead of "New England Power Association" so that hereafter said paragraph shall read as follows:

The acquisition will be effected through the termination and liquidation of New England Power Securities Company, a trust, of which the applicant is the sole beneficiary and shareholder. Upon such termination and liquidation, the applicant will receive all of its assets.

By direction of the Commission.

[SEAL]

FRANCIS P. BRASSOR, *Secretary.*

[F. R. Doc. 763—Filed, May 23, 1936; 12:10 p. m.]

Saturday, May 30, 1936

No. 56

TREASURY DEPARTMENT.

Office of the Secretary; Bureau of the Mint.

TABLE OF CHARGES AT THE MINTS AND ASSAY OFFICES OF THE UNITED STATES

TO TAKE EFFECT JUNE 1, 1936

1. Melting Charge.

On each deposit of bullion a melting charge of \$1 shall be imposed for the first 1,000 ounces or fraction thereof, and 10 cents additional for each 100 ounces or fraction thereof in excess of 1,000 ounces, computed on the after-melting weight: *Provided*, That no melting charge shall be imposed on deposits consisting of uncurrent United States coin or un mutilated stamped United States mint bars; or on silver bullion free from gold, of the fineness of 996 thousandths or over when received in conformity with official regulations for monetary purposes and a satisfactory assay can be obtained without previous melting.

When the melting loss exceeds 25 percent, an additional charge of \$1 for each deposit shall be imposed when the deposit weighs 150 ounces or less; on deposits weighing over 150 ounces the charge shall be \$1 for the first 150 ounces and 25 cents for each 100 ounces or fraction in excess of 150 ounces.